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High School Economic Education and Access to Financial Services

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PDF

Abstract

This study provides a long-term assessment of economic education by examining an individual's decision to have a bank account. Using the results of a nationwide telephone survey, high school courses in economics and business reduced the probability that an adult was unbanked, *ceteris paribus*. In addition, adults who demonstrated a higher level of understanding of basic economic concepts were less likely to be unbanked. The results indicated that an individual's understanding of the economic system was as important as formal coursework in explaining access to basic financial services.

The ultimate goal of all high school economic education programs is to enhance the economic and financial literacy of our citizenry. Historically, research on the effectiveness of these programs has focused on measures of learning resulting from formal coursework. Although this is a generally

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Successful participation in today's economy virtually necessitates the use of services provided by banks and other financial institutions. Having a bank account is a prerequisite to many normal market activities and transactions. For example, many consumers without bank accounts are routinely denied access to credit cards, installment loans and mortgages. The basic knowledge needed to understand the role and importance of banking in today's economy is generally taught at the high school level through a variety of courses in economics, business and personal finance. Also, such courses often include lessons in the skills needed to effectively use and maintain a household bank account. Thus, this research is based on the hypothesis that a positive relationship should exist between formal economic education, broadly defined as coursework in economics, business and/or personal finance during high school, and having a bank account during adulthood, *ceteris paribus*. This research tested this hypothesis through an empirical analysis of microlevel data collected to examine the determinants of being unbanked in today's economy. Because access to the financial system is an important part of an individual's participation in the economic system, looking at the link between economic education, broadly defined, and the use of financial services should provide insight about the effectiveness of such programs.

BACKGROUND

Economic education advocacy over the past fifty years has resulted in a proliferation of K-12 curriculum requirements across the nation. In fact, twenty-one states currently require a high school economics course while forty-nine have content standards (where economic topics are covered in other courses). The curriculum in all of these states includes instruction in general economic concepts and basic financial literacy topics (Council for Economic Education 2009). At a minimum, requiring students to study economics should result in an increased understanding and appreciation of the importance of engaging in sound personal finance activities, such as how to manage a bank account. As noted above, this proficiency is an essential part of fully participating in our market-based economic system regardless of an individual's socioeconomic status, but it is especially critical for low-income individuals.

The 2006 National Assessment of Educational Progress (NAEP) in economics revealed that students are learning economics. The NAEP results indicated that 79% of twelfth grade students scored at the "basic" level or above and fully 42% scored at the "proficient" level or higher, including 3% at the "advanced" level (National Center for Educational Statistics 2007). Such results suggest that most high school students should be leaving school with a usable knowledge base about the economy (Walstad and Buckles 2008).

A great deal has been written about how economics is being taught in the nation's schools and which teaching techniques appear to be most effective. (See Walstad and Rebeck 2001 for a recent survey of

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one mechanism to achieve personal savings, Bernheim, Garrett, and Maki's findings support the hypothesized relationship between education and the decision to bank.

There is also a growing academic literature about the use of financial services across different socioeconomic groups. (For example, see Hogarth and O'Donnell 1998 and Doyle, Lopez, and Saidenberg 1998.) Recently, Washington (2006) examined the impact of state legislative measures that require low-cost bank accounts or restrictions on check-cashing fees. These legislative measures had a small, negative effect on the size of the unbanked population. Rhine, Greene, and Toussaint-Comeau (2006) examined the joint decision of being unbanked and using the services of high-cost check-cashing businesses. After controlling for various demographic factors, they found that the impact of these two decisions varied with ethnicity. Rhine and Greene (2006) used a similar approach but focused on immigrants, finding that Mexican and Latin American immigrants were more likely to be unbanked. Amuedo-Dorantes and Bansak (2006) also looked at unbanked immigrants, focusing on those from Mexico. They tested the hypothesis that the unbanked sent fewer remittances back to Mexico and found that immigrants with bank accounts sent larger amounts home. All of these studies investigated the factors that influence the decision to have a bank account, but they omitted any measure of economic or financial literacy education which might influence an individual's choice.

The economic education and the unbanked literatures were linked by examining the relationship between economic education coursework and the use of banks for basic financial services. This combined focus has been a neglected area of research to date.

MODEL, DATA AND METHOD

This research examined the impact of economic education on an individual's use of commercial banking services by constructing an empirical model relating the banking decision to various measures of economic education and economic understanding. To account for other factors that might affect the use of banking services, vectors of behavioral, demographic and regional variables were included in the model. The model took the following general form:

$$\text{UNBANKED} = f(\text{Economic Education, Behavior, Demographics, Region}). \quad (1)$$

The dependent variable, UNBANKED, was a binary variable equal to 1 if an individual did not have any type of commercial bank account (i.e., a transaction or saving account) and equal to 0 otherwise. Given the nature of the dependent variable, probit regression techniques were implemented throughout the analysis detailed below.

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the sample, but this strategy led to an oversampling of low-income households. Households were selected using random digit dialing procedures that included cell numbers and households with unlisted numbers. Within each responding household, an adult who was familiar with the household finances was interviewed. Of the respondents contacted, 1,759 completed the interview.[1] The sampling error (binomial questions with 50/50 split) for the total data set was no larger than 2.3% (95% confidence level).

For the investigative sample, 10.7% of the respondents did not have a bank account of any type. The survey also included various other questions to collect information about the explanatory factors needed to estimate equation (1). Table 1 presents the variable specifications and definitions as well as summary statistics for each variable.

Table 1.

Variable Descriptions and Summary Statistics—Full Sample (N = 1,456)[a]

	Variable Definition	Mean	SD
Dependent variable			
UNBANKED	=1 if no bank account; =0 otherwise	0.1065	0.3085
Explanatory variables[b]			
Economic education			
(−) ECONOMICS (narrow)	=1 if taken an economics course in high school; =0 otherwise	0.3558	0.4789
(−) ECONOMICS (broad)	=1 if taken an economics, business or personal finance course in high school; =0 otherwise	0.5563	0.4970
(−) BUSINESS	=1 if taken a business course in high school; =0 otherwise	0.2967	0.4570
(−) FINANCE	=1 if taken a personal finance course in high school; =0 otherwise	0.1010	0.3014

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To capture each respondent's exposure to formal economic education, the survey included questions about economics-related coursework during high school. A dummy variable, ECONOMICS, was constructed and set equal to 1 if the individual reported taking an economics-related course. Given that public school curriculums are determined at the state or local level, there is no consistency in the titles or specific content of courses across locations. Similar courses are variously labeled as "economics,""finance" or "business" depending on local practices. Content analyses conducted by the Council for Economic Education (2009) indicated that a variety of personal finance topics and skills are taught under an umbrella of course titles. To reflect this phenomenon, both the narrow and broad specifications of ECONOMICS were used in the analysis. The narrow specification of ECONOMICS equaled 1 only for those individuals who specifically took an economics course (35.6% of the sample). The broad specification of this variable also included individuals who took a course in business (29.7%) or personal finance (10.1%). Overall, 55.6% of the sample had taken at least one of these courses while in high school. In addition to the broad and narrow specifications for the economic education variable, two dummy variables were also constructed to separately account for those courses taught under the BUSINESS and FINANCE labels.

The survey also included a series of seven questions (see Appendix 1) derived from a national economic literacy survey administered by the Gallup Organization (see Walstad and Larsen 1992 and Walstad 1997). These questions were very basic in nature, touching on both the microeconomic and macroeconomic concepts and the current status of the U.S. economy. Each individual's responses were checked for accuracy and a variable UNDERSTAND was created measuring the percentage of the seven questions answered correctly. On average, the respondents answered 48.2% of the questions correctly, which translates to between three and four correct answers out of seven.

The economic education course variables and UNDERSTAND all were expected to be negatively related to UNBANKED. For the reasons discussed in the introduction, an individual completing a formal curriculum covering basic economics should be less likely to be unbanked. Likewise, those with a higher level of basic economic understanding also should be less likely to be unbanked.

The survey also included a series of questions about personal behavior related to financial decisions and the use of financial services. From these questions a series of dummy variables were constructed. The variable OWN captured home ownership; 58.7% of the sample reported owning a home. CREDITCARD was equal to 1 for individuals owning a credit card; 61.4% of the respondents reported holding a credit card. Due to conventional institutional arrangements, owning a home and holding a credit card are highly likely to require the use of a bank account; therefore, both of these variables were expected to be negatively related to UNBANKED.

To capture spending payment behavior, PAY_CASH equaled 1 if most market transactions were made using cash. Similarly for income, INC_CASH equaled 1 if most of the individual's income was received

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(Rhine, Greene, and Toussaint-Comeau 2006; Washington 2006) suggested that the young and single are more likely to be without a bank account. Given that previous empirical studies found minorities more likely to be unbanked, WHITE was expected to enter the model with a negative sign. No a priori assumption was made about gender.

Optimally, it would be beneficial to separate the effect of economics coursework from the effect of high school graduation. However, the NFSS data do not reveal the age of leaving school or the age at which specific courses were taken. Thus, the data are not rich enough to clearly address this issue and it is left for future researchers. Therefore, in the models, educational attainment was measured by the variable COLLEGE, reflecting any educational attainment beyond high school. This could include some college coursework (i.e., no completed degree) up to completion of a graduate or professional degree. Of the respondents, 54.7% had some education beyond high school. College coursework often includes more advanced training in economics, so the COLLEGE variable was expected to be negatively related to UNBANKED.

Employment status was measured by EMPLOYED, which included full-time, part-time and self-employed workers, comprising 55.9% of the sample. These individuals are more likely to use a bank account to manage earnings, so EMPLOYED was expected to have a negative relationship with UNBANKED. Because a priori the lack of a bank account was believed to be more prevalent for low-income individuals, a dummy variable, LOW_INCOME, was constructed for individuals with annual incomes of $10,000 or less (9.7% of the sample). This variable was expected to be positively related to UNBANKED.

An additional variable, URBAN, was constructed using the individual's current home location. The variable was equal to 1 if the respondent lived in a metropolitan statistical area (MSA) and 0 otherwise. The sample was primarily urban with 81% of the respondents currently living in an MSA. No a priori assumption was made about the sign of the coefficients on URBAN.

To account for potential regional differences, the survey captured the state in which the individual currently lived. These responses were used to construct regional geographic dummies for the nine U.S. Census regions. As can be seen in Table 1, the sample was spread throughout the country with six of the nine regions each comprising 12%–21% of the sample. The Mountain, West-North-Central and New England regions had smaller representation at between 2% and 4% each. For the regression models discussed below, the dummy for the New England region was omitted to avoid perfect collinearity. No a priori assumption was made about the signs of the coefficients on these regional dummy variables.

RESULTS

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significantly worse, on average, on the economic literacy questions (36% vs. 50% correct). That translates to almost one fewer question answered correctly. These findings were consistent with the hypothesis that economic education is positively correlated with being banked.

Table 2.

Unbanked vs. Banked Subsamples

Summary Statistics	Unbanked Subsample (*N* = 155)		Banked Subsample (*N* = 1,301)	
	Mean	SD	Mean	SD
Economic education				
ECONOMICS (narrow)	0.3355	0.4737	0.3582	0.4797
ECONOMICS (broad)[a]	0.4581	0.4999	0.5680	0.4955
BUSINESS[a]	0.1419	0.3501	0.3151	0.4648
FINANCE	0.0774	0.2637	0.1038	0.3051
UNDERSTAND[a]	0.3604	0.2637	0.4960	0.2708
Behavior				
OWN[a]	0.2774	0.4492	0.6234	0.4847
CREDITCARD[a]	0.1871	0.3913	0.6649	0.4722
PAY_CASH[a]	0.3419	0.4759	0.1076	0.3100
INC_CASH[a]	0.3097	0.4639	0.0915	0.2884
Demographics				
AGE[a]	43.9613	17.8256	51.8801	16.9635
WHITE[a]	0.3097	0.4639	0.4896	0.5001

[a]Denotes a statistically significant difference in the means at a 5% level.

Turning to demographic differences, respondents in the unbanked sample were younger, more likely to be an ethnic minority, less likely to be married and less likely to have any postsecondary education.

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and 31%, respectively. These numbers were much lower for respondents with bank accounts at 11% and 9%, respectively.

Probit Estimates

Probit estimates of **equation (1)** are presented in **Table 3**. Four versions of the model were estimated with each using a different form of the economics education course variable. The fit of these models, as measured by the percent of correct predictions, was consistently high, around 90%.

Table 3.

Probit Regression Results

Expected Sign	Variables	Coefficient	*p*-Value	Coefficient	*p*-Value
		(1)		(2)	
(±)	INTERCEPT	−.8548	.1523	−.7742	.2002
(−)	ECONOMICS (narrow)	−.0925	.4105	—	—
(−)	ECONOMICS (broad)	—	—	−.2054[a]	.0547
(−)	UNDERSTAND	−.4007[a]	.0666	−.4074[a]	.0619
(−)	OWN	−.3971[b]	.0005	−.4120[b]	.0003
(−)	CREDITCARD	−.7330[b]	.0000	−.7285[b]	.0000
(+)	PAY_CASH	.3885[b]	.0019	.3812[b]	.0024
(+)	INC_CASH	.5179[b]	.0001	.5196[b]	.0001
(−)	AGE	−.0069[b]	.0365	−.0074[a]	.0263
(−)	WHITE	−.0403	.7268	−.0421	.7155
(±)	MALE	.1928	.0756	.1887	.0826
(−)	MARRIED	−.1403	.2368	−.1324	.2649
(−)	COLLEGE	−.2797[b]	.0114	−.2660[b]	.0166
(−)	EMPLOYED	−.0267	.8198	−.0304	.7952

[a]Significant at a 5% level, one-tailed test.

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might be a problem for the behavioral variables because such decisions could be made jointly with the decision to have a bank account. In similar studies, Rhine and Greene (2006) and Rhine, Greene, and Toussaint-Comeau (2006) used a recursive bivariate probit model with UNBANKED and the use of currency exchanges as the two dependent variables. This econometric approach was attempted here also, pairing UNBANKED with each of the behavioral variables. The disturbances across the bivariate probit equations were consistently not significantly different from 0, suggesting that the simple, one-equation model was more appropriate in this case.

This section begins by discussing the behavioral, demographic and regional variable coefficients which were consistent throughout all of the models estimated. With one exception, the behavioral variables were significant and had the expected sign. The OWN coefficient was significantly negative, supporting the idea that home owners were more likely to have a bank account. Similarly for CREDITCARD, the statistically significant and negative coefficient showed that credit card holders also tended to have bank accounts. The two cash-related variables, PAY_CASH and INC_CASH, obtained coefficients that were both significantly positive. These results confirmed the idea that heavy cash users were less likely to use a bank account.

Regarding the demographic variables, AGE had a significant negative sign, confirming the idea that the unbanked tended to be younger.[2] The coefficient for WHITE was consistently insignificant. The survey allowed for ethnicity to be broken down further to separate the minority group into African American, Hispanic and Asian. Although not reported here, ethnicity variables remained insignificant, even when multiple categories were included. Therefore, in contrast to the findings of Rhine, Greene, and Toussaint-Comeau (2006), ethnicity seemed to have no impact on the decision to have a bank account, holding all else equal. Gender and marital status also appeared to have no impact on the decision to have a bank account. The variable COLLEGE was consistently negative and significant, implying that postsecondary education is associated with a higher rate of owning a bank account, compared with individuals whose education is limited to K-12. The EMPLOYED coefficient was insignificant throughout. A more restrictive definition of employment including only full-time employment was also examined, but this too resulted in an insignificant coefficient (not reported here). Thus, employment status does not seem related to the decision to have a bank account, *ceteris paribus*. The LOW_INCOME coefficient was positive and significant, confirming the assertion that people with lower incomes were also less likely to have a bank account. City versus rural locality also was not important as the URBAN coefficient was statistically insignificant throughout the various estimations.

Geographic location was not a significant determinant of the banking decision, *ceteris paribus*. Although the eight regional dummy coefficients are not reported in Table 3 to conserve space, the results also were consistent across all versions of the model. In all cases, the regional coefficients were

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probability that an individual will be unbanked. Notice that this result was found even when the ECONOMICS coefficient was not significant (Model 1). Overall, the interpretation here is that *it is not just the course itself, but the amount of learning and resulting understanding that is important for basic financial literacy*. This lends support to the contention that the amount of economic understanding is an important determinant for financial literacy and the probability of being banked, all else equal.

For completeness, two additional models were estimated using the economic education variables specific to courses with business and personal finance titles. Model (3) used BUSINESS as the economic education variable, whereas Model (4) used FINANCE. BUSINESS was negative and significant, suggesting that individuals who had taken a business course were less likely to be without a bank account. On the other hand, FINANCE was insignificant, much like the narrow ECONOMICS variable. Comparing Models (1), (3) and (4), it appears that courses with a business title have more influence on the decision to maintain a bank account than courses with other labels, including those titled personal finance. This finding calls for additional research and curriculum content analysis to determine why this variation in behavioral influence occurs.

Marginal Effects

Table 4 presents the marginal effects for the four versions of the model. For the binary explanatory variables, the marginal effects were the difference in the predicted probability when the variable equaled 0 vs. 1, with all other variables held at their sample means. The marginal effects for the behavioral variables showed that owning a house reduced the probability of being unbanked by just under 5%, *ceteris paribus*. Having a credit card had a relatively larger impact, reducing the probability of being unbanked by around 9.5%. Heavy reliance on cash for payments and income increased the probability of being unbanked between 5% and 8%, respectively. The estimated marginal effects for the demographic variables revealed a significant but very small effect of age. A 1 SD increase in AGE reduced the probability of being unbanked by less than 0.1%, holding all else equal. An individual with at least some education beyond K-12 was about 3% less likely to be unbanked, and low-income respondents were about 4%–5% more likely to be unbanked, holding all else constant.

Table 4.

Marginal Effects

Expected Sign	Variable	Marginal Effect	*p*-Value	Marginal Effect	*p*-Value
		(1)		(2)	
(−)	ECONOMICS (narrow)	−.0101	.4013	—	—

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Expected Sign	Variable	Marginal Effect	*p*-Value	Marginal Effect	*p*-Value
		(1)		(2)	
(−)	AGE	−.0008[b]	.0382	−.0008[a]	.0277
(−)	WHITE	−.0045	.7261	−.0046	.7146
(±)	MALE	.0225	.0902	.0217	.0976
(−)	MARRIED	−.0155	.2321	−.0144	.2606

[a]Significant at a 5% level, one-tailed test.

[b]Significant at a 1% level, one-tailed test.

For the ECONOMICS variable broadly defined, measuring whether or not an individual had taken an economics, personal finance or business course during high school, the marginal effect was 2.3%, *ceteris paribus*. Thus, taking one of these courses reduced the probability of being unbanked by just over 2%, holding all else constant. The marginal effect for BUSINESS was even larger at 3.7%, suggesting an even larger positive impact for courses taught under a business title. Comparing these results to the marginal effect of COLLEGE, ranging from 2.8% to 3.3%, revealed an interesting relationship. Using the marginal effects from Models (2) and (3), the impact of a course in high school was in the neighborhood of the impact of education beyond K-12, *ceteris paribus*. In this context, the relative value of a high school economics or business course is quite high. By delivering such courses at the secondary level, a wider and more diverse population is reached while providing similar long-term benefits (e.g., the decision to maintain a bank account) as postsecondary education.

As seen in Table 4, the UNDERSTAND variable had an even larger impact than the course variable. A 1 SD increase in UNDERSTAND reduced the probability that an individual was unbanked by 4.5%.[4] The largest impact on the probability that an individual was unbanked was the combination of a course in high school (broadly defined) and a good understanding of basic economic concepts.

CONCLUSIONS

This study connected the literature on economic education with research on the unbanked, allowing for a long-term assessment of economic education programs as well as insight on why some people choose not to have a commercial bank account. From the economic education side of this research question, high school courses were positively related to an individual's decision to maintain a bank

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marginal impact was similar, resources for high school programs in economic education seem to be the wiser investment.

From a public policy perspective, effective teaching methods in high school that increase student learning about basic financial literacy play an important role in getting the unbanked more connected to the economic system. The results suggest there can be a long-term value to economic education programs, especially for lower-income individuals with little or no relationship with the modern financial system.

Appendix

APPENDIX 1

Economic Understanding Questions

Each question included a Don't Know/Not Sure and a Refused option.

1 What is the current national unemployment rate?

one percent or less

between 1 percent and 10 percent

over 10 percent

2 What is the current annual rate of inflation?

one percent or less

between 1 percent and 10 percent

over 10 percent

3 Is the main purpose of the Federal Reserve:

to set interest rates and monetary policy

to set tax rates and government spending

4 There is a deficit in the Federal Budget when:

government spending is greater than tax revenues

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balance of payments

6 In a competitive market, the prices of most products are determined by:

the government

business monopolies

supply and demand

the Consumer Price Index

7 Does setting quotas on foreign goods imported into the US increase the number of jobs for American workers in the next 5 to 10 years?

Yes

No

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Footnotes

1 Twenty-eight interviews could not be completed during the time allocated for the survey. Also, a total of 1,057 households refused to participate (572 of those refusals occurred before screening for an adult who was familiar with the household finances and 485 occurred after screening).
2 Other specifications of the age variable were tried allowing for a nonlinear relationship. Age still had a significant impact on these specifications. Coefficients and marginal effects for the other explanatory variables were virtually the same.
3 Additional versions of equation (1) were estimated using an interaction variable between ECONOMICS and UNDERSTAND. The results are not reported here but were similar. In addition, alternative specifications were

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