

High School Economic Education and Access to Financial Services

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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 accepted method of assessment for educational programs of all types, this traditional classroom-centric approach ignores the long-run effects of how individuals apply what they learn to their daily lives after completion of a program of study. A more comprehensive evaluation of the effectiveness of economic education programs, at any level, should include the assessment of how participants apply their economic learning to their observed choices and behaviors long after leaving the classroom (Allgood et al. 2004). This article attempted this by examining the linkage between exposure to formal

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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 the academic literature.) Within this literature, several important studies have examined the specific effects of mandated course and curriculum requirements. These studies tended to focus on short-term learning gains achieved during the prescribed coursework, but neglect measures of understanding after the coursework is completed. (For example, see [Rhine 1989](#), [Marlin 1991](#), [Belfield and Levin 2004](#) and [Grimes, Millea, and Thomas 2008](#).) To date, only [Bernheim, Garrett, and Maki \(2001\)](#) have attempted to measure the long-term economic consequences of mandated economic

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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.

The data needed to measure UNBANKED and the explanatory variables were obtained through a telephone survey administered to a randomly selected nationwide sample of adults. Funded by the U.S. Department of Education through the Council for Economic Education, the National Financial Services Survey (NFSS) was conducted in the spring of 2008. The NFSS included questions about the use of a banking account and other basic financial behaviors and decisions.

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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 |
| (-) UNDERSTAND | =percent of economic literacy questions answered correctly | 0.4816 | 0.2732 |

^aThe original survey yielded 1,759 responses. Of these, 303 did not provide an answer when asked about either their age or if they had taken an economics/business/finance course. Because these variables were essential to the model, these observations were omitted, leaving a sample size 1,456 for the regression models that follow.

^bExpected coefficient signs are given in parentheses.

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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 in the form of cash. Overall sample means for these two variables were 13.3% and 11.5%, respectively. Heavy cash usage reduces the necessity of a bank account, so these two variables were expected to be positively related to UNBANKED.

With respect to individual demographic characteristics, the survey collected information on the respondent's age in years (AGE), ethnicity (WHITE), gender (MALE) and marital status (MARRIED). The average age for the overall sample was 51 years. For ethnicity and gender, 47% of the respondents

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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

Before discussing the regression results, it is helpful to compare roughly 10% of the sample without a commercial bank account to the vast majority of the sample with some form of account. [Table 2](#) presents the summary statistics broken down for these two groups; a *t*-test was used to look for significant differences in the means. For the economic education variables, the unbanked sample had a substantially lower occurrence of having taken an economics course under the broad definition (46% vs. 57%), but under the narrow course specification, there was no significant difference. The unbanked sample had a significantly lower incidence of taking a course under the title of "business" (14% vs.

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| 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 |

^aDenotes 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. The unbanked also were more likely to have annual incomes of \$10,000 or less (26% vs. 8%). Individuals in the unbanked sample were also more likely to be male, less likely to be employed and more likely to be urban, although these means were not significantly different. The regional breakdown was fairly similar across both the groups.

The behavioral variables differed quite significantly across the two groups in most cases. Only 28% of the unbanked owned homes compared with 62% of the sample with accounts. A similar variation was found for credit card use as only 19% of the unbanked sample had a card, whereas 66% of the banked

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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 |

^aSignificant at a 5% level, one-tailed test.

^bSignificant at a 1% level, one-tailed test.

It should be noted that endogeneity is a potential problem for the estimation of **equation (1)**. First, the variable UNDERSTAND might conceivably be influenced by the ECONOMICS variable, requiring a second equation with UNDERSTAND as the dependent variable. As explained in [Maddala \(1983, p. 120-123\)](#), if the residuals of these two equations are independent, then the two equations can be estimated separately. Estimation of a set of equations for each version yielded residual correlations

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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 statistically insignificant.

Turning to the economic education variables, four versions of [equation \(1\)](#) were estimated. Model (1) included the narrow definition of ECONOMICS, whereas Model (2) used the broad definition.³ As seen in [Table 3](#), the coefficient for the ECONOMICS variable, narrowly defined, was insignificant, whereas the coefficient for the broad course variable was negative and statistically significant as expected. Thus, an individual taking a high school economics, business or personal finance course was less likely to be unbanked than one who did not take any of these courses, *ceteris paribus*. On the other hand,

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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 | — | — |
| (–) | ECONOMICS (broad) | — | — | –.0231 ^a | .0597 |
| (–) | UNDERSTAND | –.0448 ^a | .0649 | –.0449 ^a | .0602 |
| (–) | OWN | –.0473 ^b | .0011 | –.0486 ^b | .0008 |
| (–) | CREDITCARD | –.0959 ^b | .0000 | –.0940 ^b | .0000 |
| (+) | PAY_CASH | .0544 ^b | .0109 | .0525 ^b | .0127 |
| (+) | INC_CASH | .0702 ^b | .0024 | .0702 ^b | .0025 |

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| Expected Sign | Variable | Marginal Effect | p-Value | Marginal Effect | p-Value |
|---------------|----------|-----------------|---------|-----------------|---------|
| | | | | | |

^aSignificant at a 5% level, one-tailed test.

^bSignificant 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 account later in life. However, what also is important is that people have some level of economic understanding. The level of economic understanding had a significant impact on the banking decision, even if taking a formal academic course did not. Although the data were not rich enough to determine the source of an individual respondent's economic knowledge, the overall conclusion is that learning and understanding basic economic concepts are factors in explaining someone's choice to own a bank account.

One notable result is that the impact of a course in high school is near that of postsecondary

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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

US imports are greater than US exports

the total demand for money is greater than the total supply of money

5 The purchasing power of people's income is MOST affected by the:

inflation rate

trade deficit

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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 estimated including a variable to capture whether or not the subject attended high school in a state that mandates a high school economics course. No statistically significant relationship was found between a state mandate and the likelihood of being unbanked.

4 As shown in [Table 1](#), the standard deviation of the percentage scores on the seven economic understanding questions was 27%, which is roughly two additional correct answers.

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