An Assessment of Economic Education in U.S. High Schools

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Abstract: This study offers an assessment of the economic education in U.S. high schools since 2000. It presents data on course enrollments in high school economics and compares its place in the high school curriculum with other subjects. It discusses content standards for economics and their influence on instructional materials and course guidelines. It describes three major types of testing used for assessing student achievement in economics. It reports results from research on student achievement in economics coursework and other short and long-term outcomes. It explains the challenges of preparing teachers for teaching economics, and what major organizations are doing to address those challenges. The review concludes with a discussion of the implications from the assessment for the future of economics in the high school curriculum and the research infrastructure to support it.

Keywords: high schools, economics instruction, economic understanding, teachers, testing

JEL codes: A21, I21

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Economists in the United States have long been interested in the teaching economics in U.S. high schools. The issue received formal attention from the economics profession in the 1960s through a National Task Force appointed by the American Economic Association and its Committee on Economic Education. Their report provided rationales for teaching in secondary schools and offered recommendations on the minimum economics content to include in economics and social studies courses in high school.[1] Additional comments about the teaching of economics in the schools came from Ben Lewis and Nobel laureate Paul Samuelson (1963), and later from Lee Bach (1967), who chaired the task force.

The rationale for teaching economics in high school rested on two key points made by these distinguished economists that are still valid. The first is that the lack of formal economic education makes youth vulnerable to misinformation about basic economic concepts and how the economy works. This situation leads to economic ignorance that is costly for individuals, both as youth and later as adults, in their economic roles as consumers, workers, investors, and citizens. The second is that the last formal opportunity for improving economic understanding occurs in high school, as nearly all youth receive a high school education, but not all continue their education at a college or university.[2] This gap means that the economics taught in high school may be all the economics that most youth ever receive before adulthood.

Nobel laureate George Stigler (1970) made a cost-benefit case for economic literacy. He discussed why economic literacy deserved a special place in the education of youth over literacy in some other subjects. In his view it made two important contributions to knowledge: "a means of communication among people, incorporating a basic vocabulary or logic that is so frequently encountered that the knowledge should be possessed by everyone" and "a type of knowledge frequently needed and not susceptible to economical purchase from experts" (p. 78). Economic literacy contributes to the first type of knowledge because people wanted to talk more about money and the economy than many other topics. Economic literacy also contributes to the second class of knowledge as there is 'the need for "do-it-yourself economic analysis" when making the many economic decisions for which economic information or expert help may be limited.

The importance of teaching economic education in high school still resonates over time. Each generation of economists has spoken or written about the value of economic literacy and economic

education in similar and different ways in their roles as academic economists or as leaders of economic institutions (e.g., Tobin 1986; Stern 1998). Sometimes the support for economic education arises from major economic events. For example. Ben Bernanke, as chair of the Federal Reserve System, spoke about the value of economic and financial education in the aftermath of the 2008 financial crisis (Bernanke 2013).[3]

The general point is that the case for economic education in high school needs to be re-made as times and circumstances change. Although past economists and others worked on getting sound economics taught in the high school curriculum, its place is by no means secure. The reason is that the educational environment within schools is highly competitive for instructional time and student attention. Economics can easily be crowded-out as a school subject based on a change in popular opinion or less interest from educators. The impact from this development would be a lower level of economic literacy among the public, and less interest among future undergraduates in taking economics courses or majoring in economics.[4]

In light of this history and these possibilities, it is worth assessing the current state of economic education in U.S. high schools. This assessment draws on the available data and research studies conducted since the last major review of this topic that was written over two decades ago (Walstad 2001).[5] The assessment is divided into five major sections. The first presents data on course enrollments in high school economics and makes some comparisons with other related courses in the high school curriculum. The second discusses content standards for economics and their significant influence on instructional materials for teaching economics. The third describes three major types of testing used for assessing student achievement in economics. The fourth reports findings from research on student achievement and other outcomes from economics coursework in high school. The fifth explains challenges with teacher education in economics and what major organizations are doing to address them. The review concludes with a discussion of implications from the assessment that focuses on the future of economics in the high school curriculum and concerns about the research infrastructure to support it.

Economics Course-taking

High school transcript data on economics courses in public and private schools in the United States indicate that economics has an important place in high school education for the majority of students. Almost

six in ten (57 percent) of high school graduates earned a minimum of a half-credit (0.5) in economics courses, or the equivalent of a half-year or semester course in economics (Walstad and Rebeck 2012).

The high school transcript data also can be interpreted from an opposite perspective, that over four in ten (43 percent) of high school graduates do not take a standalone economics course. That perspective, however, may be overly harsh as high school students have opportunities to learn some economics or apply their understanding in other high school courses. Combined courses in government and economics use some economics to study public policy issues. Courses in general business or entrepreneurship cover some basic concepts in microeconomics related to businesses (Kourilsky and Walstad 2007). A course in personal finance may apply some economic concepts to money management topics (Bosshardt and Walstad 2014).

The status of economics in high school education has improved significantly over time. High school transcript data show that percentage of high school graduates completing an economic course rose from 24 percent in 1982 to 57 percent in 2009 (Walstad and Rebeck 2012). A likely major reason for this change is that more states require students to take a high school economics course before graduation. From 1982 to 2009, mandates for economics increased from seven to 21 states.

Since 2009, the U.S. Department of Education has not publicly released high school transcript data for economics. It is possible, however, to use trends in state mandates to estimate what they would be as two data series are highly correlated.[6] Data from 2009 to 2022 show that the number of states with mandates for students to take an economics course before graduation has remained relatively constant at 21 states (Council for Economic Education (CEE) 2022). Thus, the percentage of high school graduates taking an economic course today is similar to what it was in 2009, at around 60 percent.

Economics in the Social Studies

The area of the high school curriculum where economics is taught varies as high schools have different course offerings and policies. Economics typically is taught in a social studies curriculum that includes courses in U.S. history, world history, U.S. government and civics, geography, psychology, and sociology (Walstad and Rebeck 2012). Table 1 compares enrollments in economics with other social studies courses.

Of most importance in the social studies curriculum are year-long courses (1.0 credits) in U.S. history, taken by 94 percent of high school graduates, and world history, taken by over 81 percent of high school graduates.

Insert Table 1 about here

The relative position of economics in the social studies curriculum can be compared with non-history courses, all of which are half-year courses (0.5 credits). The percentage of high school graduates taking economics is less than the 84 percent who completed a course in U.S. government, civics, or politics, but it is greater than the 29 percent who took a course in psychology or sociology. It is also greater than the 39 percent who took a course in geography. These latter results indicate that economics at least has greater support for student time in the school curriculum than some other social studies courses.[7]

When students complete an economic course differs by grade level (Rebeck and Walstad 2015). Most high school graduates take an economic course at the twelfth grade (81 percent for basic economics and 87 percent for college-level economics). Some high school graduates may take an economics course in eleventh grade (12 percent for basic economics and 13 percent for college-level economics). Few high school graduates, however, take economics in ninth or tenth grade as they were more likely completing other course requirements in the social studies curriculum.

A factor that lends stability to the position of economics in the high school curriculum is that it is a college preparatory subject. More college-bound high school students take economics in honors or advanced courses as preparation for future college coursework or to earn college credit. For example, as discussed in the later section on testing, the number of high school students taking an exam for college credit in economics increased by 35 percent from 2012 to 2022.

Grades in Economics Courses

Table 2 shows the grade distribution for high school graduates who took a basic course in economics. Two-thirds earned grades of A (31 percent) or B (36 percent). Almost a fourth (24 percent) received a grade of C. Only 9 percent of students earned a grade of D. Only a small fraction failed the course.

Insert Table 2 about here

Table 2 also shows how the grade distribution in high school graduates who took a course in basic economics compares with other social studies courses. The percentage of students earning an A or B in economics (about 66 percent) was similar to the percentages earning an A or B in U.S. government or world geography (about 65 percent each). It was somewhat higher than the A or B grade distribution for students who took a course in world history (63 percent) or American history (59 percent), perhaps because they are year-long courses required for almost all high school students. The A and B grade distribution in economics, however, was substantially lower than the percentage earning an A or B grade in psychology (74 percent), perhaps because psychology is an easier subject and has more personal appeal for students.

The distribution of grades earned in basic economics courses, and social studies courses, are higher than the grade distribution in other major subjects that are often required in the high school curriculum, such as ones in mathematics, science, and English. Among students who earned an A or a B in these required subjects, 47 percent did so in in Algebra 1, 52 percent did so in biology, and 58 percent did so in English.[8]

Economic Content Standards

In public schools across the 50 states, state boards of education are often responsible for specifying what academic subjects are taught to students and the content for those subjects. Administrators in state departments of education are responsible for preparing content guides or standards that describe the subject content across K-12 grades. Department staff members then write these documents with input from a working committee that often consists of teachers, school administrators, academic experts, and community members. Other specialists sometimes review the document. Final approval is subject to the recommendation of a state superintendent for education and then acceptance by a state board of education.

What this process for standards development in states means for high school economics is that each state will often have its own set of economics content standards. Since economics usually is taught in the social studies curriculum, the content standards for economics are often published as part of the social studies standards. Sometimes, however, a state will publish them as a standalone document. Some economic content can be included in the content specifications for related high school subjects, such as business or

personal finance. Overall, the specification of economic content across states will show some similarities and differences that will affect economics instruction across states.[9]

National organizations with expertise in academic content have developed standards documents primarily to ensure that the subject matter is academically sound and presented in useful ways for teachers and school administrators. A second reason for national standards is to help educators prepare or revise their state standards, and thus reduce some of the inconsistency across states. In economics, the best example is the *Voluntary National Content Standards in Economics* (hereafter *Standards*) (Siegfried et al 2010).[10]

The project focused on 20 economic concepts or topics: scarcity; decision-making; resource allocation; incentives; trade; specialization; markets and prices; the roles of prices; competition and market structure; institutions; money and inflation; interest rates; income; entrepreneurship; economic growth; market failure; government failure; economic fluctuations, unemployment and inflation; and fiscal and monetary policy.

Each standard describes an economic concept or topic and is written as a basic principle of economics. A short explanation or rationale written in nontechnical terms follows the standard statement. Associated with each standard are "benchmarks" that describe what students should know about that standard by grades 4, 8, and 12. The benchmark then offers recommended ways to use that knowledge.

The *Standards* have served as a framework for assessment of the economic content in high school textbooks. Leet and Lopus (2007), for example, used the first edition of the *Standards* for an assessment of economics content in high school economic textbooks. They found that the seven "comprehensive" textbooks written by university economists covered most of the *Standards* concepts in sufficient depth for students. Their *Standards* review of four "specialty" textbooks was somewhat less positive, as those textbooks sometimes lacked depth or were less likely to cover as many of the *Standards* concepts. Nevertheless, from a content perspective the reviewers considered them acceptable.

Educational organizations use the *Standards* to catalog the economics content of instructional materials developed for teachers. For example, the CEE's EconEdlink program contains online lessons for teachers that can be sorted based on the *Standards*. Other organizations such as the education departments of the Federal Reserve Banks, the Foundation for Teaching Economics (FTE) and Econiful use the *Standards* in

preparing or classifying instructional materials. In addition, state councils and centers for economic education and members of the National Association of Economic Educators (NAEE) consult the *Standards* when developing educational materials for teachers within their states.[11]

Debates and Issues

Although the *Standards* has many valuable uses, its economic content is not without debate among economists. Gwartney (2012) finds them to be a well-balanced presentation of basic economics, but Marglin (2012) criticizes them for omitted concepts and a lack of a critical perspective on economics. Roberts and McCloskey (2012) are concerned that some teachers may be ill prepared to teach the economic concepts in the *Standards*, so that instruction may become ideological or have personal bias.

MacDonald and Siegfried (2012), two members of the writing team, describe the careful process used to develop and revise the Standards, and then offer their response. They view the *Standards* as a mainstream paradigm on enduring principles of economics that is reasonable to teach given the wide range of student ability, the limits of high school education, and level of teacher preparation. They offer the salient point that an alternative paradigm emphasizing one perspective, such as suggested by Marglin, over an opposite perspective demanded by others, makes it impossible to decide which alternative paradigm to select.

One instructional issue with using the *Standards* is not its content, but the feasibility of teaching all its economic content by the time of high school graduation. Although there are only 20 broad economic statements in the *Standards*, there are several hundred benchmarks with more detailed economic content for students to learn. Economics must compete for classroom time with history and other social science courses that also have lengthy content standards. Moreover, teaching economics to a heterogeneous group of high school students is challenging in an economics course that typically only lasts a semester.

Another instructional issue with the *Standards*, however, is with changes to its content. Guidelines such the *Standards* are not timeless publications. They need to revision periodically to remain current, especially in a dynamic subject such as economics. For example, the conduct of monetary policy changed substantially over the past decade, but the content of the *Standards* on this topic is dated (Ihrig and Wolla 2022). A major problem with the *Standards*, therefore, is the long-time lag between revisions. The first edition was

published in 1997, but the second edition did not appear until 2010. Although work is in progress to prepare a third edition, it is likely to be several years before it is published. A more efficient system for revision of the *Standards* should be adopted so the economic content remains valid and current over time.

Testing in Economics

Over the past two decades, three types of economics tests have been used to assess the economic understanding of high school students. The first type is a standardized test that is of higher quality than a teacher-made test as its construction involves extensive measurement work. Its test items are carefully written, revised, and approved by a committee of content and test experts. The test is administered to a large sample of students and these data are used to evaluate the quality of each test item and provide evidence on the reliability and validity of overall test. In addition, the test offers comparative achievement norms.

The *Test of Economic Literacy* (TEL) is an example of a standardized economics test for high school students (Walstad, Rebeck, and Butters, 2013). For this test, multiple-choice test items were written and reviewed by a committee of economists and economic educators. The *Standards* served as a content guide and the items on the two test forms are distributed across all the economic standards. Test data were collected from a national sample of 7,368 students to provide comparative norms and psychometric results on the reliability and validity of the test. Evidence on its usefulness through four editions comes from studies conducted with students and teachers in the United States and other nations (Becker, Greene, and Rosen, 1990; Gill and Gratton-Lavoie 2011; Grimes and Millea 2011; Happ et al. 2021).

The TEL data provides evidence that economics coursework improves the economic understanding of high school students. For students taking basic economics, students score 7 points higher than students without economics coursework. For students in honors or advanced economics the with-and-without difference is 8 to 10 points These differences in TEL scores for the with-and-without economics groups are substantial regardless of other characteristics, such as gender, race and ethnicity, verbal ability and other student or school characteristics. (Walstad, Rebeck, and Butters 2013).[12]

A question sometimes asked about the results from a standardized test such as the TEL is why the score differences are not greater. The reasons are several and related to test construction. First, the time limits for

testing reduces the number of test items administered to students. Second, standardized tests includes many test items that are not too difficult for students so it restricts the range of test scores. Third, the test content may not fully match the content taught to students in their courses. Fourth, the extent of economics content taught to students is limited by the instructional time available in a high school economics course. Fifth, student motivation may affect test performance when a test is not part of a course grade.

A national assessment

The second type of test is conducted by a U.S. government agency to monitor student achievement in public and private schools using data from a nationally representative sample of students. The U.S. Congress established the National Assessment of Educational Progress (NAEP) in 1969. Since then, periodic NAEP studies are conducted in major academic subjects taught in high school such as mathematics, science, reading, history, civics, and geography. Economics was approved as a subject for NAEP in 2001.

The work on NAEP-economics took another five years to complete given the complexity of the test framework, content specification, and other issues (Buckles and Walstad 2009). For the assessment, the *Standards* specified the economics content, but its set of standards were divided into three categories: market economy; national economy, and international economy. Nearly 200 multiple-choice and constructed-response were carefully prepared and pilot-tested to assess student economic understanding.

In 2006, NAEP-economics was administered to a nationally representative sample of 11,490 twelfth grade students (Mead and Sandene 2007). In 2012, another NAEP-economics was conducted with a nationally representative sample of 10,900 students using the same *Standards* framework (National Center for Education Statistics (NCES) 2013).[13]

Table 3 reports the 2006 and 2012 NAEP-economics results at three levels of achievement: *basic*, *proficient*, and *advanced*. Students at the *basic* level demonstrate partial mastery of the prerequisite knowledge and skills that are fundamental for proficient work. Students at the *proficient* level demonstrate solid academic performance by showing competency, including subject-matter knowledge, application of such knowledge to real-world situations, and analytical skills appropriate to the subject matter. Students at the *advanced* level demonstrate superior performance on each test task. A fourth achievement level, *below*

basic, can be added to the three "official" NAEP levels so the percentages of students tested adds to 100. In 2006, 79 percent of high school students showed economics achievement at the basic level or above levels. It rose slightly to 82 percent in 2012.

Insert Table 3 about here

The NAEP results also can be evaluated from a longitudinal perspective as the test scores in each year are based on nationally representative samples. In 2006 the mean score was 150 and in 2012 it was 152, an insignificant difference. A comparison of the three sub scores (market economy, national economy, and international economy) also show no significant difference between the years.[14]

Attaching meaning to this longitudinal outcome is subject to different interpretations (Walstad 2019). The worst outcome would have been a decline in student achievement, but the NAEP results do not show it, suggesting that economics achievement was not likely subject to swings in the business cycle (e.g., the 2007-2009 recession and its aftermath). By contrast, the best outcome would have been for economics achievement to increase, but the NAEP results do not show it either, suggesting that economics achievement probably was not affected by increased emphasis on economics instruction (e.g., state mandates). Perhaps no change is the most reasonable outcome to expect given that economics instruction probably remained the same in most schools, regardless of economic events or variations in the number of students taught.

A college-level exam

The third type of test is a "high-stakes" one taken by students to receive a benefit based on their test performance. A prime example is the Advanced Placement (AP) program administered by the College Board. It gives high school students the opportunity to take a college-level exam on an academic subject and use the test score to obtain college credit and placement.[15]

Since 1989, AP courses and exams in both macroeconomics and microeconomics have been offered to high school students. Students typically prepare for an AP exam by completing the equivalent of a college course in macroeconomics or microeconomics while attending high school. The College Board provides high school instructors with detailed description of the economics content for each course and sample questions and other material to prepare students for the exam.[16] After completing an AP course, students

often take the AP exam related to that course, although they are not required to do so. In 2022, 134,413 students took the AP macroeconomics exam, and 84,386 students took the AP microeconomics exam, which is a 35 percent increase for each exam since 2012. The total number taking the exams is substantial as it is equivalent to 6 percent of the 3.64 million high graduates in 2022.

The demanding AP micro and macro exams consist of 60 multiple-choice questions that is 66 percent of the score and three constructed-response questions (one long and two short) that is 33 percent of the score. AP scores from the two sections of the exam are combined, and then reported on a 1 to 5 scale as shown in Table 4. A score of 3 or better is generally acceptable for receiving college-credit at many colleges or universities. In 2023, only 64 percent of students taking the macroeconomics exam and 66 percent of students taking the microeconomics exam received a score of 3 or better. These results suggest that a score of 3 or better on an AP exam in economics would be equivalent to a course grade of C, C+, or B- or better for students enrolled in a college or university and taking principles of economics courses.

Insert Table 4 about here

Research infrastructure

Tests and assessments provide the "infrastructure" to evaluate student achievement and support research in economic education. That infrastructure has been deteriorating over the past decade. The TEL has long served as a general test for teachers and researchers to use with students, but it was last revised in 2013. Some test items need to be revised and the comparative norming data updated with results from current students. In addition, the last NAEP-economics was conducted in 2012 because in 2019 the National Assessment Governing Board for NAEP eliminated economics from its assessment schedule.

More generally, the availability of valid and reliable measures for assessing the student achievement in economics is essential for the future development of economics within the high school curriculum. These instruments and assessments are useful for evaluating instructional programs and conducting research studies. Moreover, one reason that more research on high school economics was conducted in past decades was because of the availability of research instruments and related data sets (Becker, Greene and Rosen

1990). This research infrastructure was vital for enticing academic economists and other researchers to study topics related to economic education in high schools.

Other Outcomes from Economics Instruction

Differences in the types of courses in which economics is taught can affect student achievement in economics. One study sorted a NAEP-economics sample of 11,400 students into eight discrete categories for use in a regression analysis of course differences (Walstad 2013).[17] Table 5 presents a simple comparison across courses by setting the regression coefficient for an AP economics course or its equivalent at 100 percent and using the other course coefficients to calculate percentages relative to it.

Insert Table 5 about here

The overall results indicate that economics courses contribute to economic understanding, but the more intensive the economics instruction, the greater student achievement. For example, the economics understanding shown by students in an honors economics course is about eight-tenths of an AP economics course. The economic understanding shown by students in a general economics course, taken by the largest percentage of high school students, is about half of that for AP economics. The percentage for students taking a course in government and economics is somewhat lower, indicating some loss in economics understanding in a combined subject course that lasts for a school year instead of a semester.[18]

The NAEP sub scores also are revealing for economics courses. The percentages are highest for the market economy, but lower for the national economy or international economy. This finding is consistent with the content focus in the *Standards*, economics textbooks, and other instructional materials that give primary emphasis to introductory and microeconomic concepts related to the market economy over macroeconomic and international economic concepts.

The NAEP results offer some insights about students taking courses that include economic content but are not economics courses. Students in business or personal finance courses show the lowest levels of economic understanding.[19] Neither course is a substitute for advanced or regular economics courses based on the economic understanding shown by students, although the content taught in the non-economics courses can complement or reinforce what is taught in economics courses. Moreover, sub scores for the

national economy and international economy are especially low in business and personal finance courses as any economics instruction they provide focuses on basic concepts related to the market economy.

Content Integration

All courses taught in the social studies curriculum (see Table 3) have the potential to contribute to students' economics understanding through the integration of economic content in that course. For example, students in a U.S. history course can learn economics, if good instructional materials are used to teach the economics and a teacher has a solid understanding of economics (Neiderjohn and Schug 2008). In most cases, however, the conditions are far from ideal. Social studies teachers often are not well prepared to teach economics and may not be interested in teaching it. Instructional materials and textbooks may give inadequate treatment to economics content. Adding economic content to a social studies course may crowd-out other content that teachers view as more important. These general problems with the integration of economics in other high school subjects have long been recognized (Walstad and Watts 2015).[20]

Over the past decade or so, an opposite development has occurred with content integration. By 2022, 14 states had a requirement for the integration of personal finance into another course (CEE 2022), most likely economics (Urban, et al 2020). There are some reasons to be optimistic about this development. Economics concepts are important for teaching many topics in personal finance, so it is relatively easy for economics teachers to combine economics with personal finance instruction (Bosshardt and Walstad 2014). Topics in personal finance often are taught as short units so they can be conveniently integrated. It should not be surprising, therefore, that several research studies show significantly improved financial knowledge among high school students taught with a unit in personal finance within an economics course (Walstad, Rebeck, and MacDonald 2010; Gill and Bhattacharya 2019).

One research question that remains, however, is what is possibly lost from teaching personal finance within an economics course. Although several studies have investigated this question, each one has its limits. One study reported no differences in economics test scores between economics students taught in courses with and without a unit in personal finance unit, but the 8-item test did not measure fully the economic understanding might have been crowded out (Gill and Bhattacharya 2019). Another study

reported mixed findings, but the results were based on a retrospective test and survey data collected from college students at one university (Day, Nunes, and Sultanum 2022). More research would be worth conducting to investigate this complex issue before any firm conclusions is drawn.

AP economics

A few studies related to coursework in AP economics show it may produce other outcomes in addition to an increase in student achievement. Clark, Scafidi, and Swinton (2012) found that students who took an AP course in high school scored significantly higher on a "high stakes" end of course test in economics required for all Georgia students compared with a matched sample of students who attended high schools that did not offer AP economics. A study by Gill and Gratton-Lavoie (2011) reported that college students who had taken an AP or honors economics course in high school and had completed some college courses retained most of the high school level of their economic understanding as measured by TEL scores.

More positively, Ahlstrom (2021) found that high school students who took both the AP macro and micro exams were significantly more likely to major in economics compared with non-AP students who took their principles of economics course exams while in college. This study also reported that higher scores on the AP micro exam appeared to contribute to a greater probability of majoring in economics, and higher scores on both AP exams greatly increased the probability of completing the economics major.

Longitudinal outcomes

Studies using data from national surveys have assessed whether high school economics has a lasting effect on the economic knowledge of adults (Walstad and Rebeck 2002; Grimes, Rodgers, and Bosshardt 2021). This analysis, however, is complicated given differences in the life paths. For example, the effects of high school economics coursework on adults can differ based on whether adults only took a high school course or whether adults took a high school course, and later took a college economics course. In the latter case, the effects of college economics may override the positive effects of high school economics, making it challenging to draw strong conclusions about the lasting impact of high school economics.

National survey data also have been used to assess the effects of economic understanding on economic opinions or financial behaviors. Walstad and Rebeck (2002) found that greater economic knowledge was

associated with positions on economic issues often adopted by economists. Grimes, Rodgers, and Smith (2010), using a low-income sample of adults who were banked and unbanked, found that greater economic understanding was associated with a lower probability of being unbanked. Grimes, Rodgers, and Bosshardt (2021) found that more economic knowledge was associated with fewer late payments on mortgages, credits cards, and auto loans. It is also difficult in these studies, however, to isolate the specific source of the economic understanding, as it could come from high school education, college education, life experiences, or some mixture. The results suggest that economic literacy is associated with opinions and behaviors, but the source of that economic literacy remains a mystery.

Related research has been conducted on the influence of state mandates for financial education in high school on the financial behaviors of young adults, but that research has a connection to economics instruction. Urban, et al (2020) reported that receiving required financial education in high school was associated with fewer defaults and higher credit scores for young adults soon after graduating from Georgia and Texas high schools. The financial education unit was taught, however, was within a required semester economics course. Although the study associates the long-term effects solely with financial education, the economics instruction received may be associated with these positive financial outcomes.

Teacher Preparation and Supporting Organizations

In theory, the preparation of teachers to teach economics content in high schools should begin with undergraduate coursework in economics they receive as part of their university education to become a certified teacher. In practice, however, such training is relatively minimal for social studies teachers, who are most likely to have responsibilities for teaching high school economics, either as a standalone course or by integrating economics in other social studies courses.

Table 6 shows the average number of economics courses and credits taken by high school teachers who are certified to teach social studies based on an analysis of college transcripts from the Baccalaureate and Beyond data set (Bosshardt and Walstad 2019). Most social studies teachers are not academically prepared in their undergraduate education to teach economics. Some 19 percent of these teachers took no economics coursework in their college education. Among the 81 percent who did take economics coursework, the

average was only 1.4 courses in economics. This amount of coursework represented only 7.5 percent of the total social studies credits they earned (4.38/58.14), on average. Teachers certified to teach social studies are far more likely to earn undergraduate credits in history (23 credits) or other social studies courses (35 credits) than they do in economics (4.38).[21]

Insert Table 6 about here

The undergraduate coursework in economics of future social studies teachers shows minimal change over several decades (Bosshardt and Watts, 2005; Bosshardt and Walstad 2019). It is not likely to change in the future given that the focus of undergraduate education in social studies is on history, government, or other social sciences. This situation means that in-service education for certified teachers provided by universities and other organizations (see next section) becomes essential for improving the economics preparation of teachers for classroom instruction in high school. Unlike required undergraduate courses in economics, however, the in-service courses and programs only serve teachers who volunteer to participate.

The reason for the focus on coursework in economics for teachers is that past research shows it is essential for improving the economic understanding of high school students**.** One study found that high school teachers who were above average in improving student test scores earned more economics credits than teachers who were average or below average in improving students' test scores (Bosshardt and Watts 1990). Another study reported that the greatest increase in economic understanding among high school teachers of economics came in the third year of coursework in a master's degree program in economics, and it was associated with improved economics learning among their students (Allgood and Walstad 1999). Without some formal training in economics for teachers, economics instruction for students may become based on ad hoc economics explanations, narrow or extreme themes, and personal opinion.

In-service workshops for teachers that mix economics content with pedagogy appear to improve economic education, if the in-service education is reinforced through participation multiple times. Studies of teachers' attendance at in-service workshops in Georgia reported positive and significant improvement in the test scores of their students on a required end-of-course exam in economics once teachers had attended at least three workshops (Swinton et al. 2010; Swinton, Scafidi, and Woodard 2012). A Nebraska

study found that more in-service credit hours in economics earned by teachers significantly increased the economics test scores of high school students, but only among those teachers with 19 or more in-service credit hours (Butter, Asarta, and Fischer 2011).

Another reason that teachers are an important topic for research in economic education is that they often decide what curriculum materials and instructional methods to use with students. A few studies have investigated these decisions since 2000. For example, one study found that a specialized curriculum on monetary policy appeared to be more effective than a traditional curriculum, but that the results varied based on whether multiple choice or essay was used as the assessment method (Lopus and Hoff 2009). Another study investigated the difference between problem-based learning and traditional lecture-discussion approaches in teaching macroeconomics in high school and reported mixed results based on the differences among teachers (Maxwell, Mergendoller, and Bellisimo 2010). More research would be worthwhile on how teachers' decisions and practices affect student outcomes in economics.

Support from Organizations

Different organizations have sought to enhance the preparation of teachers in economics in two major ways. The first is through opportunities for professional development so teachers can improve their economic understanding of current economic issues and their expertise in teaching economics. The second is to offer instructional resources for teachers to use to engage students when teaching various economic topics. Academic economists and experienced economic educators typically are responsible for providing the teacher training and developing the instructional materials in programs offered by these organizations.

The three most prominent national organizations with the longest history of sustained work in providing opportunities for professional development and instructional resources for high school teachers are the Council for Economic Education (CEE) and several allied organizations, the Federal Reserve System (FED) through its regional Federal Reserve Banks, and the Foundation for Teaching Economics (FTE).[22] For brevity, the exposition that follows focuses on just these three as each is sufficiently different to provide context. This short list, however, is not exhaustive as other organizations are doing important work.[23]

The CEE is the organization with the longest history, and the one with the most complex structure given its arrangements with allied organizations. The CEE has been operating since 1949 under various names as a nonprofit, nonpartisan organization to promote economic education in the nation's schools, although in recent years that goal has expanded to include advocacy for personal finance education in the schools.

The CEE seeks to achieve those goals through the projects and publications it funds, with the development work done by economists or economic educators. It funded the development of the *Standards* for economics and one for personal finance. It publishes instructional materials on specialized topics such as handbooks for AP economics or a curriculum on Ethics, Economics, and Social Issues. It offers national competitions in economics and personal finance for high school students, and hosts an annual conference for teachers. It conducts virtual and in-person professional development for teachers.

Working with the CEE is a decentralized and independent network of 29 state councils for economic education and 126 centers for economic education.[24] The state councils raise funds and manage their own programs across a state. The centers often are located at a university and directed by an academic economist or trained economic educator. The centers offer professional development to teachers either for graduate credit or non-credit. The center director also can conduct special programs for high school students, provide assistance to school districts, prepare curriculum materials, and conduct research projects.

In addition, the CEE works with the National Association of Economic Educators (NAEE). Its membership draws from economic educators at state councils, university centers, the FED, and members of other organizations seeking to improve economic education and financial literacy. NAEE conducts an annual conference, provides professional development for economic educators, and serves as an advocate for education in economics and personal finance.

The second major organization is the FED. It also offers professional development virtually or in-person for teachers at many of the regional banks and provides instructional resources for teachers. The focus of its educational work often is on monetary policy, although FED training and materials can cover a broad range of economics content. For example, the Federal Reserve Bank of St. Louis created a platform called Econ Lowdown that houses hundreds of economics lessons for teachers to use. Its learning management

system allows teachers to assign lessons to students and assess their understanding of economics content. Other FED banks provide lessons and activities, infographics, economics videos, reading assignments, and other valuable resources to teach economic content.

The third organization is FTE. It is different from the CEE and the FED in that its primary purpose is to provide intensive teacher education primarily for social studies teachers who either teach economics directly in a separate course or want to integrate economics into other courses. Its Economics for Teachers program provides economics training and instructional resources for teachers who are in residence at the workshop site for a week. Often the attendees at the workshops are new teachers with little to no training in economics. Additionally, short in-person and virtual workshops are offered throughout the year in cooperation with state councils and centers for economic education. Teachers can earn optional graduate credits for participating in the workshops and online programs.

Implications and Conclusion

This review revisits the topic of economic education in U.S. high schools to assess its current condition and considers changes that have occurred since the last review was written several decades ago. In some ways the changes over time are minor and in other ways they are major. Both types of deserve more explanation as they have implications for the future of economic education.

The current condition of economics coursework in U.S. high schools is relatively sound and has not changed substantially over the past few decades. Economics has an established place in the school curriculum as a half-year standalone course or its equivalent that is taken about 60 percent of high school graduates. The economics courses cover a broad range of microeconomic, macroeconomic, and international economic concepts. The textbooks and other instructional materials for economics courses contain sound economic content when compared with national standards. Studies from the National Assessment of Educational Progress (NAEP) in economics show that most high school students have a basic or proficient level of economic understanding that did not change over time.

Differentiation in the economics coursework is based on the interest and ability of the students. If high school students take an economics course, the great majority do so in general or basic courses in economics,

although some other options are available. An advanced or honors course in economics is more likely to be taken by higher ability and college-bound students. Advanced or honors courses may or may not be taught as a college-level economics course for these high school students.

Some college-level courses taught in high school are Advanced Placement (AP) courses in microeconomics or macroeconomics, or some other college-level course such as those ones for the International Baccalaureate. In AP courses, students can take an AP exam after their economics coursework and use an acceptable score to obtain college credit or receive improved college placement. Scoring well on an AP exam, however, is not an easy task as not all high school students take an AP course and among those students who do, only about two-thirds receive an acceptable passing score. One major positive development with the AP exams in economics is that the number of high school students taking them has increased dramatically in the past decade (up by 35 percent from 2012 to 2022).

One major change over the past decade has weakened the position of economics in the school curriculum. More states are requiring instruction in personal finance, either in a required standalone course or as a requirement that coursework be integrated into another course. This change can crowd-out economics instruction. A state requirement for a standalone course in personal finance can replace a state requirement for an economics course. Similarly, a state requirement to integrate personal finance content in another course can limit economics instruction if the other course is economics. In fact, economics is the most likely target for integrating personal finance coursework given the perceived overlap in economics and personal finance among the public and state legislators.

The worst option would be for a required course in personal finance course to replace a required course in economics. The reason is that that a course in personal finance is not a substitute for an economics course. Research shows that students in a personal finance course have a low level of economic understanding. This outcome is not surprising as personal finance courses include only a few economic concepts, and thus exclude coverage of important concepts in microeconomics, macroeconomics or international economics.

Perhaps the integration option is the best one to adopt when a requirement for more personal finance coursework might replace an existing requirement for an economics coursework. Research indicates that

units in personal finance can be taught effectively within an economics course and economics teachers may have better preparation for teaching this content as an application of economics. How much economic understanding is lost is unknown, but it may be minimal if the personal finance instruction reinforces or augments understanding of some basic economic concepts.

Another adverse change over the past decade is the decline in research infrastructure that supports assessment in economic education. The National Assessment Governing Board for NAEP eliminated economics from its assessment schedule in 2019. The *Test of Economic Literacy* that is widely used by teachers, schools, and researchers is over a decade old and needs revision. New instruments need to be developed to assess other outcomes from economics coursework and use different testing formats.

Without current assessment data or valid and reliable measures it is difficult to monitor student achievement, evaluate instructional programs, or conduct research studies. The availability of data sets and research instruments also is central for attracting and retaining talented university or institutional researchers for studying different topics and issues. That strategy was highly successful for stimulating research in economic education in high schools in past decades (Becker, Greene and Rosen 1990).

The amount of organizational support for economic education has diminished with the shift in national attention to personal finance. Perhaps better coordination among the various organizations with an interest in economic education would lead to cooperative activity and funding so that no one organization has the full responsibility for new projects. Economic education in high school is too important for organizations and the nation to neglect, as it is essential for the development of economic literacy among youth and adults.

To end this review it is worth remembering where it started. As time and circumstances change, the case for economic education in high schools requires new support from economists. If the current generation of economists fails to continue to make the case for economic education, as past generations of economists have done, no one else is standing in line to do it for them.

Endnotes

[1]For discussion of the NTF report and developments based on its recommendations, see Walstad (1992).

[2]Only about 66 percent of high school graduates enroll in colleges and universities (Irwin, et al., 2021, p. 22), and among those who do, only about 40 percent eventually complete one university course in economics (Siegfried and Walstad, 2014).

[3]Federal Reserve Chair Jerome Powell held a town hall with teachers and emphasized the importance of economic education. https://www.kansascityfed.org/ten/economic-education-news-in-the-10th-district/

[4]The AEA website has a section to attract majors: https://www.econopensdoors.org/home The AEA has no formal program to support economic education in the schools, although its Committee on Economic Education does occasionally conduct sessions on the topic at AEA conferences.

[5]A review was written in the intervening years, but its purpose was different. It discussed developments in economic education across all grades and described instructional resources (Walstad and Watts 2015).

[6]The correlation is 93 percent between the two series from 1982 to 2009 indicating that a count of state mandates is useful for estimating trends in transcript data. Mandated economics courses, however, vary considerably from state to state, so they are not without interpretation problems beyond their use for this correlation. The heterogeneity is evident in state legislation, course titles, content coverage, and the content emphasis in mandated courses (Walstad and Rebeck 2012).

[7]All data in Table 1 come from 2009 transcript data. As was the case with economics, there is no good reason to suspect that the transcript data have changed much since 2009 especially for courses with already high levels of course taking such as U.S. history, world history, or government, civics and politics.

[8]Data are available on the grade distributions for college-level courses taught in high school for economics and other subjects (Rebeck and Walstad 2015, Table 4). Those data are not reported for brevity, and because the smaller sample sizes and course selection issues make comparisons less meaningful.

[9]For online examples, search for "state standards for teaching economics."

[10]For a copy see: https://www.councilforeconed.org/policy-advocacy/k-12-standards/

[11]CEE (https://www.econedlink.org/) Federal Reserve (https://www.federalreserveeducation.org/) FTE: (https://www.fte.org/teachers/teacher-resources/) Econiful (https://econiful.org/) NAEE (https://naee.net/)

[12]As further evidence, Gratton-Lavoie and Gill (2009) pretested and posttested a sample of high school students in one California county using a previous edition of the TEL. Their results showed a significant increase in TEL scores for all economics students, whether in a general economics class or an AP or honors class, although there was a greater improvement among students in the more advanced classes.

[13]A third NAEP in economics was scheduled for 2022, but it was cancelled due to budget cuts. No future economics assessment is included in NAEP plans.

[14]NAEP data explorer provides data for making comparison of scores between the two years. (https://www.nationsreportcard.gov/ndecore/landing)

[15]Information on the AP program is at: https://ap.collegeboard.org/. The International Baccalaureate (IB) is another example of a college-level program in economics (https://www.ibo.org/). The discussion that follows focuses on AP economics as it has the longest history in U.S. high schools.

[16]Information on AP economics courses and exams is at: https://apcentral.collegeboard.org/courses/ap-macroeconomics or https://apcentral.collegeboard.org/courses/ap-microeconomics

[17]This study was conducted because the coursework variable (ECNCRST) at the NAEP website was not credible. For example with the 2006 data it show minimal difference in scores (153 for advanced economics, 151 for general economics, and 151 for no economics).

[18]For brevity, a discussion of "other economics" is omitted. It represents a small percentage of the total sample and includes an assortment of courses on special economics topics that widely differ.

[19]A positive development that students in a standalone personal finance course appear to learn some economics, as research in past decades showed no contribution (Walstad and Soper 1988).

[20]Although four states have adopted integration as their required way to teach economics (CEE 2022), it is questionable whether much economics is learned with this requirement.

[21]Somewhat greater preparation in economic is shown by teachers whose undergraduate majors was in business. Their undergraduate coursework in economics average 2.62 courses or 8.25 economics credits. (Bosshardt and Walstad, 2019, Table 2). This difference may help explain why students taking business courses show some amount of economic understanding (see Table 5).

[22]CEE (https://www.econedlink.org/) Federal Reserve (https://www.federalreserveeducation.org/) FTE: (https://www.fte.org/teachers/teacher-resources/)

[23]Econiful, for example, is a relatively new organization that provides virtual and in-person professional development for teachers and instructional resources in student lessons and activities (https://econiful.org/).

[24]In 2000, there were 47 state council and 260 centers for economic education (Walstad 2001). The change from 2000 to 2022 suggest that the delivery system for teacher economic education across the states has declined. It is probably due to a decline in support from universities that often housed a state council or university center and fund some personnel.

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Table 1: Percentage earning minimum credits (0.5 or 1.0)
in selected history and the social sciences by course type, 2009

Economics (0.5)	56.7
U.S. History (1.0))	94.2
World History (1.0))	81.4
U.S. government, civics, politics (0.5)	84.3
Psychology or sociology (0.5)	38.5
Geography (0.5)	28.8

Source: Walstad and Rebeck (2012 Table 4, p. 345).

Notes: One credit (1.0) is equal to a single class period (45 to 60 minutes in length) once per day for an academic year. A half credit (0.5) would be the equivalent of a half-year or semester course.

Table 2: Grade Distribution of High School Graduates Who Took Basic Economics and other selected courses, 2009.

	As	Bs	Cs	Ds	Fs
Economics	30.6	35.7	24.3	9.3	0.1
Social Studies					
Psychology	38.5	35.2	17.1	6.9	2.3
American Government	30.2	34.3	24.4	9.3	2.0
World Geography	28.7	36.7	23.4	7.5	3.7
World History	27.5	35.4	23.8	9.5	3.7
American History	25.6	33.7	25.5	11.4	3.9
Other Courses					
Algebra 1	18.1	29.3	28.5	14.8	9.4
Biology 1	19.8	31.9	29.4	13.1	5.9
English 1	22.5	35.4	26.6	10.8	4.7

Source: Rebeck and Walstad (2015, Table 2).

Table 3: NAEP Results by Achievement Level, 2006 and 2012

Achievement level	2006	2012
Below basic	21%	18%
Basic	37	39
Proficient	39	40
Advanced	3	3

Source: Brent and Sandene (2007) and NCES (2013).

Table 4: AP Scale and Scores for 2023 Economics exam

AP Score	AP recommendation	College Course Grade Equivalent	Macro (percent)	Micro (percent)
5	Extremely well-qualified)	A+ or A	16	18
4	Well qualified)	A-, B+, or B	23	26
3	Qualified	B-, C+, or C	25	22
2	Possibly qualified	-	22	21
1	No recommendation	-	14	13

Source: https://apstudents.collegeboard.org/about-ap-scores/score-distributions

Table 5: NAEP economics score differences by course type (n=11,400)

Course type	Sample (in percent)	Scores relative to AP economics (=100)			
		Overall	Market	National	International
AP economics	5.3	100.0	100.0	100.0	100.0
Honors economics	5.5	79.1	86.0	83.1	83.1
General economics	42.3	48.4	57.0	47.1	47.1
Gov. & economics	8.9	43.2	47.8	41.6	41.6
Other economics	2.5	37.1	39.1	39.5	39.5
Business	3.6	32.8	40.0	26.5	26.5
Personal finance	4.8	24.8	29.5	21.1	21.1
No economics	27.1	0.0	0.0	0.0	0.0

Source: Walstad (2013, Table 1)

Table 6. Undergraduate economics courses and credits for teachers certified in social studies

Highest grade taught:	Econ course count	Econ credits	Proportion with no economics	All social studies credits	History credits	Other social studies credits
High School	1.40 (0.17)	4.38 (0.52)	0.19 (0.05)	58.14 (3.40)	23.04 (2.61)	35.10 (3.13)

Source: Bosshardt and Walstad, 2019, Table 3.

Note: Standard errors are in parentheses