EXPECTED BENEFITS OF VOTING AND VOTER TURNOUT

By

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Abstract

This empirical study seeks to identify key aggregate-level economic and non-economic
determinants of the expected benefits from voting and hence aggregate voter turnout.
A unique dimension of this study is the hypothesis that PAC (political action committee) election
campaign contributions, e.g., to U.S. Senate races, may reduce the expected benefits of voting
and hence voter turnout because the greater the growth of real PAC contributions, the greater the
extent to which eligible voters may become concerned that these contributions lead to PAC
political influence over elected officials. Indeed, this study finds for the period 1960-2000 that
the voter participation rate has been negatively impacted by the growth in *real* PAC
contributions to Senate election campaigns. Another interesting finding is that voter turnout is
directly/positively related to strong public approval *or* strong public disapproval of the
incumbent President. This study also finds that the voter participation rate has been positively
impacted by the opportunity to vote in Presidential elections, the Vietnam War, a "too slowly"
growing real GDP, and inflation rates when they exceed five percent per annum. Furthermore,
this study also finds the voter participation rate to have been negatively impacted by the public's
general dissatisfaction with government.

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Expected Benefits of Voting and Voter Turnout

I. Introduction

Building on the work of Duncan Black (1948) who is credited by Gordon Tullock as the "father" of modern public choice theory, Anthony Downs [1957] first introduced the concept of the "rational voter," from which the Rational Voter Model (RVM) derives. The basic premise of this theory/model is that an individual will assess the perceived costs and benefits of voting and will vote only if the latter outweigh the former. The complexity of the voting decision and voting behavior was recognized early on by Buchanan and Tullock [1962], and given full expression in the seminal Journal of Political Science article by Riker and Ordeshook [1968][i]. Specifically, the relevant question is, given that an individual vote will have virtually zero probability of deciding almost any election, why do people vote at all?

Since the introduction of the RVM, and in spite of the obviously correct notion that people probably should not vote, there have been numerous and highly varied studies to expand, test, and better understand the motivations for voting in a variety of "real world" or "experimental" contexts. Assumed determinants have included age, education, closeness of the vote, multiple elections, ease of voter registration, weather conditions, and other electorate characteristics which might reflect relative benefits and costs. Among the most important of these are the works (most cross-sectional, a few time-series) by Barzel and Silberberg [1973], Ashenfelter and Kelly [1975], Silberman and Durden [1975], Wolfinger and Rosenstone [1980], Aldrich and Simon [1986], Piven and Cloward [1988], Cox and Munger [1989], Teixeira [1992], Green and Shapiro [1994], Green and Shapiro [1994], Knack [1994], Verba, Schlozman, and Brady [1995], Lapp [1999], Greene and Nikolaw [1999], Knack [1999], Putnam [2000], Copeland and LaBand [2002], Barreto, Seguran and Woods [2004], Cebula [2004], Borgers [2004], and Feddersen

[2004]. While findings vary with the respect to individual determinants, and while some studies question the overall explanatory value of such determinants [Matsusaka and Palda [1999], the RVM has been generally substantiated.

Recently, Copeland and LaBand [2002], and in a limited sense, Barreto, Segura, and Woods [2004] and Cebula [2004], have empirically investigated a theory of "expressive voting." To some extent, the study by Copeland and Laband [2002] reflects an effort to identify non-traditional or non-demographic variables that may explain voting behavior.

Concern over low voter participation rates in the U.S. is frequently expressed in the economics literature, the political science literature, the press, and elsewhere. In the words of Putnam [2000, p. 31], "With the singular exception of voting, American rates of political participation compare favorably with those in other democracies..." Putnam [2000, p. 31] proceeds to observe that, "We are reminded each election year that fewer voters show up at the polls in America than in most other democracies…" Putnam [2000, p. 32] further observes that poor voter turnout exists "…despite the fact that the most commonly cited barrier to voting ['burdensome registration requirements'] has been substantially lowered."

Clearly, since election outcomes can have very profound implications for societal and government resource allocations, the underlying free-rider problem in the voting/not voting decision process may generate a huge social and economic costs. The size of government outlays generally and the specific directions in which public expenditures are directed influence the well being of the society as a whole in both the short run and the long run. So, "What determines voter participation, or the lack of it, in the U.S.?" Once there is a better understanding of the answer(s) to this question, perhaps there will also be a better answer to the question "How can the voter participation rate in the U.S. be increased?"

Given this context, the objective of this study is to identify key aggregate-level economic and non-economic determinants of the expected benefits from voting and the impact thereof on the aggregate voter participation rate. This study seeks to achieve this objective in a framework that is broader and hopefully more useful than previous empirical analyses of voter turnout. The focus in this study is on the perspective that the decision as to whether or not to vote may involve "Rational, self-interested individuals [who]…engage in behavior that is not motivated directly [simply] by a benefit-cost calculation…" (Copeland and LaBand [2002, p. 351]) involving the probability of whether their individual votes will determine an election outcome. For example, it is hypothesized in this study that a greater growth rate in real PAC (political action committee) contributions to U.S. Senate elections campaigns may reduce the expected benefits of voting and hence voter turnout because such contributions may be perceived to lead to PACs, as opposed to individual voters, having influence over elected officials. It is also argued here that a factor such as the public's strong approval *or* strong disapproval of the incumbent President *per se* may positively affect voter turnout. Indeed, it is argued in this study that these factors, along with such other factors as the excitement of the Presidential nomination, campaigning, and election process, an unpopular/controversial, protracted war such as the Vietnam War, the public's dissatisfaction with government, and the inflation and real economic growth performances of the economy may combine to significantly affect aggregate voter turnout and hence the election of public officials whose decisions largely determine the allocation of public funds to the myriad forms of public outlay options that exist.

II. The Empirical Framework: Expected Benefits from Voting

Paralleling in principle the RVM, the probability that a given eligible voter will actually vote, PROBV, is an increasing function of the *expected* gross benefits (EGB) associated with voting,

ceteris paribus, and a decreasing function of the *expected* gross costs (EGC) associated with voting, *ceteris paribus*. According, it follows that:

$$PROBV = f(EGB, EGC), f_{EGB} > 0, f_{EGC} < 0 \qquad (1)$$

In interpreting EGB, this study argues that this concept requires a very broad, i.e., a very inclusive and encompassing, interpretation. For example, in *most* major elections, the marginal probability that one vote will make the difference is approximately zero. Nevertheless, certain circumstances or factors can potentially *increase* the expected benefits from voting. For example, when there is an issue (be it economic or non-economic in nature) or a candidate for elected office that an eligible voter feels particularly strongly about, voting may provide subjective benefits to the would-be voter because it can serve as an *emotional* release or outlet. That release may consist of expressing either approval or disapproval regarding the particular issue or candidate. Alternatively, certain circumstances can potentially *decrease* the expected benefits from voting. For instance, if a circumstance makes one feel disenfranchised from the government, e.g., if a would-be eligible voter *feels* that elected officials are responsive to special interest groups and often act with limited or no genuine regard for voters' wishes *per se*, the would-be voter *feels* a reduced expected gross benefit from voting and therefore shies away from making the effort to vote. Thus, this study explores the perspective that the decision to vote or not vote can be impacted by a host of varying, often subjective, but nonetheless powerful circumstances.

To begin, this study asks the following question: "Does the voter participation rate increase when voters either *strongly approve **or** strongly disapprove* of the perceived job performance of the incumbent President?" To begin, it is observed that the public's approval rating of the U.S. President has for decades been measured scientifically, adopting sound and

comparable polling methodologies. The present study, due to certain data limitations as explained below, covers the period 1960-2000. Over this 41-year period, the mean public approval rating of the incumbent President was 48.13 out of a possible 100.0, with a standard deviation of 8.78. It is hypothesized in this study that the public has a greater incentive to vote when eligible voters are *especially pleased* **or** *especially displeased* in their perception of the incumbent President's job performance. To measure whether the public is *especially* pleased or displeased with the President, the binary variable PRESAPP/DIS is introduced. The variable PRESAPP/DIS = 1 during those years when the President's average public approval rating is *either very low*, defined in this study as the average Presidential approval rating *minus* at least one standard deviation (i.e., an approval rating of roughly 39 or less), *or very high*, defined here as the mean Presidential approval rating *plus* at least one standard deviation (i.e., an approval rating of roughly 57 or more). Thus, it is hypothesized that voting when one either strongly approves *or* strongly disapproves of the President provides a *subjective* benefit because the act of voting has facilitated the expression of strong *feelings*. Naturally, whereas an approval rating that is either very high or very low is expected to *increase* voter participation, *ceteris paribus*, an approval rating exceeding 39 but less than 57 is expected to be associated with greater voter apathy and hence a lower voter turnout, *ceteris paribus*.

Presidential elections offer an opportunity for individual eligible voters to vote for a very powerful and important policymaker (the President.) in conjunction with voting for myriad other candidates for public office, as well as a potential host of referenda. Hence, during Presidential election years (as opposed to non-Presidential election years), a given trip to the voting booth provides at effectively zero marginal cost an increased expected gross benefit, the added opportunity/benefit of voting for a Presidential candidate, and hence it provides an increased

incentive to vote. Moreover, the prospect of voting in such an important election also tends to invoke a high degree of emotional enthusiasm typically missing in most other election years (Copeland and Laband [2002]). Such enthusiasm can be fueled by a variety of circumstances, including such considerations as: the large number of and diverse character of the Presidential primaries and the drama attendant thereto; the national party nominating conventions, complete with speculation over prospective Vice Presidential running mates; controversial issues that arise during Presidential primaries and election campaigns; and issues stressed by the media. Indeed, the psychological rewards/benefits of fulfilling one's "civic duty" by voting may be even more pronounced during a Presidential election year. Consequently, it is hypothesized in this study that the voter participation rate is increased by the benefits associated with a broad assortment of quantifiable and emotional issues generally associated with voting during the Presidential election years, *ceteris paribus*.

The U.S. military involvement in the Vietnam War, which escalated sharply in 1965, clearly can be regarded as having generated intense emotional responses among the U.S. electorate [Putnam (2000)]. The controversy and emotions surrounding the Vietnam War were in part reflected in the following: numerous anti-war demonstrations (including flag burning and anti-draft demonstrations), disruptions of national political party conventions where Presidential candidates were being nominated, intense and almost constant "hawk" versus "dove" debates, and daily media coverage of POWs, MIAs, casualties, and wounded, amidst the chaos that came to represent/symbolize the Vietnam War. Arguably, the Vietnam War created intense emotional responses, including an intensified effort to disengage from the Vietnam War by electing "new" candidates to key political offices. Indeed, the Nixon election victory over President Johnson in 1968 *might* even be interpreted in part as an emotional expression on behalf of *change*. It is

hypothesized here that the Vietnam War (VIETNAM) elicited interest levels and emotional reactions that raised voter interest and participation, *ceteris paribus*: voter participation would be expected to yield a benefit by providing a vehicle for expressing one's feelings and views on this major public issue.

It is hypothesized here that greater public dissatisfaction (DIS) with government acts to discourage voting by eliciting a negative *emotional* response on the part of voters. More specifically, if would-be voters *feel* discouraged by their government because of negative perceptions as to whether government officials can be trusted to fulfill their responsibilities, whether they are dishonest, and whether government officials waste tax dollars, they very likely may react by adopting a negative attitude toward voting, presumably resulting from lower expected gross benefits from voting, so that voter turnout would tend to decline, *ceteris paribus*. To measure this variable, this study adopts the "dissatisfaction index," DIS. DIS is constructed as an equally weighted average of three normalized indices reflecting responses to the University of Michigan's Institute for Social Research (ISR) surveys concerning whether government employees can be trusted to do their assigned jobs, whether they are dishonest, and whether government officials waste tax dollars. Values for DIS range from a low of –1.5, for least dissatisfied, to a high of +1.5, for most dissatisfied. As constructed, the DIS index measures the public's attitude toward government *in general*, as opposed to an attitude toward the President *per se*.

An issue that attracted widespread public attention during the year 2000 Presidential primaries was that of election campaign finance reform. In the midst of this debate, especially pronounced attention was focused on PAC election campaign contributions, i.e., election campaign contributions by special interest groups. From the perspective of this study, given the

nearly geometric growth rate of PAC election campaign contributions over the past three decades, it can be argued that such contributions might well give at least some portion of the voting public the impression of "influence peddling," i.e., the impression that various special interest groups are gaining significant influence over elected officials and candidates through contributing funds to their election or re-election campaigns. To the extent that voters perceive PAC election campaign outlays as leading to influence peddling, they may infer that politicians will be more sensitive to the concerns and needs of their PAC contributors than the needs and concerns of actual individual voters *per se*. Thus, it is hypothesized that the greater the extent of PAC election campaign contributions, the more disenfranchised voters may *feel* and hence the less the degree to which they *may be* inclined to make the effort to vote, *ceteris paribus*. To test this hypothesis, it is argued that the greater the magnitude of real PAC U.S. Senate election campaign contributions, the lower the voter participation rate, *ceteris paribus*. This specific hypothesis has never been formally tested before. It is worthy of note that in 1971 the Federal Election Campaign Act (FECA) repealed the Corrupt Practices Act and, along with subsequent amendments to FECA enacted in 1974, 1976, and 1979, the FECA statute effectively created modern-day PACs.

Feddersen [2004, p. 107] argues that individuals base their voting [participation] decision in part on "…assessments about the overall macroeconomic health of the economy." Accordingly, it is also hypothesized in this study that the more poorly the economy is performing, e.g., the more slowly the economy is expanding (in real terms), the more interest the public (eligible voters) may have in the outcome of a major election. If indeed the economy is growing "too slowly," the public may vote so as to express a wish for change at some level(s) of government because of fear of the unemployment prospects associated with slow real GDP

growth. Consequently, it is expected that if real GDP grows too slowly, the greater may be the expected potential benefits from voting (so as to precipitate change in order to implement more effective economic policies and/or to at least "express displeasure" with the economy's weak performance) and hence the greater the voter participation rate, *ceteris paribus*. In this study, any year in which the real GDP grows at an annual rate of less than two percent is treated as a year when real GDP is growing too slowly to prevent increases in the unemployment rate. In such years, the voter participation rate is expected to be higher, *ceteris paribus*.

Naturally, the public's assessment of the performance of the economy could be based on more than just this single criterion. For instance, the inflation rate may be of interest to many voters. Inflation reduces the purchasing power of money and unless nominal wages/income grow more rapidly than inflation, higher inflation reduces *real* income. Over the study period, nominal wages/income in the U.S. on the average grew at an average annual rate of nearly *five* percent, which reflected the impacts of such factors as COLAs (cost of living adjustments), increased compensation for productivity increases and/or investment in human capital, and/or promotions. Consequently, it is hypothesized in this study that when the annual inflation rate of the CPI exceeds *five* percent, many eligible voters are more likely to vote in the hope of electing politicians who will pursue policies conducive to lower inflation, *ceteris paribus*. Voting might also serve as a means to express displeasure over the economy's excessive inflation. In either case, the expected gross benefits from voting may rise.

Based on the framework described above, the EGB of voting can be described by:

EGB = g(PRESAPP/DIS, PRESDUM, VIETNAM, DIS, PAC, SLOWGR, INFLDUM),

$g_{PRESAPP/DIS} > 0$, $g_{PRESDUM} > 0$, $g_{VIETNAM} > 0$, $g_{DIS} < 0$, $g_{PAC} < 0$, $g_{SLOWGR} > 0$, $g_{INFLDUM} > 0$ (2)

The framework resulting from substituting equation (2) into equation (1) implies that the empirical investigation of determinants of the aggregate voter participation rate involves estimating the following:

$$VPR_t = a_0 + a_1 \, PRESAPP/DIS_t + a_2 \, PRESDUM_t + a_3 \, VIETNAM_t$$

$$+ a_4 \, DIS_t + a_5 \, PAC_{t-1} + a_6 \, SLOWGR_{t-1} + a_7 \, INFLDUM_{t-1} + u \tag{3}$$

where:

VPR_t = the aggregate voter participation rate in the U.S. in year t, expressed as a percent;

a_0 = constant term;

$PRESAPP/DIS_t$ = a binary variable to measure strong public approval *or* strong public disapproval of the President in year t: $PRESAPP/DIS_t = 1$ for those years in which the public's average approval rating of the President was either very low (39 or less out of a possible 100.0) *or* very high (57 or more on the same scale) and $PRESAPP/DIS_t = 0$ otherwise;

$PRESDUM_t$ = binary variable for Presidential election years: $PRESDUM_t = 1$ during Presidential election years and $PRESDUM_t = 0$ otherwise;

$VIETNAM_t$ = a binary variable for the years during which the U.S. was militarily involved in the Vietnam War, such that $VIETNAM_t = 1$ for those years and $VIETNAM_t = 0$ otherwise;

DIS_t = the level of the public's dissatisfaction with government over year t, as measured by the dissatisfaction index, ranging from –1.5 for least dissatisfied to + 1.5 for most dissatisfied;

PAC_{t-1} = total real PAC contributions to U.S Senate election/re-election campaigns in year t-1, expressed in millions of 1996 dollars, with the value of PAC is assumed equal to zero prior to 1971;

$SLOWGR_{t-1}$ = a binary variable reflecting the annual percentage growth rate of real GDP in year t-1: $SLOWGR_{t-1} = 1$ when the percentage growth rate of real GDP is less than two percent in

year t-1 and $SLOWGR_{t-1} = 0$ when the annual percentage growth rate of real GDP is two percent or more in year t-1;

$INFLDUM_{t-1}$ = a binary variable indicating whether in year t-1 the annual inflation rate of the CPI exceeded five percent, such that $INFLDUM_{t-1} = 1$ during those years and $INFLDUM_{t-1} = 0$ otherwise;

u = stochastic error term.

The study period runs from 1960 through 2000. The study period begins in 1960 because of data unavailability for the DIS_t variable prior to 1960. The VPR_t is measured only for even-numbered years. This is because even-numbered years are when all members of the U.S. House of Representatives and one-third of the U.S. Senate are elected and, on alternate even-numbered years ("leap years") when the President also is elected. The odd-numbered years typically do not correspond to the election of large numbers of "significant" officials. The values for PAC_{t-1} are assumed equal to zero until 1971, when FECA effectively opened the door for the establishment of legal PACs. The VPR_t data and the data for PAC_{t-1} were obtained from:

www.infoplease.com

The variable DIS_t is represented by the "dissatisfaction index," obtained from the ISR at the University of Michigan:

http://www.isr.umich.edu

The data used to construct $INFLDUM_{t-1}$ and $SLOWGR_{t-1}$ were obtained from the Council of Economic Advisors [2003, Tables, B-64, B-2]. The data for the Presidential approval rating were obtained from:

Thttp://www.geocities.com/americanpresidencynet/approval.htm

The ADF (Augmented Dickey-Fuller) and P-P (Philips-Peron) tests both confirm that the series for variables DIS_t and PAC_{t-1} are stationary only in first differences. Hence, in the estimation provided below, these two variables are expressed in first differences. The VPR series is marginally stationary at the ten percent level in levels, reflecting in part the rise in the voter participation rate in the year 2000 election.

Given that VPR_t is contemporaneous with the dissatisfaction index, DIS_t, the possibility of simultaneity bias exists. To account for this possibility, the model in equation (3) was estimated using an instrumental variables (IV) technique, with the instrument being the two-year lag of the maximum marginal federal personal income tax rate, MAX_{t-2}. On economic grounds, the choice of instrument was based on the findings in Cebula, Koch, and Paul (1998, p. 497) that "…the public's dissatisfaction with government…was an increasing function of the federal personal income tax rate." On technical grounds, the choice of instrument was based on the finding that DIS_t and MAX_{t-2} are highly correlated, whereas the two-period lagged instrument is not contemporaneous with the error terms in the system. The MAX_{t-2} data were obtained from:

www.taxfoundation.org/prtopincometable.html

III. Empirical Findings

Estimating equation (3) by IV, using the White (1980) heteroskedasticity correction, yields:

$$VPR_t = +21.1 + 32.24 \; PRESAPP/DIS_t + 11.42 \; PRESDUM_t + 4.41 \; VIETNAM_t - 256.3 \; zDIS_t$$

$$(+5.51) \qquad\qquad (+9.13) \qquad\qquad (+5.52) \qquad\qquad (-4.90)$$

$$- 0.33 \; zPAC_{t-1} + 7.3 \; SLOWGR_{t-1} + 3.37 \; INFLDUM_{t-1}$$

$$(-2.00) \qquad\quad (+4.47) \qquad\quad (+2.62)$$

$$DW = 1.79, \; Rho = 0.09 \tag{4}$$

where terms in parentheses are t-values and z is the first differences operator. In equation (4), all seven of the estimated coefficients exhibit the expected signs, with six being statistically significant at the two percent level or beyond, and one being significant at beyond the seven percent level. The D-W and Rho statistics imply the absence of serial correlation problems.

The estimated coefficient on the PRESAPP/DIS variable is positive and significant at the one percent level. This finding suggests, as hypothesized in this study, that when the public strongly approves *or* strongly disapproves of the job performance of the incumbent President, they turn out in greater numbers than otherwise would be the case to express either that strong approval *or* strong disapproval. Venting such *feelings* may generate increased benefits from voting.

The estimated coefficient on the PRESDUM variable is positive and significant at the one percent level. This confirms the hypothesis that during Presidential election years voter participation rates increase because the outcome(s) of the election is (are) perceived as more important, so that the expected potential benefits from voting are enhanced while presumably reflecting emotions ranging from simple enthusiasm, perhaps almost reminiscent of "cheerleading" (Copeland and Laband [2002], Barreto, Segura, and Woods [2004], Cebula [2004]) on the one hand to emotional responses (involving arguably greater substance) to candidate positions, the candidates themselves, or party platforms on sensitive issues such as abortion, religion, the environment, and affirmative action on the other hand. Thus, possibly for multiple reasons, voting in Presidential election years may increase the expected value/benefit of voting.

The coefficient on the VIETNAM variable is positive, as expected, and significant at the one percent level. This finding is perhaps suggestive of a strong emotional pull by the "War"

issue of voters to the polling booths, perhaps in the hope of creating a change in U.S. policy regarding military involvement in Vietnam, i.e., the possibility of ending U.S. involvement in the Vietnam War may have increased the expected benefit/value of voting. Thus, the documented unpopularity of and controversy over the Vietnam War appears to have led to increasing voter participation. The lesson from this result *may* be that protracted controversial or "unpopular" wars are likely to induce increased voter participation (and, arguably, of a nature that *on balance* is anti-incumbent).

The coefficient on the variable DIS is negative, as expected, and significant at the one percent level, presumably suggesting that the more dissatisfied the voting-eligible population is with government in general and perceived government officials' trustworthiness, honesty/dishonesty, and use of tax revenues, the more discouraged from participation in the voting process they become. This suggests a form of disappointment and a negative emotional reaction to even "bothering" to vote, i.e., the DIS variable reflects disillusionment with government and a correspondingly diminished expected gross benefit from voting.

The estimated coefficient on the PAC variable is negative but significant in this estimation at only the 6.7 percent level. This result would seem to suggest, albeit somewhat weakly, that greater PAC Senate election campaign contributions *may* lead to reduced voter participation rates. This specific possibility has not heretofore been investigated in the published literature. In any case, this finding, if true, might suggest that at least some voters *feel* politically disenfranchised by PAC contributions; thus, at least some eligible voters may expect lower gross benefits from voting due to the PAC contributions. Statistically, the somewhat modest t-statistic for this variable in equation (3) is attributable to moderate multicollinearity with the dummy variables for excessive inflation and slow economic growth. As shown in Table 1, however, once

either (or both) of these two dummy variables is eliminated from the estimate, the PAC variable becomes statistically significant at acceptable levels (while remaining negative) in all cases.

The coefficient on the SLOWGR variable is positive and significant at the one percent level. This result suggests strongly that when the growth rate of real GDP is relatively slow (i.e., less than two percent per annum), eligible voters to some extent envision greater stakes (greater expected gross benefits) in acting to help ensure the election of politicians whose economic policies may more effectively stimulate economic growth and therefore job growth and employment security and/or use votes to *express displeasure* over slow real GDP growth.

Finally, the estimated coefficient on the INFLDUM variable is positive and significant at the two percent level. The interpretation on this finding is that, on balance, the public disapproves of inflation if it exceeds five percent annually and expresses this disapproval by increasing its voter participation. Presumably, once inflation exceeds five percent, it exceeds the growth rate of income for many voters, who experience a net deterioration of their purchasing power despite COLAs and other factors contributing to rising nominal earnings. Under these conditions, voting provides an increased expected gross benefit: an opportunity to express disapproval and/or to attempt to precipitate economics policy change(s).

To investigate further the voter-participation impact of the factors identified in this model, three variations on the system shown in equation (3) have been estimated by IV, each adopting the White (1980) heteroskedasticity correction. The results of these estimations are provided in columns (1), (2) and (3) of Table 1. As shown in Table 1, 15 of the 17 coefficients are statistically significant with the expected signs at the one percent level, whereas the remaining two coefficients are significant with the expected signs at the five percent level. Observe that the estimated coefficient on the PAC variable is now statistically significant at an

acceptable level in all three of these estimates, presumably because of the amelioration of the multicollinearity problem referred to above. In sum, it appears that the voter participation rate in this expanded rational voter model has been found to be an increasing function of strong public approval *or* strong public disapproval of the incumbent President, the opportunity to participate in a Presidential election, the Vietnam War (*possibly* as a surrogate for a protracted unpopular or at least highly controversial war), a "too slowly" growing real GDP, and an annual inflation rate of five percent or more. Furthermore, the voter participation rate appears to be a decreasing function of the public's dissatisfaction with government and the growth in real PAC Senate election campaign contributions.

TABLE 1

Alternative IV Estimations

Variable	Estimation (1)	Estimation (2)	Estimation (3)
Constant	+16.1	+35.83	+36.88
PRESAPP/DIS	+42.37**	+14.39**	+15.68**
	(+4.16)	(+6.40)	(+4.73)
PRESDUM	+10.2**	+10.58**	+9.53**
	(+6.85)	(+8.19)	(+6.10)
VIETNAM	+6.08**	+12.22**	+13.69**
	(+4.14)	(+6.57)	(+6.22)
zDIS	-359.5**	-59.6**	-68.44**
	(-3.79)	(-6.35)	(-4.48)
zPAC	-0.47**	-0.38*	-0.48**
	(-3.02)	(-2.26)	(-3.00)
SLOWGR	+1.06**		
	(+3.60)		
INFLDUM		+2.41*	

(+2.06)

DW	1.80	1.89	1.93
Rho	0.09	0.04	0.02

Terms in parentheses are t-values.
**Statistically significant at the one percent level.
*Statistically significant at the five percent level.

IV. Conclusion

This study has endeavored to identify key aggregate-level determinants of the expected benefits from voting and hence key aggregate voter participation rate determinants in the U.S. so as to help improve understanding of and forecasting of voter turnout. Following Copeland and LaBand [2002], Barreto, Segura, and Woods [2004] and Cebula [2004], we have attempted to incorporate variables that might capture the effects of "expressive" voting, that is, measures which capture the effects of differences in attitudes among potential voters. The analysis especially focuses on the voter-turnout impact of growing *real* PAC contributions to U.S. Senate election campaigns.

Using aggregate time series covering the period 1960-2000, several interesting and significant results are obtained. First, the voter participation rate tends to be higher when the public expresses either *strong approval **or** strong disapproval* of the job the President is perceived as doing while in office. Second, the opportunity to vote in a Presidential election appears to induce a greater voter turnout. Third, the greater the public's expressed dissatisfaction with government, i.e., (1) the greater the degree to which the public doubts that government officials can be trusted, (2) the more the public feels government officials are dishonest, and (3) the greater the extent to which the public feels that government wastes tax dollars, the lower the voter participation rate. Fourth, the Vietnam War had a positive and significant impact on voter

participation. This issue *may* have galvanized an otherwise potentially somewhat free-riding, somewhat apathetic public into a voter coalition with a greater propensity to vote in order to promote a specific agenda. This particular finding *may* be capable of being generalized into a rule of thumb by which it is possible to conjecture that any *protracted, unpopular war* might act to elicit greater voter turnout. Clearly, this factor could potentially imply marginally important voter turnout developments in the U.S. in terms of the War in Iraq. Until hostilities involving the U.S. military in Iraq and the Iraqi occupation are both completed, however, this issue may not be ready to be fully investigated in an unbiased way. This is all the more true since there is a milieu involving terrorism against the U.S. beginning with September 11, 2001, within which the Iraqi issue must be interpreted. Next, it would appear that the growth of *real* PAC Senate election campaign contributions, an issue not previously investigated, has led to a reduction in voter turnout, possibly because such "contributions" may lead voters to *feel* politically disenfranchised and to experience a decline or loss in expected benefits from voting, perhaps in the form of expected lost influence over elected officials. On the *economics* front, a slower growing real GDP, i.e., a performance of less than two percent annual growth, tends to raise the voter participation, perhaps because such a slowly growing economy is perceived as posing a threat of rising unemployment. Finally, it appears that an inflation rate exceeding five percent annually tends to elevate voter participation, presumably because once the inflation rate has reached such proportions, it is reducing the real income of a significant portion of the voting (or at least *potentially* voting) public.

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[i] It would be hard to overestimate the importance of these three works with respect to voting theory and models and with the development of public choice in general and perhaps we should pay them due respect here. Whereas most works are cited not at all or only a few times, each of

these has been referenced and cited literally hundreds of times. The Duncan Black book [1948] had achieved a citation rate of more than 25 per year by the early nineties [Durden, 1991] and the Buchanan and Tullock [1962] tome receives upwards of 40 annually [Durden and Millsaps, 1996]. At last count, the Downs [1958] volume was receiving an average of more than 70 cites per year [Durden, 1991], while the Riker and Ordeshook paper [1968] receives about 10 cites per year [Maske and Durden, 2003] after 35 years, truly remarkable for a journal article. According to a ranking scheme developed in Durden and Ellis [1993], the Riker-Ordeshook piece is a classic paper, Black, and Buchanan and Tullock are "super" classics and the Downs book is really in a class with few peers.