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ABSTRACT

Economists use nonrandom sampling and self-selectivity models to analyze a variety of issues. Individuals are not homogeneous and self-select into those alternatives where they have a comparative advantage. Examples where self-selection models have been applied include analyzing schooling, labor supply, and career choices. A student's predisposition toward economics can be measured based on the following factors: (1) prior exposure to economics; (2) motivation to study the subject; (3) existing level of economic sophistication; (4) grade level; and (5) poverty, gender, race, and region. Although motivation is the most significant variable, students who have previously taken an economics class are less likely to have a preference toward economics. Many of the socioeconomic and personal attributes do not significantly influence the students' pre-existing preference for economics. Data are supplied by the National Center for Research and Evaluation in Economic Education (Lincoln, Nebraska), taken from the National Database for Economic Education Research: 1986 Matched Pre/Post Senior High School Data. (PPB)

THE DIFFERENCE IN 'THINKING' AMONG STUDENTS WHO LIKE ECONOMICS

by

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and

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ABSTRACT

Economists use nonrandom sampling and self selectivity models to analyze a variety of issues. Individuals are not homogeneous and "self select" into those alternatives where they have a comparative advantage. Examples where self selection models have been applied include analyzing schooling, labor supply and career choices. An individual's decision to pursue advanced training in the area of economics is an appropriate application of this framework. Hence, the question of why 'some' individuals choose to become economists is more than just a matter of professional curiosity. Hidden within the answer to this question is the more fundamental issue of how an individual comes to have an affinity toward economics. Thus, the first objective of this paper is to identify those factors which reflect the difference in a student's predisposition toward economics.

The results from the exante analysis provide the foundation for a thorough analysis of how attitudes evolve throughout the economics course. For example, what attributes characterize those students whose expost preferences for economics has increased. This research thus provides a necessary contribution toward an analysis of the broader question as to how a student's attitudes change throughout their economic training.

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Economists use nonrandom sampling and self selectivity models to analyze a variety of issues. Individuals are not homogeneous and "self select" into those alternatives where they have a comparative advantage. Examples where self selection models have been applied include analyzing schooling, labor supply and career choices. An individual's decision to pursue advanced training in the area of economics is an appropriate application of this framework. Hence, the question of why 'some' individuals choose to become economists is more than just a matter of professional curiosity. Hidden within the answer to this question is the more fundamental issue of how an individual comes to have an affinity toward economics. The objective of this paper is to identify those factors which reflect the difference in a student's predisposition toward economics. This research thus provides a necessary contribution toward an analysis of the broader question as to how a student's attitudes change throughout their economic training.

An understanding of the utility-based dynamic relationship between attitude and performance is an important part of this study. Before classroom instruction begins, the student has a preexisting attitude toward economics. In other words, the student enters with an expected utility from studying economics. This exante attitude affects the student's intentions toward the subject. From the student's intentions there is an influence on actual performance.

Actual performance will be used to update expectations and thus will feedback onto attitude and the cycle continues (See Hodgin [2]). The preexisting attitude, therefore, may play a crucial role in the learning process of the student.

Much research in the area of economic education has focussed on identifying the characteristics that determine a student's ability to learn economics. Learning economics has been found to be influenced by the attributes maturity, ability, effort and educational background. Socioeconomic factors such as family income and parential occupation also have been found to have an important impact on a student's ability to understand economics. Other evidence suggests that a link exists between a student's understanding of economics and his or her ability to solve problems. In particular, these studies found that students who had previous economics instruction performed better in problem solving, reasoning, and critical thinking.

Student opinions, inclination toward a liberal or conservative viewpoint and economic sophistication have been suggested to be affected by their exposure to an economics course. For example, Weidenaar and Dodson [6] find that an economics course tends to polarize student attitudes with more students becoming uninterested. Moreover, students tended to downgrade the importance of economics. Whether an economics course tends to impart conservative or liberal attitudes has been the main focus of several studies, however, after surveying the literature, Siegfried and Fels [5] suggest that the evidence is inconclusive. Mann and Fusfeld [4] construct a proxy for the level of economic sophistication on economic issues and report that the level of sophistication was higher for college

students who had received economics instruction. Whether or not attitude sophistication is a measurable output is questioned by Siegfried and Fels [5]. The inherent difficulties with the commonly used measures of economic sophisication will be discussed in the empirical section.

In summary, much work has focussed on the impact that particular characteristics have on a student's learning potential. After gleaning the literature, Highsmith [1] suggests that one can expect that a student who has a higher IQ, works hard in school, holds a part-time job and who is academically oriented can be expected to achieve a higher level of learning, retention and use of economics in daily life activities. Conversely, students from a family background at the lower ranges of the socioeconomic ladder might be expected to learn less economics. The purpose of our study is to gain a better understanding of those factors that influence a student's predisposition toward economics. Accordingly, it is hoped that light will be shed on the underlying attitude(s) that students bring with them to the classroom.

Method

Before a student begins an economics course he or she has a preexisting attitude toward economics. The student's predisposition toward economics can be expressed as

$$A_i = f(\text{PRIORECON, MOTIVATION, CURRICULUM, OPINION(S),}$$
$$\text{ECON SOPH, GRADE LEVEL, POVERTY, GENDER,}$$
$$\text{RACE, REGION})$$

where A_i is measured on a Likert scale from a value equal to one if the student strongly dislikes economics to a value equal to five if the student strongly likes economics. Since the preexisting attitude

toward economics may be influenced by a student's prior exposure to an economics course, the variable PRIORECON, is included. A student's intent to study the subject is measured by MOTIVATION. In the questionnaire the student was asked if "Studying economics is a waste of time." If they strongly agreed, the answer was coded 1; whereas if they strongly disagreed, the answer was coded 5. Thus, a larger value associated with MOTIVATION suggests that a student is more willing to study. The variable, CURRICULUM, is included to separate those students taking an economics course from students taking either a consumer economics or social studies oriented course. Based on the Economic Attitude Sophistication (EAS) section of the Survey on Economic Attitudes (SEA), economic sophistication, ECON SOPH, scores are constructed. From the EAS, additional measures of student opinions were constructed by using questions focussing on government, business and individuals. By separating student responses in this fashion a better measure of the contribution from each category on a student's preexisting attitude is obtained. Maturity is measured by the student's class standing, GRADE LEVEL. POVERTY is included to identify those students with relatively low family income. Finally, GENDER, RACE and REGION variables are also used. Since the dependent variable is discrete, a multinomial logit procedure is used.

Data

In September 1987 a National Database for Economic Educaton Research: 1986 Matched Pre/Post Senior High School Data became available for public use from the National Center for Research and Evaluation in Economic Education in Lincoln Nebraska. These data include district, school and teacher information as well as the

student-specific information needed for this study. Table I reports the variables and their descriptions used in the analysis. The Economic Attitude Sophistication Survey is reported in Appendix I.

Empirical Results

Separate regressors are included to measure BUS, GOVT and INDIV opinions to obtain a better understanding of a student's preexisting attitudes. BUS, GOVT and INDIV are each a composite of scores from particular opinion questions as indicated in the appendix. They are each scaled such that higher values are associated with an opinion that corresponds to the more traditional laissez faire opinion. The results for BUS, GOVT and INDIV are presented in Tables II, III and IV, respectively. Each table reports the estimates of the right-hand-side coefficients for each of the four responses. Parameters for the subgroup who respond with the lowest value on the dependent variable are normalized to zero. (See Judge et.al.[3])

As shown in Table II, BUS is monotonic and positive across preferences and significant for students who have a preference for economics. Students, therefore, who tend to prefer economics also have a more laissez faire attitude toward business. Monotonicity is present for the GOVT index, however, GOVT is significant only for those individuals with a strong preference for economics. More importantly, the results suggest that a negative relationship exists between those with a strong preference toward economics and their opinions about the government's role in the economy. Apparently, these individuals are not of the opinion that the government should necessarily maintain a "hands off" approach toward the economy. Rather than being a signal of the lack of economic sophistication, this response may stem from a student's exposure to noncompetitive

behavior and/or externalities. Conversely, there appears to be no significant impact from the INDIV opinion index on the degree of preference toward economics. It is interesting to note that those students who enter with a preference for economics also have what can be described as a positive attitude toward both business and government.

Across all three sets of regressors MOTIVATE is positive and significant. Moreover, the monotonic nature of the coefficients suggests that the more motiviated a student is to studying economics the more they will prefer the subject. Consistent with Weidenaar and Dodson's [6] study, students who have previously taken an economics course are less likely to have a preference toward economics.

The coefficient for the regressor, ECON SOPH, is inconsistent across the three sets of regressions. For example, when BUS is the opinion specified in the regression (Table II), the results suggest that a higher level of economic sophistication is associated with those students who strongly prefer economics. A lower level of economic sophistication, however, is more likely among individuals who do not strongly prefer economics. In comparison, the results from Table III which include the GOVT opinion index suggests that there is no significant link between the individual's level of economic sophistication and their preference for economics. Finally, from Table IV it is reported that the ECON SOPH coefficient is negative and significant for individuals who have a strong preference toward economics. Since this measure is the aggregate of the three opinion scores such inconsistency implies that the composition of ECON SOPH is flawed. In the presence of an opinion index the aggregate measure will reflect the contribution of the two omitted

categories. Conflicting results can be interpretted to mean that these measures are capturing distinct elements of the entering students' attitudes, and hence, pooling these into a single variable is inappropriate. The inconsistent findings on ECON SOPH then provides empirical support for Siegfried and Fels' [5] criticism that ECON SOPH may not be measuring the degree of economic sophistication.

The regressors ECON, LOWINC, MALE, TWELVGR and RURAL are insignificant across all sets of regressors. Apparently, these attributes do not significantly influence the student's preexisting attitude toward economics. Being WHITE has a negative, significant influence on those who strongly prefer economics. Whites, therefore, are less likely to strongly prefer economics than nonwhites.

Conclusions

The aim of this study has been to gain a better understanding of those factors that influence a student's predisposition toward economics. Not surprisingly, the more motivated a student is to study economics the more they will prefer the subject. Those students who have previously taken an economics course are less likely to have a preference toward economics. Finally, many of the socioeconomic and personal attributes did not significantly influence the student's preexisting preference for economics.

An attempt also is made to better understand the underlying attitudes that a student possesses on entering an economics course. Since an aggregate measure of economic sophistication clouds the contribution of its components, we separate it into three subcategories. These subcategories represent the three sectors of the economy: business, government and individuals. Our findings show that it may be inappropriate to aggregate these measures since

the nature of each contribution is distinct.

The results from this exante analysis provide a foundation for a thorough study of how attitudes evolve throughout an economics course. For example, what attributes characterize those students whose expost preferences for economics has increased. Accordingly, it will be important to trace students to see how their opinions change over time, if at all.

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TABLE I

VARIABLE NAME AND DESCRIPTION

ECONC	= 1 if the course is economics
	= 0 otherwise (consumer economics or social sciences)
LOWINC	= 1 if parential income is low
	= 0 otherwise (medium or high income)
MALE	= 1 if male
	= 0 if otherwise
WHITE	= 1 if white
	= 0 if otherwise
TWELVGR	= 1 if in twelfth grade
	= 0 if otherwise (tenth or eleventh grade)
RURAL	= 1 if reside in rural area
	= 0 if otherwise (suburb or urban)
PRIORECO	= 1 if prior economics course taken
	= 0 if otherwise
MOTIVATE	= 1 strongly agree : studying econ is waste of time
	= 2 agree " : studying econ is waste of time
	= 3 neutral : studying econ is waste of time
	= 4 disagree : studying econ is waste of time
	= 5 strongly disagree: studying econ is waste of time
ECON SOPH	= Economics Attitude Sophistication Score
BUS	= composite opinion scores on business
GOVT	= composite opinion scores on government
INDIV	= composite opinion scores on individuals

TABLE II
Student's Predisposition Toward Economics
Given Attitude Toward Business

	y = 5 (1)	y = 4 (2)	y = 3 (3)	y = 2 (4)
ECONC	-0.524 (1.399)	-0.222 (0.643)	0.194 (0.570)	-0.354 (0.912)
LOWINC	-0.367 (0.637)	-0.116 (0.218)	0.610 (1.177)	0.682 (1.207)
MALE	0.233 (0.728)	-0.240 (0.818)	-0.143 (0.499)	-0.340 (1.048)
WHITE	-1.167 (2.728)	-0.636 (1.580)	-0.387 (0.980)	-0.266 (0.602)
TWELVGR	-0.104 (0.301)	-0.098 (0.310)	-0.211 (0.673)	-0.248 (0.699)
RURAL	0.042 (0.117)	0.359 (1.129)	0.383 (1.229)	0.614 (1.758)
PRIORECON	-1.366 (3.677)	-0.882 (2.603)	-0.255 (0.764)	-0.405 (1.067)
MOTIVATE	1.692 (9.882)	1.573 (10.442)	0.933 (6.685)	0.469 (3.053)
ECON SOPH	0.139 (4.593)	-0.121 (4.407)	-0.055 (2.123)	-0.013 (0.436)
BUS	0.236 (2.654)	0.234 (2.905)	0.122 (1.574)	0.019 (0.222)
$E(Y \mid \bar{X})$	0.137	0.409	0.343	0.079

$X^2 = 311.44$

N = 1161

TABLE III
Student's Predisposition Toward Economics
Given Attitude Toward Government

	y = 5 (1)	y = 4 (2)	y = 3 (3)	y = 2 (4)
ECONC	0.536 (1.429)	-0.210 (0.610)	0.208 (0.616)	-0.347 (0.897)
LOWINC	-0.260 (0.451)	-0.059 (0.111)	0.658 (1.268)	0.687 (1.215)
MALE	0.236 (0.735)	-0.221 (0.756)	-0.145 (0.506)	-0.344 (1.058)
WHITE	-1.092 (2.560)	-0.554 (1.385)	-0.327 (0.832)	-0.238 (0.542)
TWELVGR	-0.097 (0.283)	-0.085 (0.266)	-0.201 (0.639)	-0.245 (0.690)
RURAL	0.043 (0.120)	0.339 (1.063)	0.380 (1.216)	0.616 (1.758)
PRIORECON	-1.406 (3.790)	-0.892 (2.651)	-0.250 (0.756)	-0.396 (1.051)
MOTIVATE	1.672 (9.787)	1.553 (10.384)	0.913 (6.595)	0.460 (3.018)
ECON SOPH	-0.010 (0.380)	-0.021 (0.903)	0.006 (0.281)	0.002 (0.086)
GOVT	-0.234 (3.037)	-0.123 (1.766)	-0.101 (1.476)	-0.034 (0.447)
$E(Y\|\bar{X})$	0.133	0.411	0.344	0.080

X^2 = 309.17

N = 1161

TABLE IV
Student's Predisposition Toward Economics
Given Attitude Toward Individuals

	y = 5 (1)	y = 4 (2)	y = 3 (3)	y = 2 (4)
ECONC	-0.507 (1.356)	-0.205 (0.595)	0.214 (0.630)	-0.332 (0.854)
LOWINC	-0.371 (0.643)	-0.176 (0.328)	0.553 (1.061)	0.630 (1.108)
MALE	0.267 (0.831)	-0.211 (0.718)	-0.138 (0.478)	-0.340 (1.042)
WHITE	-1.128 (2.612)	-0.623 (1.533)	-0.391 (0.977)	-0.281 (0.626)
TWELVGR	-0.088 (0.255)	-0.106 (0.333)	-0.226 (0.720)	-0.275 (0.771)
RURAL	0.049 (0.137)	0.268 (0.847)	0.314 (1.014)	0.569 (1.631)
PRIORECON	-1.379 (3.701)	-0.879 (2.587)	-0.242 (0.724)	-0.390 (1.022)
MOTIVATE	1.673 (9.824)	1.566 (10.460)	0.923 (6.662)	0.469 (3.063)
ECON SOPH	-0.068 (2.438)	-0.025 (0.981)	0.006 (0.236)	0.016 (0.580)
INDIV	-0.010 (0.141)	-0.090 (1.390)	-0.081 (1.278)	-0.071 (0.994)
$E(Y\|\bar{X})$	0.136	0.409	0.342	0.081

X^2 = 300.42

N = 1161

APPENDIX

SURVEY ON ECONOMIC ATTITUDES:

ECONOMIC ATTITUDE SOPHISTICATION

**1. Government should control the price of gasoline.

***2. Inflation is caused by greedy business and union leaders.

***3. Business makes too much profit.

*4. People should not have to pay taxes.

*5. Free medical care should be provided for all Americans.

**6. Banks should not charge interest on loans to customers.

*7. Most people who don't have jobs are too lazy to work.

***8. When a business gets big, it should be controlled by government.

***9. New factories are not needed.

*10. People should not be told how to spend their money.

*11. If everybody had more money, we'd all be better off.

**12. Profits should not be regulated by government.

*13. Most unemployed people are lazy.

**14. When a strike occurs, government should step in and settle the the dispute.

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* Individual

** Government

*** Business