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## On the domestic political-economic sources of American military spending

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WISSENSCHAFTSZENTRUM BERLIN  
FÜR SOZIALFORSCHUNG

P 89-303

**ON THE DOMESTIC  
POLITICAL-ECONOMIC SOURCES OF  
AMERICAN MILITARY SPENDING**

by

Thomas R. Cusack

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## **ABSTRACT**

This paper attempts to demonstrate the significant impact that domestic political-economic factors have in shaping the American defense budget. Evidence is provided which shows that while the military spending burden sustained by the United States is far and away greater than its allies, this may be a function less of free riding on the part of those allies, and more a function of the domestic political-economic needs of the American system. The mutual influence relationship between U.S. military spending and public opinion is then examined and evidence provided which suggests that public support of U.S. political leaders is significantly affected by the arms spending competition between the Soviet Union and the United States during periods when the American public focuses its attention on foreign affairs. Finally, a political business cycle model of American defense spending is examined for the period 1953-1986 and shown to be a useful explanatory device. In particular, it helps illuminate the importance of military spending as policy instrument for economic stabilization and a means of helping secure electoral support from the American public. The analyses in this paper also demonstrate the non-revolutionary character of the Reagan administration defense policies, policies that are very much in keeping with the post-World War II traditions of American administrations.

## **ZUSAMMENFASSUNG**

Dieser Beitrag versucht, den starken Einfluß innerstaatlicher politisch-ökonomischer Faktoren auf den amerikanischen Verteidigungshaushalt aufzuzeigen. Es wird zwar nachgewiesen, daß die amerikanischen Militärausgaben die der anderen Alliierten bei weitem übertreffen; dies könnte jedoch eher an politisch-ökonomischen Zwängen als an dem Trittbrettfahrer-Effekt seitens der Alliierten liegen. Die Wechselwirkung zwischen den US-Verteidigungsausgaben und der öffentlichen Meinung wird anschließend untersucht. Die vorliegenden Informationen legen die Vermutung nahe, daß die Unterstützung der US-Führung durch die Bevölkerung unter der Bedingung des Rüstungswettbewerbs zwischen den USA und der Sowjet Union dann signifikant variiert, wenn die Aufmerksamkeit der amerikanischen Öffentlichkeit auf die Außenpolitik gerichtet ist. Zum Schluß wird ein politisches Konjunkturzyklusmodell der Verteidigungsausgaben für die Zeit 1953-1986 untersucht, das sich als nützlich für die Erklärung der Rüstungsausgaben erweist. Es wirft weiteres Licht auf die Bedeutung der Rüstungsausgaben als politischem Instrument zur wirtschaftlichen Stabilisierung und als Mittel zur Sicherung der Regierungspopularität. Der Beitrag zeigt außerdem den nicht-revolutionären Charakter der Reagan-Verteidigungspolitik auf - es war eine Politik, die ganz in der Tradition der Nachkriegsadministrationen stand.

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## INTRODUCTION

Many commentators agree that the recently completed tenure of Ronald Reagan in the White House was one marked by some major shifts in American domestic and foreign policies and governmental priorities. Such courses of action as the cutback in tax rates, substantial restraint on domestic programs and spending, and vast infusion of funds into the military sector, were some of the principal policy initiatives we associate with the Reagan administration. It is my contention that, at least with respect to the last named example, the Reagan policy represents nothing more than "politics as usual." That is to say, while dramatic in terms of the quantities of money involved in the "Reagan defense build-up," the policy was simply a continuation of past practice, one which reflected certain typical responses to a set of conditions that has come to play a major role in shaping American military spending practices.

The first section of the paper provides some background. Here the development of the American military effort in the post-World War II era is presented. Included as well are some details on the scope of the changes in the structure of the federal budget brought about by Reagan's practice of military Keynesianism. The American experience is then examined from the perspective of whether it must be viewed as an exceptional case in terms of the defense burden that it has carried relative to other industrialized democracies. An argument is made and empirical evidence provided which suggests that this exceptionalism exists only in that the U.S. is singular in terms of the scope of the military effort; on a theoretical level it conforms with a general pattern that arises from a state's position in international hierarchy and its domestic political-economic arrangements. The section concludes with a discussion of the relationship between aspects of American public opinion and military spending, particularly as these affect (1) support for military spending programs and (2) electoral support for the President. The second section briefly surveys some of the many schools of thought on the dynamic forces driving the American military effort. This area has been the subject of extensive theoretical and empirical effort over the last decades. There are a number of fundamentally different positions that can be discerned here and the purpose of this discussion is not to extensively review the strengths and weaknesses of each, but rather to place in context the argument that follows in the succeeding section. The third section focuses on one of these schools and a particular model therein; it examines the debate that has developed around this model, and provides a further empirical evaluation of the model's performance. The general argument is that domestic political and economic factors are critical in the determination of the U.S. defense effort. The model outlined and tested here derives from some early work with which I have been involved (Nincic

and Cusack, 1979), and represents an effort at shoring up some of the weaknesses of that earlier effort as well as demonstrating the robustness of the argument. The last section of this paper draws together some of the principal arguments and findings and attempts to point out some of the theoretical and practical implications that derive therefrom.

## **BACKGROUND**

### **THE PATTERN OF AMERICAN MILITARY EFFORT IN THE POST WORLD WAR II ERA**

At no time during the post-World War II period can it be said that the United States has been particularly hesitant to allocate significant sums of money to the defense sector. Nonetheless, there have been major swings in the total amounts of money spent and the significance of these outlays relative to the income at the disposal of the American government and people. Figures 1a and 1b chart the evolution of the U.S. defense effort using two different indicators. In Figure 1a, the total spent in real (base year 1982) dollars is plotted on a calendar year basis from 1948 through 1986.<sup>1</sup> Paralleling this, in Figure 1b, the defense burden, representing military spending as a percentage of gross domestic product, is plotted.<sup>2</sup> An early surge in both the level of spending and the burden it imposed on the economy is evident with the onset of the Korean War. While both values dropped with the winding down of that war, quite high levels, relative to previous peace time periods, were sustained through the fifties, the height of the Cold War. The mobilization for the Vietnam War in the mid-sixties propelled spending upwards in real terms, but as a percentage of gross domestic product, the strain it put on the economy, represented a smaller relative cost than anything sustained during all but the last year of the Eisenhower administration.

Withdrawal from Vietnam, with the concomitant disinclination to finance further adventures of that sort, brought about a return to spending levels that in real terms, through most

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<sup>1</sup> Data on defense spending derive from the *Economic Report of the President, 1987*. Data on the GDP price index, used to deflate the expenditure term, derive from various issues of the I.M.F.'s *International Financial Statistics Yearbook*.

<sup>2</sup> Data on gross domestic product are taken from various issues of the I.M.F.'s *International Financial Statistics Yearbook*.

of the seventies, were quite on par with the outlays sustained during the peak of the Cold War in the fifties. Yet, and despite the sluggish overall economic growth of this period, the defense burden declined significantly until the middle of the Carter administration. Then one detects the seeds of a reversal in the pattern for both variables by this time. Real outlays began to move up significantly, and indeed by 1986, stood well above any year in the post World War II period. The drain this represented on the economy began to grow as well, though not at such a rapid rate. By 1986, however, the share of gross domestic product going to the military had advanced to levels matching those of the last years of the Vietnam War.

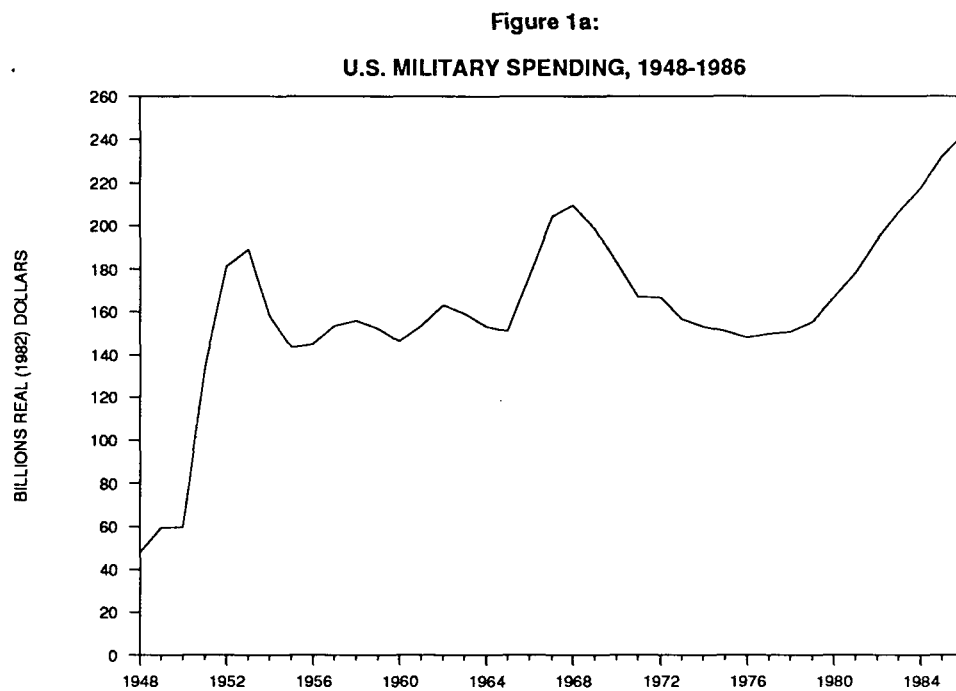
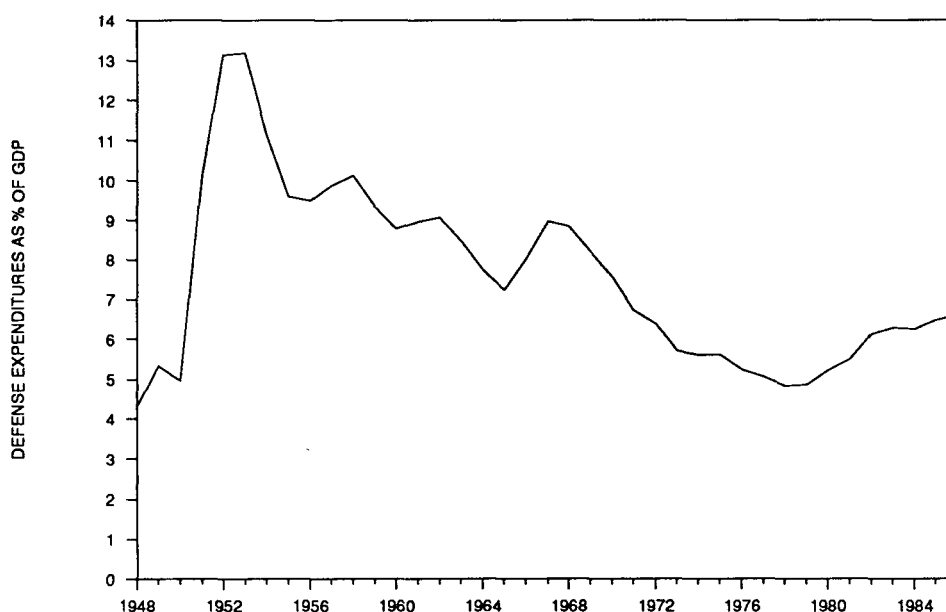


Figure 1b:

U.S. DEFENSE BURDEN, 1948-1986



What sort of impact did the Reagan administration have on the budgetary situation of the federal government and what did this have mean for the economy as a whole? Figures 2a and 2b provide a graphic portrayal of the consequences of the Reagan administration's policies.<sup>3</sup> Entering office the administration inherited a situation where less than one fourth of the federal budget was given over to national defense. The Carter administration had laid the groundwork for increasing the level of defense spending at a significant rate but this was revised radically upward in the Reagan budgets and culminated in fiscal year 1988 with nearly 29 percent of the budget allocated to defense. All this took place against a backdrop of major changes in the revenue raising activities of the federal government where, particularly in terms of personal and corporate taxes, rates were significantly lowered. As Figure 3 demonstrates, the impact was to drive the fiscal imbalance into a continuous deficit of large proportions and significantly raise both the federal debt and the burden of interest payments (the latter rose from less than 9 percent of the budget to 14 percent during these eight years).<sup>4</sup> Bonds and rockets would seem to have been the legacy of the Reagan administration with the combined burden of defense and interest payments rising from 31.6 to 42.8 percent of the budget.

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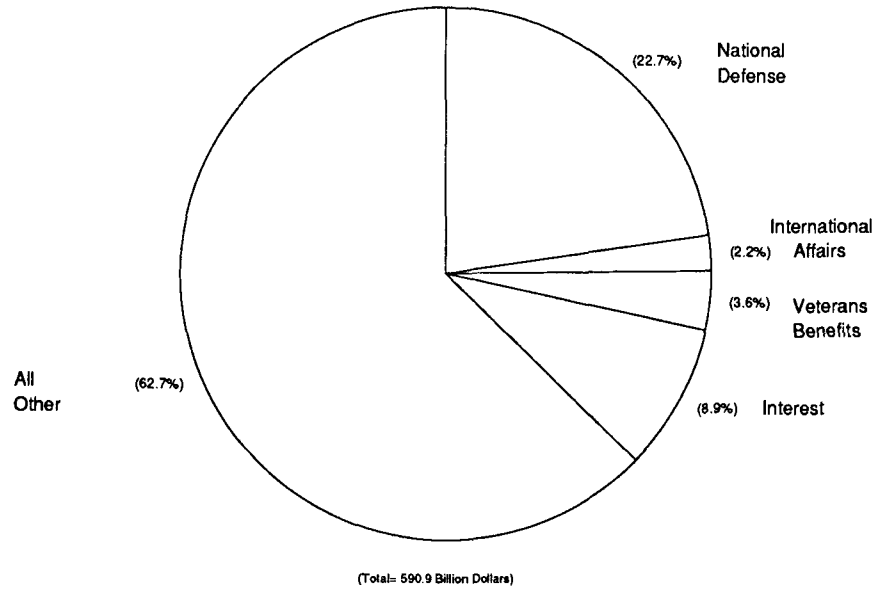
<sup>3</sup> Source for data on the composition of federal spending is the Tax Foundation's (1988) *Facts and Figures on Government Finance, 1988-1989 Edition*.

<sup>4</sup> Source for data on interest payments is the Tax Foundation's (1988) *Facts and Figures on Government Finance, 1988-1989 Edition*.



**Figure 2a:**  
**Federal Budget Shares: Pre-Reagan**

(Fiscal Year, 1980)



**Figure 2b:**  
**Federal Budget Shares: End of Reagan Administration**

(Fiscal Year, 1988)

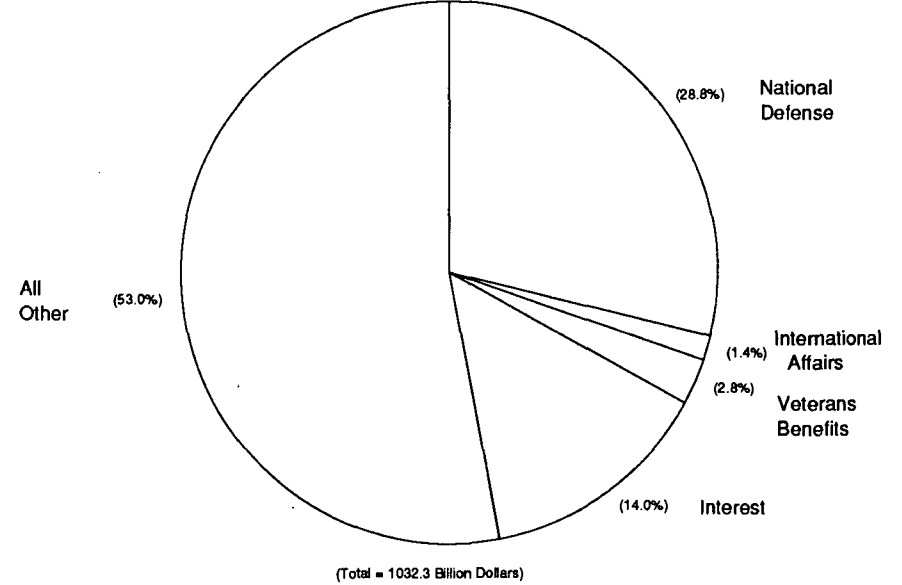
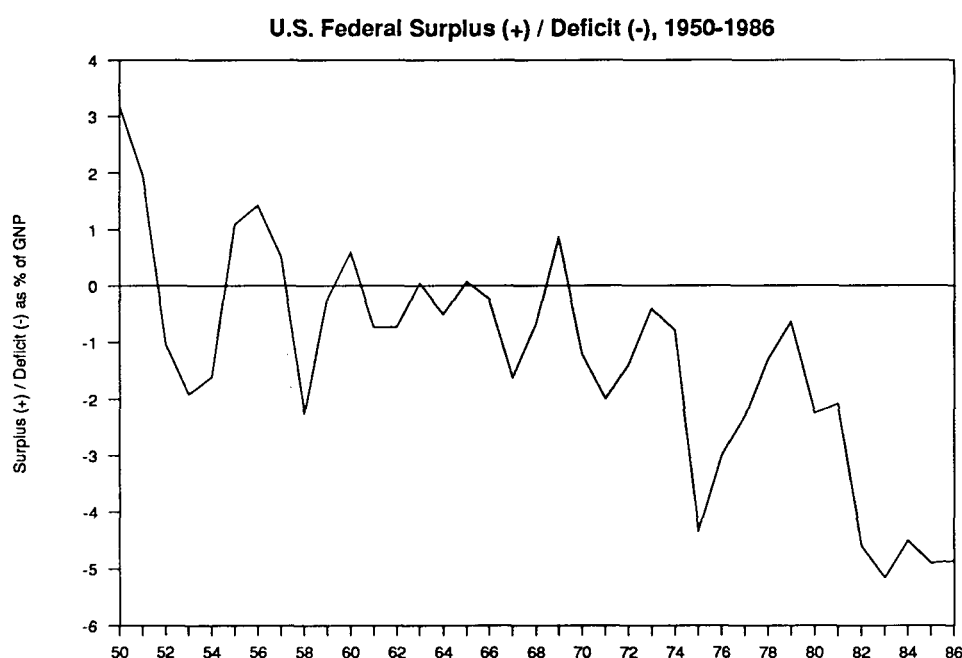


Figure 3:



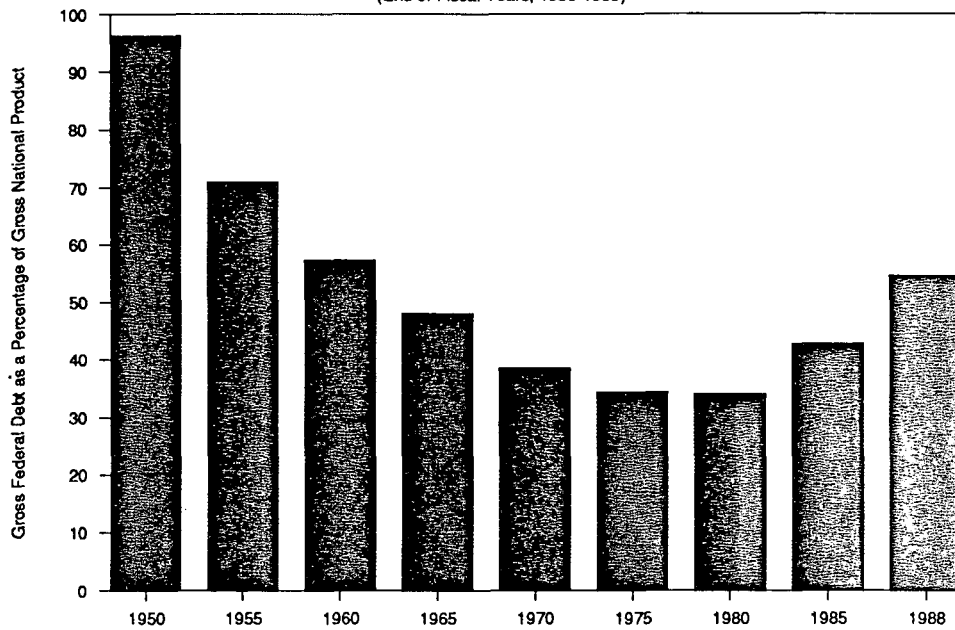
When viewed from a long-term perspective, however, the Reagan changes do not seem *sui generis*. Thus, while total federal debt in nominal terms has reached historically high level, the burden it represents on the economy, as reflected in the debt relative to GNP, has not even reached the levels of the 1950's (see Figure 4).<sup>5</sup> And the composition of the budget by the end of Reagan's two terms is more in keeping with the distribution of federal outlays that held in the late 50's and early 60's than the budget it inherited from the Carter administration. By 1988 (see Figure 5), national defense, international affairs and veterans administration outlays, along with interest payments (due mainly to the debt incurred in order to finance earlier military outlays) accounted for well over 40 percent of the federal budget.<sup>6</sup> This figure is about equal to that which obtained in the last years of the Vietnam War. In some significant ways, then, the Reagan administration's general priorities represented a return to past practices and not a major new direction in American public policy.

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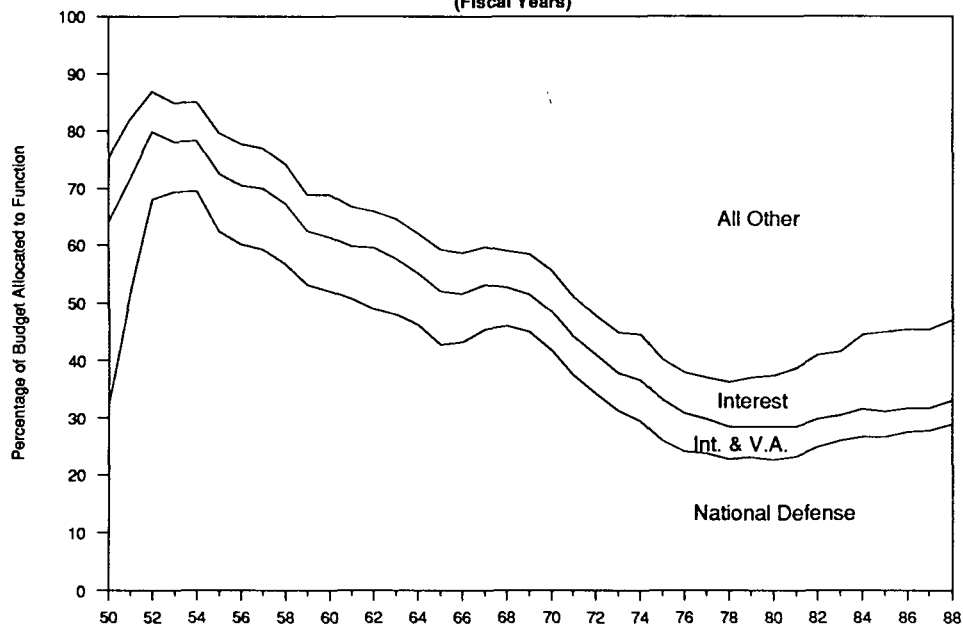
<sup>5</sup> Data source for federal debt is the Tax Foundation's (1988) *Facts and Figures on Government Finance, 1988-1989 Edition*.

<sup>6</sup> Time series data on composition of federal budget derive from Tax Foundation's (1988) *Facts and Figures on Government Finance, 1988-1989 Edition*.

**Figure 4:**  
**Federal Debt and the Economy**  
 (End of Fiscal Years, 1950-1988)



**Figure 5:**  
**The Evolution of Federal Budget Shares, 1950-1988**  
 (Fiscal Years)



Moreover, the way in which the DOD (Department of Defense) budget was allocated across functional areas during the Reagan administrations began to take on old forms (see Figure 6).<sup>7</sup> Significantly, in terms of its impact on industry and the capital goods sector of the economy, defense spending was more and more shifted toward the procurement of goods and the financing of research and development.<sup>8</sup> During the Cold War era, more than 40 percent of DOD funds were spent in these two categories. Withdrawal from Vietnam and the restraint that this placed on defense spending as well as the higher costs associated with the new all-volunteer personnel policies (along with the continuously growing burden of financing pensions for retired long-term service members) placed significant strains on the budget. Thus, the share of the budget allocated to procurement and R&D had diminished to less than 30 percent by the mid-1970's. This had risen slightly to close to 32 percent by 1980. By 1986, the two items combined once again took up more than 40 percent of the DOD budget.

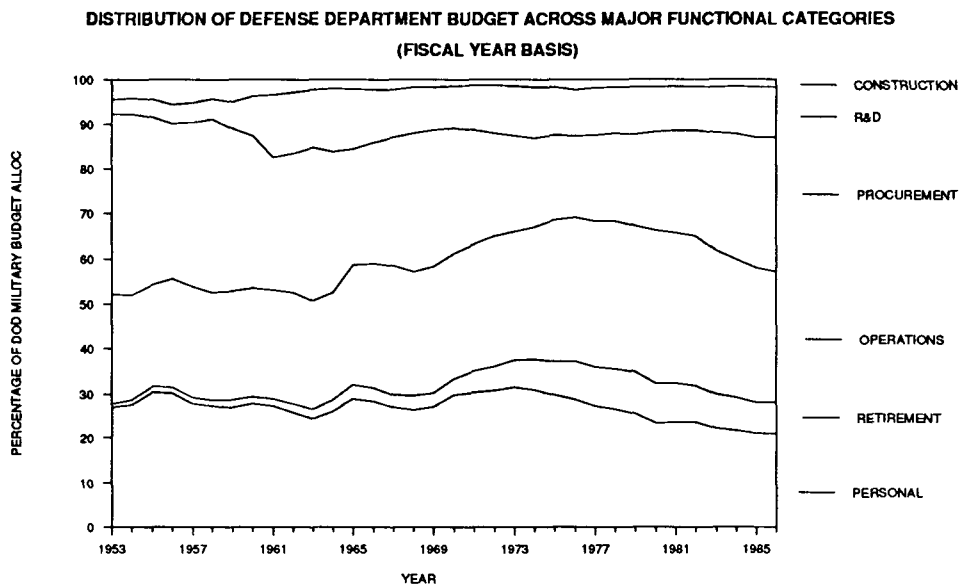
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7 Data on composition of DOD budget derive from various issues of *The Statistical Abstract of the United States*.

8 Although defense spending rose very significantly between 1977 and 1985, its employment effects were not nearly as dramatic overall and only had a significant impact in particular sectors. According to a Bureau of Labor Statistics report (Henry and Oliver, 1987), defense related employment modestly increased from 5.309 to 5.498 million between 1977 and 1980, and then rose by more than 20 percent to 6.680 million by 1985. There was barely any change in defense related public employment during this period--either amongst civilians or the armed forces. In the private sector defense related employment increased by about three hundred thousand between 1977 and 1980 (1.913 to 2.214 million) and then increased by nearly fifty percent between 1980 and 1985 (2.214 to 3.207 millions). Despite this private sector gain, one needs to recognize that during the period from 1977 to 1985, when defense spending as a share of GDP rose fairly steadily from 5.07 to 6.48%, defense related employment as a percentage of the total labor force moved from 5.24% to only 5.68% (labor force data taken from OECD (1989) *Labor Force Statistics, 1967-1987*). While the spending burden thus increased by nearly 28% the return in terms of employment of those active in the labor market was significantly lower (the increase represented only 8%).

Outside of the public sector the military related employment effects were marginal in some areas and significant in others: Between 1977 and 1985 there were slight decreases in both the agricultural and construction, -7% and -11% , respectively. Transportation, communications and utilities as well as finance and insurance increased by 29 and 35 percent. Major increases occurred in the services (75%), manufacturing (75%) and mining (94%) sectors. For manufacturing, a stagnant sector of the economy, this implied that defense related employment within the sector rose from 4.97% to 8.68% during the period.

Figure 6:



In terms of both its general priorities and the emphasis it gave to particular elements of the defense budget, the Reagan administration represented no major evolutionary deviation from the traditions established through much of the post World War II era. In the next part of this section the bases of this tradition are examined from a cross-national perspective.

## THE AMERICAN PATTERN IN INTERNATIONAL CONTEXT

How different is the American pattern from that of countries most similar to it in terms of political and economic structures? As Table 1 demonstrates, the military burden sustained by the Americans has been very different from other industrialized democracies.<sup>9</sup> While the trends in this burden have generally moved along parallel paths, the levels have been far from one another. While a general increase took place in the defense burdens borne by the industrialized democracies during the 1950's, the overall pattern from 1960 through 1980 was one of general decline. Countries within NATO have carried, on average, larger burdens (between one and a half and two times as large as non-NATO industrialized democracies), but amongst these states there also has been a downward trend which has only halted in the 1980's. The military burden the Americans have shouldered has always been far heavier than their

<sup>9</sup> Note that these comparative figures derive from various issues of the SIPRI *Yearbook*, and, in the American case, are slightly different from the values deriving from American sources.

NATO allies and other industrialized democracies. Since the Korean War, the Americans have shouldered a military burden approximately twice as large as their NATO allies and from three to four times the burden sustained by the non-NATO industrialized democracies. However, it too has waxed through the Cold War and waned in the immediate post-Vietnam War era. The general acceleration in defense effort amongst the NATO allies was most pronounced in the American case with the defense burden growing from 5.4% to 7.0% by 1985.

TABLE 1:  
DEFENSE BURDENS AMONGST THE WESTERN INDUSTRIALIZED COUNTRIES

<i>Year:</i>	<u>1950</u>	<u>1955</u>	<u>1960</u>	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1980</u>	<u>1985</u>
<i>Country:</i>								
United States	5.10	10.12	8.98	7.52	7.87	5.90	5.39	7.00
Canada	2.76	6.74	4.27	2.96	2.38	1.88	1.69	2.14
United Kingdom	6.40	8.18	6.44	5.84	4.76	4.87	4.93	5.17
Netherlands	4.80	5.71	3.93	3.81	3.29	3.23	3.09	3.10
Belgium	4.90	3.78	3.44	3.21	2.96	3.12	3.38	2.92
France	5.80	6.56	6.46	5.23	4.18	3.85	3.99	3.98
Switzerland	2.58	2.76	2.47	2.61	2.22	2.01	2.05	2.01
F.R. Germany	3.57	4.09	4.00	4.34	3.34	3.66	3.38	3.20
Austria	0.73	0.18	1.16	1.20	1.10	1.21	1.25	1.24
Italy	4.30	3.67	3.28	3.10	2.48	2.48	2.20	2.31
Finland			1.80	1.67	1.31	1.39	1.49	1.96
Sweden			4.02	4.14	3.57	3.25	3.06	2.61
Norway	3.10	3.95	3.20	3.75	3.47	3.21	2.89	3.08
Denmark	1.66	3.20	2.70	2.81	2.32	2.44	2.41	2.17
Japan	2.30	1.77	1.03	0.92	0.78	0.92	0.92	0.99
Australia			2.57	3.26	3.24	2.53	2.42	2.88
Unweighted								
Averages:								
Total			3.74	3.52	3.08	2.87	2.78	2.92
NATO	4.24	5.60	4.67	4.26	3.71	3.46	3.32	3.51
Ave.NATO,non-US	4.14	5.10	4.19	3.89	3.24	3.19	3.09	3.12
Ave.,Non-US			3.39	3.26	2.76	2.67	2.60	2.65
Non-NATO			2.18	2.30	2.04	1.89	1.87	1.95

It is often argued that the large defense effort by America, relative to its formal and informal allies, represents a form of free riding by the latter or exploitation by the latter of the former (cf., Olsen and Zeckhauser, 1966). Indeed, a recent assertion on the part of the Pentagon suggests that more than half of the American defense effort represents a direct subsidy to the West European states for military burdens they are unwilling and yet able to sustain (Calleo, 1987:

125). Such arguments seem particularly self-serving and downright misleading. America has played the role of hegemon within the world system for the decades since World War II. Its military apparatus plays a significant role in retaining American domination. That it does more in this sphere than those linked to it by political and economic ties does not need an explanation based on misplaced economistic reasoning; the benefits it derives are proportionate to its efforts and those efforts, absent domestic constraints and stimuli, are likely to be proportionate to its relative strength in the international political economic system.

But domestic political economic constraints and stimuli are not unimportant. Indeed, they have a powerful influence on how much the United States and its allies are willing to sustain in the way of military burdens. The argument here draws heavily on Michael Kalecki's (1943) classic paper on the problems of government demand management policies in market economies. As Kalecki has pointed out there are three strong grounds on which capitalists object to the use of fiscal policy as an instrument to secure full employment and stable growth. These include a general dislike of government interference in markets--particularly labor markets--because this undermines the basic strength of capitalist classes vis-a-vis labor. Second, public investment outside traditional spheres of the "night watchman" state or for purposes that might directly compete with the capitalist classes represent a threat to their societal position. Third, the social and political consequences that arise from the maintenance of full employment challenge the power of the capitalist by removing one of their major weapons: the disciplinary regimen of unfettered labor markets. Weakened vis-a-vis the working class, the capacity of the capitalists to withstand the demands of labor would have untoward effects on them personally and would, from their perspective, undermine the normal and to them, beneficial, workings of the capitalist system.

Nonetheless, Kalecki argued capital is not so short-sighted as to fail to eventually appreciate the benefits to the capitalist system that government intervention can produce. So long as this intervention does not undermine the political and economic position of the class, then that class will not lose its confidence and threaten the political-economic stability of state and society. If the direction of government policy is not to achieve permanent full employment but simply to alleviate slumps, and if the instruments used neither compete with nor threaten the interests of capital, then it will support governmental stabilization policies. This rather restricts the latitude of government and, according to Kalecki, the obvious focus of such policy is spending on the military.

The ideal political system for such a solution to be arrived at is fascism. But the solution's vitality is clearly not only limited to such an extreme form of capitalist society wherein labor is rendered completely powerless. Indeed, one would expect that the degree to which labor plays a central role in the bargaining processes whereby the overall shape of the political economy takes form and is reproduced would act to constrain government and business and thus militate against military Keynesianism. Capitalist societies in the post-War period have been marked by a broad range of power sharing structures amongst capital, labor and government. The differences in these structures are likely to have had an influence on the form of stabilization and employment policies and this is likely to be revealed in the scope of military Keynesianism. Certainly, the United States stands within a subgrouping of such states where labor has been relatively weak, disorganized, and possessing very limited access to the centers of political-economic power. This factor ought to explain part of the variance in the cross national distribution of military burdens and would thus partially account for America's extraordinarily high military expenditure burden.

At least one other facet of the domestic political-economic situation might also play a significant role in accounting for the weight of military burdens taken on by states. This is the extent to which labor has managed to capture the control of government -- at least in formal parliamentary terms. The efforts by labor as manifested in Leftist parties to obtain a voice in the running of the political system has led it through a difficult if not tortuous path during the twentieth century. For a variety of reasons it is not the obvious majority within bourgeois democratic systems (Przeworski and Sprague, 1986). The success it has achieved should, given the general anti-militaristic stance of the left in capitalist societies, act as a constraint on the military burden that governments would impose on the economy. However, as Keman (1982) has pointed out it is possible to entertain a set of diverse hypotheses with respect to the influence party preferences and dominance has on military spending. Thus he argues that there are sufficient reasons to suspect the validity of the "traditional" view that Rightist parties are heavily oriented toward security concerns while Leftists are anti-militaristic, and that such stances may not work their way through to defense policy outcomes. There is, for example, the argument that the "decline of ideology" has led to a convergence between parties at different ends of the left-right continuum even in security matters. Just as plausible is the "strategic" hypothesis that Leftist parties when in power would view it as in their interest to support the military establishment in an effort to be perceived as sound and legitimate in the eyes of the middle class electorate. Relative to Rightist parties, then, Leftist parties in government would tend to opt for higher military burdens, other things being equal.



An assessment of the role these three factors, international economic strength, the extent to which labor participates in power sharing arrangements for the direction of the economy, and the scope of labor's dominance in the political system, is provided below. Here the results from a regression analysis based on cross-sectional data using military burden in 1980 as the dependent variable is reported upon. Within the equation economic strength is captured by the relative volume of GDP.<sup>10</sup> Labor's strength in the political-economic sphere is tapped by an index of corporatism, provided by Pryor (1988).<sup>11</sup> Left control of government is captured by Cameron's (1984) index for the control of government by leftist parties. Based on a very limited sample of sixteen cases these results, though obviously tentative, clearly reveal an interesting pattern. The relative international economic strength variable takes on the predicted sign and is statistically significant. Per the military Keynesianism argument, corporatism appears to act as a restraint on the military burden governments are willing to sustain; the statistical effect estimated is negative and significant. Finally, Left dominance of government would appear to invoke a "strategic" response to the problem of allocating resources to the military. The estimated effect of Left dominance is to increase the overall defense burden; the estimated coefficient is also significant.

$$MBUR_{1980} = 8.65 RELY_{1980} - .857 CORP_{1965-82} + 1.047 LG_{1965-82} + 1.926$$

(2.93)                      (-2.06)                      (3.00)

$$\bar{R}^2 = .509$$

(t-statistics in parentheses)

$MBUR_{1980}$ =	Military expenditures as a percentage of GDP, 1980
$RELY_{1980}$ =	GDP as a proportion of total GDP for OECD countries, 1980
$CORP_{1965-1982}$ =	Corporatism index for period 1965-1982
$LG_{1965-82}$ =	Left government index for period 1965-1982

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10 The data derive from the International Monetary Fund's *International Financial Statistics Yearbook*.

11 This index is the average value of six corporatism indices available in the literature. They derive from the work of Schmitter, Cameron, Schmidt, Czada, Lehmbruch and Wilensky.

Relative to other industrialized democracies the United States carries a heavy military burden. In part this reflects the dominant position of the United States inside the international system. But it also reflects the domestic political-economic character of the American system. The weakness of labor in the central bargaining needed to regulate and reproduce the workings of the capitalist system has the effect of channelling significant government intervention for stabilization purposes along lines that favor the military-industrial sector. Apparently, though, the fact that labor has also been incapable of generating strong political party organization and consequent governmental presence has had the effect of lowering the relative military burden that the U.S. sustains.

## POLITICAL CONTEXT

Public opinion in the United States, whatever its sources and determinants, ultimately matters to policy-makers because it eventually is reflected in electoral outcomes. Traditionally it has been argued that foreign and national security policy ought somehow be divorced or sheltered from the fickle tides of public opinion. In that way, then, the kind of consistent, sometimes inconsistent, and necessarily always difficult to explain policy stances in foreign affairs that national leader *must* take can be safeguarded from *irrational* forces. Certainly the concern the public has shown for foreign affairs and its importance to the nation reflect, at least in terms of public opinion polls, a high degree of inconstancy. As charted in Figure 7, the public's perception of foreign affairs as the *most important problem* confronting the nation has been subject to severely sharp reversals over the last half century and during the last decade or so it seems that the public has tended to minimize its importance.<sup>12</sup> Indeed, as can be seen in Figure 8, the perception that America's most important problem resided in foreign affairs has declined dramatically since the mid 1960's to be replaced first by domestic political and social issues and then by economic concerns.<sup>13</sup>

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<sup>12</sup> Sources for data include: Casparay (1970), various issues of *The Gallup Report*, and Smith (1985).

<sup>13</sup> Sources: see note above.

Figure 7:

The 1930's to the 1980's: American Public  
Opinion's Concern with Foreign Affairs

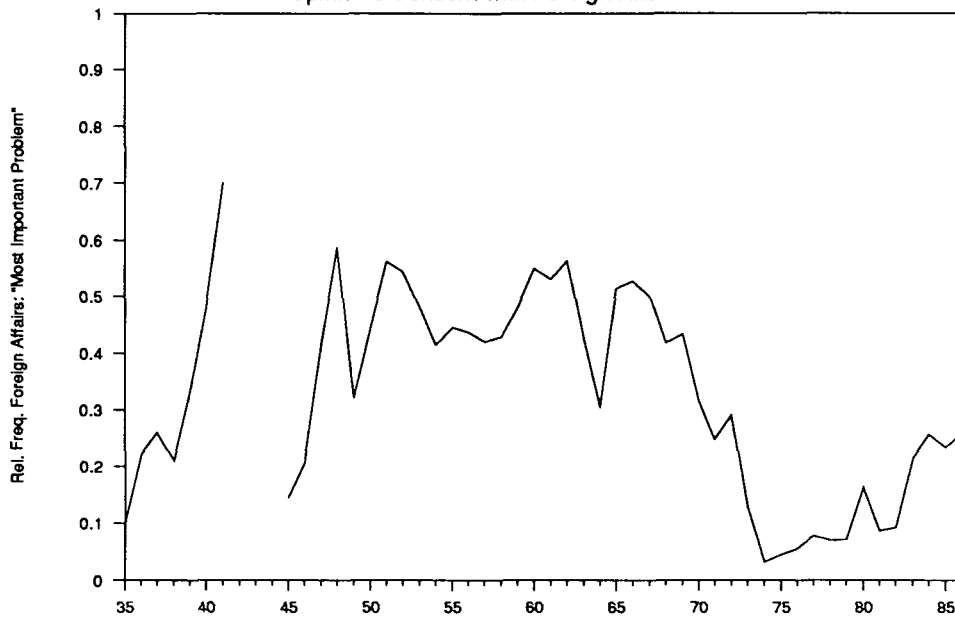
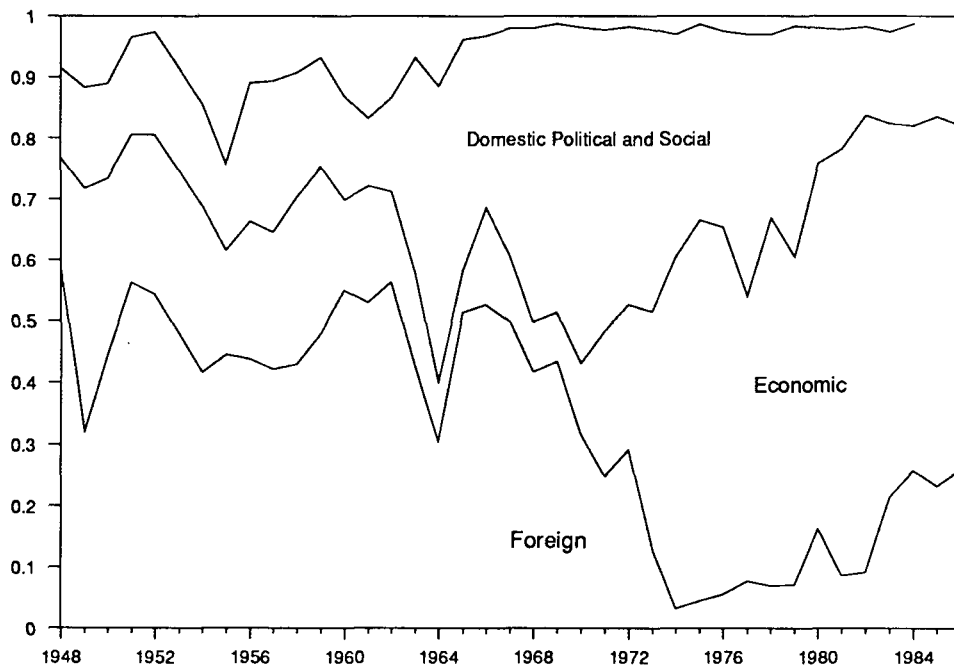


Figure 8:

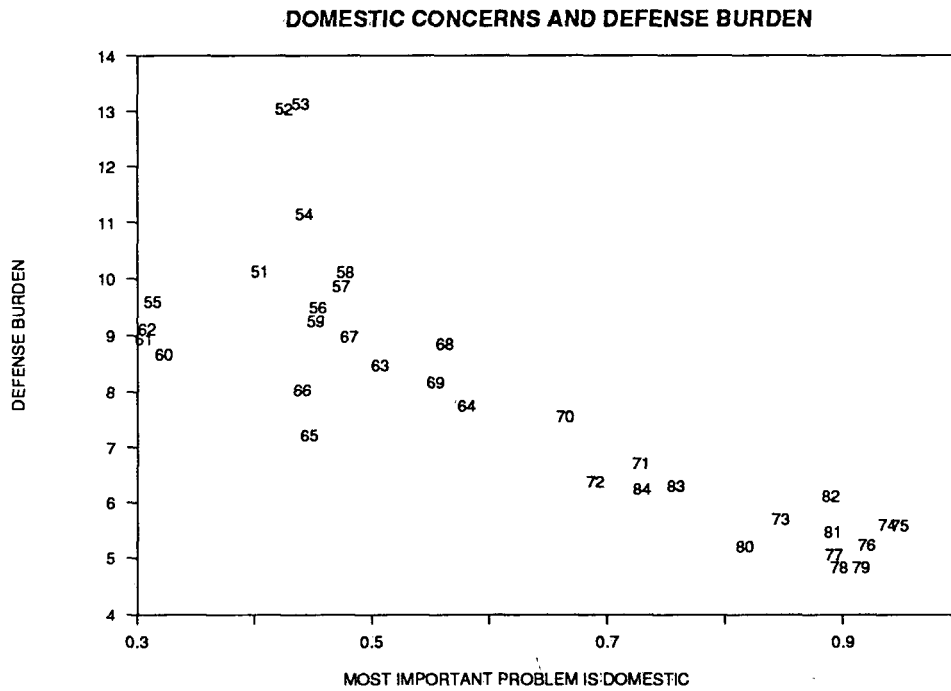
American Public Opinion: Country's Most Important Problem

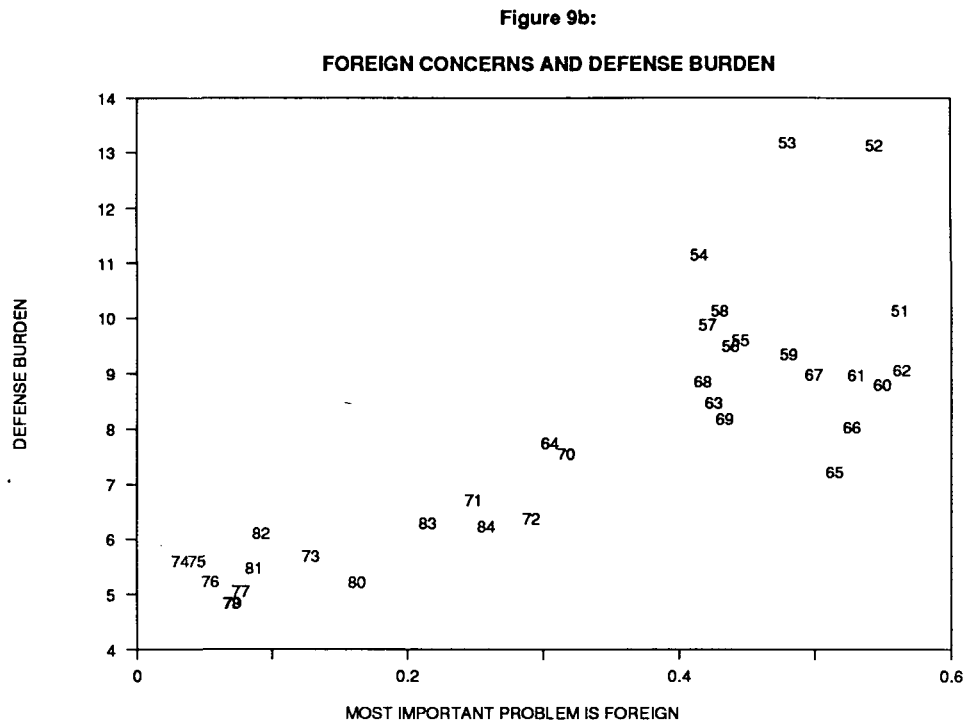


On the surface there seems to be a neat conjunction of public concerns and policy output. Figures 9a and 9b provide a graphic portrayal of the relationship between public concern for

domestic issues (including political, social, and economic) and defense burdens and public concern for foreign policy issues and defense burdens, respectively, for the period from the early 1950's through the mid-1980's. It would appear to be the case that as concern for domestic problems rise, policy makers respond by lowering the military burden and as concern for foreign policy issues increase in the mind of the public, they adapt by enlarging that burden.

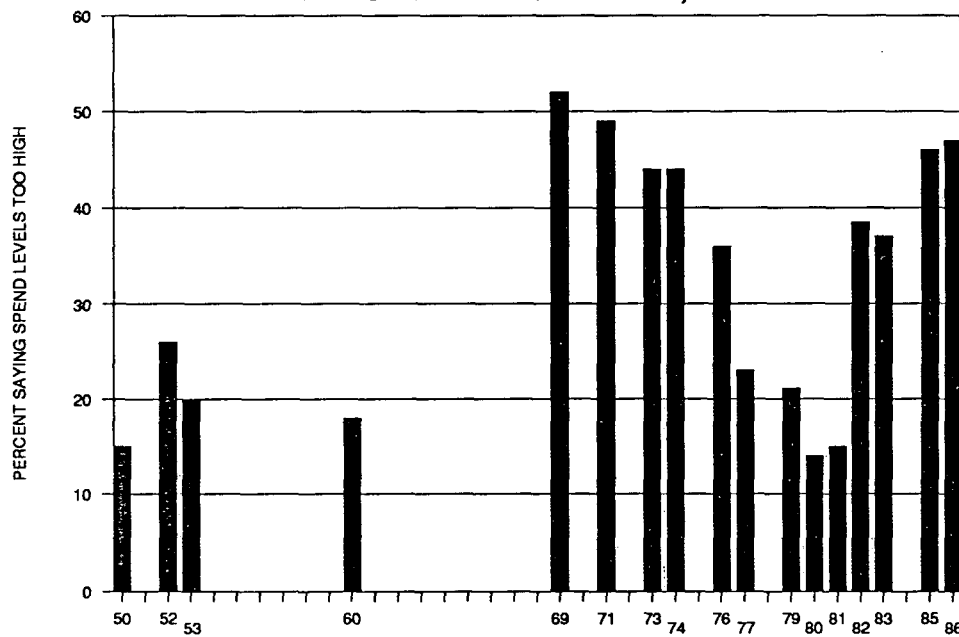
Figure 9a:



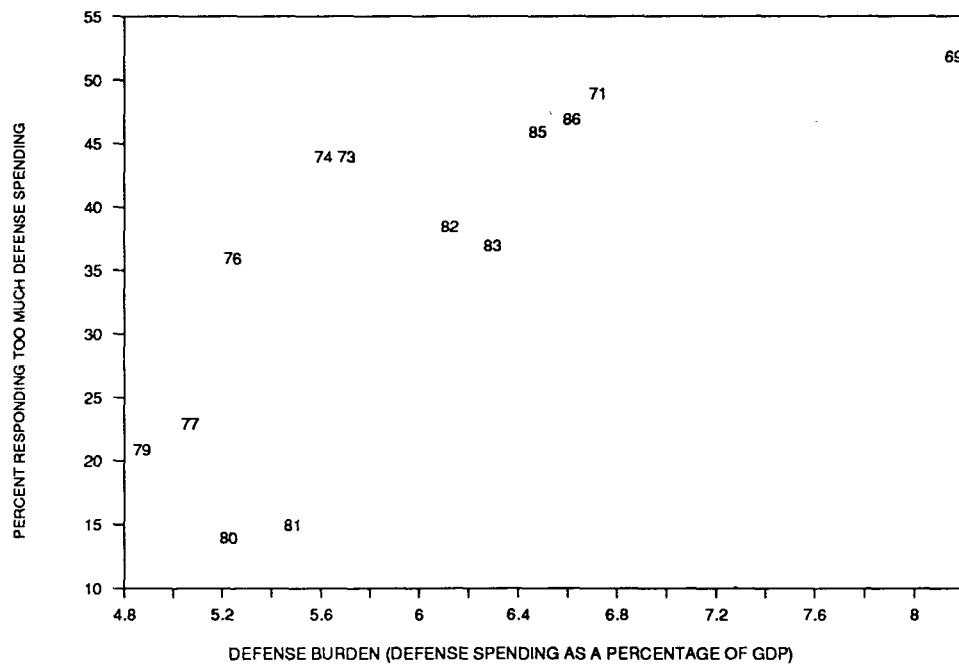


On the side of the public it is also clear that the willingness to support defense spending policies has changed over time. A limited set of observations are available on public support and opposition to contemporaneous defense spending levels. The extent to which the public believed that those spending levels were too high that have been observed are charted in Figure 10. Looking at the data for the last twenty years there appears to be a fairly strong correlation between the military burden and the percent of the public that believed spending levels were too high (see Figure 11). Indeed, regressing the public opinion index on the defense burden variable produces a very good fit and suggests a fairly strong positive relationship between the level of the military burden and the proportion of the public opposed to it because of its excessiveness.

**Figure 10:**  
**THE EVOLUTION OF OPPOSITION TO**  
**DEFENSE SPENDING POLICIES, 1950-1986**



**Figure 11:**  
**DEFENSE BURDEN AND PUBLIC OPINION**  
 1969-1986



$$MTMUCH_t = 10.97 * MBURDEN_t - 29.56$$

(3.77)

$$\bar{R}^2 = .56$$

(data for thirteen annual observations, 1969 through 1986)

$MTMUCH_t$  = Percent responding that too much money being spent on defense in

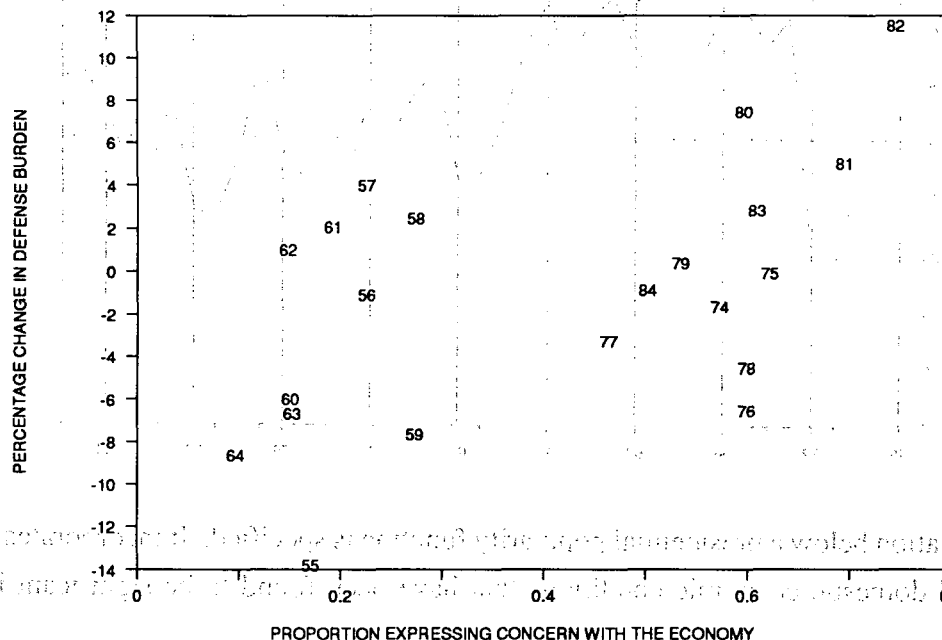
year  $t$

$MBURDEN_t$  = Military expenditures as a percentage of GDP in year  $t$

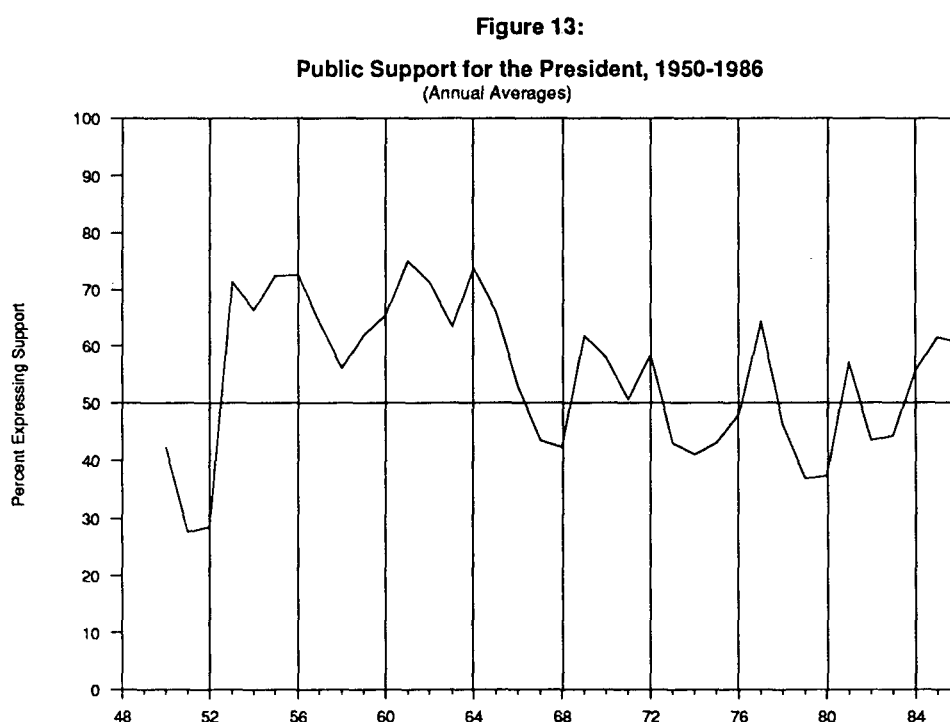
Nonetheless, on the side of public officials there also seems to be signs of a willingness to treat public concern for economic issues as a signal for increasing defense spending. As seen in Figure 12, which presents data on the extent to which the public saw economic problems as being the most important problem confronting the nation and the change in the military burden that occurred over the next year during peace time periods of the post World War II era, there is the hint of a positive relationship. In other words, years of strong public concern were followed by increases in the military burden (or smaller decreases) than were years where the public expressed more concern with non-economic issues.

Figure 12:

ECONOMIC PROBLEMS AND CHANGE IN U.S. DEFENSE BURDEN  
NON-WAR YEARS: 1955-1964, 1974-1984



At the beginning of this section allusion was made to the importance of public opinion to decision makers. Certainly there seems to be some evidence of public opinion both responding to and affecting the policy outcomes in ways that suggest that national security policy, at least as embodied in military burdens and outlays, is not insulated from public sentiment. One of the ways this may occur is through the expression of support and opposition to the president in public opinion polls. Traditionally, political scientists have treated this variable as almost exclusively subject to public satisfaction and dissatisfaction with prevailing economic conditions, idiosyncratic factors with respect to particular presidents or administrations, and attrition in acceptance that comes about naturally with the passage of time and recognition that performance is not going to match promise. I would like to suggest that the post World War II competition with the Soviet Union may also be a significant factor in shaping support and opposition to the president. (Annual average support for the president scores, drawn from the Gallup report, are charted in Figure 13). Implicit here and to be explicated later is the idea that this may be a significant way in which external forces come to bear in shaping defense spending decisions (cf., Ostrom and Marra, 1988).



In the equation below a presidential popularity function is specified. It incorporates some of the principal domestic economic conditions that have been found to be significant in the



determination of executive support (cf., Paldam, 1981; Lybeck, 1986). Thus inflation and unemployment enter into the equation and are treated as interactively influencing support to the extent that the public sees economic problems as important.<sup>14</sup> Additionally, a time in office term and a factor meant to capture the negative consequences of the Vietnam war on presidential popularity are included.<sup>15</sup> Finally, I have included a term that is meant to reflect the impact of the competitive relationship between the Soviet Union and the United States. This is operationalized by taking the ratio of Soviet to American military spending and weighting that by an exponent that reflects the importance of non-Vietnam War related concern by the public for foreign affairs.<sup>16</sup>

The fit of the equation to the data is moderately good (adjusted  $R^2 = .56$ ). Most of the estimated coefficients in the equation, however, do not take on very significant values. What comes through clearly though is the importance of Soviet American military balance in shaping the public's support for the president. Imbalances favoring the Soviets, particularly when these occur during periods of general concern for foreign affairs, weigh in to suppress support for the president.

$$\begin{aligned}
 PSUPP_i = & 2.521 \cdot TELEC_i - 1.501 \cdot MISPROB_i \\
 & \quad (1.761) \quad \quad \quad (-1.562) \\
 & - 4.274 \cdot WARIND_i - 44.539 \cdot SMPROB_i + 89.754 \\
 & \quad (-0.566) \quad \quad \quad (-3.840) \quad \quad \quad (9.581) \\
 \bar{R}^2 = & .56 \\
 F_{(4,19)} = & 8.39 \\
 DW = & 2.035
 \end{aligned}$$

where:

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<sup>14</sup> On the role of the importance that the public attaches to different problem areas and the effects this has on its support for the president, see Ostrom and Simon, 1984). Data on unemployment and inflation come from The Council of Economic Advisers, *Economic Report of the President, 1987*. Data on the public's concern for economic problems derives from various issues of *The Gallup Report* and Smith (1985).

<sup>15</sup> Here I use a war mobilization index, originally employed in Nincic and Cusack (1979).

<sup>16</sup> Data on Soviet military expenditure are taken from Brada and Graves (1988), *The Slowdown in Soviet Defense Expenditures, The Southern Economic Journal*. Data on U.S. military expenditures derive from The Council of Economic Advisers, *Economic Report of the President, 1987*. Information on public concern for foreign affairs and the Vietnam War derive from various issues of the *The Gallup Report* and Smith (1985).

<i>PSUPP</i> =	Percent indicating support for the president
<i>MISPROB</i> =	$(INFL \cdot UNEMPL)^{ECMIP}$
<i>INFL</i> =	Annual inflation rate
<i>UNEMPL</i> =	Average unemployment rate
<i>ECMIP</i> =	Proportion responding that economy is most important problem confronting nation
<i>SMPROB</i> =	$\left( \frac{SOVMLX}{USMLX} \right)^{(FMIP - VIETMIP)}$
<i>SOVMLX</i> =	Soviet military expenditures
<i>USMLX</i> =	United States' military expenditures
<i>FMIP</i> =	Proportion responding that foreign affairs represent most important problem confronting nation
<i>VIETMP</i> =	Proportion responding that Vietnam War represents most important problem confronting nation
<i>TELEC</i> =	Time (years) to next presidential election
<i>WARIND</i> =	$War mobilization index = x^{d_t}$ , where:
	$d_t =  t - p $
	$t = WarYear$
	$x = .5$
	$p = WarPeakYear = 2$

## THE DYNAMICS OF AMERICAN MILITARY SPENDING: INTERNAL VS EXTERNAL SOURCES

### AN OVERVIEW

In the effort to understand the forces shaping the dynamics of American military spending analysts have been prone to rely mainly on one or another general approach. The approach with the lengthiest history focuses on external conditions and generally is cast within an "arms race" framework. Richardson's (1960) system of equations is the basis of most of the models employed within this tradition. On the other hand a fair number of analysts have argued that the roots of arms spending reside in internal factors. Early on the dominant tendency here was to focus on bureaucratic and organizational politics schemes as frameworks for accounting for the movement

in defense spending. This emphasis on internal factors began to shift focus later as developments within other areas of public policy analysis began to demonstrate the utility of political-economic theoretical structures.

As one important review (Russett, 1983) of this literature has noted, the purely external model of the Richardson sort has not met with a tremendous amount of success in accounting for the dynamics of U.S. military spending. There have been efforts to further elaborate on this approach over the last decade and some measure of success has been achieved particularly when the model has incorporated within it a richer set of constituent elements and more plausibly based theoretical justification in terms of the putative decision making process that are argued to produce the outcomes of interest.

One of the first attempts at placing the defense spending question within a framework where the entire budgetary decision making process is represented was that by Fischer and Crecine (1979). Using a "top-down" approach to the budgetary process that allowed the constraints implied in fiscal authorities own preferences and the pressures from competing spending authorities to come into play, they found that there was little evidence to suggest that U.S. defense spending responded in a "fine-tuned fashion to marginal changes in Soviet activities." (p.36) Later work by Fischer and Kamlet (1984), however, modified this conclusion. Using the "Competing Aspiration Levels Model" (CALM) which allows for both "top-down" and "bottom-up" influences within the overall budgetary process to manifest themselves, they found evidence to the effect that marginal changes in Soviet defense spending did work themselves through to influence American military spending decisions in a way consistent with the Richardson action-reaction model (p.366). Still later efforts have provided some supportive and some contradictory evidence. Further support within a structurally rich modelling framework (Ostrom and Marra, 1986), wherein contemporaneous estimates of the great undefinable, Soviet military spending levels, was employed, demonstrated American decision makers' sensitivity to Soviet efforts when finalizing U.S. military spending levels. Kieffer's (1988) long-term analysis of American federal budgetary behavior, however, found little support for the action-reaction perspective. Furthermore, an effort to employ a sophisticated representation of the weapons-stock and budgetary interactions inherent to a competitive arms process between the United States and Soviet Union once again brought forward the kind of counter-intuitive results that the U.S. may be responsive to Soviet efforts but in a disarming sort of way (Ward, 1984).

Some of my own work (Cusack, 1981, 1985, 1987) has attempted to combine these two innovations in the area of defense budget analysis. This work has relied on the CALM framework, deriving from the Carnegie-Mellon analysts, and used a combination of physical capability indices and budgetary concepts. It has also attempted to integrate a representation of the changing structure of international threats that confront policy-makers (Deutsch and Singer, 1963; Russett, 1983) as well as some of the concerns for domestic political economic problems that constrain budgetary decision makers (Frey, 1978; Nincic and Cusack, 1979). This model has been applied successfully to an extensive number of western industrialized democracies, including the United States (1987) as well as to a very mixed sample of states that included not only western industrialized democracies, but third world and communist states (Cusack, 1985). One of the central findings that emerged from both studies was that the potential threat to a state's security manifested in the conjunction of the behavior and capabilities of other states appears to be a significant stimulative factor for many states in the determination of budgetary outcomes. At least as critical, if not more so, however, was the apparently strong and controlling influence that fiscal authorities' and their concerns for demand management have on shaping both the overall budget as well as defense spending.

## **A POLITICAL-ECONOMIC MODEL OF AMERICAN MILITARY SPENDING**

### **BACKGROUND**

Some time ago, Miroslav Nincic and I (Nincic and Cusack, 1979) advanced the idea that some of the primary forces shaping the size of the American military establishment stand outside of the usually cited factors of (1) external conditions (e.g., the Soviet "threat," engagement in "hot" wars, etc) and (2) bureaucratic inertia, the two dominant models in use. We suggested that a significant element in shaping the defense budget derived from domestic political-economic problems confronting governing elites. There were two central points to our argument. On the one hand, it was hypothesized that in advanced capitalistic societies, an active fiscal policy was necessary but would be tightly constrained and channelled. If it were to preserve the interests of the entrenched and powerful, and not undermine itself by using the Keynesian weapon of demand management by government in system destructive ways (i.e., social spending and entitlements which would loosen the ties that bind the great majority of people to the

discipline of the labor market), then government would have to rely heavily on military spending as a fiscal policy instrument. This instrument has the "appealing" qualities of neither being redistributive in an egalitarian way nor capable of enhancing the level of social citizenship. On the other hand, we argued, extending the Zurich public choice school thesis, that military spending would also be subject to the kinds of manipulations favored by politicians through the course of the "electoral cycle." That is, we conjectured that "critical moments" in the electoral calendar would prompt "pump-priming" or greater military spending as an election approached and the reigning party sought to assure its future tenure in office.

Our effort was innovative to the extent that we brought together these two strands of political-economic reasoning and that we attempted to loosely formalize and test them against empirical data. On the whole we were sufficiently impressed with the results of the latter which suggested that, by prevailing standards, it had not been disconfirmed.

Since that time a number of other studies have examined this question from a variety of perspectives. On the whole, the conclusions that have been drawn represent a fairly mixed picture. On the negative side, Ted Goertzel (1985) reports but does not provide very persuasive proof to substantiate his conclusion that the "evidence shows ... that fluctuations designed to influence the business cycle have only a minor effect on military spending patterns" in the United States. His analysis focuses on revenues and competing expenditure items and seeks to show that defense is (a) weak contender in the competition for scarce federal resources and (b) one that can acquire, for a limited period, greater resources when international events appear (in the public imagination) to threaten the security of the United States.<sup>17</sup> Gert Krell (1981), in a long and detailed recounting of post-World War II economic tendencies within the U.S. has attempted to evaluate the plausibility of what he describes as three "economistic" models of American military spending. These included (1) the military industrial complex notion, (2) the capitalist growth imperative idea, and (3) our argument with respect to the impact of economic stabilization and the electoral cycle. Eschewing any econometric techniques and employing a variety of graphic and verbal illustrations, he concludes that each of these arguments is "inadequate." Michael Wallace (1980) also examined the question in an attempt to evaluate directly the relative

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<sup>17</sup> The techniques that Goertzel employed are fraught with statistical problems. He estimated four equations singly. Together, however, they clearly compose a system of equations and ought to be estimated as such. Additionally, despite using time series, he apparently failed to check for and deal with any autocorrelated errors. Even with inappropriate techniques, he failed to substantiate his claim. When he shifts his focus to an alternative measure for defense (using "burden"), the results accord with his conclusion--however, his coding of "WARYR" appears somewhat inconsistent.

impact of exogenous and endogenous influences on defense spending and concluded that "[n]either presidential elections nor unemployment appear to have any significant impact at all" on U.S. military spending. Harold Jacobson's (1985) interesting paper on public opinion and American military force structure does not directly examine the question but provides a succinct statement of this contrary view: "There is no evidence to support a claim that the federal government increases military spending so as to improve economic conditions in election years"(p.12). Perhaps the most exhaustive critical examination of the thesis can be found in Gary Zuk and Nancy Woodbury's *Journal of Conflict Resolution* article in 1986.

From other work, by Thompson and Zuk, they suggest that the notion of political manipulated business cycles is not supported.<sup>18</sup> More relevant to the present concerns they focus on the determinants of American military spending. Here they adopted a different methodology than our own and employed different operationalizations of a number of variables. Substantively, they argue that the use of the aggregate demand term in the original model is problematic. Therefore, they use unemployment as a measure of the need for stabilization activity. They also argue that the relationship between presidential electoral cycle and defense spending spurious because both are associated with serious international dispute involvement on the part of the United States. Finally they suggest that electoral cycle effects should only show up during an election year. On the methodological side, they point out that the technique we employed may be inappropriate and they themselves employ an alternative, namely Box-Jenkins time series analysis. As a result they found little if no evidence to suggest that military spending is "used on a systematic basis by the president or Congress as a macroeconomic policy instrument and, by extension, not used for the purpose of winning elections."<sup>19</sup>

On the other side, there have been a number of studies with findings generally supportive of our position. Michael Ward and I (Cusack and Ward, 1981), in examining alternative models of defense spending, replicated the results of the original analysis for a slightly longer period (originally Nincic and I looked at the period from 1948 to 1976, Ward and I extended it to 1978 and found that the original results held). Griffin, et al (1982) came to generally similar conclusions as to the effects of stabilization concerns ("*in the U.S.*, military outlays (as a percentage of GNP) do appear to be employed as a counter-cyclical instrument by the state..."

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18 While the research cited by the authors is certainly not supportive of the political business cycle hypothesis, it is certainly clear that other researchers have provided either very strong or moderately supportive evidence for the notion (see especially, Frey, et al; Hibbs, 1987.)

19 I will return to most of these points in the paragraphs below.

(p.8)) and the electoral cycle (elections increase defense as a share of GNP (pp.10-11)). A similar conclusion was reached by Alex Mintz and Alexander Hicks (1984): first with respect to the electoral cycle ("elected state officials apparently use defense spending on the remuneration of military and civilian personnel of the U.S. Department of Defense to insure their reelection") and second with respect to stabilization concerns (unemployment shown to stimulate defense expenditures). Mintz's (1988) detailed analysis of DOD resource allocation patterns is also generally supportive of the importance of electoral cycle and stabilization policy concerns on defense outlays.

## **A REFORMULATION AND TEST**

In the main, I am still confident that the thesis Miroslav Nincic and I advanced earlier has more than a modicum of validity. My later work in this area (Cusack, 1985, 1987) has depended in part on it, and has attempted to fashion a synthesis of it and some other important elements, particularly with respect to the budgetary decision making process and the way in which international forces impinge on that process. I think, however, it is worthwhile going back to examine the ideas once more and particularly with an eye to attempting to rectify some of the problems others have raised (Zuk and Woodbury, 1986) and also to attempt to bring into the model an important element, public opinion, that was not explicitly incorporated originally.

The original model postulated that changes in American military spending were significantly contingent on three domestic political-economic factors: the presidential electoral cycle, stabilization policy concerns, and bureaucratic momentum. In addition, the mobilization for active involvement large scale international conflict (viz., the Korean and Vietnam Wars) was also held to play an important role in shaping changes in American military outlays. Estimating the model for the period 1948 through 1976, using total military outlays, and then disaggregating these and using outlays on personnel and on procurement, respectively, it was found that the overall fit of the model was quite good and that the estimated parameters of the model took on the predicted signs and were generally significant. As noted above, replicating this for a slightly longer period (1948-1978) proved an equally successful undertaking.

A reexamination is in order. Three reasons substantiate this claim. First, another eight years of data are available and it is a reasonable expectation to have of any model that it can deal adequately with a broader sample of observations than that on which it was originally estimated. Second, five of these new data points fall within a period of time during which the Reagan administration can be said to have had effective control of the determination of the

defense budget. If, as argued above, this administration's policies in the military area really conform to the post-World War II American tradition, then the model ought to continue to perform adequately for these years. Third, this undertaking permits the introduction of some improvements to the model, improvements which are consistent with the basic theoretical thrust of the argument and improvements which rectify some of the methodological weaknesses endemic to earlier efforts at estimation.

Instead of formulating the model in terms of first differences, it is specified in the form of a lagged adjustment process. Thus, a set of exogenous variables are postulated as determining a target level of defense expenditures:

$$Y_t^* = \sum \beta_i X_{it}$$

As with most social systems, adjustment between actual and desired levels is not likely to be instantaneous. Therefore, the relationship that should hold between these two variables should take on the following form:

$$\frac{Y_t}{Y_{t-1}} = \left( \frac{Y_t^*}{Y_{t-1}} \right)^a$$

with the parameter,  $a$ , representing the rate at which existing levels of defense outlays adjust to the desired value over the period. The advantage of this form is that it leads to more readily interpretable coefficients than the form used previously and implicitly incorporates in a substantively meaningful way the workings of bureaucratic and other forms of inertia that we awkwardly attempted to include in our previous specification.

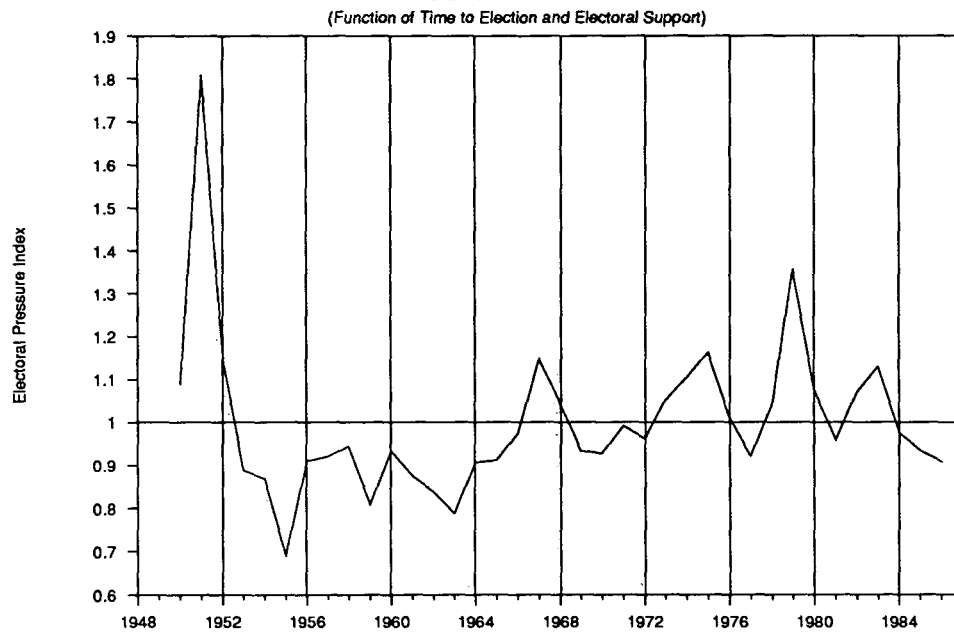
With this type of specification, then, the bureaucratic inertia term is implicitly included. Turning to the electoral cycle variable, one of the putative determinants of the desired and actual level of defense outlays, it seemed appropriate, given the availability of public opinion data tapping voter support, to go beyond the simple type of dummy variable formulation previously used by us and others. Work by Frey and others also suggested that electoral cycle term wherein not only time but also the majority or minority position of the administration in terms of popular support would be a superior indicator. Thus, included in the specification of the desired level of defense expenditures is a term that captures the influence of presidential electoral concerns (*ELECP*) in the following way: the distance between a desired (better yet, required) level of public support and the actual level of support is weighted by the time to the next presidential



election. The notion here is that the administration knows that it needs to achieve a majority of public support but that its concern for the level of performance it has with respect to public support will increase the closer it comes to an election. In operational terms this was captured by taking the ratio of two terms, the constant of 50% to the base of the present level of public support for the president as measured in the Gallup polls, and then raising this ratio to the power of another ratio, the constant 1 divided by the integer representing the number of years to the next presidential election.

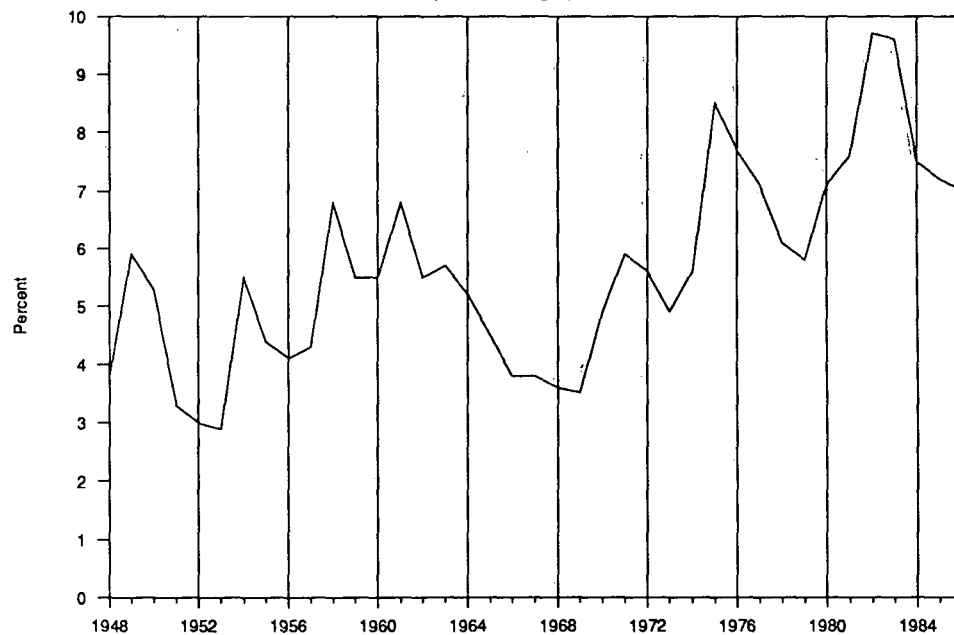
In terms of economic stabilization concerns, the original model used the change in aggregate demand. Though Zuk and Woodbury's suggestion that this term is inappropriate seems unfounded, there is a lot to be said for relying on the unemployment term that most other analysts have tended to use. It has a relatively straightforward interpretation and is perhaps of more salience to public officials. Therefore, the present specification substitutes the percentage unemployment (*UNEMP*) variable in the place of the change in aggregate demand term. The final term in the original model was meant to represent the influence of war time mobilization (*WARIND*, described above). Zuk and Woodbury criticize the use of a generic variable to capture the effects of two different wars, but on the face of it this is a not terribly compelling argument. That aside, given data limitations it will be possible to estimate the model for the period 1953 through 1986. In effect, this means that only one year of the Korean experience, 1953, is included in the sample. This ought to limit any putatively deleterious effects from such a specification. Plots of the electoral pressure term, *ELECP*, and the unemployment term, *UNEMP*, are presented in Figures 14 and 15, respectively.

**Figure 14:**  
**Electoral Pressure**



**Figure 15:**

**U.S. UNEMPLOYMENT RATE, 1950-1986**  
(Annual Averages)



Finally, two terms representing manifestations of public concern for areas of national life have been added to the model. The first term, *EMIP*, measures the extent to which the public expresses concern with economic affairs. To the extent that our thesis is correct that American

public officials see a public acceptance in the use of military spending as a palliative for economic problems, one would expect that they would be prone to increase defense expenditures as the public manifests increasing concern with economic questions. A second public opinion variable, *FMIP*, capturing the extent to which the public is concerned with foreign affairs, ought to capture a number of influences that analysts have argued to exist within the American framework. Harold Jacobson (1985), for example, sees defense spending decisions as very sensitive to public opinion. In another analysis of U.S. defense spending decisions, Ostrom and Marra (1986) have also demonstrated its centrality. Through this factor, some of the exogenous influences of the external environment may also be captured.

Taking these terms together, then, the desired level of defense expenditures can be specified as follows:

$$MLX_t^* = A \cdot ELECP_{t-1}^{\beta_1} \cdot UNEMP_{t-1}^{\beta_2} \cdot EMIP_{t-1}^{\beta_3} \cdot FMIP_{t-1}^{\beta_4} \cdot WARIND_t^{\beta_5}$$

where:

*MLX* = US military expenditures (1982 dollars)

*ELECP* =  $\left( \frac{50.0}{PSUPP} \right)^{\frac{1}{TELEC}}$

*PSUPP* = Annual average of percent supporting president (Gallup Poll)

*TELEC* = Time (years) to next presidential election

*UNEMP* = Percentage unemployment rate

*EMIP* = Public concern with economic problems

*FMIP* = Public concern with foreign problems

*WARIND* = War mobilization index, defined above

The adjustment process, per above, is:

$$\frac{MLX_t}{MLX_{t-1}} = \left( \frac{MLX_t^*}{MLX_{t-1}} \right)^\lambda$$

Substituting terms leads to an estimable form (after log transformations take place on both sides):

$$MLX_t = A^\lambda \cdot ELECP_{t-1}^{\beta_1 \lambda} \cdot UNEMP_{t-1}^{\beta_2 \lambda} \cdot EMIP_{t-1}^{\beta_3 \lambda} \cdot FMIP_{t-1}^{\beta_4 \lambda} \cdot WARIND_{t-1}^{\beta_5 \lambda} \cdot MLX_{t-1}^{1-\lambda} \cdot u_t$$

Using a double log transformation, the equation was estimated for the period 1953 through 1986. Given the presence of a lagged endogenous variable in the equation, a series of steps needs to be followed. Hibbs (1974) has demonstrated that a dynamic model such as the one above, which incorporates a lagged endogenous variable, cannot be estimated with OLS since the combination of the lagged variable and autocorrelated disturbances produces biased and inconsistent estimates of the parameters. Nor is a direct application of pseudo Generalized Least Squares warranted either. Hibbs has shown that the use of an extended form of Instrumental Variables procedure can secure consistent and efficient pseudo GLS estimates with an equation similar to that above, i.e., one of the following form:

$$Y_t = BY_{t-1} + \sum_k \gamma_k X_{kt} + u_t$$

The technique involves four stages. First, the systematic component of the lagged endogenous variable must be created. This is done by using OLS on a model with the lagged endogenous variable set as a function of exogenous instrumental variables, viz.,

$$Y_{t-1} = \sum_k a_k X_{kt} + \sum_k \delta_k X_{kt-1} + \eta_{t-1}$$

The results of this provide an estimate of the systematic component of the lagged endogenous variable,

$$\hat{Y}_{t-1} = Y_{t-1} - \hat{\eta}_{t-1} = \sum_k \hat{a}_k X_{kt} + \sum_k \hat{\delta}_k X_{kt-1}$$

This systematic element is employed in the second stage to generate consistent estimates of the original model's parameters which is done by substituting for the lagged endogenous variable its "purified counterpart" in another OLS regression:

$$Y_t = \beta \hat{Y}_{t-1} + \sum_k \gamma_k X_{kt} + w_t$$

The third stage combines the original data and model specification with the consistent estimates of the parameters for the purified counterpart of the lagged endogenous variable and the exogenous variables developed in the second stage to generate estimates of the original disturbance term,  $u_t$ :

$$\hat{u}_t = Y_t - \left( \hat{B}Y_{t-1} + \sum_k \hat{\gamma}_k X_k \right)$$

These can be used to determine the structure of any autoregressive-moving average process peculiar to the error term and allow the estimation of the coefficients of that process.

In the fourth stage the variables in the original model are transformed in light of the estimated structure and coefficients of the time dependence in the disturbances, and the pseudo GLS estimates of the model's parameters estimated. In the case of the present model, evidence of a second order autoregressive process was detected. This entailed the need for the following general transformation to the data:

$$\tilde{Y}_t = Y_t - \theta_1 Y_{t-1} - \theta_2 Y_{t-2}$$

$$\tilde{X}_t = X_t - \theta_1 X_{t-1} - \theta_2 X_{t-2}$$

The final estimation results for the equation are reported below. With respect to the estimated parameter values related to variables from the original model, all take on signs that were expected and are generally significant, although the value for the electoral pressure term is significant at only the .10 level. Both of the public opinion concern variables have estimated parameters that are positive and significant, suggesting that not only public worries about foreign affairs but also for domestic economic problems are seen as signals to the administration to stimulate defense spending.

$$\begin{aligned} \ln MLX_t = & -.0291 + .1373 \ln ELECP + .0894 \ln UNEMP + .0552 \ln EMIP \\ & \quad (-.068) \quad (1.609) \quad (2.567) \quad (2.474) \\ & + .0464 \ln FMIP + .2943 \ln WARIND + .9085 MLX \\ & \quad (2.777) \quad (4.496) \quad (13.251) \end{aligned}$$

$$\overline{R}^2 = .9012$$

$$F_{(6,27)} = 51.15$$

By themselves, the estimated parameters do not directly convey information on the nature of the relationships between the independent and dependent variables. They can best be evaluated by transforming them back to the elasticities and constant specified in the desired defense equation and into the adjustment term specified in adjustment process equation. The values of these parameters, after the appropriate transformations, are detailed immediately below.

$$\lambda = 0.092$$

$$\beta_1 = 1.500$$

$$\beta_2 = 0.977$$

$$\beta_3 = 0.603$$

$$\beta_4 = 0.507$$

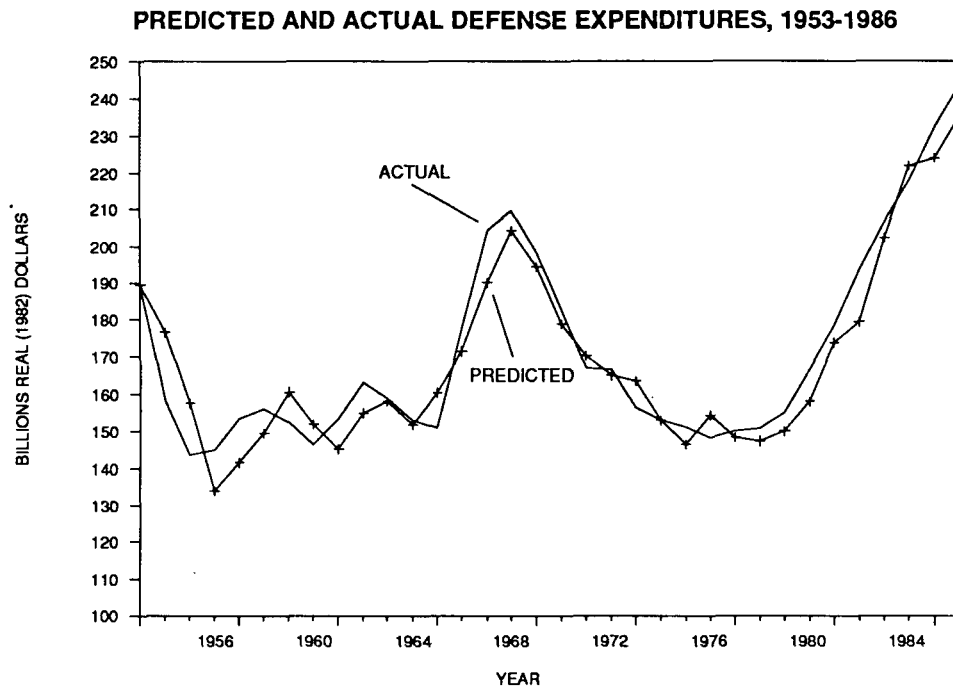
$$\beta_5 = 3.216$$

$$A = 0.7276$$

In terms of desired military spending, then, the expectations regarding the influence of the electoral cycle and stabilization policy concerns are substantiated to a fair degree. The elasticity on the electoral cycle term,  $\beta_1$ , is greater than unity and thereby suggests a strong sensitivity to electoral pressures with a tendency for the administration to seek greater military outlays during periods when their support is below a majority level and a presidential election is approaching. Stabilization policy concerns are also evident. The elasticity on the unemployment term,  $\beta_2$ , is approximately one and indicative of a desire on the part of administrations to match any increase in unemployment with a corresponding increase in defense outlays. As noted above, the parameters,  $\beta_3$  and  $\beta_4$ , of both public opinion concern variables take on positive values. However, both are less than unity and indicative of a somewhat less sensitive response to these stimuli on the part of decision makers. Nonetheless, they indicate that decision makers see not only public concern for foreign affairs but also public worries about domestic economic problems as signalling the need for a response on their part by increasing the targeted defense spending levels. As expected, the elasticity on the war mobilization term,  $\beta_5$ , takes on the correct sign and suggests a highly sensitive response to war involvement in decision makers' objectives with respect to military outlays. The estimated adjustment term,  $\lambda$ , takes on a value of .092. This indicates that the authorities' target with respect to defense outlays is met with by a response that accords with the direction that they wish military spending to move but that the rate of adjustment is quite slow. Thus, by way of example, if spending at  $t-1$  were 100 billion dollars, and the target that arose was 110 billion dollars for year  $t$ , then the change between  $t-1$  and  $t$  would equal 1.009 billion, i.e., spending in year  $t$  would equal slightly more than 101 billion dollars. In effect, the bureaucratic and other forms of political inertia within the system would appear to be fairly strong.

Not only have the estimated parameter values generally proven significant and in conformity with expectations, but the entire equation appears to do very well in tracking actual defense spending over the last three decades. The adjusted  $R^2$  is quite high: 90%. The actual and predicted values are charted in Figure 16, below.

Figure 16:



In sum, the evidence would once again seem to suggest that there is indeed support for the idea that domestic political economic factors play a not unimportant role in the determination of American military spending patterns. While some other analysts have been quick, perhaps too quick, to reject this hypothesis, there still seems ample reason to entertain the notion that American national security policy is not being driven exclusively by threats from a hostile environment and is indeed tightly constrained by developments and structures that are quite domestic in content.

## CONCLUSION

There were many facets to the Reagan Revolution. One of the most salient has been the tremendous upsurge in resources devoted to the military sector. Was this policy a break with traditional patterns (one interpretation of the term revolution), or was it simply a continuation of (or return to) past practice? Examining resource allocation patterns, both from the perspective

of the federal budget as a whole as well as from the perspective of the functional distribution of military outlays, the Reagan administration seems to have stayed within the mold or better yet, returned to the traditional ways other administrations have carried on their business in the post-World War II era.

Why does America spend so much, relative to others, on the military? An increasingly popular argument is that it is being exploited by its formal and informal allies who have gotten into the habit of shirking their rightful burdens. An alternative interpretation would suggest that given America's hegemony and the domestic political economic constraints that operate on such an advanced capitalist system, the burden that it shoulders is perfectly understandable. In particular, the need for government to act in some way to stabilize the economy, when combined with the relatively weak position of American labor, makes defense one of the main props of any demand management policy and therefore enlarges the share of societal resources public authorities will allocate to it.

Public opinion is not detached from national security problems. It is influenced and influences developments in this sphere. One of the most salient results that emerged from our brief examination of trends in post-World War II public opinion is the extent to which presidential success in gaining support from the public hinges critically on the arms competition between the U.S. and the Soviets and the degree to which the public has focused its attention on foreign affairs problems.

There are more than a few competing claims about the nature of the forces shaping the dynamics of American military spending. Conventional wisdom sees the U.S. as responding directly to a growing Soviet threat. But most analyses based on this vision have produced null or contrary results. This paper has examined an alternative argument that has probably many more opponents than proponents. The argument suggests that there are powerful domestic political-economic forces shaping the defense budget, in particular, the tendency to rely on it as a tool of fiscal policy and to exploit it for electoral purposes. The analysis conducted here lends a measure of support to that argument. Given that this argument was originally formulated and tested for a period prior to the Reagan administration, its successful performance for the Reagan era suggests once more that the latter has not broken the mold of post-World War II American policy but simply continued the policies of the past.



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