

## **Do differences in presidential economic advisers matter?**

### **Abstract**

Using data on members on the Council of Economic Advisors as well as US Treasury secretaries and OMB directors from 1952 through 2005, I investigate the effect of economic advisors' educational and employment backgrounds on the time series performance of several policy variables. Ivy League advisors appear to raise non-defense government spending, although the size of the impact differs by president. While voter preferences appear to matter for a wider variety of policy variables (changes in federal regulation and marginal tax rates), the share of Ivy League advisors is at least as important as voter preferences in explaining non-defense spending.

### **1. Introduction**

Growing out of the fundamental economic insight about the importance of incentives, a basic axiom of public choice has been that rules (including institutions) matter. The last 40 years of scientific work in the study of public and private organizations has demonstrated the power of these insights. A sizable body of literature offers history, opinion, and some evidence regarding the policy impact of economic knowledge in general as well as the role of specific economists and advisors.<sup>1</sup> Some of these studies arrive at a conclusion consistent with the public choice dictum, that is, economics and economists do not matter much in the political process. In other cases, the conclusions highlight the valuable contributions made by economic ideas and particular economists. Some of these have been written by economists who are part of, or, at least, sympathetic

to the public choice tradition. For example, Muris (2003) provides evidence on the key roles of William Baxter and James C. Miller III, along with earlier and later figures, in determining the path of antitrust enforcement through the development of formal merger guidelines.

On the anecdotal level, the person at the focus of this series of papers, Bob Tollison, supplies further examples of this kind of discordant outlook on the impact of economists in government. On the one hand, Bob often expresses a rather fatalistic and pessimistic view of the process, based on his own experience as head of the Federal Trade Commission's (FTC) Bureau of Economics during the Baxter-Miller years and his continued interaction with and study of government. On the other hand, he recognized differences in advisors. He frequently referred to economists in government who came from a particular background as “knob-twisters”, alluding to their penchant for trying to fine-tune the economy. A humorous example from his stint at the FTC also offers a counterpoint to the “no-effect” position, suggesting that economists act as if their efforts and opinions mattered, and their opponents respond as if they agreed. A young lawyer whose service overlapped with Bob at the FTC in those years exclaimed “He’s crazy; he wants to let firms merge and then see what happens to prices.” However long-lasting or far-reaching these “crazy” ideas were in determining policy, this particular lawyer certainly perceived them as a threat to his view of sensible antitrust policy.

My purpose is not to quarrel with the idea that incentives and institutions matter, but to investigate whether different economic ideas and, in particular, economic advisors also matter. With enough data, individual differences between advisors could be observed. Lacking such data, I investigate whether similarities or differences among

groups of economists matter based on common academic affiliations. Rather than pursuing this question from the standpoint of personal accounts and histories, I want to determine if systematic evidence can be found to answer the question whether particular groups of economists have influenced the time series performance of several important policy variables – non-defense spending growth, regulatory growth, transfer spending growth, and tax rates.

In contrast to my methodology, Frey (2006) argues that case studies provide the most information on the impact of economics and economists. While I do not dispute Frey's contention that case studies provide the finest detail, I would suggest that if such impact cannot be found on a broader or more systematic basis, at least after substantial searching, then such case studies may be much ado about events or influences that may be relatively insignificant.<sup>2</sup> In contrast, if broader and more systematic evidence can be found, then the case studies help to fill in the details.

## **2. Theoretical and empirical background**

In the simplest of policy models, voters supply incentives to their elected representatives, who produce policy outcomes. Why would economists or particular coalitions of economic policy advisors also help shape public policy?

A necessary condition that must be met for advisors to matter is for elected representatives to have some degree of discretion in policymaking. The most common reason why they do is the existence of agency costs for voters and, as a result, incomplete monitoring of elected officials. Applied to politics, almost all principal-agent models, explicitly or implicitly, use the median voter concept to describe the preferred policy

positions of the relevant constituency. Discretion in these models represents shirking by policymakers that moves them away from the median voter's position.<sup>3</sup> A second explanation for discretion arises from the possibility that the multi-issue, multi-dimensional character of voting space gives rise to more than one preferred position for voters. As the size of the set of undominated policy positions increases, policymakers have more discretion for choosing a particular policy or combination of policies. When issues are more complex and multi-dimensional, the size of the set of politically feasible policies that the principals will permit expands and their agents therefore have more options from which to choose.<sup>4</sup> A third explanation for discretion, and one much less developed than the other two, is that voters are uncertain as to the best set of policies and therefore can be swayed by their elected officials.

A second condition necessary for policy advisors to make a difference is for them to have some degree of influence over the decisions of elected officials or to enjoy discretion in the specifics of policy implementation. In other words, the advisors are more than mere conduits of the decisions of elected officials. As with voters, if elected officials have incomplete information about optimal policies they may be influenced by their advisors. Also, just as with voters, if issues are complex and multi-dimensional, elected officials may themselves confront a set of politically feasible policies and turn to their advisors for decision-making help. Governments are large organizations where decision rights are dispersed over a large number of participants, including many who act in the capacity of agents of various principals. The study of agency costs and their implications have grown into one of the largest industries in organizational economics. Whether cast in terms of voters monitoring their elected officials or elected officials monitoring their

political appointees and agencies, the preferences of the principals are not completely decisive in determining policy outcomes because of the costs of monitoring. These costs give rise to varying degrees of discretion on the part of public officials.

If these two necessary conditions are present, then economic theory and practice suggest at least the following two avenues by which differences among individuals and coalitions of individuals may influence policy advice.

### **2.1. Heterogeneous human capital**

Almost all of the early contributions to the study of organizational behavior assumed that agents were identical by building representative-agent models. In more recent years, these assumptions have been relaxed in some models but still dominate. Nevertheless, economists, like all individuals, are heterogeneous with respect to various aspects of human capital – basic intelligence, personal ethical standards, backgrounds, knowledge sets, communication and marketing skills, networks of personal relationships, and political capital. As a result, while incentives may tend to influence individuals in the same direction, the magnitude of these incentive effects will differ based on these kinds of individual variations.

At an empirical level, the role of knowledge and preference-beliefs seem important in driving policy advice and outcomes. For example, when there is disagreement about optimal policy, such as has frequently been the case in macroeconomics, economists form different beliefs and preferences as to what is best. Frey et al. (1984) and Fuchs, Krueger and Porterba (1997) provide broader, survey-based evidence of where such disagreements exist. Mayer (2001) also finds evidence of such

disagreements, but like Fuchs, Kruger and Porterba, suggests that observed policy differences among economists cannot solely be attributed to belief differences.

## **2.2. Entrepreneurship and innovation**

The theme of the discovery and creative ability of individuals has been underscored by a wide range of economists, from Austrians, to financial economists, to those doing organizational studies.<sup>5</sup> Creative or innovative individuals are important in the development of economic ideas and in political processes, just as they are in markets and private organizations. Even if political “fundamentals” provide incentives for public officials, new policy initiatives do not arise out of thin air or merely reflect general trends in voter preferences. Whether initiated by referendums or legislative processes, individuals and small groups design and promote specific policy proposals. Faulhauber and Baumol (1988) explore the role of economists as innovators and contributors to innovation in business settings (e.g., capital budgeting), in finance (option pricing) and in government settings (Ramsey pricing). The personal accounts of former economic policy advisors often fall into this heading.

## **3. Econometric model, data and results**

### **3.1. Model and data**

At a general functional level, the model to explain a given economic policy,  $P$ , is described simply in Equation (1):

$$(1) \quad P = f(\text{Presidential advisor characteristics; Voter-legislative preferences}).$$

The model implicitly assumes that the median voter concept is useful in describing preferred policy positions for voters as reflected in the actual voting of their elected legislators.

My aim is to estimate the effects of differences in the characteristics of presidential economic policy advisors on a given economic policy  $i$  in year  $t$ ,  $P_{it}$ . While a broad array of policies might be discussed, I focus on five particular policy outcomes that have long time series and widespread economic effect. These are (1) non-defense federal spending as a share of total federal spending, (2) an index of federal regulation,<sup>6</sup> (3) federal transfer spending as a percentage of total federal spending, (4) tax rates on capital, and (5) marginal tax rates for four-person, median income families.<sup>7</sup> Non-defense spending, transfer spending, and top marginal tax rates run from 1950 through 2006. The regulation index series runs from 1950 to 2004, and capital tax rates are for 1953–2003. Based on unit root tests, non-defense spending, the regulation index, transfer spending, and marginal tax rates are estimated in growth rates or changes in the case of tax rates.<sup>8</sup>

As mentioned in the introduction, rather than individual effects, I investigate whether attributes describing human capital development that are shared among presidential economic advisors exhibit any influence on observed policies. These attributes are graduate school education and employment backgrounds. My primary focus is on the backgrounds of members of the Council of Economic Advisors (CEA). While former members have addressed the relevance or irrelevance of the Council, I am not using it to represent the totality of government influence by economists but, rather, as an indicator of hiring practices. CEA membership is a useful metric in this regard because of the availability of membership and the fact that almost all members have prior post-

graduate education or academic employment. Below, I also use data drawn from US Treasury secretaries, Office of Management and Budget (OMB) directors, and CEA chairmen as a secondary measure.

I define Ivy League, Chicago-UCLA, Big 10, and Pacific 10 “market shares” for CEA members in a given year by combining information about their graduate-school institution and employer (immediately prior to government service). For a given year, the market share equals the percentage of positions filled by members who graduated from, were employed by, or both, schools in one of the four academic groups. For example, with a full Council of three members, there are six possible graduate-employment backgrounds. If three of these were Ivy League graduates and two were employed previously at Ivy League schools, then the Ivy League market share is  $(5/6)$  or 83%.

A necessary condition for differences among economic advisors to have a detectable influence on policy outcomes is for advisor characteristics to vary between presidents. Table 1 presents median market shares for employment-graduate school groupings of CEA members by president. The data show considerable variation in the backgrounds of advisors across presidents. For example, economists with Ivy League employment-schooling backgrounds accounted for 67% of the CEA slots in the Truman, Eisenhower, Ford and Clinton Administrations, but only 9% of the Reagan slots. In contrast, economists with Chicago-UCLA backgrounds accounted for 50% of Reagan’s CEA members, but none of the advisors appointed by six other presidents. Of special note is the George W. Bush presidency: although he filled 17% of the CEA slots with Chicago-UCLA economists, of the presidents studied here, he also appointed the highest percentage of Ivy League economists.



The base empirical model that I use is described in Equation (2):

$$(2) \quad P_{it} = a_0 + a_1 \text{Market Share}_{jt} + a_2 \text{HHI}_t + a_3 \text{ADA-MP}_t + a_4 \text{Pres-Senate Party}_t,$$

where

Market Share<sub>jt</sub> = share of CEA advisors with school-employment backgrounds from group *j* in year *t*;

HHI<sub>t</sub> = Herfindahl-Hirschman index for year *t* based on the four groupings;

ADA-MP<sub>t</sub> = Americans for Democratic Action (ADA) scores for the majority party in the Senate in year *t*;

Pres-Senate Party<sub>t</sub> = 1 if President and Senate majority are from different parties and 0 if not.

The Herfindahl-Hirschman index based on affiliations is used as a measure of concentration, or alternatively, diversity or competition, among advisors. Lower values imply more variety in the backgrounds of advisors. The measure of voter-legislator preference that I use is time-consistent ADA scores for the majority party in the Senate for a given year.<sup>9</sup> Senate and House ADA scores are highly positively correlated ( $r = 0.97$ , excluding 1981–1986). During the period from 1981 to 1986, the Senate fell under Republican control while the House remained under Democratic control. Although the year-to-year correlation during the period of divided legislative government is low, including observations for 1981–1986 in a regression between the two variables has the same effect as introducing an intercept shifting term. In regression of the House on the Senate ADA scores, the estimated coefficient on a dummy variable set equal to 1 for 1981 through 1986, and zero otherwise, enters positively with a *t*-value of 26.7. The

dummy variable raises the  $R^2$  from 0.61 to 0.97. The high correlation between the House and Senate scores outside of 1981–1986, coupled with the drop in correlation during that time frame implies that including scores in both chambers as explanatory variables in Equation (2) would create extreme multicollinearity in most years while, in effect, creating a dummy variable for 1981 to 1986. Because ADA scores for the Senate explain more of the variation in the dependent variables than do the House scores, the latter are omitted from the regressions reported below. Finally, I also include an institutional political variable to control for whether the president and Senate majority are from different parties.

I would expect higher ADA scores for the Senate's majority party to lead to increases in all of the policy variables considered. The effect of concentration in advisors' backgrounds on the paths of the policy variables is ambiguous, a priori. More diversity may lead to more conflict, but it may also lead to more compromise.<sup>10</sup> The same theoretical ambiguity also exists for the effect of splits between the party of the president and the Senate majority.

### **3.2. Results – presidential differences**

In addition to differences in the backgrounds of advisors, another empirical condition necessary for presidential advisors to be influential on policy is that policy varies across presidents. Table 2 estimates the base empirical model on the five economic policy variables, but uses presidential dummy variables rather than CEA market shares to explore whether policy did, in fact, vary by presidency. The policy outcomes across presidencies differ by specific policy variable. For growth in the share of non-defense

spending, there are statistically significant differences, as indicated both by individual presidencies as well as by chi-squared tests of the null hypothesis that the presidential dummies are jointly equal to zero. Capital tax rates exhibit joint significance for the presidential dummies and individual significance for several of them. However, regulation growth, growth in the share of transfer spending, and marginal tax rate changes do not exhibit joint significance across presidents. Further, none of the individual coefficients have p-values at or below the 10% level. Based on the lack of difference between presidencies, I drop regulation growth and transfer spending growth from the subsequent analysis.

### **3.3. Results – policy advisor differences**

For the two policy variables for which the presidential dummies are significant – non-defense spending growth and capital tax rates – the question becomes how much variation in these measures is associated with differences in the make-up of CEA panels after accounting for other influences in the model? Table 3 presents evidence on this question by including market shares for CEA members with Ivy League and Chicago-UCLA affiliations.<sup>11</sup> The coefficients in Table 3 indicate that for non-defense spending, more Ivy League CEA members are associated with greater spending, while more Chicago-UCLA members have no significant effect. Increases in the concentration of members with a particular academic affiliation enter with a negative sign that is significant at the 10% threshold. Higher Senate ADA scores and split parties between the Senate and president are also positive and significant at the 10% and 5% levels,

respectively. However, in the case of capital tax rates, the market shares of CEA affiliations do not matter; neither does the HHI.

The influence of people versus voting incentives with respect to non-defense spending is interesting. Given that the standard deviations of the Ivy League market share series and the ADA series are roughly comparable, the coefficient on the former indicates that Ivy League advisors are about twice as influential as ideology.

Table 4 presents evidence that digs further into the observed positive impact of Ivy Leaguers on non-defense spending. Here, I attempt to take account of the problem of interactions or relationships between presidents and their economic advisors. The first column in Table 4 includes the market share of Ivy League CEA members along with slope-dummy interaction adjustments for each president. In other words, this specification permits the slope coefficient for Ivy League affiliation to differ by president. The slope-dummy coefficient for individual presidents must be added to the reference value ( $-0.10$ ) to compute the overall marginal impact during a given presidency. The slope-dummy values for presidents Eisenhower, Kennedy, Ford and both Bushes are in the 0.11 to 0.12 range, implying positive overall values for Ivy League CEA affiliations during those years. The Johnson- and Reagan-year slope-dummies add up to negative values, with the Reagan value being the most negative at  $-0.07$ . The Carter effect is zero. The Reagan slope-dummy is significantly different from all others.

In addition to interacting president with the Ivy League market share, I also estimate a two-stage model where market share is conditioned on president along with party of president, characteristics of the president's college background (Ivy League affiliation, military, or neither), president's year of birth, and president's region of

residence as an adult. Then, the predicted and residual market shares from this first stage are used in the non-defense spending equation appearing in the second column of Table 4. The predicted values incorporate the influence of president on advisor market share while the residual values take account of unexpectedly high or low values of the Ivy League share. The predicted values have a positive and significant effect (at the 7% level) on non-defense spending, but the residual values have no effect. This result implies that the policy influence of Ivy League advisors is not independent of, nor does it add to, that of the president. Instead, the characteristics of the president and the effects of those characteristics on his advisor choices are the main channel for the advisor effect.

### **3.4. Results – Treasury, OMB, CEA**

The preceding estimates use CEA members as the indicator of economic policy advisor affiliations. While this indicator permits a detailed examination of presidential reliance on the advice of Ph.D.-level economists, it does not represent a sampling of economic advisors across a range of key economic policymaking positions. In the following set of results, I use a second indicator of economic advisor affiliations based on the backgrounds of the Secretary of the Treasury, the Director of Office of Management and Budget (after 1963), and the Chairman of the CEA. Many of these appointees do not hold advanced degrees in economics or business. Also, their post-educational backgrounds vary widely, ranging from private law practice to government, business, and academics. As a result, market share affiliations here are based solely on the school which awarded the appointee's highest academic degree.

Table 5 summarizes these market shares by presidency. As with CEA members, Ivy League affiliations dominate, but there is again substantial variation across presidents. At 67%, Lyndon Johnson and George H. W. Bush have the highest median Ivy League market shares, three other presidents come in at 50%, while the median for Ronald Reagan is only 17%. The last column of Table 5 reports by president the median percentages of economics degree holders for these three positions. Here, there is less variation, with most values in the 50% to 67% range; the lowest values, for Ford, Reagan and G. H. W. Bush, are 33%.

Table 6 shows estimates of the association between policy outcomes and the market share of Ivy Leaguers among Treasury secretaries, OMB directors, and CEA chairs using the same basic model as Table 3. As can be seen, the Ivy League market share is significant at the 10% level only for top marginal tax rates, where it enters with a negative sign.

#### **4. Conclusion**

No doubt, regression models using time series data are a relatively blunt way of looking for the effects of economic policy advisors. Yet, the bluntness of the approach largely fits with my objective. I am not trying to find small effects tucked away in some corner of government. Instead, my intent is to determine if measurable indicators of differences in economic advisors among presidents could be associated with measurable differences in policies over time. Certainly, data limitations mean that the indicators of advisor differences can be debated. Nonetheless, given the observable indicators that exist, a few tentative conclusions can be reached from the foregoing analysis:

- Presidents differ considerably as to the makeup of their economic policy advisors, which is a key requisite for differences among policy advisors to make a difference in policy;
- After controlling for legislative ideology, as measured by the scores assigned to the voting records of the members of the US Senate's majority party by the ADA, some economic policies differ by president and some do not; in particular, non-defense spending and tax rates appear to be sensitive to president. This is a necessary condition for concluding that economic advice from different economists makes a difference.
- Based on their schooling and employment affiliations prior to government service, Ivy League advisors appear to raise non-defense government spending; specific presidents can mitigate this result.
- When evaluating the full array of policies considered here – spending, regulation and taxes – underlying influences, such as voter preferences or other external constraints, appear to be much more important in determining policy outcomes than the identities of presidents or their economic advisors.

The last conclusion is somewhat negative. The results here seem to indicate that presidents and their advisors matter some, but not a lot. In the end, the dictum that incentives and institutions, but not people, matter may be a bit strong but is not a bad first approximation. There are several avenues open for further exploration along the lines that I propose here. One is the investigation of whether there is a time lag between appointment of presidential advisors and their impact on policy. There may well be a carryover effect after their departure. Also, more detailed ways of controlling for the

influence of Congress other than ADA scores of the majority party, such as committee or party leadership, may produce different results. Finally, a more extensive dataset on the composition of advisors that extends to key deputy or assistant director positions would be useful.

### **Acknowledgements**

I want to thank Dennis Wilson, participants in the Economics+ Workshop at WKU, and John Sullivan for helpful comments. Tim Groseclose graciously supplied ADA scores to me.

### **Notes**

1. The list of economists-turned-policy-advisors writing in this area is too large to list comprehensively here. A few of the more prominent of studies of this type include Feldstein (1997), Friedman (1986), Nelson (1987), Rivlin (1987), Schultze (1996), Stein (1996), Stigler (1982) and Stiglitz (1997). Several books and articles examining the advice of economics in a broader or more systematic way include Blankart (1981), Colander and Coats (1989), Peacock (1992), Reder (1999), Stephan (1996) and Wible (1998).
2. Frey (2006) compares and contrasts the “production function” method (essentially, what I am doing here) of examining the impact of economics and economists with case studies with a “revealed preference” approach (i.e., popularity of studying economics).



3. There is a literature exploring the bounds of agency authority in the context principal-agent, bargaining, and delegation models. See, for example, Holmstrom (1984), Snyder and Weingast (2000), Alonso and Matouschek (2008) and Semonov (2007).
4. McKelvey (1986) is one of the pioneers in examining the characteristics and influences on the size of this “uncovered” (politically feasible) set in policy space.
5. Among Austrians, Kirzner (1997) emphasized the discovery aspect of entrepreneurship. Jensen and Meckling (1992; 1994) highlight the role in a political context of dealing with regulation. Goff, McCormick and Tollison (2002) and Goff (2005) examine political elements in the entrepreneurial role of managers in shepherding innovative ideas, such as the racial integration of baseball.
6. The measure of federal regulation is an updated and enhanced version index of federal regulation developed in Goff (1996) using factor scores from a factor analysis including pages in the federal register, employment in the Environmental Protection Agency per 100,000 in population, employment in the US Department of Agriculture per farm worker, number of lawyers per 100,000 in population, and non-defense federal spending as a percentage of total federal spending. The rationale for using the common correlation among the set of variables to generate factor scores is that the aggregate amount of regulation is not directly observable or computable from regulatory agency budgets. Instead, it is an unobservable, latent variable that leaves its “footprint” on several observable, correlated variables.

7. The spending and transfer data are from Budget of the United States: Historical Tables Fiscal Year 2008. Top marginal tax rates and capital tax rates are from the Tax Policy Center, “Historical Individual Income Tax Parameters” and “Historical Effective Marginal Tax Rates on Capital Income”.
8. The results of these unit root results are available from the author upon request.
9. The ADA scores time-consistent adjustments computed by Groseclose, Levitt and Snyder (1999), with updates provided by Tim Groseclose and from supplemental estimates by the author for the most recent years.
10. One of my colleagues, a local city council member, attests to his experience with greater competition leading to more compromise and greater government growth.
11. Big 10 and Pacific 10 market shares are omitted because of high correlations among the shares.

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**Table 1.** CEA median graduate-employment market shares by president

	Ivy	Chi/UCLA	Big Ten	Pac Ten
Truman	67	0	0	17
Eisenhower	67	0	9	17
Kennedy	50	0	33	0
Johnson	50	0	0	0
Nixon	25	17	0	9
Ford	67	9	0	0
Carter	42	0	34	0
Reagan	9	50	0	33
BushGHW	33	9	59	59
Clinton	67	0	0	17
BushGW	75	17	0	9

**Table 2.** Regression results for policy variables, 1952–2005

	Non-Defense Spending Growth	Regulation Growth	Transfers Growth	Capital Tax Rate	Marginal Tax Rate
Intercept	−5.19 ( $<0.01$ )	−0.14 (0.07)	0.46 (0.51)	49.3 ( $<0.01$ )	2.66 (0.01)
ADA Senate	0.017 (0.02)	0.001 (0.02)	0.001 (0.82)	−0.05 (0.20)	−0.02 (0.05)
Majority Party Split President- Senate	0.44 (0.17)	0.06 (0.11)	−0.04 (0.88)	−1.76 (0.23)	−1.55 (0.03)
Eisenhower	5.22 ( $<0.01$ )	0.06 (0.43)	−0.28 (0.69)		
Kennedy	5.50 ( $<0.01$ )	0.09 (0.23)	−0.27 (0.68)	−10.5 ( $<0.01$ )	−1.54 (0.16)
Johnson	3.72 ( $<0.01$ )	0.06 (0.40)	−0.36 (0.58)	−15.3 ( $<0.01$ )	−1.72 (0.20)
Nixon	5.25 ( $<0.01$ )	0.15 (0.08)	−0.11 (0.87)	−4.90 (0.01)	0.51 (0.46)
Ford	5.28 ( $<0.01$ )	0.11 (0.26)	0.57 (0.44)	−3.35 (0.20)	0.46 (0.64)
Carter	4.79 ( $<0.01$ )	0.17 (0.04)	−0.51 (0.41)	−2.17 (0.36)	1.17 (0.26)
Reagan	4.19 ( $<0.01$ )	0.05 (0.53)	−0.51 (0.46)	−13.75 ( $<0.01$ )	−2.64 ( $<0.01$ )
BushGHW	4.90 ( $<0.01$ )	0.06 (0.51)	−0.08 (0.90)	−13.92 ( $<0.01$ )	0.83 (0.32)
Clinton	5.28 ( $<0.01$ )	0.07 (0.37)	−0.57 (0.41)	−16.44 ( $<0.01$ )	−0.89 (0.21)
BushGW	5.31 ( $<0.01$ )	0.15 (0.09)	−0.26 (0.72)	−21.71 ( $<0.01$ )	−2.47 (0.03)
AR(1)	−0.41 ( $<0.01$ )	−0.28 (0.07)	0.23 (0.16)		0.31 (0.07)
$R^2$	0.58	0.50	0.37	0.85	0.40
Chi-Square	46.8	1.78	2.14	73.50	1.06
Presidential	( $<0.01$ )	(0.88)	(0.71)	( $<0.01$ )	(0.99)
F-Statistic	4.46 ( $<0.01$ )	2.88 ( $<0.01$ )	1.81 (0.07)	20.38 ( $<0.01$ )	2.03 (0.05)
Q(lag=24)	24.7 (0.36)	29.6 (0.16)	NA	17.67 (0.84)	25.8 (0.05)

*Note.* Values in parentheses are p-values testing the null hypothesis that coefficient equals zero.

**Table 3.** Regression results for non-defense spending growth and CEA market shares

	Non-Defense Spending	Capital Tax Rate
Intercept	-0.95 (0.25)	31.2 (<0.01)
ADA-Senate (majority party)	0.015 (0.04)	0.07 (0.06)
MS-Ivy	0.028 (0.01)	-0.002 (0.97)
MS-Chi/UCLA	0.020 (0.08)	0.001 (0.91)
CEA Herfindahl	-2.17 (0.02)	-1.44 (0.67)
Split President-Senate	0.66 (0.03)	1.64 (0.21)
AR(1)	0.21 (<0.01)	0.75 (<0.01)
R <sup>2</sup>	0.43	0.75
F-Statistic	6.08 (<0.01)	21.8 (<0.01)
Q(lag = 24)	22.5 (0.50)	27.5 (0.23)



**Table 4.** Regression results for non-defense spending growth and CEA market shares

	President-MS Interactions	Second Stage Results
Intercept	0.36 (0.36)	-0.34 (0.53)
ADA-Senate (majority party)	0.016 (0.01)	0.011 (0.11)
MS-Ivy	-0.10 ( $<0.01$ )	
CEA Herfindahl	-1.40 (0.02)	-1.05 (0.10)
MS-Ivy Predicted		0.012 (0.07)
MS-Ivy Residual		0.001 (0.40)
Split Party	0.37 (0.22)	0.74 (0.01)
President-Senate		
MS*Eisenhower	0.10 ( $<0.01$ )	
MS*Kennedy	0.11 ( $<0.01$ )	
MS*Johnson	0.08 ( $<0.01$ )	
MS*Nixon	0.10 ( $<0.01$ )	
MS*Ford	0.11 ( $<0.01$ )	
MS*Carter	0.09 (0.02)	
MS*Reagan	0.03 (0.15)	
MS*BushGHW	0.11 ( $<0.01$ )	
MS*Clinton	0.11 ( $<0.01$ )	
MS*BushGW	0.11 ( $<0.01$ )	
AR(1)	-0.54 ( $<0.01$ )	0.19 (0.02)
R <sup>2</sup>	0.67	0.40
F-Statistic	5.23 ( $<0.01$ )	5.23
Q(lag = 24)	27.8 (0.22)	21.0 (0.57)

**Table 5.** Treasury, OMB, and CEA median graduate school market shares and economics degrees held, by president

	Ivy	Chi/UCLA	Big Ten	Pac Ten	Econ
Truman	42	0	33	0	50
Eisenhower	50	0	50	0	50
Kennedy	50	0	50	0	50
Johnson	67	0	33	0	67
Nixon	50	33	0	0	50
Ford	33	0	33	0	33
Carter	33	0	0	0	67
Reagan	17	33	33	0	33
BushGHW	67	0	0	17	33
Clinton	67	0	0	17	50
BushGW	33	0	0	0	50

**Table 6.** Regression using Treasury secretary, OMB director, and CEA chair market shares, 1951–2005

	Non- Defense Spending	Regulation	Transfers	Capital Tax Rate	Top Marginal Tax Rate
Intercept	0.02 (0.97)	0.04 (0.51)	−0.01 (0.99)	32.7 (<0.01)	−1.48 (0.57)
Senate ADA (Majority Party)	0.01 (0.21)	0.01 (<0.01)	0.002 (0.33)	0.06 (0.07)	−0.001 (0.98)
MS-Ivy	0.01 (0.39)	−0.001 (0.32)	0.001 (0.65)	−0.02 (0.27)	−0.05 (0.07)
CEA Herfindahl	−0.87 (0.32)	−0.16 (0.06)	−0.08 (0.85)	−1.75 (0.61)	7.40 (0.06)
Split Party Pres-Senate AR(1)	0.71 (0.02) 0.06 (0.67)	0.06 (0.01) −0.21 (0.17)	0.08 (0.56) 0.25 (0.08)	1.85 (0.15) 0.73 (<0.01)	0.56 (0.66) 0.15 (0.34)
R <sup>2</sup>	0.27	0.40	0.16	0.77	0.22
F-Statistic	2.88 (0.01)	4.69 (0.01)	1.49 (0.20)	25.1 (<0.01)	2.16 (0.06)
Q(lag = 24)	23.0 (0.45)	16.5 (0.82)	12.1 (0.96)	26.7 (0.27)	32.5 (0.09)