The New Role of Higher Education Attainment in Global Competitiveness and Income Opportunity: Implications for National Policy

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DIRECTOR AND MODERATOR:
Dick Clark

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Rapporteur’s Summary

Carol Copple, Ph.D.
Rapporteur

The New Role of Higher Education Attainment in Global Competitiveness and Income Opportunity was the theme of the 2008 conference sponsored by The Aspen Institute Congressional Program, held February 18-22 in Charleston, South Carolina. The meeting was the fifteenth in a series that examines policy options for promoting the education and well-being of American youth, and thus the well-being of the nation. A bipartisan group of eleven Members of Congress participated, together with eight invited experts with relevant knowledge and experience. The Congressional Program series is not intended to yield a consensus statement of recommended policy directions. Rather, the aim is to help inform policymakers and facilitate the search for common ground on which effective American legislative policy must rest. The 2008 Congressional Program conference examined current issues in secondary and postsecondary education and policy options to produce improved outcomes for students and workers, and thus for the nation.

Education for a changing world

Today’s global, technological economy demands workers with unprecedented levels of knowledge and skills, and hence postsecondary education is a requirement for a large and growing proportion of the nation’s jobs. At the same time, skill levels in the American workforce have stagnated, while many other countries have shot ahead, outstripping the United States in production of college graduates and skilled workers. Within a few years, researchers predict, only workers with a four-year college degree will be able to maintain their earning power. At stake is not only the economic well-being of American workers and their families, but also the health of the national economy.

Behind the impending shortage of skilled workers is the fact that the United States presently is not managing to educate its youth to the higher skill levels that are now necessary. High school graduation rates are alarmingly low, and students who do graduate very often lack even the rudimentary skills and knowledge necessary to cope with the demands of postsecondary education. As a result, the United States no longer leads the world in college completion rates.

Demographic trends continue to exacerbate the problems resulting from inadequate and inequitable K-12 schooling. The population groups growing most rapidly are those that have had lower high school graduation rates and are dramatically underrepresented in higher education. For example, Hispanics are the fastest expanding segment of the population, yet their college attendance and completion rates are significantly below the average for the population as a whole. According to the most recent statistics, the nationwide college graduation rate for black students is only 42 percent as compared with a rate of 62 percent for white students. Moreover, disparities in college access rates by income group have barely narrowed
over the last 30 years and the gap in college completion rates has narrowed even less. To return to being a leading nation in student achievement and college completion, the United States must boost the achievement of its student population as a whole, including the most disadvantaged youth.

States’ introduction of high school exit tests, although aimed at increasing student achievement, has proven to have unintended negative consequences. The tests typically are not pegged to postsecondary demands, and thus they give schools and the public a false sense of addressing the issue of low student performance. With more than 50 different sets of standards, there is no yardstick for academic achievement at each grade level. No Child Left Behind provisions require that states hold districts and schools accountable for getting all their students to “proficient” achievement levels, but allow them to adopt their own definitions of proficiency. Under pressure to increase student performance, some states have reacted by lowering both standards and proficiency definitions. When such gaming of the system occurs, the result is the weakening of the curriculum and lowering, not raising, of expectations.

From curriculum chaos to coherence—math and science in the spotlight

Looking to how other countries educate their students, especially in such universal areas as mathematics and science, is indispensable in the global economy, particularly because America’s students currently do poorly in international comparisons. Achievement results only reveal where we stand; more informative for policy purposes are the data on other nations’ standards and curricula. Because analysis of these data clearly point to curriculum as the key source of cross-national achievement differences, policymakers need to place curriculum front and center in education improvement efforts.

In the decentralized American education system, states have their own standards, and tremendous variation in these is evident across the states. Textbook publishers naturally strive to address the standards of all the states so that they can achieve optimal sales. As a result, teachers are given a textbook with a large array of topics and feel compelled to try to teach them all—far more than are taught in other countries in a given year. Children encounter each topic shallowly and repeatedly over several years rather than getting to focus on and master key learning goals. Further complicating this state of affairs is the fact that many students move from one locale to another. In short, curriculum in U.S. public education is in chaos.

These problems are especially severe in K-8, but they also have serious implications for students’ preparation for high school mathematics and science. For their part, most high schools have a proliferation of courses that serve to meet mathematics and science requirements. Students receive little guidance about what to take, and they often fail to pursue the sequence of courses that would serve them best for post-secondary readiness and admission. Moreover, students from families with low income and education levels, including immigrant and minority families, suffer the most in this maze of course choices since their parents are least able to help them find their way.

Lacking across the K-12 curriculum in math and science are focus, rigor, and coherence. Not only do students encounter an overabundance of topics in a school year, but the curriculum also fails to follow a logical sequence in which each topic builds on those previously learned. Because of the redundancy and ineffectiveness in addressing topics, the demand level of the math or science at a given grade level is lower for American students than for their peers in other countries. Consequently, there is less rigor as well as less coherence.

Lacking focus, rigor, and coherence in key curriculum areas such as math and science is bound to handicap a nation in competing internationally. Because the status quo of each state going its own way on standards has created dysfunctional conditions in U.S. education, some
policy experts and leaders argue that only national curriculum standards and national definitions of proficiency can get the nation out of the morass. Such a step could begin in one subject area, such as mathematics.

National standards are likely to be more politically feasible than federal standards managed by the federal government. Non-federal mechanisms by which the U.S. can achieve standards of national scope exist, and some initiatives are already underway. For example, Achieve, Inc.—a bipartisan organization created by the nation’s governors and business community—has formed a coalition of states committed to aligning K–12 curriculum, standards, and assessments with the demands of college and work. Any national initiative can build on such ongoing efforts.

Serving as a potential model for development of national standards is the National Assessment of Educational Progress (NAEP), the congressionally mandated, federally funded examination of national samples of students in various grades. NAEP assessments are based on rigorous, challenging content standards and the independent governing board has approved a carefully developed curriculum framework in each subject. These curriculum frameworks represent national content and performance standards that have strong credibility with educators and the public, and the NAEP model shows how policymakers might undertake a move towards national standards.

**College-ready, or not?**

High school and college must change in tandem to achieve the goal of preparing more students for college success. Currently, a disconnect exists between high schools and colleges. Many policy researchers believe this lack of connection is the most significant barrier to the college aspirations of many youth.

Unlike other developed countries, the U.S. lacks explicit alignment between high school and college, and postsecondary education is even more decentralized than is the K–12 system. Expectations for students entering higher education vary widely and are often unclear. In the past, the lack of connection between secondary and postsecondary education was not a serious problem, but it became critical when workforce demands and individual expectations escalated. Currently, over two-thirds of high school graduates go on immediately to some form of postsecondary education, and three-fourths do so within five years of graduation. In light of global trends, these proportions need to climb still higher in the United States for the economy to hold its own. Thus all students must enter postsecondary education and training far better prepared than they now are.

**Community colleges—problems and promise**

A large and growing part of the postsecondary picture, community colleges serve nearly half of all American undergraduates enrolled in college over the course of a year. With community colleges’ responsiveness to workplace needs, low tuition, and policy of open admissions to anyone with a high school diploma or equivalent, they are key both in workforce preparation and in offering broad access to postsecondary education. This importance will almost surely grow in the years ahead.

In order for the share of the U.S. population with a college degree to increase substantially, attendance rates must rise among groups now underrepresented in college. This growth is occurring, and likely will continue, largely through community colleges. To fulfill these vital roles effectively, however, community colleges must make significant improvements in their practices, especially with students who arrive with insufficient skills.

Community college students are much more likely than those at four-year colleges to enter with weak academic skills. More than one-half of entering community college students is judged to be inadequately prepared for college-level work, compared to about one-quarter of four-year college students. Another major con-
Contrast between students at two- and four-year institutions is that about two-thirds of community college students attend part-time, compared to fewer than one-third of college students at four-year colleges. Because part-time enrollment means considerable time pressure and the need to juggle multiple responsibilities, it is a risk factor for dropping out. If possible, efforts to improve graduation rates should attempt to provide incentives and means for students to attend on a full-time basis.

Caught in the remediation wringer

The extent of remediation required for students at two-year colleges, and even four-year institutions, is troubling. Most students taking remedial courses are doing so to gain the skills and knowledge they should have gotten in high school. Around 25 percent of students, by a conservative estimate, graduate from high school and are admitted to college, only to find out that they must take at least one remedial course in English or mathematics. Some community colleges report remediation rates of over 80 percent in mathematics. This remediation is costly for students in both time and money, and students required to take remedial courses are significantly less likely to graduate.

Several promising strategies to better connect high school and college are emerging. One practice is alignment of high school graduation with college entrance assessments. Also in use in some locations are early-warning assessments in 10th grade to give students a realistic idea about the knowledge and skills they will need to acquire to succeed in college. Such transparency is badly needed. For reduction of remediation rates and improvement of students’ chances for success to occur, K-12 educators, students, and parents must have a better understanding of what students should know and be able to do to enter college.

Another strategy with potential for getting students prepared for college work without getting stuck in the remediation quagmire is known as dual enrollment or “early college.” Dual enrollment is an arrangement where students are enrolled in courses that count for both high school and college credit. The rationale is to prepare students for the academic rigors of college by exposing them to the type of intense curriculum that research has found to promote bachelor’s degree attainment. In such programs students get more realistic information about the academic and self-management skills that they will need to succeed in college. Far more motivating to students than the ineffective, frustrating approach of facing heavy remediation demands before they can begin working towards college credit, dual enrollment strategies are having good results.

Community college students meet with yet another obstruction in the lack of articulation of two- and four-year colleges. About 40 percent of all first-time freshmen begin their studies at two-year colleges, and roughly 90 percent of these start at public colleges. Many students from lower-income families begin in this way, and the complications of transition to a four-year college hinder their progression to a bachelor’s degree. Federal policies could provide incentives for institutions and states to facilitate these transitions. Presently students encounter many problems in transferring their credits, even to public four-year colleges that are part of the same state system. For community colleges to serve as expanded entry points to the bachelor’s degree for students from previously underserved populations, a well-functioning transfer system is essential. Already some states do a much better job at transfer than others, and others could be persuaded to follow their example. For instance, federal policymakers could provide incentives for implementation of statewide articulation agreements in which four-year colleges agree to accept credits from specific courses, as if they were courses taken at the four-year institution.

Both two-year and four-year colleges experience the effects of poor alignment with K-12. Policy makers could consider providing an incentive or mandate for state K-12 and higher education systems to meet on a regular basis to
improve their alignment. Among the policy areas that the systems should jointly consider are (1) connecting high school exit criteria and postsecondary admission criteria; (2) aligning postsecondary placement policies and instruments with state K-12 standards, assessments, and curriculum frameworks; (3) aligning teacher education programs with a set of statewide college readiness standards; and (4) designing student data systems to allow more information on student performance to pass from secondary to postsecondary education.

**Boosting postsecondary access and success for underrepresented groups**

Among private colleges, disparities in endowment wealth are enormous. In return for the favorable tax treatment they receive, these institutions are expected to act in the public interest, including remaining accessible to students from all family income levels. To increase accountability and generate additional institutional funds for financial aid, federal policy could require of private colleges a minimum spending rate of 5 percent of the average value of their endowments. They can be assumed to make at least this rate of return on their endowment assets.

While such a strategy would be useful for expanding financial aid for low-income students at private colleges, they are a relatively small piece of the postsecondary pie. It is state-funded colleges that serve the majority of American students—two thirds of four-year students, and fourth fifths of the combined student population of two-year and four-year colleges. Thus, public institutions are the main engine for increasing college attainment and equity.

Increased enrollment and graduation of students from lower-income families is a key policy goal, and federal policymakers are looking for policies to support this objective. One step in this direction would be to base the federal SEOG (Supplemental Educational Opportunity Grant) funding that goes to two-year and four-year institutions on the volume of Pell Grant funds that their students receive, rather than on historical entitlements. Basing this funding on graduation rates (rather than enrollment) of Pell students would provide an incentive for colleges not just to admit these students but to consider how to enable them to succeed. Another needed change is to simplify the Pell application process and make it more transparent.

Finally, rather than trying to curb tuition increases legislatively, as some policymakers are doing, focusing on whether academic institutions are maintaining and expanding access and persistence may be more useful.
The nation’s K-12 educational systems may be reaching a potentially historical turning point. Initially designed to educate students to a “common” level of basic education, public schools are now expected increasingly to prepare the vast majority of students for education beyond high school. Achieving this difficult goal is complicated by a number of factors. These include the limitations of the existing means for determining college eligibility, the separate governance systems for K-12 and post-secondary education, changes in the demographics of American public school students, and even the well-intentioned efforts of states to raise high school graduation requirements. What will it take to transform American education from sorting and selecting students for college to enabling more students to be truly ready for postsecondary success?

**Current State of Alignment**

The present means for connecting high school to college include course requirements, course titles, course grades, and admissions tests. These measures have allowed high schools and colleges to continue to function with almost no direct communication between one another regarding the knowledge and skills students need in order to succeed in college.

This lack of explicit alignment between high school and college is a unique feature of American education. Changes, when they do occur, are largely negotiated among the key institutional stakeholders consistent with their perceived needs and interests. For the past century, this almost clubby approach to defining college eligibility has functioned to ensure that a relatively small proportion of American high school students moves on to postsecondary education.

This system takes on a different hue when it is viewed against the backdrop of the expectation that a substantial proportion of students achieves college readiness. It is not easy to change this system so that its focus moves from selecting students to preparing them. The requirements currently communicate what one does to be college eligible. They do not communicate with any clarity or consistency the knowledge, skills, or attributes that students need in order to succeed in college. They establish what students must do to be eligible for college, but an eligible student, as we are finding out, is not necessarily a prepared student.

Because the organization and governance of postsecondary education is even more decentralized in some ways than public schools, higher education’s expectations for its entering students are diverse, varied, and often unclear. Even state higher education systems can have different requirements from campus to campus within the same state. Individual school districts and within them individual high schools have tremendous discretion regarding the actual content of college preparatory courses. This leads to significant uncontrolled variance in
what is taught, what colleges accept, and, ultimately, how well students are prepared.

While colleges review and approve course titles, they do not even pretend to know the content or challenge level of most high school courses. This is one of the reasons that Advanced Placement® classes and the International Baccalaureate program have grown in popularity; they ostensibly embody an explicit quality standard. In the absence of external standards for college readiness, the individual high school teacher’s impression of what constitutes college readiness becomes the functional definition of college prep, while at the college level, instructors who teach entry-level courses establish their own expectations completely independently of their secondary colleagues.

This fundamental disconnect was not a problem until the public policy and individual expectations for the transition from high school to college changed. As long as the system functioned under the assumption that only a small proportion of students would go on to college, the current model of college preparation was largely unchallenged and unexamined. However, as the proportion of students seeking a postsecondary education increased, the system began to break down. Currently, over two-thirds of high school graduates go on immediately to some form of postsecondary education, and 75 percent do so within five years of graduation.

The tremendous variance in high school courses, coupled with the lack of clear communication by colleges of their expectations and inadequate guidance at the high school level, conspires to create a growing pool of students who are college eligible but who lack even the rudiments of the knowledge and skill necessary to cope with the rigors of a postsecondary education. This is the state in which the U.S. educational system finds itself currently.

**State Actions to Date**

States have been trying to increase academic expectations since the mid-1980s through tougher graduation requirements coupled with state-level standards, assessment, and accountability systems. Unfortunately, none of these reforms was designed to align secondary education more closely with postsecondary education. This assertion may seem a bit harsh, in part because many state leaders have expressed the goal of increasing college readiness for more students, and these leaders have assumed that if course requirements, standards and assessment were made more rigorous, K-12 educational systems would be well aligned with postsecondary readiness.

The truth of the matter is that while state standards and assessments have revealed the remarkable weaknesses in student basic knowledge and skill and have encouraged schools to address them, they have not necessarily improved college preparation for the majority of students. All available evidence suggests that state reforms vary tremendously in terms of the challenge level at which they are set and the degree to which they address key postsecondary readiness skills.

This means that high school teachers and students are expending considerable time and energy preparing for tests that may or may not help students succeed in college. To solve this politically vexing problem, some state education leaders simply declare that their standards and testing requirements are aligned with college readiness and move on. The unfortunate result for students is that they may believe that by passing the state test, they are on a path to be ready for college, when, in fact, no one knows whether this is the case.

Of potentially greater concern is the fact that even as states have ratcheted up the high school graduation requirements, the number of students who end up in remedial courses once they enter college is showing no signs of abating. A conservative estimate is that 25 percent of students admitted to college end up taking at least one remedial course in English or mathematics, with some estimates ranging up to 50 percent. Some community colleges have remediation rates in mathematics well in excess of 80 percent. U.S. Department of Education studies of student transcripts find that students who
must take remedial courses are less likely to graduate, and those who are able to graduate require significantly more time to do so.

This would be less of a problem if a college education were not particularly necessary or important to the individual student and to the nation. It has become almost a cliché to declare that the new economy demands much higher levels of education of all workers, consumers, and citizens, but it is a critically important point to bear in mind. Simultaneously the demographic profile of the next generation of children in the United States is changing. The public schools will need to educate an ever-increasing number of students who will be the first in their family to graduate from high school, let alone attend college. These students have historically not been well prepared for college. They are also more likely to end up in a remedial course once they get to college.

Secondary and postsecondary education will need to connect much more systematically and in ways that enable all students, but particularly those who are the first in their families to attend college, to be prepared for the challenges they will face in entry-level college courses. Postsecondary access will be a cruel hoax for these students if success in college is beyond their reach. High school and college will need to change substantially and in tandem to achieve the goal of preparing more students for college success.

Specific Elements of College Readiness

What specific elements are necessary to align the systems to promote increased access and success for all students? Research conducted by the Educational Policy Improvement Center at the University of Oregon on the content of first-year college courses and the Center’s work with states to align high school and college yields the following findings.

As a starting point, a common definition of college readiness and a specific agreement on what constitutes college readiness is necessary. The definition needs to focus on student readiness for success in entry-level general education courses. This is a concrete benchmark that can be specified in some detail.

Entry-level general education courses are those taken by most incoming college freshmen. They are a natural reference point for what a high school program of study should prepare students to do. Using these courses as benchmarks, it is possible to develop detailed models and descriptions of the knowledge and skills necessary to succeed in the courses and to identify exemplars of the work students should be able to produce in them. High school courses can then be constructed using these descriptions as frames of reference.

In addition to a common definition for college readiness, four other elements are central to college success. They are: 1) key cognitive strategies emphasized in entry-level college courses; 2) key content knowledge necessary to understand the structure of each academic discipline; 3) self-management skills that enable students to cope with the academic demands of college; and 4) the “college knowledge” necessary to understand how the postsecondary system operates. Each is discussed briefly below.

Some facility with key cognitive strategies is absolutely critical to success in college. Can a student reach a conclusion, follow the logic of an argument, document a finding, postulate an explanation for an observed phenomenon, solve a non-routine problem, and interpret seemingly contradictory information regarding an event? In general, college courses expect students to think more deeply and precisely than do high school classes.

A consensus is beginning to emerge regarding the key content knowledge necessary for success in entry-level college courses. These knowledge and skill standards in the core academic subject areas can help states and schools alike develop appropriate standards and assessments and courses of study. This allows high schools to focus courses on what is most important and also permits colleges to create better admissions and placement measures.
Self-management skills include characteristics such as time management, awareness of one’s actual skill level, task prioritizing, study skills including using study groups, and the ability to take the initiative to do more than the minimum that is specified. A high school education often encourages simple compliance with minimums at a not-too-challenging level. These skills are generally expected to a much greater degree in college than in high school.

Students have some level of “college knowledge” when they understand that postsecondary institutions are communities of scholars focused on ways of knowing and that the best way to connect with this community is to develop interests in ideas, concepts, and important questions. Knowing how to approach a professor appropriately, for example, is a skill few incoming college students possess, according to professors. College knowledge also consists of knowing how to apply to college, access financial aid, and utilize a range of special services available to students that help them remain in school when struggling.

**What Can Government Do? Policy Options**

Up to this point, this paper has focused on presenting the problem of college readiness in broad terms. This section delineates a series of very specific actions and policy options that could be pursued by governments. The policy actions outlined here could conceivably take place within an individual state or could be initiated at the federal level. This section outlines three major strategies, alignment planning, joint development activities, and demonstration projects as key strategies to improve system alignment and student readiness.

**A. Alignment planning.** State K-12 and higher education systems need an incentive or mandate to meet on a regular basis to determine the ways in which the systems align or fail to align between secondary and postsecondary education. These meetings would include mandatory examination of the following policy areas:

1. The quality and appropriateness of high school exit criteria and postsecondary admission criteria;
2. Effectiveness, appropriateness, and content of postsecondary education placement policies and instruments, and the alignment of these with state standards, assessments, curriculum frameworks, and high school educational offerings;
3. Nature and uses of early admission, dual enrollment, and dual credit programs and the types of students who take advantage of them and those who do not;
4. Practices in the state for offering college credit and making placement decisions at postsecondary institutions based on Advanced Placement, SAT subject exams, International Baccalaureate exams; opportunity for all students to learn the curriculum and courses needed to prepare for these tests;
5. Degree to which teacher education program content and exit standards are aligned with a set of statewide college readiness standards;
6. Degree to which current teachers can prepare students to meet such standards;
7. Identification and promotion of best practices postsecondary outreach programs to increase the pool of students from underrepresented groups who are capable of being admitted to and succeeding in college;
8. Alignment of financial aid and scholarships with demonstrated college readiness;
9. Design of student data systems that allow more complex and valid information on student performance to pass more easily from secondary to postsecondary education;
10. Coordination with the Tech-Prep Act to ensure students who pursue professional-technical programs do not have to do so
at the expense of college preparation; and,

11. Coordination with the No Child Left Behind Act to ensure that students who are meeting NCLB requirements are also on a track to be college ready.

B. Joint development activities. State K-12 and postsecondary systems need to develop programs jointly that enable students to make successful transitions from secondary to postsecondary education. To do so, the following actions would be specified:

1. The state would create a “high school-postsecondary alignment commission” composed of members of the state education department, the state postsecondary agency or agencies, the legislature, and the governor’s office, along with key constituents from the business community and workforce development agencies, advocacy groups, and school districts. This commission would meet regularly and be charged to do the following: a) address issues of alignment and expectations across system boundaries; b) determine how successfully students make the transition from high school to postsecondary education; c) recommend policies to increase the proportion of students transitioning successfully from high school to postsecondary education. The commission would be properly staffed and resourced, would have specific goals, would issue public reports on its progress, and would have a five-year timeline to accomplish its primary goals.

2. The commission would oversee the development of key knowledge and skill statements for success in college and determine how well these align with state academic content standards and assessments. “Vertical teams” of high school and college faculty would be convened to develop these statements. The relationship of these aligned standards and assessments to No Child Left Behind performance standards would be established.

3. The commission would identify programs that span secondary and postsecondary systems and develop an interagency process for generating a budget request that would span K-12 and higher education budgets.

4. The commission would recommend, and the governor, in conjunction with the appropriate state education governing boards, would set performance targets and timelines to reduce remediation rates. The commission would study the causes of failure for freshmen at state postsecondary institutions and develop policy recommendations for a program to reduce remediation rates.

5. The commission would recommend, and the governor, in conjunction with the appropriate state education governing boards, would set concrete goals to increase the proportion of students from underrepresented groups who are prepared to apply to college. Such plans would focus on ensuring these students take the requisite high school courses, that the courses were appropriately aligned with college readiness standards, and that the students would be provided appropriate support once admitted to college.

C. Demonstration projects. For states that accomplished everything set out above, federal funds would be made available for state-level demonstration projects designed to increase the pool of students prepared to succeed in college. Such projects would need to meet the following criteria:

1. Demonstrate support from the state education department, the state higher education system, chief academic officers and superintendents of all institutions participating in the demonstration project;
2. Utilize a regional design in which a four-year college, two-year college, and one or more school districts in geographical proximity agree to work together over a multi-year period;

3. Demonstrate awareness of all ongoing programs already addressing college preparation such as TRIO, Gear-Up, AVID, campus-based outreach programs, etc., and plan how to integrate or coordinate with such programs;

4. Agree to use the results from the demonstration project when considering future high school and postsecondary reforms;

5. Give preference to projects focused on high schools with large concentrations of students from underrepresented groups; and,

6. Establish as a key outcome an increase in the success rate in college of students from underrepresented groups.

Federal funds would then be provided for the following purposes:

a. Joint development of college readiness standards that would apply to all institutions with baccalaureate degree granting authority or with programs that allow students to meet general education baccalaureate degree requirements;

b. Research on the predictive validity of state standards and assessments for college success;

c. Redesign of undergraduate courses to align better with high school standards;

d. Development of electronic transcripts that include a wider range of information on student knowledge and skill level;

e. Training for high school teachers and counselors on the key knowledge and skills for college success and how to construct appropriate lessons that enhance college success;

f. Development of sound placement instruments that test key knowledge and skills for college success;

g. Provision of need-based scholarships for students who meet college readiness standards;

h. Expansion of dual-credit programs for high schools that commit to quality standards that ensure courses address key college readiness standards;

i. Expansion of “2+2” programs that link the last two years of high school with community college programs;

j. Strategy for ensuring the quality of Advanced Placement courses and for expanding access to A.P. courses without decreasing quality;

k. Development of a classroom-based assessment system that allows teachers to score high school student work against standards necessary for success in postsecondary education;

l. Training in teacher uses of classroom-based assessment systems that help teachers grade consistently and at a level of expectation consistent with college readiness; and,

m. Development of integrated data transfer systems so that more information on high school performance (state test scores, other measures of student performance) can be transmitted from high school to college.

Building on Existing State Efforts

Many states are already beginning to undertake the elements described in the preceding program of action as well as many other actions not described in this paper. The federal gov-
ernment could serve a critical catalyzing function to enable states to move forward more quickly and in a much more comprehensive fashion to solve the problems discussed in this paper. State leaders are actively seeking solutions, but they must work in a highly politicized environment in which broad policy efforts as described in this paper are difficult to initiate. An historical opportunity exists to provide states with guidance and direction on how to align high school and college in ways that lead to enhanced participation and success for a wider range of students.

1 “TRIO” refers to a number of federal outreach programs designed to improve student access to and success in college, most prominent among them Upward Bound, Talent Search, and Student Support Services. “Gear-up” is also a federal program whose fundamental purpose is to help prepare for college low-income students and those who would be first generation college attenders. AVID stands for Advancement Via Individual Determination and has as its goal to help students—especially those in the middle—succeed in a rigorous secondary school curriculum and then enroll in a four-year college.
Introduction

Three years ago, as the fiftieth anniversary of the United States Supreme Court’s landmark ruling in Brown v. Board of Education of Topeka, Kansas approached, the nation paused to reflect. Upon reflection, we observed that we now live in a different world, dramatically impacted by globalization, where the economic security of American families, and the nation as a whole, is dependent on ensuring that many more U.S. students acquire higher skill levels. Forecasts of workforce trends triggered by globalization will, if they persist, erase all wage gains made since 1979 for workers who do not possess a four-year college degree. Thus, if the U.S. is going to compete in this new global environment and advance toward its stated economic and civic goals, the nation’s leaders must focus on education.

Unfortunately, the current outlook is gloomy. The U.S. is falling behind in its efforts to effectively educate all of our children to higher skill levels, and is no longer the global leader in educational attainment. Analyses of the educational outcomes reveal that other countries have outperformed the U.S. on international assessments of student learning. Recently, the Organization of Economic Co-operation and Development (OECD) reported that the U.S. educational standing has slipped below the average scores of other nations. In fact, from 1995 to 2005 the U.S. moved from second position to fifteenth in percentage of students graduating from college. American fifteen-year-old students place fifteenth and twenty-fourth in reading and math literacy, respectively. While top U.S. students in the United States continue to perform well, indicating that they are ready for college, the performance of disadvantaged students is falling short. For example, immigrant students in Canada, Finland and Hong Kong are performing better than immigrant students in the U.S. Forty percent of Hong Kong’s school population arrives from immigrant families. These families are very poor, and many of the parents can not read or write. Yet at age 15, the achievement gap that is quite evident in grade one has been eliminated. Clearly, if the U.S. wants to become a top performing nation, it must boost the achievement of its most disadvantaged students.

Many students find the transition from high school to college completion very demanding. Less than half of American high school students enroll in college within four years, and only one in five earns a four-year degree within six years of enrolling in college. Importantly, high school graduation rates for traditionally underserved populations are more troubling. Just half of African-American and Hispanic high school students graduate on time, while the national rate hovers around 70%.

The evidence is clear. The educational system is not working for many students. To
address this problem, many funders have tradition- ally supported programs to build the individual skills of students. Funded programming to enrich the skills of individual students includes after-school tutoring, mentoring, and summer enrichment programs. While all of these efforts are needed, they are insufficient. They often focus on technical solutions—how to get information about financial aid systems and the college application process, but fail to address the root causes that limit access to college for many underrepresented students. A shift in focus is essential. The focus must move from a focus on building individual skills to building institutional competencies and effectiveness. We must move from fixing the leaks in the educational pipeline to a broader focus on the overall career track of high school and college students. In short, new college readiness efforts should focus on:

1. creating better and more effective institutions; and,
2. the life courses and career tracks of students.

**Accelerating the High School Experience**

This paper argues that creating more effective high schools ought to be a significant part of the national strategy employed to better prepare more students for college. While the development of individual skills is important, building the skills of individual students does not happen in a vacuum. Students are strongly influenced by the larger environment in which they are attempting to learn. Thus, the core problem to be addressed is how to create schools that are more effective in teaching all students. Evidence emerging from high school demonstration projects suggests that focusing on acceleration rather than remediation is a promising strategy to pursue. We should be reminded that knowledge accumulation is accelerating. A recent 2007 Rockefeller Foundation report noted: “The past 20 years have given rise to one of the most massive accumulations of knowledge and information in human history.” Going more slowly and limiting student access to knowledge may further disadvantage students rather than help them. Over the long haul, students need to know more, not less.

*Can we realistically expect students to respond successfully to increased academic rigor in the high school curriculum?*

Yes, students will respond successfully to increased academic rigor in the high school curriculum provided schools are organized effectively to supply the support needed to help students learn. Evidence is emerging from the Early College High School (ECHS) initiative. ECHS is one of several high school reform demonstration projects supported by the Carnegie Corporation and the Gates and Ford Foundations. These initiatives are designed to provide students with the opportunity to take significant college courses in high school—in some cases up to 30 credits.

In 2007, 20,196 students were enrolled in 121 schools with demographics similar to those of most urban school districts. ECHS schools have 35% Hispanic, 28.5% White, 26.3% Black, 5.2% Asian, 3% Native American, and 2% mixed race students. Nearly one third of these schools are Title I schools.

ECHS students have performed well on state tests and in college classes. About one third of all the students are taking college courses in high school, with the vast majority of them receiving passing grades. Eighty percent of eleventh graders are passing the state reading assessments. Of the 115 students starting at the first three early colleges, over 95% graduated with a high school diploma, more than 80% were accepted at four-year colleges, and many received full and partial scholarships.

What makes these schools work is clear. The teachers and school leaders are focused on building a new type of high school that is more effective. Given the demographics of the student population, each school is organized to work with each student to prepare them emo-
tionally, socially and academically for the rigors of college. It is important to remember that many parents, even though they would like to, can not adequately prepare their children for college. They do not have the experiences or resources—the social capital—to effectively do so. Family demographics influence social capital available to families to ease their children’s transition from high school to college. Studies clearly document that a parent’s immigrant status, job setting, income, and personal educational background often result in limited formal and informal connections—social capital—to assist them in preparing their child for college.

For city school district leaders, the issue of how to tackle the needs of low-income, minority, and immigrant children is paramount. Sixty-six of the largest city school districts have a total enrollment of 7.4 million students. A large proportion of these students have been underrepresented in the nation’s colleges. Thirty-five percent are African-American, 32% are Hispanic, and 61% qualify for free or reduced-cost lunch. Additionally, the number of immigrant students in U.S. schools is growing. Approximately 32% of children of immigrants in pre-kindergarten (PK) to fifth grade have parents without high school diplomas, and 15% of children of immigrants in PK to fifth grade have parents with less than ninth grade educations. Furthermore, half of the students enrolled in limited English proficiency educational programs have parents without high school diplomas.

A college partner can play a significant role by mobilizing the rich social capital of the college to support students and enrich the school program. Social capital is primarily about relationships. Schools that develop strong relationships based on trust and cooperation among teachers, principals, parents, and community residents can effectively mobilize social capital to support student learning.

**East Palo Alto Academy: A Success Story**

Leaders of Stanford University’s East Palo Alto Academy (EPAA), an ECHS serving a large percentage of low-income Latino and African-American students, have developed policies and structures to foster trust and facilitate cooperation. The resources of Stanford University—undergraduate students, teachers trained in Stanford’s School of Education, professors conducting research, and funds raised by university donors—have been mobilized to support the school. The school and university have also worked with community agencies to support students and their families. The end result is a cohesive learning environment that has furthered student efficacy and enhanced their power to learn. Ninety percent of the first two graduating classes were admitted to college in a community where more than two thirds of adults have not graduated from high school. This is powerful evidence of the success of the school.

**Should high school graduation standards be linked to college admissions requirements?**

Much has been written about the lack of coherence between high schools and colleges, which many believe is the most significant barrier to the college aspirations of many children. The misalignment of curriculum and assessment systems is regularly cited in the literature. High school exit exams are not aligned with college entrance exams; high school curriculum varies widely and is at best loosely connected with habits of mind necessary to accelerate learning in ways that prepare students for college.

To accelerate learning and prepare more students for college, many national and state policymakers have considered ways to link high school graduation standards—curriculum and assessments—with college admissions requirements. However, graduation standards should be linked to college admissions requirements only if they contribute to a more effective school. The movement towards high school exit exams presents challenges to alignment efforts. Many states have moved to high school exit exams that are generally pegged to tenth grade standards. Sixty-five percent of all students in the nation in 22 states are impacted by high school exit exams. This will increase to 76% by
2012. The impact is more striking on students of color: 76% today, increasing to 82% in 2012.

The vast majority of states with high school exit exams—18 in 2007—report that their exit exams are designed to determine mastery of state curriculum and are not pegged to college admissions or readiness requirements. In fact, many of the college placement tests have not been updated in decades. In addition, we have learned by working with our sites that meeting college admissions requirements or passing college placement tests does not ensure that students are prepared for general education college courses. In one college, 35% of all students who meet college admissions requirements fail the general education biology course each year. Therefore, given the wide range of college admissions requirements and the reality that exit exams are in place and pegged to tenth grade standards, any effort to link these two ought to occur at the local or regional level, where teams of high school and college faculty could come together to align curriculum and assessments. Federal and state policymakers might offer incentives, including funds to local communities to develop models. The ECHS and other high school reform initiatives are currently engaged in this activity. However, additional funding could bring this to scale and encourage regional compacts across the nation focused on linking high school graduation standards with the colleges in the region.

**How do we measure success?**

Measuring the success of college readiness efforts is essential. However, we must examine any assumption that increasing the number of students graduating from college within six years of entering is a benchmark for success.

Many of us assume that the route to college ought to be the same for everyone. We believe that students graduating from high school will:

1. enter and complete college in four to six years;
2. graduate college and start their first job; and,
3. marry after completing college and go on to have their first child.

Many young people do not follow this blueprint. After graduating or leaving high school, many students:

1. get married and have their first child;
2. get their first job;
3. work for a few years and start college later; and,
4. complete college while working and supporting their families.

Alternative routes to college completion are very common. For example, a majority of students who complete General Education Development (GED) requirements will, in all likelihood, start college well into their twenties, and they are apt to have married and started their families before entering college. Four hundred nineteen thousand adults passed the GED test in 2006, about one third the size of the entire student population for New York City. Since 1943, 16 million individuals have passed the GED tests.

Life course realities matter. About one third of all college undergraduates are aged 25 and older. Notably, studies reveal that students who start college later must manage childrearing, marriage, work, and schooling. College students with broken schooling patterns, such as a school exit and later reentry, complete about as much schooling as those with one uninterrupted period.

**What is the cost of “remedial education” at the college level?**

Redesigning high schools in ways that increase the rigor of the academic experience and mobilize resources to help students succeed will reduce the cost of remediation, which has been conservatively estimated at $1.4 billion dollars a year. This estimate includes only community colleges. Estimates including four-year college costs would increase this number significantly. The Woodrow Wilson National Fellowship Foundation has col-
lected the six-year graduation rates for colleges where our graduating students are headed. The six-year graduation rates from this sample of over 150 post-secondary institutions are striking. Top tier universities—Columbia, Cornell, Dartmouth, and Vanderbilt Universities, and Universities of California, Berkeley, Michigan, North Carolina, and Virginia—do very well, with six-year graduation rates of 92.3%, 92.6%, 93.5%, 88%, 87.1%, 86.5%, 83.8%, and 92.6% respectively. On the other hand, the six-year graduation rate from a sample of fifteen California State University campuses range from 52.4% to 31.9%, and a sample of fifteen City University of New York campuses range from 58.7% to 17.6%. Six-year graduation rates from many other campuses were under 50%, including Morgan State, North Carolina A&T, Norfolk State, North Carolina Central, South Carolina State, North Carolina Central Universities, and State Universities of New York at Buffalo, Farmingdale and Purchase. Reports we have received from staff in our high schools indicate that many of these four-year campuses have allocated significant funds to college remediation.

**Findings and Recommendations**

This paper discusses the following points:

- Effective high schools must be organized to increase academic rigor and provide the support students need.
- Colleges across the nation can play a significant role in building more effective high schools by mobilizing resources to help students bridge the gap between high school and the rigor of the college experience.
- Regional compacts in local communities could demonstrate how to link high school standards with college admissions requirements.
- New data systems for accountability ought to take into account life course realities that result in many students taking alternative routes to college completion.
- Redesigned high schools that prepare students for college reduce the remedial education rate in colleges and save significant dollars.

Given these findings, actions that the federal policymakers might consider include:

- Developing a clear statement that identifies high school reform as a national priority.
- Targeting significant funds for high school reform, including funds for school university partnerships working on high school reform.
- Offering incentives and funds for cities and states creating new data systems to track student success in college and beyond.
- Targeting funds for expanded research on effective high school programs.
The world is shrinking. That reality dictates the necessity of a different approach to the setting of educational policy for any nation that wishes to have economic security. In the current economic environment, multicultural corporations have the flexibility of hiring workers anywhere in the world. The information technology-based economy allows easy access for data and information to flow across international boundaries.

Therefore, jobs are no longer guaranteed to be available within any one nation.

In addition, given that products are sold worldwide no matter where produced, the actual standards that define quality for those products become worldwide in nature. The setting of standards of quality within a nation cannot only reflect that nation’s dictates but also must be influenced by the reality of world-wide standards.

All of this suggests that as a nation undertakes the education of its children, especially in such universal areas as mathematics and science, they must look to what the rest of the world does in this same regard. What this implies is that educational policy making can no longer rest on national ideologies or opinion but must consider what might be called an internationally referenced set of standards. Data providing such standards are available through international studies such as TIMSS and PISA. For many nations this becomes a change in practice for educational policy is often set and determined without an appeal to empirical data.

The Third International Mathematics and Science Study (TIMSS) which was done originally in 1995 and repeated in 1999 and 2003 provides such data. The 1995 results for the U.S., which were the most informative, were not very encouraging as eighth grade students performed poorly (below the international mean) when compared to the other 40 nations, which included most of the European Union and major Asian nations. The subsequent TIMSS studies and the PISA studies all provide a similar disturbing picture.

What was learned, though, as a part of the TIMSS study, was a great deal about the nature of the curriculum standards and educational requirements in each of the different nations. It is that type of international data which contributes to the setting of educational policy. The achievement data only tells us where we stand and what the problems might be, but data that deal more directly with the level of expectations as defined by different nations’ standards give a much deeper understanding of how such differences in performance might be explained.

Curriculum Policy

Grades K-8

What have we learned that helps us to understand these cross-national differences in achievement and in particular to help shed some light on the relatively poor performance
of U.S. students in these international benchmarking studies? Three characteristics emerge defining the nature of the curriculum and how it varies across countries which we have found to be strongly related to these cross-national differences in achievement. The three characteristics that seem most relevant include coherence, rigor, and focus.

Focus has to do with the number of topics included at each of the grade levels. In the United States, students are asked to study many more topics at each grade level than is characteristic of the top achieving countries in the world. If students have to study many different topics in a given school year then they have little time to focus on any one of those topics and hence never quite learn it well enough. The consequence is that these topics are repeated grade after grade producing a high degree of redundancy. For example, in the top achieving countries, at first grade, only three to five topics are typically covered. In the United States we attempt to cover some twenty topics.

Rigor has to do with the level of demand associated with the mathematics or science that is taught to students. For example, in the top achieving countries, the middle school curriculum is about algebra and geometry while the U.S. curriculum focuses on arithmetic—the continuing study of fractions, decimals, percents and basic whole number computation.

The final characteristic that distinguishes the U.S. approach to education from that of other countries is the concept of coherence. Coherence is defined as the degree to which the sequencing of topics across the grades reflects the inherent logical structure of the discipline such as mathematics. When the sequence of topics is organized in this coherent fashion, we argue that it tends to result in a greater transparency to both students and teachers which allows for greater learning.

Put simply, the United States has major difficulties in the area of curriculum, especially through grade eight. The top achieving countries which are our major economic competitors have a very focused, coherent and rigorous curriculum that moves students across the grades from relatively simple arithmetic to complex algebra and geometry by eighth grade for all students. However, in the United States, this type of a curricular experience is only available to certain elite children who are placed in the fast track of curricular experiences.

For the vast majority, some eighty percent of our students, their experiences in mathematics tend not to be particularly rigorous or demanding and are often unfocused and incoherently sequenced. One of the major conclusions of the TIMSS work is that these differences in curriculum are central to understanding the cross-national differences and, in particular, toward understanding the relatively poor performance of the United States.

The middle school seems to be the point at which students lose ground internationally and hence, as a result, continue to fall behind during the high school years. In our work we have estimated that students enter high school some two to three years behind that of their counterparts in other industrialized nations. This is hardly a situation which the U.S. can tolerate if it wishes to retain its place in the global economy. It would be difficult for the U.S. to continue its leadership role in mathematics and science in particular but also to deal with the general issues that arise in the more technologically oriented economy with this deficiency in the preparation of our citizenry.

Achieving a coherent, rigorous and demanding curriculum is particularly difficult in the United States because of the absence of a clearly articulated national vision of what the nation wants its students to learn. In most of these other nations, there are clearly articulated nationally defined standards which suggest what it is that students should know at each particular grade level across the country. In the absence of such standards, the task of defining coherent, focused and rigorous standards falls to states and districts. Under No Child Left Behind (NCLB), the states’ position defining what these standards should be has been strengthened.
The data that we have shows that there is tremendous variation in standards across states and hence the country is not a single nation in terms of educational policy, but essentially acts as a collection of fifty nations, each with its own definition of what children should know in important subject matters such as mathematics and science. It is difficult to imagine how this could put us in anything but a handicapped position in terms of competing internationally. It is most difficult to establish coherence when fifty different states are each attempting to define it, especially since what is typically done at the state level is based on ideology and opinion rather than on sound academic principles.

High School

Given the salience of curriculum in explaining cross-national differences in achievement, it seems particularly risky to ignore this dimension as we attempt to improve our situation economically in the world. All of this also has powerful implications for what happens in high school and college. The curricular experience of students in high school suffers from the absence of these desirable characteristics as was the case for elementary and middle school. In the high school, there continues to be a great deal of incoherence provided by the proliferation of numerous courses all titled the same. Parents who think that their children are being well-prepared because they are studying algebra need only find out that there are multiple versions of algebra in most high schools and some students are relegated to a version of algebra that is algebra only in name. Such variability in course offerings under the same title simply further exacerbates the variability in the preparation of students and in the somewhat illicit manner of pretending that these courses are the same even when they clearly are not.

Students confronted with many courses and with little or no real requirements other than taking two, three or four years of mathematics put together sequences of courses which make little or no sense from a mathematics point of view. They have their choices from many varieties of courses, some of which cover nothing more than elementary or middle school mathematics. The students who often are in the most need of structure and requirements to succeed are the very ones who suffer the most in this situation since the social class background of their parents does not enable them to understand how important these decisions are for their child.

What the United States has created is a hugely inequitable system. We often look with great bewilderment as to why it is that there are gaps between our black and our white students or between our high and our low social class students. Yet, it is in part, the result of a system in which there are no standards that define what all students must take in order to be successful and to graduate from high school.

As a consequence, the absence of requirements with the proliferation of courses ends up with many students taking course work that leads nowhere, that does not create the necessarily well prepared work force that our economy is in need of and, as a result, we relegate many students to a lesser set of opportunities by not having had certain requirements along the way.

The major issue at the high school level is the lack of serious requirements and the proliferation of many varieties of courses that serve to meet such requirements as numbers of courses or numbers of years in mathematics required for graduation. Combined with the lack of coherent and rigorous standards in the earlier grades, the U.S. continues to prepare students who will not compete internationally and also creates a huge variation within the American educational system of the have and the have-nots.

Students whose parents are well-educated and of a higher social class succeed within this American system. Although results from TIMSS suggest that they do not do as well as they should when compared to their distinctive counterparts in these other countries—they only do well compared to the rest of the students within the U.S. educational system. For other students who do not have such home
advantages, they are simply left behind. This is and remains the greatest Achilles heel to the vision of No Child Left Behind. We will continue to leave children behind. We have a system designed to essentially exacerbate the differences that come from the home environment not ameliorate them.

All of this has obvious implications for the individual students and their future and their ability to secure jobs, but it also has implications for the country as a whole. These implications are not simply in terms of the economy of the nation but also to serious issues of equity in the society and what that implies in a democracy. I would strongly urge that we think seriously about the impact of having an education system that shuns clearly articulated standards and shuns making opportunities available for all students that are equal at least in terms of content exposure. Without this, we can never hope to have equality in performance and we will continue to have those who can and those who cannot. None of this is desirable from a public policy point of view and so I encourage policy makers to think seriously about how we as a nation should move to develop standards that are clear, rigorous, coherent and focused and that these standards be for all students so that all American children have the opportunities that we believe important.

1. The Trends in International Mathematics and Science Study (TIMSS) was developed by the International Association for the Evaluation of Educational Achievement (IEA) to measure trends in students’ mathematics and science achievement. Offered in 1995, 1999, 2003, and 2007, TIMSS provides participating countries with an unprecedented opportunity to measure students’ progress in mathematics and science achievement on a regular 4-year cycle. The Program for International Student Assessment (PISA) is an internationally standardized assessment that was jointly developed by participating countries and administered to 15-year-olds in schools. Administered by the Organisation for Economic Cooperation and Development, the survey was implemented in 45 countries in the first assessment in 2000, in 41 countries in the second assessment in 2003, in 57 countries in the third assessment in 2006 and 62 countries have signed up to participate in the fourth assessment in 2009. Tests are typically administered to between 4,500 and 10,000 students in each country.
Beyond Traditional College: The Role of Community Colleges, Career and Technical Postsecondary Education in Preparing a Globally Competitive Work Force

Thomas Bailey, Ph.D.
Director, Community College Research Center
Columbia University

Introduction

The more than 1,200 community colleges in the country educate almost one-half of all undergraduates enrolled in college over the course of a year. They play a crucial role both in preparing a workforce for a modern competitive economy and in advancing the country’s commitment to providing widespread access to postsecondary education. Moreover, as a result of changing demographic and economic trends, the effectiveness of the postsecondary workforce development role will increasingly depend on its ability to provide effective education to groups of students who have, in the past, had more limited access to our colleges and universities. Community colleges are well positioned to bring together these sometimes conflicting equity and efficiency functions of higher education. But to do this effectively, community colleges will have to improve some internal practices, especially their work with students who enroll with weak academic skills. The integration of community colleges within the overall education system—the relationship between these colleges and high schools on the one hand and four-year colleges on the other—will also have to be strengthened.

One problem that stands in the way of these improvements is that the image of the traditional college student still dominates thinking about higher education. The traditional student is a recent high school graduate attending a four-year college or university full-time, living in a dormitory, and earning a bachelor’s degree after four uninterrupted years of study. But the traditional student defined in this way accounts for only about one-fifth of all college students and excludes community college students, many of whom are returning to college after some time in the labor force, and the majority of whom attend part-time. Only a tiny percentage of community college students live in a dorm. The continued focus on “traditional” college students diverts attention and resources from community colleges, weakens the data and information available to study and improve the operation of those colleges, and distorts policy discussions and policy-making in higher education.

In this essay, I will describe the characteristics of community college students and discuss the role of the community college in increasing access to higher education by traditionally underserved students. I will describe the increasingly important contribution that they can make to preparing tomorrow’s workforce. And I will suggest how those functions can be improved, focusing on practices that can improve the colleges’ crucial work with students with weak academic skills and on efforts to strengthen the relationship between high schools, community colleges, and universities. Although many of these reforms will be the responsibility of the states, the federal government can also play a crucial role.
Community College Students

There are over 6 million community college students enrolled in for-credit courses—courses that lead to a state-recognized degree or certificate. In addition, there are at least as many non-credit students in the colleges. The non-credit programs at community colleges are playing an increasingly important workforce development role, yet are poorly understood.

Although there are indeed many 18- and 19-year-old full-time students in community colleges, they account for a much smaller share of students than at four-year institutions. Table 1 demonstrates that community college students tend to be older (which means that they delayed at least part of their college attendance after high school) and they are more likely to have dependents, and to attend part-year. About two-thirds of community college students attend part-time, compared to less than one-third of four-year college students. This is one of the most significant differences between the two types of students. Working with part-time students presents particularly difficult challenges for college faculty, counselors, and administrators. Furthermore, community college students are much more likely to enter college with weak academic skills. More than one-half of entering community college students is judged to be inadequately prepared for college-level work, compared to about one-quarter for four-year college students.

These student characteristics make the educational mission of community colleges more difficult, but other demographic characteristics illustrate the important role that the colleges play in providing opportunity for a broad range of students. Compared to four-year college students, community college students are more likely to be from low-income families (or families with low socio-economic status), first-generation college students, foreign born, and minority, especially Hispanic.

The characteristics and mission of community colleges explain the concentration of these demographic groups among their students.

Community colleges have much lower tuition and are more likely to be located near a student’s home, allowing students to save money by living at home. The colleges are more likely to have flexible schedules to accommodate working students or students with other competing responsibilities. The admissions procedures of most community colleges do not reject students on the basis of their academic record, and most are committed to helping students prepare themselves to take college-level courses by offering developmental education. In several states, all developmental education (or remediation) given by public institutions is carried out by the two-year colleges. In addition, most community colleges have extensive English as a Second Language (ESL) programs and many also offer Adult Basic Education (ABE) for older students with very low literacy levels. Thus low tuition levels, proximity, open-door admissions policies, flexible scheduling, and specialized student and academic services all explain why community colleges have in the past been the foundation of our educational system’s mission of providing access to college for all students who wish to enroll. For the same reasons, they will also provide the key to further expanding the reach and success of higher education. Such expansion will be an important component of any policy to prepare the country’s labor force for the emerging economy.

Community Colleges and Workforce Development

While the community colleges have played a crucial role in providing equity and access, what contribution have they and will they be able to make to the economy through preparation of the workforce? First of all, community college degrees do have value in the labor market. Men who complete an associate degree earn between 15 and 30 percent more than those who have only graduated from high school. The value of an associate degree for women is much higher. Not surprisingly, occupationally oriented associate degrees, such as nursing,
have more value than academic associate degrees (the latter are more appropriate for students who plan to transfer and earn a bachelor’s degree). Community colleges play a central role in preparation for many occupations. About 60 percent of the registered nurses have an associate degree in nursing (ADN) and many nurses with bachelor’s degrees (BSN), started their nursing education in community colleges. Community colleges train many other technical level workers in the health industry. A majority of “first responders” have community college training and many skilled construction workers acquire the classroom components of their apprenticeships in community colleges. Community colleges have also been very active in providing upgrade training for information technology workers. Most community colleges also maintain close relationships with local employers, organizing customized training for particular employer needs, or working with employers to design occupational programs appropriate for the needs of the local labor market. Adjuncts in occupational programs are often current or recently retired workers from local businesses. Overall, occupational projections suggest that there will be a continued strong demand for “middle level” jobs—those that need some education after high school, but less than a bachelor’s degree, or precisely the types of jobs for which a community college education is appropriate.

Although most community college students enter the labor market directly after their community college education, the majority of entering students state that they plan to transfer and complete a bachelor’s degree, at least. Thus, community colleges also serve as a pipeline to a four-year college degree, and according to occupational projections, jobs requiring a bachelor’s degree will be the fastest growing segment of the occupational structure. Moreover, international data indicate that the percentage of the working age population with a college degree in other countries is growing more rapidly than that percentage is in the U.S.—indeed several countries now surpass the U.S. in this percentage. If the share of the population with a college degree is going to increase, then college going rates for currently underrepresented groups will have to increase (almost all upper-income whites already attend and complete college.) Several states with an aging population are already trying to improve the state’s educational levels by encouraging older workers to attend community college. Hispanics are the fastest growing segment of the population, yet their college attendance and completion rates are significantly below the average for the population as a whole. Thus community colleges will play a central role in any policy aimed at increasing the educational level of currently underrepresented groups—older workers, low-income and first generation students, immigrants, and minorities, especially Hispanics.

These trends demonstrate the important contribution that community colleges can make to the growing workforce needs of the country. They are less expensive (for the student and the state), they are directly preparing workers for important and growing segments of the labor market, and they are already disproportionately educating groups in the population whose educational levels will need to increase if the country is going to be able to generate the skills needed for a modern economy.

Improving the Performance of Community Colleges

Although community colleges are in a position to advance both equity and economic/workforce development goals, their contribution could be further strengthened by improvements in both the internal operation of the colleges and in their relationships with high schools and four-year colleges. While community colleges have done an excellent job of providing access to college, many students who initially enroll never earn a credential. According to National Center for Education Statistics data on a cohort of students completing high school in 1992, just below one-fifth of those entering community college students left before completing 10 credits. Eight years after initial enrollment, about two-fifths of community col-
lege students had completed a certificate or an associate or bachelor’s degree, and another 10 percent had transferred to a four-year institution, but had not completed any degree. Thus 50 percent had neither earned a degree or certificate nor transferred. These outcomes vary significantly by race and socioeconomic status (SES). Sixty-two percent of students from the lowest SES quartile, 60 percent of Hispanic students, and almost three-quarters of African American students had not completed a degree or certificate 10 years after initial enrollment.

Many of these students face significant social and economic barriers to their education that thwart their educational goals. But certainly weak academic skills are the most important barriers. Community colleges offer developmental education classes and other academic services to strengthen those skills, but evaluations suggest that these are not very effective. A majority of students who are referred to developmental education in a particular field never complete a college-level course in that field.

To be sure, this is an extremely difficult problem, but if developmental education is to have any chance of succeeding, it will have to be significantly reformed. The traditional approach of conducting classes that coincide with semesters (often taught by adjuncts) is not working. One problem is that there is a surprising lack of good information and research on effective developmental practices. One promising approach involves attempts to accelerate the completion of developmental courses and sequences. These courses delay the start of college, cost students money and time, and are often extremely discouraging. A second approach is referred to as “learning communities.” In these, cohorts of students are kept together to develop mutual support, and developmental classes are paired with college-level classes (often in occupational areas). This gives the students a sense of progress and has the additional benefit that it provides a substantive motivation for academic skills taught in the developmental classes. But a great deal more experimentation and research is needed to establish the efficacy and optimal design of these strategies. This is a national problem and the federal government can play a central role in this program development process.

The transition from developmental education to college-level courses is not the only weak transition. The developmental education problem itself reflects a disconnection between the secondary and postsecondary systems in that many high school graduates are judged not to be prepared for college when they enroll. (It should be noted though that many developmental education students are adults or immigrants—or both—who are returning to school after sometimes several years, so their lack of preparation cannot only be blamed on their high schools.) There are many promising policies, and indeed a national movement, to better connect high school and college through practices such as early warning assessments in high school, dual enrollment, and the alignment of high school graduation with college entrance assessments.

Another problematic transition is the process of transfer from community college to a four-year institution. This is notoriously difficult and students encounter many problems in transferring their credits, even to public four-year colleges, which are presumably part of the same state system. Moreover, a well-functioning transfer system is crucial if the community colleges are going to serve as expanded entry points to the bachelor’s degree for students from previously underserved populations. But some states do a much better job at transfer than others (and transfer to a private institution is often much easier than to a public institution), suggesting that overall improvements can be made. Statewide articulation agreements in which four-year colleges agree to accept credits from specific courses, as if they were courses taken at the four-year institution, is an obvious first step. Another promising practice is automatic admission to the four-year college as a junior for students who complete an associate degree. Yet another approach, being discussed in Virginia, is to allow associate degree gradu-
ates to continue their education at public four-year institutions paying the lower community college tuition level. Finally, some community colleges have also begun to offer “applied” bachelor’s degrees when there are no appropriate nearby programs in four-year institutions, and in other cases, four-year colleges have begun to teach classes on community college campuses to ease the transition for community college students.

Since 1917, the federal government has played an important role in occupational education, most recently through the Perkins Career and Technical Education Act of 2006. Under this Act, the Department of Education oversees a portfolio of research and program development. Given the issues raised in this essay, one useful approach would be to promote the coordination of two- and four-year occupational programs. (This can be part of a broader program to promote transfer). Many of the fastest growing community college programs and those with the best job prospects also have associated four-year programs. Nursing is an excellent example. Yet in many cases, these two- and four-year programs are not well coordinated. Students have trouble moving from one to the other. Improving this process can be an important component of a strategy to improve the use of the community college as an access point to the entire postsecondary system for previously underserved groups of students.

Much of the most useful information about what happens to college students comes from the National Center for Education Statistics' superb longitudinal data sets. Most of what I have said in this essay is based on those data, which track individual students from high school through college for several years after the high school graduation date. It is particularly significant that the data include information from the student’s transcripts. I have emphasized that problems with the transitions among institutions must be addressed. Unless we can follow students as they change schools, we simply cannot understand what happens to them. This program of data collection should be expanded and research using them should be encouraged. Over the last few years several researchers have begun to use very large state longitudinal data bases to study higher education. These have some advantages and some disadvantages over the federal sample-based data sets. The federal government should also try to coordinate work on these data sets and encourage standardization and collaboration among states.
### TABLE 1

Comparison of Characteristics of Students at Community Colleges and Public and Private Four-Year Institutions

<table>
<thead>
<tr>
<th></th>
<th>Community College (public 2-Year)</th>
<th>Public 4-Year</th>
<th>Private 4-Year (not-for-profit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income less than $30,000</td>
<td>42.91</td>
<td>33.6</td>
<td>31.9</td>
</tr>
<tr>
<td>Age Under 25</td>
<td>47.0</td>
<td>71.0</td>
<td>66.9</td>
</tr>
<tr>
<td>Has Dependent Children</td>
<td>32.5</td>
<td>13.2</td>
<td>18.3</td>
</tr>
<tr>
<td>Part-Time Enrollment</td>
<td>66.1</td>
<td>30.2</td>
<td>26.7</td>
</tr>
<tr>
<td>Part-Year Enrollment</td>
<td>46.9</td>
<td>23.2</td>
<td>27.9</td>
</tr>
</tbody>
</table>

Parents’ income for dependent students; student’s (and spouse’s) income for independent students.


* This essay is based on research conducted by the Community College Research Center, (http://ccrc.tc.columbia.edu/) and in particular from *Defending the Community College Equity Agenda*, Thomas Bailey and Vanessa Morest (eds.), Baltimore: Johns Hopkins University Press, 2006.
I. Introduction

The United States no longer leads the world in college completion rates. Inequality in college access rates by income have barely narrowed over the last 25 to 30 years and inequality in college completion rates have narrowed even less. The groups in the population that are growing the most rapidly are those that have historically been underrepresented in higher education. What types of federal policies might help to address these issues in the face of tuition levels at private colleges and universities that have risen for over a century by an average of 2 to 3.5 percent a year more than the rate of inflation and tuition levels at public colleges and universities that have recently risen at similar rates? And why does tuition keep rising, and can anything be done about it?

Improving undergraduate access and persistence through to graduation is not the only goal for higher education policy. We should seek to improve, or at least maintain, the quality of higher education. We should also remember that higher education is much more than undergraduate education. The scientific research that goes on at research universities is essential for our nation’s economic well-being. So too are the doctoral students who contribute to the production of research and become the next generation of college faculty and researchers. Finally, there is the role of land grant universities specifically, and public higher education more generally, in improving the welfare of the population beyond their enrolled students through extension and outreach activities.

Public policies that affect any of these other aspects of higher education will inevitably influence the ability of academic institutions to improve access and persistence. For example, over the last 25 to 30 years the share of the ever expanding research budgets at America’s research universities financed out of institutional funds (such as endowment income and annual giving) has increased. A recent Congressional proposal to cap indirect cost reimbursement rates at 35% on basic-research grants and contracts financed by the Defense Department would further shift the costs of funding research onto the universities, leaving them with fewer resources to provide grant aid for students and/or putting more pressure on their tuition levels.

II. Private Higher Education

Two-thirds of all four-year college students are enrolled in public higher education institutions; this share rises to four-fifths if we include two-year college students. Hence, public concern over issues of cost, access and persistence really should be directed towards this sector. However, because tuition levels at the high-priced selective private institutions receive so much attention, I begin my discussion with them. The factors that have led to continual tuition increases at these institutions are described in detail in my book *Tuition Rising.*
They include the failure of faculty productivity in teaching to grow substantially; the quest by institutions to be the very best that they can in every dimension of their activities which has led to an arms race of spending; the widening distribution of earnings in the United States which creates pressure on students and their families to “buy the best” and leads to an increase in the numbers of students applying to the selective privates, thereby reducing any competitive pressure that might moderate tuition increases; and the U.S News & World Report annual ranking of colleges and universities that rewards institutions for increasing spending. In private higher education, increases in tuition are almost always associated with increases in educational expenditures per student.

Tuition increases at private colleges and universities overstate the increase in costs faced by students because tuition discounting is increasingly prevalent. Recent surveys by the National Association of College and University Business Officers and the College Board suggest that the typical private college or university gives back 30 to 40% of its tuition revenue to students in the form of grant aid. However, increasingly this aid is “merit” rather than “need” based as institutions increasingly use aid to “craft their classes” rather than to ensure access and persistence. Today, there are only a few institutions, such as my own, that provide only need-based financial aid.

While their tuitions continue to increase, the endowments at the richest private colleges and universities have also soared. In 2005-2006 the wealthiest 10 percent of private colleges and universities had about $450,000 in endowment per student, while the median private institution had only about $15,000. Disparities in endowment wealth are enormous even among those in the upper tail of the endowment distribution. For example, in June 2006 Princeton’s endowment per student was about 8½ times Cornell’s. Why should policy makers care about simultaneous high tuition and high endowment levels at wealthy selective private colleges and universities? After all, no student is forced to attend them. The answer is that research shows that students who attend institutions that spend more educating them have higher post-college earnings and greater probabilities of going to graduate and professional schools. Taxpayers as a whole subsidize these institutions through the favorable tax treatment they receive (no taxes on endowment income, tax deductions for the contributions made to them, exemption from local property taxes, and ability to issue tax-free bonds). In return for this favorable tax treatment, these institutions are expected to act in the public interest; one aspect of this is for them to remain accessible to students from all family income levels.

Currently the proportion of Pell Grant recipients at many of them is far below the proportion of Pell Grant recipients among students nationwide. While there are many reasons for this, including inequities in our nation’s public elementary and secondary education system (often based upon family income) that limit the ability of students from lower-income families to compete for positions at selective institutions, the wealthiest privates have understood their responsibilities and embarked on programs to enhance enrollments of students from disadvantaged families—by drastically improving financial aid packages, aggressively recruiting students, and providing enhanced support for those who enroll. However, the disparities in endowment wealth, even in the upper tail of the private institution endowment distribution, make it unlikely that the vast majority of private academic institutions could pursue similar policies.

What about proposals to require academic institutions to have minimum spending rates from their endowments of 5% in the hope this would force them to spend more on financial aid? These proposals appropriately assume that the average rate of return on endowment assets will be sufficiently high that a 5% spending rate will still enable an institution to maintain the real value of its endowments over time. Most institutions base endowment spending decisions on an average value of their endowments over a number of (often 12) quarters, and their
spending rates from this average currently are below 5%. Endowments are not analogous to savings accounts; they often are legally restricted to specific uses (e.g., an endowed professorship), and the distributions they generate can’t always be used for financial aid. However, many activities that endowments support are not fully funded by spending from them and require support from the institution’s general operating budgets. Generating extra spending from an endowment will often free up funds from the general operating budget of a private institution that can then be used for financial aid. Private academic institutions should be held accountable for the tax benefits they receive, and requiring a minimum spending rate of 5% of the average value of their endowments over a three-year period is a reasonable way to both increase accountability and generate some additional institutional funds that could be used for financial aid.

III. Public Higher Education

During the last 25 to 30 years tuition increases at four-year public institutions have been slightly higher in percentage terms than tuition increases at four-year private institutions. However, the dollar increases have been smaller at the publics, so in real terms the dollar gap between public and private tuition has increased. Tuition increases at the publics have been driven largely by the failure of state support per student to grow much in real terms; it has been essentially flat if one uses the Higher Education Price Index (HEPI) rather than the CPI. In contrast to what goes on in private higher education, in years when state support is cut, tuition increases in public higher education often are associated with decreases in expenditures per student.

As a result, expenditures per student in public higher education have fallen relative to expenditures per student in private higher education, leading to declining relative salaries of faculty in public institutions (making it increasingly difficult for the publics to attract and retain top faculty) and to an increased use of part-time and full-time non tenure-track faculty (which research shows is associated with a reduction in graduation rates). Put simply, there is no such thing as a free lunch and inadequate funding for public higher education is having serious impacts on the quality of these institutions.

Educational expenditures per student vary widely across types of public higher education institutions; they are larger at the flagship doctoral institutions than they are at the comprehensive (master’s) institutions and larger at the latter than they are at the two-year colleges. Conversely, the proportions of students who are Pell Grant recipients are larger at the two-year colleges than they are at the comprehensives, which in turn are larger than they are at the flagship doctoral institutions. Inasmuch as higher expenditures per student are associated with higher post-college earnings, on balance the income gains that students get from attending college are positively related to their initial family income levels. This disparity in expenditures per student received by students from different family income levels is amplified by the changing distribution of financial aid programs; increasingly state grant aid programs are merit rather than needs based and the expansion of federal subsidized loan and tax credit programs benefits primarily middle- and upper-middle-income students rather than students from lower-income families. The privatization of public higher education that is occurring (moving towards further reductions in state support and allowing public institutions more freedom to raise their tuitions) is most likely to be successful at the flagship doctoral institutions. Students’ demand for places at them will allow these institutions to raise tuition and still fill all their seats, while their substantial endowments and ability to generate large annual giving streams can then help fund institutional financial aid to maintain access. The comprehensives and two-year colleges face much less favorable conditions and privatization of them will likely price some students, primarily those from lower-income families, out of college.

To improve access and persistence, policies
need to be developed to get more students from lower-income families to the flagship doctoral institutions and to encourage states to spend more on their higher education systems and to limit tuition increases at the comprehensives and two-year colleges. A number of flagship public doctoral institutions have developed programs similar to those at the wealthiest privates to increase access and persistence of students; examples include Access UVA, the Carolina Covenant and the Texas Longhorn Opportunity Scholarship Program.

Approximately 40 percent of all first-time freshmen begin their studies at two-year colleges, with about 90 percent of these starting at public colleges. The transitions from two-year colleges, where many students from lower-income families begin, to four-year colleges are often not seamless and hinder the students’ progression to four-year degrees. While many problems in this area need to be addressed at the state level, federal policies ought to provide incentives for institutions and states to facilitate these transitions.

Research suggests that there is at best a very weak relationship between the amount that a state spends on its public higher education system and the fraction of its population that has a college degree. This should not be surprising, because college-educated workers can move across state lines to where job opportunities are the best. However, this lack of a strong relationship between state spending on higher education and the education level of the state’s workforce provides an incentive for states to invest less than is socially optimal in higher education. Inasmuch as the nation as a whole benefits from a highly-educated workforce, this provides another reason for the desirability of the federal government providing incentives for states to invest more in higher education.

IV. Federal Policy Recommendations

How the federal government finances Medicaid and the Pell Grant program is asymmetrical. When a state spends more on Medicaid, it gets more federal matching funds. In contrast, historically, when a state spent less on its higher education system and a public higher education institution responded by raising its tuition, the higher tuition increased the amount of Pell Grant funding that some residents of the state were eligible for because Pell Grant award levels were limited by the tuition that students paid. Thus states received more federal funds if they increased Medicaid funding, but less federal funds if they increased state funding for higher education (which allowed tuition levels to be kept low). The Budget Reconciliation Bill (HR2669) of 2007, which permanently repealed the tuition sensitivity provision in the Pell Grant program, was a step in the right direction; it removed the incentive states had to cut back their funding of public higher education institutions, but it did not provide any incentive for them to spend more. The College Opportunity and Affordability Act of 2007 begins to provide such incentives.

If the increased enrollment and persistence of students from lower-income families is a policy goal, federal funding policies should support this objective. Another way to achieve this would be to base the federal SEOG (Supplemental Educational Opportunity Grant) funding that goes to institutions on the volume of Pell Grant funds that their students receive, not on historical entitlements. Expanding the size of a restructuring SEOG program would provide both public and private institutions with more discretionary funds to allocate for need-based financial aid.

Of course critics of governmental grant aid programs often argue that when grant aid programs are expanded, institutions try to capture the increased aid by increasing their tuition, which reduces the chance that the program actually will lead to increased enrollment and persistence of students from lower-income families. In the main, academic research does not find that this occurs. However, the possibility raises the issue of whether governmental efforts to expand access and persistence should also seek to provide incentives to academic institutions to accomplish these goals.
One possible policy would provide funding to each two- and four-year institution based on the numbers of Pell Grant recipients enrolled at the institution, or the dollar volume of Pell Grant program funds its students receive. In addition, to encourage persistence, additional funding would be provided for each two-year, or four-year degree granted by the institution to Pell Grant recipients. Institutions would be free to use these funds in any way that they saw fit; they might use them for institutional aid, for support services to enhance persistence, or for recruitment of students. Each institution could choose to allocate the funds in ways that benefited it the most. Such a policy was actually part of the original Pell Grant proposal in 1972, although it was never enacted. It recognizes the additional costs that institutions face in recruiting and educating through to graduation students from lower-income families, and it provides a financial incentive to encourage institutions to expand their enrollments and graduation rates of these students.

Given that the vast majority of students from lower-income families are enrolled at public comprehensives, public two-year colleges, and less well-endowed private four-year colleges, such a program would benefit most of those institutions. Note that because four-year colleges would receive funds for each Pell Grant recipient that they graduate, they would have an increased incentive to enroll Pell Grant recipients transferring from two-year colleges; they would bear the cost of educating these students for only two years, but receive the same “reward” that they would receive for graduating Pell Grant recipients who initially enrolled as freshmen. For many years New York State has had a Bundy Aid program which provides grants to private colleges and universities in the state for each degree that they award. Its private four-year colleges have taken advantage of the program’s incentives and aggressively recruit graduates of New York’s public two-year colleges.

Space constraints prevent me from discussing in detail a number of other policy issues Congress might consider, but I will mention two briefly. The financial aid system needs to be simplified and made more transparent. Students need to know about their Pell Grant eligibility, their prospective funding level and what the costs of attending colleges in their state would be well in advance of their senior year in high school. Given the variation in state grant aid programs, it would be important to work towards an integrated system in which students would learn about their eligibility for and potential size of state grant aid at the same time.

Finally, proposals to penalize academic institutions for raising their tuition levels more than a certain rate should be viewed with caution. The lower an institution’s tuition, the smaller the increase in revenue that it receives for any given percentage increase; so large percentage tuition increases at public institutions often generate less revenue per student than smaller percentage increases at private institutions. Tuition increases in public higher education often are efforts to (partially) make up for cuts in state support. Tuition increases in private higher education often are a result of efforts to maintain or increase quality and part of the tuition increases are used to generate funds for grant aid. Rather than focusing on tuition levels and increases, policy should focus on whether academic institutions are maintaining and expanding access and persistence.

* The views expressed here are solely my own.
The New Role of Higher Education Attainment in Global Competitiveness and Income Opportunity: Implications for National Policy

CONFERENCE PARTICIPANTS

Charleston, South Carolina
February 18-22, 2008

Members of Congress

Senator Sherrod Brown
and Connie Schultz
Representative Susan Davis
and Steve Davis
Representative Diana DeGette
Representative Mike Honda
Senator Richard Lugar
and Charlene Lugar
Representative George Miller
Representative Donald Payne
Representative Ralph Regula
and Mary Regula
Representative Pete Stark
and Deborah Stark
Representative John Tierney
Representative Melvin Watt
and Eulada Watt

David Conley
University of Oregon
Ronald Ehrenberg
Cornell University
Daniel Fallon
Carnegie Corporation of New York
Fred Frelow
Woodrow Wilson National Fellowship Foundation
Susan Goldberger
Jobs for the Future
William Schmidt
Michigan State University

Observers

Alison Bernstein
The Ford Foundation
Adele Simmons
Congressional Program Advisory Committee

Scholars/Experts

Thomas Bailey
Columbia University
Michele Cahill
Carnegie Corporation of New York

Moderator

Dick Clark
Director, Congressional Program
The Aspen Institute
Rapporteur
Carol Copple
National Association for the Education of Young Children

Aspen Institute Staff
Diane Anello
Bill Nell
Pat Walton
The New Role of Higher Education Attainment in Global Competitiveness and Income Opportunity: Implications for National Policy

CONFERENCE AGENDA

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Should College for All Be the Goal?
Susan Goldberger, Jobs for the Future

Discussion Questions:
• How highly educated should our citizenry be?
• What considerations and evidence should take priority in determining the answer to that question? Projected workforce needs for the U.S. economy to remain competitive? Projected relationship between college educational attainment and income and other equity goals?
• Is there another answer besides “college for all” as the means to close the income and opportunity gap in our society?

College Readiness and Acceleration: High School to College Success
David Conley, University of Oregon
Fred Frelow, Woodrow Wilson National Fellowship Foundation

Discussion Questions:
• Should high school graduation standards be linked to college admissions requirements?
• What is the cost of “remedial education” at the college level?
• Can we realistically expect students to respond successfully to increased academic rigor in the high school curriculum?

Math and Science Achievement: Building the Pipeline to College
William Schmidt, Michigan State University

Discussion Questions:
• Are U.S. students really falling behind students in other nations in mastery of math and science?
• How important is achievement of college-preparatory and college-level mathematics by a broader sector of the American population to our economic well-being?
• How important is increasing the number of mathematicians and scientists to our nation’s economic health?
• Do we know how to teach math or science effectively?
• How can we improve math and science instruction?

**Beyond Traditional College: The Role of Community Colleges, Career and Technical Post-Secondary Education in Preparing a Globally Competitive Work Force**

Thomas Bailey, Columbia University

**Discussion Questions:**
• What is the role of the community college in increasing access to higher education by traditionally underserved students?
• Can the community college play a special role in preparing tomorrow’s workforce?
• What should be the relationships between high schools, community colleges, and universities?

**Policy Considerations for Financing the Production of Human Capital: How Will We Pay for the Higher Education We Will Need to Serve the Students Coming from an Improved, More Effective, K-12 System?**

Ronald Ehrenberg, Cornell University

**Discussion Questions:**
• Can the nation afford universal higher education?
• If high schools prepare more college ready graduates, what are some policy options that would make it possible for these candidates to afford college?