

**Economics in the K–12 Curriculum:
Coursework, Content, and Research**

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(November 9, 2011)

Paper prepared for the “Planning Meeting on Teaching Social, Behavior, and Economic Sciences in K–12 Education” conducted by the Division of Behavioral and Social Science and Education, National Research Council, The National Academies.

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Perspectives on Economics in the School Curriculum:

Coursework, Content, and Research

Economists have long been interested in teaching economics in elementary and secondary schools and in strengthening these efforts based on research and evaluation studies—assuming the studies show that economics can be taught effectively to students this young. The large body of work on economic education is mostly discipline-specific and discipline-inspired, and typically employs the standard econometric methods used across nearly all subfields of economics, so as those methods and professional standards change over time that change is soon reflected in the research on economic education. Much, and probably most, of this research deals with undergraduate or even graduate level coursework or the teaching of economics, largely because researchers usually have easier access to data at those levels. But precollege economic education has drawn a lot of attention, too, and since the 1960s the work that has been conducted at the secondary and, less often, elementary grade levels has been reviewed in numerous survey articles and edited volumes (e.g., Bach 1961; AEA 1963; Bach and Saunders 1965; Wentworth, Hansen, and Hawke 1977; Schug 1985; Walstad and Watts 1985; Becker, Greene, and Rosen 1990; Walstad and Soper 1991; Watts 1991, 2006; Walstad 1992, 2001; Watts and Walstad 2011).

Our first objective in this paper is to build upon the substantial body of past work by describing the current conditions for the teaching of economics in the kindergarten through twelfth grade (K–12) curriculum. We also believe it is important to summarize what economic content is important to teach to precollege students, both in separate courses in economics and when economics is taught as part of other subjects such as language arts, mathematics, science, history, civics or government, and business. We then highlight a few key research topics and discuss some of the research findings. With this background and perspective, we conclude with some rather stark “implications” of the current initiatives to establish core standards that may or may not include economics and some of the other behavioral and social sciences. We think the stakes are unusually high and different from what they were under earlier national policy reforms in K–12 education.

1. Coursework and Curriculum Issues and Trends

Economics is typically taught as a separate course in the social studies curriculum of U.S. high schools. It is also occasionally taught in the business studies curriculum, sometimes as business economics. In the United States, unlike some other nations (such as the UK), the business studies track is often taken by students who do not plan to go on to college, and so one reason why economics is in the social studies track is to make it part of the college preparatory curriculum. A typical course sequence in the social studies curriculum in U.S. high schools has students taking a year of civics in ninth grade, a year of world history or world studies in tenth grade, and a year of United States history in eleventh grade. In the twelfth grade, U.S. students usually have the option of enrolling in two semester-length courses from a set of possibilities that typically includes economics, government, psychology, sociology, or other subjects. There is variation in this sequence, however, and some schools, school districts, or even states offer economics in grades nine to eleven.

Many states and some local school districts have made economics a required course for graduation (CEE 2009). Table 1 reports 2009 data collected for the U.S. Department of Education's most recent High School Transcript Study (HSTS), showing the percentages of high school graduates who took economics and other social studies courses. History courses clearly dominate the social studies curriculum, with 97 percent of high school graduates taking one *year* of American history and almost 80 percent of graduates completing a one-year course in world history. A one-semester course in government, politics, or civics is completed by 86 percent of graduates, with the one-semester economics course next at 59 percent. That is followed by the 40 percent who take either a one-semester psychology course or sociology course. A separate one-semester course in geography is taken only by about 26 percent of high school graduates, although geography is frequently taught as part of other social studies courses or at lower grade levels.

Enrollments in economics courses in public and private high schools have increased significantly over the past three decades. In 1982 only about 24 percent of high school graduates took a separate course in high school economics. By 1990 about 49 percent of high school graduates took an economics

course and by 2009 the percentage had grown to 59 percent. The key reason for the relatively high enrollments in separate economics courses is the number of states requiring an economics course for graduation. In 1982, only seven states mandated a course (Alabama, Arizona, Georgia, Louisiana, Oregon, South Carolina, and Tennessee); by 1990 another eight states had mandated some form of an economics course (*add*: California, Florida, Idaho, New Hampshire, New York, North Carolina, Texas, and West Virginia). Mandates in these states remained in effect through the mid-1990s, but in the late 1990s they were rescinded in Arizona, Oregon, and West Virginia. By 2009, however, another nine states had some type of economics mandate (*add*: Arkansas, Indiana, Michigan, Mississippi, New Jersey, New Mexico, South Dakota, and Virginia, plus a re-adoption by Arizona), bringing the number with mandates to a total of 21 (CEE 2009). The student enrollment in those states accounted for about 61 percent of high school graduates in 2009, an estimate which is about the same as the 59 percent of graduates counted as taking an economics course based on transcript analysis.¹

The conclusion from both transcript and state mandate data is that about six in ten high school students take a separate course in economics. This percentage increased significantly over the past three decades and is relatively high compared with most other courses in the social studies curriculum, except history and government/civics/politics. The glass, however, can also be seen as half empty rather than half full, because four in ten high school graduates receive no formal instruction in economics in a separate course, and given the high number and share of students who drop out of U.S. high schools before graduation (both in absolute terms and compared to dropout rates in other high income nations), that problem is even more severe. These students must receive opportunities to learn economics in other ways, if they are to receive any formal precollege instruction in economics. And even for the students who take a one-semester high school course in economics—almost always because they were required to take the course and not because they self selected into the class—it is difficult to believe that a single, short course is adequate life preparation in economics or, for that matter, in any subject that entails analytical thinking and critical thinking about complex issues that are regularly affected by unexpected changes in institutions, technology, and social events at the local, national, and international levels.

Fortunately, economics is almost certain to come up at different points and in different kinds of courses in the K–12 curriculum. First, there are combined courses that explicitly feature economics content and instruction, such as “government and economics.” In 2005, 15 percent of U.S. high school graduates completed courses with that general title, although it is often not clear whether these courses were taught for a full year or just one semester. Second, courses in “consumer economics” or personal finance are sometimes taught either in the social studies or in the business or career education sections of the school curriculum. However, enrollment in consumer courses was only about seven percent of high school graduates in 2005—perhaps because these are usually elective courses and are usually not considered as academically rigorous as a traditional economics course. Third, courses in general business studies with a wide range of titles—such as introduction to business, cooperative business education, business and office education, entrepreneurship, and business and management—often include lessons and even textbook coverage of basic concepts in microeconomics. But again, enrollments in these courses stood at only about eight percent of all high school graduates in 2005.

Economics can also be taught as related or background material by infusing economics instruction—at least implicitly if not explicitly—in a wide variety of other courses. In fact, in many secondary courses, including U.S. and world history, civics, geography, and environmental studies, economists and economic educators usually see it as a self-evident truth that economic concepts and issues will inevitably play a key role. That is clearly reflected in the standards developed in many of these subject areas (Buckles and Watts 1998). Put differently, in this group of “related” subjects the question is not really *whether* economics will be taught, but only *how well (or not)* it will be taught, given such factors as the classroom teacher’s understanding and training in teaching economic concepts and issues, and the depth and breadth of economics coverage in the textbook and other instructional materials and activities with which students and teachers have to work.

Math and language classes at the secondary level can use economic concepts and issues to provide “real world” examples and applications, making course content more memorable and obviously important and motivating to students. For example, algebra teachers can have students read a short “word

problem” and then plot and solve a simple set of simultaneous equations to determine the equilibrium market price and output levels for a good or service rather than solving for a pair of coordinates in abstract number space. And then a shift in one or both equations can be used to show how that affects the solution, at the same time preparing students to predict the consequences of such things as a change in consumer incomes or a rise in the price of the cost of steel on the market price of automobiles. High school English teachers can use Robert Frost’s short poems, “The Road Not Taken” and “Mending Wall,” to discuss the ideas of choice, opportunity costs of choices, and property rights—or they can use dozens of other readings on dozens of other concepts and issues from the anthology *The Literary Book of Economics* (Watts 2003). A new web site on art and economics is now available that provides similar examples of using hundreds of paintings and drawings to illustrate economic concepts and issues (Watts 2011). Elementary teachers can teach economics in language arts, math, and social studies classes, too, using instructional materials from commercial publishers and nonprofit groups such as the Council for Economic Education, or drawing on articles that identify economics content across the works of major writers of children’s literature, such as Dr. Seuss (Miller and Watts 2011).

Perhaps the fundamental argument for infusing economics instruction in other courses or units in elementary and secondary schools is a variant of the phrase that is regularly heard in every Presidential election year: “It’s the economy, stupid.” In today’s world, economics is simply too important to ignore in the daily news or in the K–12 curriculum, and too important to wait to cover or to only cover in a one-semester, grade 12 course. As the Nobel laureate George Stigler once wrote “In the best of all worlds it might be desirable to have musical or theological literacy, but in ours the public wants to talk about money” (Stigler 1970, 8). Not surprisingly, then, especially during the recent “great recession,” precipitated and sustained by a series of global financial crises and the U.S. housing bubble, one special variant of the infusion approach to teaching economics is that many individuals and groups are calling for stronger infusion of personal finance topics and issues with economic education, or in some cases substituting class time away from traditional economic concepts and topics to do more in the area of personal finance. There is more limited research by economists and economic educators on the

effectiveness of personal finance education programs than general economic education initiatives at the precollege level, but some national studies have been able to exploit differences in state curriculum requirements related to personal finance through links with post-graduation behaviors, and in recent years more of the traditional articles relating classroom instructional programs and materials to student learning of personal finance, using standardized evaluation instruments, have been published.²

Although net substitution away from basic economic content could happen with the teaching of personal finance or courses in other subjects, at least in theory, and especially in a subject such as economics, which secondary students are not likely to take for a full year, the infusion approach in earlier grade levels could serve instead as a net complement for both economic education in general, and for the one-semester secondary economics course in particular. Seen from this perspective, a major benefit of infusing economics in elementary and middle school education is that students have an opportunity to learn basic economics to prepare them for a “capstone” economics course taught in high school. That has been recognized in state legislation encouraging the teaching of economics in various subjects in elementary and secondary grades. In 2009, 44 states had standards, guidelines, or proficiencies for teaching economics in various grades of the school curriculum and 34 of these states required implementation of the content standards (CEE 2009). These requirements vary considerably in structure and detail across states, however, and probably even more by implementation procedures that are set at the school district level and, of course, by differences across districts and states in student, teacher, and school quality. Strong incentives to feature or, conversely, to downplay economics instruction are also inevitably established when states decide whether or not to include items on economics in annual testing and assessment programs. In 2009, 19 states used tests that included some economics items (CEE 2009).

2. Economics Content

Guides on what economic content to teach at the precollege level, written by prominent economists and economic educators, have been periodically published and debated for at least 50 years now. The primary purpose of these guides is to describe for school teachers, school administrators, and developers of educational materials the core or essential knowledge of economics that high school

students should possess by the time of graduation. The guides also emphasize an analytical or problem-solving approach for teaching about and discussing economic topics or issues in the classroom. This guideline work for economics began in 1961 with the publication of the National Task Force report on economic education. It was replaced in the late 1970s with the *Framework for Teaching Economics: Basic Concepts* (Hansen et al. 1977). The *Framework* was subsequently revised in the mid-1980s (Gilliard et al. 1988) and early 1990s (Saunders and Gilliard 1995). The movement to national standards in K–12 education during the 1990s led to the development of *the Voluntary National Content Standards in Economics* (hereafter *Standards*), first published by the Council for Economic Education (CEE) in 1997, and recently revised for a second edition (CEE 2010).

While there have been some relatively minor updates in the content endorsed for inclusion in the K–12 school curriculum across these guideline documents, there has been considerably more change in the format and structure of the documents, and far more “fleshing out of details” about when in the curriculum it is feasible or effective to introduce some concepts, or different aspects of different concepts and economic issues. Any U.S. academic economist who looks at these documents will be quickly struck by how similar they are to typical content coverage in college and university principles textbooks—or at least to the one-semester version of principles that covers both microeconomics and macroeconomics. In fact, Hansen, Salemi, and Siegfried (2002) also have argued that the voluntary standards in economics are the best available “short list” of what economics content should be covered in college-level principles courses, thus completing this content circle starting at either point and moving in either direction—from college to high school or from high school to college—depending on the perspective.

The format changes across these guidelines sometimes reflect new ideas about learning theory and pedagogy, or in public policy reforms related to the general performance and measurement of educational outcomes and effectiveness in the schools.³ Occasionally those educational reforms are driven by research findings suggesting that some approaches are better than others, but more often they seem to be driven by a general dissatisfaction with current outcomes and educational and/or political incentives to “do something different” because current approaches and results are unsatisfactory. Some

of the educational changes and policy initiatives are simply faddish, and not well supported by empirical research and evaluation studies.⁴

The current version of the economics *Standards* stands as the most important and influential set of concise content statements about what economics should be taught in elementary and secondary schools. Each of the 20 standards offers a basic principle or proposition of economics that is grounded in a key concept. Each of these 20 items is followed by a short rationale written in nontechnical language, and then “benchmarks” by grade level suggest how far along students should be in mastering the concept and standard by grades 4, 8 and 12. The 20 concepts and standards are listed in Table 2.

The content debate also has continued within the discipline. Hansen (1998) and others raised questions about the first edition of the *Standards*, which led to some minor changes in the second edition, perhaps most notably the addition of the key concept that is now provided before each of the 20 standards, making the link to earlier/pre-standards curriculum guidelines more transparent and explicit. A panel discussion at the American Economic Association meetings in January 2012, to be published in the *Journal of Economic Education*, will focus on the second edition of the *Standards*. It should be noted, however, that significantly less discussion takes place across disciplines taught in the K–12 curriculum, not only in terms of content and overlap or conflicting views of what students should learn, but probably even more important on how, in practice, schools and teachers are supposed to put all of the guidelines from the different academic disciplines together and teach all that content in the time that is available during the K–12 curriculum. We will have more to say about this issue in the final section of this paper.

3. Research

The literature reviews on research in economic education cited at the beginning of this paper cover a wide range of topics, but here we focus on only three: (1) Assessment—nationally normed test instruments in economics and how they have been used to measure outcomes from economics instruction at different grade levels in a separate economics courses or through infusion; (2) Teacher coursework in economics and economic education—the key role that the teacher plays in K–12 economic education and, in particular, the effect of teacher coursework and training on the economic understanding of students;

and, (3) Instructional materials and methods—can instructional materials complement or perhaps even substitute for instructor selection and training in economics programs?

Assessment. The first nationally normed, standardized test in economics was developed by Science Research Associates for the then Joint Council on Economic Education (now the Council for Economic Education) and published in 1964. It was primarily aimed at use in high school economics and social studies courses, and led quickly to the first major group of empirical studies on levels of student learning in these courses and grade levels, and to factors related to that learning—including teachers’ training in economics and the effectiveness of various instructional materials and methods. The high school exam has been updated several times—the current version is the *Test of Economic Literacy* (TEL) (Walstad and Rebeck 2001),⁵ which is published by the CEE and based on the economics content presented in the *Standards*. The CEE also publishes two other standardized economics tests for lower grades: the *Test of Economic Knowledge* (TEK) (Walstad, Rebeck, and Butters 2010a) for eighth and ninth grades and the *Basic Economics Test* (BET) (Walstad, Rebeck, and Butters 2010b) for the fifth and sixth grades. The psychometric data and materials developed for all of these tests show them to be valid and reliable measures for assessing the economic understanding of elementary and secondary students.

A major recent development reflecting the growing importance of economics in the school curriculum was the development of a National Assessment of Educational Progress (NAEP) in economics (Buckles and Walstad 2008). The *Standards* were again selected as the primary reference/source in establishing the content framework for this NAEP test.⁶ To a notable degree, the NAEP in economics addresses several important limitations of the TEL and other standardized multiple choice tests in economics: it includes constructed-response items in addition to multiple choice items; it contains a larger number of items to test student achievement both overall and for different subscales (market economy, national economy, and international economy); and, the results are based on a representative national sample. The NAEP in economics was first administered in 2006 with basic results reported in several studies (Mead and Sandene 2007; Walstad and Buckles 2008). It will be administered again in 2012, which means there will be opportunities for longitudinal assessment in high school economics.

And finally from an assessment perspective, economics can now be seen as a major subject in the secondary social studies curriculum, together with history, geography, and civics, for which there has long been NAEP testing.⁷

There are other precollege tests in economics, some offered by states and others offered by not-for-profit organizations. The Advanced Placement (AP) examinations in economics offered by the College Board were developed for high ability, college-bound students who wanted college credit for completing the equivalent of a one-semester course in microeconomics, or macroeconomics, or both. AP economics students complete a semester or year-long course taught in their high school that covers the content typical for most introductory college economics courses. In 2011, 90,134 students took the AP macroeconomics exam and 56,303 students took the AP microeconomics exam (CEEB 2011). Although these are large numbers of students, they represent less than three percent of high school graduates.

Expectations about what can be achieved in a one-semester or even the much rarer one-year high school economics course must be kept in perspective, however. Results from testing of national samples of high school students using the TEL find that those with economics instruction scored significantly higher than those without instruction, but even those with economics instruction could answer just over half the test questions (Walstad and Rebeck 2001; Butters and Asarta 2011). The 2006 NAEP in economics results show a similarly low level of economics achievement. For high school students who had taken a general or regular course in economics, 18 percent were classified as below basic, 41 percent were classified as basic, 39 percent were classified as proficient, and just two percent were classified as advanced in terms of their understanding of economics.⁸

This low level of achievement can be attributed to many factors, some associated with teacher and course characteristics, others related to social and educational problems affecting U.S. high schools and students, and still others connected to measurement issues. But the most important reason appears to be the small amount of instructional time for economics. Major subjects, such as history, are taught to all students over many years in concentrated units and courses that begin in the early grades. By contrast, intensive development of economic understanding depends largely on a one-semester course that is

typically taught in the last two years of high school and not taken by many graduates or by most students who drop out before graduation.

Another way to assess the effects of a high school economics course is to measure its contribution to achievement in college courses for the sub-sample of high school students who attend college. Lopus (1997) found that the quality of high school economics, measured by coverage of macroeconomic or microeconomic concepts, had a positive effect on pretest scores in principles of economics in college. She also found a lasting effect on posttest scores in college microeconomics for students who took a high school course covering microeconomics. A more recent study found that college students who had taken an AP or honors economics course in high school and who had already completed some college-level courses showed a high degree of retention of economic knowledge (Gill and Gratton-Lavoie 2011). The study also showed that college students who took an economics course in high school because of a state mandate had significantly higher test scores in basic economics than a similar group of college students who had not taken economics in high school in a non-mandate state.

Less is known about the long-term effects on adults from taking an economics course in high school. The few available studies indicate that economic coursework in high school and college does significantly influence what adults know about economics after completing their coursework (Walstad and Rebeck 2002) and their use of financial services such as bank accounts (Grimes, Rogers, and Smith 2010). The problem with this type of long-term analysis is the difficulty of attributing the effects from high school economics to long-term outcomes—that is, in establishing causality—because there may be unknown or unmeasured intervening factors that confound the analysis. For example, for students who took an economics course in high school and then took a college economics course, what they learned in high school may be overwhelmed by what they learned in college. And there are a few studies showing that college coursework in economics is correlated with different adult behaviors in labor markets, personal finance practices, and some forms of political and civic activity (Allgood et al. 2010, 2011).

Over the years many studies have used the TEL to investigate the contribution of an economics course to the economic understanding of high school students with national, regional, statewide, or local

samples (see Becker, Greene, and Rosen 1990). In general, research on learning outcomes has confirmed the value of a formal course in economics as a means for improving economic understanding, but finds little substantive contribution to economic knowledge from a general social studies course, such as a U.S. history, or a related course, such as personal finance (or consumer economics).⁹ Some courses taught in the social studies or business education departments of U.S. high schools may well contribute to students' economic understanding, but the contribution is probably quite limited and depends on whether a teacher makes a conscious effort to include economics, and quite possibly on how well a history teacher is prepared to teach economics, and on the amount and accuracy of the economics content in the history textbooks and other instructional materials. What seems most likely and typical is that even in “related” subject areas courses may help to prepare students for economics learning, but they are not a direct or effective substitute for formal coursework in economics.

In summary, the practical effectiveness of infusing economics in other subjects is limited by several key obstacles that have long been noted (Walstad and Watts 1985), including inadequate economics preparation of teachers from other subject areas, who also may have little or no interest in teaching economics; the limited quantity and quality of textbook coverage and supplemental instructional materials that feature the infusion approach; sketchy guidelines and limited support and detail concerning infusion approaches in state or school district curriculum guides—and virtually no such guidelines or other materials on infusion approaches at the national level; and finally, and perhaps most important, the amount of classroom time available for teaching economics in the context of other subjects may well be seen by most teachers and school administrators as too limited to be of much value for students. Adding calls to infuse instruction across other subject areas—such as history and government or civics and environmental studies—makes the whole issue even more problematic.

Teacher Coursework and Training in Economics. Teachers generally are prepared to teach economics in two ways. The first takes place during their undergraduate or “pre-service” education, when education majors may take some courses in economics. Current state standards for the certification of secondary social studies teachers, who are most likely to teach economics courses or “related” courses

with the greatest opportunity for infusion, require minimal undergraduate coursework in economics. A 1995 study found that across the 51 certification agencies only 26 had a semester credit-hour requirement in economics, which averaged 3.9 credits or just over one course (Dumas, Evans, and Weible 1997). That represents only 9.4 percent of the average of 41.6 credit hours in history and other social sciences required for social studies certification across the 50 states. Further support for this conclusion comes from a study of a 1997 survey of college graduates and their college transcripts using the *Baccalaureate and Beyond* national dataset (Bosshardt and Watts 2005). It found that secondary teachers certified in the social studies earned just 3.63 credits in economics, which represented only 7.6 percent of the 47.8 course credits taken in the social sciences or history for social studies certification. In fact, 32 percent of these future teachers never took an undergraduate economics course. Exposure to economics was even lower for elementary teachers certified in the social studies, who average only 2.1 credits in economics. Over half (53 percent) of this group never took an economics course.

A second, less direct, way to improve the economic understanding of teachers is to offer “in-service” courses or workshops for those teachers who are already licensed and currently teaching. A study of economics courses taken by current secondary social studies teachers shows limited economics coursework, but more coursework than would be required for state certification alone because the mean is 3.0 courses, or about 9 credit hours (Walstad 2001). One reason for greater course-taking among employed teachers is that they likely have attended in-service programs on economics. Such programs have become crucial for correcting deficiencies in teacher knowledge found in pre-service education. The value of these in-service teacher workshops in economics was also supported in a recent statewide study featuring standardized student test scores (Swinton, Scafidi, and Woodard 2011).

Research shows that teacher education in economics is essential for improving student learning in the subject. The issue has been studied by investigating whether the number of credit hours or courses in economics taken by a teacher makes a contribution to students’ understanding of economics. One study found that high school teachers who were above average in improving student test scores had earned more economics credits (17) than average teachers (11) or below average teachers (8) (Bosshardt and Watts

1990).¹⁰ Another study reported the greatest increase in economic knowledge for high school teachers of economics occurred in the third year of coursework in a master's degree program in economics for teachers, and that the increased teacher knowledge from economics coursework was associated with improved economics learning among the students of these teachers (Allgood and Walstad 1999). Several more recent studies in different states reinforce the conclusion that the amount of coursework makes a difference. An assessment of the value of in-service workshops for teachers on the performance of all Georgia economics students taking on an end-of-course exam in economics found positive and significant effects from teacher attendance at workshops on student test scores once teachers had attended at least three workshops (Swinton et al. 2010). A Nebraska study found that increasing the number of in-service credit hours in economics earned by teachers after they had completed an undergraduate degree improved high school student test scores in economics, but the effect was only significant when teachers had earned 19 or more in-service credits in economics (Butter, Asarta, and Fischer 2011).

Given the importance of coursework in economics for improving the economic understanding of students, it is important to find new ways to increase the number of teachers who take economics. This objective can be achieved by increasing economics requirements in undergraduate education for social studies and other teachers who teach economics, and by increasing the number of current teachers who take in-service course programs in economics. Regardless of the approach used, the key objective is to increase the human capital of economics teachers to a level at which they have taken a substantial amount of economics (at least 18 credit hours according to several studies). The research on teacher coursework also is consistent with one past report on teacher education in economics (Hermanowicz 1991). It recommended that teachers who specialize in teaching economics complete the equivalent of a field concentration of at least six semester courses in economics, which would be about 18 credit hours. Teachers of AP or college-level courses taught in high school should complete at least *ten* courses, the equivalent of a major in economics, which is about 30 credit hours.

Instructional Materials and Methods. Commercial publishers and nonprofit organizations and institutions have produced a variety of instructional materials for teaching economics over the years. A

number of studies have been conducted on the effects of using videos, computer games, and other new technology for teaching economics. The general conclusion from past reviews of research is that no one type of technology was found to be superior to another (Becker, Greene, and Rosen 1990). This conclusion still holds because in the intervening years there have been too few research studies that have evaluated alternative instructional materials. The same conclusion also applies to different teaching methods as suggested by the mixed results from an investigation of a problem-based learning (PBL) approach and a traditional lecture-discussion (TLD) approach to teaching macroeconomics in high school (Maxwell, Mergendollar, and Bellisimo 2005). This study found that some students of teachers improved their economics learning from the use of PBL over TLD, whereas students of other teachers improved their economics learning from the use of TLD over PBL. In other cases, there was no significant difference in student achievement between the two instructional methods.

Economics textbooks have been the subject of past research, but not in recent years. A primary reason for this is because of the consolidation in the textbook industry. There are now far fewer textbook publishers and economics textbooks for high school economics than in past decades. The few current textbooks also are quite similar in content coverage and the use of pedagogical features so there is less product differentiation. In addition, many deficiencies found in past generations of textbooks for high school economics are not present in current textbooks.

By contrast, the treatment of economics in social studies textbooks continues to be suspect. Studies of high school textbooks in history, government, geography, and sociology report many problems, including: (1) lack of economic analysis; (2) ad hoc explanations for many economic events and issues; (3) absence of substantive economic content on many topics related to economics; (4) factual errors and the misapplication of economic ideas; and, (5) confusing and nonsystematic organization of content (Miller 1988). Similarly, a review of content standards for history, social studies, civics, and geography was not encouraging and identified major conceptual weaknesses in how these documents treat economics (Buckles and Watts 1998). Among other problems there was an overemphasis on government planning, a limited view of how markets function, and a negative perspective on economic growth.

4. Implications

Given the above discussion of key findings and trends related to coursework, content, and research in K–12 economic education, what implications do we draw from the current policy discussions and reform initiatives promoting national core standards that emphasize language arts, mathematics, science, and perhaps other dimensions of STEM disciplines? One implication is that *if* the national reforms lead to a narrower focus in the K–12 curriculum some subjects out of the mainstream of the core curriculum will end up with less classroom time than they now have. A related corollary is that *if* the guidelines and assessment procedures become more standardized nationally than they are today around that core curriculum, some subjects or disciplines currently taught in the K–12 curriculum that are outside the core may largely disappear or become “marginal electives” that are taken by fewer students and taught by fewer teachers at fewer schools. We do not think that this possibility is likely to befall economics, mainly because of the large number of states and school districts that require a one-semester secondary course in economics, and the fundamental importance of economic issues to individuals and policy makers in today’s world. One scenario, however, that certainly seems possible, even likely, and perhaps already unfolding, is that the opportunities will narrow for infusing economics at earlier grades before high school and in other subject areas within high school.

A K–12 national curriculum in which economics exists as only an isolated island consisting of a one-semester secondary course is not a comforting world view to us as economists concerned with improving precollege economic education, particularly given the decades of research showing how much economics students in earlier grades can learn from well-trained teachers using good instructional materials. On the other hand, as we have tried to make clear throughout this paper, the separate course versus infusion issue for K–12 economics instruction presents a real policy dilemma for the future as in past educational initiatives. Infusion is so difficult to deliver successfully with reliable increases in student learning, and as it turns out, is even harder to sustain in a school district, let alone a whole state or across the nation, over periods of more than a few years.

Our best forecast, or best educated guess if you prefer, is that the national K–12 reform initiatives are likely to raise the stakes for the social, behavioral, and economic sciences, narrowing the options and curriculum time that is open for those subjects. This change will have the effect of reducing the variance in curriculum patterns and the discretion individual states, school districts, and classroom teachers have to include instruction in these subjects. Under earlier policy programs, such as No Child Left Behind, it was possible to have economics featured by some states and districts and state assessment programs, and ignored in others. So economics “won some and lost some,” but was certainly not likely to disappear or even to be reduced to just a one-semester high school course.

With a movement to a national core curriculum, it is possible that the high school course in economics could be eliminated, although we think that prospect unlikely. If it survives, there is probably not a lot to be done or that will change in terms of how that course will be structured or taught, except perhaps the relative mix of basic economics compared with personal finance. If the high school course in economics should be combined with another subject as part of a national core curriculum, such as with personal finance or government, then the infusion approach becomes an even bigger and more important piece of the precollege puzzle for us to try to solve and make more effective. Likewise, if opportunities for teaching economics in other subjects and at lower grade levels are encouraged in a national curriculum, albeit with a more limited and pre-selected set of options, standards, or guidelines, then finding ways to integrate economics effectively into these opportunities becomes paramount.

Either infusion situation outlined above would ideally be based on a set of research questions that have not been investigated: (1) Does it work better to infuse economics instruction in particular core courses, such as mathematics, science, history, or language arts? (2) Will these answers to the prior question change when economics is included in subjects at different grade levels? (3) Can a core curriculum perhaps make infusion work better by targeting where it should occur, thereby making it easier to target teacher training and materials development to particular grades and combinations of subjects? (4) How will the movement to a core curriculum change assessment of subjects that are not infused broadly across the curriculum?

The question of how much national standardization of the curriculum and instructional methods and materials we want is directly related to these initiatives. Some countries have educational systems in which all schools are expected to use a single textbook and cover a predetermined amount of content during the school year. That approach has certainly not been the adopted one in the United States given local control in school districts of finances, most curriculum requirements, *and* the choice of instructional materials and methods. For now, however, the pendulum seems to be swinging in a different direction, toward more standardization. Where and to what extent economics will be included in the process is yet to be determined, but neglecting to include economics as a meaningful subject for precollege students to learn will have adverse and long-term consequences for the education of the nation's youth.

Endnotes

¹ Most mandated courses in economics can be viewed as traditional economics courses, but there are some differences because some mandates feature a special emphasis. A few call for emphasis on the characteristics and features of the free enterprise system. Others call for including personal finance or consumer economics to the economics course. Others require a combined course on economics and civics or government. One state requires a course on basic business and economic education.

² See for examples, Bernheim, Garrett, and Maki (2001); Harter and Harter (2009); Swinton et al. (2007); Tennyson and Nguyen (2001); Walstad and Rebeck (2005); and Walstad, Rebeck, and MacDonald (2010).

³ See Watts and Walstad (2011) for more discussion on the history of these curriculum guidelines and their relationship to policy debates on national education reforms or within the economics discipline.

⁴ Becker (2004) and DeNeve and Heppner (1997) discuss the paucity of empirical research and evaluation on many of the most widely discussed and promoted pedagogical methods popularized in recent years, including many forms of student-centered “active learning” strategies.

⁵ Interim norming using 2009 data from high school student and the third edition of the TEL is reported in Butters and Asarta (2011). A fourth edition with national norms indicating student achievement in regular economics and advanced economics courses should be available by fall 2012. The TEL also has been translated and used widely in research studies in many nations over the past three decades (e.g., Walstad 1994, Grimes and Millea 2011; Yamaoka et al. 2010).

⁶ For a copy and details see, <http://www.nagb.org/publications/frameworks.htm>

⁷ The economics test is only administered at the twelfth grade level. NAEP testing in the social studies is also conducted at fourth, eighth, and twelfth grade for subjects widely taught throughout the K–12 school curriculum such as history, civics, and geography.

⁸ Data obtained using NAEP Data Explorer at <http://nces.ed.gov/nationsreportcard/naepdata/>. The results were calculated by cross-tabulating the composite score with the variable for coursework in economics and requesting percentages at achievement levels.

⁹ For an example of a past study of course difference effects, see Lynch (1994). A recent study investigated differences in high school student learning in an economics course and a personal finance course and found that students enrolled in a high school economics course improved their understanding of personal finance concepts, but students enrolled in a personal finance course did not improve their understanding of economics (Butters, Asarta, and Fischer 2011).

¹⁰ See also Bosshardt and Watts (1994) for a similar type of study of teacher effects but not at the middle school and elementary school levels.

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TABLE 1: Percentage of High School Graduates Earning Credits (Carnegie Units 0.5 or 1.00) in Selected Social Science and History Courses, Selected Years

	1990	2000	2005	2009
Social sciences				
Economics (0.50)	49	50	47	59
Government/civics/ politics (0.50)	79	79	79	86
Sociology/psychology (0.50)	34	37	38	40
Geography (0.50)	21	29	31	26
History				
U.S. history (1.00)	96	92	94	97
World history (1.00)	60	69	76	86

Source: U.S. Department of Education, Institute of Educational Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), and 1990, 2000, 2005, and 2009 High School Transcript Study (HSTS).

TABLE 2: Voluntary National Economics Content Standards

1. *Productive resources are limited. Therefore, people can not have all the goods and services they want; as a result, they must choose some things and give up others.*
2. *Effective decision making requires comparing the additional costs of alternatives with the additional benefits. Most choices involve doing a little more or a little less of something: few choices are "all or nothing" decisions.*
3. *Different methods can be used to allocate goods and services. People acting individually or collectively through government, must choose which methods to use to allocate different kinds of goods and services.*
4. *People usually respond predictably to positive and negative incentives.*
5. *Voluntary exchange occurs only when all participating parties expect to gain. This is true for trade among individuals or organizations within a nation, and usually among individuals or organizations in different nations.*
6. *When individuals, regions, and nations specialize in what they can produce at the lowest cost and then trade with others, both production and consumption increase.*
7. *A markets exists when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce goods and services.*
8. *Prices send signals and provide incentives to buyers and sellers. When supply or demand changes, market prices adjust, affecting incentives.*
9. *Competition among sellers lowers costs and prices, and encourages producers to produce more of what consumers are willing and able to buy. Competition among buyers increases prices and allocates goods and services to those people who are willing and able to pay the most for them.*
10. *Institutions evolve in market economies to help individuals and groups accomplish their goals. Banks, labor unions, markets, corporations, legal systems, and not-for-profit organizations are examples of important institutions. A different kind of institution, clearly defined and enforced property rights, is essential to a market economy.*
11. *Money makes it easier to trade, borrow, save, invest, and compare the value of goods and services. The amount of money in the economy affects the overall price level. Inflation is an increase in the overall price level that reduces the value of money.*
12. *Interest rates, adjusted for inflation, rise and fall to balance the amount saved with the amount borrowed, which affects the allocation of scarce resources between present and future uses.*
13. *Income for most people is determined by the market value of the productive resources they sell. What workers earn depends, primarily, on the market value of what they produce and how productive they are.*

TABLE 2: Voluntary National Economics Content Standards (continued)

14. *Entrepreneurs take on the calculated risk of starting new businesses, either by embarking on new ventures similar to existing ones or by introducing new innovations. Entrepreneurial innovation is an important source of economic growth.*
 15. *Investment in factories, machinery, new technology, and in the health, education, and training of people stimulates economic growth and can raise future standards of living.*
 16. *There is an economic role for government in a market economy whenever the benefits of a government policy outweigh its costs. Governments often provide for national defense, address environmental concerns, define and protect property rights, and attempt to make markets more competitive. Most government policies also have direct or indirect effects on people's income.*
 17. *Costs of government policies sometimes exceed benefits. This may occur because of incentives facing voters, government officials, and government employees, because of actions by special interest groups that can impose costs on the general public, or because social goals other than economic efficiency are being pursued.*
 18. *Fluctuations in a nation's overall levels of income, employment, and prices are determined by the interaction of spending and production decisions made by all households, firms, government agencies, and others in the economy. Recessions occur when overall levels of income and employment decline.*
 19. *Unemployment imposes costs on individuals and the overall economy. Inflation, both expected and unexpected, also imposes costs on individuals and the overall economy. Unemployment increases during recessions and decreases during recoveries.*
 20. *Federal government budgetary policy and the Federal Reserve System's monetary policy influence the overall levels of employment, output, and prices.*
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Source: CEE (2010).