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Econ 854

## **Week 5: Voter Motivation, II: Ideological Voting**

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- I. Factor Analysis
  - A. One statistical technique social scientists outside of economics use a great deal is *factor analysis*.
  - B. The main idea of factor analysis: reducing a lot of variables to a smaller number of "summary" variables, aka "factors" or "dimensions."
  - C. The classic example: intelligence testing. A test has 100 items. Is it possible to extract a smaller number of summary variables?
  - D. Yes. In fact, factor analysis on variables related to cognitive ability normally finds ONE over-riding factor (called *g* for "general intelligence"). Cognitive ability is essentially "one-dimensional."
  - E. Performance on individual test items can be seen as a function of *g* plus noise. The greater the predictive power of *g*, the higher we say the item's *g-loading* is.
    1. Ex: Analogies have a higher *g-loading* than pure memory tasks.
  - F. Factor analysis in no way guarantees the existence of a single over-riding factor. For example, on personality tests, factor analysis normally extracts FIVE unrelated factors.
  - G. Factors do not label themselves. Ordinary language terms are convenient, though occasionally misleading.
    1. Ex: OCEAN
  - H. On purely random data, no factors would emerge.
- II. The Dimensionality of U.S. Political Opinion
  - A. There are many different ways to analyze political beliefs.
    1. Libertarian-statist spectrum
    2. Christian-secular spectrum
  - B. What can factor analysis tell us about the dimensionality of U.S. political opinion?
  - C. Strong result: As with intelligence, empirical tests typically find that political opinion is roughly one dimensional.
  - D. What is the dimension? Empirically, U.S. political opinion "fits" well on the liberal-conservative or left-right spectrum.
  - B. On a deep level, this spectrum may not make a great deal of sense. Libertarians, for example, often argue that there are really two dimensions - personal freedom and economic freedom:
    1. Libertarians - pro-personal, pro-economic
    2. Populists - anti-personal, anti-economic
    3. Liberals - pro-personal, anti-economic
    4. Conservatives - anti-personal, pro-economic

- E. But empirically, most people line up on the diagonal, and the other two boxes are sparsely inhabited.
  - F. Poole and Rosenthal's long-term study of the U.S. Congress finds that a one-dimensional I-c model works very well.
  - G. A second dimension (related to race) occasionally pops up, but is no longer important. P&R's story: During the 50's, otherwise liberal Southern Democrats often opposed civil rights measures, and otherwise conservative Republicans often favored them. Once the Southern Democrats left the party, and debate shifted from "equality of opportunity" to "equality of result," position on further civil rights measures began to correlate well with the rest of the liberal-conservative dimension.
  - H. Similarly, Levitt and earlier researchers have found that one-dimensional ideological measures of I-c like ADA scores give better predictions of politicians' behavior than measures of constituent interests. Marginal predictive value of alternative scores is limited.
  - I. Less work has been done on the dimensionality of individual citizens' opinions, but once again, a strong liberal-conservative dimension pops out of the data.
  - J. Remarkably, voting in the U.N. is also one-dimensional, in spite of the extreme heterogeneity of the participants. The dimension is something like "attitudes towards the U.S./Israel."
- III. Ideological Voting
- A. As mentioned earlier, the main problem with the simple sociotropic voting model is that it has trouble explaining disagreement.
  - B. The empirical evidence on ideology suggests a more sophisticated interpretation of sociotropic voting.
  - C. Motivation is indeed sociotropic: People support the policies they think are in the public interest.
  - D. But: There are large ideological disagreements about the public interest. Ideology determines beliefs about what policies "work" and what counts as "working."
  - E. Ex: Affirmative action. Conservatives and liberals argue about whether it works (are blacks better-off because of it?), but also disagree about what it means to "work" (a "level playing field" versus a "fair outcome"?).
  - F. Important theoretical point: If ideology is one-dimensional, and people largely vote ideologically, then the simple MVT's seemingly strong assumptions are satisfied. Perhaps the issue-space only *looks* multi-dimensional.
- V. Ideology and Reduction
- A. Main objection to ideological voting model: Can't ideology be reduced to personal interests?
  - B. Ex: Isn't conservatism just the "ideology of the rich," and liberalism the "ideology of the poor"?

- C. No. The correlation between income and professed ideology is very low. In the GSS, for example, the correlation between real income and POLVIEWS (a 1-7 measure of left-right ideology) is .06.
  - D. So what does determine ideology? Is it education?
  - E. Once again, no. Education and ideology are close to unrelated ( $r = -.03$ ) when you look at a random sample of Americans from the GSS (as opposed to, say, a 50/50 sample of random Americans and university faculty!).
  - F. In a multiple regression framework, there is a tendency for income to make people more conservative and education to make people more liberal. [Table 2]
  - G. Both are clearly statistically significant, but the actual effect is small. On a 6-point scale:
    1. Raising log of real income by 1 – a huge change - makes people .096 units more conservative.
    2. Going from a high school degree to a BA makes people .084 units more liberal.
  - H. What then is ideology? As far as anyone can show, ideology is an independent causal force. Ideology explains a great deal about people's beliefs, but no standard social science variable does much to explain ideology.
  - I. Maybe someone will one day show that ideology reduces to something else, but given the failure of all the obvious candidates, I doubt it. (But stay tuned for the genetics of politics next week!)
- VI. Case Study: The Determinants of Party Identification, II
- A. Question: Returning to last week's linear probability model of party identification, what happens in the GSS if you also control for stated ideology?  $N \approx 41,000$ , so focus on magnitudes, not t-stats.
  - B. [Tables 3a&3b]
  - C. Answer: Ideology matters even more than race. Moreover, the slight change in the other coefficients shows that ideology is far from a "mere proxy for self-interest."
  - D. Consider two examples for 2010.
    1. Ex. #1: Black female with \$1M annual income in 1986 dollars, 30 years old, college graduate.
    2. Ex. #2: White male with \$10k annual income, 30 years old, high school education, conservative ideology.
  - E. Ex. #1: [Since we don't know ideology, use Tables 1a and 1b] Estimated probability of being a Democrat: 56.4%; estimated probability of being a Republican: 26.6%.
  - F. Ex. #2: [Using Tables 3a and 3b] Estimated probability of being a Democrat: 6.8%; estimated probability of being a Republican: 59.1%. (Age coefficient to one more decimal place = .0005).
- VII. Income, Education, Ideology, and Opinion

- A. For specific opinions (as opposed to party identification), income empirically often seems to make a large difference.
    - 1. Ex: High income people seem much more in favor of immigration than low income people.
  - B. **But** the effect of income almost always disappears once you control for **education**. Ph.D.s who drive cabs think like other Ph.D.s, not other cab drivers.
  - C. How does education affect opinion? More educated people tend to be both more tolerant and more appreciative of free markets.
  - D. Even though *voting* is one-dimensional, *opinion* looks two-dimensional.
  - E. Moreover, the two dimensions more or less fit the two-dimensional personal freedom/economic freedom diagram. Education shifts the diagonal up and to the right.
  - F. This fact suggests that politicians might really compete over two dimensions rather than one, again raising doubts about the median voter model.
  - G. In practice, however, the liberal-conservative dimension appears to be far more electorally salient. Education affects issue beliefs, but appears to be independent of party identification.
  - H. Why? How come liberals ally, but not high school drop-outs?
- VIII. Case Study: Economic Beliefs
- A. Now let us go through two illustrations from the SAE: tendency to blame economic difficulties on:
    - 1. Immigration
    - 2. "Excessive profits"
  - B. If we do not control for education, income appears to have a large effect on these beliefs. [Table 4a, 4b]
  - C. Controlling for education, though, makes the apparent effect of income almost disappear. [Table 5a, 5b]
  - D. Immigration.
    - 1. Opposition shrinks as education rises.
    - 2. Opposition grows as conservatism rises.
  - E. "Excessive profits."
    - 1. Assigning blame falls as education rises.
    - 2. Assigning blame falls as conservatism rises.
- IX. The Ideology\*Education Interaction
- A. Ideology and education *interact* in an interesting way. Despite their slight correlation, ideology\*education has more predictive power than ideology alone.
  - B. Simple explanation: The higher your education level, the more likely you are to know what your ideology says about a given topic. For someone with a grade-school education, "liberal" is just a word; for a Ph.D., it is an integrated worldview.

- C. This works for party identification: The tstat on ideology\*education is higher than the tstat on ideology alone, rising from 44 and 61 to 48 and 67. [Tables 3a&3b vs. Tables 6a&6b]
- D. It also works on individual issues. For immigration, the tstat rises from 3.9 to 4.3 [Table 4a versus 7a]; for excessive profits, from 4.6 to 4.9 [Table 4b versus 7b].
- E. Returning to the two-dimensional diagram, education "stretches" the liberal-conservative spectrum.

**Table 2: The Determinants of Ideology (POLVIEWS rescaled to go from -3 to +3)**

	Regression Coefficients				Test That Each Coefficient = 0	
	B	SE(B)	Beta	SE(Beta)	T-statistic	Probability
LREALINC	.095	.007	.067	.005	12.754	.000
EDUC	-.023	.002	-.051	.005	-9.445	.000
BLACK	-.300	.021	-.070	.005	-14.156	.000
OTHRACE	-.218	.030	-.036	.005	-7.163	.000
SEX	-.085	.013	-.031	.005	-6.401	.000
AGE	.008	.000	.102	.005	20.500	.000
YEARA	4.674	.644	.037	.005	7.253	.000
Constant	-10.045	1.281			-7.842	.000

**Table 3a: Conditional Probability of Being a Democrat, with Ideology**

Regression Coefficients					Test That Each Coefficient = 0	
	B	SE(B)	Beta	SE(Beta)	T-statistic	Probability
LREALINC	.002	.003	.003	.005	.636	.525
EDUC	-.006	.001	-.040	.005	-7.784	.000
BLACK	.340	.007	.224	.005	47.328	.000
OTHRACE	.120	.010	.055	.005	11.688	.000
SEX	.055	.004	.057	.005	12.217	.000
AGE	.004	.000	.120	.005	25.314	.000
YEARA	-3.525	.218	-.078	.005	-16.186	.000
POLVIEWSA	-.073	.002	-.207	.005	-44.341	.000
Constant	7.178	.433			16.582	.000

**Table 3b: Conditional Probability of Being a Republican, with Ideology**

Regression Coefficients					Test That Each Coefficient = 0	
	B	SE(B)	Beta	SE(Beta)	T-statistic	Probability
LREALINC	.027	.002	.059	.005	11.857	.000
EDUC	.010	.001	.066	.005	12.896	.000
BLACK	-.195	.007	-.139	.005	-29.535	.000
OTHRACE	-.124	.009	-.062	.005	-13.088	.000
SEX	.002	.004	.002	.005	.418	.676
AGE	.000	.000	.018	.005	3.709	.000
YEARA	1.225	.200	.029	.005	6.122	.000
POLVIEWSA	.093	.002	.285	.005	61.291	.000
Constant	-2.578	.398			-6.479	.000

**Table 4a: Effect of Income on Beliefs About Immigration, No Education Control**

Dependent Variable: IMMIG

Method: Least Squares

Date: 10/23/01 Time: 13:02

Sample(adjusted): 1 1510 IF ECON&lt;1

Included observations: 1362 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.581155	0.176059	8.980843	0.0000
BLACK	-0.141790	0.076408	-1.855686	0.0637
ASIAN	-0.002224	0.092337	-0.024084	0.9808
OTHRACE	-0.004465	0.090074	-0.049576	0.9605
AGE	-0.009174	0.007457	-1.230223	0.2188
AGE^2	0.000139	7.59E-05	1.832582	0.0671
MALE	-0.130501	0.042039	-3.104298	0.0019
IDEOLOGY*(1- OTHIDEOL)	0.106427	0.023119	4.603419	0.0000
OTHIDEOL	0.242322	0.150883	1.606028	0.1085
JOBWORRY	0.049389	0.019877	2.484734	0.0131
YOURFAM5	-0.018488	0.033123	-0.558180	0.5768
YOURNEXT5	-0.037205	0.033983	-1.094799	0.2738
INCOME	-0.041745	0.010383	-4.020541	0.0001
R-squared	0.069468	Mean dependent var	1.218796	
Adjusted R-squared	0.061191	S.D. dependent var	0.779419	
S.E. of regression	0.755196	Akaike info criterion	2.285819	
Sum squared resid	769.3625	Schwarz criterion	2.335612	
Log likelihood	-1543.643	F-statistic	8.392399	
Durbin-Watson stat	2.049180	Prob(F-statistic)	0.000000	

**Table 4b: Effect of Income on Beliefs About “Excessive Profits,” No Education Control**

Dependent Variable: PROFHIGH

Method: Least Squares

Date: 10/23/01 Time: 13:02

Sample(adjusted): 1 1510 IF ECON<1

Included observations: 1355 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.346526	0.164472	8.186947	0.0000
BLACK	0.078105	0.071559	1.091486	0.2753
ASIAN	-0.011367	0.087285	-0.130229	0.8964
OTHRACE	0.160538	0.085611	1.875199	0.0610
AGE	0.010419	0.006962	1.496472	0.1348
AGE^2	-7.23E-05	7.09E-05	-1.020087	0.3079
MALE	-0.202624	0.039320	-5.153159	0.0000
IDEOLOGY*(1- OTHIDEOL)	-0.090241	0.021657	-4.166787	0.0000
OTHIDEOL	0.180299	0.140710	1.281355	0.2003
JOBWORRY	0.037830	0.018623	2.031381	0.0424
YOURFAM5	-0.056647	0.030934	-1.831217	0.0673
YOURNEXT5	-0.104313	0.031768	-3.283568	0.0011
INCOME	-0.036220	0.009713	-3.729038	0.0002
R-squared	0.108802	Mean dependent var	1.272325	
Adjusted R-squared	0.100833	S.D. dependent var	0.742522	
S.E. of regression	0.704092	Akaike info criterion	2.145732	
Sum squared resid	665.2902	Schwarz criterion	2.195732	
Log likelihood	-1440.733	F-statistic	13.65318	
Durbin-Watson stat	2.008430	Prob(F-statistic)	0.000000	



**Table 5a: Effect of Income on Beliefs About Immigration, Education Control**

Dependent Variable: IMMIG

Method: Least Squares

Date: 10/23/01 Time: 12:49

Sample(adjusted): 1 1510 IF ECON&lt;1

Included observations: 1362 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.883690	0.174664	10.78466	0.0000
BLACK	-0.174951	0.074420	-2.350864	0.0189
ASIAN	0.035971	0.089924	0.400013	0.6892
OTHRACE	-0.032613	0.087676	-0.371975	0.7100
AGE	-0.004571	0.007273	-0.628464	0.5298
AGE^2	8.37E-05	7.41E-05	1.129602	0.2588
MALE	-0.115403	0.040928	-2.819625	0.0049
IDEOLOGY*(1- OTHIDEOL)	0.088741	0.022578	3.930411	0.0001
OTHIDEOL	0.253523	0.146774	1.727304	0.0843
JOBWORRY	0.036076	0.019394	1.860182	0.0631
YOURFAM5	0.004961	0.032329	0.153453	0.8781
YOURNEXT5	-0.025312	0.033084	-0.765072	0.4444
INCOME	-0.011501	0.010667	-1.078253	0.2811
EDUCATION	-0.121877	0.013828	-8.814086	0.0000
R-squared	0.120175	Mean dependent var		1.218796
Adjusted R-squared	0.111690	S.D. dependent var		0.779419
S.E. of regression	0.734604	Akaike info criterion		2.231255
Sum squared resid	727.4387	Schwarz criterion		2.284878
Log likelihood	-1505.485	F-statistic		14.16323
Durbin-Watson stat	2.020208	Prob(F-statistic)		0.000000

**Table 5b: Effect of Income on Beliefs About “Excessive Profits,” Education Control**

Dependent Variable: PROFHIGH

Method: Least Squares

Date: 10/23/01 Time: 12:49

Sample(adjusted): 1 1510 IF ECON<1

Included observations: 1355 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.509230	0.166386	9.070651	0.0000
BLACK	0.060476	0.071038	0.851317	0.3947
ASIAN	0.008011	0.086629	0.092480	0.9263
OTHRACE	0.144138	0.084945	1.696828	0.0900
AGE	0.012815	0.006920	1.851821	0.0643
AGE^2	-0.000101	7.05E-05	-1.432204	0.1523
MALE	-0.194440	0.039020	-4.983073	0.0000
IDEOLOGY*(1- OTHIDEOL)	-0.099322	0.021551	-4.608611	0.0000
OTHIDEOL	0.185962	0.139513	1.332934	0.1828
JOBWORRY	0.030960	0.018516	1.672024	0.0948
YOURFAM5	-0.044179	0.030774	-1.435562	0.1514
YOURNEXT5	-0.097896	0.031524	-3.105476	0.0019
INCOME	-0.020394	0.010153	-2.008678	0.0448
EDUCATION	-0.064849	0.013178	-4.920943	0.0000
R-squared	0.124610	Mean dependent var	1.272325	
Adjusted R-squared	0.116123	S.D. dependent var	0.742522	
S.E. of regression	0.698080	Akaike info criterion	2.129311	
Sum squared resid	653.4895	Schwarz criterion	2.183157	
Log likelihood	-1428.608	F-statistic	14.68370	
Durbin-Watson stat	2.000165	Prob(F-statistic)	0.000000	

**Table 6a: Conditional Probability of Being a Democrat, with Ideology\*Educ**

Regression Coefficients					Test That Each Coefficient = 0	
	B	SE(B)	Beta	SE(Beta)	T-statistic	Probability
LREALINC	.003	.003	.005	.005	1.012	.312
EDUC	-.006	.001	-.039	.005	-7.709	.000
BLACK	.340	.007	.223	.005	47.502	.000
OTHRACE	.118	.010	.054	.005	11.485	.000
SEX	.053	.004	.055	.005	11.834	.000
AGE	.004	.000	.120	.005	25.458	.000
YEARA	-3.505	.217	-.077	.005	-16.165	.000
polviewsa * educ	-.006	.000	-.225	.005	-48.393	.000
Constant	7.131	.431			16.544	.000

**Table 6b: Conditional Probability of Being a Republican, with Ideology\*Educ**

Regression Coefficients					Test That Each Coefficient = 0	
	B	SE(B)	Beta	SE(Beta)	T-statistic	Probability
LREALINC	.026	.002	.057	.005	11.444	.000
EDUC	.010	.001	.065	.005	12.841	.000
BLACK	-.195	.007	-.139	.005	-29.731	.000
OTHRACE	-.121	.009	-.060	.005	-12.848	.000
SEX	.004	.004	.005	.005	1.015	.311
AGE	.000	.000	.018	.005	3.738	.000
YEARA	1.202	.199	.029	.005	6.052	.000
polviewsa * educ	.007	.000	.308	.005	66.942	.000
Constant	-2.521	.395			-6.386	.000

**Table 7a: Effect of Income on Beliefs About Immigration, Ideology\*Educ Interaction**

Dependent Variable: IMMIG

Method: Least Squares

Date: 10/23/01 Time: 12:54

Sample(adjusted): 1 1510 IF ECON<1

Included observations: 1362 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.901975	0.174285	10.91305	0.0000
BLACK	-0.167020	0.074339	-2.246730	0.0248
ASIAN	0.038885	0.089935	0.432370	0.6655
OTHRACE	-0.032774	0.087630	-0.374001	0.7085
AGE	-0.004735	0.007263	-0.651871	0.5146
AGE^2	8.50E-05	7.40E-05	1.148399	0.2510
MALE	-0.116930	0.040887	-2.859876	0.0043
IDEOLOGY*(1- OTHIDEOL)*EDUCA TION	0.020108	0.004718	4.261634	0.0000
OTHIDEOL*EDUCAT ION	0.062666	0.032606	1.921896	0.0548
JOBWORRY	0.036512	0.019397	1.882333	0.0600
YOURFAM5	0.005987	0.032285	0.185437	0.8529
YOURNEXT5	-0.025103	0.033047	-0.759605	0.4476
INCOME	-0.011887	0.010661	-1.114952	0.2651
EDUCATION	-0.124634	0.013817	-9.020040	0.0000
R-squared	0.122481	Mean dependent var	1.218796	
Adjusted R-squared	0.114018	S.D. dependent var	0.779419	
S.E. of regression	0.733641	Akaike info criterion	2.228631	
Sum squared resid	725.5321	Schwarz criterion	2.282253	
Log likelihood	-1503.698	F-statistic	14.47294	
Durbin-Watson stat	2.021390	Prob(F-statistic)	0.000000	

**Table 7b: Effect of Income on Beliefs About “Excessive Profits,” Ideology\*Educ Interaction**

Dependent Variable: PROFHIGH

Method: Least Squares

Date: 10/23/01 Time: 12:54

Sample(adjusted): 1 1510 IF ECON<1

Included observations: 1355 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.504577	0.166017	9.062768	0.0000
BLACK	0.048497	0.070958	0.683463	0.4944
ASIAN	-0.004565	0.086640	-0.052685	0.9580
OTHRACE	0.135789	0.084901	1.599375	0.1100
AGE	0.013030	0.006910	1.885486	0.0596
AGE^2	-0.000104	7.04E-05	-1.471935	0.1413
MALE	-0.192414	0.038981	-4.936041	0.0000
IDEOLOGY*(1- OTHIDEOL)*EDUCA TION	-0.022115	0.004490	-4.924966	0.0000
OTHIDEOL*EDUCAT ION	0.049965	0.030994	1.612075	0.1072
JOBWORRY	0.028983	0.018517	1.565193	0.1178
YOURFAM5	-0.046264	0.030730	-1.505501	0.1324
YOURNEXT5	-0.096444	0.031489	-3.062790	0.0022
INCOME	-0.019645	0.010146	-1.936233	0.0530
EDUCATION	-0.065029	0.013171	-4.937448	0.0000
R-squared	0.126969	Mean dependent var	1.272325	
Adjusted R-squared	0.118506	S.D. dependent var	0.742522	
S.E. of regression	0.697138	Akaike info criterion	2.126612	
Sum squared resid	651.7280	Schwarz criterion	2.180458	
Log likelihood	-1426.780	F-statistic	15.00220	
Durbin-Watson stat	2.001392	Prob(F-statistic)	0.000000	