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# THE POLITICAL ECONOMY OF JAPANESE MILITARY EXPENDITURE

by

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Previous studies on Japanese military expenditure lacked a systematic view on this multi-faceted subject, and ended up with single-dimensional arguments such as free-riding, the so-called "one-percent rule," bureaucratic incrementalism, or budgetary balance. This study is an effort to reach a more comprehensive explanation of the Japanese defense spending of the last four decades. For that purpose, statistical analysis, game theoretic analysis, and a case study are each undertaken, following a rational choice approach.

Japanese resource allocation for military expenditure was influenced by domestic economic and political factors. Prominent among economic factors was the ratio of bond issue to GNP. The strength of opposition parties was the key political factor. Even in mid-1980s, when Japan made visible increase in military expenditure, the Japanese burden sharing effort never became commensurate with its economic strength. Despite the evidence suggesting that both U.S. and Japanese military expenditures benefited the Japanese economy, the one percent rule remained in force. As for the U.S., the limited effect of diplomatic pressure for burden sharing was partly due to the consensus in the U.S. foreign policy orientation which weakened U.S. bargaining power. While strictly military burden sharing was the main point of contention between Japan and the U.S. in the 1980s, the security relationship has changed considerably since the breakup of the Soviet Union. Recent changes in the relationship between the two countries and the latent problems in the U.S.-Japan security treaty are revealed in the case study of the FSX co-development project. The power sharing accompanying burden sharing is critical in deciding the future profile of the Japanese power.

The theoretical implication of this study extend beyond Japanese military

expenditure. Instead of emphasizing the peculiarities in the Japanese social and political structure, the rational choice approach was fruitful in explaining the Japanese situation in a framework applicable to other countries. With regard to the principles of foreign policy substitution and supplementation, it is shown that Japanese foreign aid was substituted for its armaments in pursuing burden sharing and in pursuing other policy goals. From the analysis of the relationship between the two policy tools, it is further found that supplementation is an important part of the concept of foreign policy substitution.

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# CHAPTER 1

# INTRODUCTION

During the 1980s, Japan was the second largest economy and the largest creditor country in the world. In contrast, its share of military expenditure as a percentage of national income, was lower than that of all NATO members. "Economic giant but military dwarf" and "free-rider" were the name tags attached to Japanese defense policy. Amidst the Soviet arms buildup, Japan was accused of avoiding its due military contribution to common defense because it failed to commit defense resources commensurate with its economic benefit from the U.S.-led world order. In the same period, the U.S. grew reluctant to continue carrying the burden of the expense for providing security to the international community. The U.S. perception of its own relative decline due to the loss of its economic hegemony (Kennedy 1987) led to still more pressure on Japan for burden sharing. Nonetheless, despite increased pressure from the international community, especially from the U.S., the net effect of the pressure on Japanese burden sharing was only marginal.

After the 1980s, the disappearance of the threat from the communist bloc raised more serious challenges to Japanese defense policy. Japan was to be more than just one of the U.S. allies. It was expected to make substantial economic and military contributions toward the establishment of a post-Cold War world order. The Japanese role in the Gulf War illustrated that its defense policy alone could not meet the demand of the international community. Increased pressure from the international community has become more open-ended in the post-Cold War era. Japan is now expected to play a key role in military and non-military areas, commensurate with its financial and technological capability. What kind of power Japan would be,

however, was still directly related with the U.S. policy.

This study is on the past and future of the Japanese military expenditure. What were the determinants of Japanese military expenditure in the post-war period? Which factors were internal and which were external to Japanese defense budget allocation? What role did the U.S. play? Why was the U.S. pressure limited in its effect on Japanese military expenditure? What was the effect of Japanese military expenditure on its economy? What are the recent changes in the determinants, and what would be the impact of the changes on Japanese military expenditure? Finally, looking ahead, what will be the future of military expenditure, and what kind of power will Japan be? In answering these questions, this study follows these three logical bases, the rational choice model, the game theoretic perspective, and foreign policy substitution.

## 1.1 Rational Choice Model

To find out which factors consistently affected Japanese military expenditure, I assume that there is a single decision maker, who is rational in pursuing its utility. Rather than focusing on the peculiarities in decision making process, which may be common to every country, I looked into the domestic and foreign situation in which the single decision maker was engaged. This rational choice approach could shed light on the aspects of Japanese military expenditure which the domestic political analyses could not explain. By connecting the domestic situation and international political context, this approach enhanced understanding of the past and future of Japanese military expenditure.

This assumption of a rational single decision maker does not imply that analyses focusing on Japanese domestic political structure are wrong. In fact, such studies provide information for the hypotheses on domestic factors which affect decision making on military expenditure. The common line of argument in the domestic

political analyses is that the lack of authority in Japan's decision making process, which is deeply rooted in Japanese social, political, cultural and institutional structure, militates against any policy initiatives and makes Japanese foreign policy take a reactive posture. Each argument has a slightly different emphasis but generally these studies accept that major decision making power is on the triumvirate of LDP politicians, bureaucracy, and big business.

Calder (1988) argues that supporters of military expenditure in the Liberal Democratic Party (LDP) could not raise their voice in budget decision making due to their allegiance to other interest groups, the relatively strong power of Ministry of Finance (MOF) in the process, and the weak status of Self-Defense Force (SDF). Without any political backing compared with other budget items, "defense was left an orphan (p. 423)" and it was a residual in Japanese budget decision making. Keddell (1993) illustrates that factional politics and protests of opposition parties made incrementalism dominate in decision making of military expenditure. Incrementalism was used as a tactical option to avoid impending conflict due to competing international and domestic pressures. Inoguchi (1987) argues that vested interest cliques are major obstacles in any policy initiatives in response to internal and external changes. The relationship between policy makers and interest groups, and their impact on Japanese foreign policy was indicated by Stockwin (1988), who argues that the system is more responsive to domestic demand which is based upon long-term investment than to foreign inputs which have a relatively short-term context. Response to foreign inputs and pressures are kept to a minimum, and this is the source of the immobilism in Japanese foreign policy. In a more extreme perspective, van Wolferen (1990) does not accept the applicability of the concept of state in the Japanese case. Japan lacks central leadership, and power is shared not only by the bureaucrat-LDP-business triad but also by several powerful semi-autonomous bodies. "Nobody is boss, but everybody, in some way or other, has leverage over

somebody else, which helps ensure an orderly state of affairs (p. 41)." This is why Japan does not react appropriately to various foreign demand. He prefers "the system" to "the state."

These analyses lead to the conclusion that Japanese foreign policy in general, and defense policy in particular, is "reactive," "passive," "minimal," or "irresponsible." Consequently, they end up with the policy recommendation that to overcome the domestic obstacles and to make Japan adopt a responsible policy orientation, foreign pressure, especially U.S. pressure, or the advent of strong Japanese leadership is necessary. While arguing for increased pressure, these studies acknowledge the limits of such a policy. Four decades of U.S. pressure, has proven to be limited in effect, as their characterization of Japanese foreign policy and defense spending illustrates. Many of these studies identified one additional possibility for U.S. negotiators. If Japan could elect a strong leader, they argued, U.S. negotiators would be able to engage in fruitful policy discussions, and, where necessary, to apply pressure. Nakasone was just such a leader, and results indicate some limited successes for U.S. negotiators. Overall, however, despite the presence of U.S. pressure and a strong Japanese leader, the Japanese decision makers resisted U.S. policy direction. Having acknowledged the limited effect of pressure, they have to go back to the problems in Japanese domestic structure to explain why the U.S. pressure was limited in effect. I will argue that the problem with these studies rested in their focusing only on Japan's unique political structure.

## 1.2 Game Theoretic Perspective

These problems in emphasizing domestic decision making structure make us to look into the interaction point between the U.S. and Japan. Evaluation of the policy outcomes from the interaction and negotiation between the two countries may provide an alternative explanation to the Japanese foreign policy which has

been labeled "reactive," "passive," and "minimal."

Campbell (1993) argues that repeated friction between the two countries and criticism of Japan are a part of ritualized actions of U.S-Japanese relations "games." In the sense of a game, foreign policy interaction between the two countries can be understood as a repetition of accusation, negotiation and resolution. Campbell also argues that the relationship between the two countries at the government level is remarkably strong and stable, and that each game has ended up with a Japanese concession that is minimal to avoid crises in the long-term relationship. Levin (1993) urges us to view the post-war Japanese foreign policy and the relationship with the U.S. from the perspective of Japan's pursuing strategic goals. Japan consistently pursued its national objectives of economic recovery and prosperity while keeping its military expenditure at a minimal level, given the U.S. security guarantee. From this point of view, minimal concessions by Japan in burden sharing were an active policy to achieve the strategic goals, not a passive policy. In a similar vein, Pharr (1993) says that,

> Japan nevertheless has arrived at a destination today that is consistent with certain key aims dating back to the 1950s: regaining autonomy in the world order, achieving economic prosperity, minimizing risks, and pursuing its goals by nonmilitary means. Equally basic had been Japan's principle of containing the costs while maximizing the benefits of its foreign policy, independent of the issue of means (p. 236).

She called this Japanese foreign policy in burden sharing "defensive-state strategy" using the analogy of defensive driving.

In this study, I will look into the U.S.-Japan relationship in burden sharing from the game theoretic perspective. This approach will deal with the fact that repetitive and tenacious U.S. pressure for burden sharing did not have much effect. On this, Blaker (1977) described the Japanese tactical style in international negotiation as a sequence of probe, push and panic. Because of the divided interests in Japanese domestic politics, the concession line is set to a minimum, and then, the concession

is postponed as long as possible, and finally made grudgingly with face-saving rationalization. According to this description, it would be impossible to reach an optimal choices for both players. This irrational aspect of Japanese negotiation style can be understood as a rational strategy, if seen from the objective position of the negotiators of both the U.S. and Japan. Tsebelis (1990) argued that behaviors which appear irrational and suboptimal would turn into rational behaviors if other games in which each player is involved contemporaneously are included in each player's calculation. Putnam (1988) provides more specific arguments applicable to negotiations at the government-to-government level. A domestic game or another game in which each player is involved on another side changes bargaining options available to players and their bargaining power, because the outcome of the negotiation must be ratified according to each country's institutional arrangement. Consequently, we need to pay attention to the other games each government is involved in to understand the burden sharing negotiations between the two governments.

### 1.3 Foreign Policy Substitution

Not only for analysis of foreign policy, but also to build bridges between islands of theories in International Relations, Most and Starr (1989) argue the possibility of foreign policy substitution:

> If foreign policies can indeed be alternative routes that foreign policy decision makers adopt in order to attain their goals, then it would seem plausible that decision makers who are confronted with some problem or subjected to some stimulus could, **under at least certain conditions, substitute one such means for another** (Most and Starr 1989, p. 102).

In pursuing its dual strategic goals of economic prosperity and security, the security alliance with the U.S. was a critical component of the post-war Japanese foreign policy. The alliance relationship provided a security guarantee while allowing Japan to concentrate its national energies in its effort for economic recovery and prosperity. The security treaty with the U.S. was a perfect substitution for its own armament

in the post-war Japanese situation.

The concept of foreign policy substitution is valuable also for the Japanese foreign policy of the future. Japan has come to have more varied strategic goals in its foreign policy, which viewed together are commensurate with its status as an economic superpower. These goals include increased autonomy from the U.S., enhanced prestige in the international community, development of its own sphere of influence, and development of its own military capability. The international community should understand Japanese military and non-military policies and their implications for future foreign relations. By employing substitution, Japan will realize different kinds of advantages in international spheres. What kind of power will Japan be? This is a question about the balance among components of Japanese power. Possible lateral pressure (Choucri, North, and Yamakage 1992) or rank disequilibrium (Galtung 1964) can be avoided by foreign policy substitution.

Based upon these three theoretical bases, qualitative and quantitative probes on Japanese resource allocation to military expenditure will be performed. Determinants of the resource allocation and its effect on the economy will be dealt with by quantitative method, and the U.S.-Japan relationship will be studied by qualitative method. Taken together, these will explain Japanese policy substitutions in the framework of the U.S.-Japan relationship. The dependent variable of primary concern is the resource allocation to defense in the general government spending, as opposed to the absolute level of military expenditure or the changes in military expenditure.

## 1.4 Design of this study

First, we need to know what factors drive the changes in Japanese resource allocation to military expenditure during the post-war period. I will assume that

a single decision maker who rationally estimates his situation to maximize his utility allocates available resources to military expenditure and non-military expenditure. From a review of the literature of arms race and military expenditure decision making, factors (domestic and foreign) applicable to the Japanese case have been selected and their impacts on Japanese military expenditure are hypothesized. The single decision maker's consideration of these factors is incorporated into its resource allocation, according to the Cobb-Douglas production function. Equations for statistical tests are built from the solutions to the decision maker's utility maximization. Chapter 2 is spent specifying the framework of Japanese decision making for military expenditure.

The framework of Chapter 2 can be interpreted as a micro-economic approach to Japanese military expenditure: Chapter 3 can be called a macro-economic approach. In this chapter, I intend to test the impact of Japanese military expenditure and U.S. military expenditure on Japanese national income. For this purpose, I developed a four sector model based upon supply-side models initiated by Feder (1982). Japanese military expenditure is assumed to affect it national income directly by its productivity differential with the civilian sector and indirectly by its impact on the economic performance of the civilian sector. U.S. military expenditure is assumed to make its influence on the Japanese economy only indirectly by its impact on the level of Japanese military expenditure and its impact on the economic performance of the civilian sector.

In Chapter 4, Japanese free-riding before the 1980s and burden sharing effort of the 1980s are explained by a game theoretic perspective, focusing on the negotiation between the U.S. and Japan. The "Ratification game" of Putnam (1988) lead us to look into second-level games for both groups of negotiators. Consideration of the game at this second level helps us explain the game at the first level. Changing alignments among different foreign policy schools in both countries are indicated as

a factor which decides the result of the negotiation game at the government-to-government level. This perspective will help to explain the ineffectiveness of the U.S. pressure before 1980s and the improvement in burden sharing during the 1980s.

In Chapter 5, the rational choice approach to Japanese military expenditure and the game theoretic explanation of burden sharing are tested in a case study of the FSX project. Motivations and calculations behind the process of conception of the project among Japanese officials, initial U.S. response to the project, negotiations between the two governments, discussions and oppositions to the project in both countries, and the conclusion of the final agreement are specified. While looking into this case study, the utility of the rational choice approach, Japanese management of military expenditure for industrial goals, and the changing alignments of the foreign policy schools in both countries will be considered. This case will also be assessed according to two competing theories of International Politics: Neo-Realism and Neo-Liberal Institutionalism.

In Chapter 6, statistical analyses of the models developed in Chapter 2 and Chapter 3 are performed. Operationalization of the hypotheses and measurement of the variables are specified. While the macro-economic model is tested for the period of 1947-1994, the micro-economic model is tested for the period of 1948-1988 because of data availability. After testing against violations of the assumptions of OLS estimation, the estimation results are reported.

Chapter 7 starts from a forecast based upon the statistical analyses of the micro-economic model. This forecast leads us to consider the policy implications on the comprehensive national security and the question of foreign policy substitutability. The evolution of the Japanese foreign aid policy is discussed. Recently, Japan began to use foreign aid as an active foreign policy tool, and has been able to achieve various foreign policy goals which were impossible under the previous foreign policy. Japan also substituted, even partially, foreign aid for its military contribution in

burden sharing. Rational choice analysis leads to the conclusion that in the future Japanese contributions as a non-military power in foreign aid and U.S. peace keeping activities will be directly related to its relationship with the U.S. in the sense that power sharing should be followed with burden sharing.

In the final chapter, findings of the previous chapters are briefly summarized and they will be extended to policy recommendations for the U.S. and Japan.

# CHAPTER 2

# MICRO-ECONOMIC APPROACH

## 2.1 Review of the Determinants of Military Expenditure

In reviewing the arms race literature,[1] I will focus on the variables underpinning theoretical and empirical studies that have influenced the direction of the study on military expenditures. This will be followed by a theoretical and empirical introduction to the alliance effect, which will relate to my own model building.

**2.1.1 Arms Race Literature** The study of military expenditure starts from the action-reaction model which appeared in *Arms and Insecurity* (1960), written by Lewis Fry Richardson. In that book, Richardson operationalized the terms of armament and threat, the most important factors in his heuristic model of arms race, with the data of military expenditure. Ever since then, the arms race models as applied to the Cold War relationship between the U.S. and the Soviet Union have revolved around military expenditures in empirical research. Findings during the 1970s motivated probes into other factors which were not included in Richardson's model.

The action-reaction process was not confirmed in the empirical studies of the many variants of Richardson's model. Hollist (1977) applied eight different models of competitive arms procurement processes to four pairs of nation-states which were assumed to be in arms races. None of the pairs were interacting with each other to motivate arms procurement. (Only the Egypt/Israel pair mutually stimulated each other in one of the eight models). This lack of empirical evidence of

[1]Thorough reviews on this literature are available in Busch (1970), Luterbacher (1975), Rattinger (1976), Moll and Luebbert (1980), Russett (1983), Anderton (1989), and McGinnis (1991).

an action-reaction process in military expenditures was a consistent conclusion from studies with more sophisticated methods and refined assumptions. in various dyads of countries and groups (Rattinger 1976; Cusack and Ward 1981: Majeski and Jones 1981; Majeski 1984; Majeski 1985).[2] Zinnes (1980) characterized the unexpected finding as one of the three puzzles in International Relations.

Efforts and evolution in this area since the 1970s can be sorted into three categories: conceptual refinement for the variables of threat and armament. organizational process perspective,[3] and domestic political-economic perspective. As long as military expenditures are concerned. the last two categories emphasize internal factors while the threat variable from the arms race thesis emphasizes external factors. Alliance is another factor to be considered as an external variable in defense policy. It will be introduced at the end of this review section because it is not from the same theoretical tradition of the arms race.

Taagepera (1980) attributed the Zinnes' puzzle to the conceptual problem. He argued that the variable of armament in the Richardson's arms race model should be measured by the arms stockpile as well as military expenditure rather than military expenditure alone. Ward (1984) accepted this idea and developed an index for the arms stockpile of conventional and strategic weapons. which included new investment in arms as well as arms depreciation. The action and reaction of the U.S. and the Soviet Union did not occur in response to each other's military expenditure alone. A change in each side's defense spending was in reaction to the other's arms stockpile. The comparison of the trajectories of each party's arms stockpiles presented clear evidence of an arms race.

[2]Stoll (1982) illustrates the vulnerability of the Richardson arms race equations and argues that if a real arms race process does not exist. the estimates are usually "misleading or ambiguous." Anderton (1989) reviews only the researches on the Richardsonian arms race and indicates the germane problems.

[3]Both the organizational process paradigm and the bureaucratic political paradigm, which are separated in Allison (1971). are put together under this category.

Another perspective on military expenditure arose from analyses of the behavior of U.S. government bureaucracy. Inefficiencies and poor performances of the U.S. government as a result of the expansion and growth of the government since the Roosevelt era began to attract scholarly attention (Steinbrunner 1974). Empirical study on the organizational process perspective was initiated by Davis, Dempster, and Wildavsky (1966). Their formal model of "incrementalism" illustrates how each year's budget for non-military government agencies is a function of the previous year's budget, and how each agency's budget estimation is a function of the previous agency in the budget decision process. The strong statistical evidence stimulated application of this model to the study of military expenditure. Crecine and Fischer (1973) explained why the Planning Programming Budgeting System (PPBS), an effort to rationalize the resource allocation of defense spending under the Secretary of the State McNamara, did not work out as intended. The organizational process, besides other domestic factors such as bureaucratic competition and fiscal constraint, militated against any changes from the Eisenhower era. Compared with the arms race model which deals with the change of military expenditure, the studies in line with this organizational process perspective focused only on the level of military expenditure and were not concerned with the interaction between the two rival countries. Another difference is that while the variable of the previous year's defense spending is interpreted as an economic burden in the arms race, the same variable is interpreted as a starting point for next year's budget estimation.

Ostrom (1977) compared the arms race model with the organizational process model in their statistical goodness of fit for the explanation of the U.S. defense spending. He found no difference in the empirical accuracy. In his following research (Ostrom 1978), he combined the two models along with bureaucratic and political factors, which were assumed to be the major concern of the actors in the budget process, into the "Reactive Linkage Model." Each service in the Department of

Defense responds to external stimuli, such as the Soviet Union's military expenditure and war activities, in forming budget requests. But other actors such as the President and Congress simply assume that the external factors are considered by the services, and they consider only the size of the request from the previous actors and their own political interests. In a "Cybernetic Model" by Marra (1985) each of the actors in the process reacts to the threat variables in the form of a hierarchical search for inputs (see Steinbrunner 1974). In this model, however, the behavior of the organizational process is so strict and constrained as to not allow the calculation of each actor's own interest. This problem was alleviated by combining the Reactive Linkage Model and the Cybernetic Model (Ostrom and Marra 1986). In this model, the spending gap between the U.S. and the Soviet Union is reacted to by all the actors in the budget decision-making and each actor considers its own interests.

Majeski (1989) challenged Ostrom and Marra (1986) by pointing out the unrealistic assumptions about the process, in particular, the idea that all the appropriate variables affect the outcome independently and at the same time. His rule-based model incorporates the standard rules for estimation of information in order. These improvements on the incrementalism explain the changes in military expenditure with a very high degree of goodness of fit. In this approach, however, the military and political determinants of defense spending are hidden under a deep layer of organizational process. This lacks the insights on determinants of military expenditure. Too much weight is put on the organizational process relative to the other factors.

Other domestic political-economic factors were found to be important for the variation in military expenditure. Even though these are not based upon theories which claim universal validity, the empirical findings support the context-specific applicability and the importance of these factors. Among them, I will focus on the arguments for electoral cycle, corporate profit, government deficit, and public

opinion.[4]

In advanced capitalist societies , military expenditure is one of a few tools for the management of aggregate demand which is known to have a direct impact on voting behavior. Incumbent decision-makers can manipulate military spending for their benefit in elections. Nincic and Cusack (1979) and Cusack and Ward (1981) found that the changes in military expenditure are accelerated toward the end of the four year term of the U.S. presidency (during the two years before a presidential election) and decelerated during the two years after the election. Whether military expenditure's effect on macroeconomy of a society is true or not,[5] Zuk and Woodbury (1986) did not find any systematic relationship between the two in the United States. On the other hand, based upon the findings in Israeli case. Mintz and Ward (1989) argue:

> Even in highly security-conscious societies such as Israel, the government uses the defense budget at the margins to respond to political and economic pressures .... Accordingly, in societies with lower levels of conflict involvement than Israel, the defense budget is likely to be used more widely for nonmilitary purposes, especially if these societies also possess a significant local armament industry (p. 531).

The pressure from interest groups such as the military complex and monopoly corporates on military expenditure is well known in the politics of the United States (Russett 1970; Nincic 1982). Baran and Sweezy's argument for macroeconomic management by military expenditure for aggregate demand and unemployment is not empirically supported (see Szymanski 1973; Smith 1977). However, Griffin, Devine, and Wallace (1982) showed that the growth rate of monopoly sector profit is a significant factor in the variation of defense spending. Mintz and Hicks (1984) elaborated on this conclusion by applying the same model to disaggregated data of the U.S.

[4]The other variables found in literature are presidential popularity (Majeski 1989), the party in presidency (Crecine and Fischer 1973), and economic planing cycle (Cusack and Ward 1981; Ward 1984).

[5]This hypothesis is tested in the whole literature of guns versus butter trade-off literature (see Chan 1995). The empirical evidence for macroeconomic management by military expenditure along the electoral cycle is not in agreement.

military expenditures. The monopoly sector profit has an influence only on the expenditures for procurement and personnel but not for operation & maintenance (O&M), and research & development (R&D). This argument is also confirmed in the Israeli case in which the defense industry composes a large share of the whole industrial activity (Mintz and Ward 1989).

Another economic factor is fiscal constraint. Theoretically, decision-makers in charge of the allocation of resources of the government sector are supposed to consider the availability and the limits of resources. The constraint in the budgetary process is well known by the Great Equation (Defense Expenditure + Nondefense Expenditure = Revenues + Deficit) (Fischer and Kamlet 1984; see also Huntington 1961). As soon as the estimated government budget of a year gets larger than the revenue, the negative image of deficit is assumed to constrain a further increase of the budget. In this case, the budgetary trade-offs should be easily detectable (Berry and Lowery 1990).

In reality, however, consideration of fiscal constraint is one thing and expansion of the government sector is another. The U.S. budget deficit kept growing by a tremendous amount during the 1970s and the 1980s even under severe criticism. Empirically, the budget deficit turned out to play an insignificant role in the appropriation process of the U.S. defense spending (Marra 1985; Ostrom and Marra 1986). The growth of military expenditure was constrained by the size of government deficit in England (Smith 1990) and India (Ward and Mahajan 1984) but it was not in Germany and France (Fritz and Zimmermann 1990; Schmidt, Pilandon, and Aben 1990). It can be concluded that the validity of this factor depends on the empirical reality.

The importance of public opinion for the variation of military expenditure is tested for the first time in the organizational process models. The negative public opinion on the increased military expenditure and war activity played a statistically

significant role for each actor in the process, and the impact lessened as the process progressed (Marra 1985). More specifically, while the President and the Department of Defense responded only to negative opinion, Congress considered positive opinion only (Ostrom and Marra 1986). Majeski (1989) shows that public opinion is one of the final filters through which each actor's estimation of important previous factors go only if the consideration is necessary. Differently from these process models which render the estimation of the impact of public opinion on defense spending itself difficult, Hartley and Russett (1992) showed that two kinds of public opinions (too little or too much on defense spending) exert a consistent influence on the changes in the U.S. military spending. They also found no evidence for government manipulation of public opinion. While these studies consistently illustrated the importance of public opinion on military expenditure in the U.S., there was no comparable research outside the United States.

**2.1.2 "Economics of Alliance" Literature** Besides the threat from opponent countries, the alliance effect is another factor which should be included in the defense calculation. Only after Most and Starr (1989) argued for foreign policy substitutability, which was suggested partly as a reason for the lack of empirical evidence of the arms race, efforts to merge the two islands of theories emerged.

The economics of alliance set forth two contending perspectives on the relationship among military expenditures of alliance members. The first is the public goods model which assumes that military alliance provides indivisible and inexcludible benefits for the membership countries. Applying the model to NATO which depends on deterrence of the U.S. strategic arsenal against the Soviet conventional attack, Olson and Zeckhauser (1966) found that the larger country places more value on alliance and spends a relatively larger amount of expenditure for the common defense good. The smaller countries bear a relatively small share of the burden and they tend to be free-riders.

The other perspective is the Joint Product model (Sandler and Forbes 1980; Murdoch and Sandler 1982). With advanced technology, the European NATO members developed and procured damage-limiting weapons whose capacity allowed them to be used for the defense of some of the other alliance members against the Soviet conventional threat as well as for each country's private purpose. In this situation, smaller members are motivated to invest more for armament than in the purely public deterrence alliance. This argument was supported by the fact that the European members spent relatively more resources for their defense after the Flexible Response strategy was established. The degree of free-riding gradually decreased.

Investigating the alliances before the Second World War, Thies (1987) and Conybeare and Sandler (1990) found that alliance behavior was closer to the second model. Given the limited arms technology, geographic distance alone was a barrier to effective deterrence by an ally. The Joint Product model should be more accurate for the purpose of the description of post-World War II reality, but the case of NATO, with its high level of political integration, and long range capability, still resembles the free-riding model (see Palmer and Souchet 1994). Oneal (1990) argues that NATO has been closer to a relatively pure public good model even during the period of the Flexible Response doctrine. He attributes the statistically significant finding of Murdoch and Sandler (1982) to the inclusion of the three exceptional cases of Greece, Turkey and Portugal, and to the increased interdependence among the European countries.

When the alliance effect was incorporated into the study of armament, the free-rider thesis was elaborated into models describing the substitutive or complementary relationship between arms and alliance. While the substitutability argument is plausible for an increase of security (Altfeld 1985), Diehl (1994) argues that policy decisions for armament and/or alliance are not always motivated by common causes. Alliance formation to increase deterrence or to enhance the status of a country can

be replaced by armaments, but armaments due to domestic causes cannot be substituted by alliance. There also can be more policy alternatives to arms and alliance, depending on the situation. Alliance and arms are not perfect substitutes, and are many times complementary. The balance between arms and alliance can be decided by the relative political and economic costs between the two options (Sorokin 1994), and the investment can be diversified according to the calculation of risk accruing to each option (Conybeare 1994). Especially in the case of an asymmetric alliance, the larger member tends to show complementary behavior compensating for the gain of autonomy, and the smaller member is more inclined to substitute alliance for armament for the gain of security (Morrow 1991; Diehl 1994).

When the variable of alliance is included as a determinant of military expenditure, findings on the effect of spillin for each country were not consistent among the studies. In Murdoch and Sandler (1982), England, Germany, and the U.S. were free-riders and France behaved complementarily to spillin. In Murdoch and Sandler (1984), however, only France and England were free-riders and the U.S. and Germany did not show any statistically significant relationship for the same period. The conclusions from other studies which deal with each of the countries are also different (Looney and Mehay 1990; Smith 1990; Schmidt, Pilandon, and Aben 1990; Fritz and Zimmermann 1990). One thing to be mentioned is that the dependent variable in the equations for measurement is the level of defense spending. The only exception is Smith (1990), which deals with the changes of military expenditures. The problem with using the level of defense spending is well indicated in the review papers of the arms race literature.

In the next section, a framework for a systematic analysis of Japanese defense spending policy is presented and then the above-mentioned factors will be considered within this framework.

## 2.2 Demand for Japanese Military Expenditure

Bobrow and Hill (1985, 1991) present a preliminary and cursory overlook on the important variables in examining the policy content of military expenditure. Their probe suggests that macroeconomic policy, the comprehensive security perspective and Japan's relationship with the Unites States are related to the Japanese defense spending. They conclude that the nonmilitary aspect of the defense spending is a major budgetary concern. Bureaucratic inertia and the balance rule, which is known to be the most prominent organizational process rule in the Japanese budget process (see Campbell 1977), were well supported by several variants of the measurement of military expenditure. The variable of military expenditure as a percentage of general account expenditure was explained by the previous year's values by up to as much as 85 percent. On this finding, they argued that these organizational rules did not account for everything in the budget decision-making and they should not be given too much weight in the budget decision making; political and economic factors should not be underestimated. This provides a rationale for the current study which intends to point to the forces working under the surface of the organizational process. The factors which are introduced in the review section are categorized into internal and external factors, and applied to Japanese case.

**2.2.1 External Variables** Threats to Japanese security from the international arena before the fall of the Soviet communist regime can be conceptualized as coming from two groups: the one from its environment, and the other from the Soviet Union. The most important threat to Japan from its environment in the military arena was governed by the intensity of Cold War between the U.S. and the Soviet Union. Ever since the San Francisco Peace Treaty, Japan has been incorporated politically and economically into the U.S. global strategic framework. The initial rearmament of the 1950s was the result of U.S. demand in response to the Soviet expansionism and the war on the Korean peninsula. After the *détente*

of the 1970s, Japan could focus on its domestic welfare policies. During the 1980s, Japan made some important changes in its defense policy under the second Cold War between the U.S. and the Soviet Union.

The concept of comprehensive national security, which was issued in 1980 as a guideline for Japanese security policy, encompasses the security of the food and energy supply, the security of market accessibility, as well as military security (Barnett 1984; Bobrow 1984). This policy orientation proclaimed under the Ohira government called forth two different responses. Some argued there was nothing new and that this policy orientation was only a description of the Japanese behavior during the post-war period, that is, the economy-first policy under the U.S. security umbrella. Including non-military expenditure under the rubric of security was interpreted as a tactic to resist the U.S. pressure for burden sharing in the military security area. According to these critics, the Japanese government would justify many non-military expenditures as "security" expenditures, and then claim to be contributing to the security alliance. The other response was to see the concept as only a smokescreen to increase the military capability under domestic and international opposition to rearmament. This interpretation saw the Japanese government as justifying any military spending increase as a response to the Cold War.

While the perspective of the first group of critics on comprehensive security suggests no clear change of direction in military expenditure over the course of the Cold War, the second group's argument suggests that spending would have been increasing as tensions increased. Given the increase in Cold War tension around 1980 and the competing perspectives about Japan's comprehensive national security policy, it seems plausible that analyzing the relationship between military expenditure and Cold War tensions will reveal an important factor in Japanese military spending.

The second category of security threat to Japan was a threat from a specific

country. After World War II, Japan did not have a specific source of threat besides a potential threat from the Soviet Union. Normal relations between Japan and the Soviet Union were re-established in 1956. The split between China and the Soviet Union of 1963 turned the latter's attention away from Japan. Even though there was a Soviet deployment of ground troops on its eastern front (the first Asian military buildup by the Soviet Union), it was in reaction to the Chinese instigation of border disputes. Up until the end of the 1970s, the Soviet Union was strategically more concerned with the European front. During that period, Japan was safe under the U.S. nuclear superiority. When the second Asian buildup started in 1977, it marked a turning point in the Japanese perception of military threat, and a gradual increase of defense spending followed (Shinkichi 1983; Kimura 1986).

What aspect of the threat caused the change in the Japanese perception on military security? Kimura (1986) argues that a series of political and economic events such as the abandonment of the world dollar standard system, the fall of Saigon, the Soviet intervention in Afghanistan and the incident of KAL (Korean Air Line), all of which hinted at the relative decline of U.S. hegemony, provided a background for the change. The Soviet deployment of strategic weapons, however, was the principal cause. He also mentions that the Soviet threat was political and psychological rather than purely military, so that the Japanese policy response was only gradual and less dramatic than the Japanese public's changes in perception.[6] More specifically, interviews with the defense influentials (elite government officials, journalists and professors) showed that Japanese concern about the super power arms race was focused almost exclusively on Soviet parity in strategic arms (Kim

[6]Kimura (1986) argues that the Soviet Union's political intention behind the Far East military build up can be understood in the light of "the general objectives of Soviet foreign policy toward Japan: (1) to prevent closer ties between Tokyo and Washington; (2) to thwart the "globalization," or "NATO-ization," of Japan; (3) to prevent Japan from cooperating with China; (4) to arrest the growth of "militarism" in Japan; (5) to promote more active economic cooperation with the Soviet Union; and (6) to diminish or contain the Japanese demand for the return of the Northern Islands (p. 113-114)."

1982).

However, strategic balance cannot be treated only as a threat variable because the U.S. strategic power is also included in the calculation of strategic balance. The Japanese military buildup also should be understood under the broader framework of alliance activity under the security treaty with the U.S.. Kim (1982) says that "support for a greater Japanese defense effort to compensate for the perceived decline in U.S. power seems related more to a desire to pacify the United States than to a conviction that a greater effort was required (p. 24)." As long as the Japanese military expenditure was limited in amount, its growth would not have been enough to tilt the strategic balance between the two super powers. Given that situation, the Japanese response was understood as alliance activity. From the Japanese point of view, security entailed depending almost entirely on the military alliance with the U.S. until the late 1970s. With the beginning of the Second Cold War, Japan stepped up its defense efforts in contribution to the alliance, as a response to Soviet strategic parity. Because appeasement of an alliance partner and burden sharing are a part of alliance behavior, both substitutive and complementary relationships are possible within an alliance partnership. In conclusion, as Soviet strategic weapons could not be a military threat to Japan by itself, and should be understood alongside the U.S. deterrence power, it could be hypothesized that Japanese military expenditure was a function of the strategic arms race, and thus demonstrated the alliance effect.

**2.2.2 Internal Variables** The domestic factor most frequently discussed in literature on military expenditure concerns economic variables: the gross national product and government deficit. On GNP, there are two separate hypotheses: The increase in the GNP might be accompanied by increased military expenditure, and the decrease in the GNP also might be accompanied by increased military expenditure. The former hypothesis is from the simple idea that "wealthy countries have more to lose and will arm accordingly (Murdoch and Sandler 1982, p. 256)," as

long as defense is not an inferior good. This does not attract much empirical interest because it is natural that defense expenditure increases as GNP grows especially under an expanding economy, and that defense is not an inferior good. Especially in the case of Japan, both military expenditure and GNP have increased monotonically during the last forty years. The latter hypothesis is based upon the Keynesian aggregate demand theory and the neo-Marxist view on monopoly capitalism. Policy makers would use the military expenditure as a counter-measure to the fluctuation of the economy. These hypotheses are only concerned with absolute changes in military expenditure as a function of changes in GNP. As my study focuses on military expenditure in relation to total government expenditure, however, these two hypotheses are not considered here.

The National Budget Law which was instituted in 1947 prohibits the Japanese government from issuing government bonds. Along with the expansion of government size since the 1960s, Japan began to issue bonds under the name of construction bonds(since 1965) and deficit-financing bonds (since 1975). While Niioka (1990) argues that the growth of military expenditure during the 1970s was possible because of the growth of the government deficit, it is not true that the bonds were issued only to finance military expenditures. During the 1970s, welfare spending was one of the top priorities for resource allocation. As long as the issue of bonds was not scheduled for, and was not directed only to, defense spending, it would be more plausible that the growth of the government deficit or the increase in the issue of bonds worked as a constraint more for defense spending than for other government expenditures.

The second domestic force behind Japanese military expenditure may come from its politics. Since the U.S.-Japan Security Treaty and the level of armaments have been some of the most turbulent issues in the Japanese politics, political leadership has been concerned with public opinion on these two topics. Triennial surveys on the two topics have been conducted by the Prime Minister's Office since 1961.

Gow (1982) showed changes in the public attitude on the danger of Japan being involved in a war, and the increasingly negative opinion on the abolition of the Self-Defense Force (SDF) during the period of 1975-1981. Gow (1982) said that "(i)f one were seeking evidence of a heightening of defense consciousness, public opinion polls would be a useful starting-point .... As to whether such surveys influence government policy, the answer, as in other countries, is not easy to find (p. 10-12)." If we assume that public opinion in Japan has been an important factor in policy formation, it could be another determinant of military expenditure.

Directly analyzing public opinion is a problematic endeavor. We can, however, glean some insights about public opinion from other data. The number of the Diet members from the political parties that opposed the Security Treaty and SDF could represent public opinion on this matter (Gow 1982). If we assume that the primary goal of political parties is achieving maximum seats in elections, it is natural to expect that Japanese parties will try to reflect voter's preferences on outstanding issues such as the security treaty, SDF, and military expenditure. The opposition parties led the citizen movement on the street and fought at the Diet whenever there was an issue on the two topics (Akira, Shoji & Hirohumi 1986). Even though the public opinion on defense matters might not be exactly correlated to election results due to the specific election system ("single nontransferable vote in medium-sized constituencies") and other more time-specific issues, the opposition parties would bring a more direct message of the public mood to the Diet and exert pressure on the political party and the leadership in power. The opposition parties are known to have made important political influences on the Japanese domestic policies (Calder 1988; Curtis 1988) and defense policies (Keddell 1993). However, there are many studies which argue that the influence of the Diet and the opposition parties is minimal on foreign policy decision making (Baerwald 1977; Sato 1977) and the budgetary decision making process (Campbell 1977).

The factors of defense sector corporate profit and the electoral cycle which were introduced in the review section are not applicable to the Japanese political situation. Two policy declarations of the Three Principles on Arms Export in 1967 and the Government Guideline on Arms Control in 1976 militated against the development of the Japanese defense industry. Even though the rate increased from 39.6 percent in 1950-1957 to the 90.9 percent in 1985, domestic weapons procurement was not significant enough given the size of the Japanese economy (see Niioka 1990). The significant budgetary impact of the defense industry, if any, became evident only after 1980s. The electoral cycle could not wield a strong hold on defense spending because the LDP had been the only party in power before 1990, and the election cycle was not regular enough to make feasible the management of defense spending for political purposes.

**2.2.3 Structural Changes** The functional relationship in explaining military expenditure assumes that the parameters which represent the impact of political and economic independent variables on the level of armament remain constant. This assumption may not be realistic in understanding the Japanese military expenditure. While reviewing the independent variables introduced in literature on armament reflecting the Japanese situation, I often mentioned that the late 1970s was a turning point for the Japanese perception on military matters. Following Lucier's (1979) warning of the possibility of the changes in the parameters, we may suspect that the impact of the independent variables would not remain constant before and after the late 1970s. I hypothesize that the parameter values and relationships changed between the two periods.

Expanding this logic, we may also assume that the factors explaining the Japanese military expenditure would be different between the two periods. While the factors mentioned so far are common in other countries of the post-war period, there is a factor that differentiates Japan in the demand for military expenditures: the

one percent rule, a budget ceiling on military expenditures at one percent of GNP. Along with the National Defense Program Outline (NDPO), this self-imposed policy was introduced in 1976 as a result of a compromising effort of the dovish government of Prime Minister Miki in response to the international and domestic politics of the early 1970s, such as International *détente*, the U.S. pressure for higher contribution to defense, the Japanese fiscal crisis due to the first oil crisis, domestic criticism on the continued expansion of SDF during the four Defense Build-Up Plans (1958-1975), and the Lockheed scandal.[7] Even though this one percent rule has been officially rescinded recently (Mochizuki 1990), the budget ceiling was hardly challenged during the 1980s. It is often argued that this rule must have been an important factor in the demand for Japanese military expenditures.

## 2.3 Hypotheses for the Determinants of Japanese Military Expenditure

The previous discussion leads to several hypotheses. Alternative hypotheses for each independent variable are candidates for an empirical test.

(1) External Variables

- Threat from Japan's environment: The weight of military expenditure in resource allocation will move in tandem with the fluctuation of the intensity of Cold War.
- Alliance effect: The dependent variable will increase (or decrease), as the ratio of the U.S. strategic power to the Soviet Union's, which represents the super power strategic balance, gets smaller.

(2) Internal Variables

[7]Gow (1982) places more weight on the domestic pressures than the international environment on the background of the NDPO and the one percent rule. He said, "But International *détente*, whilst an important factor was not the major factor underlying the thinking embodied in Outline. Domestic developments influenced Outline to a far greater extent than the official documents seem to indicate .... Outline appears as a 'sugar-coated pill' to achieve a form of domestic *détente* with the opposition on defense matters (p. 66-67)."

- Economic constraint: (1) The larger the government deficit, the smaller the weight on military expenditure will be. (2) As government increases its bond issue, it will constrain the resource allocation to military expenditures.
- Domestic political mood: As the percentage of the Diet members whose party's policy is against SDF increases, the weight on military expenditure will decrease.

(3)Structural Changes

- Significant changes in the parameters for the internal and external independent variables will occur between the periods of pre-1979 and post-1979.
- While military expenditures stay under one percent of GNP, the independent variables will have significant influence on the level of military expenditure, but if the demand for military expenditures is higher than a certain point, the one percent rule will determine the budget allocations.

## 2.4 Rational Choice and a Formal Model

Japanese foreign policy at large is criticized and blamed as being *ad hoc*, reactive, shrewdly pragmatic, irresponsible and immobile. Such notions as challenger, supporter, and free-rider overlap as images of Japanese foreign policy (see Inoguchi 1993). Armament policy is characterized as a free-rider or as being dominated by bureaucratic inertia. All these descriptions are indicative of the inconsistent and abnormal aspect of Japanese decision-making. On the other hand, Pempel (1982) attributed the longevity of the Liberal Democratic Party (LDP) and the Japanese political economic policies to "creative conservatism" and L'Estrange (1990) called the Japanese foreign aid policy toward the Middle East "creative diplomacy." Vogel (1979) praised the rational attitude of bureaucrats and citizens. Wan (1995) illustrates a change in spending strategies from a free-rider to a supporter, and the change in earning strategy from a free-rider to a challenger as a rational response to

a changing Japanese relationship with the international environment.

Irresponsible and inconsistent Japanese policies should make sense if the multifaceted interaction of the policy makers with the international and domestic forces is considered.[8] This "linkage politics" is called to attention for the first time by Rosenau (1980), and was specified by Putnam (1988) in the framework of two level games in explaining diplomatic negotiations. Even the military alliance formation which is usually known as a response to external threat is motivated by domestic considerations under the rational calculation of the political leadership (Barnett and Levy 1991; David 1991). Tsebelis says that "if, with adequate information, an actor's choices appear to be suboptimal, it is because the observer's perspective is incomplete. The observer focuses attention on only one game, but the actor is involved in a whole network of games—what I called nested games (1990, p. 7)." Japanese military expenditure, which has not been systematically explained, would be well understood if the circumstances in the international and domestic arena were appropriately incorporated into a rational choice model.[9]

A decision-maker, as a rational actor, will try to maximize his utility ($U$) by controlling the distribution of his government expenditure ($G$) to military spending ($M$) and non-military spending ($N$). For simplicity, the whole government spending is assumed to be allocated into the two items. His decision on the share for each item will be a result of considering all the relevant domestic and international factors. This maximization problem is also concerned with the budget ceiling on military expenditures of one percent of GNP ($Y$), whose significance should be tested. This can be put into mathematical form:

$$\begin{aligned} \max_{M,N} U &= M^{\alpha} N^{\beta} \qquad (1) \\ \text{subject to}, G &\equiv M + N, \end{aligned}$$

[8]Two level games are more specifically elaborated in Chapter 4.

[9]The characteristics and advantages of the rational choice approach are nicely presented in Tsebelis (1990, Ch.2).

$$\text{and}\frac{M}{Y} \leq 0.01.$$

We need some theoretical underpinnings for the Cobb-Douglas function of Equation (1). This function describes the different combinations of $M$ and $N$ to produce the same amount of goods or satisfaction under a given income. The line connecting the various combinations of the factors which produce the same level of utility is called an indifference curve. Here, the utility is decided by how to combine the two factors with the given income. $\alpha$ and $\beta$ describe the proportion of the combination of $M$ and $N$. The sum should be 1, that is, $\alpha + \beta = 1$. If the sum is greater than 1, we can raise the utility to $\frac{1}{\alpha+\beta}$. This is a monotonic transformation of the utility function to make the sum of $\alpha$ and $\beta$ to be 1. Now, the condition to maximize the utility, that is, how to arrange the inputs under various national incomes, can be found by the following method.

According to the Lagrangian method for finding conditions to maximize the utility, the equation of the utility function and the two constraints mentioned above should be combined into one equation.

$$L = M^{\alpha}N^{\beta} + \lambda(G - M - N) + \mu(0.01 - \frac{M}{Y}) \tag{2}$$

Kuhn-Tucker conditions provide solutions to this Lagrangian equation. Differentiations of the Lagrangian equation with respect to $M$, $N$, and multipliers ($\lambda$, and $\mu$) are:

$$\frac{\partial L}{\partial M} = \alpha M^{\alpha-1}N^{\beta} - \lambda - \mu(\frac{1}{Y}) \leq 0 \tag{3}$$

$$\frac{\partial L}{\partial N} = \beta M^{\alpha}N^{\beta-1} - \lambda \leq 0 \tag{4}$$

$$\frac{\partial L}{\partial \lambda} = (G - M - N) = 0. \tag{5}$$

$$\frac{\partial L}{\partial \mu} = 0.01 - \frac{M}{Y} \geq 0 \tag{6}$$

On Equation (3), the Kuhn-Tucker conditions require that $(M)(\frac{\partial L}{\partial M}) = 0$. Because military expenditures are always larger than zero, $\frac{\partial L}{\partial M}$ should be zero. Then Equation

(3) is turned into,

$$\frac{\partial L}{\partial M} = \alpha M^{\alpha-1} N^{\beta} - \lambda - \mu(\frac{1}{Y}) = 0.$$

In the same way, another condition for Equation (4). that $(N)(\frac{\partial L}{\partial N}) = 0$. should be met. As long as non-military expenditures are also always positive, $\frac{\partial L}{\partial N}$ should be zero. Equation (4) turns into.

$$\frac{\partial L}{\partial N} = \beta M^{\alpha} N^{\beta-1} - \lambda = 0.$$

The Kuhn-Tucker condition for Equation (5) is already fulfilled by definition. For Equation (6), the condition $(\mu)(\frac{\partial L}{\partial \mu}) = 0$ should be met. Because the value of $\mu$ is assumed to be non-negative (that is, either zero or positive), the two alternative cases of zero and positive should be considered to find the solution to the utility maximization.

These relationships can be represented as follows:

$$\begin{aligned}
\frac{\partial L}{\partial M} &= \alpha M^{\alpha-1} N^{\beta} - \lambda - \mu(\frac{1}{Y}) = 0, && (7)\\
\frac{\partial L}{\partial N} &= \beta M^{\alpha} N^{\beta-1} - \lambda = 0, && (8)\\
\frac{\partial L}{\partial \lambda} &= (G - M - N) = 0, && (9)\\
\frac{\partial L}{\partial \mu} &= 0.01 - \frac{M}{Y} \geq 0, && (10)\\
& \mu \geq 0, && (11)\\
& and \quad (\mu)(\frac{\partial L}{\partial \mu}) = 0. && (12)
\end{aligned}$$

First, if $\mu = 0$, $\mu(\frac{1}{Y})$ in Equation (7) equals 0. Then, divide Equation (7) by Equation (8), then

$$(\frac{\alpha}{\beta})(\frac{N}{M}) = 1. \qquad (13)$$

If $N$ of the equation (9) is replaced by $N = (M)(\frac{\beta}{\alpha})$,

$$\begin{aligned}
G - M - (M)(\frac{\beta}{\alpha}) &= 0,\\
G - (1 + \frac{\beta}{\alpha})M &= 0.
\end{aligned}$$

$$M = \frac{\alpha \times G}{\alpha + \beta}.$$
$$N = \frac{\beta \times G}{\alpha + \beta}.$$

Because $\mu$ can be interpreted as the marginal utility effect of relaxing the non-negative constraint term of $0.01 - \frac{M}{Y} \geq 0$, the condition of $\mu = 0$ says that there is no gain on utility by breaking down the budget constraint of one percent of GNP. In that case, a decision-maker would not allocate resources for defense up to one percent. Consequently, the solutions of $M$ and $N$ are applicable when military expenditures are less than one percent of GNP. The optimal point of the utility function can be found before military expenditures reach the one percent ceiling of GNP. This is why the solution can be called an unconstrained optimal solution.

The alternative condition, $\mu > 0$, implies that $\frac{\partial L}{\partial \mu} = 0.01 - \frac{M}{Y} = 0$. That is, $M$ is simply $0.01 \times Y$, and $N$ is $G - 0.01 \times Y$. The condition says that the marginal gain on utility by relaxing the budget constraint is positive. As more resources are allocated to defense activities over one percent of GNP, the higher utility will be acquired. In this case, the budget constraint is binding and the optimization will occur when $0.01 - \frac{M}{Y} = 0$.

The main purposes of this study is to investigate what variables the political leadership considers in deciding the weight ($\alpha$) of military expenditures ($M$), and whether the constraint of the one percent rule is important in budget allocation, but not the weight of nonmilitary expenditure ($\beta$).

## 2.5 Equations for Estimation

In the previous section, we found two separate solutions to the utility maximization, one without the budget constraint and one with the budget constraint. The first solution is applicable when military expenditures are less than one percent of GNP, and the second applies when they are one percent of GNP. We may also assume, however, that military expenditures of one percent of GNP are determined by

the same factors that were working for the military expenditures below one percent of GNP. In this case, the first solution is applicable to all of the military expenditures, that is, the whole period. For this reason, I will develop two different equations for estimation: one for the whole period without considering budget constraint, and one for the period under the budget constraint (after 1976).

**2.5.1 Without the Budget Ceiling** The internal and external variables developed in the hypotheses in the previous section can be denoted as follows:

*TEN* Threat from the environment of Japan

*BAL* Strategic balance between the U.S. and the Soviet Union

*ECO* Economic constraint (Ratio of the bond issue to GNP, or, *DEF*, ratio of the government deficit to GNP)

*PAR* Ratio of the number of Diet seats occupied by the political parties which are opposed to SDF (or, *POP*, the ratio of public opinion for SDF)

The relative balance between the external and the internal arena could be realized by the same functional form as the Cobb-Douglas utility function:

$$\alpha = \pi_1 \left(\frac{TEN^{\delta_1}}{BAL^{\delta_2}}\right)^{\phi_1} \left(\frac{ECO^{\delta_3}}{PAR^{\delta_4}}\right)^{\phi_2}. \tag{14}$$

There can be various combinations of the two arenas as aggregates to keep the value of $\alpha$ the same. When a different combination shifts the indifference curve outward, the value of $\alpha$ will change. The factors included in each arena may be put into the same functional form.

We should be able to measure the relative importance of the internal versus the external arena by using the size of $\phi_1$ and $\phi_2$ if the values in each column are comparable. Because the functional form is only a conceptual artifact, numerators and denominators cannot be directly compared. The importance of $\phi_1$ and $\phi_2$.

however, is only reflected in their relative changes when $\alpha$ fluctuates according to the changes in internal and external factors. In this sense, we need another parameter of $\pi_1$, which converts the values of the independent variables into the decision-maker's calculation of the value of $\alpha$.

Equation (14) is based upon this theoretical argument, and it requires some revisions for a more practical measurement of the relationship. Even though each exponent of $\phi_1$ and $\phi_2$ is separated from the other exponents in each column, evaluation of each individual exponent is impossible. A mathematical transformation is:

$$\alpha = \pi_1 \left(\frac{TEN^{\delta_1}}{BAL^{\delta_2}}\right)^{\phi_1} \left(\frac{ECO^{\delta_3}}{PAR^{\delta_4}}\right)^{\phi_2} = \pi_1 \left(\frac{TEN}{BAL^{\frac{\delta_2}{\delta_1}}}\right)^{\delta_1\phi_1} \left(\frac{ECO}{PAR^{\frac{\delta_4}{\delta_3}}}\right)^{\delta_3\phi_2}. \quad (15)$$

If the parameters are replaced, Equation (15) becomes:

$$\alpha = \pi_1 \left(\frac{TEN}{BAL^{\delta_2'}}\right)^{\phi_1'} \left(\frac{ECO}{PAR^{\delta_4'}}\right)^{\phi_2'}. \quad (16)$$

The last equation can be rewritten into this equation:

$$\alpha = \pi_1 \left(\frac{TEN}{BAL^{\delta_2}}\right)^{\phi_1} \left(\frac{ECO}{PAR^{\delta_4}}\right)^{\phi_2}. \quad (17)$$

This transformed equation is more accessible to interpretation and manageable for our purposes. By setting the exponents for $TEN$ and $ECO$ to 1, the values of the exponents for $BAL$ and $PAR$ ($\delta_2$ and $\delta_4$) imply the relative importance of the two variables in each sphere. The two values of $\phi_1$ and $\phi_2$ indicate the weights of the two variables of $TEN$ and $ECO$ in their own arenas, and they can indicate the relative importance of the internal and external spheres also.

If Equation (13) is replaced with Equation (17), then both sides are transformed by the natural logarithm:

$$\begin{aligned} \ln(\frac{M}{N}) &= \ln \pi_1 + \phi_1(\ln TEN - \delta_2 \ln BAL) \\ &\quad +\phi_2(\ln ECO - \delta_4 \ln PAR) - \ln \beta \end{aligned}$$

$$= \ln\pi_1 - \ln\beta + \phi_1(\ln TEN) - \phi_1\delta_2(\ln BAL)$$
$$+\phi_2(\ln ECO) - \phi_2\delta_4(\ln PAR).$$

This equation can be put into econometric form:

$$\ln(\frac{M}{N}) = \gamma_0 + \gamma_1(\ln TEN) - \gamma_2(\ln BAL) +$$
$$\gamma_3(\ln ECO) - \gamma_4(\ln PAR) + \varepsilon_1, \quad (18)$$

where $\varepsilon_1$ is a random error term. Estimation of this equation will show the statistical significance of the parameters ($\gamma_1$, $\gamma_2$, $\gamma_3$, and $\gamma_4$). This information decides the validity of the hypotheses in the previous section. Interpretation of the parameters will also provide information on the relative influence of each variable on the dependent variable. First, the values of $\gamma_1$ an $\gamma_3$ present the relative weights between the aggregate influences of domestic and foreign aspects. Second, we can figure out the relative influences between the factors in each aspect. Because we assumed in Equation (18) that

$$\gamma_1 = \phi_1$$
$$\gamma_2 = \phi_1\delta_2$$
$$\gamma_3 = \phi_2$$
$$\gamma_4 = \phi_2\delta_4,$$

the divisions of $\gamma_2$ and $\gamma_4$ by $\gamma_1$ and $\gamma_3$ produce the values of $\delta_2$ and $\delta_4$ which are the relative weights in each aspect, as presented in Equation (17).

**2.5.2 Under the Budget Ceiling** To see the validity of the corner solution($0.01 - \frac{M}{Y} = 0$) for utility maximization, we need to apply the solution to two overlapping periods. The first one is 1976-1988 period, the whole period right after the one percent rule was proclaimed, and the second is 1979-1988 period in which many significant changes in defense policy were observed. For these two periods, we have to estimate how much the one percent rule is binding on military

expenditure. On the one hand, we do not want to find a regression line between military expenditure and GNP. On the other hand, we are looking for a coefficient between the two variables. Thus, we do not need a constant term in the estimation. So, the equation is,

$$M = \omega_1 Y + \varepsilon_2. \tag{19}$$

In interpreting the result of this estimation, we need a certain boundary on the coefficient to decide the importance of the one percent rule. The coefficient should be close enough to 0.01. Even though arbitrary, if the value is larger than 0.0098 (0.98 percent of GNP), we would accept the importance of One Percent Rule and the structural change from the previous period.

In this chapter, the literature on the determinants of military expenditure was reviewed and a model for Japanese military expenditure was built based upon the review. The framework of the model, the Cobb-Douglas function, is borrowed from micro-economics and it was set into the utility maximization problem in Japanese resource allocation for military expenditure. Statistical analysis of the equations introduced in this chapter will be reported in Chapter 6. First, measurement of each variable is specified. Then, the parameters of Equation 18 for the whole period are estimated. Finally, the validity of the regime change due to the budget constraint of the one percent rule is tested.

# CHAPTER 3

# MACRO-ECONOMIC APPROACH

## 3.1 Military Expenditure and Economic Growth

Ever since the initial statistical efforts of Benoit (1973) to analyze the economic effect of military expenditure in the less developed countries was published, studies on this topic have proliferated. These studies can be arranged into different groups according to their major focus: "guns versus butter" in the government expenditure; "trade-off" between military expenditure and investment, consumption, unemployment as well as economic growth (see Lindgren 1984); the relative decline of the U.S. hegemony; and the peace dividend following the disappearance of the Soviet Union. Chan (1995) reviewed these areas and organized these studies according to an overall process beginning with the appropriation of military expenditure in Congress and culminating in the economic aftermath of the peace dividend. The works generally lacked rigor in their focus on the correlations between the analyzed variables, and were accused of being *ad hoc*. Some works based upon the Keynesian consumption theory presented demand-side models during the 1980s, but no widely accepted coherent model emerged. Recently, however, supply-side models initiated by Feder (1982) are attracting interest because they have provided a framework for modeling the growth effect of military expenditure.

To figure out the empirical effect of the export sector on the non-export sector of the economy for a group of semi-industrialized less developed countries, the neoclassical production function framework of Feder (1982) assumes that marginal factor productivities are different in the two sectors and that the export sector influences the output of the non-export sector. Empirical analysis indicates that the

export sector has a higher marginal factor productivity. Feder's model, however, did not isolate the externality effect. Thus he concluded; "The difference *seems* to derive, in part, from inter-sectoral beneficial externalities generated by the export sector (p. 59, my own emphasis)." Ram (1986) distinguished the externality effect and the size effect, applying Feder's model to the effect of government spending on economic growth. The former effect is the economic growth due to government spending, which is felt indirectly through the whole economy, and the latter is the direct effect due to the marginal productivity differential between the two sectors. Empirically, the size effect was not clear enough to be identified but the externality effect turned out to be positive, and the marginal factor productivity was much higher than in the other sectors, in the 115 countries studied. Biswas and Ram (1986) applied the model developed by Ram (1986) to the military expenditure of the less developed countries for the effect on economic growth. They found that "neither the military sector generates any significant positive or negative externalities for the civilian nor is the relative factor productivity differential across the two sectors statistically significant (p. 370)."

These three studies laid a foundation for the supply-side models during the 1990s on the connection between military expenditure and economic growth in the supply-side model. The studies can be categorized by two aspects, the number of sectors included in the model and findings on the connection between the two variables.

Atesoglu and Mueller (1990) found a small positive effect of military expenditure on the U.S. post-War economic growth. In one equation, they did not isolate the size effect and the externality to circumvent the problem of multicollinearity, and in the other equation, they measured only the elasticity but not the marginal productivity. The result was the same even in the model that considered technological changes in both the defense and the non-defense sectors (Mueller and Atesoglu

1993). This positive effect is also supported by Macnair et al. (1995) for the NATO alliance members. On the other hand, the findings of negative effects are also present. In the U.S., Ward and Davis (1992) found that the negative size effect (-2.9993) of military spending is much larger than the externality effect (0.7369). This result was consistent for the post-war period in Ward et al. (1995) which looked into the U.S. and Japan through the window of a forty year term over the 20th century.

A neutral position between the two conclusions also exists. Alexander (1990) derived neither a positive nor a negative effect from his four sector model. While the negative effect of military expenditure on investment is a general finding (Lindgren 1984),[1] the same effect on economic growth was not supported by empirical studies. Mintz and Huang (1990) provided a clue to the inconsistent findings of this trade-off thesis. While neither the size effect nor the externality effect of the military expenditure on economic growth was statistically significant, investment produced a positive and direct effect on economic growth in their supply-side model. The relationship between military expenditure and investment was bridged by the negative five-year lagged effect of military spending on investment in the flexible accelerator model (Huang and Mintz 1991; Mintz and Huang 1991; Mintz and Huang 1990). Mintz and Huang (1990) argued that these findings illustrate the indirect link between military expenditure and economic growth. They extended the indirect link to the finding of a statistically significant trade-off between military spending and spending on education (Mintz and Huang 1991). When their supply-side model was applied to a longitudinal analysis of 103 countries, no statistically significant relationship was found for ninety percent of the sample countries.

Many of the above mentioned studies have two limitations for application to the Japanese case. The first concerns the specification of the sectors to be included into the model. The two-sector model is too encompassing and ignores too much

[1]For more detailed discussion of the pros and cons of this relationship, see Chan (1995).

information. As long as government spending as a whole is known to have a positive impact on economic growth (Ram 1986), this sector and its externalities on other sectors should be included in the explanation of economic growth. The three-sector models which differentiated the military and nonmilitary government spendings can illustrate this point. If we accept the larger marginal productivity of the export sector over other sectors of the economy, as found in Feder (1982), the inclusion of the export sector would make the model more reasonable. For the nine developed countries, Alexander (1990) presents the significant relationship between export and economic growth. Furthermore, for an economy like Japan whose economic development is led by the export-driven policy under the U.S. hegemonic peace, the inclusion of the export sector would be necessary.

Related to the problem of limiting the study's scope is the inter-sectoral externalities of nonmilitary government spending, which are supposed to provide assistance to technological development, maintenance and provision of infrastructure, education and welfare to other sectors of an economy. These provisions may influence the output of other sectors such as the defense, export, and civilian sectors. The externality of the nonmilitary government sector is considered in Alexander (1990) and Macnair et al. (1995).

The second limitation is that defense spillins from the alliance partners are not considered in the model. Macnair et al. (1995) is the one study which incorporated the effect of the spillins from alliance partners to the defense and civilian sectors of an economy. The spillins affect the resource allocation between the defense sector and the nondefense sector on a certain indifference curve, and this effect moves the indifference curve outside, that is, it increases the utility of an economy. Security of a country is improved without diverting its resources from investment for civilian sector. Especially, defense spending of its partner which holds leadership for an alliance promotes an international environment favorable to its international

economic activity.

In the area of the defense industry, the spillin effect may have positive effects on the civilian sector by the transfer of technology or the expansion of market for the export of the local defense industry. It may have negative effects by reducing the chance for the growth of the domestic defense industry which may have technical spinoffs to other sectors in the economy and by increasing the development cost for new weapon systems (Sandler and Hartley 1995). In the area of trade between the U.S. and Japan, the rise in the U.S. defense spending makes the U.S. consumer goods more labor-intensive (because capital investment for civilian sector is diverted to the defense sector which is relatively more capital-intensive) and more expensive, while making Japanese goods relatively cheaper. The net effect will be positive or negative depending on the size of import and export between the two countries (Wong 1989). The overall effect of defense spillin is empirical and contextual, so the inclusion of this factor is theoretically plausible and interesting.

### 3.2 A Model for the Japanese Case

In the Japanese case, I assume a model of a four-sector economy and the production function for each sector as follows:

$$\begin{aligned} N &= N(K_n, L_n), \\ M &= M(K_m, L_m, N, \tilde{M}), \\ X &= X(K_x, L_x, N), \end{aligned}$$

and

$$C = C(K_c, L_c, N, M, X, \tilde{M}), \tag{20}$$

in which $N$, $M$, $X$, $C$, and $\tilde{M}$ denote non-military public sector output, defense output, export sector output, civilian sector output, and defense spillins from a nation's allies, respectively. This four sector model gives form to the assumptions

that the nonmilitary public sector affects the outputs of the other sectors and the defense spillins influence the economy through the defense sector and the civilian sector. Output of each sector is assumed to be the function of the other sectors in addition to each sector's capital ($K$) and labor ($L$).

This four sector model can be developed into two econometric formulas as demonstrated in the Appendix. The first estimable equation is for the measurement of the aggregate effect of each sector without isolating the size effect and the externality effect :

$$\dot{Y} = \alpha_0 + \alpha_1 I + \beta(\frac{Y}{L})\dot{L} + \gamma_1 \dot{N} + \gamma_2 \dot{M} + \gamma_3 \dot{X} + \gamma_4 \dot{\tilde{M}} + \varepsilon. \tag{21}$$

where:

$$\begin{aligned}
\gamma_1 &= (\frac{\delta_n}{\delta_n + 1} + \frac{X_N}{\delta_x + 1} + \frac{M_N}{\delta_m + 1} + C_N) \\
\gamma_2 &= (\frac{\delta_m}{\delta_m + 1} + C_M) \\
\gamma_3 &= (\frac{\delta_x}{\delta_x + 1} + C_x) \\
\gamma_4 &= (\frac{M_{\tilde{M}}}{\delta_m + 1} + C_{\tilde{M}}).
\end{aligned}$$

In Equation (21), the overhead dots indicate the time derivative (thus $\dot{M} = \frac{dM}{dt}$).

If the two effects are isolated and measured separately,

$$\begin{aligned}
\dot{Y} &= \alpha_0 + \alpha_1 I + \beta(\frac{Y}{L})\dot{L} + \gamma_1 \dot{N} + \gamma_2(\frac{C}{N})\dot{N} + \gamma_3 \dot{M} + \gamma_4(\frac{C}{M})\dot{M} \\
&\quad + \gamma_5 \dot{X} + \gamma_6(\frac{C}{X})\dot{X} + \gamma_7 \dot{\tilde{M}} + \gamma_8(\frac{C}{\tilde{M}})\dot{\tilde{M}} + \varepsilon.
\end{aligned} \tag{22}$$

In this equation, however, independent variables devised to isolate the size effect and the externality effect are highly correlated. It causes multicollinearity in estimation. that is, the coefficients are not reliable. Consequently, measurement of a separate effect is not possible. Only the statistical result of Equation (21) is reported in Chapter 6.

### 3.3 Appendix

I assume a model of a four-sector economy and the production function for each sector to be as follows:

$$\begin{aligned} N &= N(K_n, L_n), \\ M &= M(K_m, L_m, N, \tilde{M}), \\ X &= X(K_x, L_x, N), \end{aligned}$$

and

$$C = C(K_c, L_c, N, M, X, \tilde{M}). \tag{23}$$

If these equations are differentiated by time (indicated by overhead dots), and expressed into partial differentiation by each factor, then:

$$\begin{aligned} \dot{N} &= \frac{\partial N}{\partial K_n}\dot{K}_n + \frac{\partial N}{\partial L_n}\dot{L}_n, \\ \dot{M} &= \frac{\partial M}{\partial K_m}\dot{K}_m + \frac{\partial M}{\partial L_m}\dot{L}_m + \frac{\partial M}{\partial N}\dot{N} + \frac{\partial M}{\partial \tilde{M}}\dot{\tilde{M}}, \\ \dot{X} &= \frac{\partial X}{\partial K_x}\dot{K}_x + \frac{\partial X}{\partial L_x}\dot{L}_x + \frac{\partial X}{\partial N}\dot{N}, \\ \dot{C} &= \frac{\partial C}{\partial K_c}\dot{K}_c + \frac{\partial C}{\partial L_c}\dot{L}_c + \frac{\partial C}{\partial N}\dot{N} + \frac{\partial C}{\partial M}\dot{M} + \frac{\partial C}{\partial X}\dot{X} + \frac{\partial C}{\partial \tilde{M}}\dot{\tilde{M}}. \end{aligned}$$

The slope of each sector's output according to its own factors, that is, each term of the partial differential equation, is indicated by the subscript for the factor (as an example, $\frac{\partial N}{\partial K_n} = N_K$). They are,

$$\dot{N} = N_K\dot{K}_n + N_L\dot{L}_n, \tag{24}$$

$$\dot{M} = M_K\dot{K}_m + M_L\dot{L}_m + M_N\dot{N} + M_{\tilde{M}}\dot{\tilde{M}} \tag{25}$$

$$\dot{X} = X_K\dot{K}_x + X_L\dot{L}_x + X_N\dot{N} \tag{26}$$

$$\dot{C} = C_K\dot{K}_c + C_L\dot{L}_c + C_N\dot{N} + C_M\dot{M} + C_X\dot{X} + C_{\tilde{M}}\dot{\tilde{M}}. \tag{27}$$

If we assume the factor productivity differentials, or $\delta$'s, between the civilian sector and the other sectors, with the same differential between capital and labor,

we have:

$$\begin{aligned}
\frac{N_L}{C_L} &= \frac{N_K}{C_K} = 1 + \delta_n, \\
\frac{M_L}{C_L} &= \frac{M_K}{C_K} = 1 + \delta_m, \\
\frac{X_L}{C_L} &= \frac{X_K}{C_K} = 1 + \delta_x.
\end{aligned}$$

Substituting the equations of productivity differentials for Equation (24),(25),(26), and (27), we get:

$$\begin{aligned}
\dot{N} &= C_K\dot{K}_n + \delta_n C_K\dot{K}_n + C_L\dot{L}_n + \delta_n C_L\dot{L}_n, \\
\dot{M} &= C_K\dot{K}_m + \delta_m C_K\dot{K}_m + C_L\dot{L}_m + \delta_m C_L\dot{L}_m + M_N\dot{N} + M_{\tilde{M}}\dot{\tilde{M}}, \\
\dot{X} &= C_K\dot{K}_x + \delta_x C_K\dot{K}_x + C_L\dot{L}_x + \delta_x C_L\dot{L}_x + X_N\dot{N}, \\
\dot{C} &= C_K\dot{K}_c + C_L\dot{L}_c + C_N\dot{N} + C_M\dot{M} + C_X\dot{X} + C_{\tilde{M}}\dot{\tilde{M}}.
\end{aligned}$$

If it is assumed that $Y = N + M + X + C$, then $\dot{Y} = \dot{N} + \dot{M} + \dot{X} + \dot{C}$. So.

$$\begin{aligned}
\dot{Y} &= C_K(\dot{K}_n + \dot{K}_m + \dot{K}_x + \dot{K}_c) + C_L(\dot{L}_n + \dot{L}_m + \dot{L}_x + \dot{L}_c) \\
&\quad + \delta_n C_K\dot{K}_n + \delta_n C_L\dot{L}_n + \delta_m C_K\dot{K}_m + \delta_m C_L\dot{L}_m + \delta_x C_K\dot{K}_x + \delta_x C_L\dot{L}_x \\
&\quad + (C_N + X_N + M_N)\dot{N} + C_M\dot{M} + C_X\dot{X} + (M_{\tilde{M}} + C_{\tilde{M}})\dot{\tilde{M}}. \qquad (28)
\end{aligned}$$

From the assumption of the four-sector production function model, the first two terms in Equation (28) can be replaced by

$$\begin{aligned}
\dot{K} &= \dot{K}_n + \dot{K}_m + \dot{K}_x + \dot{K}_c = I, \\
\dot{L} &= \dot{L}_n + \dot{L}_m + \dot{L}_x + \dot{L}_c.
\end{aligned}$$

$C_K$ and $C_L$ in the third, fourth, fifth, sixth, seventh and eighth terms of Equation (28) also can be replaced by the equations of productivity differentials. Then,

$$\begin{aligned}
\dot{Y} &= C_K I + C_L\dot{L} + (\frac{\delta_n}{\delta_n + 1})N_K\dot{K}_n + N_L\dot{L}_n + (\frac{\delta_m}{\delta_m + 1})(M_K\dot{K}_m + N_L\dot{L}_m) \\
&\quad + (\frac{\delta_x}{\delta_x + 1})(X_K\dot{K}_x + X_L\dot{L}_x) + (C_N + X_N + M_N)\dot{N} + C_M\dot{M} + C_X\dot{X} \\
&\quad + (M_{\tilde{M}} + C_{\tilde{M}})\dot{\tilde{M}}. \qquad (29)
\end{aligned}$$

To simplify this equation, let us set,

$$\frac{\delta_n}{\delta_n + 1} = \delta'_n,$$
$$\frac{\delta_m}{\delta_m + 1} = \delta'_m,$$
$$\frac{\delta_x}{\delta_x + 1} = \delta'_x.$$

If Equation (29) which is substituted by these simplifications and by Equation (24),(25), (26), and (27), then,

$$\begin{aligned}
\dot{Y} &= C_K I + C_L \dot{L} + \delta'_n \dot{N} + \delta'_m (\dot{M} - M_n \dot{N} - M_{\tilde{M}} \dot{\tilde{M}}) + \delta'_x (\dot{X} - X_n \dot{N}) \\
&\quad + (C_N + X_N + M_N)\dot{N} + C_M \dot{M} + C_X \dot{X} + (M_{\tilde{M}} + C_{\tilde{M}})\dot{\tilde{M}} \\
&= C_K I + C_L \dot{L} + (\delta'_n - \delta'_m M_N - \delta'_x X_N + C_N + X_N + M_N)\dot{N} \\
&\quad + (\delta'_m + C_M)\dot{M} + (\delta'_x + C_X)\dot{X} + (C_{\tilde{M}} + M_{\tilde{M}} - \delta'_m M_{\tilde{M}})\dot{\tilde{M}} \\
&= C_K I + C_L \dot{L} + (\delta'_n + \frac{X_n}{\delta_x + 1} + \frac{M_N}{\delta_m + 1} + C_N)\dot{N} + (\delta'_m + C_M)\dot{M} \\
&\quad + (\delta'_x + C_X)\dot{X} + (\frac{M_{\tilde{M}}}{\delta_m + 1} + C_{\tilde{M}})\dot{\tilde{M}}. \qquad (30)
\end{aligned}$$

In estimation, $C_K$ is assumed to be a constant term of $\alpha_1$, and $C_L$ can be described as the elasticity of civilian output, generated by the increase in the supply of labor ($C_L = \frac{\partial C}{\partial L} = \beta(\frac{Y}{L})$). By adding a constant term and a random error term, Equation (30) can be transformed into:

$$\dot{Y} = \alpha_0 + \alpha_1 I + \beta(\frac{Y}{L})\dot{L} + \gamma_1 \dot{N} + \gamma_2 \dot{M} + \gamma_3 \dot{X} + \gamma_4 \dot{\tilde{M}} + \varepsilon. \qquad (31)$$

To isolate the productivity differentials and externality effects, a production function is assumed:

$$\begin{aligned}
C &= C(K_c, L_c, N, M, X, \tilde{M}) \\
&= N^{\theta_n} M^{\theta_m} X^{\theta_x} \tilde{M}^{\theta_{\tilde{m}}} \Phi(K_c, L_c), \\
C_N &= \theta_n(\frac{C}{N}), \\
C_M &= \theta_m(\frac{C}{M}),
\end{aligned}$$

$$C_X = \theta_x(\frac{C}{X}),$$
$$C_{\tilde{M}} = \theta_{\tilde{m}}(\frac{C}{\tilde{M}}),$$

and Equation (30) can be rewritten:

$$\begin{aligned}
\dot{Y} &= C_K I + C_L \dot{L} + (\delta'_n + \frac{X_n}{\delta_x + 1} + \frac{M_N}{\delta_m + 1} + \theta_n(\frac{C}{N}))\dot{N} \\
&\quad +(\delta'_m + \theta_m(\frac{C}{M}))\dot{M} + (\delta'_x + \theta_x(\frac{C}{X}))\dot{X} \\
&\quad +(\frac{M_{\tilde{M}}}{\delta_m + 1} + \theta_{\tilde{m}}(\frac{C}{\tilde{M}}))\dot{\tilde{M}} \\
&= C_K I + C_L \dot{L} + (\delta'_n + \frac{X_n}{\delta_x + 1} + \frac{M_N}{\delta_m + 1})\dot{N} \\
&\quad +\theta_n(\frac{C}{N})\dot{N} + \delta'_m \dot{M} + \theta_m(\frac{C}{M})\dot{M} + \delta'_x \dot{X} + \theta_x(\frac{C}{X})\dot{X} \\
&\quad +(\frac{M_{\tilde{M}}}{\delta_m + 1})\dot{\tilde{M}} + \theta_{\tilde{m}}(\frac{C}{\tilde{M}})\dot{\tilde{M}}.
\end{aligned}$$

This equation can be turned into a measurable form:

$$\begin{aligned}
\dot{Y} = \alpha_0 + \alpha_1 I + \beta(\frac{Y}{L})\dot{L} + \gamma_1 \dot{N} + \gamma_2(\frac{C}{N})\dot{N} + \gamma_3 \dot{M} + \gamma_4(\frac{C}{M})\dot{M} \\
+\gamma_5 \dot{X} + \gamma_6(\frac{C}{X})\dot{X} + \gamma_7 \dot{\tilde{M}} + \gamma_8(\frac{C}{\tilde{M}})\dot{\tilde{M}} + \varepsilon. \qquad (32)
\end{aligned}$$

Among the parameters, $\gamma_2$,$\gamma_4$,$\gamma_6$ and $\gamma_8$ represent $\theta_n$,$\theta_m$, $\theta_x$, and $\theta_{\tilde{m}}$ which indicate the constant elasticity of the civilian sector according to the factor of each subscript. That is, they are the parameters for measuring the externality effect of each factor. Other parameters for size effect are:

$$\gamma_1 = (\frac{\delta_n}{\delta_n + 1} + \frac{X_N}{\delta_x + 1} + \frac{M_N}{\delta_m + 1}),$$
$$\gamma_3 = (\frac{\delta_m}{\delta_m + 1}),$$
$$\gamma_5 = (\frac{\delta_x}{\delta_x + 1}),$$
$$\gamma_7 = (\frac{M_{\tilde{M}}}{\delta_m + 1}).$$

From the values of the two parameters of $\gamma_3$ and $\gamma_5$, the derivation of the productivity differentials of capital and labor between the military and export sectors on the one

hand, and civilian sector on the other, is possible. As long as we do not know the marginal elasticity of the export and military sectors in regard to the nonmilitary sector ($X_N$ and $M_N$), the productivity differential between nonmilitary sector and civilian sector cannot be derived.

# CHAPTER 4

# TWO LEVEL GAMES AND BURDEN SHARING

## 4.1 Game Theoretic Perspective

This chapter deals with the burden sharing between Japan and the U.S. as a bargaining game. Discussions and negotiations between the two governments on the relative contribution to the U.S.-Japan Security Treaty have been going on ever since the San Francisco Peace Treaty (1951). Negotiations became more contentious in the early 1980s, with the U.S. accusing the Japanese of free-riding. During the entire four decades, the U.S. has criticized Japan and urged it to increase its military expenditures. Sometimes, Japanese has responded with excuses such as the peace constitution and the resistance of its neighbor countries, and at other times, they have responded in terms of economic contributions such as increased foreign aid and direct overseas investment. We need to understand burden sharing as a result of the negotiations between the two governments.

Alliance burden sharing, perceived as a kind of international bargaining, can be conceived as a formal model of a game. Snyder and Diesing (1977) describe the bargaining theory:

> Bargaining theory is central because its constituent elements correspond to what are widely regarded as the most important elements in international behavior—e.g., power, interests, conflict, and cooperation—and because, being a theory about the interaction of entities in a condition of interdependence, it is directly relevant to what we are presumably most interested in theorizing about, the interactions between sovereign states. The content of these interactions consists largely of the interplay of influence in the prosecution and resolution of conflicts (violently or otherwise) and the establishment of mutually beneficial collaborative arrangements, and that is also what bargaining theory is all about (p. 22).

This description illustrates that burden sharing between alliance members is also an appropriate topic for this approach. In this respect, game theory, which is one of the formal approaches to bargaining, will provide us with new insights into future burden sharing as well as earlier Japanese free riding.

Dekle (1989) provides an estimation of an appropriate level of Japanese military expenditure assuming fair burden sharing. While we have used military expenditure data from *Japan Statistical Yearbook*, and Dekle used NATO criteria, we can use his estimates to provide a guideline for burden sharing. To find his estimate, Dekle lays out the NATO definition of military budget. These items are included in the defense budget: "(1) all spending on regular military forces: (2) military aid (including equipment and training) to other nations; (3)military pensions: (4) host government expenses for U.S. forces; and (5)host country infrastructure and staff costs (p.128)." The items (2) and (3) are not included in the Japanese defense budget and the items of (4) and (5) are underestimated. He estimates that the Japanese military expenditure according to the NATO standard is 1.9 percent of Japanese GNP of 1985. Next, Dekle argues that all NATO members should have military expenditures that are comparable as a percentage of GNP. His assumptions here are that world peace improves a country's GNP and that therefore military expenditure is a public good for the NATO community. Dekle further assumes that, within an alliance, wealthier members will contribute higher percentage of GNP, or that the ratio of a country's military expenditure to its GNP is an increasing function of the country's potential output. According to this, the Japan's ratio of military expenditure to its GNP should be between 4.0 percent and 6.5 percent each of which is the percentage of defense spending to GNP in West Germany and the U.S.. From these estimates we can conclude that Japan contributed to world peace far less than expected.

There seems to be a general agreement that U.S. pressure is the most effective means to improve the relationship with Japan. Inoguchi (1987) argues that various vested interest cliques intervene in the Japanese policy formulation process and hinders the flexible and positive policy initiatives. U.S. pressure is required to "transcend the framework of Diet operations, strike down the vested interests syndicate, and remodel Japan into a country committed to a fair society and eager to contribute to the international community (Inoguchi 1987, p. 70)." More specifically, Makin suggests that, "In one way Japan's perception continues to have a stabilizing effect on defense burden sharing (1989, p. 36)" and Wong argues that, "Japan can maintain a low defense budget because the United States spends a large amount on defense and because of the military relationship between the two countries since World War II. I have suggested that one way to induce Japan to spend more on defense is for the United States to reduce its defense spending unilaterally (1989, p. 122)."

These arguments, which suggest that foreign pressure, *gaiatsu* in Japanese, is the only way to mobilize Japanese policy response, emphasize the Japanese domestic political structure as a cause of policy immobilism and reactive and irresponsible policy orientation. Their arguments are based upon deep analysis of the Japanese domestic politics. Such characteristics as lack of leadership, factional politics, political stronghold of interest groups, one-party-dominant party system, and bureaucratic intransigence to reform, which are democratic sometimes, and undemocratic at other times, make Japanese decision makers focus only on the domestic political problems. These characteristics are referred to as reasons why Japan does not have internal dynamism to make active responses to international politics.

Then, the next questions could be, why does the pressure have a limitation in its effect, and why did the unfair relationship have to be maintained in the past, and can it be possibly be much different in the future? The arguments which urge

for U.S. pressure only provide an answer that is circular in logic. Foreign pressure is required because of the Japanese domestic structural constraints, but effect of the pressure is limited because of the same problem. Consequently, as long as the foreign pressure is not directed to the change in Japanese domestic structure, it is supposed to be limited in effect. They provide detailed analysis of Japanese domestic politics but not the structure of the interaction between the two countries. There is a practical problem also in the argument. It is possible that some forms of pressure for burden sharing may increase Japanese nationalist sentiment.

The game theoretic perspective of the policy interaction between the U.S. and Japan may provide an answer, even though only partial, to the questions. We need to look into the structure of the game between the two countries. Appropriate assumptions about the actors, strategic options, and payoffs for each option need to be combined and processed from an appropriate game theoretical perspective. Simplification and abstraction of historical information is necessary at the first stage, and tools for deduction and analysis are required at the second stage.

### 4.2 Two-level Games

We cannot answer the questions raised in the previous section if we focus our attention only on the game of the international bargaining table, even though each chief negotiator is assumed to represent his own country's interest. Strategies and payoffs for the bargaining table can be comprehended only when the primary second level games for each player, at least, which are assumed to be related with the bargaining, are included. Tsebelis (1990) and Putnam (1988) illustrate that to understand each actor's behavior within a game, understanding another game that each actor is facing in another arena is necessary. Playing a game at the first level is affected by the game at the second level, and vice versa. According to Putnam (1988), the foreign policy and diplomacy of a country should be understood in the context

of domestic opportunities and constraints. For Tsebelis (1990), every negotiation and decision cannot really be understood without considering the decision-maker's involvement into the multiple arena in which payoffs for options are inter-related. Institutional design also influences the decision-maker's calculations of payoffs.

More specifically, Putnam (1988) presents a theory of ratification which concerns the interaction between a certain political leadership sitting at an international bargaining table (Level I) and at a domestic game (Level II) on the proposed policy. Because the agreement of the international negotiation should be acceptable to the constituents (bureaucratic agencies, interest groups, political parties, or public opinion), the negotiator's decision for cooperation or defection, flexibility or firmness, is influenced by the domestic game. This range of possible options at the Level I game which is opened by the Level II game is called the "win-set" for a given Level II constituency, which is defined as "the set of all possible Level I agreements that would "win"—that is, gain the necessary majority among the constituents—when simply voted up or down (Putnam 1988, p. 437)."

Putnam suggests two reasons for the importance of the win-set:

> First, **larger win-sets make Level I agreement more likely**, *ceteris paribus*. . . . The second reason why win-set size is important is that **the relative size of the respective Level II win-sets will affect the distribution of the joint gains from the international bargain** (1988, p. 437–440).

The larger the win-set at the domestic level, the higher the probability of ratification. However, the larger the win-set, the larger the space for concession and the weaker the negotiator's position. Conversely, the smaller the win-set at the Level II, the lower the probability of ratification but the firmer the negotiator's position.

Putnam (1988) also argues that there are three sets of factors which determine the size of the win-set and the likelihood of international cooperation by reaching a deal in international bargaining: (1) Level II preferences and coalitions, (2) Level II political institutions, and (3) Level I negotiators' strategies. Because

Putnam's arguments may help us explain the burden sharing between the U.S. and Japan by looking into each country's own second level games. I will introduce the three sets of factors in detail.

(1) Level II Preferences and Coalitions

According to what kinds of domestic forces, groups or coalitions are interested in the result of the international bargaining and how the negotiators are influenced by the division of interests, there can be assumed two kinds of domestic conflicts: homogeneous domestic conflict and heterogeneous domestic conflict. In the former case, all the groups or constituents interested with the agenda want to reap maximum concession from the opposite side in the international negotiation. They differ in their response if no agreement is reached, however. Some of them (hawks) may want to risk a deadlock to reach a better deal, and others (doves) may prefer agreement even if some concessions are necessary. As long as the hawks do not dominate the domestic game, the rule of thumb, "the more, the better," is the negotiator's usual strategy. In this case, the domestic game provides the negotiator with a larger win-set and consequently, the position of the negotiator may get weaker. In heterogeneous domestic conflict, on the contrary, the effect of an agreement is different for each constituent. Some of them may be benefited by the agreement and others may be harmed. Various domestic groups take various positions. Each group may exert different influence on the negotiator according to its size, and groups may develop transnational alignments. In general, however, this situation affords the negotiator a smaller win-set, and strengthens his position at the bargaining table.

(2) Level II Political Institutions

Different political institutions which specify the requirement for ratification may decide the win-set size. Simple majority rule would provide the Level I negotiator with larger win-set size than a two-thirds vote. The requirement of two-thirds vote for the ratification of international treaties in the Senate, and the separation of

power in the U.S., the Peace Constitution and one percent rule, are the most typical examples of political institutional constraints in international bargaining. Besides the formal institutions, norms in domestic politics such as the importance of consensus in Japanese politics and strong discipline within the governing party also affect the win-set of the negotiator.[1]

(3) Level I Negotiators' Strategies

The stronger the political standing of the negotiator on the opposite side is, the more side payments will be given to marginal supporters in this domestic arena to expand the win-set size of this negotiator. On the other hand, to increase the win-set size of the opposite side's Level II game, negotiators are expected to try to reinforce the other side's political standing. This is why the president of one country supports the political position of the president of another country, with whom he should negotiate.

## 4.3 Burden Sharing and the Second Level Games

**4.3.1 Three Periods of Burden Sharing** Changes in the international environment and domestic political changes in Japan and the U.S. lead us to divide the fifty years of burden sharing into three periods: (1) from the conception of the security treaty to 1970s, (2) the 1980s, and (3) after 1990. The first period is characterized by the persistence of Yoshida strategy, that is, Japan, whose economy was devastated by the war, pursued its economic recovery and revitalization first, while being incorporated into the U.S.-led military, political and economic world order. The U.S. was willing to accept the world leadership during this period even though it was less willing to during the 1970s.

The relationship of burden sharing experienced significant changes during the 1980s. The U.S. still kept its commitment to East Asian security and increased

[1]Putnam also emphasizes the state strength as an informal political institution. Negotiators backed by autonomous decision-makers have larger win-sets. The political leadership which is strong in the domestic arena may be relatively weak at the international arena. He admits the ambiguity of the concept of "state strength," however. I will not deal with the concept for the same reason.

only its pressure on Japan to share more burden. Changes in the burden sharing can be found on the Japanese side, even though they were qualitative rather than quantitative (George 1988). The self-imposed three policies of constraint in defense policy which had been introduced during the previous period such as the Three Non-Nuclear Principles (1967), the three Principles of Arms Export (1967), and the one percent rule (1976) were withdrawn under the Nakasone government, even though Japan remained a non-nuclear country. Japanese military expenditure expanded consistently and it became one of the five largest in the world. Japan agreed on the transfer of military technology to the United States and began to participate in military exercises with the U.S.. Another important change in Japanese policy was the qualitative and quantitative improvements in Japanese foreign aid programs. In contrast to previous orientations toward the Asian region in economic aid, more emphasis was put on global strategic purposes.[2]

Mochizuki (1990) characterized these changes since the late 1970s: "Japan has evolved from a reluctant partner to an active military ally of the United States. Diplomatically, Tokyo has abandoned previous statements about an omni-directional or equidistant foreign policy and has stressed its firm commitment to the Western alliance (p. 131)." As to the changes in Japanese attitude, Pyle (1989) points out four influences:

- economic growth and the new pride and self-interest it has created
- social change, particularly the change of generations
- changes in the international environment in which Japan must operate
- foreign pressures (*gaiatsu*) in the form of criticism and demands expressed by the United States and other countries that Japan change its policies

The third period, the 1990s, suggests some big changes in burden sharing

[2]In analyzing the concepts, doctrines, and perspectives behind Japanese strategic aid policy and its role in foreign policy, Yasutomo (1986) says, "economic assistance policy reflects the strong desire to play a more active role in international affairs ... as an "aid great power" ... the response ... to external pressures to "do more" in world affairs and to national aspirations to do more as a nonmilitary power .... It involves the nation in East-West issues but through a North-South prism (p. 14)."

due to the changes in both countries. The demise of Cold War makes it more difficult for the U.S. government to sustain large military expenditure and overseas security commitments, under the huge fiscal deficit and the self-perception of relative decline. The rising tide of neo-isolationist mood in the Republican-dominated U.S. Congress makes the future of the U.S.-Japan Security Treaty murky. The difficulty in rationalizing the Security Treaty is not different on the Japanese side. The collapse of Soviet Union has caused the Japanese to reconsider the utility of the treaty. The unclear future of East Asian security system also puts the treaty to a test. The instability of China due to its rapid economic development, the future of the North Korean communist regime, and the arms competition among the countries in the region require a stronger U.S.-Japan relationship. Even though we are not yet sure what the burden sharing will look like in the future, it is reasonable to differentiate this period from the 1980s and investigate the characteristics of this period.

**4.3.2 Players on the Japanese Side** To explain the different burden sharings in the first two periods and investigate the possible outcome of the third period, we need to delve into to the second-level games (Level II games) which the negotiators from each country had to face. Before specifying the games, I need to introduce the four schools of strategic thought in Japan which have actively participated in the defense policy making regarding U.S.-Japan burden sharing. The four schools are Unarmed Neutralists, Political Realists, Military Realists, and Japanese Gaullists (Mochizuki 1984).[3] Mochizuki distinguishes the four schools of thought by the four sets of issues: (1) the perception of the threat to Japan, (2) the desirable character of the U.S.-Japan alliance, (3) the constitutional, legal, and treaty framework for defense policy, and (4) the appropriate military force and posture.

[3]In his article on Japanese Nationality, Pyle (1982) has a different distinction of the four schools of thought on the future role of Japan in the world: (1) the progressive; (2) the liberal-realists; (3) the mercantilist; and (4) the new nationalist. In his later article on Japanese burden sharing, however, Pyle (1989) delineates the schools of the 1980s in terms similar to Mochizuki's (1984): (1) the decline of the left wing; (2) political realists; (3) military realists; and (4) techno-nationalists.

The first school, the Unarmed Neutralists, perceived the international politics from an idealist view based upon Japanese war experience. Backed by the Japanese Socialist Party (JSP), this school led the protests against the U.S.-Japan Security Treaty and led the peace movements of Japan in the first period. Due to the frictions among JSP, the Japanese Communist Party (JCP) and the Democratic Socialist Party (DSP), the movements in this line of thought could not establish a solid basis of support in political arena.[4] Near the end of the first period, the influence of this school rapidly decreased. The international environment had rendered their arguments obsolete.

The Unarmed Neutralists believed that to avoid the resurrection of militarism, Japan should not become involved in the division between the capitalist bloc and the Soviet bloc. As long as Japan remained neutral in the bloc competition, there was no military threat from the Soviet Union toward Japan. They did not believe there were any necessary conflicts of interest between Japan and the Soviet Union. They emphasized the economic vulnerability of Japan in the supply of raw materials, the security of external markets and self-sufficiency in grain. Consequently, they argued that Japan should contribute to international community by maintaining a peaceful international environment. With similar reasoning, they persistently urged the repeal of the security treaty because Japan could become entangled in a military conflict due to the U.S. global military strategy. They opposed the treaty because it could provoke the Soviet Union, and they instead proposed pursuing friendship treaties with its neighbors. In this context, they opposed any revision or reinterpretation of the Peace Constitution and the policy constraints of the 1960s. The

[4]While the JSP was a proponent of Unarmed Neutralism from the beginning of 1950, the JCP has supported a different position. It always opposed the security treaty and demanded reduction or dissolution of SDF and its replacement with a 'socialist military force.' The DSP was formed by the defectors from the JSP who opposed the rigid policy on the security treaty. Right after the formation of the DSP in 1960, they showed support for the LDP. The Clean Government Party (DGP), which was formed in 1964, focused on the gradual dissolution of the security treaty and the removal of the U.S. bases in Japan. They accepted the limited size of the SDF and sided with the UN security system and an establishment of a nuclear-free zone (Gow 1982).

JSP always was antagonistic toward SDF, and they consistently demanded that it be reduced to a smaller size or to just a police force. While criticizing the continued expansion of SDF during the 1960s and 1970s, they also proposed to keep the SDF under more strict civilian control and keep it as a defensive force.

The strategies and policies of the Political Realists have reflected the realistic consideration of Japan's domestic and international political environment. During the first period (before 1980s), Political Realists believed that Japan, which was still weak in economic power, needed to focus on economic recovery and prosperity under the aegis of the security treaty and the U.S. nuclear umbrella. During the 1980s, they did not pursue a militarily independent Japan, but a Japan which could contribute to international peace and development in coordination with the U.S., and eventually could be able to sustain economic development and earn respect from the international community. This change in goals can be understood in the framework of the realistic response to its political environment. Prime Minister Yoshida who laid the basic structure of the U.S.-Japan relationship for the whole post-war period in the San Francisco Peace treaty and his inheritors, the mainstream LDP politicians, can be grouped in this school of thought.

Mochizuki (1984) elaborated the threat perception of this school as having three components. The first was the possibility of losing the U.S. security guarantee. Yoshida's strategy was to acquire the security guarantee from the U.S. with the cost of minimum self-defense. Given the guarantee, the U.S. could maintain the world leadership as a superpower and Japan could remain as a secondary economic power during the first period. During the later period, however, the U.S. pressure on Japan to share the burden and criticism of free-riding increased. Secondly, the threat from the Soviet Union starting in the late 1970s was perceived rather in political terms than in military. They thought the Soviet Union's arms buildup in Eastern Asia was intended to encourage Japanese neutrality in the Cold War. The third threat

perception was based upon the Japan's economic insecurity in the supply of raw materials and market security. The major policy response to these threats was to diversify the suppliers of raw materials and to increase the foreign aid programs for strategic purposes in amount and regions.

For political realists, the U.S-Japan alliance was the best available strategic device in the Japanese situation, which was constrained by the Peace Constitution, Japanese public opinion, opposition to Japanese rearmament from East and South Asian countries, and self-imposed Japanese legal constraints. The *Report on Comprehensive National Security* and the expansion of foreign aid can be viewed as a policy device to sustain the alliance relationship, and as a response to the U.S. pressure for burden sharing. Political Realists calculated that revising the Constitution involved too much political risk. They were not willing to risk a political debacle as long as they could manage the situation under the current Constitution. They also thought that the force structure and armament level indicated in NDPO in 1976 was appropriate and that only qualitative improvement should be pursued. Improvement of global image by expanded foreign aid or participation in the U.N. peace keeping activities was another strategy to evade the criticism of free-riding and to gain respect in the international community.

Compared to other schools of thought, the military realists emerged in the security debate more recently. The changes in the domestic and international environments since the late 1970s which made open discussions in defense matters possible were the soil from which this school was formed. Policy orientations of this school were backed and implemented by the Nakasone Government, and this government in turn composed the major changes in Japanese defense policy which occurred during the 1980s. Military relationships were the major focal point of this school but they differed from the fourth group, the Japanese Gaullists, in the sense that Military Realists did not support a military build-up independent of the U.S..

nor did they resort to nationalism. Military Realists evaluated the environment and constraints realistically just as the Political Realists, but their solution differed.

Military Realists perceived the Soviet threat not just politically but also militarily. They believed that Soviet intentions and actions in East Asia could undergo significant fluctuations without notice, and that, therefore the Japanese military should be strong and flexible enough to respond rapidly. The Japanese military preparation should be predicated on the military balance between the U.S. and the Soviet Union, and should address possible regional and global war scenarios. Under the Soviet threat during the late 1970s and 1980s, a strong Japanese alliance with the U.S. was seen as the only legitimate policy. Considering the reality of the East Asian region, in which the two contending superpowers dominated, they reasoned that alliance with one of them was necessary. Thus, to sustain economic prosperity and military security, the U.S.-Japan alliance relationship were to be strengthened. For this purpose, they believed that revision or reinterpretation of the Constitution and the self-imposed policies should be made if necessary, but that political will and leadership to redirect the policy orientation were more important. In the 1980s, Military Realists made the assessment that the force level recommended in NDPO required qualitative and quantitative improvement. A realistic military build-up was believed to be a proper response to the reality of the 1980s and would deepen the cooperation with the U.S..

Unlike the Military Realists, the Japanese Gaullists did not have consistent political backing, but during the last fifty years their voices erupted on and off whenever a volatile situation generated strong public sentiments. The major currents among Japanese Gaullists were national pride and suspicion of the U.S. commitment. For them, the major threat was not just the Soviet arms deployment but also the possible withdrawal of the U.S. commitment. They perceived that the security treaty served the U.S. interest. They further argued that the security treaty

required revision so that Japan could attain equal status.

The existing treaty placed Japan in a subordinate position. To be an equal partner in the framework of the security treaty. Japan needed to have an independent defense capability. The Japanese Gaullists further believed that for Japan to be truly a sovereign state, the Peace Constitution, which was formulated under U.S. supervision, should be revised and all the self-imposed constraints should be repealed. More than this, they said that Japan should possess offensive capabilities and should become a nuclear power. In short, the Japanese Gaullists pursued political and military power commensurate with its economic power.

Among the four schools of thought on defense policy, the U.S. government was most concerned with the political realists and military realists, both of which were based upon political forces in LDP during the first and second period. The U.S. government and strategists preferred the latter's policy orientation to the former one. However, the power base of the military realists was not stable in the Japanese society, and East Asian countries and even the U.S. were afraid of the possibility that it may lead to a return of Japanese militarism.

Among the four schools of thought. Political Realists were the leading political power in the Japanese defense and foreign policy during the first period. Most of the members of LDP, which dominated Japanese politics during the period, shared the political realist view and they were the negotiators at the bargaining table with the U.S.. The strategy and proposals of the Japanese government at the bargaining table for burden sharing cannot be understood without considering the domestic political situation. The initiation of the U.S. Japan peace treaty of 1951, and the second and the third revisions (in 1960 and 1970) of the treaty, were made possible only after severe domestic opposition demanding neutrality, disarmament and reversion of Okinawa.

The San Francisco Peace Treaty which excluded China and South Korea,

the past victims of the Japanese aggression, and the Security Treaty were secretly processed without the knowledge of the Japanese Diet. At the time, public opinion was clearly divided between support for the treaty, on the one hand, and demand for unarmed neutrality, on the other. The revision of the treaty of 1960 was passed only after massive protests against it, which had led to the cancellation of Eisenhower's schedule to visit Japan. Worse, the treaty was ratified in the Diet without due process. Prime Minister Kish was forced to step down because of the turmoils before and after the ratification. The 1960s began with a mass movement demanding the reversion of Okinawa and disarmament. In response, the Sato government proclaimed the Three Principles of Arms Export and the Three Non-nuclear Principles in 1967. Even though the treaty was automatically extended in 1970, protests on the conditions of the reversion of Okinawa continued from the time of the agreement in 1969 until the actual reversion of 1972. These protest movements demonstrated the power of the Unarmed Neutralists. Consequently, it would be plausible to say that the major contending actors in the domestic game of the first period were the Unarmed Neutralists and the Political Realists.

The actors in the domestic game of the second period were the Political Realists and the Military Realists. A renewed Soviet threat in the far eastern region accelerated the changes in the opposition party principles on security. The opposition parties began to accept the validity the security treaty and the SDF. That is, there came to exist no difference in security policies between LDP and the opposition parties. Increased pressure from the U.S. to step up the Japanese contribution to regional security gave shape to another line of thought on defense matters. On the one hand, the Political Realist view, which put more weight on the concept of 'comprehensive security,' produced the massive increase in foreign aid programs instead of adhering to the guideline of NDPO in armament policy. They focused on non-military policy to respond to U.S. pressure. On the other hand, with the beginning

of the Nakasone government, the Military Realists view started to be reflected in defense policy. Nakasone knocked down the one percent rule and increased Japanese armaments and participation in military exercises with the U.S.. By agreeing on the transfer of military technology to the U.S., his administration rescinded the constraints on arms exports. Nakasone also redirected Japanese foreign policy from passive response to active participation (see Pyle 1989; Mochizuki 1990). During this period, the contending orientations of the Military Realists and the Political Realists were the major forces behind the Japanese defense policy.

During the 1990s, the voice of the Unarmed Neutralists has been dramatically weakened. Instead, the two schools of realists became the two contending groups on the future of the Japanese security policy. Mochizuki (1995) called the two schools of thought by different names: Great Power Internationalism and Civilian Internationalism. Orientations of the two realist schools have been inherited to these two groups. The major difference between the two in the context of 1990s is that while Great Power Internationalism emphasizes participation in the U.N. peace enforcement operations, permanent membership in the Security Council, and revision of constitution to affirm the right of defense, Civilian Internationalism focuses on non-military activities such as foreign aid and humanitarian relief, and recovery of trust among Asian countries toward Japan. Because maneuvering among various political parties is being continued, it cannot be said which school has a stronger political basis.

**4.3.3 Players on the U.S. Side** We need to take a look at the contending views in the U.S. foreign policy. Based on a survey of the leadership positions in the public and private institutions about their perceptions on U.S. foreign policy, Holsti and Rosenau (1980) argued that the Cold War consensus which existed in the post-war years until 1970 was challenged by the experience of the Vietnam War. After 1970s, this consensus was broken down into three different perspectives.

Cold War Internationalism, Post-Cold War Internationalism, and Semi-Isolationism. Later, under the Reagan administration, there appeared another division in the Cold War Internationalism among the conservatives: Cold War Multilateralists and Cold War Unilateralists. The Unilateralists shared the isolationist orientation with the Semi-Isolationists.

During the 1990s, after the fall of the Soviet Union, another alignment in the perspectives on foreign policy emerged. Stedman (1993) argues that the consensus of the Cold War liberalism turned into the contention between the liberalists of anticommunism and the traditional Wilsonian liberalists after the Vietnam War: "[t]he end of the Cold War finally allowed these competing liberalisms to recombine (p. 5)" into the new interventionists. Neo-isolationists call the internationalists of the 1990s "new interventionists." The internationalists believe that it is necessary for the U.S. to take a leadership in world politics to enforce and maintain the peaceful world. They assert that the U.S. and other countries have significant common interests and that these interests should be pursued in coordination with these countries.

On the other hand, Schlesinger (1995) presents an opposite position. He argues that Isolationism has appeared in the U.S. foreign policy on and off ever since the Washington presidency, and that the U.S. had to experience the two World Wars as a penalty for the isolationist policies. Next, he states that there existed a consensus of internationalism under the threat of the Soviet Union, which was broken down after 1990s: "The collapse of the Soviet threat faces us today with the prospect that haunted Roosevelt half a century ago — the return to the womb in American foreign policy (p. 5)." He calls this isolationism neo-isolationism in the sense that this perspective underestimates the importance of common interests with other countries, although neo-isolationists still believe in the importance of the U.S. involvement in world affairs. Pursuit of the U.S. interests independent of other countries on the one hand, and ignoring interdependence on the other hand, ends up

with the inward-oriented policies or Unilateral Internationalism.

The major players in U.S. foreign policy changed over the three periods. The Cold War consensus dominated the U.S. foreign policy during the first period. While the Carter Administration began as a strong advocate of Post-Cold War Internationalism, it had to revert its policy orientations in the latter part of the presidency due to the renewed increase of the Soviet threat. During the second period, even though support for other foreign policy perspectives increased, the Reagan and Bush administrations embraced policies closer to Cold-War Internationalism (Holsti and Rosenau 1984). Schlesinger (1995) argues that the Internationalist consensus existed until the collapse of the Soviet Union. For the sake of simplicity, I would argue that even though there existed some criticism against official foreign policies, Cold War Internationalism dominated U.S. foreign policy during the first and second period.

This is especially true with respect to the security policy toward Japan. During the second period, the U.S. government showed a tougher attitude toward Japan to force Japan to increase military expenditure and to promote the transfer of military technology. Although this attitude might have received some momentum from isolationists' criticism, there was no fundamental change in the security policy in East Asia. The general consensus was possible because the primary motivation of the U.S. foreign policy derived from the confrontation with the Soviet threat. The basic principle of the U.S. security strategy in East Asia was a part of the global strategy to contain Soviet expansionism.

The Level II game in the domestic arena became important in the third period. With no direct threat to U.S. security, the major concern of the foreign policy decision makers was the U.S. role in the world order of the future. The internationalist view and and the neo-isolationist view began to clash in the process of the U.S. foreign policy formation during this third period. The Clinton presidency which is on the side of internationalist camp is in conflict with the Republican-dominated

Congress on the role of the U.S. in the U.N. peace keeping activities, and the budget for foreign aid. As to the future of U.S. troops in East Asia, the two perspectives present diametrically opposing views on the question. In the same edition of *Foreign Affairs* (1995), Joseph Nye, Assistant Secretary of Defense for International Security Affairs under the Clinton administration, and Chalmers Johnson & E. B. Keehn illustrate the two different opinions.

Nye (1995) argues that the current level of the U.S. troops (about 100,000 troops) in East Asia (36,000 in the Republic of Korea, and 47,000 in Japan) is necessary for the stability of the region, and that these troops safeguard the military and economic interests of the U.S.. This policy position is based upon these assumptions: (1) "Political order is not sufficient to explain economic prosperity, but it is necessary .... Security is like oxygen — you tend not to notice it until you begin to lose it, but once that occurs there is nothing else that you will think about(p. 91)." The post-war economic prosperity of the East Asian region has been possible because the U.S. guaranteed the security of the region. (2) The rapid economic development of the region could result in regional instability. (3) The stability of the region is also important for economic interests of the U.S.. (4) The countries welcome the U.S. commitment, and common security interests exist.

On the other hand, Johnson and Keehn (1995) argue that stationing U.S. troops is not helpful for the security or the economic prosperity of the East Asian countries, nor for U.S. national interest: (1) "East Asia's own invention of state-guided capitalism did more to overcome communist militancy and wars of national liberation in the region than any military role played by the United States (p. 111)." The closing of the two largest bases of the region — Clark Air Base and Subic Bay — did not leave any instability in the region. (2) The most serious instability is due to the uneven economic growth between the U.S. and Japan, and the extravagant military commitment in the region is one of the causes of the stagnant U.S. economy.

The existence of the U.S. troops cannot improve the trade imbalance between the U.S. and the Asian countries, and the U.S. should focus on its economic improvement in the American continent rather than continuing the Cold-War trade policy. (3) In the long-run, continued economic prosperity of the region will make the countries more independent of the U.S.. Furthermore, the deep engagement of the U.S. and the continuing economic conflicts between the U.S. and Japan may provoke a reactionary and nationalist mood in Japan. In the short-run, the U.S. presence will help Japanese politicians to avoid and postpone the risk of political crisis following an effort to revise its constitution. Promoting Japanese confidence in their own ability to provide regional security and supporting the Japanese effort to be an "ordinary country (Ozawa 1994)" are better policies to promote peace in the region. (4) The Southeast Asian countries are ready to accept the Japanese political leadership in the region. In sum, Johnson and Keehn (1995) cast a suspicion on the rationale of the DOD report, *Unites States Security Strategy for the East Asia-Pacific Region*, supervised by Joseph Nye, Jr, saying that, "The question is whether a U.S. commitment to a Cold War vision of East Asia until the year 2015 reflects a viable strategy or inertia and drift. The Pentagon's understandable desire to maintain old spending levels and military commitments should not drive U.S. regional strategy (p. 112-113)."

The major contending forces of each country in the three periods and the primary Level II games are summarized in Table 1.

## 4.4 Game Theoretic Approach

Based upon the discussions of the contending actors, games at the second level will be presented in strategic forms. For this purpose, I will specify the policy options of each political group and the payoff structure for each option.

**4.4.1 Games of the First Period** The LDP politicians, who were the inheritors of the Yoshida strategy and the major political group of Political

Table 1: Contending Foreign Policy Orientations of Japan and the U.S.

| | Japan | U.S. |
|---|---|---|
| The first period | Unarmed Neutralists vs. Political Realists | Consensus of Cold War Internationalists (arms race with USSR) |
| The second period | Political Realists vs. Military Realists | Consensus of Cold War Internationalists (arms race with USSR) |
| The third period | Great Power Internationalists vs. Civilian Internationalists | Internationalists vs. Neo-isolationists |

Realists, adhered to a policy of low level military spending in order to revitalize the Japanese economy and depended on the U.S. deterrence for security against the Soviet threat. They had to consider U.S. demand for higher military spending and a stronger SDF, because Japan had to make a certain level of contribution to promote the U.S.-Japan alliance.

On the other hand, Unarmed Neutralists, whose power was represented by the JSP, insisted on the repeal of the security treaty and the unconstitutionality of SDF. They supported only a minimal level police force and continued to protest against expansion of the armament level of the SDF. Another policy option Unarmed Neutralists had to face was a lower level of defense spending, which the Political Realists proposed during the election campaign. Here we can think about four combinations of policy proposals (the first policy is the Political Realists' and the second one is the Unarmed Neutralists'): (1) low level of military spending (**lowmil**) and unarmed neutrality (**unarm**); (2) low level of military spending (**lowmil**) and low level of military spending (**lowmil**); (3) moderate level of military spending (**modmil**) and unarmed neutrality (**unarm**); (4) moderate level of military spending

(**modmil**) and low military spending (**lowmil**).

The ordinal payoffs for each combination of policy positions are put together and turned into a strategic form of the game.

| Political Realists | Unarmed Neutralists | |
|---|---|---|
| | unarm | lowmil |
| lowmil | 3, 3 | 4, 2 |
| modmil | 2, 4 | 1, 1 |

For the Political Realists, the second combination had the highest payoff. Keeping defense spending low was one of most important parts of the Yoshida strategy. Furthermore, by advocating spending levels supported by the opposition party, the LDP could eliminate an important point of party differentiation, and voters would thus have less reason to vote against the dominant party. The third combination was the best for the Unarmed Neutralists. Political Realists' proposal of moderate level of defense spending could not attract support from the majority of the Japanese constituents because of its burden on economy and the national antipathy to major armament, a possible violation of the constitution. Constituents would withdraw their support from the Political Realists and would switch to the side of the Unarmed Neutralists, the best scenario the JSP could think of. The fourth combination would lead to the worst result for both groups. Rearmament and the consequential heavy burden on its economy would provoke international and domestic opposition. The first combination produced quite a good payoff for both groups. The governing LDP would face opposition from only a small part of the constituency, the Japanese Gaullists, and still would promote the U.S. alliance. This combination would also let the Unarmed Neutralists sustain a certain level of seats

and support.

In this game, (3, 3) is a Nash equilibrium, that is, neither player can move to another option without lowering its payoff. It is the best option for both player in responding to the other player's move. According to Rapoport and Guyer's taxonomy of games (1966), this is "a game with a strongly stable equilibrium" because each player has a dominating strategy: the Political Realists will stick to the option of low military expenditure and the Unarmed Neutralists will not move away from the option of unarmed neutrality.

The strategy of the Nash equilibrium was very close to reality. Neither the LDP nor JSP ever changed their policy position during the first period. Even though there are many reasonable explanations for this phenomena, a Japanese electoral institution may provide a very plausible explanation: the medium-sized constituency. While small-sized electoral districts elect only one representative, this district system allows the constituents to elect three to five representatives. The best strategy to maintain a number of elected seats is to differentiate the party policy lines from other parties and share the seats available in each district. Ozawa (1994) attacked this electoral system for letting the parties enjoy a "snug" structure and letting them avoid the risk of losing seats associated with new policy initiatives or political leadership.

During this period, the Cold War Internationalists represented a consensus in the U.S. and the major game was with the Soviet Union. As is well known, the game was called arms race, and was represented by the Prisoner's Dilemma game. The strategic form of the game is,

| U.S. | Soviet Union | |
|---|---|---|
| | disarmament | armament |
| disarmament | 3, 3 | 1, 4 |
| armament | 4, 1 | 2, 2 |

In this game the Nash equilibrium is (2, 2). Each player has a dominant strategy of armament but the equilibrium is deficient, that is, the equilibrium is not Pareto-optimal: "[A] Pareto optimal outcome is such that there is no other in which both players get larger payoff (Rapoport and Guyer 1966, p. 205)." This Prisoner's Dilemma game is categorized into "a game with a strongly stable deficient equilibrium."

Now, lets look at the payoff structure of the Level I game, that is, the strategic options at the negotiation table for burden sharing, based upon the Level II games. Japanese negotiators who supported the policy orientation of Political Realism of the governing party had two options, low defense spending (**lowmil**) and moderate defense spending (**modmil**). The two strategic options available to the negotiators from the U.S. were a large supply of deterrence and a strong commitment to Japanese security (**deter**) and a small supply of deterrence and a weaker commitment(**lessdeter**).

For the Japanese negotiator, the policy combination of deterrence with low Japanese military expenditure was the best result. Japan could be safe under the U.S. nuclear umbrella and the LDP could maintain its governing position in the domestic game. Japan preferred more deterrence with moderate Japanese military expenditure to less deterrence with low Japanese military expenditure. Even though the insistence of low military spending may have been helpful to the LDP on its domestic front, a smaller provision of deterrence and security commitment from

the U.S. coupled with a low SDF level could have threatened the Japanese post-war political and economic strategy under the Cold War. Troubles or sluggishness in economic recovery and prosperity due to unstable security could have caused more serious problems than the moderate level of defense spending under the stable security of Japan. A direct economic and domestic political burden due to a moderate increase in defense spending might be better than a loss of a long-term economic and international political security. As long as promoting the security guarantee did not involve a huge increase in military spending, larger deterrence was always preferred to smaller deterrence. The last combination of less deterrence with moderate military expenditure represented the worst result for the negotiators internally and externally, economically and politically. However, the last combination was the best deal for the U.S. negotiators. As long as the strategic security of Japan was not in jeopardy, Japanese burden sharing with the U.S. was the most preferable policy to the U.S.. The worst combination for the U.S. was less deterrence with low military expenditure. Under the low defense spending of Japan, if the U.S. commitment became weaker, and Japan came under the influence of the Soviet Union, the result was a critical blow to the U.S. global strategy of containment. Between the other two combinations, the U.S. preferred deterrence with moderate Japanese military expenditure to deterrence with low Japanese military expenditure.

The strategic form of this game is,

| Japan | U.S. | |
|---|---|---|
| | deter | lessdeter |
| lowmil | 4, 2 | 2, 1 |
| modmil | 3, 3 | 1, 4 |

In this game, a Nash equilibrium is on (4, 2) but this equilibrium is not stable. According to the Rapoport and Guyer's taxonomy, this is a game with a threat vulnerable equilibrium. The aggrieved actor (the U.S.) may threaten the satisfied actor (Japan) to switch its policy to moderate military expenditure by showing an intention to switch its own position to less deterrence. Once Japan yields, and chooses moderate military expenditure (because (3, 3) is a better payoff than (2, 1) to Japan), the U.S. has an opportunity to increase its payoff by moving to less deterrence (because (1, 4) is better to the U.S. than (3, 3)). This process is called "appetite-whetting appeasement" (Rapoport and Guyer 1966, p. 208). However, once the U.S. adopts the option of less deterrence, Japan also has a chance to go back to the original policy and the U.S. response to it leads to the initial equilibrium. Snyder and Diesing (1977) called this relationship a game of "Called Bluff." The U.S. may bluff to lead the game into (2, 1) but this bluff cannot induce the expected response without detrimental payoff to the U.S.. While Japan is playing a Prisoner's Dilemma game, the U.S. is playing a Chicken game.

The strategic relationship between the U.S. and Japan was well represented by Yoshida strategy. Mochizuki (1984) describes this strategy:

> Yoshida offered to permit the Unites States to station troops in his country in exchange for America's obligation to defend Japan. At first, the Americans resisted this bargain, arguing that Japan's inability to defend itself prevented any *mutual* security agreement. Yoshida, however, persevered, for he shrewdly saw that the Cold War between the United States and the Soviet Union made Japan extremely valuable. In the end, the Americans agreed to defend Japan despite Japan's own limited contribution because the conflict in the Korean peninsula and the rise of a communist regime in China made Japan the only secure American foothold in Northeast Asia (p. 153).

In term of Putnam's theory of ratification, while Japanese negotiators were facing a heterogeneous domestic conflict, negotiators from the U.S. were under a homogeneous domestic conflict. The Japanese negotiators had a smaller win-set compared to the U.S. negotiators. As long as the homogeneous domestic conflict was defined

by the Cold War, the U.S. negotiators would have a larger win-set on the alliance negotiation front with Japan. Necessarily, Japan had a stronger position at the negotiation table than the U.S..

In this sense, the breakdown of the Cold War consensus in U.S. foreign policy and divergence into Cold War Internationalism, Post-Cold War Internationalism, and Semi-isolationism can be interpreted as a shrink of the win-set in the Level II games. Consequently, this trend strengthened the U.S. negotiators' position in the Level I games during the third period. In reality, the U.S. complaint of Japanese free-riding and pressure for burden sharing started gaining momentum for the future. In contrast, the Japanese position was getting weaker during the late 1970s. The vision of the Unarmed Neutralists was losing its cause and the opposition parties began to take a similar policy orientation to the LDP's, and the contending views in policy discussion were within the LDP during the 1980s.

**4.4.2 Games of the Second Period** Political Realists and Military Realists agreed on the importance of the U.S-Japan alliance relationship but they disagreed on how to budget burden sharing with the U.S. because of their different perceptions of the threat to Japan. The former group emphasized expansion of foreign aid and overseas financial investment (**aidinv**), while the latter group put more weight on increase of military spending (**largmil**). As in other advanced capitalist countries, an austerity policy in the 1980s to downsize the government was restraining the growth of government expenditure in Japan. Under this situation, the two groups had to consider other options. The Political Realists might have had to be satisfied with the current level of foreign aid and overseas financial investment (**statusquo**), and the Military Realists might have not been able to increase the military expenditure up to their strategic goal and might have had to stay with the already moderate defense spending(**modmil**). We need some qualification of these policy options. While there was a large increase in foreign aid and direct investment

compared with the 1970s, the increase of military expenditure was relatively small. However, compared with other items of government expenditure under the austerity policy, the increase was significant enough during this period. So, moderate military expenditure indicates military expenditures lower than one percent of GNP, and large military expenditure implies one percent or a little larger than that.

As much as the two groups were involved in the budgetary conflict within the LDP, both had a similar preference order among the available options. The Political Realist preferred expansion in non-military options, and if the other player yielded and took moderate military expenditure, they could have had the best payoff as they could increase the budget for their purpose. If the other player adhered to large military expenditure, both players would have suffered some reductions in the budget allocation for each purpose. However, while the Political Realists should have chosen the status quo, they preferred the combination with large military expenditure to the combination with moderate military expenditure because they accepted the importance of any kind of response to the U.S. pressure. This preference ordering had the same implication to the Military Realists.

The strategic relationship between the two groups was,

| Political Realists | Military Realists | |
|---|---|---|
| | largmil | modmil |
| aidinv | 3, 3 | 4, 2 |
| statusquo | 2, 4 | 1, 1 |

This is a symmetric game because the payoff structure is same for the two players. Both players had a dominant strategy of expansion in non-military options and large military expenditure, so the Nash equilibrium is (3, 3). This is a game with a strongly

stable equilibrium.

As I mentioned in the previous sections, the U.S. was still involved in the arms race with the Soviet Union. Even though there were increasing diversions in foreign policy orientations, the renewed threat from the Soviet Union forced the U.S. to stay in the same game.

We can think of four combinations of policy options at the bargaining table between the U.S. and Japan: (**largmil, deter**), (**largmil, lessdeter**), (**modmil, deter**), and (**modmil, lessdeter**). The third combination was the best one and the first combination was the second best for Japanese negotiators. Among the other combinations, Japan preferred a large military expenditure if a moderate military expenditure meant a U.S. policy of less deterrence. This is different from the Japanese preference at the Level I game of the first period in which Japan preferred low military expenditure to moderate one in response to the U.S.'s less deterrence . There can be two explanations of this difference of preference between the two periods. The first is that economic affordability of Japan in the second period made the policy of large military expenditure more compatible with the U.S. policy of less deterrence and made the security more valuable. The second explanation is that general policy agreement in the domestic arena made Japan prefer a larger military expenditure in response to the U.S.'s reduced deterrence. During the second period, there was no opposition group pursuing such a different policy orientation as Unarmed Neutralism. I will argue that economic prosperity of the 1960s and 1970s did not necessarily give birth to the new general agreement. Rather, the second explanation is more plausible in this game theoretic perspective. Another point I want to indicate is that, in the second period of Japan, I did not assume that any of the two domestic groups was a governing party nor that the negotiators had any party allegiance. In contrast to the changed policy preferences of Japan, the U.S. maintained a same order of preference. The U.S. preferred a more secure Japan at

the minimum cost to the U.S..

The strategic form of this game can be represented.

| Japan | U.S. | |
|---|---|---|
| | deter | lessdeter |
| largmil | 3, 3 | 2, 4 |
| modmil | 4, 2 | 1, 1 |

In this game, both of (4, 2) and (2, 4) are Nash equilibria. However, each equilibrium was "threat-vulnerable" and "force-vulnerable." At the equilibrium of (4, 2), the aggrieved player (the U.S.) could threaten or force the satisfied player to switch to the option of large military expenditure. Then the aggrieved player could change the game to his benefit by switching to less deterrence. The reversed scenario is also applicable. Rapoport and Guyer called this Chicken game as "two-equilibria game with non-equilibrium outcome (pre-emption game)," because the result of the game depends on who pre-empts. The result of this game is totally different according to whether the game is a simultaneous game or a sequential game. In the sequential game, maneuvering among the options in response to the other's choice is possible. In this case, cooperation between two players is possible. Even though the Chicken game is an adversary game under simultaneous play, the burden sharing game between two alliance members can be compared with the sequential play of Chicken game. As the burden sharing of (2, 4) and (4, 2) resulted for some years of the 1980s, we can characterize the 1980s as having reached the cooperative outcome of (3, 3) under the Japanese constitutional constraint.

During the second period, the U.S. played the same Level II games as in the first period, and the policy orientation was still decided mainly by the Cold War

Internationalist view. Then, what made the burden sharing game different from the previous period? A change in Japanese domestic conflict on military policy occurred. The heterogeneous conflict between Political Realists and Unarmed Neutralists was substituted by the homogeneous conflict game between the Political Realists and Military Realists. As much as the win-set was broadened. the bargaining position of the negotiators was weakened. Another factor we need to mention is the emergence of various political forces within the U.S. which indirectly have worked to press for the advent and the growth of Military Realists in Japan. In this context. the explanation that attributes the increased Japanese contribution in burden sharing to the U.S. pressure is not enough. If the explanation is correct. why did not the U.S. press Japanese hard enough to increase its contribution during the 1970s? This study shows that the diplomatic pressure was possible only when domestic games in the U.S. and Japan allowed such action. More specifically and ironically. domestic consensus hampered the bargaining process in the international arena. and domestic division on foreign policy orientation strengthened negotiators' position at bargaining.

The balanced bargaining and cooperation between the U.S. and Japan during the 1980s were possible under the confinement of the Japanese Level II institutions. During the 1980s, many Japanese institutions concerned with defense policy such as the Three Principles of Arms Export, the Three Non-Nuclear Principles. and the one percent rule were rescinded or partly relaxed. The Peace Constitution was the only significant institutional constraint of Japan in burden sharing. I will look into the possible outcomes of burden sharing of the third period, based upon assumptions about the actors and games of the domestic arena.

## 4.5 Games of the Third period

In the discussion above, we have seen that the rise of heterogeneous domestic conflict on foreign policy orientation in the U.S. increased the influence of the U.S. on Japanese burden sharing. Also, the transition to relatively homogeneous orientations in Japanese foreign policy discussions made Japan more susceptible to the U.S. pressure. This explanation cannot be directly extended to the third period. Under the Cold War, the pressure for burden sharing was directed to the increase in Japanese military expenditure. With the disappearance of the Soviet Union, burden sharing implicates various policy options which can support the U.S. global strategies.

Accordingly, the two contending foreign policy schools in the U.S. have a different idea of burden sharing. Internationalists emphasize the support of the U.S. troops stationed in East Asia, and non-military policies compatible with the U.S. global strategy and commensurate with Japanese economic power. Neo-isolationists, however, emphasize Japan's independent defense capacity and Japan's leadership role in the security of East Asia. In Japan, the division between Great Power Internationalists and Civilian Internationalists is based upon a consensus that Japan should make contributions to the international community in support of the U.S. global strategy. They differ in their view of Japanese power in the future. The division between the two is in line with the division in the U.S., that is, the different emphasis between the military and non-military roles.

The foreign policy orientation of each country in this post-Cold War era is still under discussion. Rather than indicating payoffs for each option in the two countries, I will briefly discuss the bargaining situations at the government-to-government level of the four combinations of foreign policy orientations between the two countries: Internationalists (U.S.) vs Great Power Internationalists (Japan), Internationalists vs. Civilian Internationalist, Neo-isolationists vs. Great Power Internationalists, and

Neo-isolationists vs. Civilian Internationalists.

(1) Internationalists (U.S.) vs. Great Power Internationalists (Japan): The U.S. will encourage Japan to take more active role in U.N peace keeping activities. In this case, Japan would demand power sharing commensurate with its burden sharing, which would not be easy because of the strategic goal of the U.S. as military leader. As long as Japan pursues its independent defense capability, conflict in the bilateral security relationship also can be expected. In the case of Japanese development of a domestic defense industry, opposition on the bilateral relationship from the U.S. Neo-isolationists will increase.

(2) Internationalists (U.S.) vs. Civilian Internationalists (Japan): This is a most promising policy combination. While the U.S. maintains its presence in the East Asian region, Japan can increase its financial support for U.S. troops. The Japanese commitment to self-defense can attract support for the U.S.-Japan alliance from East Asian countries, which will lead to stability in the region. Power sharing in foreign aid community, environmental protection and humanitarian relief activities would be relatively easier than in military activities.

(3) Neo-isolationists vs. Great Power Internationalists: Withdrawal of the U.S. troops in East Asia would lead to Japanese independent armament. We can easily imagine many troubles on this road before reaching a stable balance in the regional power politics. Due to the suspicion of the East Asian countries, Japanese independent armament would add fuel to the fire of the emerging East Asian arms race and antagonism of the region. Considering the seriousness of the potential conflict, backed by the economic and technological capacity of the region, the U.S. cannot be safe from such a threat.

(4) Neo-isolationists (U.S.) vs. Civilian Internationalists (Japan): This policy combination between the two countries would temporarily mean a power vacuum in the region. Japanese Gaullists would increase their power in Japanese politics. This

would lead to eventual Japanese armament. but through domestic instability. In this case. a reactionary response among the Gaullists may lead Japan to a renewed militarism.

## 4.6 Conclusion

This chapter illustrates the importance of game theoretic perspective in understanding the U.S.-Japan relationship. The most important finding is that U.S. pressure was limited in effect not only because of the Japanese domestic political structure but also because of U.S. domestic politics. The consensus of foreign policy orientation was important in dealing with the Soviet threat but it weakened the U.S.'s bargaining position in dealing with Japanese free-riding. Later. U.S. divisions in foreign policy orientation increased leverage in the negotiations with Japan. This game theoretic analysis shows that understanding domestic politics in terms of contending schools of thought concerned with policy direction is a powerful tool in the analysis of foreign policy.

# CHAPTER 5

## FSX CO-DEVELOPMENT PROJECT

In 1984, the Defense Agency of Japan issued Medium-Term Defense Program Estimate (a five-year defense plan for fiscal 1986-1990) introduced a schedule to replace the existing F-1 fighters with Japanese next generation support fighter: FSX (the acronym of **F**ighter **S**upport/ **EX**perimental). With Nakasone's approval of the Medium-Term Defense Program in September 1985, the FSX project began to attract attention of the policy makers in Japan and the U.S.. It took the next four years for the two governments to reach an agreement for co-development and begin the development phase of the project in 1989. The whole process, initial conception of the project for independent development by Japan, negotiations between the two governments and incidents which affected the negotiations, policy debate and fightings among the government agencies in the two countries, Japanese response to the U.S. demand and pressure, conclusion of the contract, and arrangements for development and production, is a rich source for political and theoretical implications on the relationship between the two countries.

First, the U.S. and Japan each had different conceptions about their roles in the security treaty, most notably, in the area of burden sharing. Second, the U.S. domestic debate illustrates the changing concept of security and various perceptions of its relative decline. Third, this topic also reveals how each country conceives of its role in the future of international politics. Lastly, the FSX project provides a fertile test case for two theoretical perspectives, the realist perspective and the institutionalist perspective. In particular, I will explore each of the theoretical perspectives

in light of game theoretic analysis. Theoretically, which of the two theoretical perspectives that explain international cooperation provides a better framework in this case? How does game theoretic perspective help us to explain the outcome of the deal?

To answer these questions I will start from a brief description of the Japanese aircraft industry as a background to the initial decision of domestic development of FSX. The second section is on the interaction between Japan and the U.S. until it ended with the decision of a co-development. It is followed by the U.S. domestic opposition to the deal and Japanese response to the U.S. policy debate. Then, the final deal and the aftermath will be outlaid. Following the sections on the process, I will discuss the theoretical implications. In order to address the theoretical problems in the final section, I will discuss the two government's concern on the relative gains issue.

## 5.1 The Background of the FSX Project

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**5.1.1 Aircraft Industry in Post-War Japan** Immediately following World War II, the Japanese aircraft industry had to follow the same course of demobilization as other armament industries under direction of the U.S. Occupation forces. Any manufacturing of aircraft and research on aviation industry was prohibited right after the end of war and the existing manufacturers were broken down into small firms like any other *zaibatsu* companies. This changed with the rise of Cold War and the breakout of the Korean War, when Japan was ordered to play the role of ammunition supplier for the U.N. forces operating on the Korean peninsula. The Japanese armament industries began to produce ammunition and parts to meet the demand of the U.N. Air Force and were even allowed to produce jet planes under

[1]Samuels and Whie (1989) provides excellent information on the background of FSX debate between Japan and the U.S., and this section is owes heavily to this article.

the U.S. guidance. In 1952, with the passage of the Air Law, the Japanese aircraft industry recovered its legal authority to produce aircraft.

There were, however, some inherent limitations in the development of the Japanese aircraft industry until the 1980s. First, the prohibition of the aircraft industry during the Occupation period left a big technological gap between Japan and the European countries as well as U.S.. The 40s and 50s was the period for technological breakthroughs in the history of aviation technology, such as the development of jet engine (Auer 1973). Second, the limited military expenditure of SDF did not provide sufficient financial resources for the development of an aircraft industry, 90 percent of whose production was purchased by JDA. In the U.S. and Europe, the aircraft industry focused on military aviation, which became a growing target for investment and a wellspring of technological advancements. In Japan, on the other hand, the low military expenditures and investments further handicapped Japanese competitiveness in the aviation industry for this entire generation of aircraft. Third, the Three Principles of Arms Export of 1967, which prohibited arms exports to (1) Communist countries, (2) countries referred to by UN sanctions, and (2) parties to international disputes, and which was expanded to all other countries in 1976, also militated against vast investment into the aircraft industry. These three limitations left the aircraft manufacturers less profitable than other firms, and less competitive than foreign counterparts.

The initial development was part of a larger effort to create a self-sufficient Japanese aircraft industry (the YS-11, a commercial carrier, was their first post-war aircraft.). For this purpose, the Nippon Aircraft Manufacturing Company was established as 'a national policy company' in which all the heavy industrial companies and related companies participated as a consortium. Japanese government invested 50 percent of the whole equity and heavily subsidized the development cost. While there was strong support from the government, there was no motivations to lower

the cost or to market their products. The project set off in 1957 was declared a failure in the early 1970s. Only two thirds of fewer than 200 airplanes were sold to domestic airlines, and these came after severe production delays. Even though the project was estimated as a technological success, the amount invested was four times greater than the revenues on sales. "[T]he planners retreated from their independent approach to consider less ambitious strategies for commercial aviation (Samuels and Whie 1989, p. 277)."

During the 1980s, the Japanese government and aircraft industries changed their strategy toward commercial aircraft and began participating in international partnerships with the Boeing Commercial Airplane Company, and with the International Aero Engines (IAE) consortium led by Rolls-Royce and Pratt & Whitney. In the first case, the junior partnership in the development and production of Boeing's 767 did not bring profit to the Japanese companies owing to delays in production. The change in the Yen-Dollar exchange rate left the Japanese part suppliers to Boeing in the red. Furthermore, Boeing canceled the co-development project of 7J7 which was supposed to succeed the 767 project. Both models suffered a similar fate. The consortium's v2500 engine could not meet requirements. After failures in development and complaints from airline customers, the customers canceled their orders. Samuels and Whie (1989) says that the Japanese planners learned from these experiences the "vulnerabilities associated with junior partnerships in the international consortia (p. 279)."

In the area of military aircraft, Japan was heavily dependent on U.S. technology. The one notable exception was the F-1 support fighter which was designed and produced domestically. Even in the case of F-1, however, its engines were produced in Japan under the U.S. license. It was first introduced into the JDA in 1977 and the production line was closed in 1983 after the production of about 80

fighters. During the 1970s and early 1980s. Japanese companies co-produced interceptor fighters of F-4EJ and F-15 which were designed by McDonnell Douglas under a consortium led by Mitsubishi Heavy Industry (MHI), under the demand of JDA. Entering into the 1980s, as the end of the production and service life of the F-1 were approaching, proposals to replace the F-1 support fighter emerged.

From a broader perspective, the early 80s was the turning point for Japanese aircraft industry as much as it was for Japanese defense policy in general. In the area of security, the Japanese government began to embrace the realist position. This direction was a result of the second Cold War in the latter part of the 1970s. increased deployment of the Soviet naval and air forces, the relative decline of the U.S. nuclear hegemony, and the increased pressure from the U.S. for burden sharing. Although the Japanese government was becoming more austere at this time, military expenditure was the one of the few items increased. One percent of the GNP could reach a considerable amount due to the huge size of a growing GNP. In the area of the economy, slow growth due to the Oil Shocks and the rising competition from the Newly Industrialized Countries (NICs) forced the public sector bureaucrats and the private sector to conclude that an advance in high-tech industries would be necessary for the continued economic prosperity in the future. In the 70s. the armament industries' major sources of revenue had been in heavy industrial areas such as steel production, ship-building, and capital goods. While these spin-off industrial areas were an engine for the economic development of armament producers in the 70s, these same areas became devalued in the 80s owing to competition with NICs. Investment in semiconductors, material science. computers and electronics was expected to produce "spin-on" for aircraft industry which is the result of the integration of all the advanced technologies. Since then. the aircraft business has become a strategic industry for Japan's economic future and has attracted the support of MITI officials and other bureaucracies.

**5.1.2 The Initial Proposal** The first proposal to replace the F-1 with a domestically developed FSX by 1986 was originated from the JDA in 1981. and debate on the project quickly spread through Japanese bureaucracies (Spar 1992: Samuels and Whie 1989). Within both MITI and JDA. the initial proposal offered both positives and negatives. JDA's Technical Research and Development Institute (TRDI) and Air Staff Office. MITI's Aircraft and Ordnance Office. and Private industries were in favor of the FSX while JDA's Budget Office. MITI's Trade Bureau. other ministries and opposition parties were opposed. The Ministry of Finance (MOF) and the Ministry of Foreign Affairs (MOFA) were cautious or opposed. for reasons related to the budget and the response of the U.S.. The arguments of the FSX proponents can be summarized into three reasons for domestic development.

First, the U.S. was becoming more reluctant to transfer technologies. In the case of the F-1 fighter, the original plan was co-production of the U.S. fighter but the U.S. refused because they expected that Japan would be able to buy it. Furthermore, when Japan wanted to license avionics technology, the U.S. refused again. The changing attitude of the U.S. can be illustrated by comparing the cases of F-4 of the early 1970s and F-15 of the late 1970s. The U.S. willingly transferred technology and agreed on work share for the benefit of the Japanese aircraft industry in the former case. In the latter case, Japan had to import almost 40 percent of the technologies and a sensitive electronics warfare system was not released. Congress continued to complain that the U.S. was handing over too much.

The second reason was that this would be the last chance for an independent development in this century, and if Japan lost this opportunity to incorporate advanced technologies, Japan would be left far behind the other countries in aerospace competition. Co-production could not fulfill the need for advancement in the aircraft industry. The third reason was that the Japanese technological capability reached the level of independent development, and now FSX development was possible. The

TRDI/Mitsubishi T-2 control configured vehicle was suggested as evidence of the technological capability.

On the other hand, FSX opponents in the JDA, MITI, and MOF argued that the delays and technological problems in the T-2 project, the quality of the F-1, and the advancement of the new generation fighter technology in the Western countries discounted the credibility of the Japanese technological capability. Furthermore, the LDP's fiscal austerity policy could not provide the tremendous amount of capital for the single project. The production of only a small number of flights, non-availability of foreign markets due to the Three Principles of Arms Export, and uncertainty in the success of the project were the reasons for the opposition. MOFA and MITI also could expect the negative reaction of the U.S.. Both ministries were concerned about complaints from the U.S. on the increasing trade deficit with Japan. Since the aircraft industry was one of the few areas from which the U.S. could maintain a trade surplus, and the U.S. was the guarantor of the Japanese defense, the opposition to the FSX project or the negative influence on the U.S.-Japan relationship or other trade conditions was predictable.

Given the opposition, which was the dominant opinion among the bureaucracies, the proponents chose to postpone the project until the financial, political, and technological environment was changed in favor of the project. Samuels and Whie (1989) called this decision a "strategic delay." Considering the fact that the replacement of F-1 was scheduled for the late 1980s and that the introduction of the new domestic fighter was delayed until much later, the proponents had to find a way to extend the service life of the existing fighters. The solution was the Service Life Extension Program (SLEP). It entailed fixing and reinforcing the high stress areas on the frame of the F-1 and F-4 aircrafts, and attaching and exchanging advanced technologies and armaments to support new fighter technology. The SLEP extended the service life of F-1s and F-4s well into the 1980s and enabled the proponents of

the FSX project to prepare for the next time when the FSX project would be put on the agenda.

During the "strategic delay," TRDI and private industries focused their effort on technological aspects of the project. The JDA funded research and development of the most updated technologies required for the next generation aircraft such as composite materials, stealth technology, advanced avionics, and control configured vehicle technologies. On the other hand, they also accumulated experience of system integration through SLEP and other subsequent projects. The newly developed advanced technologies had been put together along with the design and development of prototypes. Another area in which Japan lacked experience and which raised the most suspicions on its capability in endogenous development was management. The usual co-production projects did not provide Japanese managers a chance to coordinate the development and production of technologies, and parts among the various participants. In response to this problem, the JDA funded the supersonic XT-4 jet trainer project by sponsoring a consortium composed of the major actors in the aircraft industry with equal shares. The project was to include all aspects of the FSX project from design to development and production with lower technological requirements. The project proceeded to meet all the requirements on schedule and began its production in 1986. The XT-4 jet trainer project provided the Japanese with increased confidence in its technical and managerial capability for the endogenous development of aircraft.

## 5.2 Stage I: From Proposal to Memorandum of Understanding (MOU)

In this section, I will examine the process of interaction between Japan and the U.S. in reaching the policy decision of co-development. This detailed analysis of the interaction should provide answers to these questions: (1) why did Japan want domestic development of the FSX? (2) why was the option of co-development not

among the three initial options considered? (3) why was the U.S. opposed to the Japanese domestic development?[2]

The proposal of the FSX project appeared on the draft of JDA's 1984 Medium-Term Program Estimate, a five-year defense plan for fiscal 1986-1990, which was supposed to be completed by Spring 1985. In that report, the FSX was proposed to replace the F-1 fighter, and the deployment was scheduled to start in 1997, at an estimate of $147.2 billion. The strategic purpose of the FSX was "to prevent the enemy from landing in our country and to support our ground forces by attacking from the air the enemy units that have landed, with a secondary role as an air combat interceptor (quoted from Shinji 1988, p. 139)." The project had three FSX options: (1) domestic development, (2) conversion and modification of the existing interceptor fighter F-4EJ into support fighter, and (3) introduction of a foreign fighter.

The project raised heated debate among the government agencies and LDP politicians. But the Japanese postponed a decision for two reasons: they lacked confidence in their ability to develop the FSX independently, and they suspected that the actual cost would far exceed the initial estimates. In May 1985, however, TRDI reported that recent technological advances in the Japanese aircraft industry made the domestic development of FSX feasible, and the revised estimate was much lower than previous estimations. By September 1985, with Prime Minister Nakasone's approval of the new Medium-Term Defense Program for fiscal 1986-1990, the FSX project received a formal status for a debate at the cabinet level.

Based on transcripts of meetings between the JDA and DOD, Kohno (1989) argued that the U.S. did not interfere in Japanese domestic decision making, and the DOD followed the principle of separation between security issues and commercial issues until January 1986. Following Nakasone's approval in September 1985,

[2]Kohno (1989) and Shinji (1988, 1989, 1990) provide a detailed information on the whole process.

TRDI issued another report on the last estimate of domestic development. In October, the ASDF chief General Shigehiro Mori announced that the candidates for the third option were narrowed down to three foreign fighters: F-18 of McDonnell Douglas (MD), F-16 of General Dynamics (GD), and the Tornado of Panavia which is the company shared by England, West Germany, and Italy. Mori also suggested that ASDF would request information on specific fighters from relevant government agencies. In November 1985, JDA Administrative Vice Minister Shinji Yazaki visited Washington, D.C. to discuss two upcoming meetings: the 16th regular U.S.-Japan security meeting of the working level officials scheduled for January 1986, and Caspar Weinberger's visit to Tokyo scheduled for 1986 spring. The U.S. officials did not request the FSX issue to be discussed at the two meetings. The U.S. security meeting of January 1986 ended up without specific U.S. demand on the FSX issue.

Based on these incidents, Kohno concludes that at least until the Weinberger's visit in January 1986 from which there came the first unofficial request to agree on co-development of FSX, JDA was able to lead the debate independent of U.S. pressure. This does not mean that the U.S. was not interested in the issue, nor does it mean that the U.S. was undecided on its response. Gregg Rubinstein, the deputy director of the Mutual Defense Assistance Office in Tokyo, who acted as a liaison officer for both the State Department and the Pentagon, sent a cable to Washington, D.C. in October 1985. In the cable, Gregg Rubinstein argued that Japanese independent development does not contribute to the military and security interests of the U.S.. After reviewing the three options of the project, he suggested a fourth option which would best serve the interest of both the U.S. and Japan. The first option of co-production was clearly against the Japanese intention to accumulate wider experience in the development and production of aircraft. The second option of conversion of F-4 fighter was far short of ASDF's requirements for a new

fighter. The third option of domestic development had the risk of technological uncertainty, and it may have harmed the existing balance contained in the security relationship between the two countries. As a fourth option, Rubinstein suggested a compromise between the first and the third option which reflected the interests of the two countries, and called it "co-development" (see Spar 1992).

In supporting the co-development option, the DOD considered the economic as well as strategic implications. MD, GD, and other aircraft producers, who recognized the Japanese plan for independent development, lobbied the DOD to persuade the Japanese to buy U.S.-made fighters. The Pentagon concluded, however, that forcing the Japanese to purchase off-the-shelf was out of the question, because the Japanese wanted its own independent aircraft industry like most industrial countries. The industrial impacts were considered by the Pentagon technical teams who concluded that "the FSX would marginally boost the competitiveness of Japan's aircraft industry, but would not catapult Japan into the position of a world-class manufacturer (Ennis 1989).

Rubinstein's proposal soon became the U.S.'s official position on the FSX project. In November 1985, James Auer, the Special Assistant for Japan in the Office of the Secretary of Defense, was sent to Japan and the idea of co-development was suggested to the JDA officials. In January 1986, in answer to a Japanese request for information on U.S. fighters, the U.S. government sent an unofficial letter in reply and strongly suggested that they consider the option of co-development. Hitoshi Omura, newly appointed ASDF chief, announced in February 1986 that ASDF would start a second inquiry because answers to prior requests for information from U.S. and European governments had not been comprehensive enough for a final decision. JDA announced in March 1986 that the final selection will be delayed and it was considering the new option of co-development with the U.S. In late March 1986, right before his visit to Japan, Caspar Weinberger announced in his press conference that

he welcomes Japan's decision to include the co-development option in the project.

At this point, we need to look into the Weinberger's attitude and position on the project. Ever since acknowledging the Japanese decision for domestic development, Weinberger avoided any overt and public pressure on Japan to make any decision. In June 1985, he told Koich Kato, JDA Director, that because the money to be spent on the FSX is Japanese, the U.S. would not interfere with the Japanese decision. But "he would be willing to provide JDA full information about candidate U.S. aircraft and to share information about U.S. and its allies' experiences in cost overruns and the technological risks involved in the development of modern military aircraft (Auer 1990, p. 107)." This attitude was sustained even in April 1986 when he met with Prime Minister Nakasone and Koich Kato in Tokyo, and proclaimed that the U.S. government has no intention of interfering with the Japanese decision on the FSX project.

The period after Weinberger's visit entailed a delayed final decision to reach the co-development option. In April 1986, JDA performed the second round of inquiry into the three foreign fighters and in July, JDA announced co-development as one of its official options. MD and GD could make an official request of delay in the final decision. From this point, actual priority among the options switched from domestic development to co-development, and the problem was on the content of co-development (Kohno 1989, p.462). In 1986, the LDP had a landslide victory in the elections for both of the House of Representatives and the House of Councilors. Given the LDP's strong domestic position, the U.S. felt it could step up pressure without jeopardizing their ally in Nakasone's government. Kurihara, JDA Director in the new cabinet, had to face the demand of improved cooperation and burden sharing in defense matters from both the U.S. Congress and the Pentagon when he visited the U.S. in September 1986. To head off the U.S. demands on the FSX project and to avoid politicization of the FSX issue, JDA summoned the chief engineers of

MD and GD to discuss co-development in October. And in December, by deciding that JDA would have consultation with the DOD before reaching a final decision. JDA opened a way for the U.S. to raise its voice in the Japanese decision-making process (Kohno 1989).

So far, the interaction between the two countries since the initial proposal for the FSX project began to circulate among the Japanese government in May 1984, and was confined to immediately impacted bureaucracies of the two countries, the JDA in Japan, the DOD and the Department of State in U.S., and related agencies for science and technology. The FSX issue was treated as a security issue and separated from other economic issues, at least on the surface. Overt arm-twisting interaction between the two governments never occurred. Even though some negotiations were continuing among the working level officials, Weinberger adhered to the principle of separation between security issues and economic issues, and emphasized Japanese autonomy in decision making. Later incidents (specified below) began to involve actors from outside of the major bureaucracies, and illustrated how the issue came to be viewed in the context of economic and trade conflicts between the two countries. Even the U.S. government could not maintain its previous attitude and strategy in the issue.

The 17th regular U.S.-Japan security meeting was held in January 1987. The U.S. side continued to ask Japan to increase its contribution to defense and burden sharing, and Richard Armitage emphasized interoperability in the U.S.-Japan defense cooperation. He backed his demand by implying the mood and pressure of the U.S. Congress which was dominated by Democrats. In the election of November 1986, Democrats gained a majority in both the House and the Senate. In February 1987, the five major companies in the Japanese aircraft industry (MHI, Kawasaki Heavy Industry (KHI), Fuji Heavy Industry (FHI), Ishikawajima-Harima Industry (IHI), and Mitsubishi Electric Corporation (MEC)) formed the FSX Private Joint

Study Group in order to submit a request for domestic development of the FSX. The proposal, completed in April, emphasized the Japanese competitiveness in technology and cost-efficiency (five to six billion yen ($40 million to $48 million) per unit purchase price). On the other hand, Senator Danforth of Missouri estimated that the unit price would be eight to ten billion, and wrote a letter to Weinberger and Secretary of State George Shultz to suggest that the Japanese purchase of the U.S. fighter could make a big contribution in decreasing the worsening trade deficit. Regarding Danforth's estimate, Japanese aircraft manufacturers answered that it was simply wrong or exaggerated. Under these circumstances, Armitage made a first official request for co-development of the FSX emphasizing interoperability as the most important factor in the decision when he visited Tokyo in March 1987.

The report of the Sullivan mission, a technical team sent to Japan in April 1987 headed by Deputy Assistant Under Secretary of Defense Gerald Sullivan was "the final straw (Spar 1992, p. 277)" for the U.S. government. It reported that Japan was not persuaded even though they explained that any of the four American aircraft could meet the operational requirement for the FSX and American fighters are available at a much lower cost than any other options. After this mission, the U.S. government concluded that the strategy of suggestion and working-level negotiation did not change the Japan's implicit decision for domestic development and provoked a change in the U.S. attitude toward the FSX project. Along with the economic incidents concerned with the trade conflict, the demands of the U.S. government backed by the pressure from the Congress was getting tougher and bolder, while the Japanese position was dramatically weakened.

Before Nakasone's visit to Washington, D.C. scheduled for the end of April 1987, the Reagan administration imposed retaliatory sanctions on the Japanese semiconductor producers in order to protect the U.S. producers from Japanese dumping. The accusation was directly aimed at the FSX project, and when former Foreign

Minister Abe was sent to the U.S. as a special envoy, the four U.S. senators demanded that Japan purchase the U.S. fighters "as a good will by Japan and as a tangible guarantee of a continuation of our close security relationship (*Japan Times*, April 24, 1987, quoted from Kohno 1989)." The U.S. Congress was also moving to pass the Omnibus Trade and Competitive Act which included a section known as 'Super 301' to retaliate against the unfair trading partners. The Japanese were also surprised when the U.S. notified Japan that Weinberger would visit Tokyo in June. This had not been mentioned in the January security meeting because it was clear that the purpose of the visit was the FSX. When Nakasone visited the U.S., Senator Danforth urged Japan to buy U.S. fighters for the FSX project, and Weinberger also asked Nakasone and Foreign Minister Tadashi Kurihara to buy U.S. fighters. Even Weinberger changed his attitude and the level of demand from covert pressure for co-development to an overt demand to purchase.

Before Weinberger's visit in June, the Japanese industries switched their plan to a model of co-development in which Japanese industries played a major role. Japanese industries, while yielding to the U.S. pressure in order to avoid a worsening trade conflict between the two countries, did not accept the proposal of off-the-shelf purchase. The JDA began to consider MD's F-15 as an alternative to the F-16 and the F-18 because of its wider cruising range and its ability to convert the existing facilities for co-production of F-15 to the development and production of the FSX.

One critical incident tipped the balance in the negotiation in favor of the U.S. side: the Toshiba incident. It became known that the Toshiba Machine Corporation, a branch of the Toshiba Corporation, had sold to the Soviet Union the propeller-milling machinery which lowers the noise level of submarines and makes them hard to detect. It was a violation of COCOM (Coordinating Committee for Multilateral Export Controls) rules which regulated the flow of Western technology

to the Soviet Union. This incident added fuel to the growing 'Japan-bashing' sentiment in the U.S., and the Congress was outraged enough to try to place a ban on Toshiba products in the U.S.. While this anti-Japanese sentiment was spreading, Weinberger visited Tokyo and insisted that Japan purchase the U.S. fighters or use the U.S. fighters at least as a basis for development, hinting at the mood in Washington, D.C.. Even though Kurihara did not guarantee the acceptance of the proposal, the U.S. demand was firm. Returning to the U.S., Weinberger invited Kurihara to visit the U.S. in September.

On July 2, 1987, nine Congressmen smashed a Toshiba radio outside the U.S. Capitol with a sledgehammer. In the same month, the Senate unanimously decided to demand that Japan purchase the U.S. fighters for the FSX project, as initiated by Senators Byrd and Danforth. The demand was passed in the Senate along with the bill of the Omnibus Trade and Competitiveness Act. Under the continued and strong Japan-bashing from Washington, D.C., Nakasone who was afraid of further deterioration of the U.S.-Japan relationship suggested that Japan accept the U.S.-Japan co-development proposal on the FSX issue, in August. After this, there were talks among the technology experts from the Japanese industries, MD, and GD, but discussions did not result on decision about a specific fighter as the base model for the FSX. On Oct 2, 1987, Kurihara and Weinberger agreed on co-development based on either the F-15 or F-16, and in the subsequent talks between JDA and the Pentagon, the F-16 was chosen as the base model for the FSX because of its superior cost-efficiency. Reportedly, remodeling the F-16 was expected to cost less than half the price of remodeling the F-15. The decision made note that the wider cruising capability and offensiveness of the F-16 may cause opposition from the Japan and its Asian neighbors. On October 23, 1987, the JDA proposal passed cabinet approval and the co-development project achieved the official status.

The agreement between the two countries left many detailed contracts undecided, and it took another year to reach a complete agreement about the content of co-development. The first issue was the work-share during development and the work-share once in production. It took nine months for the U.S. proposal of 35-45 percent share for the U.S. in development to be accepted in June 1988. Another issue was whether GD or MHI would lead the development of wing modification. MHI argued that because the composite wing box is a major part of the modification whose design is under the Japanese responsibility, it should be developed by MHI, the major Japanese contractor. On the other hand, GD, which intended to acquire composite wing box technology, demanded that it should be designed and developed in their Fort Worth plant in Texas. To prevent further delay in the start-up of the project, the two governments decided to reach a final agreement in the form of a memorandum of understanding (MOU) on November 29, 1988. The content of the agreement is:

> (1) the new aircraft would be a modification of the F-16C, incorporating the best in Japanese and U.S. technology and built to operational requirements specified by the Japanese: (2) the Defense Agency would plan and manage the project and bear the cost of development; (3) the prime contractor for the project would be a Japanese company, with American companies participating as subcontractors: (4) the precise allocation of tasks between Japan and the United States would be determined at a later time and would be based on considerations of cost-effectiveness; (5) the U.S. side would provide the Japanese side with all pertinent technical data on the F-16C, and the Japanese side would provide the U.S. side with all pertinent data on derived technologies created during the development process (Shinji 1989, p. 438).

The discussion on the responsibility of the composite wing box reached a conclusion: GD was to build one pair of wings for one of the four operational prototypes and one wing each for the two ground test prototypes. GD and MHI signed on the agreement on January 10, 1989. Now the FSX project required only a congressional approval.

At this point, it is natural to raise two questions: why did Japan want domestic development of the FSX? Why did the U.S. oppose Japanese domestic

development? These questions were already partially answered by introducing proponents and opponents of each policy, but now we need to look at these questions from a single rational actor's point of view. On the first question, I have already mentioned that the international political environment made an articulation of the political coalition of realists in the LDP and the Japanese administration possible, and international economic conditions forced the ordinance industries to switch from heavy industrial goods to high value-added items, including high-tech defense goods. Samuels and Whie (1989) argue that after finding the limits in the spin-on strategy, which put effort in civilian aircraft industry first and expected derivative dual-use technology for military aircraft, MITI decided to switch to a spin-off strategy. Primary investment was moved to the development of military aircraft, anticipating benefits to the aircraft industry as a whole. Strategically, the project was intended to avoid dependence on U.S. aircraft technology. JDA officials who were the graduates of the Defense Academy after the War wanted to use an endogenous FSX technology to demonstrate national prowess (Shinji 1988).

Why did DOD say "no" to Japan's development of endogenous fighter? On June 23, 1985, the *Asahi Shimbun* quoted a DOD source with three reasons for U.S. opposition: (1) cost-inefficiency for a small number of aircraft to be produced, (2) violation of the Three Principles of Arms Export, and (3) the lack of interoperability with the U.S. fighters, a tactical disadvantage. These were simply ostensible reasons for negotiation, however. The real motive behind the stated reasons was the U.S. strategic interest. First of all, the U.S. did not want Japan to be an independent military power because Japan's independent voice in security matters may become a hindrance in the U.S. global strategy and in the strategy in East Asia. The U.S. did not want allow Japan to be a potential competitor in the military arena. Given an endogenous fighter industry, even in the short term, Japan would be able to change the decision-making dynamics within the current security treaty between the two

countries. In the long term, if Japan became a major military power, the stable balance of power in Asia may be threatened. The second reason was to "keep its own arms industry at the top of the heap while involving the defense industries of the NATO allies and Japan on a lower level (Shinji 1989, p. 435–436)." The U.S. was also concerned about the Japanese technological capability that could produce fighters of a better quality. For these reasons, the U.S. intended to keep Japan under its control in defense and technology by urging their participation in co-development.

U.S. opposition to Japanese domestic development was closely related to the U.S. support for co-development. When it was clear that Japan would not buy U.S. fighters off-the-shelf and intended to develop an independent aircraft industry, as other industrialized countries, the whole question focused on the U.S. participation. The negative aspect of the option, namely that the U.S. technologies may help Japan increase its competitiveness in aircraft industry, was estimated to be very limited. The co-development option was expected to bring these positive impacts for the U.S.: (1) By lowering the cost of the FSX development, Japan could redirect their defense expenditure in the direction of burden sharing. (2) It would enhance the interoperability of the two countries' forces and be helpful for strategic cooperation in the long-run. (3) It would make advanced Japanese technologies available to the U.S., and (4) It would promote cooperative relationship between U.S. and Japanese aircraft industries. Given these positive and negative aspects of the co-development option, we can see that "[C]ontrary to the FSX critics, the Pentagon did not ignore the economic issues (Ennis 1989)."

Moreover, the process of reaching the MOU agreement raises even more questions. Why was the idea of co-development not among the initial three options of the FSX project? Why did Secretary of Defense Weinberger change his posture toward the project and his demand from co-development to off-the-shelf purchase? These questions can be answered if we look at the whole process from the game

theoretic perspective on negotiation. When the FSX project was suggested for the first time in 1981, MOFA and MITI opposed the project because of the expected protest from the U.S. for the increasing trade deficit and the security relationship. Further more, when Gregg Rubinstein recognized the Japanese schedule on the FSX project, and notified the Pentagon in October 1995, he already knew the implausibility of the other two options. The other two options could have been presented for the purpose of widening the horizon of the first option, that is, in order to pretend that Japan is considering these various options and to illustrate the plausibility of domestic development. At least we could say that the co-development was *a priori* somewhere on the continuum of possible outcomes of the negotiation. Strategically, Japan might have tried to maximize its gain by adhering to the best option of domestic development.

The game theoretic perspective also explains Weinberger's strategy. At a distance, we could say that co-development appeared to be an inevitable compromise between two extreme positions: U.S. insistence on Japanese off-the-shelf purchases of U.S. aircraft, on the one hand, and Japanese insistence on "all-Japanese" development, on the other hand. At the beginning of the negotiation, Weinberger tried to save the face of Japanese policy makers by showing respect to Japanese decision processes (at least officially) and continued demanding Japanese concessions to co-development through meetings of working level officials. While Japan was delaying a final decision regarding the co-development proposal until early 1987, the Japanese aircraft industries formed the FSX Private Joint Study Group in February 1987 and submitted a plan for domestic development. Japan also refused to accept proposals of the Sullivan mission in early April. Weinberger who argued on behalf of co-development from the beginning of the negotiation was so frustrated by the Japanese intransigence that he proposed off-the-shelf purchases in the climate of a

Democrat-dominated Congress. This was the worst option for the Japanese. Weinberger's move was to demonstrate that co-development is a reasonable compromise under the current relationship between the two countries.

The political environment during the several months before the final agreement, which is described above, also can be understood from the game theoretic framework which was introduced in Chapter 4. The landslide victory of LDP in the "double election" of July 1986 turned the Japanese political situation into a "homogeneous domestic conflict." The Japanese negotiators had a wide win-set which left them in a weaker position for negotiation. On the other hand, the Republican government lost the mid-term election of November 1986 and both of the House and the Senate were dominated by the Democrats. The U.S. negotiators were left with the situation of a "heterogeneous domestic conflict," which makes the win-set for ratification smaller but strengthens the negotiators' position. Trade conflicts and the Toshiba incident of the period further narrowed the U.S. negotiators' win-set and improved their position while these events had the opposite effect on Japan. As long as Japan could not make a "voluntary defection" in the negotiation, it had to accept the U.S. proposal of co-development (see Putnam 1988).

The process of reaching the MOU fits the rational actor model. Each state's actors were pursuing their best interest under the given situation. They searched for all the options, and reached a conclusion based upon full information. We have not discussed what their principle was in evaluating their interests. Did they simply try to maximize their utility or were they concerned about relative gains? In pursuing the FSX project, Japan intended to take over Western industrialized countries in the state-of-the-art aircraft technology and to take an independent position in defense from the U.S. The project itself was a result of the relative gains calculation. It was the same with the U.S. side that suggested co-development to replace the Japanese domestic development. The U.S. could not allow Japan to have an independent

defense force if it meant that the Japanese could raise an equal voice in the security of the East Asia. Also, in the area of technological competitiveness, the U.S. did not want to lose its superiority in aircraft or other defense goods. The U.S. wanted to maintain the status quo. The realist view, however, cannot explain everything. The agreement on co-development itself illustrates that both parties yielded to the other's demand. Japan and the U.S. did not want to harm the existing alliance relationship. The relationship was helpful for both of them in the broader context of international politics. In that sense, the negotiators from both sides considered the benefit of absolute gain in the context of maintaining the relationship between the two countries.

## 5.3 Stage II: Clarification of the MOU

Once the MOU was signed on both sides of the Pacific ocean, the FSX project had to face the second wave of strong coordinated opposition from the Congress, other bureaucracies in the Bush administration and the mass media in the U.S.. Unless a certain agreement was reached and President Bush had made a decision on a revision of the MOU for further negotiation in March 1989, the debate was tainted by bureaucratic infight, different estimates on the maturity of state-of-the-art technology in the U.S. and Japan, and various definitions of the U.S. national interest. In this section, I will lay out the process of revision of the MOU, the major contending arguments in Washington, D.C. about the MOU, the process of reaching a final agreement and ratification in both countries, and the Japanese response to the U.S. demand for clarification of the MOU.

### 5.3.1 Pros and Cons in Washington and the Proposal of Clarification

In the winter of 1988/1989, two important institutional changes affecting the FSX deal occurred. First, the Defense Authorization Bill, which required any

sales or purchase of armament projects to be approved by the Department of Commerce, came into effect October 1, 1988. Previously, the Pentagon did not want the Commerce Department to be involved in the decision-making process of the FSX project. Even after October 1988, the Pentagon was reluctant to provide updated information and delayed notifying the Commerce Department the negotiated contracts. Such practices only increased the Commerce Department's antagonism toward the Pentagon. Before the signed MOU was sent to Congress for ratification, an informal coalition was formed between the Commerce Department and Senators Jeff Bingaman, Alan Dixon, and John Danforth, Representative Richard Gephardt, and the Democratic Policy Committee (Ennis 1989).[3] They intended to delay sending the MOU to Congress in order to let the Bush administration review the contract.

During these months, the Reagan Administration was succeeded by the Bush Administration. The Pentagon could not make much progress in dealing with the MOU because of the huge turnover in the personnel who had been in charge of the FSX project. It was further weakened by the controversy over the nomination of John Tower as Secretary of Defense and his rejection by the Senate. On the other hand, the confirmation of Robert Mosbacher, one of Bush's old friends, as Secretary of Commerce strengthened the department. The Defense Department had to deal

[3]The leader of the coalition was Kevin Kearns who was one of the three working-level chiefs of U.S diplomatic and military officials in Tokyo along with Gregg Rubinstein and Navy Commander James Auer who participated in the negotiation for the FSX project from the beginning. In January 1989, he was working for Senator Jesse Helms (R-N.C) on the Senate Foreign Relations Committee. About Kearns' experience in the negotiation, Snow and Brown (1994) says that,

> To Kearns, this showed that the Japanese were simply up to their old tricks, taking advantage of the United States' preoccupation with security issues to reap maximum economic benefits. In 1988, Kearns was able to secure a State Department internship on the staff of the Senate Foreign Relations Committee. Knowing that the MOU would ultimately require congressional approval, Kearns had strategically positioned himself for what he increasingly viewed as a campaign to save U.S. foreign policy from its economic naïveté (p. 253).

Robert Mosbacher, Secretary of Commerce under the Bush Presidency, had been consulting with Clyde Prestowitz, one of the trade hawks with Japan, even before he was confirmed by the Senate. Prestowitz had direct experience in dealing with MITI as a trade negotiator with the Commerce Department, and wrote the book, *Trading Places: How We Allowed Japan to Take the Lead*, in 1988.

with the bureaucracy-wide opposition to the MOU, and the Japanese demand for speeding up the schedule, without a Secretary of Defense.

On January 18, 1989, at the request of Jesse Helms, James Baker promised to review the MOU and the FSX contract in the Senate Hearing for his confirmation as Secretary of State. While the opposition to the FSX deal was heating up, the opposition coalition received information that the State Department and the Defense Department were planning to get a White House endorsement without review during the Prime Minister Noboru Takeshita's visit to Washington D.C., scheduled February 1. Kearns drafted a letter which asked President Bush not to send the MOU to Congress without review, and the letter was signed by 12 Senators before being sent to the White House on February 2. In the National Security Council (NSC) meeting on February 10, based upon the answers of all the departments to the questionnaire on the FSX deal, which illustrated only the strength of the opposition, Bush ordered a review and wanted it to be finished by March 10, before the end of the Japanese fiscal year, March 31.

After inter-agent review, an NSC meeting was held on March 15, and a report on the different opinions proposed by DOD and the Commerce Department was turned in. There were three main points of contention. First, while the Commerce department demanded a clear indication of the 40 percent of production phase work share, the DOD argued that it was not necessary because the U.S. would have the upper hand in future negotiations after the development phase. Second, while the Commerce Department was against the release of the computer source code used on the F-16 for reasons of economic security, the Defense Department argued that much source code for the weapons control could be released to Japan. Third, the Commerce Department demanded further clarification of the MOU on the U.S. access to Japanese technology. Carla Hills of the U.S. Trade Representative (USTR), James Watkins of the Energy Department, Chief of Staff John Sununu, and Acting Defense

Secretary William Taft joined the side of Commerce for various reasons (Ennis 1989). After this meeting, President Bush decided to demand clarification of the MOU on three items before starting the project:

> (1) that restrictions would be placed on the release of the computer source code for the F-16's altitude and weaponry control software; (2) that the United States would receive the maximum work share possible during the production stage: and (3) that specific steps would be taken to assure that derived technology developed by Japan during the project would be transferred to the United States (Shinji 1989, p. 443).

The Japanese responded to Bush's proposal without overt frustration or complaints, in order to avoid politicization as much as possible. It would be discussed in detail after introducing the pros and cons in Washington, D.C. on the MOU.

After the agreement between the two governments on the MOU, the *New York Times* presented strong opposition to the deal in its December 17, 1988 editorial. It argued that the U.S. should demand the off-the-shelf purchase of the U.S. fighters by Japan because of the special relationship between the U.S. and Japan. The U.S., it argues, was shouldering a disproportionately large share of the mutual defense, and Japan as a trade partner should consider the fact that the U.S. trade deficit occurred partly due to its large expenditure for defense. The editorial also said that "[I]n the case of the F-16, the United States had every reason to expect that Japan would want to buy American, and every reason to be disappointed at the grudging concessions Japan had made to the two countries' common interests (Times 1988)"

On *Washington Post* of January 29, 1989, another editorial urged Congress and the administration to oppose, revise, and specify the deal. The author, Clyde Prestowitz, argued that the agreement was against the interest of the U.S. for three reasons (Prestowitz 1989a). First, the FSX project would divert the scarce Japanese

resources away from burden sharing and toward an inefficient defense project. Second, the project could harm the U.S. competitiveness in advanced technologies including the aerospace industry in the long-term and could worsen the trade deficit with Japan. Third, the real purpose of Japan's participation was not defense but acquiring the state-of-the-art technology in aircraft industry, *i.e.*, the U.S. was going to transfer expensive technologies at a low cost.

Besides these specific reasons for his opposition to the agreement, he also presented three major concerns which were more deeply rooted in the relationship between the two countries. They are more extensively discussed in his book *Trading Places: How We Allowed Japan to Take the Lead* (1988). First, he argued that the U.S. government was only concerned with defense and strategic matters, and ignored the long-term impact of technological and industrial competitiveness on security. This policy orientation of the past had made the transfer of key technologies to its competitors possible and had lead to the eventual "trading of places" in industrial capabilities, resulting in the relative decline of the U.S. hegemonic power. Second, the belief in the free-market principle as a guide for international trade as well as domestic economy had militated against any effective response to the Japanese challenge, as the Japanese were armed with industrial policies and the effective management of domestic industries in the harsh international competition. Third, Prestowitz believed the direction of the FSX talks were evidence of the shrewdness of the Japanese negotiators. In particular, he identified the example of how GD's workshare was being calculated. GD was to receive a $440 million contract, which represented 40 percent of the existing $1.1 billion estimate. But, Prestowitz argued, the estimate was "underscored by half," and the result would be that GD would receive only $440 million of the eventual $2.2 billion contract, *i.e.* about 20 percent. As long as the GD's share of production was not specified in the MOU, there would be no guarantee of the final amount. Finally, he was doubtful that the Japanese

would cooperate in the transfer of Japanese technology to the U.S..

With respect to the transfer of technology in the FSX project, the *New York Times* editorial (February 12, 1989) concluded that as long as it was clear that the Japanese intention was in the advancement of aerospace technology, the Commerce Department should be allowed to raise objections in the decision-making process of the project, and that Congress also should inspect the deal for the sake of the U.S. interest. Ferguson (1989) also argued that the U.S. should factor in its competitiveness in high-technologies while pursuing the U.S. security and its leadership. Because Japan is 'a predatory actor' in international economy, U.S. "should respond to Japan's technological Prussianism (Ferguson 1989, p. 140)." Ferguson claimed that, "[T]he United States now faces a challenge more fundamental than any since the Cold War: the simultaneous need for internal reform and for the management of a new strategic balance, namely its technological competition with Japan (Ferguson 1989, p. 139)."

In the middle of the barrage of opposition to the MOU in the mass media and the administration, the hearing of the Committee on Energy and Commerce (CoEC) in the House of Representatives, held on February 23, 1989, provided a chance for airing pros and cons on the deal. Mel Levin (D-CA), a member of the House Foreign Affairs Committee, argued that "there is very little concrete language" in MOU. He says "I am concerned that Japan, based on historical precedent, will put similar restrictions on technology flowback to the United States under the FSX deal... (CoEC, US House 1989, p. 5)." Emphasizing the importance of industrial competitiveness as a component of national security, he insisted on the introduction of legislation which demanded the participation of the Secretary of Commerce in the NSC. In this hearing, Prestowitz emphasized three points. The first pertained to the Japanese industrial objective: "I do not oppose that objective. I think if Japan wants to develop its own aircraft industry, it's perfectly free to do so, and they have

my blessing (CoEC, US House 1989. p. 18)," because there is no useful technology from Japan that the U.S. could receive. The second was to criticize the Defense Department and the State Department for only focusing on the security relationship with Japan. The third was that the U.S. aircraft industries were concerned only with their short-sighted business interests. For each individual company, half a loaf of bread was better than none, but the U.S. companies were trading U.S. technology in order to out-compete domestic rivals with an overall result of "national disaster."

In the February 23 hearing, Joel Johnson, Executive Vice President of American League for Exports and Security Assistance, and James Auer, Director of the Center for U.S. Japan Studies and Cooperation at Vanderbilt University, who had been working as the Special Assistant for Japan in the Office of the Secretary of Defense during the early phase of the FSX deal, provided answers to the criticism of the deal. Johnson's response focused on three points. He argued that because the U.S. had a 10:1 export/import advantage over Japan in aerospace products and a 5:1 in defense goods, the best ratio among major allies, the U.S. could not demand further concessions under the name of trade deficit. His second point was that the technologies of the F-16 fighter was not fungible to developing civilian aircraft, and thus technology transfer posed no economic threat. Third, Johnson suggested that U.S. should have been investing in developing new technologies rather than protecting past technologies. Auer agreed with Johnson on the questions of trade balance and technology transfer. He argued that demand for off-the-shelf purchase of 100 fighters was "nonsense." The F-16 was not state-of-the-art technology of the U.S. and that the sensitive parts were not going to be transferred. Furthermore, Auer said that Japanese technology was already ahead of the U.S.'s in many areas and that the U.S. would thus benefit from a technology transfer. He also criticized Prestowitz's point about the 35-45 percent work-share proposal. The MOU implied that the U.S. would receive 35-45 percent of whatever the program turned out to

be. Moreover, Auer insisted that, on the burden sharing question, deployment of the FSX would be an important contribution to mutual defense in response to 2,000 Soviet fighters in Far East.

Beneath the good faith arguments of the participants in the U.S. domestic debates on the FSX, there lurked several perspectives not directly relevant to an FSX decision. Prominent among them was loyalty during a bureaucratic turf war, uncertainty of Japanese high-tech capability, and suspicion and emotionalism toward Japan. While the concern on trade, technology, and competitiveness as a part of national security were rising (see Reich 1987; Kennedy 1987), the Commerce Department was excluded in the decision-making process of the FSX deal until the negotiation reached the MOU. After the Defense Authorization Bill took effect on October 1, 1988, the Pentagon was reluctant to provide information to the Commerce Department. When a delegation from Defense Security Assistance Agency briefed the Commerce Department on the deal during October, it provided only general information and did not mention that the MOU was close to being signed. In December, only the unsigned version of the MOU was delivered. After the MOU was signed, Deputy Assistant Secretary of Commerce for Japan Maureen Smith's request for a copy was refused by Deputy Assistant Secretary for East Asia Karl Jackson. Before the MOU was sent to the Congress, the Commerce department formed a coalition of opposition to the deal along with other departments and Congressional members. They voiced opposition at the forum provided by NSC in March 1989 (Ennis 1989). Later when the FSX project was set off, the Commerce Department participated in the U.S.-Japan Technical Steering Committee, which oversaw the FSX project, along with the DOD.

To avoid a consumptive inter-agency clash and to make a more coordinated decisions in response to the post-Cold War international politics under which military security and economic security cannot be separated, Snow and Brown (1994) argues

that the institutional arrangement under the Cold War should be discarded and new arrangement appropriate for the recent situation should be installed. The National Security Act of 1947 is partly responsible for the bureaucratic antagonism shown in the FSX project. The Act gave birth to the National Security Council which does not have a voting power but gives advice to the President on National Security Policy. It has four permanent members: the President, the Vice President, and the Secretaries of State and Defense. The director of the CIA and the Chairman of the Joint Chiefs of Staff can join the meeting as temporary members. Snow and Brown says:

> The symbolism of the NSC lies in its apparent elevation of defense to coequal status with diplomacy by making the respective secretaries of the two major agencies the only other required members except the president and vice president. Thus, foreign policy was institutionally broadened beyond diplomacy to include military policy, and foreign policy became national security policy. Because most of the chief players today are products of this system, both institutionally and practically it has transcended the ending of the Cold War into the post-Cold War period (Snow and Brown 1994, p. 11).

President Clinton created the National Economic Council as an effort to respond to the new tide.

Auer (1990) said "[t]he clarification did little in reality." Then, what was the 'turf war' for? In retrospect, reflecting on the result, it is not easy to avoid the conclusion that the clarification of the MOU was simply a product of a bureaucratic irrationality. If we view the incident in the middle of the long process of institutional revision, the FSX provided a good chance to illustrate the points of view of bureaucracies other than the State Department and DOD.

The controversy might have been caused partly by the uncertainties in the evaluation of the two country's technological capability. Given the complexities of advanced technologies and the difficulties in evaluating them at the national level, such controversy was rather natural. The opponents, who were afraid that transfer of the U.S. technologies might help the Japanese aircraft industries grow to be a U.S.

competitor, argued that Japanese technologies were far behind the U.S.. Prestowitz (1989a) said that "Industry experts are unanimous in the view that U.S. firms such as McDonnell-Douglas, Lockheed and Boeing are the world leaders in composite-materials technology. The Air Force's top composite engineer, Ted Reinhardt... says that on the basis of what the Japanese showed his people, they are far behind U.S. companies." A report of a General Accounting Office (GAO) on the technological benefits of the FSX showed that U.S. technology was ahead of the Japanese. It said that the U.S. was far superior to Japan in basic knowledge and application of composites technology, and that the U.S. had made a significant advance in producing cost-effective radar modules. "The GAO concluded, however, that they lacked the detailed knowledge of Japanese capabilities necessary to offer a definitive assessment of benefits (Walsh 1993, p. 384)."

However, the GAO's 1992 report on the conclusions of the DOD technical team's trip to Tokyo in March 1990 suggested a contrary opinion:

> (1)Japan's technology was far more competitive with similar U.S. radar technology than was previously believed, although no technological breakthroughs were observed, and (2) the design and manufacturing process Japan used to produce radar modules appeared to be very similar to that used by U.S. industry (GAO 1992, p. 22).

The proponents of the FSX project, who emphasized the long-term advantage in the technology exchange between the two countries, quoted the reports on the comparison of the two countries in critical advanced technologies. Auer (1990) quoted the 1987 report of the Defense Science Board, a group of U.S. industrial executives who advise the Secretary of Defense. Among 24 critical technologies concerned with semiconductors, Japan led in 12, the U.S led in four, there was parity in 8, and the U.S. was declining in 3 of them and improving in none of them. Vogel quoted the Pentagon report of 1989: "Japan leads the United States in 6 of 22 technologies critical to national security and the long-term superiority of U.S. weapons systems

...Furthermore, Japanese producers have a significant advantage in product reliability and production technology (Vogel 1990. p. 32-33)."

The complexities and uncertainties added fuel to the suspicion and prejudice of the U.S. opponents toward Japanese negotiators. Prestowitz (1989a) criticized the MOU for not being specific enough saying;

> Although GD's $440 million subcontract is supposed to be 40 percent of the development budget, both Japanese and American analysts believe that budget to be underestimated by half or more. Thus GD's share may be less than 20 percent. More over, whether GD will get any of the eventual production run depends on Japan's evaluation of the prototypes. If they are found unacceptable, Japan could cancel the deal, take the technology and go on to build its own FSX as it planned originally. But even with a "go" on production, GD's share is subject to negotiations after prototype evaluation. Industry experts in both countries are skeptical that the JDA, which has been the main force behind development for the Japanese aircraft industry, will give GD more than a few bones.

Even though we should not assume that the Japanese might have proposed a minimum cost estimation to achieve the goal of domestic development, it is reasonable to expect the development cost would have increased rather than decreased. It was well-known that inefficiencies in cost estimation and cost management were very usual for defense industries (see Hartley 1991). Furthermore the MOU never mentioned that the development cost would be fixed, as Prestowitz insinuated. Also, Prestowitz was so suspicious of Japanese negotiators that he demanded specifications of the production phase of the deal. In *New York Times*, Prestowitz urged the U.S. negotiators to stop the exchange of secret side letters as a way to resolve disputes in negotiation (Prestowitz 1989b). His article focused on his experience with Japanese negotiators who did not honor side letters. Besides Prestowitz and Mel Levin, and many other critics in the opponent coalition expressed similar impressions of Japan.

This emotional response was the reason why they were called 'Japan-bashers.' This group of people have a thorough knowledge of Japanese history and its institutions, and their arguments are backed by their experience of living in Japan

and dealing with the Japanese negotiators. Contrary to the orthodox view which is based on sympathetic understanding of Japan, they are hard-liners toward Japan in trade and other economic issues. Their criticism of Japan tends to be emotional rather than rational, because their view is based on their first-hand experience with Japan. This mixture of knowledge, experience, and emotion could attract some U.S. audiences.[4] Syndicated columnists Rowland Evans and David Novak said "The FSX pressure is not only bipartisan but comes from within the Bush administration as well as Capitol Hill. Its common denominator is fear of the Japanese economic power, probably mixed with subconscious racial antagonism. The FSX affair suggests Japan bashing unrestrained (quoted from Auer 1990)." These emotional responses evoked nationalistic reaction such as Ishirara's.

**5.3.2 Negotiation and the Japanese Response** Responding to Bush's demand of clarification of the MOU with the announcement that, "there has been no change in the substance of the agreement previously concluded between the two governments (Shinji 1990, p. 74)," the Japanese government began renewed negotiations with the U.S.. On March 23, 1989, Nishihiro Seiki, Director of the JDA, delivered the Japanese government's response to Bush's proposal. Japan could meet the U.S. demands that F-16 technologies used or derived in the project cannot be used for any other project than the FSX, and that all the Japanese technologies used in the project should be transferred to the U.S., but could not consent to the other two conditions. The work share for the production phase could not be specified because of the one-year basis of the Japanese budgetary process, which does not allow for long-term planning. Japan, however, promised to respect the previous agreements on work share between MHI and GD (60:40). As to the other condition,

[4]The *Newsweek* article described the two schools of thought on Japan as the hawks and "the Chrysanthemum Club (Sato 1994)." The trade hawks were called "Japan bashers," took tough positions on trade and the economic relationship with Japan. James Fallows, Richard Gephardt, John Danforth, Clyde Prestowitz, Karl von Wolferen, and Chalmers Johnson were included in this group. For the Chrysanthemum Club, Mike Mansfield, James Baker, Richard Cheney, Richard Darman, Michael Boskin, Ezra Vogel, and Elliot Richardson were mentioned.

Japan demanded the U.S. transfer of the F-16 technology as much as possible. As the end of the Japanese fiscal year was approaching, the governments reached an agreement in principle.

Because Baker was not satisfied with the agreement, a second round of negotiations started on April 10, 1989. Japanese Ambassador Matsunaga suggested to Robert Kimmitt a compromise put together by Deputy Chief Cabinet Secretary Ozawa Ichirō, MOFA, JDA and MITI. The proposal contained two items. First, Japan would put a specific statement for the guarantee of 40 percent work share during the production phase, and second, Japan wanted the U.S. to guarantee the transfer of key technologies required by the project. The two sides disagreed on which items were to be transferred to Japan. Another dispute was on the Japanese demand that the licensed production of the FSX engine have a 50-50 division of work. The U.S. side rejected this demand, saying that the issue of engine production could be discussed only after the development phase.

At this point of time, two things happened. While the Japanese politics was in tumult because of the Recruit scandal and opposition to the consumption tax, Prime Minister Takeshita announced on April 25 that he would resign after it was revealed that he had been involved in the Recruit scandal. Right after that, Takeshita ordered that FSX negotiation should be concluded before he leaves office. Another incident was the Bush Administration's use of the Super 301 clause against Japanese trade barriers for telecommunications, supercomputers, and semiconductors. Under this situation, the JDA had to yield to the demand of MOFA which was afraid of the deterioration of the U.S.-Japan relationship, and the possible pressure to cancel the whole deal. On April 28, 1989, Matsunaga and Baker reached an agreement which reflected Japanese concessions on the prior agreement. Japan accepted the specification of work share at the production phase, the free U.S. access to derived technologies, and the transfer of non-derived Japanese technologies. Japan promised

not to export any derived technologies without U.S. approval and not to make them available for any other project nor to any other companies. The U.S. side promised the release of the F-16 source code only for mission control computer but not for flight control. About the license production of the engine, the U.S. agreed only verbally, leaving room for change. Bush submitted the FSX agreement for congressional approval on May 1, 1989. On May 16, 1989, the Senate passed the Byrd-Bruce Resolution which demanded further specification on the agreed contents, but it was vetoed by Bush. On September 13, 1989, the Senate failed to overturn the Bush's veto by only a single vote.

The Japanese response to the U.S. domestic opposition to the MOU and the proposal of renewed negotiation from the U.S. was muted. Japanese bureaucracies and LDP politicians with the exception of Shintaro Ishihara, did not raise any open complaint or demand even though the clarification of the MOU was perceived as a reneging of an agreement reached by two governments. Shinji (1990) explained the lack of reaction of the government and LDP politicians separately. As for the Japanese government, it wanted to proceed with the existing schedule rather than make further delays by raising problems with the U.S. If the FSX deal fell through, the only other development option was independent development. Now, four years into negotiation, such a strategy posed serious problems. Funding development would be a formidable task and the military schedules, which assumed a limited service life for existing fighters, would be extended indefinitely, thus jeopardizing the current mid-term defense buildup program. Moreover, the failure of co-development could have had a long-term negative impact on the U.S.-Japan friendship. As for the LDP politicians, they could not pay attention to the U.S. domestic opposition to the FSX deal because of the Japanese domestic political crisis caused by the Recruit scandal, and domestic opposition to the introduction of a 3 percent consumption tax.

The best known Japanese reaction to the FSX controversy is Ishihara's book, *The Japan That Can Say No.* On the FSX deal, he called it "Nakasone's great failure":

> Nakasone caved in to U.S. pressure and agreed to the codevelopment and production of the FSX .... The crux of the FSX issue is that U.S. contractors want to steal Japanese know-how. Without our ceramics and carbon-filter resins, they cannot build a first-rate fighter. That is why the Pentagon pushed so hard for codevelopment .... Abandoning independent development of this aircraft is a terrible blunder. Under no circumstances should we go through with it (Ishihara 1989, p. 44-47).

Ishihara argued that the U.S. does not treat Japan as an equal partner. The U.S.'s experience as a patron under the security treaty, coupled with racial prejudice which mainly stemmed from its frustration in trade conflict, enabled the U.S. to make undue demands on the FSX deal. The Japanese government still had not cast off its servile attitude and defeatism toward the U.S. which originated from the experience of World War II. He further argued that Japan, as well as the U.S., should have been able to realistically estimate Japan's technological and financial superiority in international politics. Even though he did not say that the security treaty should be canceled, he advocated an independent defense capability.

Shinji (1990) presents another view within the LDP by interviewing Shiina Motoo, vice-chairman of the LDP Policy Affairs Research Council, which may have represented the majority view of the LDP. Shiina placed the prime importance of the deal on the alliance relationship between the two countries and said,

> Opposition to the FSX deal stems simply from ignorance ... if we keep on fighting over this issue, the argument will become caught up in racial antagonism .... Alliances are founded on a recognition of mutual benefit for all participating nations and of stabilizing effects on the world as a whole. Unless such a recognition is widely embraced among ordinary citizens in both Japan and the United States, it will be impossible to maintain a stable alliance (Shinji 1990, p. 73).

In the second stage of the negotiation, it was clear that the U.S. opponents of the deal were primarily concerned with relative gains of the co-development. They

were afraid of the Japanese catch-up in aircraft industries, and the loss of U.S. superiority in that market. While the proponents defended the deal by the analogy that half a loaf is better than none, the opponents thought that half a loaf represented a national disaster, so the deal should have been canceled. The Japan-bashers adhered to the insistence that Japan purchase U.S. fighters off-the-shelf. Compared with the negotiators in the first stage, they were pushing the logic of relative gains to its maximum and put the deal in the danger of being scuttled.

Setting aside relative gains, the U.S. ultimately found that swallowing a small amount of pride was better than damaging the friendship which had sustained the post-War international order, and would also lead the order into the future. Saving the deal and maintaining the U.S.-Japan relationship was the first goal even under the U.S. demand of clarification which was perceived by Japan as a reneging of the agreement between the two government. From a realist point of view like Ishihara's, Japan might be able to go alone and make its independent position in defense, based upon its technological and financial power. In the end, however, the negotiators of the two countries reached an agreement and the deal was saved. For the negotiators of the two countries, continuation of the existing relationship was more important than the calculation of relative gains.

## 5.4 Neo-Realism and Neo-Liberal Institutionalism

There are two theories that explain international cooperation: Neo-realism (Waltz 1979) and neo-liberal (Keohane 1984; Keohane 1989). Keohane argues that neo-liberal institutionalism accepts the three assumptions of realism: (1) states are the major actors, (2) the international system is in a state of anarchy which prevents international cooperation, (3) each state is a rational egoist. Major divergence in the theories occurs when it comes to the matter of understanding the structure of the

international system. While the distribution of state power is the single most important factor in international politics for realism. norms, regimes and institutional arrangements are also important factors for neo-liberal institutionalism. Against Keohane's argument, Grieco (1990) insists that from a realist perspective, states are not rational egoists whose major concern is the maximization of utility but "defensive positionalists" whose major concern is physical survival and political independence. For that purpose, states pursue relative gains but not absolute gains in international cooperation.

Grieco (1990) compared the differences of the two theories in explaining international cooperation. For neo-liberal institutionalists, the state actors which are willing to cooperate are most concerned with the possibility of the other side's cheating, and such suspicion makes cooperation hard to achieve. The most critical issue in the success of international cooperation becomes ensuring compliance problem. So, the major part of the negotiation for cooperation is how to devise strategies and institutions that can reduce cheating. On the other hand, for the neo-realists, cooperation is hard to achieve due to fears of relative gains as well as cheating, so distributional issues as well as compliance issues are the major part of the negotiation. Besides trying to prevent cheating, neo-realists try to persuade the disadvantaged side by addressing the relative gains problem.

Which theory, then, provides a better framework to fit with the reality of the FSX project? In the above, I showed that both considerations of relative gains and absolute gains existed during the negotiation. For the agencies that negotiated the FSX deal, their position began with the realist view on the deal, but they had to suppress their view in order to save the existing institutional security relationship, and to ensure the possibility of technology exchange in the future. The realist thought was dominant among the critics of the deal. While also present in Japan, realist thought was not embraced as energetically as in the U.S.. The negotiators

had to overcome a relative gains mentality to achieve cooperation. Reflecting on this change in emphasis, we can conclude that the realist view was rising in the U.S. but that it was not significant enough to change the existing relationship between the two countries. Without a long-standing security relationship and years of back-and-forth communication, such a result, namely the institutional view prevailing over the realist view, could not have occurred. In Keohane's words,

> Because regimes are difficult to construct, it may be rational to obey their rules if the alternative is their breakdown, since even an imperfect regime may be superior to any politically feasible replacement .... The importance of transaction costs and uncertainty means that regimes are easier to maintain than they are to create (Keohane 1984, p. 100).

Snidal (1991) explains this situation through game theoretic perspective. He argues that success of international cooperation can be decided by two factors: weighting for the importance of relative gains, and weighting for the importance of future benefits. If the relative gains thought dominates beyond a moderate level, the cooperation is hampered, and the relationship turns into a prisoner's dilemma game in which cooperation is hard to achieve. As future benefits are weighted more heavily, the possibility of cooperation increases. However, "if the initial absolute gains situation is not a prisoner's dilemma, relative gains seeking is much less consequential (Snidal 1991, p. 701)." Because only quite high levels of the weight for relative gains can transform the cooperative games into a prisoner's dilemma.

## 5.5 Conclusion

From Grieco's argument for the importance of relative gains in international economic cooperation, Mastanduno (1991) deduces a hypothesis: "as relative economic power declines and external security threats diminish, a hegemonic state is likely to pursue relative gains more forcefully in economic relations with its allies." Based upon the controversial cases of the FSX project, satellite, and HDTV

(High-Definition TV), he concludes that the hypothesis becomes 'strong but not unconditional' support. This illustrates that the supporters of a relative gains thought are increasing their political power in the U.S..

In East Asia, many potential threats still exist. China which is growing economically with surprising speed is like a dinosaur that does not have a firm control of its body. Domestic problems latent in China's growth represent a threat to East Asian international politics. Externally, its expansionism and its wish to rise as a regional hegemonic power threatens its neighbors, as can be seen in the recent missile test directed towards Taiwan. China's fast growing military expenditure is another source of threat. The unstable regime of North Korea contains all the possibilities of security threat to Japan as well as to the region. Moreover, increasing interdependence among the countries in the region and across policy areas does not allow any clear distinction between economic and military relationships.

Under this situation, the relative gains thought rising in the U.S. could produce a negative impact on the U.S. national interest itself. Such demands for Japanese concessions as can be seen in the FSX deal, may instigate the Japanese sense of humiliation and result in a damage to the alliance relationship between the two countries. If Japan implements an independent defense policy and the security relationship is cracked, countries on the Pacific Ocean as well as Japan will be threatened. While the two countries should work for the alliance relationship, the U.S. should focus on domestic reforms to increase competitiveness, an opinion shared even by the opponents of the FSX deal (see Prestowitz 1988; Ferguson 1989), and Japan should further its effort toward cooperation with the U.S. leadership in trade and security.

# CHAPTER 6

# STATISTICAL ANALYSIS

In Chapter 2 and Chapter 3, we developed hypotheses and equations on the determinants of military expenditure and its effect on Japan's national income under the security treaty with the U.S.. This chapter is comprised of two sections. Both sections describe the processes and the results of statistical analysis on the hypotheses. In the first section, the hypotheses developed in Chapter 2 will be operationalized according to the final equation for estimation, and each variable will be considered independently. The data source for each variable will be specified and the result of statistical estimation will be reported. In the second section, because the macro-economic model is well specified, only the source of data for each variable and the statistical result will be reported.

## 6.1 Estimation of the Micro-economic model

**6.1.1 Operationalization** In the micro-economic model on the demand for military expenditure (Equation (18)), the dependent variable is the logarithmic transformation of the ratio between military expenditure and non-military expenditure ($\frac{M}{N}$). The coefficients of the independent variables in the equation ($\gamma$s) are the weights ($\phi$s and $\delta$s in Equation (17)) of the determinant variables of the dependent variable ($\alpha$), the share of military expenditure as a fraction of total government spending. This dependent variable reflects the resource allocation to defense in the general government spending.

This variable reflects substantive reality better than other variants of Japanese

military expenditure, such as military expenditure in constant yen or military expenditure as a percentage of GNP. Figure 1 presents the ratio of military expenditure to non-military expenditure for the period of 1948-88, and its logarithmic transformation. It identifies several characteristics of Japanese military expenditure of the same period. During the 1950s, Japan spent a large share of government spending for its defense under U.S. pressure in response to the rise of Cold War and the initiation of U.S.-Japan security treaty. As the Japanese government switched its policy priority to domestic welfare policies during the 1970s, military expenditure rapidly lost its place. Figure 1 also shows the increased defense effort during the Nakasone government of the 1980s. These changing pictures are not revealed in Figure 2, which describes the level of military expenditure in 1980 constant yen (*MILEX*) and military expenditure as a percentage of GNP (*BURDEN*).

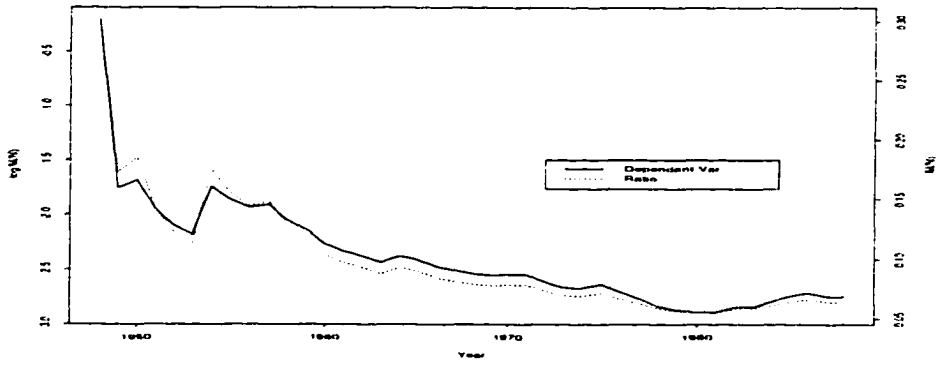

Figure 1. The Ratio between Japanese Military Expenditure and Non-Military Expenditure, and Its Logarithmic Transformation

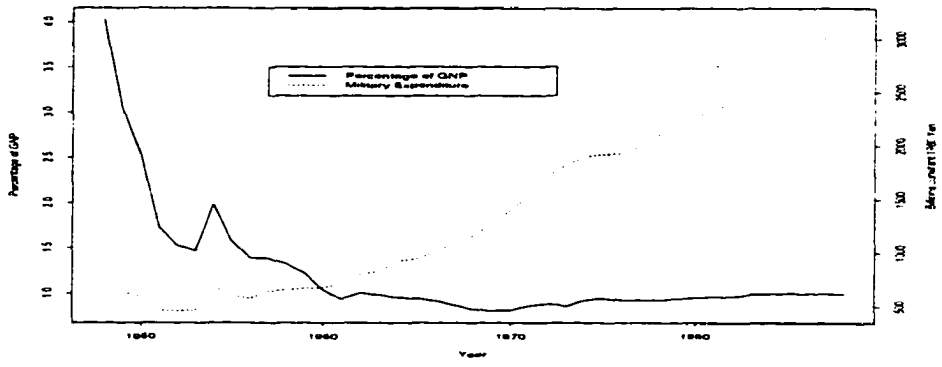

Figure 2: The Level of Japanese Military Expenditure and Its Percentage of GNP

The ratio ($\frac{M}{N}$) also fits our purpose of finding forces behind the bureaucratic politics, which affect the policy maker's decision on military expenditure. The balance rule (Campbell 1977) does not look like a reasonable explanation of the budgetary process as far as military expenditure is concerned. The share of military expenditure did not remain in step with other expenditures. Incrementalism and inertia, the major explanations of the bureaucratic politics approach, are applicable only to absolute values of spending items but not to ratios. Bureaucracies tend to show an inertial behavior in budgeting in terms of the level of expenditure, not in terms of ratio.

The first independent variable is the threat to Japan from its environment: the intensity of Cold War. Ward and Rajmaira (1992) provides quarterly data on conflict and cooperation between U.S. and the Soviet Union. They are composed of four series of data on their interaction: the U.S. conflict toward the Soviet Union, the U.S. cooperation with the Soviet Union, the Soviet Union conflict toward the U.S.,

the Soviet Union cooperation with the U.S.. The quarterly data are from Azar's (1980) Conflict and Peace Data Bank(COPDAB) and are updated using the World Event Interaction Study(WEIS) according to the COPDAB coding scheme. The tension between the two superpowers would be a best available approximation of the threat perceived by Japan to its business activities as well as to its military security. Because Japan is a third party in the interaction of the two superpowers, the global indicators of international community are more important to Japan than any one indicator among the four. The four series are changed into two series of conflict and cooperation by adding up the two cooperation indicators and two conflict indicators. Also, they are changed into annual data by summing the four quarterly values for each year. Then, the ratio of conflict to cooperation was created to represent the intensity of the Cold War. When this is transformed by natural logarithm, it is turned into the log of conflict minus the log of cooperation.[1] It will take at least one year for this Cold War intensity to be reflected in the Japanese budget decision-making. That is, response to the external events will happen in the current budget request and it will be realized in the following year's expenditure. Consequently, a one year lag is more plausible than same-year estimation.

The alliance effect on Japanese military expenditure can be represented by a strategic balance between the U.S. and the Soviet Union. To measure super power military balance, military stock of both conventional and strategic forces should be combined (Ward 1984; Ward and Davis 1992). However, geographically and strategically, the conventional forces of the two super powers have less effect on the security of Japan than the strategic forces. Even in this case, strategic forces stationed or displayed only in the Far Eastern area would be a better indicator of the strategic balance affecting Japanese defense policy. However, as data for this regional strategic balance are not available, global strategic balance data would be

[1] Ward (1984) used the same transformation for the perceived tension of each country with respect to the other side, between the U.S. and the Soviet Union.

the best available currently. In developing indicators of strategic capabilities, Ward and Davis (1992) differentiated between "Total Deliverable Nuclear Warheads," and "Total Deliverable Nuclear Yield." The former is calculated by considering the number of warheads and their delivery vehicles, while the latter is calculated by the additional consideration of the lethality of warheads and the range and accuracy of delivery vehicles. Here, the strategic balance affecting Japan was calculated using both indicators. The ratio of the U.S. deliverable nuclear warheads to the Soviet Union's was transformed by natural logarithm, and this calculation was equal to the log of the U.S. deliverable nuclear warheads minus the log of the Soviet Union's. Total deliverable nuclear yields were transformed in the same way. A one year lag would be necessary for this variable to have influence on Japanese military spending.

The first independent domestic factor is the economic constraint which can be measured by government deficit or bond issue.[2] The two indicators, measured as levels, cannot convey any information on their burden to a decision-maker. They were evaluated instead as ratios to GNP, which can measure the weight of burden relative to economic size. The most powerful actor in the Japanese budget processing is the Ministry of Finance's Budget Bureau whose prime concern is the economic performance of Japan. It frames up each year's budget by starting from the estimation of expected GNP, and ending up with the consideration of the size of deficit and bond issue. Campbell (1977) describes this process:

> When one first asks an MOF official how the size of the budget is decided, the process ... will be outlined. First, it is said, the Economic Planning Agency estimates the growth in Gross National Product for the following year, based on analyses of domestic and international economic conditions. The MOF then derives an estimate of revenues at current tax rates from this figure. Tax rates are reduced in accordance with the long-range principle that the tax burden should not exceed 20 percent of national income. Consideration is given to the

[2]Bond issue showed a better relationship with the dependent variable than government deficit in the estimations for several different periods. The variable of government deficit, which is operationalized in the same way as the bond issue was not statistically significant for the whole period (1948-1988) or for the shorter period (1958-1978). Statistical reports in this chapter will focus on bond issue.

> quantity of necessary expenditures. A decision is made on how fiscal policy should affect economic conditions in the following year, and the size of the bond issue ( the budget deficit) is fixed keeping in mind the principle that the "bond-dependence ratio" should be reduced each year if possible. Therefore, the final number, the figure for the total size of the budget, emerges from a series of objective, technical, economic decisions. Such is the idealized macrobudgeting process in Japan (p. 71-72).

The ratios are changed into percentages first. Bond issue started only in 1966, and the previous values are zeros. Because the log of zero does not exist by definition, 1 is added to the percentages. Then, it is transformed by natural log.

Domestic political mood, the second domestic independent variable, is measured by the number of the Diet seats occupied by the parties which oppose the SDF. In Japan, every fiscal year begins on April 1. To influence the budget-making process and the Diet's ratification of the budget request, elections should be performed before March when the budget request is sent to the Diet for passage. If elections are performed after March, the opposition parties can influence the budgetary process for the following fiscal year. As an example, if an election occurred in November 1960, Diet members could exert their power on the expenditure of the 1961 fiscal year. The seats won by opposition parties in 1960 are recorded for 1961, however. Thus budget records for 1961 reflect the 1960 Diet. Consequently, data for this variable is based upon the actual year of budget activity rather than election year activity.

During the period of 1948-88, there were many changes in party identity and policy orientation toward defense policy. Ever since all the conservatives participated in LDP in 1955, Japan maintained a one-party dominant system. Even though there were many conservative parties, there was no difference in defense policy among them. On the other hand, the JSP could not sustain its coherence after the formation of 1955.[3] Even the Democratic Socialist Party (DSP), formed by the right-wing

[3]On the evolution of the Japanese party system in two groups of conservatives and leftists during the post-war period, see Appendix of Hrebnar (1986).

defectors from JSP in 1960, was supportive of the LDP defense policies. Another defector group from the JSP was the New Liberal Club (NLC), formed in 1976 and continued until 1986. It was also on the side of LDP on defense matters. The United Social Democratic Party (USDP), another defector from the JSP, was formed in 1977 and started demanding reduction of the SDF in three stages. It later gave up the policy position in 1981 when it joined NLC to form the NLC-USDP group. The JSP, which was against SDF and the security treaty from the beginning, began to change its orientation in 1980 to accept the two pillars of Japanese defense policy, the U.S.-Japan security treaty and the SDF, as a *fait accompli*. The Clean Government Party (*Kōmeitō*), formed in 1964 from a religious group, demanded the gradual dissolution of the security treaty, and abolition of the SDF. This party also gave up its policy position in 1981. The Japan Communist Party was the only party still opposed to the SDF and the security treaty (Gow 1982). The number of Diet members from opposition parties are calculated as a percentage of the whole number of the Diet members, and then transformed by natural log.

The data for the variables mentioned so far are presented in Table 2. These are variables which are to be calculated and log-transformed to produce the final variables for the estimation of our model. These are the name of the independent variables used in the estimation and their definition.

*LAGT* Natural log of cold War tension, with one year lag

*LAGB* Natural log of strategic balance, with one year lag

*BOND* Natural log of the percentage of bond issue to GNP

*PARTY* Natural log of the percentage of opposition party seats to the total seats in the Diet

**6.1.2 Data** Data for Japan's GNP is from Emi (1963) (for 1948-51) and the *International Financial Statistical Yearbook* (IFSY) (1979, 1988, 1992) (for

Table 2: Variables before Log Transformation: 1948-1988

| Year | *MILEX* | *NMILEX* | *CONF* | *COOP* | *USW* | *SUW* | *GNPBOND* | *PARTY* |
|---|---|---|---|---|---|---|---|---|
| 1948 | 805.1428 | 2668.346 | 3922 | 297 | 50 | 0 | 0 | 31.54506 |
| 1949 | 638.3975 | 3706.000 | 1718 | 138 | 250 | 0 | 0 | 19.31330 |
| 1950 | 592.3832 | 3199.802 | 1014 | 85 | 450 | 0 | 0 | 19.31330 |
| 1951 | 462.1237 | 3249.945 | 2345 | 336 | 650 | 0 | 0 | 19.31330 |
| 1952 | 460.5845 | 3761.357 | 1430 | 196 | 1010 | 0 | 0 | 19.31330 |
| 1953 | 464.4009 | 4117.419 | 1366 | 452 | 1800 | 0 | 0 | 42.91845 |
| 1954 | 685.9336 | 3919.204 | 841 | 229 | 3112 | 0 | 0 | 47.21030 |
| 1955 | 601.6725 | 3903.500 | 801 | 472 | 4123 | 0 | 0 | 34.68951 |
| 1956 | 574.8120 | 3994.440 | 925 | 493 | 4989 | 84 | 0 | 34.68951 |
| 1957 | 645.4557 | 4365.835 | 1438 | 202 | 5700 | 102 | 0 | 34.68951 |
| 1958 | 655.7402 | 5108.597 | 1178 | 502 | 6620 | 180 | 0 | 34.68951 |
| 1959 | 671.5299 | 5717.530 | 2444 | 1259 | 6548 | 250 | 0 | 35.76017 |
| 1960 | 675.5909 | 6527.499 | 1588 | 337 | 6662 | 323 | 0 | 35.76017 |
| 1961 | 713.8429 | 7346.579 | 1860 | 631 | 6538 | 365 | 0 | 31.69165 |
| 1962 | 798.9246 | 8600.402 | 2721 | 576 | 6158 | 419 | 0 | 31.69165 |
| 1963 | 833.9116 | 9520.818 | 1650 | 652 | 6448 | 552 | 0 | 31.69165 |
| 1964 | 925.2045 | 9966.146 | 894 | 373 | 6848 | 678 | 0 | 31.90578 |
| 1965 | 944.4216 | 10511.02 | 902 | 124 | 5946 | 739 | 0 | 31.90578 |
| 1966 | 1017.927 | 12058.89 | 1682 | 443 | 5574 | 752 | 1.921659 | 31.90578 |
| 1967 | 1084.758 | 13318.16 | 1777 | 566 | 5186 | 976 | 1.796744 | 34.97942 |
| 1968 | 1162.289 | 14712.26 | 971 | 267 | 4982 | 1316 | 1.212764 | 34.97942 |
| 1969 | 1267.036 | 16290.92 | 941 | 482 | 4722 | 1652 | 0.789088 | 34.97942 |
| 1970 | 1404.076 | 17952.18 | 731 | 356 | 4630 | 2001 | 0.587528 | 31.06996 |
| 1971 | 1541.416 | 19705.54 | 1171 | 806 | 6054 | 2409 | 0.533552 | 31.06996 |
| 1972 | 1723.356 | 23556.67 | 538 | 774 | 7718 | 2616 | 2.110367 | 31.06996 |
| 1973 | 1823.152 | 26219.17 | 661 | 1370 | 9354 | 2735 | 2.079631 | 37.67821 |
| 1974 | 1898.832 | 27485.47 | 456 | 771 | 9904 | 2915 | 1.611977 | 37.67821 |
| 1975 | 1924.041 | 26809.96 | 340 | 724 | 9862 | 3007 | 1.349801 | 37.67821 |
| 1976 | 1928.392 | 28887.24 | 490 | 507 | 9734 | 3726 | 4.371549 | 37.67821 |
| 1977 | 1994.962 | 31834.89 | 994 | 717 | 10062 | 4855 | 4.570690 | 38.55186 |
| 1978 | 2101.800 | 35994.33 | 1434 | 852 | 10062 | 5769 | 5.372294 | 38.55186 |
| 1979 | 2241.379 | 39558.19 | 1078 | 651 | 10062 | 6573 | 6.883806 | 38.55186 |
| 1980 | 2272.000 | 41133.00 | 1889 | 370 | 9692 | 7410 | 5.943407 | 40.11742 |
| 1981 | 2349.857 | 42379.41 | 1626 | 498 | 9372 | 8404 | 4.766584 | 12.72016 |
| 1982 | 2407.236 | 41419.30 | 1315 | 641 | 10268 | 8423 | 3.857110 | 12.72016 |
| 1983 | 2535.032 | 43538.67 | 3294 | 946 | 10411 | 8739 | 4.730960 | 12.72016 |
| 1984 | 2648.263 | 43194.13 | 2054 | 924 | 10783 | 8885 | 4.211952 | 5.088063 |
| 1985 | 2794.066 | 43458.11 | 3538 | 2305 | 10979 | 9666 | 3.632338 | 5.088063 |
| 1986 | 2893.322 | 43628.79 | 2478 | 1449 | 11571 | 10042 | 3.259310 | 5.088063 |
| 1987 | 3013.865 | 47013.00 | 1167 | 907 | 12183 | 10090 | 2.996185 | 5.078125 |
| 1988 | 3177.281 | 49723.76 | 713 | 897 | 12738 | 10565 | 2.365605 | 5.078125 |

*MILEX*: military expenditure in 1980 constant yen

*NMILEX*:non-military government expenditure in 1980 constant yen

*CONF*: a sum of bilateral conflict behavior between US and USSR

*COOP*: a sum of bilateral cooperative behavior between US and USSR

*USW*: total US deliverable nuclear warheads

*SUW*: total USSR deliverable nuclear warheads

*GNPBOND*: ratio of bond issue to GNP

*PARTY* percentage of the seats occupied by opposition parties in the Diet

1952-1988). Total government spending is from Emi and Shionoya (1966) (for 1948-1951) and several editions of the *Japan Statistical Yearbook* (JSY)(the more recent

editions provide more updated data). In the case of military expenditure. Emi and Shionoya (1966) and JSY provide data for the periods of 1948-1960 and 1961-1988 respectively. Data for government deficit and bond issue are also from the 1996 and 1966 editions of JSY. These data were changed into 1980 constant yen using the consumer price index (1980=100) that comes from Emi (1963) (for 1948-1960) and IFSY(1992) (for 1961-1988). The price index from Emi (1963) was proportionally scaled up by the ratio of the two series for 1960 because its standard year is 1934-1936. The values of these variables are slightly different from the data of Ward, Davis, and Lofdahl (1995) for the first twelve years (1948-1959) due to the different scaling method for the two different series of price indices. Data for bilateral conflict and cooperation between the U.S. and the Soviet Union is directly available from Ward and Rajmaira (1992), and the two super powers' deliverable warheads and yields are from Ward and Davis (1992). Because data for Cold War tension and super power strategic balance are available only for 1948-1988 period, the estimation of the micro-economic model is limited to this period. The results of the House of Representatives elections of the 1948-1986 are available in the Appendix of Curtis (1988) and the election results of the later period are from JSP (1996).

**6.1.3 Empirical Results** The method of Ordinary Least Squares (OLS) is used to estimate the parameters of Equation (18).[4] I tested for possible violations of the assumptions of OLS such as heteroskedasticity, autocorrelation, and multicollinearity. Because serial correlation was detected through the Durbin-Watson statistics in the initial OLS estimation, it was dealt with by the first-order correction procedure. The result is reported in Table 3. The two variables of super power tension and the power of opposition parties are not significant, that is, their influence on the share of defense spending was not different from zero. On the other hand, the other two variables of strategic balance and economic constraint turned out to

[4]I used MicroTSP Version 7.0 (by David M. Lilien) to perform data transformations and to generate the following statistical results.

Table 3: Estimation of the Micro-economic Model: 1948-1988

| Variable | Parameter Estimates<br>(standard error)<br>(t-statistic) |
|---|---|
| *constant* | -2.510 |
| | (0.153) |
| | (-16.409)** |
| *LAGT* | -0.000 |
| | (0.032) |
| | (-0.012) |
| *LAGB* | 0.077 |
| | (0.016) |
| | (4.72)** |
| *BOND* | -0.181 |
| | (0.049) |
| | (-3.730)** |
| *PARTY* | -0.002 |
| | (0.042) |
| | (0.058) |
| F-statistic | 82.77 |
| D-W statistic | 2.132 |

** significance at 1 percent level in two-tail test

be significant at a one percent level. The serial correlation was removed after a correction (Durbin-Watson Statistic = 2.137). According to this result, one external variable (the gap in warheads) and one internal variable (issue of bond) affected the resource allocation. The actual and estimated values of the dependent variable and the error term of the estimation are presented in Figure 3.

In assessing the parameters, however, there is a problem in the data for bond issue. As can be seen in Table 2, values of the data for the period of 1948-1965 are zeros because the Japanese government did not issue any bonds. This might cause an inefficiency in estimation of the coefficients of other variables as well itself. Figure 3 shows the unequal error variance during the early period and a possibility of heteroskedasticity. However, this suspicion cannot be tested nor corrected due to

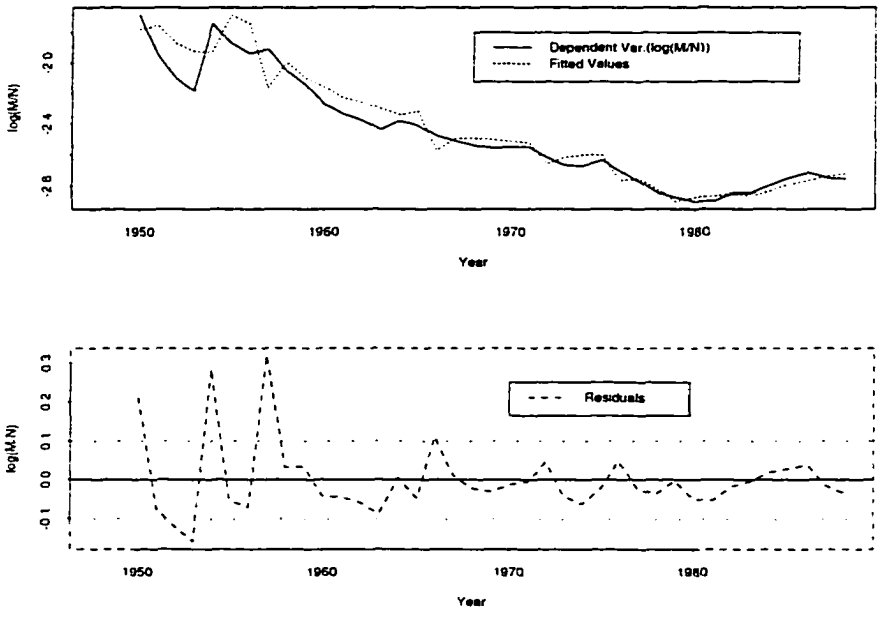


Figure 3: Actual and Estimated Value of Dependent Variable and Error Term

the string of zero values for the early period of the $BOND$ variable. I report here another statistical result excluding the 1948-1965 period in Table 4.

In this estimation, all variables except the Cold War tension ($LAGT$) play a statistically significant role, and the F-statistic is improved. The most important difference is that the sum of squared residuals are significantly reduced from 0.338 to 0.015. Even though we lost the information about the early period, we could get

Table 4: Estimation of the Micro-economic Model: 1966-1988

| Variable | Parameter Estimates<br>(standard error)<br>(t-statistic) |
|---|---|
| *constant* | -2.446<br>(0.029)<br>(-81.677)** |
| *LAGT* | -0.004<br>(0.008)<br>(-0.538) |
| *LAGB* | 0.132<br>(0.016)<br>(7.979)** |
| *BOND* | -0.174<br>(0.015)<br>(-11.857)** |
| *PARTY* | - 0.045<br>(0.010)<br>-(4.493)** |
| F-statistic | 82.05 |
| D-W statistic | 1.45 |

** significance at 1 percent level in two-tail test

a more coherent result instead. The coefficient for bond issue ($BOND$) remained similar, but the variable of opposition party ($PARTY$) turned out to be statistically significant, as we expected. The coefficient for strategic balance remained significant. The reported estimation is the result of a second-order correction for serial correlation. Even though the Durbin-Watson statistic is in the indeterminate range, the distribution of the error term did not leave room for suspicion of serial correlation.

From the estimation for the period of 1966-1988, the validity of the hypothesis of structural changes is checked by chow test for two sub-periods, 1966-1978, and 1979-1988. The F-statistic of the test is 5.89 ($p = 0.0057$) and it indicates the statistical significance of the structural change at a one percent level. The coefficients and their statistical significance, reported in Table 4, are not consistent between the

two sub-periods. Here the two different structures of budget allocation should be investigated.

Estimation of the parameters for the first period (1966-1978) shows not much difference from the estimation of 1966-1988 period. Still the three variables (*LAGB*, *BOND*, and *PARTY*) are statistically significant at a one percent level and the F-statistic is 112.24. After a second-order correction for serial correlation, the Durbin-Watson statistic turned out to be 2.20. However, because there are only 13 cases in the estimation of this period which has five variables, we should extend the period backward as long as there is no problem in estimation. Fluctuation in the values of residuals in the Figure 3 shows that heteroskedasticitic process ends at 1958. In Table 5, I report the estimation result for the period of 1958-1978.

Table 5: Estimation of the Micro-economic Model: 1958-1978

| Variable | Parameter Estimates<br>(standard error)<br>(t-statistic) |
|---|---|
| *constant* | -1.541<br>(0.540)<br>(-2.855)* |
| *LAGT* | -0.010<br>(0.016)<br>(-0.622) |
| *LAGB* | 0.097<br>(0.038)<br>(2.572)* |
| *BOND* | -0.071<br>(0.025)<br>(-2.82)* |
| *PARTY* | - 0.321<br>(0.154)<br>-(2.089)† |
| F-statistic | 125.1 |
| D-W statistic | 1.90 |

* significant at 5 percent level in two-tail test
† significant at 10 percent level in two-tail test

While the statistical significance of the two variables *LAGB* and *BOND* are acceptable at a 5 percent level, that of the variable *PARTY* is acceptable only at a 10 percent level. However, because the 2-tail significance level of the t-statistic of *PARTY* is 2.131, we still can accept the coefficient as significant. The statistical result of this extended period is consistent with the estimation of the 1966-1988 period only with minor changes in coefficient values. Statistics for overall estimation shows that the model is well-specified and the OLS is an appropriate method for estimating the model.

In the period of 1958-1978, Japan's resource allocation for defense spending did not compensate for the relative decline of the U.S. nuclear superiority. It followed the relative effort of the U.S. in widening the gap with the Soviet Union. The U.S. was leading the competition during the whole period. As long as the gap was in favor of the U.S., Japan was following the U.S. policy. When the U.S. was leading the competition with a big margin in the 1950s, Japan spent a relatively larger share of its available resources for defense. Only during the 1980s was there a conspicuous increase in the share of military expenditure relative to the small increase in the nuclear gap . On the whole, the statistical result illustrates that Japan was enjoying its free-rider status. Even though the positive relationship seems to be saying that the alliance relationship was complementary, it would be more plausible to say that it was substitutive, if we consider Japan's relatively small government and the military expenditure's small share of total government spending. On the other hand, the alliance relationship was complementary only to the security of the U.S. (Morrow 1991; Diehl 1994). Japan's free-riding was also proved by the estimation of the impact of international Cold War tension to Japanese resource allocation. Japan's military expenditure's share did not respond to the changes in super power tensions.

This result on the domestic aspect of military expenditure supports Campbell's (1977) observation of the 1970s. The bond issue that was possible under the

special law constrained the resource allocation to defense. This is contrary to Nioka's (1990) argument that an increase in military expenditure during the 1970s was possible because of the bond issue. This statistical result and the fact that the policy priority was on domestic welfare during the 1970s lead us to conclude that the major victim of the resource limitation was military expenditure. It also illustrates the low priority of military security policy during the 1970. This is also partly supported by the insignificant influence of the variable of Cold War tension on the Japanese resource allocation to military expenditure.

The estimation also shows the importance of party politics. When the power of the opposition parties was strong, less resource was allocated to the share of military expenditure. Similarly, if the opposition parties lost seats and attracted less support in an election, the Japanese government and LDP politicians faced less opposition in increasing the share of military expenditure. This result is contrary to the previous observations, which argued that the dominance of LDP in the Japanese party politics allowed LDP to ignore the opposition in the Diet on its foreign policy formation and in passing budget proposals. This result, however, supports the view that Japanese defense policy in general is forged by domestic constraints and does not respond to foreign influences and demand. This significant coefficient also rationalizes the estimation for the period which begins in 1958. The Japan Socialist Party, which had been fragmented into three different parties until the election of February 1955, became unified after that election. The variable of $PARTY$ which was not statistically significant in the estimation of the full period, emerged as a significant variable in the estimation for the 1958-1978 period.

As I mentioned before, a chow test shows that this statistical result did not continue through 1980s. Estimation of the coefficients of the same variables on the 1979-1988 period may not be reliable enough, however, because there are only 10 cases for the estimation of five coefficients. Furthermore, we can ignore

the estimation for another reason. As long as the budget ceiling is binding, we can believe that the statistical relationship might be a spurious result. For these reasons, the importance of the one percent rule is tested for this period. Because the rule was proclaimed in 1976, the coefficient for Equation (19) of Chapter 2 has been tested for the 1976-1988 period. For this period, the coefficient was 0.0070, that is, military expenditure for this period was decided not only by the ceiling but by the other internal and external factors. Theoretically, structural change was expected from 1979. If the ceiling was important in resource allocation, it should be applicable to this period. The changes in military expenditure were not decided by the push factors but by the budget ceiling. The coefficient for this period was 0.0099 and the statistical result is reported in Table 6.

Table 6: Estimation for the Budget Ceiling: 1979-1988

| Dep. Variable | *MILEX* |
|---|---|
| Variable | Parameter Estimates<br>(standard error)<br>(t-statistic) |
| *GNP* | 0.00993<br>(0.000)<br>(86.719)** |
| $R^2$ | 0.995 |
| F-statistic | 1991.042 |
| D-W statistic | 2.54 |

*MILEX* Military expenditure in 1980 constant yen
** significant at 1 percent level in two-tail test

It supports the expectation that the variables which had been working in the 1958-1978 period did not decide the resource allocation of the 1980s. While the variables suggested an increase in the share of military expenditure during the 1980s, the results were not realized. Whatever the demand was, military expenditure could not grow past the one percent ceiling.

The findings discussed in this section can be summarized into four points.

First, the micro-economic model was less applicable to the early period (1948-1957) than to the later period (1958-1978) for two reasons. First, the zero values in bond issue did not allow us to measure and cure the problem of heteroskedasticitic error distribution. This problem forced us to exclude this period in the estimation for the later period. Also, we can guess that Japanese military policy specifically, and Japanese domestic politics in general, was not stabilized due to several rapid changes such as new institutions installed after the end of war, changing political coalitions, and the disappearance of coherent foreign policy orientations. Given this situation, it is natural that the model applicable to the later period is not appropriate to the unstable period. From the findings reported in this chapter, however, we can say that the variable of strategic balance was statistically significant for this early period. Japan spent a relatively large share of government spending on military expenditure following the U.S. demand accompanying the conclusion of security treaty.

The second finding is that when the Japanese politics was institutionalized (1958-1978), domestic politics was a dominant force behind Japanese defense spending. The fiscal constraint due to bond issue illustrates the powerful voice of the Ministry of Finance in government spending patterns. The LDP government also had to deal with non-LDP Diet members who opposed the SDF and the U.S.-Japan Security Treaty in budget allocation. As long as the external inputs on foreign policy had to go through the filter of domestic politics, the U.S. demand and pressure for increased defense spending was limited in effect. The U.S.-Soviet strategic balance was not interpreted as a threat factor. As long as the U.S. was leading the competition, Japan simply followed the U.S. policy. Until the U.S. tried to correct the narrowing gap in the balance, Japan did not respond.

In the third period, when the three variables pointed to an increase in the share of Japanese defense spending, the inputs were not translated into resource allocation due to the self-proclaimed one percent rule. The three domestic and foreign

factors increased from the previous period and the share of military expenditure rose in response to them. However, when the increased defense spending reached one percent of GNP, the influences simply disappeared, and the defense spending was set at the ceiling.

Finally, we found that super power tensions which represented an external threat to Japan was not a determinant in decision making for resource allocation, in either the period of 1958-1978 or 1979-1988. From this empirical result, we cannot infer whether the policy of comprehensive security was conceived to increase military expenditure or to rationalize previous spending levels. The content of the comprehensive security policy will be further investigated in the next chapter.

## 6.2 Estimation of the Macro-Economic Model

The estimation of the macro-economic model is for the period of 1947-1994 and data for all the variables are available for this period. Sources for the variables of GNP, total government expenditure, and military expenditure are specified in the previous section. Investment ($I$) is represented by gross domestic capital formation. Data for the 1947-1951 period is from JSY (1957 edition) and the rest of the whole period is from IFSY (1952-1964 from 1979 edition, 1965-1980 from 1989 edition, 1981-1990 from 1992 edition and 1991-1994 from 1996 edition). They are changed into the unit of billion yen. Because of the different scaling methods for price indexing, values for 1947-1959 period are slightly different from Ward, Davis, and Lofdahl (1995). Labor ($L$) is measured by "employment over 15 years old" in the Japanese economy (in the unit of ten thousand), and they are from several editions of JSY. Data for Export ($X$) is from several editions of JSY in the unit of million yen, and it is changed in billion yens. All these Japanese data are in 1980 constant yen. Data for the U.S. military expenditure ($\tilde{M}$) is from Ward, Davis, and Lofdahl (1995) for 1947-1990 period in 1987 constant million dollars. It is updated to 1994 by military

expenditure and implicit price index from *Economic Report of the President* (1996, p. 286,370).

**6.2.1 Empirical Results** In estimating the macro-economic model, the same method of OLS is used, and all the possible violations of the assumptions of the method are tested. Only the violation of serial correlation was detected, which was corrected by the first order correction procedure. The statistical result of Equation (21) is reported in Table 7.

Statistics on the overall estimation turned up satisfactory. The estimation of the parameters was significant at 1 percent critical value (F-statistic = 50.84). The Durbin-Watson statistic of 1.79 shows that serial correlation was not detected. Individually, changes in investment ($I$) and the U.S. military expenditure had a significant positive impact on the growth of Japanese national income at the five percent level of statistical significance. Changes in Japanese military expenditure and export had a statistically significant relationship with the dependent variable only at the ten percent level. Japanese export showed a negative relationship, unexpectedly. Parameters of the changes in employed labor force and non-military government expenditure turned out to be negative but they do not have any theoretical implications because the statistical relationships (t-statistics) were not different from zero.

Even though each independent variable is included in the estimation as a part of theoretical model, we can be suspicious of the statistical impact of the insignificant variables on the estimation of other variables. When I dropped the two independent variables of employed labor force and non-military government spending, the variables of prime concern had statistically more significant relationships. The result is in Table 8 and the graphical presentation of the fitness is in Figure 4.

Statistics for the overall equation stayed similar to the previous estimation (F-statistic is improved from 50.84 to 72.55, and the sum of squared residuals increased, but stayed close), but the parameter for military expenditure turned up

Table 7: Estimation of Macro-Economic Model: 1947-1994

| Variable | Parameter Estimates<br>(standard error)<br>(t-statistic) |
|---|---|
| *constant* | 4400.889 |
| | (911.917) |
| | (4.826)** |
| $I$ | 1.381 |
| | (0.112) |
| | (12.310)** |
| $\frac{Y}{L}\dot{L}$ | -0.261 |
| | (0.267) |
| | (-0.988) |
| $\dot{N}$ | -0.086 |
| | (0.256) |
| | (-0.336) |
| $\dot{M}$ | 9.130 |
| | (4.759) |
| | (1.919)† |
| $\dot{X}$ | -0.271 |
| | (0.151) |
| | (-1.799)† |
| $\dot{\tilde{M}}$ | 0.038 |
| | (0.017) |
| | (2.235)* |
| F-statistic | 50.84 |
| D-W statistic | 1.79 |

** significant at 1 percent level in two-tail test
* significant at 5 percent level in two-tail test
† significant at 10 percent level in two-tail test

statistically significant at 5 percent level. The parameter for export was, however, negative and statistically insignificant (It was statistically significant only at a 10 percent level). In this estimation of the restricted equation, the values of parameters for military expenditure ($\dot{M}$) and the U.S. military expenditure ($\dot{\tilde{M}}$) remained similar only with marginal changes. Consequently, Table 8 represents a better estimation of the macro-economic model than Table 7.

Table 8: Estimation of Restricted Model: 1947-1994

| Variable | Parameter Estimates<br>(standard error)<br>(t-statistic) |
|---|---|
| *constant* | 3878.663<br>(715.745)<br>(5.419)** |
| $I$ | 1.315<br>(0.098)<br>(13.470)** |
| $\dot{M}$ | 9.806<br>(4.658)<br>(2.11)* |
| $\dot{X}$ | -0.268<br>(0.150)<br>(-1.784) |
| $\dot{\tilde{M}}$ | 0.038<br>(0.017)<br>(2.209)* |
| F-statistic | 72.55 |
| D-W statistic | 1.75 |

** significance at 1 percent level in two-tail test
* significant at 5 percent level in two-tail test

While the marginal impact of labor input, non-military government spending, and export on national income is not different from zero, that marginal impact of investment, military spending and the U.S. military expenditure is positive. (The marginal impact of capital investment is 1.3, that of Japanese military expenditure is 9.8, and that of the U.S. military expenditure is 0.038.) The significant and positive impact of the coefficient for investment tells us that the macro-economic model is well-specified and appropriate to investigating the relationships in reality. This result is also consistent with the findings of other studies using the supply-side models.

On the surface, the insignificant marginal impact of export to national income is contrary to the well-known fact that export has been the major source of Japanese economic growth during the post-war period. However, if we consider that

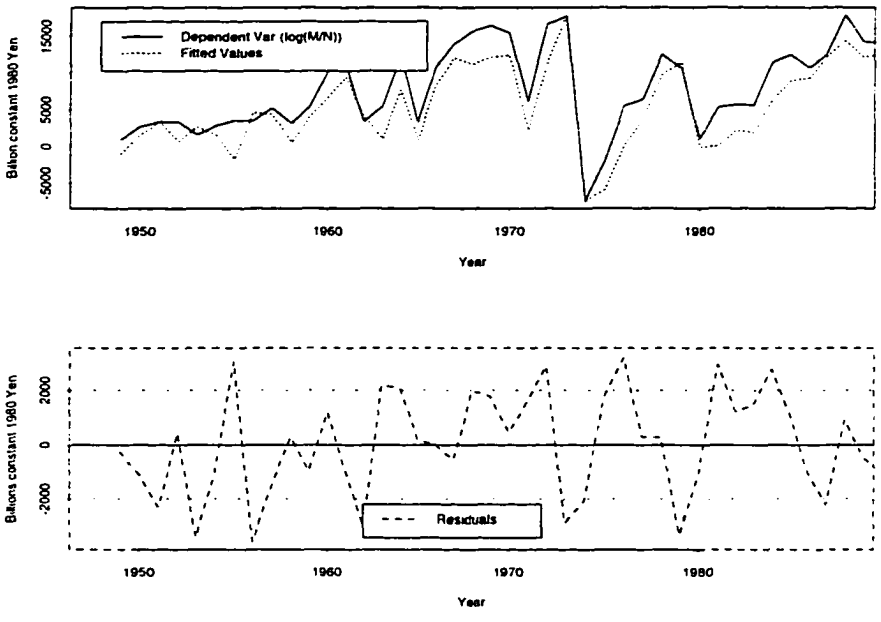


Figure 4. Actual and Estimated Value of Dependent Variable and the Error Term of the Restricted Model:1947-1994

the variable of export increase is aggregate data which includes export of all categories in the Japanese economy, the insignificant and negative impact on economic growth is not surprising. The economic growth of Japan was a consequence of the increase in the export of specific areas which lead the economy at various stages of economic advancement. The role of MITI, which is known as one of most important

actors in Japanese economy, was to promote and induce investment for and export of strategic industries (Johnson 1982). The insignificant parameter for increase in employed labor also can be explained in the same way. More specific information on the Japanese employment structure and labor policy may provide answers to the unexpected result of an insignificant relationship with economic growth. The OLS estimation of the three sector model for ten NATO allies shows that an increase in employed labor is not necessarily positively related with economic growth (Macnair, Murdoch, Pi, and Sandler 1995). In different studies, its impact was negative as well as positive, and insignificant as well as significant. This inconclusive result is the same with the findings in the survey of 103 countries (Mintz and Stevenson 1995).

The insignificant impact of non-military government expenditure is also consistent with the mixed findings of the two studies mentioned in the previous paragraph. In Japan, the LDP wielded strong power in resource allocation during the budgetary process through its age-old linkage with bureaucracies and its own policy expertise. This strong voice of the governing party allowed the LDP to use the Japanese budget for its own political interest. Curtis (1988) says,

> The LDP's success in retaining power owes a great deal to its ability to closely track changes in its social and economic environment and to adjust its policies accordingly. It has used all of the resources at its command as Japan's only governing party to perpetuate its dominance, its ultimate control over the government budget being among the most important of these resources. Popular stereotypes of bureaucratic dominance in Japanese policy making notwithstanding, the Liberal Democratic party has energetically used the government purse to reward its supporters, to cultivate new support, and to reorder the government's policy priorities (p. 45-46).

The rural area has been over-represented in the Diet, and agriculture and small business groups were the most powerful clients of LDP until recently. Even though non-military expenditures are politicized, they also have had some positive impact on the economy by raising the standard of living in the rural area and spreading industrialization. If we consider this political aspect in the resource allocation of

non-military government expenditure, this statistically insignificant relationship also can be understood.

Our two variables of primary concern have a statistically significant relationship with the economic growth. The coefficient for the increase of military expenditure which implicates the combination of productivity differential effect and externality effect shows that military expenditure has a positive impact on civilian economy and eventually on national income. The spillin effect of the U.S. military expenditure on the Japanese national income is also positive. The effect is realized through its impact on the change in Japanese military expenditure and its impact on Japanese civilian economy. It is consistent with the argument that Japanese economic development was possible under the security umbrella provided by the U.S.. These results of the estimation, however, do not suggest exact characteristics of the relationships. First, the estimation provides only an aggregate effect of each variable. Second, we lack the information on how and why these two variables have a positive impact on Japanese economy.

The statistical results of this chapter raise several questions about Japanese military expenditure. What would have happened to the share of military expenditure without the budget ceiling of the one percent rule? What was the role of the political alignment between Political Realists and Military Realists under the situation of 1980s? What is the implication for other foreign policy tools such as foreign aid? The answers to these questions will be investigated in the following chapter.

# CHAPTER 7

# BURDEN SHARING AND POWER SHARING

Statistical analysis in the previous chapter focused on the determinants of the share of military expenditure in total government spending and its impact on Japan's national income. Now, we need to extend the analysis to its implications on Japanese defense policy. As the size of Japanese economy became the second largest in the world during the 1980s, its defense policy was more deeply integrated with the U.S. global strategy. Setting aside the pressure from the U.S. for burden-sharing, Japan needed a new foreign policy compatible with its national economic power. In the context of post-Cold War international politics, Japanese foreign and defense policy was also concerned with the international order of the future. The first section of this chapter is on what happened in Japanese military expenditure of the 1980s under the U.S. pressure for burden sharing. Did Japanese military effort increase significantly enough? What would have happened if there had been no one percent rule? The second section is on Japanese foreign aid as foreign policy tool. How did it change from the previous period in amount and in characteristic? What was the major purpose of the change? The final section is on the implications of the analysis of Japanese military expenditure and foreign aid as they affect the international order of the future.

## 7.1 Japanese Military Expenditure of the 1980s

It is well known that Japan increased its military effort during the 1980s, especially under the Nakasone government, and it was possible owing to the strong pressure from the U.S.. This observation needs some qualification. In the statistical

analysis, it is proved that the dependent variable, the relative share of military expenditure to non-military expenditure, increased during the 1980s, but it was decided at the ceiling of one percent of GNP. In the sense that this variable represents Japanese government's policy priority, it is true that Japanese government increased its effort for military security up to a certain level. However, we also can say that it was much less than the U.S. demand for burden sharing, given the U.S.'s yardstick, military expenditure as a percentage of GNP.

In this sense, we can say that the Japanese military effort of the 1980s was more symbolic than substantive. The most often cited Japanese effort is the breakdown of the one percent rule in 1987. Actually military expenditure never surpassed the ceiling. It happened only in the budget for military expenditure of 1987: 1.0009 percent of GNP.[1] Military expenditure stayed below one percent of GNP until 1990, and it has been just above the ceiling since 1991. In the sense that the rule which had been observed since 1961 was repealed, and left a door open for military buildup in the future, it is a very important event in the post-war Japanese defense policy. On the other hand, in the sense that military expenditure has persisted at one percent (after rounding), it has not represented a big change substantively. We can say that the one percent rule was binding on military expenditure up to 1988.

What might have happened, if there had been no one percent rule? Statistical analysis of the previous chapter for 1958-1978 period can provide us an answer (it also can implicate a plausibility of the estimation). Figure 5 presents the forecast of the 1979-1988 period based upon the estimation of the previous period. The figure shows what the ratio of military expenditure to non-military expenditure would have

[1]Table below presents a comparison between budget and expenditure of defense spending:

| (% of GNP) | 1985 | 1986 | 1987 | 1988 | 1989 |
|---|---|---|---|---|---|
| budget | 0.9858 | 0.9939 | 1.0009 | 0.9975 | 0.9820 |
| expenditure | 0.9958 | 0.9933 | 0.9924 | 0.9879 | 0.9889 |

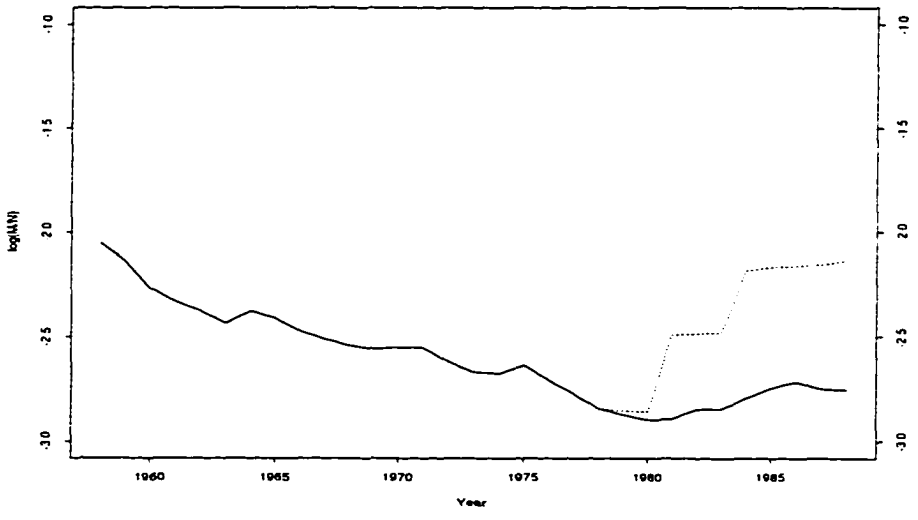


Figure 5: Dependent Variable and Forecast

been, if the relationship between dependent variable and independent variables of the 1958-1978 period were extended into the 1980s. According to the forecast, the ratio might have been much larger than the actual ratio which has been decided by the one percent rule. Major factors which had been pushing up the share of military expenditure came from the domestic arena rather than the international arena. The strategic balance between the U.S. and the Soviet Union could not account for such a huge leap in the share of military expenditure. On the other hand, the percentage of bond issue to GNP decreased dramatically since 1979 when the fiscal austerity policy was set off, and it worked to boost military expenditure's share in government

spending. This was also a time that many opposition parties changed their party policy on the SDF and military expenditure, and they came to accept SDF as a *fait accompli.* From this analysis, we can conclude that the domestic factors also played an important role, if not the decisive role, in increasing the dependent variable.

We can say that domestic constraints which were limiting and suppressing the growth of military expenditure in its share of total government spending were relaxed, but that Japanese expenditure was not increased enough to meet the U.S. demand for burden sharing. Was Japan not concerned with the U.S. demand? Did Japan simply dodge the internal and external demand only to avoid any abrupt change in its policy, as was implicated in the previous labels for Japanese foreign policy such as "irresponsible immobilism" and "a shrewd pragmatism"? Quite the contrary. Japan responded appropriately to domestic and foreign pressures and it was not *ad hoc.* Japanese response to the changed situation is expressed in its new policy orientation of "comprehensive security" and its backbone was the new efforts in Japanese foreign aid.

## 7.2 Comprehensive Security and Foreign Aid

**7.2.1 Comprehensive National Security** The end of the 1970s was a time when the international political environment was rapidly deteriorating, and enhanced cooperation of the Western bloc was demanded. The idea of comprehensive security was conceived first under the Ohira government (1978-80). In April 1979, Ohira's interest in the new foreign policy concept gave birth to a task force, the Study Group on Comprehensive National Security, which was composed of influentials from various groups. The group submitted its report to Acting Prime Minister Ito Masayoshi in July 1980, shortly after Ohira's untimely death. Suzuki Zenko, who took the Prime Minister's office in the summer of 1980, welcomed the suggestions of the report and proclaimed the comprehensive national security a national policy.

The comprehensive security placed emphasis on the maintenance of the close security relationship with the U.S., and the safety of food and energy supplies as the primary element of Japanese security.

The policy tool of this new security policy was not clear to audiences because military and non-military security aspects of the policy were suggested as distinct and separate components. As an example, it proposed a 20 percent annual increase in military expenditure, which would make military expenditure grow over one percent of GNP. Yasutomo (1986) says that, "The murkiness of the concept shielded economic assistance from serious criticism because of its uncertain relationship with security policy. And aid-policymakers were not about to challenge the domestic consensus on economic cooperation policy when they formulated a Japanese aid philosophy (p. 30)."

The comprehensive security policy was an alternative to military security policy in Japanese policy evolution in response to the domestic and international constraints on military buildup. As we can see from the statistical analysis, Japanese military expenditure did not grow enough to say that the policy concept was a smokescreen to rebuild Japanese armament during the 1980s. However, Japanese military expenditure was not keeping low profile in the government policy priorities as much as to say that the policy concept was a simple explanation of the previous policy orientations. Even though some domestic aspect of the constraints were relaxed during the 1980s as was indicated in the statistical analysis, Japanese people still preferred economic contribution to international community to military contribution. Inoguchi (1991) reports the result of a 1986 poll, conducted by an academic team. To the question of "There are many kinds of government policies nowadays. What do you think about the emphasis the government puts on each of them?", 30 percent of the respondents indicated a desire for much more emphasis on economic power while 11 percent indicated national security. Furthermore, political risk in ignoring the

one percent rule was too high. In the international arena, the negative orientation of the Asian neighbors toward a militarily strong Japan had to be considered. Also, as long as the U.S. was not going to accord Japan political power equivalent to its military contribution, Japan did not want to run a risk that could have complicated the U.S.-Japan relationship.

In retrospect, it is clear that the comprehensive national security was a pretext to adopt foreign aid as one of the major pillars of Japanese foreign policy. Inada (1990) says that:

> The term 'comprehensive security' was first used officially in expressing the conceptual framework of Japan's aid policy in 1980. The previous year, Iranians had seized the US embassy in Teheran and taken the Americans working there hostage, and the Soviets had invaded Afghanistan. These events created additional pressure, particularly from the US, for Japan to play not just an economic but also a political role as a member of the Western bloc. This pressure was brought to bear on the formulation of Japan's aid policy (p. 103).

Quantitative and qualitative changes in Japanese foreign aid illustrate the point. Discussion on Japanese foreign aid will focus on official development assistance (ODA) in this chapter.

**7.2.2 Changes in Japanese Foreign Aid** When the Japanese economy recovered from the Oil Shock, and recorded a large current account surplus, pressures to increase its foreign aid to third world countries suffering from serious national debt returned. Japan started to increase its ODA by setting medium-term targets. At the Bonn Summit of 1978, Prime Minister Ohira guaranteed to double its ODA over the 1977 level of $1.4 billion within three years, and the goal was overachieved in 1980 when its volume reached $3.3 billion. The second medium-term target (1981-1985) was doubling the 1976-1980 ODA total of $21.4 billion. The total reached only 85 percent ($18.1 billion) of the target, but this is explained by the rapidly rising dollar during that period.

During the third medium term of 1986-1992, the target was set to double the

1985 ODA level ($3.8 billion) to $7.6 billion per year and to exceed total disbursement of $40 billion during the period. This time around, the exchange rate dropped in favor of yen and the Japanese government rescheduled to achieve the average annual ODA of $7.6 billion by 1990 at the Venice Summit of 1987. Even this upgraded target was achieved by 1988 and the Prime Minister had to announce a fourth medium term target in 1988. The target was doubling the 1983-1987 net ODA, that is exceeding $50 billion over the 1988-1992 period. A second goal was included in the Japanese schedule. Japan promised it would increase the ratio of ODA to GNP to the DAC average level of 0.35 in 1992. The first goal was achieved as promised but the ratio stayed at a 0.32 level. In sum, Japanese ODA increased by three times in dollars during the 1980-1989 period (1.5 times in 1980 constant yen). In 1989, Japan ranked as the top donor nation replacing the U.S.. However, ODA's ratio to GNP did not increase during the same period.

Even though these quantitative changes look immense, qualitative changes are more prominent in Japanese foreign aid policy. Japanese financial assistance began in 1955 through war reparations agreements with Southeast Asian countries such as Burma, Philippines, and Indonesia. Ever since then, Japan called all of its efforts in international assistance, such as official aid, export credits, and private capital flows "economic cooperation." Throughout the 1950 and 1960s, the highest priority in managing reparations activities and aid programs was placed on opening and expanding markets for Japanese export and importing natural resources. Japan justified this policy orientation of economic self-interest by referring to its limited natural resources and the limited capability of the Japanese economy.

During this early period, allocation of foreign exchange was controlled by the Japanese government, and this policy induced cooperation between the private sector and economic bureaucracies. Private sectors were to find projects in the recipient countries and coordinate with bureaucrats in planning and making decisions for

contracts. Then the private actors concluded business agreements with the recipient government. The recipient country then could request economic assistance from the Japanese government. If MOFA approved the aid project, it made disbursement to a Japanese bank which made payments to the private actor for its export to the recipient country. In this process, Japanese economic bureaucrats of MITI, MOF, and Economic Planning Board (EPB) were deeply involved in the project and close coordination with the private business actors developed. This process composed the basic framework in administering Japanese aid, and economic consideration became a major yardstick in aid decision making (Arase 1995). Under this framework, the share of grant aid was low relatively to yen loans, and large parts of grants were tied, that is, contractors and vendors were specified in the grant package. A geographical concentration in Asian countries was also a consequence of the business consideration. Eventually, these became the major characteristics of Japanese foreign aid which invited criticism up until the end of the 1980s.

The scope of Japanese foreign aid is geographically broadened during the 1970s. From the experience of Oil Shock, Japan needed to secure a stable source of oil supply and needed to diversify its suppliers (Curtis 1977). For the purpose of strengthening its relationship with the oil-exporting countries in the middle east and Africa, Japan expanded foreign aid to these regions. Japanese aid policy was still led by consideration of economic self-interest.

With the rise of the second Cold War at the end of the 1970s, foreign aid began to serve a strategic purpose. Even though strategic aid was a Japanese response to U.S. pressure in large part, Japanese willingness to use aid as a foreign policy tool became evident. Furthermore, foreign aid became one of the major pillars of Japanese foreign policy projecting into the future.

While he was leading the Japanese government during the 1978-1979 period, Ohira increased Japanese ODA by two times to Thailand, 3.7 times to Pakistan, and

almost 10 times to Turkey over the previous year's total. He started to provide aid to China by promising $1.5 billion ODA. Egypt also received $442 million during the 1977-1980 period. Among these, the first three countries were 'bordering conflict': the Vietnamese incursion into Kampuchea, the Soviet invasion of Afghanistan, and the Iranian hostage crisis. Egypt reached the Camp David accord with Israel, and China signed up for the Sino-Japanese Treaty of Peace and Friendship. These are the countries "strategically and politically important to Japanese and Western interests (Yasutomo 1986)." The Suzuki government announced that the second aid-doubling program was directed to 'those areas which are important to the maintenance of peace and stability of the world.' The Nakasone government accepted South Korean requests for security-related aid. Japan also increased its aid to the unstable Marcos government of the Philippines, and it further stepped up the amount after 1986 when Aquino was elected president.

While these strategic considerations were new to Japanese aid policy, it also attracted the criticism that this strategic aid was only a result of U.S. pressure. Inada (1990) says that "[W]hen people suggest that Japanese aid is strategic, what they are apt to mean is that it is being conducted in accord with US strategy (p. 104)." Inada supports this view noting the frequent working level talks being held between U.S. and Japan to submit U.S. requests on amount and directions since 1978, and the U.S. congressional budget cut in aid to strategically important areas. By analyzing the rationales in Japanese foreign aid practice of the 1980s, Inada shows that aid to Pakistan, Turkey, Jamaica, Somalia, Sudan, and the Philippines after 1986 were the result of U.S. requests.

However, other examples of Japanese aid practices illustrate that Japan began to use its foreign aid as a positive tool of foreign policy. While increasing aid to the countries bordering conflict, Ohira cut off its aid to Vietnam, which had been receiving around 14 billion yen a year in Japanese aid, for its invasion and occupation

of Kampuchea. Aid to China and Laos were examples of active foreign policy that deepened Japan's relationships in the Western community. Inada argues that Japan needed to help the modernization of China to attract it toward the Western bloc on key foreign policy issues, and that Japan provided its aid to Laos to promote stability in the Indochinese peninsula. In 1990, Prime Minister Kaifu promised a $2 billion aid package for Poland and Hungary. These cases can be seen "as an action on behalf of the Western bloc, in particular the U.S., which is not in a position to offer aid to such countries itself (Inada 1990, p. 108)."

Besides these strategic developments in Japanese aid policy, there have been other qualitative changes since mid-1980s. The first one was active participation in multilateral agencies such as the Asian Development Fund (ADF), the Multilateral Investment Fund (MIF), and the European Bank for Reconstruction and Development (EBRD). Japan became the single largest donor to these institutions in 1987, surpassing the U.S., and in 1989, about 25 percent of the Japan's ODA was given to such institutions. "Tokyo recognizes the limitations bilateral donors confront owing to recipient concerns about external intervention in domestic affairs. Japanese officials appreciate the leverage that political neutrality gives multilateral development agencies in discussions with developing countries on structural adjustment and economic reform ... (Yanagihara and Emig 1991)." Following this expansion of financial contribution, Japanese effort to achieve comparable status bore fruit in vote share and management participation within these institutions. Through this institutional power, Japan, the single largest creditor country, could articulate its own policy in global debt relief, and development effort. Through the activities in the multilateral development institutions, Japan intended to increase its diplomatic might as a non-military power, its autonomy from the U.S. policy framework, and its international image and prestige. "Multilateral diplomacy emerged as a particular active and conspicuous feature of Japanese foreign policy from the mid-1980s through the

mid-1990s (Yasutomo 1995)."

The second change occurred in geographic distribution. Traditionally, Japanese aid was concentrated in Asian countries, and this emphasis continued. However, the ODA directed to Asia decreased by 11 percent during the massive increase of total ODA of 1980s, while ODA directed to Africa, Latin American and Caribbean increased in its share. Especially, when poverty and debt alleviation of the least developed countries became a major project of Development Assistance Community (DAC), the Japanese government increased its contribution to Sub-Saharan African countries, as a part of its capital "recycling" plan. Japan participated in the aid of the African countries in the form of poverty alleviation, economic and social structural adjustment, debt relief and comprehensive economic reform. Japan became the largest donor in this area too.

Another change in Japanese aid practice was a rapid increase in untied ODA. Japan had been criticized for export promotion through tied conditions of its ODA, and this blame only increased in light of its huge trade surplus and trade conflict with the U.S.. Since Japan announced its intention to untie its bilateral aid as well as multilateral aid in 1978, Japan achieved this goal to a considerable degree. "In terms of international comparison, the 72 percent of Japan's ODA falling into the generally untied category is a much larger proportion than the DAC average of 55 percent. Japan ranked third among the eighteen DAC members in the proportion of generally untied ODA in 1988, and last in the proportion of tied ODA (Yanagihara and Emig 1991)."

**7.2.3 Military Expenditure and Foreign Aid** From these changes since the end of 1970s, it is clear that Japanese foreign aid which began to increase in response to U.S. pressure for burden sharing became to be one of the major tools of Japanese foreign policy. However, the Japanese aid policy cannot be separated from its defense policy. As Japan emerged as an economic superpower, it began

to have responsibilities and capabilities. In this situation, the two policy options have implications for Japan's vision for the future. Yasutomo (1986) introduces two strands of thought among Japanese aid proponents. The first group argues that foreign aid should substitute for military effort. Japan should play its due role as an economic power rather than look for a military role which is constrained by Constitution and public opinion. They propose that military expenditures should be cut down or kept at one percent level of GNP while foreign aid should be expanded to two percent of GNP. The other group argues that foreign aid should be increased but it should be supplementary to military policy. They think that Japan, as one of richest countries in the world, cannot avoid its responsibility in the security arena. The strategic aspect of aid also should be considered in implementing foreign aid. Comprehensive security is a guiding framework for this group in the sense that foreign aid and military effort should be interrelated.

Figure 6 and Figure 7 present quantitative changes in Japanese ODA. In Figure 6, the share of the sum of military expenditure and ODA in the general government spending is overlaid on Figure 5. We can say that the Japanese foreign aid was more supplementary than substitutive to military effort of the 1980s and 1990s. However, we still can see that, in the sense of resource allocation, foreign aid attracted as much policy priority as military expenditure did during the 1980s and 1990s. From Figure 7, we find that foreign aid was increasing much faster than military expenditure in terms of the share of GNP.

When this quantitative aspect of foreign aid is considered along with the qualitative changes, we can conclude that Japanese foreign aid substituted military expenditure for the policy goals for which the latter could not pursue further due to the constraints on it. During the 1980s and 1990s, there were significant changes in Japanese military expenditure but it hardly surpassed the budget ceiling. Foreign aid was partly a response to the U.S. pressure for burden sharing and partly a policy

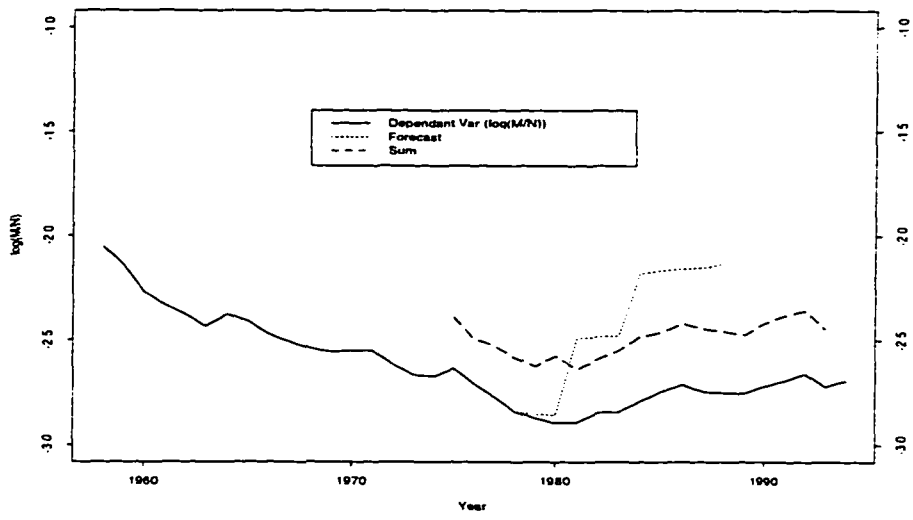


Figure 6: Supplementation or Substitution?

device to pursue active foreign policy activities. From this we also can say that budgetary supplementary relationship should be considered as one of the mechanisms of foreign policy substitution.

Then, how were such quantitative and qualitative changes in Japanese foreign aid possible during the relatively short period of the 1980s, while Japanese military expenditure did not change much even in the face of persistent and strong U.S. pressure? First of all, the domestic political environment was different for these two policies. Japanese public opinion was more supportive of foreign aid than military expenditure. In the case of military expenditure, there were many politicized barriers

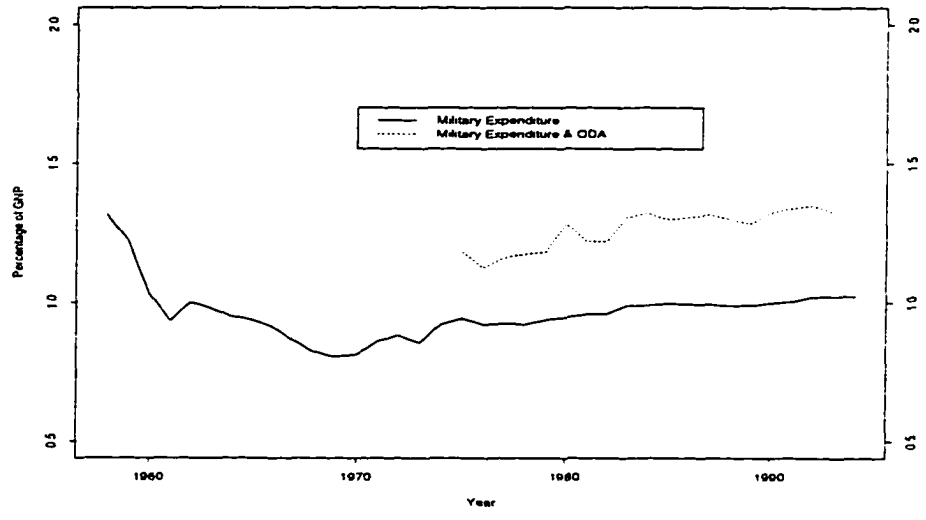


Figure 7: Comprehensive Security

to overcome in increasing its effort, from the Peace Constitution to self-proclaimed rules like the one percent ceiling. In the case of foreign aid, even though there was some domestic criticism of its practice such as aid flow to the corrupted Marcos government and environmental destruction due to a supported project, Japanese people were generally supportive of non-military international contributions. Foreign aid was much less politicized and attracted less attention.

We also can look for the difference between the two policies in the U.S.-Japan relationship. The U.S. demands on Japanese military expenditure arose in

the context of burden sharing. Before the 1980s, Japan could concentrate on economic development under the U.S. security umbrella. Japan then became the second largest economy in GNP in the world. While Japan was the largest creditor country in the world, and was recording huge trade surplus with the U.S., the U.S., Japan's alliance partner, was suffering from trillions of government deficit. Thus, the U.S. argued that Japan should share the defense which was necessary for the security of free trade and democracy. In consideration to the U.S., Japan increased its military purchases from the U.S., and became the largest market for the U.S. arms export surpassing Saudi Arabia during the period of 1984-1986 (Niioka 1990). To promote the flow of Japanese technology developed by increased Japanese Research & Development, the Japanese government agreed to participate in the research projects of Satellite Defense Initiative. Furthermore, the U.S. military forces have been using the Japanese government land without any cost and they have been exempted from taxes and fees. Almost 10 percent of Japanese military expenditure is spent to support U.S. troops stationed in Japan.

From the Japanese point of view, the rationale behind the demand for further increase is not acceptable under current U.S.-Japan security relationship. The U.S. has not shown any intention of power sharing comparable to burden sharing. We already saw in Chapter 5 that the U.S. did not want Japan to have its own fighter. To the U.S., the independent voice of Japan in collaboration on global strategy was not acceptable. The U.S. strategy in Asia is also contradictory to the demand of increased military expenditure. The U.S. wants to play a hegemonic role in Asia and this is the only way to keep peace in this area. An independent Japanese military power would frighten the neighboring countries. This in turn, would fuel the arms race in this area (Klare 1993). The U.S. also wants to avoid this situation. Nye (1988) says that:

Those who would press Japan to triple its defense spending should realize that

> the probable consequences include frightening the PRC, South Korea, and the Southeast Asian countries into increasing their defense expenditures and perhaps pressuring the Unites States to increase its military spending in the area .... Japan should be pressed not to increase military expenditures but to boost assistance to strategically important developing countries such as the Philippines and to help relieve the enormous burden of Third World debt (p. 119-125).

What are the motivations for the U.S. to press Japan to increase military expenditure? Whatever they are, it is hard for a rational decision maker to find any reason to increase defense spending, given the presence of foreign troops, the absence of power sharing opportunities, and the absence of an imminent threat.

In the case of foreign aid, there is much more room for autonomy, even though collaboration with the U.S. is called for here also. First, more actors are involved in foreign aid policy than in defense policy. Recipient countries, multilateral institutions, DAC countries, as well as the U.S., interact in deciding aid directions. Rules and norms in this arena are less hierarchical and more cooperative than in military alliance relationship. Second, the tools of foreign aid are welcomed in neighboring countries and the world community, while military power may attract the suspicion of other countries. Third, the tools of foreign aid are more versatile than military expenditure in form (debt relief, economic development aid, technical assistance, etc.), method (tie, partially tied, untied, etc.) and purpose (strategic, humanitarian, environmental, etc.) of application. Non-aid also could be as powerful as aid.

As examples of autonomous activities of Japanese foreign aid, Yasutomo (1995) says that,

> In the 1990s, Japan consciously strives to promote an image of independence in its foreign policy, which is often measured by distance from U.S. policies and positions. This is evident in bilateral ODA policy, where Japanese positions and initiatives often clash with Washington's. The most notable examples are resumption of aid to post-Tiananmen Square China, the end of the 18-year-long aid freeze to Iran, the resumption of aid to Vietnam, an almost carte blanche aid commitment to Alberto Fujimori's Peru, and resistance to providing stronger aid to Gorbachev and Yeltsin's Russia.

> Japan's independence is reflected in multilateral institutions as well. Tokyo sought preeminence in the ADB (Asian Development Bank), breaking with the traditional policy of maintaining coequal status with the United States despite America's expected opposition, and complaining about American arrogance and ignorance of Asia. Japan challenged the development orthodoxy of the World Bank by suggesting that the neoclassical approach was inferior to a new, well-tested Asian development model. In the EBRD (European Back for Reconstruction & Development), Japan clearly found the American insistence on 100 percent private sector emphasis naive and unrealistic.

Besides being able to pursue its own policy lines independent from the U.S., Japan can also use foreign aid as a tool to promote interest that conforms to the U.S.'s and the Western alliance's strategic goals. The U.S. congress switched its position in pressure for burden sharing; it began to urge Japan to increase its foreign aid instead of military expenditure. Even though there is still a problem of power-sharing, Japan has more room to maneuver in this policy area. A rational decision maker would prefer this policy option to increasing military expenditure.

Japan's recent quest for membership in UN Security Council can be understood in the same vein. Besides the fact that Japan has been making big financial contributions to the UN peace keeping activities, Japan has made it clear that any intention to play an active role in the military arena would be through the UN. As with foreign aid, UN activities are multilateral and there are several policy areas in which Japan can have autonomous initiatives. The UN military activities can attract more public support in domestic politics as well as international politics. The quest for membership in the Security Council is an effort toward power sharing comparable to its economic contribution. If Japan achieves its goal, UN activities will receive more domestic support and Japan will be able to perform more active foreign policies. The prospect for Japanese activism through UN is also subject to the fate of UN which is up to the international political situation and the participation of the U.S..

## 7.3 Conclusion

When the concept of comprehensive security was first conceived under the Ohira government, its primary purpose was to rationalize the expansion of foreign aid as a response to the U.S. pressure to military burden sharing. Growth in military expenditure was not possible due to the one percent rule. Armed with financial resources and domestic support, the Japanese government could make rapid increases in contributions to the international aid community. As a consequence of its quantitative and qualitative improvement in aid, Japan began to have active and autonomous policy initiatives in international aid entering into the 1990s. During the 1980s, military expenditure was also one of the top priorities in government resource allocation, and the one percent ceiling was broken down, even though only in budget. The symbolic change repealed the ceiling, and military expenditure was recorded larger than one percent of GNP for four consecutive years after 1990. The considerable increase in foreign aid supplemented the minor increase in military expenditure.

Comparing the two policy options in the context of U.S.-Japan relationship, the policy tool of foreign aid is more prone to power sharing commensurate with burden sharing. In retrospect, Japan took a rational route in the evolution of Japanese foreign policy. We can expect that active participation by Japan in multilateral institutions will continue. It should be noted that further collaboration with the U.S. in policy and knowledge, improvement in the problems of Japanese aid organization (policy making process susceptible to private sector interest, and the lack of manpower in aid administration) are required before Japan can claim its status as an aid leader. continue. Inoguchi (1991) posits one possible scenario for the world order of the future:

> To bolster Pax Americana Phase II, Japan must enhance its aid and development finance efforts. Japan's role in this area should focus on economic and technological matters rather than on security matters, even though nonmilitary channels exist for providing security assistance. Also, Japanese aid should make

the maximum possible use of multilateral institutions. For this to take place, power sharing must follow from burden-sharing to the extent that it accords with Pax Americana Phase II (p. 24-25).

# CHAPTER 8

# CONCLUSION

This study was an effort to reach a comprehensive explanation on Japanese military expenditure of the last four decades through the prism of the rational choice approach. Statistical analysis, game theoretic analysis and a case study were performed for that purpose. It was found that Japanese resource allocation for military expenditure (military expenditure as a percent of total government expenditure) was influenced by domestic economic (the ratio of bond issue to GNP) and political (the strength of opposition parties which opposed increase in military expenditure) factors. The discussions of two level games provided a theoretical framework for understanding the limited effect of the U.S. pressure for burden sharing. The limited effect was partly due to the consensus in the U.S. foreign policy orientation which weakened the U.S. bargaining power and the lack of consensus in the Japanese foreign policy orientation, which strengthened Japan's bargaining power. The Japanese burden sharing effort of the 1980s never become commensurate with its economic strength because of the one percent rule, even though both Japanese and the U.S. military expenditures positively impacted the Japanese economy. Recent changes in the relationship between the two countries and the latent problems in the U.S.-Japan security treaty were revealed in the case study of the FSX co-development project. The FSX study also supports the institutionalist perspective on the value of the two countries' alliance.

The rational choice approach was fruitful in that it explained the Japanese situation in a framework applicable to other countries, instead of emphasizing the peculiarities in the Japanese social and political structure. Under that approach, it

was proven that Japanese foreign aid was substituted for its armament in pursuing burden sharing and pursuing other policy goals. From the analysis on the relationship between the two policy tools, it is found that budgetary supplementation was an important part of the concept of foreign policy substitution.

Now it is time to answer the questions on the past and future of Japanese military expenditure. In the first section, rather than summarizing chapter by chapter, I will provide a brief summary in answer to the questions. In the second section, policy recommendations for the future of the U.S.-Japan relationship in the context of international politics are suggested. Lastly, theoretical implications of this study are specified.

## 8.1 Summary

Statistical analysis shows that, before the 1980s, the power of the political parties opposed to increases in military expenditure, and the bond issue as a ratio to Japanese GNP, had the most direct impact on Japanese resource allocation to military expenditure. During the 1980s, these two domestic factors changed their direction and the share of military expenditure in total government spending increased. The share, however, could not be increased as much as the domestic factors allowed because of the one percent budget ceiling imposed on military expenditure. Even though the one percent rule was legally repealed, it was observed in spending level. The statistical analysis indicated that domestic factors were far more indicative of military expenditure than external factors. This finding confutes arguments which emphasize the peculiarity of Japanese domestic political structure. Rather, it is in line with the findings of researches on military expenditure of other countries.

Japan was a free-rider before the 1980s, that is, Japan substituted the U.S.-Japan security treaty for its own armaments against external threats. Statistical analysis shows that rather than counteracting the relative decline of the U.S.

superiority in the strategic balance with the Soviet Union. Japan simply followed U.S. efforts in the strategic balance. During the 1980s, when the strategic balance was improved, Japan moderately increased its share of military expenditure. This illustrates the limited effect of the U.S. pressure which had been put on Japan since the beginning of the security treaty.

Statistical analysis of the macro-economic model shows that both Japanese military expenditure and the U.S. military expenditure had a positive impact on the Japanese economy. Japan was a free-rider in burden sharing but still benefited from the U.S. military expenditure. The result also suggests that increases in Japanese military expenditure to a certain limit would have been helpful to its economy.

Why was the U.S. pressure limited in effect? It was found that the U.S. domestic consensus on foreign policy direction under the Cold War weakened its position in negotiation, while divided directions in Japan helped to keep a strong position. This is why the U.S. pressure for burden sharing was so ineffective before the 1980s. During the 1980s, relative conversion among foreign policy schools in Japan resulted in weakening the Japanese position in negotiation, while the weakened Cold War consensus enhanced the U.S. position in negotiation. These realignments in both countries resulted in increased Japanese contributions to burden sharing. The breakdown of the Cold War consensus into two opposing foreign policy orientations will further increase the U.S.'s bargaining power. However, the study of the FSX project illustrates that maintenance of the forty years of alliance relationship is more beneficial to both countries than either country's relative gains. U.S. pressure should be practiced with caution so as not to provoke Japanese nationalist response.

In the early 1980s, Japan adopted an alternative policy to military contribution in burden sharing: foreign aid. Under the rubric of comprehensive security, Japan emphasized its coordination with the Western community by placing more weight on the strategic aspect of increased Japanese foreign aid. During the 1990s,

Japan began to pursue a more active role in the aid community and achieved various foreign policy goals such as international prestige and autonomy from the U.S. influence. Japan also increased its contribution to the U.N. peace keeping activities and it is requesting membership in the Security Council of the U.N.. Japan substituted contribution to multilateral institutions such as foreign aid and U.N. activities for its military contribution. Japanese foreign aid has implications beyond the substitution in burden sharing. Possibly, foreign aid could be a prominent policy tool for the Japanese power in the future. Even with increased aid, Japanese domestic factors, realignment of the U.S. foreign policy schools, and Japanese military expenditure's impact on its economy all are in favor of an increase in Japanese military expenditure in the 1990s. Given that, the importance of appropriate management of the U.S.-Japan relationship in avoiding the resurgence of Japanese militarism and a subsequent crisis in the Pacific rim becomes clear.

## 8.2 East Asia and the United States

With the end of Cold War, the U.S., Russia, and other Middle Eastern countries which were well-known for heavy armaments began decreasing their military expenditures by considerable amounts. In contrast, East Asian counties started to engage in arms competition (Klare 1993). Some of them have increased their military expenditure by more than 50 percent during the last five years. They are also developing long-range missile capabilities and their own military industry. These developments have been bolstered by their economic development and technological advances. The North Korean nuclear threat is still looming around neighboring countries. The possible unification in the Korean peninsula may disturb relationships among countries such as Japan, China, U.S., and Russia. Economic development in East Asia may contribute to a shortage of East Asian fossil fuels in general and oil reserves in particular (Calder 1996). The insecurity of oil supply forces the countries

to increase armaments, and the heavy armaments of the South Eastern countries near the sea lanes induce further increases in the armaments of the oil-importing countries.

While these long-term changes are proceeding, Japan has been deepening its links with East Asian countries. Its direct investment in this area has continued to grow in this area, but has rapidly decreased in the U.S. and Western Europe since 1989. In foreign trade, East Asia became a larger partner than the U.S. during the same period. This deepened interest in the region, coupled with the political problems may make independent military capability more attractive to Japan. However, the suspicion of the countries in this region toward Japanese power has not changed since World War II. Japanese independent armaments are viewed by many as the single most important threat to the stability of the East Asian region. Japan is at a crossroads now. The most prominent schools in the domestic debate are Great Power Internationalism and Civilian Internationalism. The center point of both schools is what kind of power Japan should be. Even though both of these schools emphasize the importance of the U.S.-Japan relationship, it is possible that the Great Power Internationalism may develop into Japanese militarism due to the growing power of the Japanese nationalist sentiment (Mochizuki 1995).

Under this situation, the symbiotic relationship between the U.S. and East Asia requires a long-term stabilizing force. As to the East Asian benefit, the U.S. engagement in this area can neutralize the many potential problems in this region. For example, the U.S. naval force can guarantee the security of the sea lanes for oil imports. Moreover, the maturity of the relationship introduces unforeseen opportunities. Japan can support the U.S. leadership more actively in military and non-military sectors. Even after the unification of the Korean peninsula, Korean-Japan cooperation can be enhanced as long as the U.S. is engaged in this area. The most promising development for the pacific region would be the strengthened alliance

relationship among the U.S., Korea, and Japan (Calder 1996; Ahn 1993). Under that framework, both Japan and Korea could pursue more active foreign policies in the region.

### 8.3 Theoretical Implications

The findings of this study can be considered in three theoretical contexts: rational choice approach, foreign policy substitution, and realism vs. institutionalism. First, the rational choice approach of this study explained the aspects which were ignored in the studies which focused on the Japanese domestic political structure. These studies describe Japanese foreign policy as a minimalist diplomacy. According to this, the U.S.-Japan relationship was sustained because of the U.S. patience with Japanese immobilism. The lack of leadership, they argue, militated against any independent foreign policy initiatives. From this point of view, the FSX project can be seen as a part of burden sharing and a result of the U.S. pressure. Similarly, Japanese foreign aid is understood as a response to the U.S. pressure. Furthermore, it is believed that Japanese pursuit of its industrial and commercial interest is the driving force behind the recent foreign aid policy.

The rational choice approach, however, shows that domestic alignment and realignment among foreign policy schools changed the bargaining power of the negotiators on both sides, and the relative positions of the negotiators decided the outcome of the bargaining for burden sharing. When free-riding was possible, Japanese decision-makers paid primary attention to domestic factors. When the situation changed, Japanese decision makers repealed the legal constraint of the one percent ceiling. The single decision maker used incrementalism as a means to managing foreign and domestic resistance. The FSX project was proposed and negotiated under the Japanese initiative and rational strategic calculation. Comprehensive national

security was a deliberate policy device to maneuver between domestic and U.S. pressure toward Japanese foreign policy goals, as revealed by the recent achievements of Japanese foreign aid policy.

The rational choice approach is also an element of the logical underpinnings of foreign policy substitutability. A decision maker has various foreign policy options in responding to a specific external input. Conversely, a decision maker may respond with only a single policy tool to various external inputs. The Japanese case is a rich example of foreign policy substitution. Japan substituted the U.S.-Japan security treaty for its own armaments in pursuing its military security and economic prosperity at the same time. The functional common denominators between alliance and armament, and the domestic and external conditions made the substitution an optimal choice for the Japanese interest. Also in responding to the pressure of burden sharing, Japan used its increase in foreign aid as a substitute again for its own armaments. These two alternative options to armament characterized Japanese foreign policy in the 1980s and 1990s. Japanese foreign policy direction and the characteristics of Japanese power in the future will depend on the functional requirements in meeting the domestic and foreign demands and threats. For the theoretical development, further analysis on the two-way street of substitution in functional aspects of foreign policy options should be followed.

The third theoretical implication of this study is that neo-liberal institutionalist explanation of international politics fits better to Japanese military expenditure than the neo-realist view does. Furthermore, the former view is more useful in designing a peaceful world order. While neo-realists emphasize the fungibility between economic power and military power, the Japanese case during the last forty years offers a compelling counter example. Conflict involving burden sharing and trade between the U.S. and Japan stayed within the framework of the alliance relationship because interdependence was of prominent importance to the national interest of

each country. The supportive role of Japan toward the U.S. leadership since the 1980s, even after the disappearance of the Soviet Union, indicate the importance of this interdependence in military and non-military areas, and attest to the significance of the two countries' experience of cooperation within the institutional framework. Given the uncertainties in the future of the East Asian politics, deepening institutional arrangements in turn to deepen interdependence among the regional powers seems to be a most viable option in maintaining peace in the region.

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