

# Guns Yield Butter? An Exploration of Defense Spending Preferences

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[journals.sagepub.com/home/jcr](http://journals.sagepub.com/home/jcr)**Laron K. Williams<sup>1</sup>****Abstract**

The popular notion of a trade-off between social and defense spending—or *guns versus butter*—appears often in elite discourse, popular media, and empirical studies of budgetary politics. Yet, there are good reasons to suspect that the public's preferences for these types of spending do not reflect that trade-off. I develop a theory that whether social and defense spending preferences are competing or complementary depends on if the respondent views the government as an important contributor to job creation. Using data from fifty-nine surveys in twenty-seven countries from 1985 to 2008, I show that favoring government-financed job creation makes a respondent much more likely to view social and defense spending as complementary. Indeed, aside from the anomalous case of the United States, preferences are consistent with *guns yield butter* instead of *guns versus butter*. This theory has important implications for the thermostatic model of policy responsiveness and theories of budgetary politics.

**Keywords**

defense spending, public opinion, welfare spending, responsiveness

Every gun that is made, every warship launched, every rocket fired signifies, in the final sense, a theft from those who hunger and are not fed, those who are cold and are not clothed. This world in arms is not spending money alone. It is spending the sweat of its laborers, the genius of its scientists, the hopes of its children.

Dwight D. Eisenhower (April 16, 1953, "The Chance for Peace")

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The notion that military spending comes at the expense of domestic spending is part of the conventional wisdom in budgetary politics, partly due to the rhetoric of leaders like President Eisenhower. More recently, this potential trade-off has become all the more ubiquitous, as politicians of various ideologies frame debates over budgetary matters as one of “guns versus butter” (see, for instance, debates over sequestration cuts in the United States; Horsley 2012). Early empirical analysis of long-term budgetary allocations revealed a considerable trade-off; Russett (1969, 417) concludes that “guns [. . .] come at the expense of butter.” At the same time, research looking beyond the United States has shown little evidence of defense spending displacing welfare spending (e.g., Domke, Eichenberg, and Kelleher 1983). What is not clear, however, is whether the foundation for patterns of expenditures is rooted in the public’s perceptions of budgetary trade-offs. In short, does the public perceive guns to be competing with butter or are they perceived to be complementary? Furthermore, how do individual preferences and national contexts moderate the perceptions of trade-offs?

I demonstrate that the conventional wisdom of a budgetary trade-off between welfare and defense spending *preferences* is an artifact of an overemphasis on the US case. Because of its unique status as a global superpower, defense spending is a highly politicized issue, rife with public proclamations from party leaders, members of the media, and other elites that any increase in defense spending must be met with slashes in welfare spending. I develop a technique to estimate the relationship between the preferences for social and defense spending or the *guns/butter effect*. Using data from fifty-nine surveys in twenty-seven countries from 1985 to 2008, I show that this type of *guns versus butter* reasoning is not prevalent either in survey-specific models or in pooled models of survey respondents in advanced democracies.

Rather than the popular notion of *guns versus butter*, I develop a theory that individual preferences are most often driven by a *guns yield butter* dynamic. The theory suggests that in the relative peace of most advanced democracies since the late-Cold War era, individuals are unlikely to consider their spending preferences as competing. Instead, voters understand that preferences for increases in one do not trigger reflexive reductions in the preferences of the other. I argue that voters who are more supportive of welfare spending, coupled with favorable attitudes toward government-financed job creation, will be supportive of increases in defense spending. This is consistent with the notion that defense spending can be viewed as welfare spending in disguise due to its potential positive impacts on employment and aggregate demand (Whitten and Williams 2011). In fact, I find that the more common relationship is that the two spending preferences are complementary and that voters who favor increased welfare spending subsequently also support increased defense spending. This is especially the case for those who favor the government taking an active role in job creation. I also offer a theory explaining why some contexts view the two spending types as complementary while others view as competing. Contexts where defense spending is salient—whether due to the national security situation or elite messages—are more prone to viewing the two as

trade-offs. Furthermore, when the economic and political situation makes it easier to justify a larger defense burden, concerns about trade-offs are minimized.

In addition to producing novel expectations about the complementary nature of welfare and defense spending preferences, the theory presented here offers three implications for other prominent literatures on public opinion. First, the strong interplay between the public's defense spending preferences and policy output (e.g., Hartley and Russett 1992; Higgs and Kilduff 1993; Eichenberg and Stoll 2003), foreign policy attitudes (Bartels 1994), and political support (Ladd 2007; Williams 2015) means that shifts in public opinion have important consequences for budgetary appropriations, government composition, and the growth of the size of government overall. Second, this study questions the result that public responsiveness to defense spending will be limited to situations where national security is paramount (such as the United States, see Wlezien 1996, 100). Indeed, I present strong evidence of policy responsiveness at the individual level in a broad sample of democratic regimes, in the pattern theorized by the thermostatic model (Wlezien 1995). Third, the findings reveal the extent to which pro-military parties can use the national security environment to mobilize greater support for defense spending. Individuals are generally supportive of increases in the six months following a hostile international dispute, which indicates that leaders can use these external threats to justify their domestic spending priorities. The findings also paint a picture of preferences in allied countries being constrained somewhat by American spending decisions. These individuals respond to increases in American military expenditures by becoming *more* supportive of increases in their own country, not *less* (Palmer 1990). Given that these preferences are inconsistent with free riding, leaders may find it difficult to justify spending increases if US spending stagnates.

In the sections that follow, I first explore the origins of defense spending preferences, paying particular attention to the empirical irregularities of the guns versus butter trade-off. Second, I introduce my theory explaining the complementary nature of these preferences. Third, I present the research design used to estimate the *guns/butter effect* across countries. I interpret the findings and demonstrate that the guns versus butter notion is a product of the unique case of the United States. I then offer the first empirical model of its kind that explains why preferences are complementary in most contexts but competing in others. In the final section, I conclude and offer a number of implications for other areas of public opinion research.

## Foundation

Studies of the origins of defense spending preferences are relatively rare. A useful starting point is the study by Eichenberg and Stoll (2003), which analyzes the connections between defense spending and preferences, as well as how preferences affect budgeting decisions. By examining long time series (1960s to 1998) in five advanced democracies (France, Germany, Sweden, United Kingdom, and United

States), they find evidence that defense spending decreases in response to increases in the spending level, a finding that is consistent with the thermostatic model described below. While helpful in showing how aggregate trends respond to international conditions and spending levels, this study masks a great deal of individual-level variation in these attitudes. Other studies model preferences for defense spending (e.g., Kriesberg and Klein 1980; Bartels 1994), but their focus on the American case considerably limits the breadth of their inferences.

The bulk of our understanding about defense spending attitudes flows from the guns versus butter cliché. This notion of a budgetary trade-off between welfare and defense spending features prominently in elite discourse and media messages in times of heightened attention to fiscal matters. For example, in debates over sequestration in the United States, politicians from both major parties framed the debate in terms of guns versus butter (Horsley 2012). Characterizing the budget as a zero-sum calculation makes sense when the budget is viewed as a fixed amount. Berry and Lowery (1990, 672) summarize this nicely: “unless one is willing to assume that budgeting takes place in an environment characterized by abundance rather than scarcity, and in which there is no ‘top-down’ effort to balance competing claims, trade-offs are inevitable.” Although the evidence for this trade-off is rather ambiguous (Peroff and Podolak-Warren 1979), the trade-off is more pronounced when there are increased casualties from conflicts or increased Soviet spending (Berry and Lowery 1990) or when defense spending is the primary emphasis of the administration (Kamlet, Mowery, and Su 1988; Mintz 1989).

One should be cautious, however, about viewing these aggregate patterns in American politics and concluding that individuals in other advanced democracies make these same sorts of considerations. First, the evidence of a trade-off in preferences outside the United States is not as clear (e.g., Russett 1969; Domke, Eichenberg, and Kelleher 1983; Palmer 1990), possibly because of different views of the budgeting process. Defense and welfare spending merely reflect the view of “governmental budgeting as a fragmented process in which different programs respond to different stimuli” (Domke, Eichenberg, and Kelleher 1983, 33).

Beyond those few studies, we can use the insights from other prominent theories of public opinion to create a model of defense spending attitudes. Wlezien (1995) presents a nonrecursive model of the connections between public opinion and policy output. The public acts as a thermostat; when the actual policy differs from the preferred level, it sends a signal until an adjustment is made. Evidence for this thermostatic response is widespread, especially for public responses to levels of defense spending in the United States (Wlezien 1995; Wlezien 1996), the United Kingdom (Soroka and Wlezien 2005), and Canada (Soroka and Wlezien 2004). Perhaps even more interesting is the finding that feedback from appropriations to preferences is almost immediate (Wlezien 1996). Periods where information about appropriations is more widely available shows the clearest evidence of thermostatic behavior, which is perhaps why the public is more responsive to defense spending than social spending (Wlezien 1995). The second half of the representative

connection also appears strong, at least in the case of defense spending, because greater demand for defense spending results in increased appropriations in the United States (Wlezien 1996) and Canada (Soroka and Wlezien 2004).

Although some scholars cast doubt on the public's knowledge of national security and foreign policy matters (e.g., Almond 1950), there is evidence that challenges the characterization of an inattentive public. Early studies of foreign policy public opinion offered a pessimistic outlook on the ability of Americans to understand foreign events or form consistent opinions regarding them (see Russett 1990, 88-89, for a review). These studies echoed the concerns of Converse (1964) that voters lacked a common constraint that structured preferences on a variety of issues. Defense spending attitudes certainly did not appear to be related to one's overall preferences on spending programs for disadvantaged groups (Jacoby 1994). A lack of coherent attitudes in foreign policy was troubling because "citizens with more consistent and highly related attitudes are assumed to be more thoughtful and efficient in their political reasoning," which facilitates "communication between political elites and the mass public" (Hurwitz and Peffley 1987, 1099).

The work of Zaller (1992) represented a shift in public opinion. According to Zaller, voters do not have preexisting "fixed" attitudes about issues but instead provide opinion statements "on the fly" according to whatever elite discourse has made salient at that time. Indeed, this explains why efforts to place foreign policy attitudes on a simple continuum (such as liberal/conservative or isolationist/internationalist) have been difficult (e.g., Maggioletto and Wittkopf 1981; Wittkopf 1987; for European attempts, see Ziegler 1987). Holsti (2004, 50) argues that "if these dimensions constitute the standard by which to determine the existence of attitude structures, then mass public attitudes do indeed appear to lack coherence." If we restructure this coherence to include multiple dimensions, however, then foreign policy attitudes appear much more stable and reasonable (Shapiro and Page 1988; Nincic 1992) and structured in ways unique to foreign policy (Hurwitz and Peffley 1987; Bartels 1994).

Our understanding of *public support* for defense spending is limited because it is largely based on the experiences of preferences in the United States, which is unique in nearly every meaningful way for defense spending. Perhaps more troubling is the overreliance on aggregate-level patterns (such as the econometric analyses of the guns versus butter debate or thermostatic preferences) to draw inferences regarding public opinion. In the next section, I attempt to rectify this problem by presenting how individuals consider budgetary trade-offs in the context of their own redistributive preferences, economic constraints, and international conditions.

## **Guns, Butter, and Public Opinion**

The thermostatic model (Wlezien 1995; Soroka and Wlezien 2010) provides a strong foundation to understanding how spending preferences respond to policy output. The public is theorized to respond to policy in a manner similar to a thermostat, adjusting

its preferences for more (less) spending as policy output decreases (increases), *ceteris paribus* (Soroka and Wlezien 2010, 23). There are three key elements in the formalization of this theory:  $P_t^*$  represents the public's preferences for defense spending,  $P_t$  represents the current level of policy, and  $R_t$  represents the public's relative preference for changes in policy output. Formally,

$$R_t = P_t^* - P_t. \quad (1)$$

The primary expectation is that there will be negative feedback of preferences or that as  $P_t$  increases (decreases), the public's relative preference ( $R_t$ ) will decrease (increase; Soroka and Wlezien 2010). In the case of defense spending, survey data can help us ascertain the relative preferences ( $R_t$ ), but not the preferred level ( $P_t^*$ ). A question intended to measure respondents' preferred levels of spending ( $P_t^*$ ) would have to ask for a specific amount of expenditures. All but the most informed respondents would likely have trouble simply estimating the current level of expenditures, let alone providing their preferences for a specific amount. Ascertaining the relative preferences ( $R_t$ ), on the other hand, is much easier, given that surveys often ask whether respondents favor "more" or "less" defense spending.

Since the *preferred* level of defense spending is largely unobservable, an empirical examination of equation (1) must be modified in a number of ways (Wlezien and Soroka 2012):

$$R_{ij} = \alpha_k + \beta_1 P_j + \beta_I \mathbf{I}_i + \beta_S \mathbf{S}_j + \varepsilon_i. \quad (2)$$

Although the thermostatic model explains *individual* preferences, empirical tests have largely focused on the *aggregate* level (see Soroka and Wlezien 2010, chapter 8, for an exception). Since I model individual-level preferences (where subscripts index individual  $i$  within survey  $j$  and country  $k$ ), I modify the model in equation (1) in some important ways. First, I add an error term to equation (1) to account for the randomness that accompanies attempts to model preferences with survey data. Second, precisely because  $P_t^*$  is unobservable, there are likely to be factors that cause  $P_t^*$  to be higher or lower across countries that are not captured by the above specification. The substantial variation in  $R_t$  across countries (shown in the last two columns of Table 1) is indicative of a  $P_t^*$  that also varies in unmodeled ways. To account for these country-specific idiosyncracies, I include  $\alpha_k$ , which allows the baseline levels of preferences to vary by country  $k$ . Third, while this project explores spending preferences in a greater range of democratic systems than previous studies using the thermostatic model have, it sacrifices the ability to examine shifting preferences over time. The thermostatic model is typically examined based on long time series of single countries (i.e., the United States, Britain, Canada; see Wlezien and Soroka 2012, for an exception), so trading temporal variation for cross-sectional variation greatly expands the thermostatic model's generalizability.

**Table I.** Sample Characteristics.

| Country        | Module | Fieldwork                               | Observations | Defense<br>(Percent More) | Health<br>(Percent More) | Job Creation<br>(Percent Support) |
|----------------|--------|---|--------------|---------------------------|--------------------------|-----------------------------------|
| Australia      | I      | November 1, 1986 to December 31, 1986   | 1,335        | 45.8                      | 62.5                     | 77.3                              |
|                | II     | March 1, 1990 to July 31, 1990          | 2,142        | 25.1                      | 67.7                     | 70.2                              |
| Bulgaria       | III    | January 1, 1996 to December 31, 1996    | 1,671        | 26.8                      | 79.9                     | 84.2                              |
|                | IV     | July 11, 2007 to October 16, 2007       | 2,331        | 25.2                      | 90.3                     | 86.1                              |
| Austria        | I      | May 2, 1986 to June 30, 1986            | 867          | 13.3                      | 60.4                     | 71.9                              |
| Bulgaria       | III    | February 1, 1997 to May 31, 1997        | 904          | 71.6                      | 95.1                     | 92.6                              |
| Canada         | III    | November 1, 1996 to December 30, 1996   | 1010         | 8.2                       | 55.6                     | 70.6                              |
|                | IV     | March 3, 2006 to October 31, 2006       | 785          | 43.4                      | 77.1                     | 72.2                              |
| Croatia        | IV     | October 1, 2006 to November 30, 2006    | 1,064        | 27.3                      | 89.2                     | 95.7                              |
| Czech Republic | III    | October 15, 1996 to December 14, 1996   | 898          | 11.8                      | 82.8                     | 74.0                              |
|                | IV     | October 19, 2006 to November 27, 2006   | 1093         | 10.0                      | 72.3                     | 77.8                              |
| Denmark        | IV     | January 30, 2008 to May 5, 2008         | 1,136        | 5.7                       | 80.9                     | 72.7                              |
| Finland        | IV     | September 20, 2006 to November 24, 2006 | 958          | 13.0                      | 80.7                     | 69.9                              |
|                | III    | October 7, 1997 to December 7, 1997     | 1202         | 7.2                       | 48.9                     | 76.3                              |
| France         | IV     | September 1, 2006 to December 31, 2006  | 1,624        | 8.7                       | 59.6                     | 78.1                              |
|                | I      | May 14, 1985 to August 30, 1985         | 908          | 6.1                       | 52.3                     | 71.4                              |
| Germany        | II     | March 12, 1990 to May 25, 1990          | 2,630        | 4.4                       | 73.0                     | 73.3                              |
|                | III    | February 29, 1996 to July 1, 1996       | 2,173        | 8.2                       | 53.8                     | 79.0                              |
| Hungary        | IV     | March 18, 2006 to August 21, 2006       | 1,437        | 11.7                      | 65.7                     | 67.8                              |
|                | II     | May 1, 1990 to May 30, 1990             | 906          | 13.9                      | 95.7                     | 77.1                              |
| Ireland        | III    | October 1, 1996 to October 31, 1996     | 1,384        | 32.4                      | 93.3                     | 93.0                              |
|                | IV     | January 5, 2006 to January 23, 2006     | 948          | 24.4                      | 93.5                     | 95.2                              |
| Israel         | III    | May 1, 1996 to June 30, 1996            | 958          | 24.0                      | 83.6                     | 91.5                              |
|                | IV     | October 1, 2005 to February 28, 2006    | 929          | 25.3                      | 92.9                     | 93.2                              |
| Israel         | II     | December 1, 1991 to December 31, 1991   | 902          | 54.5                      | 79.8                     | 88.2                              |

(continued)

Table I. (continued)

| Country     | Module | Fieldwork                                | Observations | Defense<br>(Percent More) | Health<br>(Percent More) | Job Creation<br>(Percent Support) |
|-------------|--------|--|--------------|---------------------------|--------------------------|-----------------------------------|
| Italy       | III    | November 1, 1996 to December 31, 1996    | 1,439        | 56.4                      | 84.6                     | 87.0                              |
|             | IV     | March 15, 2007 to August 15, 2007        | 1,197        | 55.5                      | 90.0                     | 87.6                              |
|             | I      | September 1, 1985 to October 30, 1985    | 1,503        | 11.9                      | 79.1                     | 90.7                              |
|             | II     | April 8, 1990 to April 22, 1990          | 933          | 11.6                      | 84.8                     | 90.4                              |
| Japan       | III    | October 17, 1996 to October 29, 1996     | 1,050        | 7.2                       | 76.9                     | 90.4                              |
|             | III    | July 5, 1996 to July 8, 1996             | 982          | 9.7                       | 69.0                     | 71.4                              |
|             | IV     | November 18, 2006 to November 26, 2006   | 889          | 20.5                      | 64.7                     | 61.0                              |
|             | III    | September 12, 1996 to September 16, 1996 | 1,253        | 41.5                      | 92.7                     | 95.7                              |
| Netherlands | IV     | May 29, 2007 to June 19, 2007            | 978          | 24.8                      | 87.2                     | 94.6                              |
|             | IV     | March 1, 2006 to December 31, 2006       | 824          | 4.3                       | 70.3                     | 76.3                              |
|             | III    | April 24, 1997 to August 5, 1997         | 931          | 17.2                      | 87.6                     | 54.3                              |
|             | IV     | August 10, 2006 to October 10, 2006      | 1,084        | 25.0                      | 83.8                     | 74.7                              |
| Norway      | II     | February 28, 1990 to July 13, 1990       | 1,340        | 3.6                       | 83.2                     | 84.4                              |
|             | III    | February 1, 1996 to May 31, 1996         | 1,219        | 10.5                      | 85.2                     | 85.7                              |
|             | IV     | September 20, 2006 to November 17, 2006  | 1,165        | 14.0                      | 85.6                     | 85.9                              |
|             | III    | October 1, 1997 to December 31, 1997     | 870          | 55.2                      | 93.9                     | 92.7                              |
| Poland      | IV     | February 6, 2008 to February 25, 2008    | 1,144        | 47.8                      | 92.2                     | 94.6                              |
|             | IV     | October 9, 2006 to February 19, 2007     | 1,560        | 30.9                      | 93.5                     | 92.5                              |
| Slovenia    | III    | November 1, 1995 to December 31, 1995    | 900          | 25.4                      | 80.7                     | 87.3                              |
|             | IV     | October 1, 2006 to November 30, 2006     | 894          | 12.7                      | 81.0                     | 88.4                              |
| Spain       | III    | January 27, 1996 to January 31, 1996     | 2,035        | 15.4                      | 79.6                     | 95.2                              |
|             | IV     | January 1, 2006 to December 31, 2006     | 2,145        | 19.2                      | 87.1                     | 96.5                              |
| Sweden      | III    | February 1, 1996 to May 31, 1996         | 1,095        | 13.7                      | 76.6                     | 69.3                              |

(continued)



**Table I.** (continued)

| Country        | Module | Fieldwork                            | Observations | Defense<br>(Percent More) | Health<br>(Percent More) | Job Creation<br>(Percent Support) |
|----------------|--------|--------------------------------------|--------------|---------------------------|--------------------------|-----------------------------------|
| Switzerland    | IV     | February 7, 2006 to April 28, 2006   | 956          | 12.0                      | 79.9                     | 68.0                              |
|                | III    | May 12, 1998 to November 9, 1998     | 2,192        | 3.4                       | 36.3                     | 77.0                              |
|                | IV     | February 8, 2007 to August 14, 2007  | 920          | 4.9                       | 47.9                     | 76.5                              |
| United Kingdom | I      | April 1, 1985 to May 30, 1985        | 1,399        | 17.8                      | 88.0                     | 88.3                              |
|                | II     | March 1, 1990 to June 30, 1990       | 1,107        | 8.8                       | 89.9                     | 83.1                              |
|                | III    | May 1, 1996 to June 30, 1996         | 891          | 18.6                      | 91.5                     | 85.3                              |
| United States  | IV     | June 1, 2006 to November 30, 2006    | 816          | 31.0                      | 82.1                     | 75.1                              |
|                | I      | January 1, 1985 to December 31, 1985 | 626          | 19.8                      | 58.0                     | 69.0                              |
|                | II     | February 1, 1990 to April 30, 1990   | 1,095        | 13.8                      | 72.2                     | 69.8                              |
|                | III    | February 1, 1996 to May 25, 1996     | 1,247        | 21.3                      | 67.6                     | 73.8                              |
| Total          | IV     | March 7, 2006 to August 08, 2006     | 1,441        | 36.4                      | 80.2                     | 85.3                              |
|                |        |                                      | 72,315       |                           |                          |                                   |

Note: January 1 (December 31) is treated as the first (last) day of fieldwork if dates are unavailable.

In addition to the baseline differences in  $R_t$  due to country-specific characteristics, relative support for defense spending will vary for theoretical reasons associated with the conditions present at the time the survey is administered (such as economic conditions, international threats).  $\beta_s S_j$  allows the country-specific baseline ( $\alpha_k$ ) to shift up or down, depending on the conditions unique to that survey.

Finally, and most important theoretically, in lieu of having  $P_t^*$ , I include a number of individual-level characteristics ( $I_i$ ) that I theorize will be associated with the preferred level of defense spending. I develop a new theory that captures how individuals—given economic constraints and international conditions—evaluate trade-offs between social and defense spending. My contribution to the literature on spending preferences is to embed this theory of the complementary nature of defense and social spending preferences within an individual-level extension of the thermostatic model.

Since the  $I_i$  explains the origins of complementary or competing preferences, it is important to briefly review the literature on preference formation. Individuals may not have a coherent structure of defense spending preferences that is congruent with a simple conservative/liberal ideology (Maggiotto and Wittkopf 1981; Wittkopf 1987; Ziegler 1987). Instead of automatically preferring lower defense spending because of a preference for an expanded welfare state, respondents may form preferences on the fly according to whatever opinion statements elites have made salient at that time (Zaller 1992, 1).

One of the elite cues that help preference formation is party messages. Whitten and Williams (2011) present a theory that partisan preferences have a profound impact on defense spending patterns in advanced democracies but not in the manner that one might expect. Instead of seeing a clear left–right distinction, parties push for more or less defense spending based on two dimensions: first, the extent to which they prefer an internationalist position (hawks vs. doves) and second, the extent to which they favor increases or decreases in welfare spending (welfare vs. austere). It is certainly reasonable to expect that those parties that emphasize taking an internationalist position will be in favor of increased defense spending. The novelty of the theory comes from suggesting that it is those parties that favor *increased* welfare spending that will be more supportive of higher rates of defense spending. The rationale is based on studies from economics that identify a substantial employment multiplier effect (Nincic and Cusack 1979) and the impacts for the overall economy from defense spending (see Chan 1985, for a review). For these “welfare” parties, defense spending can be used as welfare spending in disguise.

Whitten and Williams (2011) show that governments controlled by parties with high values on these two dimensions—welfare spending and internationalism—experience the greatest increases in defense spending, even once they control for other governmental characteristics, previous patterns of spending, and international conditions. Thus, in an era of expanding government budgets (Franzese 2002), individuals are unlikely to see a trade-off between guns and butter and, in some

cases, may actually view the two as complementary tools for achieving the country's economic goals. While this theory was supported in government spending, it remains to be seen whether individual-level preferences are consistent with this observed pattern of elite behavior. More specifically, without modeling the individual preferences of respondents (i.e.,  $I_i$ ), we are unable to determine whether parties are responding to the preferences of a public that makes decisions in a similar manner or whether there is some other heretofore unknown mechanism.

Survey data shed light on the relationship between social and defense preferences at the individual level. If Whitten and Williams' (2011) theory of the welfare impacts of defense spending is correct, then we would expect to see favorable attitudes about job creation (characterized by  $\beta_{JC}$ ) moderate the effects of welfare spending attitudes (characterized by  $\beta_{SS}$ ) on defense spending attitudes (characterized by their interaction,  $\beta_{JC \times SS}$ ). For example, those in favor of government-financed job creation will be more likely to see the positive externalities associated with government spending and will therefore be more supportive of higher defense spending. On the other hand, those opposed will be more cognizant of a possible trade-off, minimizing the guns yield butter effects. Formally, I test this hypothesis with the expectation that  $\beta_{JC \times SS} > 0$ .

**Hypothesis:** attitudes about government-financed job creation positively condition the relationship between health and defense spending.

The combination of these three variables—the two spending preferences and a dichotomous variable ( $JC$ ) indicating support for government-financed job creation—gives us the opportunity to pit the conventional wisdom regarding budgetary trade-offs against the alternative *guns yield butter* notion. If respondents view social and defense spending as competing for budgetary consideration (i.e., *guns versus butter*), then  $\beta_{SS} + (JC \times \beta_{JC \times SS}) < 0$ . On the other hand, the *guns yield butter* notion suggests that the two are complementary or  $\beta_{SS} + (JC \times \beta_{JC \times SS}) > 0$ .

## Research Design

I theorize that the relationship between social and defense spending preferences is conditioned by attitudes about the government's role in creating jobs. An excellent source of spending preferences is the International Social Science Program (ISSP), which offers a series of modules related to a variety of social, health, and political areas. The Role of Government module is ideal for this project since it asks a series of questions related to individuals' relative preferences for different types of spending (i.e.,  $R_t$ ). Table 1 lists the countries that are included in this study.

Although the modules are grouped into four years (1985, 1990, 1996, and 2006),<sup>1</sup> the actual fieldwork dates of the survey may be one to two years prior to or after those dates. To ensure that the public is responding to actual economic and international conditions at the time of the survey, I measure these variables according to the fieldwork dates (not the years of the module) listed in Table 1. These surveys

provide the perfect opportunity to determine the origins of defense spending in a variety of advanced democracies, ranging from those with a great deal of strategic interests around the globe (such as the United States and Britain) to those with active peacekeeping operations (such as Canada and Italy), both old democracies and new, pre- and post-9/11.

The questions that ask spending preferences all have the similar wording across modules: "Listed below are various areas of government spending. Please show whether you would like to see more or less government spending in each area. Remember that if you say 'much more,' it might require a tax increase to pay for it." The consistent question wording allows the inferences to be comparable across time and countries. Additionally, the statement regarding a tax increase to pay for the spending activates possible concerns for the sources of the increases in spending, which will reduce the willingness of respondents to favor increases in spending across the board. I recode the values so that the variables go from 1 (spend much less) to 5 (spend much more). The dependent variable is *defense spending* and the primary measure of preferences for social spending is *health spending*.<sup>2</sup>

Table 1 shows that health spending always enjoys more public support than defense spending, with health having over ten times the support in a few surveys. There is also considerable variation in support levels both across countries and over time. Responses to these two questions are positively correlated (0.14,  $p$  value < 0.01), which suggests that spending in these areas is complementary. At the same time, almost 72 percent of the respondents provide different responses across the two questions, which rules out similar responses to all spending items reflecting underlying preferences for more or less spending.

The surveys also ask a wide range of questions dealing with preferences for government intervention in the economy, though some are not asked consistently across modules. Fortunately, the most important question for the purposes of this project is asked across all surveys. This question asks respondents whether they are in favor of "government financing to create new jobs" (*create jobs*). The last column of Table 1 provides the percentage in each survey supporting government-financed job creation. The majority of respondents are in favor of government-financed job creation (about 82 percent in the entire sample), a minority is either indifferent or opposed to government-financed job creation, and this percentage varies across time and countries (and ranges from a low of 54 percent in New Zealand in 1997 to a high of 96 percent in Spain in 2006). Since my hypothesis posits that *create jobs* modifies the effects of *health spending* on *defense spending*, I create an interaction (*health spending*  $\times$  *create jobs*).

The remaining variables are categorized to reflect the model specification in equation (2):

- $P_j$  measures the current level of *military expenditures* <sub>$j$</sub> <sup>3</sup> (in constant US dollars), from the Stockholm International Peace Research Institute (SIPRI) data

set.<sup>4</sup> If the beginning of the survey is administered in the first six months of the year, then I use the level from the previous year.

- $I_i$  incorporates individual data from the ISSP including the theoretical variables described above (*health spending*, *create jobs*, and *health spending*  $\times$  *create jobs*), whether the respondent favors cutting government spending (*cut government spending*)<sup>5</sup> and the following respondent characteristics: gender (*male*), age (*age*), if the respondent is in the labor force but unemployed (*unemployed*), and if the respondent has completed college (*college*).
- $S_j$  includes the survey-specific characteristics that influence whether respondents will support changes in military expenditures. I include *gross domestic product (GDP) per capita growth* <sub>$t-1$</sub>  (from the World Bank's World Development Indicators<sup>6</sup>) to capture the presence (or lack thereof) of constraints that might reduce relative defense spending preferences. I also include measures of international conditions often linked to increased support for defense spending. I include the number of hostile militarized interstate disputes (MIDs)—uses of force or war—in the six months prior to the start of the fieldwork (*hostile MIDs six months prior*), which I expect to increase support for a larger defense burden. To capture how defense spending preferences change according to alliance commitments (Palmer 1990; Plümpert and Neumayer 2014), I measure the change in US military expenditures (*US  $\Delta$  expenditures* <sub>$t-1$</sub> ), and then interact this variable with a dichotomous variable indicating whether the nation was in an alliance with the United States (based on the Correlates of War data). Evidence that allies decrease (increase) their support for defense spending in response to United States increases in expenditures would be evidence of public support for free riding (supportive of alliance commitments).

I provide the summary statistics for these variables in Table 2.

## Findings

In model 1 of Table 3, I present the ordered logit results (with country fixed effects) that test the hypothesis that the complementary effect will be greater for those favoring government-financed job creation (thus,  $\beta_{JC \times SS} > 0$ ). The interaction is statistically significant and positive as expected. A complete interpretation of this interactive relationship is facilitated by examining the marginal effects (Brambor, Clark, and Golder 2006).

Figure 1 shows how shifting one's preferences from "much less" to "much more" *health spending* changes the probability ( $y$ -axis) of selecting each category of relative preference for *defense spending* ( $x$ -axis), conditional on whether one opposes (left column) or favors (right column) government-financed job creation. The rows reflect estimates from the three models in Table 3. For now, consider the estimates from the sample including all surveys (top row). For respondents who oppose

**Table 2.** Summary Statistics.

| Variable                                | Minimum           | Maximum              | Mean              | Standard Deviation   | Mode |
|---|-------------------|----------------------|-------------------|----------------------|------|
| Defense spending                        | 1                 | 5                    | 2.67              | 1.10                 | 3    |
| Health spending                         | 1                 | 5                    | 4.04              | 0.82                 | 4    |
| Create jobs                             | 0                 | 1                    | 0.82              | 0.38                 | 1    |
| Cut government spending                 | 0                 | 1                    | 0.71              | 0.45                 | 1    |
| Male                                    | 0                 | 1                    | 0.49              | 0.5                  | 0    |
| Age                                     | 15                | 97                   | 45.68             | 16.78                | 35   |
| Unemployed                              | 0                 | 1                    | 0.05              | 0.21                 | 0    |
| College                                 | 0                 | 1                    | 0.15              | 0.36                 | 0    |
| Military expenditures                   | $8.8 \times 10^9$ | $4.0 \times 10^{11}$ | $9.5 \times 10^9$ | $3.8 \times 10^{10}$ |      |
| GDP per capita growth <sub>t-1</sub>    | 0.46              | 12.92                | 2.84              | 2.01                 |      |
| US $\Delta$ expenditures <sub>t-1</sub> | -13.86            | 6.89                 | -1.46             | 4.08                 |      |
| US alliance                             | 0                 | 1                    | 0.61              | 0.49                 | 1    |
| Hostile MIDs six months prior           | 0                 | 2                    | 0.23              | 0.48                 | 0    |

Note: MIDs = militarized interstate dispute; GDP = gross domestic product.

government-financed job creation, increasing health spending decreases the probability of supporting more defense spending (though the 90 percent confidence intervals slightly overlap 0). Now consider the right column where the respondent favors the government creating jobs; for these respondents, increasing health spending reduces the probability of wanting less defense spending (both “much less” and “less”) and increases the probability of supporting more (both “much more” and “more”). The two panels nicely illustrate the *guns versus butter* relationship (when respondents oppose government-financed job creation) and the *guns yield butter* relationship (when respondents favor government-financed job creation). This is consistent with my theory that those who want the government creating jobs are more likely to see the possible beneficial impacts of defense spending on employment and aggregate demand.

The coefficients for the control variables are consistent with expectations, with three notable exceptions. First, the coefficient for *cut government spending* is positive and significant, which suggests that those who favor a small government also prefer higher levels of military expenditures. Although this seems contradictory at first, it is consistent with a conservative preference for smaller government except in certain areas (such as defense). Second, the coefficient for *male* is negative and significant, suggesting that women are more supportive of defense spending than men once I control for preferences, demographics, and survey-specific circumstances. Third, in the first two models, the coefficient for *GDP growth<sub>t-1</sub>* is negative and significant, suggesting that economic growth leads to less support for defense spending. This might seem counterintuitive but is a pattern seen in other analyses of defense spending preferences (see Soroka and Wlezien 2010, 93).

**Table 3.** Ordered Logit Results for the Relationship between Social and Defense Spending Preferences.

| Variable                             | Model 1   | Model 2   | Model 3   |
|--------------------------------------|---|---|---|
|                                      | All   | United States Only                                  | No United States                                  |
| Health spending                      | -0.017*<br>(0.010)                                | -0.154***<br>(0.036)                                | -0.004<br>(0.011)                                 |
| Create jobs                          | -0.402***<br>(0.046)                              | -0.501***<br>(0.159)                                | -0.392***<br>(0.048)                              |
| Health spending × create jobs        | 0.102***<br>(0.011)                               | 0.154***<br>(0.043)                                 | 0.097***<br>(0.012)                               |
| Cut government spending              | 0.032***<br>(0.009)                               | -0.235***<br>(0.038)                                | 0.043***<br>(0.010)                               |
| Male                                 | -0.053***<br>(0.008)                              | 0.030<br>(0.032)                                    | -0.058***<br>(0.008)                              |
| Age                                  | 0.007***<br>(0.0002)                              | 0.005***<br>(0.001)                                 | 0.007***<br>(0.0002)                              |
| Unemployed                           | 0.002<br>(0.019)                                  | -0.177*<br>(0.103)                                  | 0.007<br>(0.020)                                  |
| College                              | -0.252***<br>(0.011)                              | -0.366***<br>(0.041)                                | -0.237***<br>(0.012)                              |
| Military expenditures                | $-1.6 \times 10^{13}$<br>( $1.4 \times 10^{13}$ ) | $1.2 \times 10^{12}$ **<br>( $5.3 \times 10^{13}$ ) | $-3.7 \times 10^{14}$<br>( $8.7 \times 10^{13}$ ) |
| GDP per capita growth <sub>t-1</sub> | -0.010***<br>(0.003)                              | -0.137***<br>(0.042)                                | -0.004<br>(0.003)                                 |
| US Δ expenditures <sub>t-1</sub>     | 0.004*<br>(0.002)                                 |   | -0.009***<br>(0.002)                              |
| US alliance                          | 0.180***<br>(0.018)                               |   | 0.212***<br>(0.018)                               |
| US Δ expenditures × US alliance      | 0.033***<br>(0.003)                               |   | 0.047***<br>(0.003)                               |
| Hostile MIDs six months prior        | 0.062***<br>(0.012)                               |   | 0.119***<br>(0.012)                               |
| Observations                         | 72,315  | 4,409   | 67,906  |
| Surveys                              | 59  | 4   | 55  |
| Country fixed effects                | Yes   | No  | Yes   |

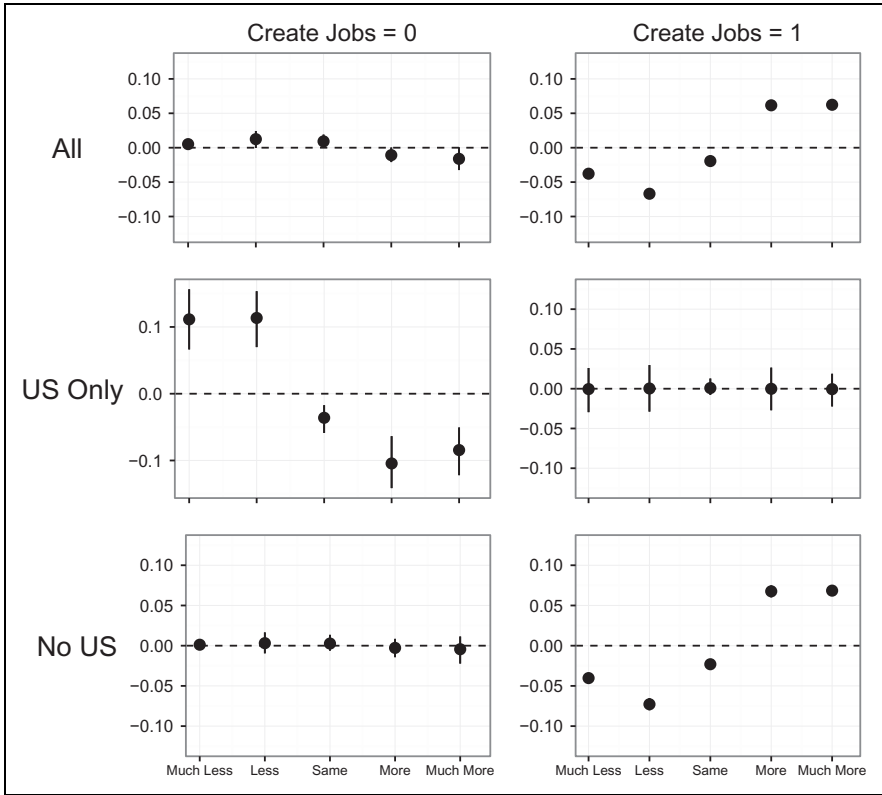
Note: Defense spending ranges from 1 (much less) to 5 (much more). MIDs = militarized interstate dispute; GDP = gross domestic product.

\* $p < .1$ .

\*\* $p < .05$  (two-tailed).

\*\*\* $p < .01$ .

To understand the substantive effects of these variables, I generate the changes in predicted probabilities (and 90 percent confidence intervals) of supporting “more” *defense spending* (the sum of “much more” and “more”), given changes in the control variables. Table 4 demonstrates these substantive effects across three



**Figure 1.** Relationship between health spending and defense spending, conditional on preferences for government-financed job creation. Vertical lines represent 90 percent confidence interval for the effects of increasing *health spending* from 1 (much less) to 5 (much more) on preferences for *defense spending*, conditional on whether the respondent opposes (left column) or supports (right column) government-financed job creation (*create jobs*). The rows reflect the estimates from the three models displayed in Table 3.

hypothetical scenarios of control variables so that the individual is predisposed to support, be indifferent to, or oppose additional defense spending.

By construction, the baseline probability of supporting “more” defense spending is much lower in the unsupportive scenario than the supportive scenario. Therefore, when evaluating the substantive size of the following changes in predicted probabilities, it is important to consider the baseline probabilities. Furthermore, the effects of compression (Berry, DeMeritt, and Esarey 2010; Rainey 2016; Williams, forthcoming) are evident here as the substantive magnitude of the effects varies widely depending on the scenario’s location along the cumulative density function.

The change in the probability of supporting “more” defense spending for respondents who favor cutting government spending is statistically significant, though



**Table 4.** Ordered Logit Estimates (Model 1) of the Change in Predicted Probabilities of Supporting More (“Much More” + “More”) Defense Spending.

| Variable   | Scenario                  |                           |                           |
|--|---------------------------|---------------------------|---------------------------|
|  | Supportive                | Indifferent               | Unsupportive              |
| Baseline Probability   | .402<br>[.393, .412]      | .313<br>[.303, .324]      | .146<br>[.131, .161]      |
| Hypothesis   |                           |                           |                           |
| Create jobs = 0: health spending<br>1 → 5                    | -.027<br>[-.054, .001]    | -.024<br>[-.049, .0008]   | -.015**<br>[-.030, .0005] |
| Create jobs = 1: health spending<br>1 → 5                    | .124**<br>[.110, .138]    | .114**<br>[.102, .127]    | .068**<br>[.060, .075]    |
| Individual-level   |                           |                           |                           |
| Cut government spending<br>0 → 1                             | .012**<br>[.007, .018]    | .011**<br>[.006, .016]    | .007**<br>[.004, .011]    |
| Male<br>0 → 1  | -.020**<br>[-.025, -.015] | -.018**<br>[-.023, -.014] | -.012**<br>[-.016, -.009] |
| Age<br>46 → 63   | .044**<br>[.041, .046]    | .041**<br>[.039, .044]    | .030**<br>[.028, .033]    |
| College<br>0 → 1   | -.093**<br>[-.100, -.087] | -.083**<br>[-.089, -.077] | -.065**<br>[-.072, -.059] |
| Survey-level   |                           |                           |                           |
| Military expenditures<br>115.3 m → 5710 m                    | -.0004<br>[-.001, .0002]  | -.0003<br>[-.0008, .0002] | -.0002<br>[-.005, .0001]  |
| GDP per capita growth <sub>t-1</sub><br>3.2 → 5.6            | -.009**<br>[-.014, -.004] | -.008**<br>[-.012, -.004] | -.005**<br>[-.008, -.002] |
| Nonalliance: US Δ expenditures <sub>t-1</sub><br>-1.46 → 2.6 | .006*<br>[.0006, .011]    | .005**<br>[.0005, .010]   | .004*<br>[.0003, .007]    |
| Alliance: US Δ expenditures <sub>t-1</sub><br>-1.46 → 2.6    | .057**<br>[.053, .061]    | .054**<br>[.050, .057]    | .043**<br>[.039, .046]    |
| Hostile MIDs<br>0 → 1  | .024**<br>[.017, .032]    | .022**<br>[.016, .030]    | .015**<br>[.010, .020]    |

Note: Ninety percent confidence intervals are given in brackets. Scenarios are based on holding binary variables at the minimums or maximums; continuous variables are held at their 25th, 50th and 75th percentiles. Changes for continuous variables reflect the mean plus 1 standard deviation; MIDs = militarized interstate dispute; GDP = gross domestic product.

\* $p < .1$ .

\*\* $p < .05$  (two-tailed).

relatively small in terms of magnitude. The sociodemographic variables perform largely as expected (aside from *male*), producing higher probabilities of supporting increases among older and noncollege educated respondents. The survey-specific variables perform as expected, with higher levels of *GDP per capita growth*<sub>t-1</sub> discouraging increases in spending, thermostatic preferences outside of the United States, and the presence of *hostile MIDs six months prior* increasing the probability

of supportive preferences. This latter finding suggests that a strategy of elites using external threats to justify increases in defense spending would be supported by the public, at least in the short term.

Finally, the effects of  $US \Delta expenditures_{t-1}$  in model 1 indicate that any sort of free-riding behavior on the part of political leaders (e.g., Plümpner and Neumayer 2014) is not reflective of the public's preferences. Increases in US expenditures makes respondents more willing to support increases in their own state's military expenditures, and this effect is even larger for those in those nations that share alliances with the United States. This is consistent with Palmer's (1990) finding that democratic publics shift their support in the same direction as changes to US military spending.

The results point to a relationship between spending preferences that is consistent with the hypothesis and substantively meaningful. When we examine the magnitude of the guns/butter effect (Table 4), it is apparent that the complementary preferences—when coupled with favorable opinions toward government-financed job creation—have quite large effects on defense spending preferences, exceeding the influence of external threats, policy responsiveness (Wlezien 1995), and alliance commitments (Palmer 1990).

If we assume that all groups are mobilized to a similar extent, we can also use this evidence to weigh in on the *guns/butter* debate. The high percentage of respondents cross-nationally supporting government-financed job creation (82 percent) suggests that the *guns yield butter* relationship (right column of Figure 1) is more common than a *guns versus butter* relationship (left column of Figure 1). While this is certainly consistent with my theory, it suggests that the prominent *guns versus butter* cliché typically espoused in the United States may be anomalous. In the next section, I explore whether the US case is atypical in this respect.

## Guns Versus Butter in the United States?

The literature on the economic consequences of military spending in the United States is quite substantial. Although the research is mixed on a few issues, scholars have found that there is a budgetary trade-off between defense and welfare spending, particularly in eras of substantial military buildups (e.g., Kamlet, Mowery, and Su 1988; Mintz 1989). Moreover, preferences for defense spending in the United States are inversely related to those of domestic spending over time, which causes Wlezien (1995, 989) to conclude that “a guns-butter trade-off may be evident in the public's preferred levels of spending and/or policy itself.” After more rigorous empirical examination, he finds that changes in the public's preferred level of defense spending invoke reductions in the preferred level of social spending (though the reverse is not apparent). This is because, in his judgment, “national defense is primary in the evaluations of the American public” (Wlezien 1995, 997).

One should be cautious, however, about drawing broad inferences about a guns-butter trade-off from the United States (and United Kingdom, see Soroka and

Wlezien 2005), a point which Wlezien himself makes. Since defense spending is quite salient for the American public, “the defense spending domain [...] may represent a ‘best case,’ where public responsiveness to policy is most likely” (Wlezien 1996, 100). For example, in Eichenberg and Stoll’s (2012) analysis of the gender gap in defense spending attitudes, they find that the largest gap occurs when respondents view defense spending outpacing domestic spending during the Reagan years. Indeed, while there may be evidence of a trade-off in expenditures, no clear pattern of trade-offs in preferences exists outside of the United States and United Kingdom (for the case of Canada, see Soroka and Wlezien 2004, 2010). On the other hand, debates about local employment impacts are sure to follow announcements of base closures in the United States (e.g., Sasaki 1963; Hooker and Knetter 1997), so informed respondents will be aware of the welfare-inducing effects of defense spending.<sup>7</sup> Further work must be done to adjudicate between these possibilities.

The first step to addressing whether the relationship exists in the United States is to separate the guns versus butter effects of the United States relative to other democracies. In Table 3, I show the results for two additional models, one for only the three US surveys (model 2) and the other containing all non-US surveys (model 3). Recall that the marginal effect of *health spending*, conditioned by *job creation* ( $\beta_{SS} + JC \times \beta_{JC \times SS}$ ) tests this relationship. The interaction remains statistically significant and positive in models 2 and 3, and the conditional relationships are depicted in the middle and lower rows of Figure 1.

This figure reconciles the divergent findings regarding overall patterns of budgetary trade-offs in advanced democracies. Two inferences help build the case for the uniqueness of the United States. First, the guns/butter trade-off is much larger in the US case for those who oppose government-financed job creation; supporting greater *health spending* makes one much less likely to support concurrent increases in *defense spending*. Second, while favoring government-financed job creation changed the relationship from competing to complementary in the full sample (top row), the relationship remains one of competing preferences for US respondents (though not statistically significant in the right column), even among those who are predisposed to favoring government spending. Excluding the United States from the sample (bottom row) minimizes the trade-offs for those who oppose government-financed job creation and increases the positive relationship for those who support government-financed job creation.

Are Americans exceptional in their view of a trade-off in preferences between social and defense spending? This sample of country-years is extremely varied in terms of economic performance, alliance commitments, military spending, and institutional arrangements. Since all of these factors are likely correlated with actual rates of defense spending, it is expected that the guns/butter effect will be quite varied. As a further test to determine if respondents in other democracies make the same zero-sum calculations as Americans, I generate survey-specific estimates of the relationship between health spending and defense spending attitudes as well as whether opinions about the government’s role in creating jobs condition this

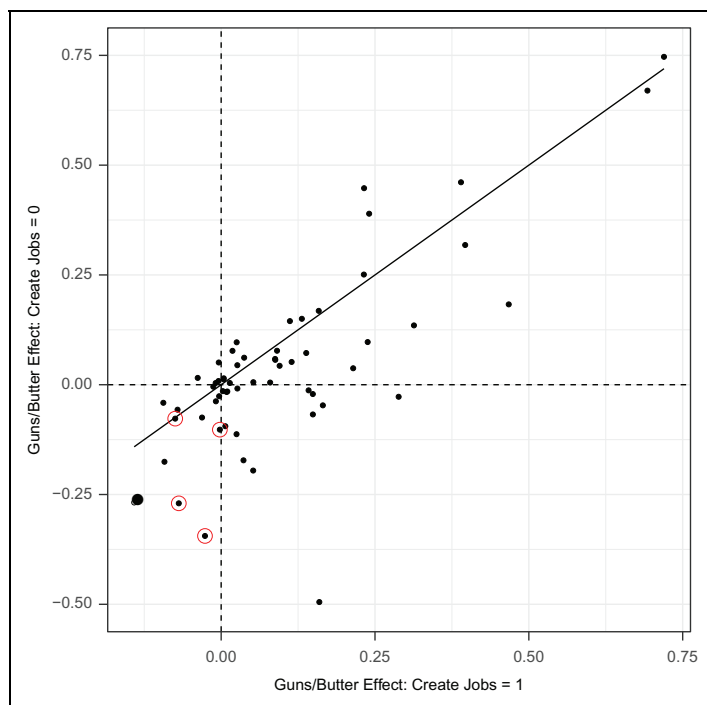
relationship. Duch and Stevenson (2005, 2008) present a methodology that allows one to make cross-national inferences about effects from survey-specific models while taking into account variations across individuals, surveys and countries. First, I estimate survey-specific models containing all of the relevant variables that are available for that survey.<sup>8</sup> Second, I set the values of the control variables (i.e., all variables other than *health spending*, *create jobs*, and their interaction) to their means (continuous variables) or medians (binary variables). Third, I define the *guns/butter effect* as the change in the predicted probability of favoring “more” *defense spending* (i.e., “much more” + “more”), given a change from choosing “much less” (1) to “much more” (5) *health spending* ( $SS$ ), conditional on *create jobs* ( $JC$ ), or

$$\frac{\Delta \Pr(y = \text{More} | \mathbf{x}_i)}{\Delta SS_i} = \Pr(y = \text{More} | \mathbf{x}_i, JC_i, SS_i = 5) - \Pr(y = \text{More} | \mathbf{x}_i, JC_i, SS_i = 1). \quad (3)$$

Negative values are indicative of competing preferences (i.e., *guns versus butter*) and positive values are indicative of complementary preferences (i.e., *guns yield butter*). A more complete model specification, coupled with the smaller sample size and unexplained variation unique to the conditions during the survey, means that it will be much tougher to demonstrate an effect.

Figure 2 presents a scatterplot of the survey-specific estimates of the *guns/butter effect*, conditional on whether the respondent opposes ( $y$ -axis) or supports ( $x$ -axis) government-financed job creation. Dashed horizontal and vertical lines at 0 partition the space into four quadrants representing the signs of the *guns/butter effects* across the two groups of respondents. For example, the lower-right quadrant represents those estimates where supporting government-financed job creation changes the *guns/butter effect* from competing (negative) to complementary (positive). The solid 45° line delineates the sign of the conditioning effect; estimates below the line mean that supporting government-financed job creation increases the *guns/butter effect*.

This figure shows the nature of the *guns/butter effect* for each survey and provides a proper context in which to evaluate the trade-off in American preferences. As theorized, favorable attitudes toward government-financed job creation reduces the likelihood of viewing the two types of spending as trade-offs. The *guns/butter effects* for those who oppose government-financed job creation are, on average, more negative (i.e., below the horizontal dashed line) than those who favor government-financed job creation (i.e., to the left of the vertical dashed line); 44.1 percent of the estimates for those who oppose job creation are negative (38.5 percent of those are significant at the 90 percent level), while this drops to 27.1 percent for those support job creation (25.0 percent of those are significant at the 90 percent level). Moreover, 64.4 percent of the estimates grow more positive for those who favor government-financed job creation (i.e., fall below the diagonal solid line), and 23.7 percent of these differences are statistically different at the 90 percent



**Figure 2.** Fifty-nine survey-specific estimates of the guns/butter effect in spending preferences, conditional on opposition to (y-axis) or support for (x-axis) government-financed job creation. Each dot represents a survey-specific estimate of the effects of increasing *health spending* from 1 (much less) to 5 (much more) on the probability of supporting “more” *defense spending* (“more” + “much more”), conditional on whether the respondent opposes (y-axis) or supports (x-axis) government-financed job creation (*create jobs*). The four US estimates are noted with circles for illustrative purposes. Dashed lines partition the space into positive and negative *guns/butter effects*, and the solid 45° line reveals whether the *guns/butter effect* switches signs.

confidence level. In twelve of the surveys (23.7 percent), the welfare-inducing effect is so strong that the sign flips from competing to complementary (lower-right quadrant); only twelve (20.3 percent) of the other estimates remain negative.

While the majority of the other surveys suggest positive relationships, the four US surveys (circled) are near the bottom with negative trade-offs. In fact, of the twelve surveys that remain in the *guns versus butter* category (i.e., lower-right quadrant), four are American surveys. Even among those who prefer the government taking an active role in employment, Americans think that an increase in social spending ought to be offset with decreases in defense spending (i.e., left of the vertical dashed line). Furthermore, the United States has some of the lowest aggregate percentage of respondents supporting government-financed job creation (fourth lowest with 69.0

percent and sixth lowest with 69.8 percent). We can therefore characterize the United States as having a minority of respondents with competing spending preferences (left column of Figure 1) and a majority of respondents with no relationship (right column of Figure 1). This finding offers a possible explanation for the apparent discrepancy in preferences in the United States compared to other democracies.

## Explaining Trade-offs in Preferences

In the theory presented above, I offered an individual-level explanation based on preferences for government-financed job creation for variations in the relationship. While this sheds light on why so many *guns/butter effects* grow more positive when the respondent favors government-financed job creation (i.e., estimates that are below the solid diagonal line in Figure 2), it does not explain the magnitude of *guns/butter effects*. Why does support for health spending trigger cuts in defense spending support in some contexts but not others? In other words, why is it guns versus butter (lower-left quadrant) in some contexts but guns yield butter (upper-right quadrant) in others? The thermostatic theory provides some guidance here, as it argues that the relationship between preferences and budgets is stronger in salient (Wlezien 1996) and publicly important (Wlezien 2004) issue areas that have “clearly defined” policies with easily available information (Wlezien 1995). I therefore theorize that the salience (or importance) of defense spending—along with the ease of justifying a larger defense burden—explains the trade-offs in preferences (*guns/butter effect*).

I capture these two explanations with six survey-specific variables. The first explanation is tied to the salience of defense spending. I expect that increasing the salience—measured with *military expenditures*, *US change in military expenditures*, and *hawk/dove emphasis*—will make respondents view defense and health spending as competing with each other (e.g., Kamlet, Mowery, and Su 1988; Berry and Lowery 1990). The latter variable, *hawk/dove emphasis*, reflects the extent to which parties emphasize hawkish positions in official party communications (Whitten and Williams 2011). Higher values on this variable mean that the parties in that country, on average, are more hawkish in their campaign manifestos (Volkens et al. 2014).<sup>9</sup> The second explanation captures the circumstances that make it easier to justify a larger defense burden, both politically and economically. When circumstances create a situation of abundance, respondents will not view the two as zero-sum and the *guns/butter effect* will be more complementary (positive). I expect that *GDP per capita growth*<sub>*t*-1</sub> will have a positive effect and *net defense support* and *net health support*—calculated as the difference in percentage of respondents favoring “more” spending compared to “less” spending (see Wlezien 1995, 985)—will have positive and negative effects, respectively.

Table 5 shows the results of two simple ordinary least squares regressions of the *guns/butter effect* for those who oppose and support government-financed

**Table 5.** Meta-analysis of the Guns/Butter Effect (Estimated via Survey-specific Models) for Those Who Oppose and Support Government-financed Job Creation.

| Variable                                | Create Jobs  |   |
|---|--|---|
|   | Oppose   | Support   |
| Military expenditures                   | $-2.1 \times 10^{-12}^{**}$<br>[ $-5.6 \times 10^{-12}$ , $-4.4 \times 10^{-13}$ ] | $-1.65 \times 10^{-12}^{**}$<br>[ $-4.4 \times 10^{-12}$ , $-2.5 \times 10^{-13}$ ] |
| GDP per capita growth <sub>t-1</sub>    | .017**<br>[.004, .029]   | .008**<br>[.001, .014]  |
| Net support: health                     | -.002**<br>[-.004, -.001]  | -.002**<br>[-.003, -.001]   |
| Net support: defense                    | .004**<br>[.003, .005]   | .004**<br>[.004, .005]  |
| Hawk/dove emphasis                      | -.025**<br>[-.036, -.014]  | -.016**<br>[-.021, -.010]   |
| US $\Delta$ expenditures <sub>t-1</sub> | -.005<br>[-.010, .001]   | -.004**<br>[-.007, -.002]   |
| Constant                                | .226**<br>[.120, .342]   | .314**<br>[.255, .380]  |
| Adjusted $R^2$                          | .316<br>[.167, .466]   | .675<br>[.591, .763]  |
| Root mean squared error                 | .168<br>[.135, .203]   | .086<br>[.072, .10]   |
| N                                       | 59   | 59  |

Note: Ninety percent confidence intervals are based on the percentile method derived from 1,000 estimates of the *guns/butter effect* (King, Tomz, and Wittenberg 2000). Positive values of the dependent variable (*guns/butter effect*) mean that increased support for health spending increases the probability of supporting more defense spending.

\*90 Percent.

\*\*95 Percent.

job creation.<sup>10</sup> Table 5 identifies those contexts where *guns versus butter* attitudes prevail. These are those contexts where defense spending is highly salient, due to large amounts of spending (*military expenditures*), changes in the security situation (*US  $\Delta$  expenditures*), and heightened discussion among political elites (*hawk/dove emphasis*). Furthermore, when public support for defense (health) spending is high (low), or when the economy is growing, the spending types are complementary. Aside from one minor difference (*US  $\Delta$  expenditures* is not statistically significant in the first model), the results are consistent across *guns/butter effects*. Most notably, the adjusted  $R^2$  and root mean squared error indicate that this model explains the trade-offs much better among those who are predisposed to favor the welfare-inducing benefits of spending. This model is the first of its kind to predict the types of trade-offs across contexts and provides macrolevel rationale for the anomalous nature in the United States.

## Implications and Conclusion

How do citizens view the relationship between government spending on defense and welfare? Do they see a *guns versus butter* trade-off or do they view spending as *guns yield butter*? I theorize that attitudes depend on individuals' basic idea about the appropriate role of government. Those who believe that government should take an active role in the creation of jobs will view the two spending types as complementary, while those who oppose this role will view the two spending types as competing. Among those who support government-financed job creation, I find strong evidence for complementary attitudes toward both types of spending. I theorize that these individuals see defense spending's positive externalities and are more likely to view the two spending types as both contributing to economic growth. I find support for this theory in a pooled sample as well as survey-specific models. Simply viewing government-financed job creation as favorable potentially flips one's perspective from *guns versus butter* to *guns yield butter*.

In addition to presenting individual models of defense spending preferences, this study represents the first attempt to systematically estimate the *guns/butter effect* in preferences. Only by disaggregating the full model into survey-specific models can we see that the context in which most studies of *guns versus butter* have been carried out—the United States—is also an anomalous case. I offer a potential explanation for this anomaly; while having favorable attitudes toward government-financed job creation often flips one's preferences from competing to complementary in most democracies, the relationship in the United States remains one of competing preferences. This difference, when combined with the lower average percentage of those who favor government-financed job creation, explains why the trade-off is so prominent in the United States. Moreover, I offer a general theory centered on context-specific factors to explain the *guns/butter effect* across countries and time. Situations where defense spending is either a salient issue (due to the security situation or elite messages) or where the economic and political climate encourage respondents to consider trade-offs, produce clear trade-offs in defense and health spending preferences. These contextual factors are also found in the United States. Thus, this article reconciles the puzzling differences in the *guns/butter effect* in the United States relative to other democracies.

This study's empirical approach represents a clear departure from previous research examining trade-offs in preferences (Eichenberg and Stoll 2003, 2012) and thermostatic representation (e.g., Wlezien 1995). Instead of aggregated time-series data of public opinion in a single country, this study uses a cross-section of individuals' preferences. Both approaches have notable strengths and weaknesses. The time-series approach can reveal how public opinion responds to and influences expenditures, while controlling for particular idiosyncracies in the budget process that might vary across countries (e.g., Eichenberg and Stoll 2003, 415). These inferences come with a cost, as the approach shifts the unit of analysis away from the individual respondent to the aggregate (or at least, the subgroup, see Eichenberg



and Stoll 2012). Only cross-sectional data can reveal how individual-level preferences for government-financed job creation condition the relationship between support for defense and health spending. One should be cautious, however, about inferring a *guns yield butter* relationship in the aggregate simply because there is evidence for it at the individual level. It is quite possible that groups with more or less supportive attitudes about defense spending are mobilized to different extents. For example, Bartels (1994, 488) shows that less informed respondents are less responsive to shifting political and economic conditions. The consequence of differential mobilization rates is that attitudes that are predominantly complementary at the individual level might appear to be unrelated, or even competing, in the aggregate.

In a representative democracy, it is fundamental that there exists a connection between policy preferences of the public, its leaders, and the outcomes that result from deliberative processes. In addition to anecdotal evidence,<sup>11</sup> various studies have provided support for such a relationship, since policy preferences are closely connected to outcomes in general and in defense spending in particular (for the US context, see Page and Brody 1972; Hartley and Russett 1992; Higgs and Kilduff 1993; for studies outside the United States, see Goldmann, Berglund, and Sjostedt 1986; Russett 1990; Eichenberg and Stoll 2003). Not only is this study informative in terms of our understanding of the domestic motivations for differential rates of defense spending but also how changes in spending influence public preferences. Understanding the catalysts of individuals' preferences is necessary for explaining actual budgetary outputs: "public opinion is the most substantively important influence on the budget that remains after the Cold War" (Russett, Hartley, and Murray 1994, 20).

### Authors' Note

All additional materials and replication files can be found at <http://dataverse.harvard.edu/dataverse/laronwilliams>.

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## Supplemental Material

Supplemental material for this article is available online.

## Notes

1. A model that excludes the six surveys during the Cold War (the first module) returns substantively similar results.
2. As robustness checks, I have also used other measures of social spending, including education, pensions, and unemployment. The results for all three spending types suggest that favoring government-financed job creation increases the strength of the relationship between social and defense spending, though the interaction in the unemployment model is not statistically significant at conventional levels. Results are available in the Online Appendix.
3. Two alternative measures of military spending control for the size of the economy (*military expenditures as a percent of gross domestic product*) and total population (*military expenditures per capita*). Models in the Online Appendix show that key findings are robust to these alternative specifications.
4. It is important to note that the thermostatic model is based on appropriations, which are not the same as expenditures (Wlezien 1996, 86). Nevertheless, the absence of appropriations data for the wide range of countries makes expenditures the only remaining option. If anything, the use of expenditures rather than appropriations biases *against* finding a pattern of responsiveness (Wlezien and Soroka 2003, 280-82).
5. In the absence of partisan identification or ideology variables in the International Social Science Program surveys, an individual's willingness to cut government spending acts as a rough proxy for position on a left-right ideological scale.
6. I substituted data from the Penn World Table to account for the three elections (Hungary 1990, Slovenia 1995, and Latvia 1996) with missing data.
7. The United States is certainly not unique in this manner, as political leaders have debated the employment impacts of cutbacks and American base closures in France (Agence France Presse 2008), Greece (Anastasi 1990), and Spain (Delaney 1988), to name a few.
8. This includes questions addressing preferences for income taxes, economic redistribution, progressive taxes, international threats, and socioeconomic status.
9. This measure is the average emphasis by all parties in their most recent election manifestos in favor of military spending minus statements against military spending and in favor of peace (see Whitten and Williams 2011, 123).
10. Since the dependent variables are the *guns/butter effects* calculated from the survey-specific models, the 95 percent confidence intervals are based on bootstraps of the 1,000 simulated *guns/butter effects* (King, Tomz, and Wittenberg 2000).
11. Russett (1990, 108) offers an anecdote that in President Reagan's second term, Mike Deaver (White House Deputy Chief of Staff) and Nancy Reagan "reportedly used polls showing Americans' waning enthusiasm for defense spending to persuade the president to reduce his proposed military budget."

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