

THE FISCAL IMPACT OF THE U.S. MILITARY ASSISTANCE PROGRAM, 1967-1976

ROBERT M. STEIN, MARK ISHIMATSU, and RICHARD J. STOLL

Rice University

THE STUDY of U.S. arms transfers and their impact on the fiscal decisions of aid recipients has been the subject of various interpretations and competing explanations. Absent in this literature has been a systematic testing of propositions derived from a general theory of aid impacts. A larger and somewhat related body of research has examined the political (Chaudhuri 1972; Hughes 1967; Gutteridge 1967) and general economic effects of domestic military spending (Deger and Smith 1983; Smith 1977, 1980; Benoit 1978; Kennedy 1974; Whynes 1979). These studies, however, have not examined the fiscal impact of foreign military assistance. To date only a few researchers have studied this issue in any systematic fashion (McGuire 1979, 1982; Wolf 1971). In this study we seek to fill this gap by applying grant economics theory (Pigou 1932; Oates 1972) to study the fiscal impact of U.S. military arms transfers on foreign nations. Drawing on the domestic aid literature (Oates 1972; Gramlich 1972), we identify a set of propositions concerning the expenditure decisions of domestic aid recipients, and test these propositions against the fiscal behavior of Military Assistance Program (MAP) recipients between 1967-1976. In addition to the substantive import of this question and its bearing on the implementation of U.S. foreign policy, this research provides a unique opportunity to test the applicability of domestic aid theory to the study of foreign aid policy.

THE PURPOSES OF MILITARY AID

Although a number of rationales have been advanced for the use of military aid, we discern three general categories or justifications for bestowing it.

The first category is direct enhancement of U.S. national security. Aid is given to build up the military power of other nations, particularly allies, so that they can more effectively handle threats to their security, threats that the U.S. government believes that it would have to counter if the recipient nation could not.

The second category is indirect enhancement of U.S. national security. Aid is given because another government implicitly or explicitly requests it. U.S. decision-makers may not believe that our security (or that of the requesting nation) actually requires the infusion of military goods. But the aid is used to barter concessions from the recipient nation.

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The third reason for giving aid has little to do with international problems, and much to do with domestic problems. Giving aid may result in larger production runs for equipment, dramatically reducing the unit cost of items, and therefore lowering the bill for the U.S. military (Hammond et al. 1983: 64). Further, equipment for foreign countries can be used to keep U.S. production lines "warm." A final justification for U.S. military aid rests with domestic political and economic interests. Various interest groups may apply pressure to the U.S. government to give away arms or training, and the government may bow to these pressures, for reasons that have nothing to do with foreign or defense policy (Asher 1961).

The distinctions among these three categories are conceptual; the U.S. government may transfer a particular grant for a combination of the motivations described above. Regardless of the motivation behind U.S. military assistance, there is always a specific fiscal impact associated with the receipt of any aid transfer. Under some conditions, these fiscal impacts may work at cross-purposes to U.S. objectives. Maintaining the military and political security of an aid recipient might be undermined if the fiscal effect of the aid transfer results in overstimulating the recipient's economy. Moreover, aid transfers may affect the recipient's allocation of own-source revenues, disturbing sensitive political agreements over budget priorities. The importance of understanding the fiscal impact of military assistance is underscored by recent U.S. aid efforts. As noted, much of this recent aid (including the time period studied here) goes to developing countries with fragile economic and political systems, and growing international debt problems. Any fiscal impact in these countries may have important consequences for the stability of the recipient nation. Bearing in mind these aid objectives, let us now turn to a quick look at the history of U.S. military assistance.

A BRIEF OVERVIEW OF THE U.S. MILITARY ASSISTANCE PROGRAMS

Explanations of aid impacts suggest that the goals and purposes of U.S. foreign policy have changed over time, and that this implies a change in the type of nation that has been the recipient of U.S. military assistance. In the immediate post-World War II period, military aid was closely tied to the perceived direct communist threat to America and its allies. The distribution of aid was necessarily skewed to western European and some Southeast Asian nations; i.e., those nations that directly abutted communist nations and/or provided convenient locations for U.S. military bases. The rationale for this policy and its expected impact was containment of Soviet and Chinese ambitions for territorial expansion. Little else in terms of U.S. domestic policy or changes in the internal policies of aid recipients was expected or intended. Aid recipients during this period were strong allies of the U.S. and as such had a mutual interest in curtailing communist expansion. The analysis of aid impacts during this early period is unambiguous and straightforward: direct U.S. military

presence or extensive arms and military aid transfers to contain a nearby, external communist threat.

As time wore on, there was a significant shift in the character and thus potential impact of U.S. military aid policy. The economies of our western European allies and Japan developed, and their needs for military assistance declined, as a greater percentage of their military outlays were financed from own-source revenues. Between 1950 and 1980 there was a dramatic shift in the regional distribution of U.S. military assistance from "Europe to East Asia and the Pacific, and finally to the Near East and South Asia, reflecting changes in the U.S. Government perceptions of threat to its vital interests over the last three decades" (Hammond et al. 1983: 161-62).

Five important changes in the composition of MAP recipients occurred between the immediate post-World War II period, and the period under study (1967-1976):

(1) Developing nations, mainly in the Middle East and Southeast Asia, replaced European and other developed nations as the dominant MAP recipients.

(2) The internal politics of these new MAP recipients were extremely unstable with frequent changes in ruling regimes and serious challenges to the nation's political system.

(3) The communist threat to new MAP recipients was largely internal, rather than an external threat posed by a bordering communist nation. Insurgent groups in these nations were increasingly viewed as having strong nationalist and anti-colonialist elements rather than being simply committed Communists or Marxists. This made it difficult for U.S. strategists to promote their military aid programs on exclusively anti-communist/containment grounds.

(4) U.S. relations with developing MAP recipients were less stable and more dependent on the ruling regime rather than long term ties of shared global interests.

(5) Associated with these changes in the character of MAP recipients and world affairs in general (i.e., the cold war) was a new perspective on the origin and maintenance of political stability. Analysts during this period (Lerner 1958) came to believe that economic development was closely tied to the political stability of a nation and its ability to resist internal and external threats to its national security. Thus, securing a nation's military capabilities to resist military challenges was only a short-term solution to achieving national security. Economic development and its associated by-products (i.e., literacy, system support, and income redistribution) were viewed as the long-term solution to the security problems of MAP recipients.

One additional problem facing these developing nations is their international debt obligation. If the national security of these nations is so threatened that they must spend a disproportionate amount of their GNP on military preparedness, little will be left with which to stimulate economic development. One potential role for U.S. arms transfers during the 1967-1976 period may have been to provide the opportunity to achieve

the twin goals of economic development and short-term military security. MAP recipients would be able to substitute U.S. military assistance for their own military outlays, thus freeing monies for other domestic (private and/or public sector) needs (e.g., health, welfare, education, capital construction).

THE FISCAL IMPACT OF U.S. MILITARY AID PROGRAMS

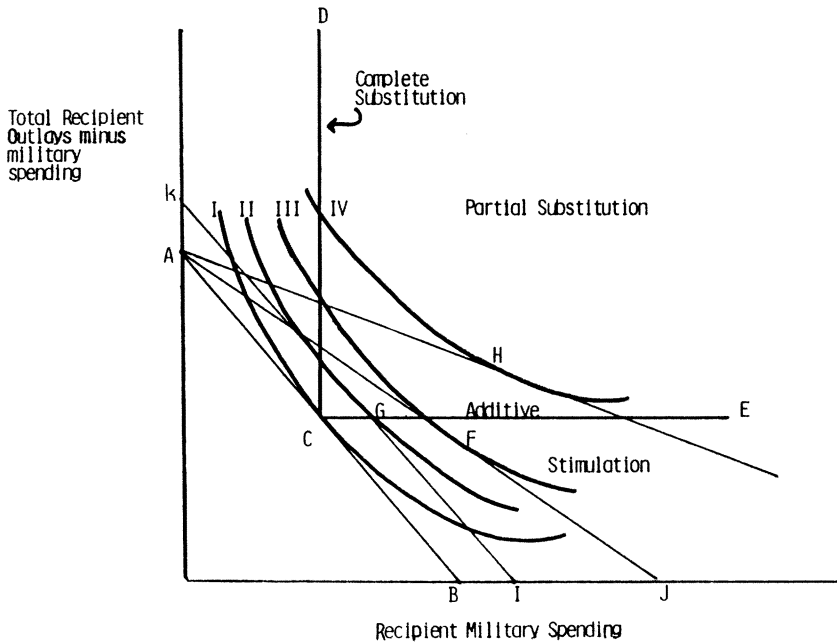
The empirical questions raised by MAP policy are whether: (1) U.S. arms transfers relieved the recipient nation's military outlays. (2) increased the percent of own-source spending on non-military programs without (3) overstimulating the national government's outlays to the point of economic insolvency (e.g., high rates of inflation and bankruptcy). These empirical questions have been addressed before by researchers studying domestic aid transfers and aid recipient behavior in the U.S., and this body of theory and empirical work is employed in accounting for foreign aid impacts.

Pigou (1932), Oates (1972), and Gramlich (1972) have identified three potential fiscal responses to aid transfers: (1) Additive: The aid transfer adds to the policy expenditures of the recipient in the funded policy area. The grant does not however, increase the recipient's financial contribution to this or other programs. (2) Stimulative: Here recipient expenditures on the aided activity increase above what would have been spent in the absence of the aid transfer. (3) Substitutive: Aid transfers replace recipient expenditures on the aided activity, freeing these monies to be spent on unaided activities including revenue (i.e., tax) cuts.

Figure 1 depicts the hypothesized effects of an aid transfer. The vertical axis represents the level of recipient expenditure for all programs and activities excluding the aided function — the military. The horizontal axis represents recipient expenditures for the aided activity. Line AB is the budget constraint for a given nation and expresses the relationship between military outlays and all other government spending. Point C is the optimal mix of military and all other expenditures given existing preferences in the nation — utility function I. If the provision of U.S. military assistance moves the intersection of the budget constraint line (AB) and the nation's utility function to a point on or to the left of line CD, a condition of perfect program substitution prevails. Here, one dollar of U.S. aid reduces recipient military spending by an equal amount, shifting these monies to other domestic programs or tax cuts.

The effect of U.S. aid transfers is partially substitutive if the receipt of assistance moves C to a point within DCE (e.g., point H). Every additional dollar of aid would result in some fraction of each recipient military dollar outlay being spent on non-military programs. An additive condition is indicated by the movement of C to a point on CE (e.g., G). Here every dollar awarded to the recipient goes directly toward increased military spending. Under this condition, U.S. assistance has no fiscal impact on the nation, either in terms of revenues or spending. The budget constraint merely moves outward from the origin, parallel to the original budget

FIGURE 1. FISCAL EFFECT OF MAP GRANTS



constraint (KI). Finally, if the provision of U.S. assistance moves the budget constraint line to a position within BCE (point F), a stimulative condition is identified. Here recipient expenditures for military programs are increased above the level of MAP assistance and previous recipient military expenditures.

A review of empirical studies of U.S. domestic aid transfers (Gramlich, 1972) suggests that fiscal responses of aid recipients (i.e., stimulation, substitution or additivity) vary with the nature of the aid delivery mechanism (i.e., conditional vs. nonconditional), recipient efforts to resist donor policy initiatives, and the elasticity of demand for the funded activity. Conditional grants often carry matching and/or maintenance of effort requirements increasing and stimulative effect these mechanisms have on recipient spending.

MAP monies are distributed through equipment transfers, and training. They carry few if any specific conditions and requirements for the disbursement of these aid awards within the recipient nation. Under these conditions it is likely that aid recipients will at least partially substitute U.S. assistance for some portion of their own contribution to military programs.

Demand for military equipment, personnel and other related expenses is thought to be inelastic (except in case of hostilities), and thus not linearly related to U.S. assistance, either positively (stimulative effect) or

negatively (substitutive effect). We expect that the rate at which aid recipients substitute MAP monies for own-source military spending to diminish with higher levels of aid assistance.

Stein (1979, 1981) has shown that there are significant costs associated with seeking and receiving domestic aid assistance which are not generally covered by the aid award (i.e., application, administrative and opportunity costs). These costs increase the likelihood that recipients will substitute aid monies for own-source monies in order to recoup grantsmanship costs. Moreover, these recipients are not assured of continued U.S. funding, and thus may not want to pursue an expansion of military programs, since they will not be able to maintain them without U.S. military assistance.¹ McGuire's (1982) study of U.S. aid to Israel shows that a considerable amount of assistance ends up spent on non-military programs. McGuire estimated that between 9 and 30 percent of U.S. aid given to Israel between 1960 and 1980 was used to fund non-military programs in both the private and public sector. This finding is particularly significant since Israel, unlike most U.S. aid recipients, has been under a constant state of military preparedness during this time period. This condition should have actually lessened the degree of substitution. Our own expectation is that countries actively engaged in military conflicts will have less of an incentive to substitute military aid for own-source spending than nations not engaged in military conflict.

In the next section, we will operationalize the concepts and ideas outlined here, and determine if the findings about domestic aid impacts on local governments will also hold true for military aid recipients.

VARIABLE DEFINITIONS AND HYPOTHESES

We begin by discussing the variable definitions and data sources used, and follow by indicating the hypotheses tested.

Dependent Variables

For comparability, data on MAP recipient's own-source military expenditures are taken from a collection supplied by the Arms Control and Disarmament Agency (ACDA) for the years 1967-1976.² The unit of observation for analysis is the country year (i.e., each case is one country in

¹The applicability of our domestic grant impact model to the foreign aid setting raises an obvious problem of comparability. The fiscal behavior of MAP recipients is subject to different influences than the spending behavior of domestic U.S. aid recipients (i.e., state and local governments). This potential constraint on the use of our fiscal impact model is not problematic for this study. We make no case for the comparability between U.S. domestic and foreign aid recipients. Rather, we suggest that there is a strong basis to believe that grant recipients in any setting have similar inclinations for the use of external funding. In this regard we are merely making a case for a rational choice view of the foreign aid system; that the recipient seeks to avoid compliance with donor preferences in order to maximize its own preferences.

²The data for this time period are the most recent MAP figures available to researchers. They also cover the period when American military aid and involvement in Southeast Asia were greatest, providing a suitable test for the conflict hypothesis.

a single year) allowing for a maximum of ten cases per country. The primary dependent variable is the ratio of own source military expenditures in a year divided by the total central government expenditures in the same year (MILEXCEN). This measure allows us to identify the budgetary importance of military expenditures to the central government. All expenditures are in 1975 constant dollars.³

We will also look at the impact of military aid on the size of total central government expenditures. This variable is simply the denominator of the indicator just discussed (CENGVEXP), and is available from ACDA data. Finally, two major components of social welfare expenditures will be examined, central government expenditures for health (HELTHCEN), and for education (EDCEN), in order.

Independent Variables

The best collection of U.S. military grants-in-aid data is the Defense Security Assistance Agency's (DSAA) Fiscal Series. The 1982 edition was used for this analysis. Yearly figures for Military Assistance Program (MAP), MAP excess defense articles, and International Military Education and Training Programs (IMET) are available. MAP consists of military equipment, materials, and services minus the costs of training. MAP excess defense articles consist of equipment beyond the needs of the U.S. Defense Department. IMET consists of the dollar amounts spent on military training. All three are a grants-in-aid, the major difference being that they represent three separate accounting categories; therefore, the total sum for all three (AID) is used as the major independent variable of this study. AID is measured in constant 1975 dollars.

The figures given by DSAA are also divided into two sub-categories: Program and Delivery. "Program" is that dollar amount of material and services allocated to a particular country by the DSAA through the Defense Department. "Delivery" is that dollar amount of material and services received by or "in route" to the country. Given that budgets must be made up before the money is spent, we decided that the best test of a link between military grant-in-aid and recipient expenditures would be the relationship between the programmed military aid allocation at time $t-1$ and the recipient's budget at time t . Our reasoning was that year t 's budget would be made up in year $t-1$. Therefore, the actual amount of aid delivered in year t could not have an impact on the budgetary process; the figure that the central government would have available for planning purposes for the budget would be the programmed deliveries for the next year.

One major problem researchers confront when studying U.S. foreign military assistance is the difficulty in obtaining reliable and valid data on arms transfers. There are at least three other major data sources on U.S. military assistance which we have chosen not to incorporate in our measure of U.S. military transfers: the Foreign Military Sales Program (FMS), the Military Assistance Service Fund (MASF), and Security-Supporting

³Data were deflated using a national GNP deflator.

Assistance (SSA). Given the scope of our study, we have chosen to limit our examination of arms transfers to those programs which most approximate a grant delivery mechanism. At least two of these programs (MASF and FMS) do not fall into this category, and thus are not appropriate for testing our main hypothesis. Only when FMS are financed through a number of U.S. credit programs (e.g., Department of Defense Guaranteed Credit, Direct Credit, or Waived Credit) do they approach the character of a grant. Hammond et al. (1983) identify another problem with the FMS program. They note there is a wide discrepancy between sales under FMS and the actual delivery of arms and other materials. Without specific data on actual deliveries, the utility of FMS data for our purposes is greatly diminished.

The SSA program is an economic assistance program, and is not directly concerned with maintaining the military preparedness of the recipient nation. SSA, however, is intended to "provide economic assistance to countries whose economies were heavily burdened by defense costs" (Hammond et al. 1983: 126). Though the intent of this program actually conforms closely to our model of military aid impacts, it is not a military assistance program and thus cannot be used for testing our main hypotheses.

MASF outlays originated in 1966 to aid South Vietnam and three other Southeast Asian countries (Laos, Cambodia, and Thailand) participating in the Vietnam War. By 1975 and coinciding with the end of American military presence in Southeast Asia, MASF outlays to these countries were transferred to MAP. The separation of military aid to major Vietnam War participants from MAP outlays may distort our measure of U.S. military assistance and the estimation of our model, especially for combatant nation years. Our original thinking was to exclude MASF outlays since they constituted a direct American military involvement rather than the provision of assistance to a combatant nation. However, we conducted our analysis with MASF outlays included, and excluded. Given the few nation years effected by this change, it is not surprising that the results with MASF included are not different from those obtained with MASF excluded from our measure of aid transfers. The results reported below exclude MASF outlays. Since these monies were available to only a small number of Vietnam era combatants, their exclusion only strengthens our ability to generalize from our findings, and does not introduce any empirical bias to either our measure of aid transfers, or estimates of aid impacts.

Control Variable

There are certainly factors other than military grant-in-aid that can have an impact on a nation's budgetary behavior. In the case of the military budget, one might expect that threats to national security will strongly influence both the level of military expenditures, and its proportion of central government expenditures. If the level of threat perceived by the government is high, then the military budget may not be responsive to U.S. military aid (i.e., will not exhibit the expected substitutional be-

havior). To control for this possibility, we operationalized threat to national security as the involvement of a nation in an international or civil war. Singer and Small's (1982) data collection is used to create a dummy variable (CONFLICT) coded 1 in each year that a country was involved in an interstate or a civil war.⁴

Hypotheses

If a substitution effect exists, then we expect that monies normally spent on the military budget will be diverted to other areas of the central government budget. This diversion may take two paths. First, the monies may be channeled to other areas of the budget that are designed to improve the domestic social situation via better health conditions and services, and higher levels of education. This positive relationship between military aid and social expenditures should increase at decreasing rates, as some threshold of substitution in the military budget is reached. A second path open to these countries is to substitute military aid for own-source military expenditures, and return the substituted portion of their military budget back to the private sector in the form of tax cuts, and/or increased tax deductions. The exact return mechanism used by a government is beyond the scope of this study, but we can test for the expected general decline in total government expenditures that coincides with the increase of U.S. military grant-in-aid. This relationship can be expected to decrease at increasingly decreasing rates, as a threshold for substitution is reached in the military budget of the recipient (i.e., we do not expect to find that a government relies totally on grant-in-aid instead of any own-source military expenditures).

Three specific hypotheses are tested:

H1: The greater the amount of U.S. military grant-in-aid, the lower the level of recipient nation military expenditures. This substitution should occur at decreasing rates, as the amount of grant-in-aid increases.

H2: The greater the amount of U.S. military grant-in-aid, the greater the level of recipient nation social welfare expenditures. This substitution should occur at decreasing rates, as the amount of grant-in-aid increases.

H3: The greater the amount of U.S. military grant-in-aid, the lower the level of recipient nation total central government expenditures. This substitution should occur at decreasing rates, as the amount of grant-in-aid increases.

We do not expect to observe these substitution effects if the recipient nation is involved in a conflict; in this situation, we anticipate MAP monies

⁴Threats to national security are often highly subjective. The data used in this paper for coding the presence or absence of this threat obviously do not cover those perceived threats if they do not produce battle deaths. Measures of this type of national security threat may be pursued through the use of data from the Correlates of War Project on serious disputes. However, this still would leave us without a lower-level measure of internal threat. One possibility is to measure governmental violations of human rights (such as scored by Amnesty International); as violations go up, we would assume that perceived internal threat was also rising.

to have an additive or a stimulative effect on own-source military expenditures.

RESEARCH DESIGN

Replacement (i.e., substitution) behavior suggests a negatively sloped functional form. In addition to expecting a decrease in own-source military expenditures (MILEXCEN) as aid (AID) increases, we expect to see a decrease in the rate of substitution as AID increases. Therefore, a general decreasing curvilinear model ($1/\text{AID}$) is to be used. Since there are many country-years in which AID is very low, the data for U.S. aid is transformed using the natural log (\ln) function, so the actual estimation uses $1/\ln(\text{AID})$ as the independent variable.

With the introduction of the coefficients in the regression model, it is necessary to take the inverse of MILEXCEN to maintain the expected decreasing function. Thus, the complete equation to be estimated is:

$$1/\text{MILEXCEN} = B_0 + B_1(1/\ln(\text{AID}))$$

Remember also that the variable AID is actually the one-year lag of programmed aid.

One must be aware of the boundaries of the variables. The use of the log inverse imposes a lower boundary of 0 for AID. Although an arithmetic constraint, this boundary also serves to delineate the domain of the study. Since we are interested in the investigation of substitution effects, we are not interested in those nations that receive no aid; hence, arithmetic and theoretical focus both dictate the exclusion of these nations. As for the dependent variable, we decided to exclude any nation that was not devoting at least 1 percent of its central government expenditures to the military. If a government was not making this minimal allocation, we felt that its own-source military spending would be so low as to preclude any ability to substitute aid for own-source spending.

The expected impact of the control variable CONFLICT is as follows: if there is no war involvement ($\text{CONFLICT}=0$), then the substitution behavior is expected. If there is a war involvement ($\text{CONFLICT}=1$), then the relationship between AID and MILEXCEN is expected to disappear (i.e., to become statistically insignificant), indicative of an additive fiscal effect. A variable more sensitive to level of threat might reveal degrees of variance in substitution behavior; the nominal level of the variable CONFLICT cannot be expected to pick up these subtleties, but only gross differences in the behavior of recipient nations.

ANALYSIS

The plot of MILEXCEN and AID in Figure 2 confirms our expectation of a generally-decreasing function, with a large number of cases that have low values on both variables. The plot justifies the use of the log transformation of the AID variable.

Table 1 displays the estimation of the relationship between MILEXCEN and AID. Although the overall fit is only fair, the coefficient for AID

FIGURE 2. OWN SOURCE MILITARY EXPENDITURES

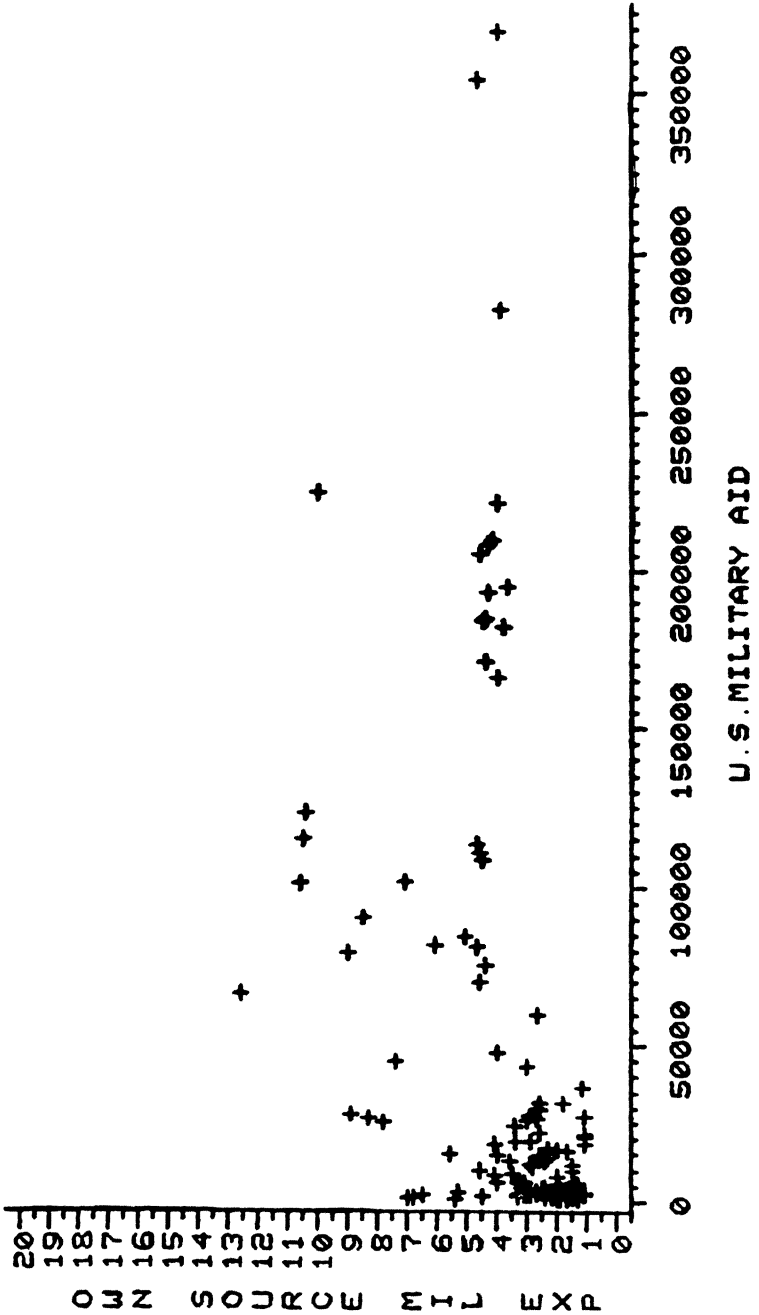


TABLE 1
PREDICTING MILEXCEN FROM AID

<i>Variable</i>	<i>Coefficient</i>	<i>T-Ratio</i>
Constant	.005	.05
AID	3.973	5.07
N = 116	R-Square = .18	

is statistically significant, and its sign is consistent with our expectations. The coefficient is positive which, because of the form of the equation, indicates that as the amount of grant-in-aid goes up, the proportion of the recipient nation's budget that is devoted to the military goes down, a condition of substitution.

Table 2 displays the estimation of the same relationship when the data are partitioned according to the value for the CONFLICT variable. The results again are consistent with our expectations. The fit for the non-conflict nations is better than for the entire set, while the overall fit indicates that there is virtually no relationship for those nations involved in a conflict. Further, the rate of substitution for the non-conflict nations is higher than that for the total set.

TABLE 2
PREDICTING MILEXCEN FROM AID

CONFLICT = 0		
<i>Variable</i>	<i>Coefficient</i>	<i>T-Ratio</i>
Constant	- .112	-1.14
AID	4.821	5.97
N = 101	R-Square = .26	
CONFLICT = 1		
<i>Variable</i>	<i>Coefficient</i>	<i>T-Ratio</i>
Constant	.242	.75
AID	2.614	.82
N = 14	R-Square = .05	

We must exercise some caution when examining the results that involve only the country-years containing conflict, since the number of cases is so small. This might be expected to reduce the fit of the model somewhat. The large drop in the r-square and the t-ratio of the AID variable that we do observe leads us to conclude that nations in conflict do not exhibit the substitution behavior that characterizes both the entire sample and the non-conflict country-years.

The results of the second hypothesis, relating military grant-in-aid to health and education expenditures are presented in Table 3. For the

TABLE 3
PREDICTING SOCIAL EXPENDITURES FROM AID

HELTHCEN		
<i>Variable</i>	<i>Coefficient</i>	<i>T-Ratio</i>
Constant	.165	3.36
AID	-.010	-1.84
N = 116	R-Square = .03	
EDCEN		
<i>Variable</i>	<i>Coefficient</i>	<i>T-Ratio</i>
Constant	.224	2.51
AID	-.003	-.30
N = 116	R-Square = .01	

entire sample, the overall fit of both equations indicates that there is virtually no relationship between this form of grant-in-aid and the proportion of the recipient government's budget devoted to these social welfare expenditures. However, note the negative sign of each regression coefficient for AID; these indicate that the small impact of aid is to increase the proportion of the budget devoted to these expenditures.

The findings are a bit more interesting when the dataset is partitioned into conflict and non-conflict country-years. The results for the non-conflict years, as might be expected, are similar to those reported for the entire dataset in Table 3. The results for the conflict observations show a stronger relationship, but again, the small number of cases makes us wary of placing too much emphasis on these findings. Be that as it may, the fits are better; and the prediction for health expenditures is outstanding. Curiously, there is a substitution effect on education's proportion of the budget, but an additive or neutral effect for health's proportion of the budget. The paucity of observations for this subset make us very reluctant

TABLE 4
PREDICTING SOCIAL EXPENDITURES FROM AID

CONFLICT = 0			CONFLICT = 1		
HELTHCEN			HELTHCEN		
<i>Variable</i>	<i>Coefficient</i>	<i>T-Ratio</i>	<i>Variable</i>	<i>Coefficient</i>	<i>T-Ratio</i>
Constant	.141	2.36	Constant	.217	13.25
AID	-.007	-1.01	AID	-.016	-10.86
N = 101	R-Square = .01		N = 14	R-Square = .90	
EDCEN			EDCEN		
<i>Variable</i>	<i>Coefficient</i>	<i>T-Ratio</i>	<i>Variable</i>	<i>Coefficient</i>	<i>T-Ratio</i>
Constant	.254	2.34	Constant	.130	2.88
AID	-.007	-.54	AID	.007	1.79
N = 101	R-Square = .01		N = 14	R-Square = .20	

to advance a substantive interpretation for this divergence in sign. More data (i.e., country years) are needed before we can draw any conclusions from these relationships.

Our final hypothesis concerns the relationship between military grant-in-aid and the total expenditures by the recipient government. For this hypothesis, the results are consistent across all three partitions of the data (for the entire dataset, displayed in Table 5, and the non-conflict and conflict subsets displayed in Table 6). All three show a substitution effect, as high levels of military grant-in-aid are associated with low levels of total government expenditures. The overall fit is especially strong for the conflict subset; but, as before, the caution about the small number of observations applies.

TABLE 5
PREDICTING CENGVEXP FROM AID

<i>Variable</i>	<i>Coefficient</i>	<i>T-Ratio</i>
Constant	-.005	-4.61
AID	.058	7.15
N = 116		R-Square = .31

TABLE 6
PREDICTING CENGVEXP FROM AID

CONFLICT = 0		
<i>Variable</i>	<i>Coefficient</i>	<i>T-Ratio</i>
Constant	-.005	-3.72
AID	.057	5.90
N = 101		R-Square = .26
CONFLICT = 1		
<i>Variable</i>	<i>Coefficient</i>	<i>T-Ratio</i>
Constant	-.006	-5.72
AID	.081	7.33
N = 14		R-Square = .81

DISCUSSION

Our analysis has netted both expected and unexpected results. Consistent with our original hypothesis, MAP recipients tend to substitute U.S. assistance for own source monies. The rate of substitution is partial and considerably greater than observed in previous research (McGuire 1979). Moreover, the expected functional form ($1/Y = B_0 + B_1(1/\ln(AID))$) is confirmed. The substitution of U.S. military assistance occurs at a decreasing rate, reflective of the inelastic demand for military goods and services.

Contrary to McGuire's findings, nations actively involved in conflict do not substitute U.S. aid for own source military outlays. An additive fiscal effect is observed. For these combatant MAP recipients, each additional dollar of U.S. military aid is allocated to the purchase of military goods and services. The variance between our findings and McGuire's may be a function of the country that was the object of his study — Israel. The threat to the national security of nations involved in conflict may be increased by the economic destabilization caused by the demand for increased military spending. These nations may seek to mute some of this pressure on their national budgets and economy by replacing own-source military outlays with MAP monies. Israel, a combatant since its birth, has consistently substituted between 10 and 30 percent of its MAP monies for own-source military spending. Israeli officials have long recognized the threat that large military spending represents to their national economy, and have sought various remedies to this problem (e.g., Bonds for Israel) including a replacement policy for U.S. military aid.

There is only limited evidence to suggest that the replacement policy of aid recipients results in higher public sector spending for non-military programs (health, welfare, education). Controls for conflict produce a significant and positive fiscal effect between central government spending and aid transfers. However, these findings are suspect given the very small number of observations (i.e., country-years).

The absence of a significant shift from military to non-military domestic spending among grant-in-aid recipients is partially accounted for by the negative impact aid transfers have on total recipient expenditures. The substitution of U.S. military assistance for own source spending does not result in a shift to other domestic programs, but rather a decrease in total public outlays, and therefore, an increase in capital available to the private sector. As noted earlier, substitution effects can result in a reduction in revenues or an increase in transfers (loans, subsidies, etc.) to the private sector. MAP recipients appear to redistribute the savings realized from U.S. assistance to the private sector, expecting this decision will have a stronger effect on the nation's economy than increased public spending. This practice is consistent with earlier hypotheses.

Uncertainty regarding the future of U.S. military assistance makes it difficult for MAP recipients to make long-range spending decisions based on current levels of U.S. funding. Aid recipients may be reluctant to increase domestic spending, especially for politically popular welfare and human resources programs when funding for these programs will likely have to be cut if MAP assistance is either reduced or not forthcoming. Shifting domestic revenues to the private sector allows for some level of economic stimulation without any of the political risks associated with an uncertain funding source for new or expanded domestic programs. Moreover, social and human services are much more labor intensive than most components of military spending (e.g., equipment procurement). Labor costs rise faster than capital costs, placing increased revenue demands on future national budgets. The certainty of U.S. assistance, how-

ever, does not increase over time, making it difficult to assume additional revenues (other than own source) will be available to fund new domestic programs and still maintain a constant level of military preparedness.

McGuire similarly found that a significant portion of U.S. military assistance showed up in the private sector. Rather than devoting all savings from reduced military outlays to other public goods and services, Israeli officials cut taxes and increased transfers to private individuals and companies.

FUTURE RESEARCH

This study represents only an initial cut at a large area of research. Although we consider the findings presented herein to be sufficient to stand alone, there is a need to extend this research in several directions. First, a longer time period needs to be studied. It is particularly important to include more conflict country-years (and eventually, to discriminate between internal and external conflict involvement). At the same time, we would like to add an indicator of conflict that falls below the level of war. We believe that the kinds of differential behavior that occur in conflict country-years will also appear below the war threshold. Use of such a variable (or variables) will also help alleviate the problem caused by the small number of observations. As noted earlier, we would like to expand our analysis to include the fiscal effects of alternative delivery mechanisms for U.S. military assistance (e.g., PMS, SSA, etc.).

Some of the conclusions of the research presented here are a matter of speculation; for example, our belief that recipient nations adopt specific policies designed to increase capital available to the private sector. We intend to examine this conjecture directly (at least, as far as available data sources permit). Finally, the increasingly precarious international debt situation of many of these recipient nations may have large impacts on their fiscal policies; we intend to examine whether military grant-in-aid is related to their indebtedness and/or their budgetary response to this aid.

To conclude, we believe that military assistance by the U.S. can have large, and often unanticipated, fiscal effects on the recipient nations. For both the policy-maker and the researcher, it is important that these impacts be well understood.

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