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# The Behavioral Political Economy of Budget Deficits: How Starve the Beast Policies Feed the Machine

Joseph Daniel Ura and Erica M. Socker

## Abstract

The notion of “starving the beast” has been an important justification for fiscal programs emphasizing revenue reductions since the mid-1970s. While the idea of restraining government spending by limiting government revenues has an intuitive appeal, there is convincing evidence the reducing federal tax rates without coordinated reductions in federal spending actually produces long-term growth in spending. This perverse result is explained by a theory of “fiscal illusion.” By deferring the costs of government services and benefits through deficit financing, starve the beast policies have the effect of lowering the perceived price of government in the minds of many citizens. We assess the principal behavioral prediction of the fiscal illusion theory.

Incorporating estimates of the effects of federal deficits into a standard substantive model of Stimson's mood index, we find strong support for a subjective price-driven theory of demand for government. In particular, we find that the size of the federal budget deficit is significantly associated with greater demand for government services and benefits. This may have important implications for contemporary debates about fiscal discipline.

**KEYWORDS:** deficits, fiscal illusion, public opinion, macropolitical, starve the beast

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*When national debts have once been accumulated to certain degree, there is scarce, I believe, a single instance of their having been fairly and completely paid. The liberation of public revenue, if it has ever been brought about at all, has always been brought about by bankruptcy.*

—Adam Smith

Addressing the nation at the height of the Vietnam War on March 31, 1968, President Lyndon Johnson pointed to the stark problem of fiscal imbalance that had been created by military spending:

On many occasions I have pointed out that, without a tax bill or decreased expenditures, next year's deficit would again be around \$20 billion. I have emphasized the need to set strict priorities in our spending. . . Yet Congress has not acted...[T]he United States must bring its balance of payments to—or very close to—equilibrium. We must have a responsible fiscal policy in this country. The passage of a tax bill now, together with expenditure control that the Congress may desire and dictate, is absolutely necessary to protect this Nation's security, to continue our prosperity, and to meet the needs of our people. . .

President Johnson's call for fiscal discipline was, in fact, successful in the short run. In the next fiscal year, 1969, the federal government ran a nominal surplus of \$3.2 billion dollars, equivalent to 0.03% of Gross Domestic Product (GDP) or \$19 billion 2010 dollars (OMB 2010). In the next year, though, the deficit returned, and it has been living with us, more or less, ever since. Indeed, the federal government has spent more money than it has collected every year since 1970 save the brief window from 1998 through 2001.

At the time of this writing, these deficits have accumulated into a national debt in excess of \$14.23 trillion (U.S. Debt Clock 2011). The Congressional Budget Office estimates that publicly held government debt equaled roughly 62% of the nation's GDP at the end of the 2010 fiscal year (Huntley 2010). Deficit financing of federal expenditures and the accumulation of additional debt are likely to continue for the foreseeable future even under optimistic forecasts for revenue collections and spending restraint (Huntley 2010). Though leaders of the major political parties have recently proposed aggressive reforms to limit deficit spending and move toward debt reduction over time, both Republican and Democratic approaches to deficit reduction face substantial institutional hurdles in a period of divided government as well as widespread public suspicion of key elements of each set of proposals.

The emergence of persistent deficit financing of ordinary and extraordinary federal expenditures and the accumulation of a massive public debt unrelated to a world-wide military conflict have two principal sets of political parents. The first are supporters of Keynesian economic policies who promote deficit spending to limit the size and scope of periodic economic contractions by stimulating aggregate demand (Keynes [1936] 2007; Krugman 1995). The second are advocates of limited government who endorse plans to reduce federal revenue collections in order to create budget deficits that they think will necessarily catalyze future reductions in federal spending (Becker 2001; Friedman 2003).

Those motivated to “prime the pump” have historically made relatively modest claims about prospects for deficit-financed stimulus to ultimately yield fiscal balance (i.e. “In the long run we are all dead” [Keynes 1924, p.88]). In contrast, those who have turned to deficits as a way to “starve the beast” typically indicate that the fiscal shortfalls created by decreased revenue collections will be self-correcting. Indeed, these kinds of policy arguments hinge on the idea that reduced rates of taxation and the subsequent decreases in government revenue collection will lead to budget deficits that, in turn, catalyze reductions in public expenditures.

Yet, the increases in public spending (along with growing federal deficits and mounting national debt) that followed the enactment of Ronald Reagan’s tax cut plan in 1981 and George W. Bush’s tax cut legislation in 2001 have prompted serious reevaluation of the starve the beast approach among both politicians and scholars of political economy. Systematic analyses of the effects of tax cuts on government spending have nearly uniformly concluded that intentional reduction in revenue collections that are not coordinated with concurrent reductions in government spending *do not* ultimately reduce government outlays (e.g. Gale and Kelly 2004; von Furstenberg, Green, and Jeong 1986 but see Bohn 1991). Indeed, some analysts have found a negative relationship between federal revenue collections and federal spending, indicating that decreases in revenue collections may actually lead to increases in public expenditures (Buchanan and Wagner 1977; Niskanen 1978, 2006; Romer and Romer 2009).

The failure of starve the beast policies is well documented, yet the reasons for its failure are not well understood. Indeed, there is little theoretical development or empirical evidence about the *political dynamics* that support policy choices resulting in the persistent accumulation of public debt. Since electoral pressures ultimately catalyze and constrain the behavior of office-seeking politicians (e.g. Mayhew 1974), investigating public responses to starve the beast policies, and deficit spending more generally, is an obvious starting point for understanding how and why public indebtedness has continued to grow despite an apparently strong mass and elite consensus that it is deeply problematic.

The theory of “fiscal illusions” suggests a useful account of the mass public’s response to deficit spending (e.g. Buchanan 1967, Buchanan and Wagner 1977; Puviani 1903). Fiscal illusion theory argues that factors that attenuate the link between taxes and government spending (such as deficit financing or tax complexity) distort perceptions of the costs and benefits of government services and can lead to inefficient resource allocations. Starve the beast policies or other deficit-inducing policy choices have the effect of lowering the perceived price of government services, which, according to classical price theory, should increase aggregate demand for government. The fiscal illusion created by the resulting deficits distorts the electorate’s subjective perception of the price of government, increasing the quantity of government demanded.

This price-driven theory of aggregate demand for government yields a testable hypothesis: the size of the federal budget deficit should be positively related to aggregate demand for government. This prediction can be assessed in the context of the political science literature on American macro politics by incorporating federal deficits into a standard model of Stimson’s (1999, 2009) mood index, which is typically interpreted as an indicator of public preferences for the size and scope of federal government activity, particularly social welfare policies. We find that federal budget deficits predict significant increases in public demand for government spending and services controlling for domestic spending levels, unemployment, and inflation.

This result has several important implications. Evidence that the public’s aggregate demand for government is price-sensitive supports a coherent behavioral account of the failure of starve the beast policies to reduce government spending. While prior systematic analyses have demonstrated elected policymakers’ failure to reduce future public expenditures when revenue collections decrease, our analysis provides evidence for a behavioral mechanism that motivates policymakers’ actions. The electorate’s response to deficit spending increases the political costs to politicians of reducing government spending. This insight into public responsiveness to the perceived price of government offers some guidance about how to construct policies to restore fiscal balance that might win public support. Finally, our findings also suggest important revisions and extensions of existing macropolitical theories of spending preferences and public mood.

### **Starving the Beast?**

The notion of starving the beast—constraining government spending by reducing revenue collections—has a long and complex history (Bartlett 2007). However, Milton Friedman’s (1978) call for “fiscal conservatives” to stop “concentrating on the wrong thing, the deficit, instead of the right thing, total government spending”

quickly propelled the idea into mainstream conservative economic thinking (1978, p. 11). Indeed, starving the beast became part of the conservative fiscal canon with the election of Ronald Reagan (Bartlett 2007). Though President Reagan initially paired his proposals for substantial permanent reductions in federal income tax rates with plans for reduced federal spending, he ultimately endorsed and signed legislation reducing taxes without offsetting spending cuts. He justified the change in Republican fiscal orthodoxy by explaining that one could eliminate “children[’s]. . . extravagance by simply reducing their allowance” (Reagan 1981). However, the Reagan tax cuts were not followed by reductions in federal spending, leading an anonymous White House source to lament, “we didn’t starve the beast” (Blustein 1985).

Despite the experience of the Reagan era, starve the beast theory has remained a prominent element of conservative political-economic thinking. In 2001, President George W. Bush suggested that his tax cut plan would induce greater restraint on federal spending in Congress (Bush 2001). Indeed, Milton Friedman and Gary Becker separately endorsed starve the beast rationales (among others) for reductions in federal income tax rates (Becker 2001; Friedman 2003). The passage of federal income tax cuts in 2001, however, has yet to precede decreases in federal spending.

The anecdotal failure of tax cuts to produce reductions in federal spending along with the continued prominence of starve the beast theory as part of the justification for reduction in federal tax rates has spurred systematic analysis of the effects of changes in federal revenue collection policy for future government expenditures. The preponderance of these studies conclude that reduced tax rates do not predict future decreases in spending (e.g. Anderson, Wallace, and Warner 1986; Gale and Kelly 2004; Jones and Williams 2008; Niskanen 1978, 2006; New 2009; von Furstenberg, Green, and Jeong 1986; Young 2009; but see Bohn 1991). Other analyses of the relationship between federal revenue collections and federal budget authorizations go even further, concluding that there is a negative relationship between federal revenues and federal expenditures (Buchanan and Wagner 1977; Gale and Orszag 2004; Niskanen 1978, 2006; Romer and Romer 2009). In other words, reductions in federal revenues are associated with increases in future spending—even after accounting for fiscal dynamics related to the business cycle (Gale and Orszag 2004; Niskanen 1978) and changing policy priorities (Romer and Romer 2009). These results predict that starve the beast policies—policies creating tax cuts without coordinated reductions in federal spending—have the ultimate effect of increasing federal expenditures beyond the level they would have achieved otherwise.

The failure and, indeed the counterproductivity, of starve the beast policies is a critical puzzle for students of fiscal policymaking and those interested in the fiscal well-being of the United States. Seemingly endless budget deficits represent

a serious and objective fiscal problem that can only be remedied by harmonizing spending and revenues. Reducing government revenues through lower rates of taxation would seem to produce political pressure to limit public expenditures either through public dissatisfaction with deficit conditions or elite-driven recognition of the need for fiscal sustainability. Yet, revenue-reducing policies that are not coordinated with expenditure-reducing policies seem to have little constraining effect on future expenditures.

### **Fiscal Illusion and the Subjective Price of Government**

The classic notion of the “fiscal illusion” suggests a resolution (e.g. Buchanan and Wagner 1977; Puviani 1903). “Fiscal illusion” refers to any policy or practice that obscures the true costs of government programs, services, or transfers, interfering with the efficient allocation of societal resources. For example, a fiscal illusion may emerge when revenues are collected from many small, indirect taxes rather than a lump-sum direct tax. In that case, citizens’ ability to accurately observe and efficiently evaluate the costs of existing government programs is (rationally) limited by the information costs of identifying their respective tax burdens.

The “debt illusion” is another example (Dollery and Worthington 1996). The debt illusion emerges when current government services and benefits are provided by deficit financing. For a variety of cognitive and informational reasons, citizens are likely to be more aware of the actual costs of public programs when they are paid for by current tax revenues rather than future tax revenues. For instance, the public may focus almost entirely on the short-term, neglecting to account for the long-term costs in a rational way. Thus, the price of government services and benefits appears lower when they are debt-financed rather than tax-financed. As a result, citizens’ demand for public programming should be positively related to the extent to which the costs of current expenditures are deferred.

The debt illusion has obvious relevance for understanding the failure of starve the beast policies. The empirical result that revenue collections are negatively associated with government spending demonstrates that politicians respond to decreased revenues by increasing future spending. However, politicians’ actions are likely motivated by the electorate’s response to deficit spending. Given the evidence that politicians have incentives to respond to the public’s policy preferences (see, e.g., Mayhew 1974) and that political elites are broadly responsive to public opinion (Erikson, MacKuen, and Stimson 2002), it is reasonable to assume politicians’ reluctance to offer clear plans to reduce the federal deficit is at least partially motivated by the public response to deficit spending. Niskanen explicitly links the debt illusion to starve the beast policies, explaining, “Reducing the current tax burden of federal spending has much the

same effect as a price control, increasing the amount demanded relative to that supplied from current revenues” (2008, p. 4). Essentially, the theory suggests the government offers citizens a basket of goods and services whose price is equivalent to current government revenues. Reducing the tax burden without constraining spending creates the “illusion” of lowering the price of the basket of government goods and services, which, in turn, increases demand for government. Thus, the debt illusion suggests that exacerbating a deficit by reducing tax rates without corresponding spending cuts will increase public demand for additional expenditures.

The theory of the debt illusion addresses the electorate’s response to a choice to finance government spending now with revenues collected later. Its application to the starve the beast puzzle suggests a behavioral explanation for the approach’s failure to reduce government spending. Yet, extant studies of the debt illusions have focused the temporal relationship between policies changes, i.e. the association between past policy decisions and later policy decisions. While this approach tests an indirect implication of the debt illusion theory, it does not assess the link between fiscal policy and mass behavior. Because this empirical work focuses on decisions made by policymakers, rather than examining the electorate’s response to deficit spending, it supplies little evidence of the debt illusion’s relevance for federal fiscal policy in general or for starve the beast policies in particular. If deficit spending generates an increased public demand for government spending, this behavioral mechanism helps us understand politicians’ failure to reduce future spending when revenues decrease by demonstrating the political constraints politicians face. Indeed, the political incentives exist for politicians to increase, rather than reduce, government spending in response to reduced revenue collections and deficit spending.

### **Assessing the Behavioral Effects of the Debt Illusion**

The political science literature on public mood (or mass policy sentiment) in the United States suggests a direct test of the principal behavioral prediction of the debt illusion theory in the context of federal fiscal policy. The concept of public mood—often represented by Stimson’s (1999) mood index—is typically interpreted as the electorate’s aggregate level of unfulfilled (marginal) demand for government benefits and services (Stimson 1999, 2004; see also Durr 1993; Ellis, Ura, and Ashley-Robinson 2006; Enns and Kellstedt 2008; Erikson, MacKuen, and Stimson 2002; Ura and Ellis 2008) and is expressed as mass political liberalism (e.g. Binder 1999; Mishler and Sheehan 1993; Kelly 2009).

Empirical analysis indicates that public mood—interpreted as aggregate demand for the basket of federal goods, services, and benefits—changes over time as a function of the innate desirability of government policies and the current

supply of government. First, the attractiveness of government policies is related to the current state of the macro economy, usually indicated by inflation and unemployment rates (Durr 1993; Enns and Kellstedt 2008; Erikson, MacKuen, and Stimson 2002). Greater unemployment spurs increased demand for public services and, therefore, more public opinion liberalism (more demand for government). Increased inflation produces pressure to limit public expenditures, which has the effect of reducing demand for government and predicts greater conservatism.

Second, the marginal quantity of government demanded is a function of the amount of government currently supplied. This is usually represented empirically by either an indicator of cumulative legislative enactments (Erikson, MacKuen, and Stimson 2002; Kelly 2009) or federal spending (Wlezien 1995, 1996; Soroka and Wlezien 2009). Regardless of the measurement approach employed, these models regularly show negative feedback in public opinion from changes in public policy. In other words, the greater the level of spending on domestic programs or the greater the accumulation of liberal legislative enactments become the lower the marginal demand for additional programs, services, benefits, and other public expenditures.

These factors establish a useful baseline against which we may estimate the effects of federal budget deficits for aggregate demand for government. By incorporating deficit spending into this baseline model of public mood, we create a direct test of the hypothesis that larger federal deficits are associated with increased public demand for government.

### **Data**

We measure aggregate policy sentiment using Stimson's (1999; 2009) annual mood index. Mood is a dynamic factor score representing the common over-time variance in dozens of survey questions covering an array of political issues (principally related to expenditures for domestic policy problems) asked in identical form many times from the early 1950s through 2008. Mood is scaled so that higher values indicate greater liberalism, i.e. greater demand for government. So, for example, an increase in policy mood from time  $t$  to time  $t+1$  indicates that the public prefers higher federal expenditures and more expansive social welfare benefits.

Since we are most proximately interested in fiscal policy, we follow Wlezien (1995, 1996; Soroka and Wlezien 2009) in measuring policy liberalism with government spending. In particular, we measure the supply of government consumed as the annual value of all federal appropriations less those for defense, foreign aid, homeland security, and debt service reported by the Policy Agendas Project expressed as a proportion of gross domestic product (GDP; Baumgartner

and Jones 2009, 2010).<sup>1</sup> This represents the total value of all federal spending on domestic programs (including entitlements and discretionary programs) and services as well as administrative and personnel costs expressed as a proportion of the size of the United States economy.

We measure the size of the federal budget deficit relative to the gross domestic product. Deficit data relative to GDP are reported by the Office of Management and Budget (2010). We use deficit statistics derived from total federal outlays, which incorporates both on-budget appropriations as well as off-budget items (including Social Security and the Postal Services Fund). Finally, we measure the state of the macro economy using standard indicators of inflation and unemployment. Inflation is the percentage change in the annual Consumer Price Index for each year (Bureau of Labor Statistics 2009a). Unemployment is the average annual rate of unemployment (Bureau of Labor Statistics 2009b).

### Modeling Demand for Government

We use a single equation error correction model (ECM) to examine whether changes in the federal deficit alters the public's preferred size of government. The ECM is a reparameterization of the more familiar autoregressive distributed lag model (ADL) which explicitly estimates the short run and long run effects for each independent variable (DeBoef and Keele 2008). For a bivariate relationship, the Bardsen single equation ECM takes the form:

$$\Delta Y_t = \alpha_0 + \alpha_1 Y_{t-1} + \beta_1 \Delta X_t + \beta_2 X_{t-1} + \varepsilon_t$$

In this model, each independent variable has two parameter estimates associated with it. The first,  $\beta_1$ , represents the effects of a short-term change in a particular independent variable on changes in the dependent variable. If public policy were to move in a liberal direction, for example,  $\beta_1$  would capture the immediate effect of this liberal move on public opinion. This effect occurs entirely at a particular point in time and decays at the rate indicated by the error correction parameter. The long-run impact of a change in the independent variable on the dependent variable is a function of both  $\beta_2$  (the long-run coefficient) and  $\alpha_1$  (the error-correction coefficient). The total impact of the long run effect is not felt at a single time point, but is instead distributed over time as a function of the error correction parameter.

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<sup>1</sup> The Policy Agendas Project data used here were originally collected by Frank R. Baumgartner and Bryan D. Jones, with the support of National Science Foundation grant number SBR 9320922, and were distributed through the Department of Government at the University of Texas at Austin (<http://www.policyagendas.org/index.html>). Neither the National Science Foundation nor the original collectors of the data bear any responsibility for the analysis reported here.

Table 1: Federal Deficits and the Demand for Government

Predictors (Expected Sign)	Baseline Model	Extended Model
<b>Long-Run Multipliers (Total Long-Run Effects)<sup>a</sup></b>		
LRM Deficit (+)		1.77* (0.66)
LRM Domestic Spending (-)	-1.03* (0.41)	-1.15* (0.29)
LRM Inflation (-)	-1.73* (0.71)	-1.41* (0.47)
LRM Unemployment (+)	1.94 (1.28)	-0.42 (1.02)
<b>Long Run Effects</b>		
Deficit <sub>t-1</sub> (+)		0.55* (0.23)
Domestic Spending <sub>t-1</sub> (-)	-0.24* (0.10)	-0.36* (0.11)
Inflation <sub>t-1</sub> (-)	-0.40* (0.14)	-0.44* (0.13)
Unemployment <sub>t-1</sub> (+)	0.45* (0.25)	-0.13 (0.33)
<b>Short Run Effects</b>		
$\Delta$ Deficit <sub>t</sub> (+)		0.64* (0.23)
$\Delta$ Domestic Spending <sub>t</sub> (-)	-0.60 (0.37)	-0.68* (0.35)
$\Delta$ Inflation <sub>t</sub> (-)	0.06 (0.22)	0.09 (0.21)
$\Delta$ Unemployment <sub>t-1</sub> (+)	1.21* (0.51)	0.93* (0.48)
<b>Error Correction, Constant, and Diagnostics</b>		
Error Correction (Mood <sub>t-1</sub> ) (-)	-0.23* (0.07)	-0.31* (0.07)
Constant	16.26* (5.35)	25.21* (6.24)
$R^2$	0.35	0.47
Adjusted $R^2$	0.25	0.35
$\sqrt{MSE}$	1.64	1.53
Augmented Dickey-Fuller Test for Unit Root <sup>b</sup>	-7.79*	-6.25*

Note: Unless otherwise indicated, cell entries are OLS estimates. (Standard errors in parentheses.)

\* $p < 0.05$  .One-tailed tests.  $N = 51$ .

<sup>a</sup>LRMs are estimated via Bewley model (DeBoef and Keele 2008).

<sup>b</sup>The augmented Dickey-Fuller statistic tests the null hypothesis of a unit root (integrated) process in the model's residuals.

The error correction coefficient, bounded between 0.0 and -1.0, provides a sense of how quickly long-term effects occur: a highly negative coefficient suggests that the effects occur relatively quickly. If both  $\beta_2$  and  $\alpha_1$  are statistically significant, we can infer evidence of a long-run effect of Y on X, the total size of which can be calculated analytically as  $(\beta_2/\alpha_1)$  or estimated statistically by the Bewley transformation of the ECM. The explicit estimation of the short run and long run effects in the model above make it an appropriate choice because the temporal dynamics we are interested in theoretically are easily estimated and interpreted with this model specification. Although ECMs are frequently associated with cointegration, DeBoef and Keele (2008) demonstrate that they can also be applied to stationary data in the absence of cointegration.

Using the ECM, we estimate two separate models to test the empirical implication of our theory. In both models, the dependent variable is the first difference of Stimson's mood index. We proceed by estimating a baseline model of mood (the public's aggregate demand for government) as a function of the first lag of the mood index (the error correction term) as well as the first lags (long run effects) and first differences (short run effects) of federal domestic spending, inflation, and unemployment. The second model builds on this baseline by incorporating estimates of the long run and short run effects of the size of the federal deficit relative to the gross domestic product. This model assesses the dynamics of the relationship between deficit spending and the public's demand for government and represents the critical test of the price-driven theory of public responsiveness to deficit spending. Both models are estimated using data from 1956 through 2008. Model estimates are reported in Table 1.

### Results and Analysis

The baseline model estimates replicate the substantive results of previous studies of policy mood indicating that aggregate demand for government is responsive to a variety of changes in the macro political-economic environment. These results generally carry over to the extended model, which additionally indicates that deficit spending has a significant long-run effect on aggregate expressed demand for government. These model estimates provide support for our theory of deficit spending's influence on mass political behavior and have important implications for policymaking and scholarly accounts of the dynamics of public mood.

First, the results of the baseline model are consistent with thermostatic theories of public opinion and existing empirical analyses of public mood. Policy sentiment becomes more liberal in response to increased unemployment and more conservative in response to increased domestic spending and inflation. While only unemployment is associated with significant short-run effects, changes in domestic spending, inflation, and unemployment correspond to sizeable long-run

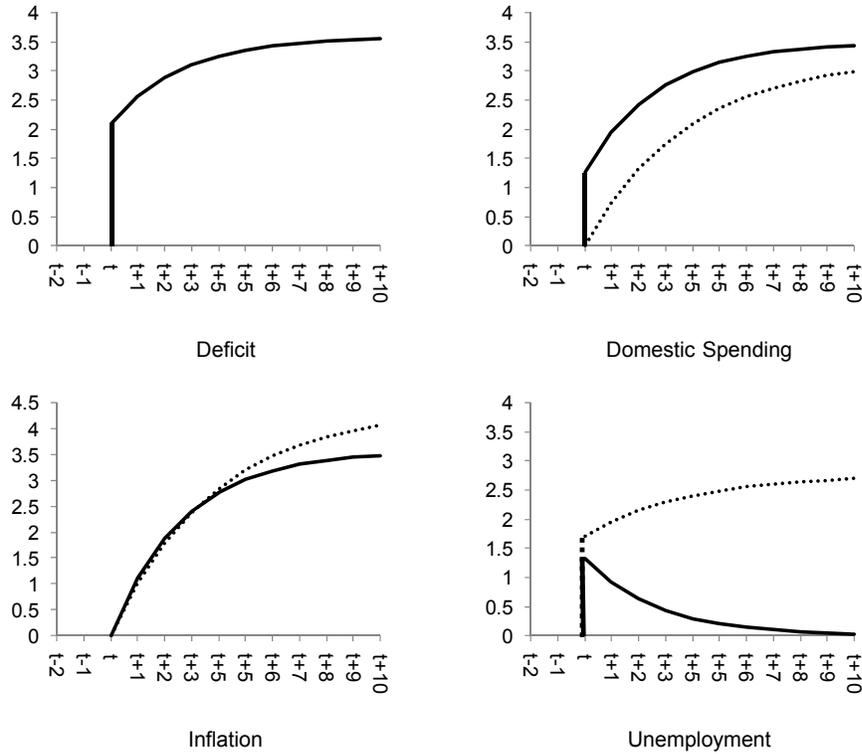
changes in policy mood in the baseline model. While these results provide additional support for thermostatic accounts of dynamics in public mood, our principal interest is whether increased deficit spending is associated with increased demand for government. This question is addressed by the extended model, also reported in Table 1, which incorporates the size of the federal deficit into the baseline model of public mood.

Consistent with fiscal illusion theory, the model estimates indicate that increases in the federal deficit increase the public demand for government. More specifically, increasing the size of the federal budget deficits relative to GDP predicts significant short-run and long-run increases in public mood. In the short run, an increase in deficit spending equal to 1% of GDP at time  $t$  predicts an instantaneous (i.e. also at time  $t$ ) increase in public opinion liberalism of 0.64 points. Though this short-run effect will eventually decay, the modest size of the error correction parameter (-0.31) indicates that the short-run effect constitutes an important disequilibrium between public opinion and federal fiscal policies. After one year (at  $t + 1$ ) 69% of the short run effect is still in place, and nearly half (roughly 47%) is still in place after two years. Indeed, the predicted short-run effect of an increase in the budget deficit does not decay to less than a quarter of its initial value for four years.

Even more importantly, though, the changes in the size of the federal deficit predict a significant long-run reequilibration of public mood. Each increase in deficit spending equal to 1% of GDP at time  $t$  predicts a total long-run increase (long-run multiplier) of 1.77 points in mood. The model predicts that this effect emerges over time as a function of the error correction parameter. In year  $t + 1$ , 31% of the effect (0.55 points; indicated by the long-run parameter in the model) will be in place. In year  $t + 2$ , 31% of the remaining predicted long-run multiplier (0.38 points) will accumulate, and so on until the full long-run multiplier accumulates asymptotically. At the predicted rate of change, the dynamics of public mood have a median lag length of 2 (i.e. at least half of the total predicted long-run change will have emerged by  $t + 2$ ), though 90% of the effect will not be in place until seven years after the impulse.

To some extent, though, the “unit change” scale fails to capture the magnitude of the predicted effects of deficit spending for public mood. Instead, the effects are better understood in terms of the observed range of the data. The standard deviation of the federal budget deficit expressed as a percent of GDP is 1.91. A standard deviation increase in the size of the federal budget deficit, therefore, predicts a total-long run increase of 3.40 points in mood (roughly 0.78 standard deviations). The top left panel of Figure 1 illustrates the dynamics of all (i.e. short-run and long-run) changes in public mood predicted by a standard deviation increase in deficit spending relative to GDP.

**Figure 1. Predicted Changes in Mood**



Note: Figures illustrate total predicted effects associated with changes of one standard deviation the indicated variables at time  $t$  (see Table 1). Solid lines show predictions based on the extended model described in the text; dashed lines show predictions based on the baseline model (see Table 2). Insignificant effects are not used in the computation of predicted values.

For comparison's sake, Figure 1 also shows the predicted effects of standard deviation changes in domestic spending (top-right panel), inflation (bottom-left panel), and unemployment (bottom-right panel) for both the baseline model and the extended model scored so that the illustrated predicted effects are all positive. We note, in particular, that the total long-run effects of standard deviation increases in domestic spending and the federal deficit are nearly equal, 3.58 and 3.40, respectively. (The estimated long-run multipliers associated with each variable are not statistically different from one another.) Also, the figure shows the stability in the long-run parameter estimates for domestic spending and inflation between the baseline and extended models. The figure also shows the instability in estimates of the long-run effect of unemployment, which is significant only in the extended model.

These extended model estimates are consistent with the mass behavioral predictions of fiscal illusion theory. Though the model indicates that increased federal spending decreases expressed demand for additional government spending and services (public opinion liberalism), it also indicates that this effect is essentially canceled out by perverse price effects when such spending increases are paid for by deficit spending. In essence, the data indicate that deficit spending creates a disjunction between the government services and benefits the public consumes and the price of those services and benefits. In the aggregate and over time, “free” services and benefits—i.e. those which are not paid for by current tax revenues—do not reduce aggregate demand for additional services and benefits. This result has several important implications for public policy and the continued study of the dynamics of public mood.

For public policy, this analysis suggests that the logic of starve the beast policies is fundamentally wrong. Not only do budget deficits fail to produce political pressure to limit the growth of government, deficit spending actually contributes to political dynamics that encourage the continued growth and expansion of government. By separating costs from benefits in the public mind, policies that intentionally create deficits by reducing revenue collection without coordinated reductions in spending interfere with essential price mechanisms and cost-benefit calculations which might otherwise lead the electorate to question the wisdom of marginal government expenditures. Deficit spending, therefore, may over time generate a self-reinforcing spiral of debt and government expansion that can ultimately be addressed only by the extraordinary politics of crisis. This is also generally consistent with the recent European sovereign debt crises which emerged from, among other things, persistent growth in deficit-financed government benefits.

This finding suggests obvious corollaries which are relevant for contemporary debates about achieving long-term fiscal balance. While fiscal balance may be achieved in either a state of the world with high revenue collections supporting generous public benefits or low revenue collections supporting modest public benefits, fiscal imbalances produced by providing government services and transfers far in excess of revenues collected to support those benefits are associated with perverse behavioral dynamics in the mass public. In contrast, a long-term program of debt reduction can be reinforced by an aggressive program of fiscal balance aimed at creating surplus revenue (rather than reduced deficits or balanced budgets). While the model shows that deficits increase demand for government, it also predicts the reverse. Surplus revenue collection is associated with decreased demand for government. Although such surpluses will obviously represent tempting targets for populist political platforms that advocate new spending or reduced taxes, recent (though limited) experience with federal budget surpluses indicates that fiscal discipline may have a

constituency: Al Gore's 2000 presidential campaign—which garnered a majority of the nation's popular vote—advocated using budget surpluses principally to shore-up long-term obligations under Social Security and reduce the national debt rather than create or expand social programs or reduce revenue collections. Fiscal discipline may be a self-reinforcing political state.

These results also indicate important refinements and extensions of theories of the dynamics of public mood. First, these results and fiscal illusion theory indicate that there are politically salient price effects that influence the public's demand for government. In other words, marginal aggregate demand for additional government services is a function of both the quantity of government currently being supplied and the marginal cost of additional services. Existing theoretical accounts of demand for government services have principally focused on the supply component of this relation, and related empirical analyses have emphasized the correspondence between public support for more spending on some policy problem or greater liberalism in public mood and the amount of government spending or the ideological tenor of policymaking. While supply is an important element in the dynamic processes that shape public mood, the results reported here suggest that price effects and elements of the macro-political economic context that relate to the collection of government revenues, particularly taxation, may be fruitful areas for future research.

Additionally, the presence of price effects in demand for government suggests the potential for important heterogeneity in the dynamics of support for government that are not observable by considering mass responses to changing supply. To the extent that the tax burden is distributed progressively, it is reasonable to expect individuals who pay little or no taxes to be less sensitive to price effects compared to individuals with higher tax burdens. Empirical validation of this intuition would have further important implications for understanding class-based social movements, the dynamics of support for individual policy proposals, such as the recently passed healthcare reform legislation, and, perhaps, for longer trends of partisan polarization.

### **Conclusions**

Growing federal deficits and accumulating national debt represent substantial public policy problems. Though the origins of persistent public indebtedness are varied and complex, public policy choices that have intentionally reduced revenue collections in the absence of coordinated reductions in federal spending bear much responsibility. These so-called “starve the beast” policies have garnered support from political conservatives over the last four decades. While the idea of restraining government spending by limiting government revenues has some intuitive appeal, there is convincing evidence that such policies have failed to restrain the growth of government. This failure offers a critical puzzle for scholars

of American national politics: why are government expenses unconstrained by revenue shortfalls?

The notion of the “fiscal illusion” suggests an answer. Revenue collection strategies which obscure the cost of government should interfere with citizens’ ability to effectively evaluate government services and programs. When benefits remain evident while costs are hidden, citizens will demand additional services and benefits without regard to costs, creating electoral pressure on officeholders to expand the scope of government activity. Extant empirical analysis of the effects of fiscal illusions has focused on temporal relationships between policy choices without assessing the theory’s critical predictions about mass political behavior.

In this study, we have synthesized the economic theory of fiscal illusions with macro political theories of public demand for government to generate a statistical model of aggregate demand for government in the United States. In particular, we incorporate a measure of deficit spending into a baseline model of Stimson’s (1999, 2009) public policy mood index. Model estimates indicate that we find that the size of the federal budget deficit is positively and significantly associated with liberalism in public mood. Increased deficit spending predicts greater demand for government services and benefits. This result supports the key behavioral prediction of fiscal illusion theory and indicates a political mechanism by which massive and problematic public debt has emerged, persisted, and accumulated in recent decades.

This result, in turn, provides insight into how to construct more successful policies to restore fiscal balance. First and most obviously, government spending must be more effectively coordinated with revenue collections. Strong “pay-go” rules based on balanced budget targets may be a useful tool in this regard. Additionally, some federal expenditures (particularly increases in long-term entitlement benefits) might be appropriated conditional on various revenue targets. Likewise, revenue collections should be made as direct and transparent as possible to allow citizens to effectively weigh the basket of public services and benefits they receive against the costs they pay in taxes and fees. Indeed, our analysis suggests that obfuscation of citizens’ tax burden is an important influence on the inefficient allocation of resources in the political process.

Finally, our findings also suggest important revisions and extensions of existing macropolitical theories of spending preferences and public mood. Political scientists’ understanding of these dynamics has been incomplete, taking little account of how the (actual and subjective) price that citizens pay for government affects public demand for government benefits and services. Such price effects may explain additional over-time variance in public mood and more specific issue preferences as well as account for heterogeneity in public opinion dynamics across income groups.

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