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The influence of state-level economic conditions on the 1992 U.S. presidential election*

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Abstract. Evidence is found that state-level economic conditions played a significant role in the defeat of George Bush in the 1992 U.S. presidential election. Evidence is also found which indicates that the entrance of Ross Perot into the race as an independent candidate was not instrumental in the Bush loss.

1. Introduction

Economic conditions undoubtedly played a central rhetorical role in the 1992 U.S. presidential election. Certainly for challenger Bill Clinton there was much to talk about. During the four years of the Bush presidency the country had witnessed a substantial deterioration in general macroeconomic activity as unemployment rose and economic growth slowed.[1] Of considerable political importance, unemployment rates in many key electoral states proved worse than the 7.5 percent national average: 9.2 percent in California, 9.1 percent in Florida, and 8.8 percent in New York.[2] More dramatic is the statistic that 17 states experienced *negative* real income per capita growth rates during the Bush presidency.[3]

Regardless of the true cause(s) of the economic malaise, empirical evidence suggests that voters hold incumbent Presidents accountable for state-level economic performance (see, e.g., Abrams, 1980; Wright, 1974; and Meltzer and Vellrath, 1975). The wide variation and changes in economic conditions across states leading up to the 1992 election provide a potentially rich data set to test hypotheses relating to the influence of economic performance on voting behavior. In this paper, data from the 1992 presidential election are analyzed to determine, among other things, the quantitative importance of macroeconomic conditions in the defeat of George Bush.

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2. The empirical model

In keeping with the literature, the following model is used to test for the effects of state-level economic performance in affecting the state-level vote share of the incumbent:

$$\text{VoteShare}_i = f(\text{PreviousVoteShare}_i, \text{PerotShare}_i, \text{Ark}, \text{Econ}_i)$$

where

Vote Share_i	=	Bush's 1992 vote share in state i.
$\text{Previous Vote Share}_i$	=	Bush's 1988 vote share in state i.
Perot Share_i	=	Ross Perot's 1992 vote share in state i.
Ark	=	A dummy variable for the state of Arkansas.
Econ_i	=	Economic performance in state i (discussed below).

Following other studies, the incumbent's previous vote share enters the model as a control for the state's predisposition towards the incumbent. Two major non-economic changes occurred between the 1988 and the 1992 elections which also warrant control variables. First, the entrance of Ross Perot as a major third candidate may have affected the vote share going to the incumbent in 1992. A Perot vote share variable enters the model as a control for the influence of his candidacy. Second, the challenger facing Bush in 1992 (from Arkansas) was not the same as in 1988 (from Massachusetts). A dummy variable (1 for Arkansas, 0 otherwise) is used to control at least partially for the change in challengers.[4]

Considerable disagreement exists over the choice of and the operational form for the economic performance variable(s). Previous researchers have used, inter alia, changes in the unemployment rate over some period leading up to the election (Abrams, 1980), the unemployment rate at some point prior to the election (Meltzer and Vellrath, 1975), the growth in real per capita income over some period leading up to the election (Peltzman, 1987), the relative growth in real per capita income (Levernier, 1992), and the difference in actual and expected economic performance (Kramer, 1971). The time period used by voters in assessing economic performance to blame or reward incumbents has also been subject to dispute.[5] To date, empirical studies have been unable to establish any consensus on the appropriate economic performance variables and the time horizon used by voters in assessing the incumbent's record.

Lacking basic theoretic and empirical guidelines, a variety of economic performance variables and time periods were experimented with in the statistical tests. Three alternative income growth variables were used: (1) the state's real

per capita income growth over the four-year period ending the second quarter 1992 (GPC 88–92). This variable has been widely used to explain changes in vote share in earlier empirical studies; (2) unexpected growth in the state's real per capita income (UNEXPECTED GPC 88–92). This variable is constructed by subtracting the state's real per capita growth in 1984–88 from the state's growth in1988–92. The use of this variable implicitly assumes that voters' expected real per capita income growth is based on the last term of the Reagan presidency; and (3) the state's real per capita income growth in the year (four quarters) leading up to the election (GPC 91–92).[6] This "short run" variable is designed to help determine the time period used by the electorate in assessing economic performance. As an increase in any of the above three variables, ceteris paribus, serves to improve economic welfare, positive coefficient estimates for these variables are expected.

As either alternatives for or supplements to the income-growth variables, two unemployment rate variables are constructed: (1) the change in the unemployment rate in the state between 1988 and 1992 (UDIF 88–92). This variable is calculated by subtracting the state's unemployment rate in September 1988 from the state's unemployment rate in September 1992; and (2) the state's unemployment rate (U92) in September 1992. Both variables have been used in earlier empirical analyses explaining changes in vote share. Since unemployment or increases in unemployment serve to decrease economic welfare, we anticipate negative coefficient estimates for the unemployment variables.

3. The empirical findings

The model is estimated both with ordinary least squares (Tables 1 and 2) and weighted least squares (Tables 3 and 4) using various combinations of the economic performance variables described above.[7] In general, the two estimation procedures produce consistent results and indicate that state-level economic conditions played a significant role in affecting Bush's state-level vote-share in the 1992 election. Tables 1 and 3 report model estimates when each of the five economic performance variables separately enters the regression. With the exception of income growth in the year prior to the election (OLS, Table 1), each of the economic performance variables has the expected sign and is statistically significant. This supports previously reported findings by Abrams (1980), Meltzer and Vellrath (1975), and Wright (1974) that state-level economic performance affects the state-level vote shares of incumbent presidents.

Based on the WLS estimates (Table 3), model I indicates that a 1 percentage point increase in a state's per capita real income (about the mean) over the 1988–92 period would increase Bush's vote share by 0.58 percent. Model II indicates a 1 percentage point increase in a state's per capita real income (about

Table 1. Bush's vote-share equations, 1992 (OLS)

	Model				
	I	II	III	IV	V
Constant	3.26	6.51	7.25	11.5	3.94
	(1.2)	(2.6)	(2.6)	(3.4)	(1.4)
Bush 88	0.79	0.77	0.71	0.73	0.76
	(16.3)	(16.6)	(13.4)	(14.8)	(14.2)
Perot share	−0.43	−0.45	−0.34	−0.41	−0.35
	(6.2)	(6.7)	(4.8)	(6.0)	(4.4)
Ark	7.78	−8.00	−7.75	−6.93	−7.00
	(2.9)	(2.6)	(2.8)	(2.6)	(2.4)
GPC 88–92	0.29	–	–	–	–
	(3.3)				
Unexpected GPC 88–92	–	0.16	–	–	–
		(3.9)			
UDIF 88–92	–	–	−0.60	–	–
			(3.00)		
U92	–	–	–	−0.77	–
				(3.3)	
GPC 91–92	–	–	–	–	−0.13
					(0.8)
Adj R square	0.84	0.85	0.83	0.84	0.81

Note. T-statistics in parentheses; N = 51; weight used is state population divided by average state population.

the mean) above the expected income increase would raise Bush's vote share by 0.24 percent. Model III indicates that a 1 percent rise in the unemployment rate above the 1988 unemployment rate would cost Bush 0.68 percent vote share. Model IV suggests that the higher the level of the unemployment rate prior to the election the lower is Bush's vote share. For every 1 percent rise in the state's 1992 unemployment rate (about the mean), Bush would lose 0.93 percent of the state's vote share. Model V indicates that every 1 percent increase in real income per capita during the year preceding the election raised Bush's vote share 0.98 percent.

Tables 2 and 4 present coefficient estimates for equations which simultaneously enter various combinations of the economic performance variables. The signs, sizes, and significances of coefficient estimates for the performance variables remain essentially unchanged with the exception of the short-term income growth variable in model VIII, Table 4.[8]

Since the vote for Ross Perot might have been influenced by state-level

Table 2. Bush's vote-share equations, 1992 (OLS)

	Model				
	VI	VII	VIII	IX	X
Constant	12.10	7.00	2.80	9.60	11.43
	(3.9)	(2.9)	(1.2)	(2.9)	(3.3)
Bush 88	0.74	0.75	0.77	0.75	0.73
	(16.7)	(16.8)	(18.0)	(16.0)	(14.5)
Perot share	−0.46	−0.39	−0.36	−0.45	−0.40
	(7.4)	(5.8)	(5.6)	(6.9)	(5.3)
Ark	−7.75	−8.0	−7.9	−7.5	−6.91
	(3.2)	(3.2)	(3.3)	(2.9)	(2.5)
GPC 88–92	–	–	0.49	0.23	–
			(5.2)	(2.7)	
Unexpected	0.13	0.19	–	–	–
GPC 88–92	(3.5)	(4.7)			
U92	−0.60	–	–	−0.62	−0.76
	(2.9)			(2.8)	(3.2)
GPD 91–92	–	−0.33	−0.57	–	−0.02
		(2.4)	(3.8)		(0.2)
Adj R square	0.86	0.87	0.88	0.86	0.84

Note. T-statistics in parentheses; N = 51; weight used is state population divided by average state population.

economic conditions, inclusion of Perot's vote share as an independent control variable along with the economic condition variables might be questioned. To test the sensitivity of our findings, Perot Share is deleted and the WLS models contained in Table 3 are reestimated using Bush's share of the major party vote as the dependent variable.[9] The findings are reported in Table 5. The modified model produces no substantive change in the findings. State-level economic conditions continue to play a significant role in explaining Bush's vote share.

As a more direct test of the influence of state-level economic conditions on the vote for Perot, we estimate an equation using Perot Share as a dependent variable and economic conditions as independent variables and report the findings in Table 6. The results clearly show that Perot's vote share was *not* a protest vote against bad *state-level* economic conditions,[10] although it is certainly possible that national-level economic problems (e.g., the federal budget deficit) did play a significant role.

Our model estimates also shed some light upon the question whether or not Perot's entry into the race contributed to altering the election outcome. Fifteen of the twenty models in Tables 1–4 suggest that Perot had no effect on the

Table 3. Bush's vote-share equations, 1992 (WLS)

	Model				
	I	II	III	IV	V
Constant	−3.52	7.89	9.31	11.14	−5.97
	(1.6)	(2.5)	(2.5)	(2.9)	(1.8)
Previous vote share	0.88	0.80	0.70	0.75	0.95
	(23.8)	(15.8)	(11.6)	(13.1)	(16.7)
Perot share	−0.38	−0.61	−0.45	−0.38	−0.48
	(7.8)	(8.6)	(6.1)	(5.1)	(6.9)
Ark	−7.63	−8.95	−8.43	−6.79	−6.27
	(2.3)	(2.0)	(1.7)	(1.4)	(1.3)
GPC 88–92	0.58	–	–	–	–
	(10.9)				
Unexpected GPC 88–92	–	0.24	–	–	–
		(6.5)			
UDIF 88–92	–	–	−0.68	–	–
			(5.0)		
U92	–	–	–	−0.93	–
				(5.2)	
GPC 91–92	–	–	–	–	0.98
					(5.9)
Adj R square	0.78	0.81	0.82	0.84	0.53

Note. T-statistics in parentheses; N = 51; weight used is state population divided by average state population.

election outcome (i.e., the Perot Share coefficient was not significantly different from −.5). However, five models indicate that the coefficients are significantly different from and lower than −.5.[11] These estimates suggest that Perot hurt Clinton more than Bush. Thus, our findings strongly indicate that Perot was not a factor in Bush's defeat.

In order to check on the predictive accuracy of the models, Bush's predicted state vote shares were compared to actual state vote shares. For economy, we focus on the WLS models presented in Table 3. Model I correctly predicts the winning candidate in 46 of 51 electoral units (50 states plus the District of Columbia), models II and III correctly predict 44, and models IV and V correctly predict 43. Model I predicts Bush's electoral vote total to be 164, which is very close to his actual total of 168. Bush's predicted electoral votes for the other models in Table 1 range from 151 to 183.

Tables 1–5 strongly indicate that deteriorating state-level economic conditions played a significant role in affecting Bush's vote share in 1992. Although

Table 4. Bush's vote-share equations, 1992 (WLS)

	Model				
	VI	VII	VIII	IX	X
Constant	13.01	1.46	−2.15	1.30	3.12
	(4.3)	(0.4)	(0.9)	(0.5)	(1.0)
Previous vote share	0.75	0.88	0.85	0.84	0.87
	(16.7)	(17.4)	(20.6)	(23.0)	(17.8)
Perot share	−0.52	−0.58	−0.36	−0.36	−0.41
	(8.1)	(9.1)	(7.1)	(7.9)	(7.2)
Ark	−8.53	−8.02	−7.97	−7.55	−6.45
	(2.2)	(2.0)	(2.5)	(2.5)	(1.7)
GPC 88–92	–	–	0.71	0.50	–
			(7.2)	(8.8)	
Unexpected GPC 88–92	0.19	0.17	–	–	–
	(5.4)	(4.4)			
U92	−0.61	–	–	−0.38	−0.72
	(4.0)			(3.0)	(5.1)
GPC 91–92	–	0.61	−0.33	–	0.80
		(3.7)	(1.5)		(5.7)
Adj R square	0.87	0.69	0.81	0.80	0.67

Note. T-statistics in parentheses; N = 51; weight used is state population divided by average state population.

economic conditions were significant, were they decisive? To help answer this question, simulations were run on the models using generally more favorable economic performance data. Again focusing on the WLS estimates in Table 3, the model I simulation substitutes the four-year state-level growth rates from 1984 through 1988 and computes new vote shares.[12] The simulation predicts that Bush gains an additional 17 states while losing 4 states, for a net swing of 13 states. Bush's predicted electoral vote is 352, more than enough to reverse the outcome of the election.

Similar simulations were conducted for the other four models in Table 3. For models using a difference variable, UNEXPECTED GPC 88–92 and UDIF 88–92, the difference is set to zero for the simulation. For the model using the pre-election unemployment rate, the September 1988 state-level unemployment rate substitutes in the simulation. For the one-year growth of per capita income, the average annual state-level growth rate for the 1984–88 period is used in the simulation. All of these other simulations predict that Bush's share of votes and total electoral votes increase, but none predicts a large enough swing of electoral votes to reverse the election outcome.

Table 5. Bush's major-party vote-share equations, 1992 (WLS)

	Model				
	I	II	III	IV	V
Constant	−13.05 (5.2)	−4.80 (1.4)	1.53 (0.4)	4.89 (1.0)	−18.86 (4.9)
Previous vote share	1.09 (23.2)	0.98 (15.1)	0.86 (11.2)	0.92 (12.4)	1.18 (16.5)
Ark	−9.67 (2.4)	−8.79 (1.5)	−9.97 (1.6)	−8.63 (1.4)	−6.88 (1.2)
GPC 88–92	0.74 (11.0)	–	–	–	–
Unexpected GPC 88–92	–	0.28 (6.2)	–	–	–
UDIF 88–92	–	–	−0.87 (5.0)	–	–
U92	–	–	–	−1.11 (4.9)	–
GPC 91–92	–	–	–	–	1.27 (6.0)
Adj R square	0.80	0.84	0.82	0.85	0.50

Note. T-statistics in parentheses; N = 51; weight used is state population divided by average state population.

Table 6. Perot's vote-share equations, 1992 (WLS)

	Model				
	I	II	III	IV	V
Constant	19.25 (43.8)	20.96 (25.5)	19.10 (23.2)	15.41 (5.8)	19.15 (39.2)
GPC 88–92	−0.14 (0.9)	–	–	–	–
Unexpected GPC 88–92	–	0.17 (2.4)	–	–	–
UDIF 88–92	–	–	0.06 (0.2)	–	–
U92	–	–	–	0.48 (1.5)	–
GPC 91–92	–	–	–	–	0.16 (0.5)
Adj R square	−0.09	0.05	−0.02	−0.14	0.03

Note. T-statistics in parentheses; N = 51; weight used is state population divided by average state population.

4. Concluding remarks

State-level economic performance appears to have been a significant factor influencing votes for the 1992 U.S. presidential election. However, some model simulations using Reagan-type economic performance data indicate that state-level economic conditions alone may not have been decisive for the election outcome. This does not mean that overall economic factors weren't decisive, however. If national-level economic conditions enter as a separate argument into the utility functions of voters, the influence of deteriorating economic conditions at the national level may have combined with those of the state level to be decisive. Unfortunately, the cross-section data analyzed in this study prevent a direct test of this hypothesis. State-level economic conditions matter, but they may not have been all that mattered in the 1992 election.

Notes

1. The message apparently came through to the voters. The networks' exit polls revealed that voters viewed the condition of the economy as the single most important issue. See Gary Langer (1992: A10).
2. Bush lost all three of these states to Clinton. Unemployment rate data are for September 1992. West Virginia had the highest unemployment rate (11.1 percent) and South Dakota had the lowest (2.8 percent). Bush lost West Virginia but carried South Dakota.
3. This computation is based on the four-year period ending in the second quarter of 1992. Bush lost 13 of these 17 states to Clinton. New Hampshire had the lowest growth rate over this period (−9.4 percent), while Montana had the highest (12.0 percent). Bush lost both of these states.
4. Other control variables were experimented with to control for changes in the Democratic ticket: an "old south" dummy (to control for any regional effect of having two Southerners on the Democratic ticket), a Massachusetts dummy (to control for the absence of Dukakis in 1992), and a Tennessee dummy (to control for the home-state influence of the Democrat's Vice-Presidential candidate) entered the model in various combinations, but all were consistently insignificant and had no effect on the other estimated coefficients in the model. For economy, they have been dropped from the reported models. Perot's home state is Texas but, as a control variable for Perot's influence already enters the model (Perot Share), any additional variable to control for his influence on the incumbent's vote share would be redundant.
5. As an example, Abrams (1980) finds a four-year time horizon for economic performance variables explains more of the variation in vote share for president in 1972 while a one-year time horizon explains more in 1956.
6. All income growth data terminates after the second quarter of 1992 as this is the last quarter of information available prior to the election.
7. The substantial variation in the size of the states might suggest WLS is most preferred. For an additional justification for using WLS in addition to correction for heteroskedasticity, see Nguyen and Martinez-Saldivar (1979: 626, fn. 1).
8. In addition to the reported equations, equations containing UDIF 88–92 and one of the other economic performance variables generally generated insignificant coefficient estimates for the former. For economy these equation estimates are omitted.

9. Kramer (1971) argues in favor of a vote share model that includes only major party votes and, consequently, the sum of Democrat share and Republican share equals 1. The models were also estimated using Bush's share of total votes as the dependent variables with similar results.
10. The only economic condition variable which proved significant has an unexpected sign. Model II, Table 6, indicates that states which had unexpectedly high income growth supported Perot.
11. These models are III in Table 1, VIII in Table 2, I in Table 3, and VIII and IX in Table 4.
12. Perot's vote share is assumed exogenous. Clinton's predicted vote share is computed by subtracting Bush's predicted vote share and Perot's vote share from 100.

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Appendix: Data sources

1992 Election Returns – *Wall Street Journal*, 5 November 1992, p. A13.

1988 Election Returns – *World Almanac 1992*, Scripps Howard Company, New York: Pharos Books, p. 395.

Per Capita Personal Income – *Survey of Current Business*, April 1992, July 1992, April 1990; and U.S. Department of Commerce News, 22 October 1992.

Unemployment Rate – *Employment and Earnings*, U.S. Department of Labor, Bureau of Labor Statistics. December issues 1991, 1990, 1989, 1988. 1992 data obtained from the State of Delaware, Department of Labor.

Population – Projections of the Population of States by Age, Sex and Race: 1989 to 2010. U.S. Department of Commerce, Bureau of the Census. Series P-25, No. 1053. Series A used.

Consumer Price Index – *Economic Report of the President, 1992*. U.S. Government Printing Office, Washington, 1992; and *National Economic Trends*, Federal Reserve Bank of St. Louis, September 1992.