

The Influence of a High School Personal Finance Education Mandate on College Freshman Financial Knowledge

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Nationally, personal finance education for K-12 students has received increasing attention in recent years. The Council for Economic Education (CEE) reported in its 2016 *Survey of the States* that 17 states require high school students to take a course in personal finance. However, only five states require that course to be a standalone semester course. Only seven states require standardized testing of personal finance content (CEE, 2016).

Personal finance mandates have been reviewed from a number of perspectives, but primarily by examining gains in student knowledge and adoption of preferred financial behaviors after participating in the educational requirement (Walstad, Tharayil, & Wagner, 2016). Specifically, the question that prompted this research was: Does exposure to personal finance education in high school influence the personal finance knowledge of college freshmen?

To address the above research question, the author conducted an online survey with college freshmen at the University of Georgia. The focus of this paper is those students who indicated they experienced personal finance education in high school.

Review of Literature

Previous researchers have examined the impact of state mandates on adoption of responsible financial behaviors and personal finance knowledge, typically focusing on long-term impacts. Mandell and Klein (2009) examined the financial behaviors of those exposed to any personal financial education in high school compared to those who were not and reported no significant effect. They used a matched sample of students based on school records that indicated which students had taken a personal finance course and which had not. Grimes, Rogers, and Smith (2010) reported that a high school course that included personal finance content was not significant in explaining which respondents did or did not have a formal relationship with a mainstream financial institution. However, a weakness of this research was that the high school personal financial education variable was constructed based on respondent recall and the mean age of the sample ranged from 44 (for those unbanked) to 52 (for those banked). It is likely there are recall errors in the responses.

Bernheim, Garrett, and Maki (2001) constructed an exposure to high school personal finance education variable based on self-reported data from their sample (average age about 40) and found a positive effect of personal finance state mandates on both saving and wealth accumulation. Cole, Paulson, and Shastry (2013) also examined the impact of personal finance state mandates on saving and wealth accumulation. To determine who was subject to the mandate, they used Census data and the individual's state of residence as well as the number of years since the imposition of the mandate. They found no effect of state mandates on investment behaviors. However, they seem to have assumed that every student in a state with a mandate was subject to that mandate. More recently, Brown, Collins, Schmeiser, and Urban (2014) examined the impact of state mandates on credit scores and delinquency rates. Data from three states with personal finance mandates were paired with data from states that were similar demographically and economically but have no mandates. Individuals in mandate states had higher credit scores and lower delinquency rates. The authors assumed that residents of mandate states who were in the state in the year they graduated high school were exposed to personal finance education in high school.

The Personal Finance Mandate in Georgia

The personal finance mandate in Georgia was first implemented in 2007-2008 for 6-12 grade public school students and in 2008-2009 for K-5 public school students. Personal finance is taught in Social Studies in grades K-8 and in a required semester-long high school economics course usually taken in the senior year. The economics course is expected to cover fundamental economic concepts, microeconomics, macroeconomics and international economics in addition to personal finance. An end-of-course test is required, which contributes 20% to the student's final grade (Georgia Department of Education, n.d.-a). Twenty percent of the content of the test must be personal finance (Georgia Department of Education, n.d.-b).

Georgia teachers receive significant assistance to teach economics, including the personal finance component of the course, through training and resources from the Georgia Council on Economic Education (GCEE). Research has documented the impact of the GCEE's resources on students' end-of-course test results (Swinton, De Berry, Scafidi, & Woodard, 2007).

Methodology

Sample

Data were collected from an online survey of college freshmen at the University of Georgia (UGA) in Fall 2016. The project was approved by the UGA Institutional Review Board. The UGA Registrar's Office provided the email addresses of all freshmen, who received an email invitation to complete the survey in October 2016. Respondents were offered the opportunity to enter a drawing to win a \$50 gift card, funded by the Georgia Council on Economic Education. A second email invitation was sent one week after the first. The survey was hosted on Qualtrics. A total of 972 freshmen (out of 5,100) responded to the survey; 699 of the students indicated they had taken a personal finance course in high school. Although they are not the focus of this research, about 20% of students who said they graduated from a public high school in Georgia reported **no** experience with personal finance education in high school.

Variables

The dependent variable in this research was the respondents' personal finance knowledge. More than 50 articles have been published reporting measures of college students' financial knowledge with little observed consistency across them (Cude, Dannels, & Kabaci, 2016). Questions developed by Lusardi and Mitchell (2008) for the 2004 Health and Retirement Survey have subsequently been used in at least three other national surveys in the US as well as national surveys in at least 11 other countries (Lusardi, 2015). The Lusardi and Mitchell questions have been used extensively even though there has been little analysis of whether these questions represent the best approach to measure financial literacy (Hastings, Madrian, & Skimmyhorn, 2012). Nevertheless, the "Big Three" Lusardi and Mitchell questions were used to measure knowledge.

However, a criteria Lusardi (2015) states for writing questions to measure financial knowledge is relevance – questions related to persons' day-to-day financial decisions. Therefore, two additional questions were added, both addressing basic information about consumer credit, a topic of much relevance for college students. 1) Last month, you had a \$0 balance on your credit card. This month you charged \$300 to your credit card, which has an 18% APR. When the statement comes, to pay what you owe in full, would you pay (\$300). 2) Earning a higher salary increases your credit score (False). The questions were reviewed by professors as well as students and then pretested with a small group of undergraduate students. A financial knowledge score was constructed based on responses to the five questions. The score was the total number of questions answered correctly; it could range from 0 to 5.

Demographic Variables

The 487 students retained in the sample were all 18 to 22 year old freshmen who were unmarried who saw the questions in the module that was the focus of this paper. A dummy variable was created for gender, which has frequently been a significant variable in previous research about college student financial knowledge; the results typically indicate being male is associated with greater knowledge (Cude, Dannels, & Kabaci, 2016). A second dummy variable was created for college major; all majors related to business, economics, or math were coded as 1. This is consistent with previous research in which selecting a business major has been the only educational variable consistently related to financial knowledge (Cude, Dannels, & Kabaci, 2016). In addition, previous studies have linked expertise in math and/or economics to personal finance knowledge (Walstad, Tharayil, & Wagner, 2016).

Personal Finance Education Mandate Variables

The second set of variables was designed to capture the influences associated with exposure to Georgia's personal finance education mandate. Those variables were:

- Georgia; a dummy variable coded 1 if the student attended high school in Georgia.
- Public School; a dummy variable coded 1 if the student attended a public high school.
- Exposure to Personal Finance Education in High School Economics; a dummy variable coded 1 if the student indicated her experience with personal finance education was in a high school economics course.

These variables no doubt capture a variety of factors, including perhaps socioeconomic differences that may be present if there are systematic differences between public and private school students. However, the primary interest with this set of variables was to capture the influence of being subject to the Georgia personal finance education mandate.

Perceptions of High School Personal Finance Education Experience

This set of variables captured student perceptions of their experience with personal finance education in high school. Subjective or perceived assessments related to financial knowledge may be as meaningful as objective assessments (Allgood & Walstad, 2015). Fernandes, Lynch, and Netemeyer (2014) suggested it was important to control for the quality of financial education when attempting to link it to financial outcomes. In this research, the students' perceptions of how much they learned and the knowledge of their teacher were proxies for quality. Interest in a college course was included based on the argument that personal finance education is lifelong learning. Ideally, personal financial education experience in high school should increase interest in additional knowledge, not decrease it.

Use of Financial Services

Use of mainstream financial services is frequently assumed to be a goal of personal finance education (see Grimes, Rogers, & Smith, 2010, for example). Mandell and Klein (2009) suggested responsible use of checking accounts, credit cards, and savings and investments as three behaviors influenced by high school personal finance education.

Analysis

Descriptive statistics were produced for each of the variables. Hierarchical regression analysis was used to determine the contribution of each set of variables to explain variance in the financial knowledge score.

Results

The mean financial knowledge score was 3.63 ($SD=1.074$). More than 80% correctly answered four of the five questions, including the Lusardi and Mitchell questions. The college freshmen in this sample were far more likely to correctly answer the questions than respondents in previous surveys. Thus, it was surprising that only 21.6% of the freshmen correctly answered the question about credit cards. Just 24% of students who reported that they had responsibility for a credit card answered this question correctly compared to 15.7% of those who said did not have responsibility for a credit card.

Gender

The respondents were predominantly female; just 31.6% were male. The distribution of UGA undergraduates is about 43% male. Only 11.5% reported a college major related to business, economics, or math. Undergraduate majors in UGA's College of Business represent about 11.9% of the undergraduate student body.

Personal Finance Education Mandate Variables

The majority of the students who reported experiencing personal finance education in high school attended high school in Georgia (94.0%) and attended a public high school (89.3%). Surprisingly, fewer than one-half of the sample said their experience with personal finance education was in high school Economics; recall that the Georgia Standards require that personal finance be taught in Economics in Georgia public high schools. Another 45% of these students experienced personal finance education in AP Economics and 3.7% in dual-enrollment Economics. Both groups met the requirement to complete high school Economics, but personal finance is not **required** to be taught in AP Economics and seems unlikely to be taught in most college-level Economics courses. The remaining students (about 10% of the sample)

reported a range of other high school courses in which they were exposed to personal finance education, including Math, History, Family and Consumer Sciences, standalone courses about personal finance, Accounting, and Government.

Perceptions of High School Personal Finance Education Experience

Just more than one-half (58.9%) of the respondents agreed that they knew more about personal finance after exposure to personal financial education in high school. Most described the financial management knowledge of their teachers as average (49.7%) or very knowledgeable (41.5%). Just more than one-quarter (28.1%) said they were very interested in personal finance education in college but 13.6% reported they were not at all interested.

Use of Financial Services

Only 19.1% of respondents reported that they have a credit card for which they are responsible. Most (62.6%) did not have a credit card, and 17% had a credit card for which someone else took responsibility. In contrast, the majority (79.8%) said they had a debit card **and** it was their responsibility to manage it. Just more than one-half (50.9%) disclosed that they not only have savings or investments but that they also personally have added the funds in those accounts.

Hierarchical Regression Analysis

A four-step hierarchical regression analysis was used to determine the unique variance in financial knowledge scores explained by personal finance education mandate variables, perceptions of high school financial education experience variables, and use of financial services while controlling for age and major. Step 1 variables were age and major which together accounted for less than 4% of the variance in financial knowledge scores. In Step 2, variables related to the personal finance education mandate accounted for another 1.7% of the variance. Step 3 variables, which assessed perceptions of high school financial education, added little to the model, explaining only 0.3% of the variance in financial knowledge scores. In contrast, the Step 4 variables, which assessed use of financial services, increased the explanatory power of the model by 3.4%.

Being female was, as in previous research, associated with lower financial knowledge scores. Attending high school in Georgia, having a higher opinion of high school personal finance education teachers, and use of financial services all were significantly and positively related with higher financial knowledge scores. The coefficients for the use of financial services variables were about half the size of the coefficient for attending high school in Georgia.

Limitations, Discussion, and Conclusions

A major limitation of this research is that all of the respondents are from a single university, which is a Research 1 institution. Students enrolled in other universities as well as other types of colleges and universities in the same state as well as in other states with a personal finance mandate may have very different responses as well as different experiences with high school personal finance education. While the response rate to the survey was respectable (about 19%), we do not know how the experiences of those who responded to the survey may be different from those who chose not to respond. In addition, the respondents were disproportionately female. Although this is not unusual in surveys of college students (see, for example, Clarkberg, Robertson, & Einarson, 2008), it does bias the responses in ways we cannot know.

A final limitation of this research is the use of only five financial knowledge questions. The knowledge questions included the Big Three Lusardi and Mitchell questions, which, as mentioned earlier, are widely used despite little previous analysis of their reliability (Hastings, Madrian, & Skimmyhorn, 2012). The fact that the majority of the sample correctly answered these three questions suggests the questions may not be useful in successfully predicting financial knowledge among college students who experienced personal finance education in high school. One might attribute the higher-than-average scores to superior test-taking ability among college students compared to the general populations who were the respondents in the other surveys. However, that explanation is inconsistent with the relatively small proportion (22%) of the respondents who correctly answered a (seemingly) very basic question about how a credit card works. Although additional research is needed to explore this, it is possible the students' high school education was much more textbook-oriented, with little skill development to ensure students truly knew how to use financial services responsibly.

It may be good news that those who *do* recall their high school experience with personal finance education generally have positive evaluations of the instructors. Nearly 60% reported that they knew more after taking the course. Another 41% described the teacher of high school personal finance content as “very” knowledgeable. Are these rates something to celebrate? We have nothing to which to compare them.

Following current trends (Skowronski, 2014), the freshmen who responded to the survey were far more likely to have a debit card than a credit card. Surprisingly large proportions of college freshmen reported having personal savings and investments.

It is somewhat discouraging that the gender variable is significant in explaining financial knowledge among a population of college freshmen. This suggests that the factors that explain the gender gap in financial knowledge are at play prior to college age. Research to explore this phenomena at much younger ages is needed.

Contrary to much previous research, college major was not significant in any of the models. There are two possible explanations. The samples in most previous research among college students were predominantly upper classmen (Cude, Danna, & Kabaci, 2016). The influence of college major on financial knowledge among samples of upperclassmen likely reflects knowledge gained in required coursework. The first semester freshmen in this sample had, at most, limited exposure to courses in their major. A second explanation is that freshmen simply had not yet declared a major. At the University of Georgia, freshmen who are intended business majors often are in the College of Arts and Sciences until they are admitted to the major.

This research suggests that we have much to learn about personal finance education mandates. On the whole, will the students in our sample support personal finance education mandates for their own children? The evidence appears mixed. We did not ask that question directly and recommend it for future surveys with this population.

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