

ECONOMIC KNOWLEDGE AND PUBLIC OPINION ON ECONOMIC ISSUES

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Economic events and issues were a major concern of the American public in 1991 and 1992. This concern arose because the national economy experienced a recession from mid-1990 through the first quarter of 1991, and a weak recovery in 1992. Joblessness rose as the unemployment rate climbed from 5.5 percent in mid-1990 to 7.6 percent in mid-1992. The Congress and the President engaged in lively debates over the direction of fiscal policy and the weak economy became the central issue of the 1992 Presidential election. Fears also grew about the size of the Federal budget deficit because it was expected to increase from \$270 billion in 1991 to about \$400 billion in 1992. And, the Federal Reserve made front-page news each time it cut the discount rate (five times in 1991 and once in 1992).

Despite the attention that is often given to economics in national discourse, little is known about the extent of public understanding of economic issues. To assess the economic literacy of the American public, a national survey was administered in March 1992, a month that occurred at about the midpoint of a two-year period of intense public interest in the economy and economic events. The survey was developed by the National Center for Research in Economic Education at the University of Nebraska-Lincoln and administered by The Gallup Organization to 1,005 members of the general public. The basic findings are reported in several publications (Walstad and Larsen, 1992 and 1994). This study extends the analysis by using logit models to investigate the relationship between economic knowledge and public opinion. Factors influencing economic knowledge are also examined in a regression model.

I. LOGIT ANALYSIS

Logit models were specified to investigate the effect of economic knowledge on opinions about economic issues after controlling for the influence of other variables. The dependent variable in each logit model was the log of the odds that a person would hold a particular view on an economic issue. Five economic issues were selected for study based on the discussion of these issues by national leaders, the news media, and the public. The definitions of the dichotomous dependent variables for the five issues, and their means and standard deviations are given in Table 1.¹

Only 23 percent of the public thought that monetary policy should be controlled by the Federal Reserve. The majority of the public (57 percent) did not support the

idea that the Federal budget deficit should be reduced by increasing taxes on business. About one-in-three (32 percent) did not like the idea of increasing government spending on jobs as the way to increase economic growth. Similar percentages would not recommend that the U.S. government prohibit an increase in oil and gas prices if the supply of oil was reduced by a crisis in the Middle East (35 percent), or would not want restrictions of imports of foreign products to reduce a U.S. trade deficit (32 percent).

A number of independent variables were included in the logit models. An economic knowledge variable (ESCORE) was created by summing the correct responses to the 19 knowledge questions in the survey. The ten economists who served on the national advisory committee for the survey considered these questions to be valid ones for assessing basic awareness of economic conditions and ideas frequently encountered by the public. This economic knowledge test had an alpha reliability of .71, suggesting that the 19-item test provides a reliable measure of basic economic knowledge. In fact, the alpha estimate is comparable to estimates for standardized economics tests of longer length (Saunders, 1991).

The sign for the coefficient for economic knowledge in each logit equation was expected to be positive and statistically significant, reflecting the contribution of economic knowledge to the prediction of the dichotomous

Table 1: Dependent Variables for Logit Analysis
(*N* = 993)

Variables	\bar{x}	s.d.
FEDRES: Federal Reserve should set monetary policy (1 = yes; 0 = no)	.234	.423
DEFICIT: Reduce Federal budget deficit by increasing taxes on business (1 = no; 0 = yes)	.576	.494
GROWTH: Encourage economic growth by increasing government spending to provide jobs (1 = no; 0 = yes)	.321	.467
OIL: U.S. government should prohibit an increase in oil and gas prices, if the supply of oil is reduced by a crisis in Middle East (1 = no; 0 = yes)	.348	.477
IMPORTS: Limit imports from other countries to reduce a trade deficit (1 = no; 0 = yes)	.315	.465

choice in each equation. The expected direction of this effect was based on economists' views on these types of issues and the way the dependent variable was specified. In the case of the Federal Reserve, for example, most economists would support the notion that the Fed should be responsible for monetary policy, not the Congress, the President, or some other organization. Most economists would also be inclined to give a no response to the four other propositions in Table 1 because the proposed actions would reduce economic efficiency or might have harmful secondary effects (e.g., Blinder, 1990; Alston, Kearl, and Vaughn, 1992). Thus, a person who possessed more economic knowledge (had a higher ESCORE) was expected to give a response to the propositions similar to most economists on these issues.

The other predictor variables in the logit equations were personal characteristics (age, sex, and race), socioeconomic factors (income and education), and political party orientation. The logit equations included dummy variables to control for the effects of SEX and RACE, and a continuous variable to account for the effect of AGE.² The education factor was entered as a set of four dummy variables capturing different levels of education (POSTGRAD, COLLEGE4, COLLEGE2, and HIGHSCH), with the effect of less than a high school education captured in the constant term. Income was represented by a set of four dummy variables, (UPINCOME, UMINCOME, MDINCOME, and NRINCOME), with the excluded category being low income. Party orientation was entered in a set of three dummy variables. Included in the regression equation were REPUBLICAN, INDEPENDENT, and NOPARTY. Democrat was the excluded category for the set of political affiliation variables.

The reason that these variables were included in the model is because they were thought to be significant factors that shaped people's opinions. Except for economic knowledge, however, it was difficult to specify the expected direction of the coefficient signs or to anticipate whether these other background variables would be significant based on previous research (e.g., Blinder and Holtz-Eakin, 1984). The sign and significance for these variables was likely to vary from proposition to proposition. The means, standard deviations and definitions of the independent variables used for the logit analysis are given in Table 2.

Findings. The results from the maximum-likelihood estimation of each equation are given in Table 3. The chi-square statistic for each model was highly significant beyond the .01 level. The number of correct predictions of the choices by the logit model was relatively high, ranging from 81 percent in the case of the FEDRES equation to a low of 61 percent in the case of DEFICIT equation. There was a statistically significant influence in the expected direction from the ESCORE variable for

Table 2: Variables for Analysis (N = 993)

Variables	\bar{x}	s.d.
ESCORE: Score on 19 economics questions	7.937	3.507
AGE	44.726	16.101
SEX (1 = male; 0 = female)	.502	.500
RACE (1 = white; 0 = nonwhite)	.877	.328
<u>Education variables</u> (1 = yes; 0 = no)		
POSTGRAD (post graduate education)	.122	.327
COLLEGE4 (4 years of college)	.171	.377
COLLEGE2 (2 years of college)	.249	.433
HIGHSCH (high school education)	.347	.476
LESSHS (< high school education)	.111	.314
<u>Income variables</u> (1 = yes; 0 = no)		
UPINCOME (+\$75K)	.103	.304
UMINCOME (\$50-74.9K)	.164	.371
MDINCOME (\$25-49.9K)	.359	.480
LINCOME (< \$25K)	.322	.468
NRINCOME (did not report income)	.052	.222
<u>Party variables</u> (1 = yes; 0 = no)		
REPUBLICAN	.332	.471
DEMOCRAT	.359	.480
INDEPENDENT	.232	.422
NOPARTY (no party given)	.077	.266

predicting the log odds of the choice in each equation. None of the other variables showed a similar consistency in coefficient sign and the significance of the effect. The coefficient for AGE was positive and significant in two equations (DEFICIT and GROWTH), but negative and insignificant in three equations (FEDRES, OIL, and IMPORTS). The coefficient for SEX showed that males tended to support the propositions, but the effect was only significant in the case of the DEFICIT and GROWTH estimations. The RACE coefficient was negative for whites in the FEDRES decision and positive in the four other equations, but insignificant in all equations. Similar inconsistencies in sign or statistical significance were found for variables representing education, income, and political orientation. Only economic knowledge provided a reliable predictor of public opinion on these issues.

Knowledge Effect. To appreciate how economic knowledge affected each opinion, the estimated probabilities of support for each proposition were calculated for three levels of knowledge — at the mean (8

Table 3: Logit Analysis of Five Economic Issues (N = 993)

Variables	Dependent Variables				
	FEDRES	DEFICIT	GROWTH	OIL	IMPORTS
ESCORE	.2404 ^a (.0294)	.0881 ^a (.0240)	.0754 ^a (.0248)	.1508 ^a (.0253)	.1871 ^a (.0265)
AGE	-.0007 (.0057)	.0143 ^a (.0044)	.0174 ^a (.0047)	-.0092 (.0048)	-.0035 (.0049)
SEX	.0479 (.1771)	.3030 ^b (.1416)	.4158 ^a (.1526)	.0877 (.1517)	.2831 (.1566)
RACE	-.1350 (.2768)	.3750 (.2085)	.4131 (.2583)	.0866 (.2344)	.2172 (.2504)
POSTGRAD	.3389 (.4185)	.2518 (.3220)	.3952 (.3493)	.9206 ^a (.3540)	.3238 (.3513)
COLLEGE4	.1856 (.3998)	.2372 (.2912)	.4688 (.3201)	.3147 (.3311)	-.1320 (.3278)
COLLEGE2	-.0181 (.3808)	.2915 (.2581)	.3707 (.2929)	.3722 (.3047)	-.1945 (.3004)
HIGHSCH	.0917 (.3658)	.4468 (.2379)	.2157 (.2735)	.2385 (.2892)	-.2531 (.2807)
UPINCOME	.6385 ^b (.3145)	-.3345 (.2708)	-.0449 (.2811)	.4962 (.2748)	.2189 (.2832)
UMINCOME	.8022 ^a (.2725)	-.2417 (.2185)	.2873 (.2294)	.2332 (.2297)	-.0978 (.2386)
MDINCOME	.5708 ^b (.2346)	-.1967 (.1711)	.0441 (.1864)	.1890 (.1863)	-.0366 (.1913)
NRINCOME	1.3690 ^a (.3807)	-.1755 (.3229)	.0942 (.3555)	.6544 (.3382)	-.5229 (.4052)
REPUBLICAN	.0281 (.2050)	.6768 ^a (.1662)	.8808 ^a (.1828)	.3480 (.1785)	.2741 (.1862)
INDEPENDENT	-.0360 (.2230)	.4001 ^b (.1799)	.7700 ^a (.1983)	.3584 (.1941)	.5542 ^a (.1987)
NOPARTY	-.1883 (.3711)	.0317 (.2659)	1.0163 ^a (.2890)	.5702 (.2913)	.3847 (.3104)
CONSTANT	-3.7816	-1.9519	-3.6972	-2.3842	-2.6420
Chi-square [df: 15]	165.11 ^a	78.12 ^a	100.50 ^a	128.66 ^a	143.16 ^a
Correct Predictions	81.02%	60.82%	68.58%	70.80%	74.02%

^a significant at .01 level (two-tailed test)

^b significant at .05 level (two-tailed test)

(Standard errors in parentheses)

Table 4: Probabilities Calculated from Logit Analysis

Knowledge Score	FEDRES				DEFICIT				GROWTH				OIL				IMPORTS			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
a. $\bar{x} - 1s$	.12	.10	.10	.11	.62	.53	.44	.35	.49	.37	.27	.20	.25	.27	.18	.17	.21	.15	.15	.13
b. \bar{x}	.23	.22	.23	.25	.69	.62	.53	.43	.55	.44	.33	.24	.36	.34	.29	.27	.33	.27	.27	.23
c. $\bar{x} + 1s$	.41	.43	.44	.47	.75	.70	.61	.52	.61	.51	.40	.30	.49	.49	.43	.40	.49	.44	.45	.39
Diff. (c-a)	.29	.33	.34	.36	.13	.17	.17	.17	.12	.14	.13	.10	.24	.22	.25	.23	.28	.29	.30	.26

(1) Logit results for 45-year-old, white male, with 4 years of college education, middle income and Republican; (2) Same as 1 but for females; (3) Same as 1 but for Democrats; (4) Same as 1 but for Democrats and nonwhites.

points), one standard deviation above the mean (11.5 points), and one standard deviation below the mean (4.5 points). These probabilities are reported in Table 4 holding constant other characteristics of an individual. Column (1) shows the probabilities of supporting a position for each choice variable based on the three different levels of economic knowledge and on assumptions about the other characteristics — that the person was of average age (45 years), was male, was white, had a four-year college education, earned a middle income, and was Republican. The other columns report the probabilities based on the same characteristics, but with a change in one or two variables: column (2) gives the probabilities for females; column (3) reports the probabilities for Democrats; and column (4) gives the probabilities for Democrats and nonwhites.

Based on the probabilities for the basic set of characteristics in column (1), there was over a three-fold increase (from .12 to .41) in the probability of accepting the idea that the Federal Reserve should be responsible for monetary policy as the level of knowledge moved from one standard deviation below the mean to one standard deviation above the mean. The probability of opposing taxation of business to reduce the Federal deficit, or the probability of opposing an increase in government spending to provide jobs as a way to stimulate economic growth, increased by .12 and .13, respectively, as the economic knowledge score increased two standard deviations. The probability of opposition to government intervention and price controls for oil and gasoline increased by .24 when the knowledge score rose. Finally, there was a substantial increase of .28 in the probability that a person would not support import restrictions to reduce a trade deficit as the economic knowledge score changed from one standard above the mean to one standard deviation below the mean.

The change in probabilities in the other columns showed the same basic pattern even as changes were made in one or two variables in the specified set of characteristics. Despite the changes, the probability of

supporting a proposition consistently increased as the knowledge level increased. This pattern occurred irrespective of whether the person was male or female, Republican or Democrat, white or nonwhite. The effect of economic knowledge on the probabilities of holding the specified opinions on these economic issues would be similar if other possible combinations were used.³

II. ECONOMIC KNOWLEDGE

Research on the teaching of economics suggests factors that influence economic knowledge (Siegfried and Fels, 1979; Becker, Greene, and Rosen, 1990). The age, sex, or race of individual are known to affect economic understanding. Other things equal, older adults possess more economic knowledge than younger adults because they have had more years to learn about how the economy works. Studies at both the high school and college levels have also shown that a person's sex can influence economic understanding (e.g., Siegfried, 1979). Males tend to score significantly higher than females on tests of basic economic understanding. Some studies have found that race or ethnic origin affects the level of economic knowledge, with whites slightly outscoring blacks on economics tests in high school (see Becker, et al., 1990).

Education will influence what people know about economics. Other things equal, people with more education are more likely to understand what affects the national economy because they are more literate and capable of understanding complex economic events. Some college graduates have also taken an economics course. This coursework will usually have a significantly positive effect on economic knowledge when compared to college graduates who had no coursework in economics.

Income also affects economic understanding. Those with a higher level of income are more likely to show a direct interest in economic matters and are more likely to understand how the economy works than those with less income.

Finally, the political orientation or affiliation of a

person may affect the economic knowledge, or at least a person's propensity to be aware of developments in the national economy. The direction of the potential effect, however, is difficult to specify with any degree of certainty. It would be plausible to argue that Republicans would be more knowledgeable about economics simply because the type of person that supports that party has historically been more business-oriented and directly concerned with economic issues such as taxes, free trade, and government regulation of the economy. Democrats, by contrast, have traditionally focused on social issues with less of a direct economic focus such as civil rights and urban problems.

Model. A regression model was specified based on the working hypotheses for the above factors. The independent variables are the same as in Table 5 for the logit analysis. In addition, the lasting effects of economic education was measured by a dummy variable for whether a college graduate had taken an economics course in college (CECON).

The results are reported in Table 5. The coefficient signs conformed to a priori expectations and were statistically significant in most cases. *Ceteris paribus*, being older, or being male, or being white, or being more educated, having taken a college course in economics, having a higher income level, or being classified as a Republican were factors that made a positive and statistically significant contribution to the prediction of the economic knowledge scores. The set of dummy variables for different levels of education was highly significant ($F=43.74$; $p=.000$). The size of the coefficient for each education variable was positive and statistically greater than the omitted category of less than a high school education. The size of the coefficient also increased as the level of education increased, indicating the increasingly positive effects of more education on economic knowledge.

Economic education, as expected, had a highly significant effect on economic knowledge. Those adults who had taken an economics course while attending college showed greater economic knowledge than those students who had attended college but not taken an economics course. The results suggest that there is a lasting effect of economic education on the economic knowledge of adults even years after attending college.⁴

The set of income dummy variables was significant overall ($F=9.26$; $p=.000$), but the significance varied by income level. Those individuals with upper incomes or upper-middle incomes showed significantly more knowledge about economics than those with low incomes. On the other hand, there was no statistically significant difference in economic knowledge between those individuals with only a middle income, or those who did not report their income, relative to the excluded category of low income.

Table 5: OLS Regression Results for Economic Knowledge Score

variables	b-coefficient	s.d.
AGE	.0164 ^a	.0058
SEX	1.5623 ^a	.1846
RACE	1.0428 ^a	.2834
CECON	1.5556 ^a	.2580
POSTGRAD	3.8385 ^a	.4261
COLLEGE4	2.7092 ^a	.4009
COLLEGE2	1.9101 ^a	.3461
HIGHSCH	1.3651 ^a	.3154
UPINCOME	1.9743 ^a	.3529
UMINCOME	.6508 ^b	.2917
MDINCOME	.1477	.2284
NRINCOME	.3719	.4297
REPUBLICAN	.5034 ^b	.2207
INDEPENDENT	.3191	.2433
NOPARTY	-.1515	.3633
CONSTANT	2.6195	
<i>Adj. R²</i>	.356	
<i>SEE</i>	2.814	
<i>F</i>	37.600	
<i>N</i>	993	

a = significant at .01 level; two-tailed test

b = significant at .05 level; two-tailed test

The set of dummy variables representing different political orientations was a significant factor in explaining economic knowledge ($F=2.59$, $p=.052$). Other things equal, there was a small but significant difference in economic knowledge in favor of Republicans over Democrats. The coefficient for "independent" in political orientation was positive relative to Democrat, but the effect was not statistically significant. There was no statistically significant difference in economic knowledge between those with a no party affiliation relative to those who reported a Democratic affiliation.

III. CONCLUSIONS

The results from this study suggest that economic knowledge has a direct effect on public opinion. People will state an opinion about an economic issue despite having little or no knowledge of the subject. When survey reports give only overall responses to a question,

the findings may mask significant differences between informed and uninformed opinions, especially on economic issues. In fact, economic knowledge may be the most critical factor determining public opinion on economic issues — perhaps more important and more consistently influential than other personal characteristics such as age, sex, race, the level of education or income, or political party affiliation.

Survey researchers can control or correct for the influence of economic knowledge on public opinion. They can include an economic knowledge score consisting of correct responses to several economic questions related to the opinions under study. They can also include the correct response to one economic knowledge question related to an opinion sought. Either approach is likely to show a direct effect of economic knowledge on public opinion on economic issues.

Economic knowledge is produced by a variety of factors — education, income, age, sex, and race. Political party affiliation appears to have only a minor influence on the creation of economic knowledge.

ENDNOTES

1. To keep a constant sample size for the logit analysis, the 0 category also included those who did not know or refused to answer. Deleting these few responses, so that the sample size varied across equations, did not change the results.

2. There were 12 missing observations for AGE so the original survey sample of 1,005 was slightly reduced from 1,005 to 993 cases for the logit analysis.

3. Similar logit analysis was conducted with each equation using a dummy variable representing the correct response to one knowledge question about a related issue in place of the aggregate knowledge score. In the 5 analyses, the specific knowledge question was a statistically significant predictor of the log of the odds of holding an opinion on the issue.

4. Previous regression analysis examining economic knowledge included a dummy variable for whether a person had taken economics in high school. This variable was not significant in the regression. It is also plagued with potential measurement problems. People sometimes confuse courses in high school economics with consumer economics or business education courses.

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