

## Saving Now and Saving Later: How High School Reform Can Reduce the Nation's Wasted Remediation Dollars

For young people entering the job market of the twenty-first century, high school graduation is no longer the finish line, but the starting line. While one-third of students will fail to graduate from high school, too many students who do graduate and make it to the postsecondary starting line find that they are underprepared for postsecondary work. Unfortunately, this trend affects students no matter what postsecondary path they choose. A full 43 percent of those who begin postsecondary studies fail to earn a degree after six years,<sup>1</sup> and one major reason for this is that students receive inadequate preparation while in high school. Roughly one out of every three students entering postsecondary education will have to take at least one remedial course,<sup>2</sup> and taking a remedial course dramatically increases the odds a student will not complete college.

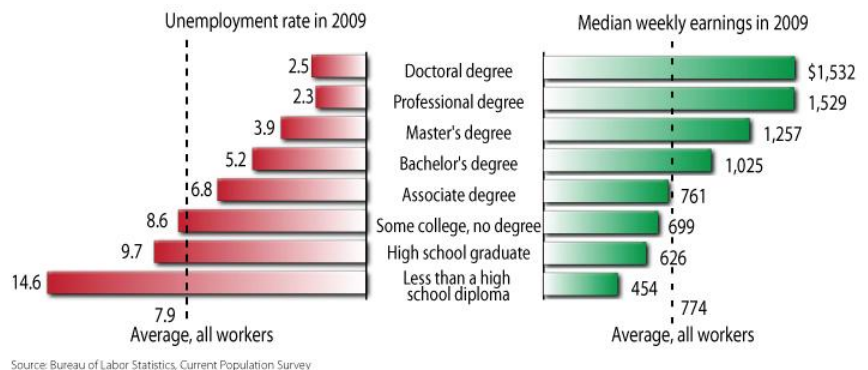
The need for remedial education results in significant costs to both the unprepared students themselves and the nation as a whole. An analysis of college students enrolled during the 2007–08 school year estimates that remediation needs throughout their time in college cost the nation an estimated \$5.6 billion. This figure includes \$3.6 billion in direct remedial education costs for students who did not have the skills to succeed in postsecondary course work. It also includes an additional \$2 billion in lost lifetime wages, since students who take remedial courses are more likely to drop out of college without a degree.

### The Economic Need for Postsecondary Readiness

In today's complex global economy, postsecondary education is increasingly necessary for the success of individual citizens and the nation as a whole. This need is only exacerbated by the nation's present economic difficulties. While the national unemployment rate, which now hovers close to 9 percent, reflects individuals of all education levels who are unemployed during the current economic crisis, those with lower levels of education have

been affected the most. Compared to college graduates, high school graduates without any kind of postsecondary credential and high school dropouts have unemployment rates that are nearly two and three times higher, respectively, than individuals with bachelor's degrees.<sup>3</sup> See figure above.

#### Education pays



By 2018, about two-thirds of all employment will require some college education or better.

Source: Authors' analysis of March CPS data, various years; Center on Education and the Workforce forecast of educational demand to 2018

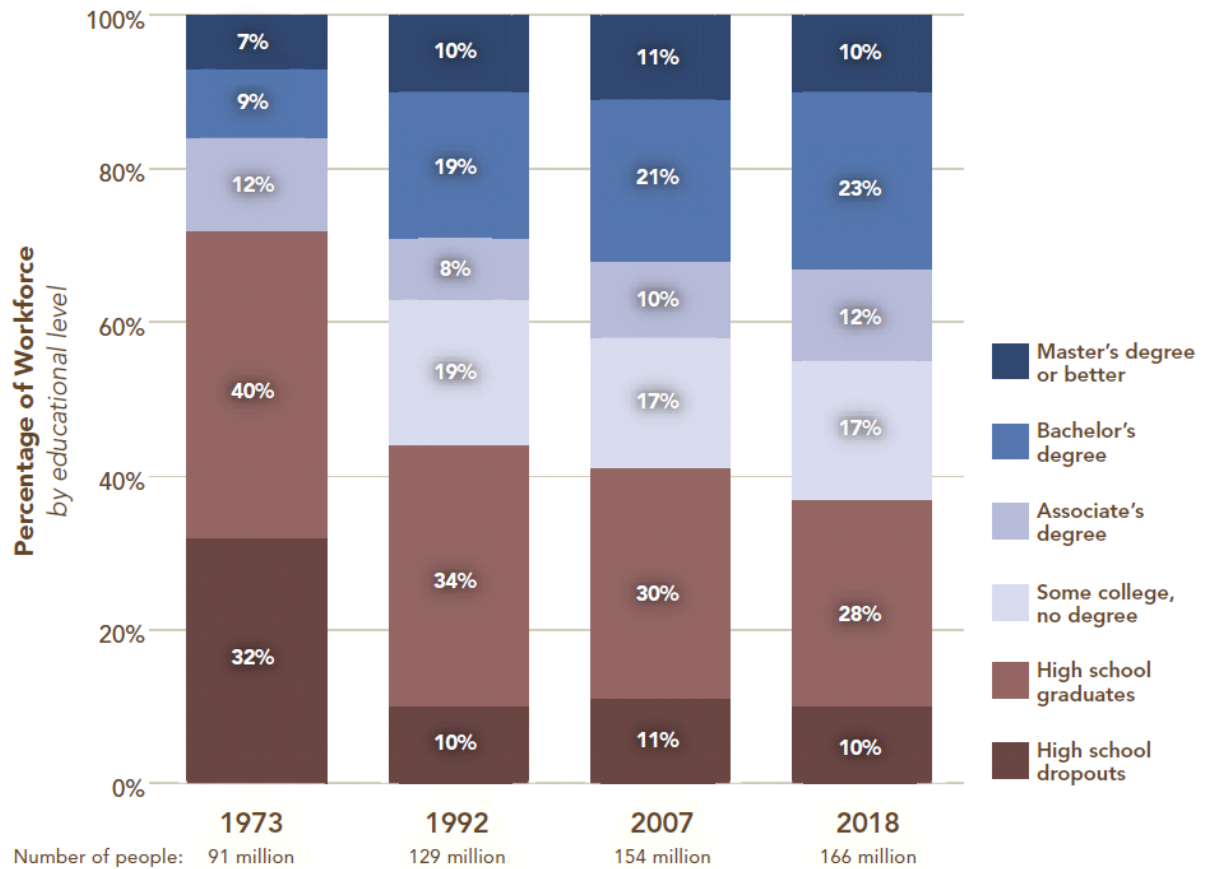


Chart source: A. Carnevale, N. Smith, and J. Strohl, *Help Wanted: Projections of Jobs and Economic Requirements Through 2018* (Washington, DC: Georgetown University Center on Education and the Workforce, 2010).

Hard economic times pose greater challenges for those with less education, and analyses point to a longer-term trend even after the nation recovers. Projections by the Bureau of Labor Statistics show that in the next decade, employment in occupations requiring associate's degrees will see the most rapid growth, while occupations that require long-term on-the-job training will see the slowest growth.<sup>4</sup> This is part of a decades-long trend whose end is uncertain. Between 1973 and 2008, the share of jobs in the U.S. economy that required postsecondary education increased from 28 percent to 59 percent. According to an analysis by the Georgetown Center on Education and the Workforce, this percentage will increase over the next decade to 63 percent (see figure above). To meet these job market demands, the nation will need an additional 22 million workers with postsecondary degrees, but it is expected to fall 3 million postsecondary degrees short.<sup>5</sup> Given these projections, it is essential to improve postsecondary completion rates in order to fulfill future economic demands.

These national trends become even more disturbing when viewed against current international comparisons. The United States once led the world in the proportion of twenty-five- to thirty-four-year-olds with college degrees, which gave American labor a distinct advantage in competing for emerging jobs in high-skill industries. Today, the United States ranks twelfth out of thirty-two developing nations and can no longer count on this advantage.<sup>6</sup> Analyses show that as the number of scientists and engineers in foreign countries like Japan, India, and China has increased, these countries have received greater investment by high-skill U.S. industries that are outsourcing science and engineering jobs offshore.<sup>7</sup> In



response to these demands, the Obama administration has set a goal for the United States to once again have the highest proportion of two- or four-year-college graduates in the world by the year 2020.<sup>8</sup> In order to cross this finish line, however, students first need to arrive at the starting gate ready for college-level work. Unfortunately, for many of the nation's high school graduates that is not the case.

## **Postsecondary Remediation: Who Is Involved and What Are the Outcomes?**

Students themselves recognize the importance of higher education, and surveys show that the great majority of students expect to attend college.<sup>9</sup> Unfortunately, too few students are actually ready for the demands of postsecondary work.<sup>10</sup> According to student outcomes on the ACT, only 52 percent of ACT-tested graduates were deemed college ready in reading and only 43 percent were deemed college ready in mathematics.<sup>11</sup> When it came to college readiness across all four subjects tested by ACT,<sup>a</sup> only 24 percent of tested students were able to meet this benchmark.<sup>12</sup>

This lack of postsecondary readiness translates to a rising need for remedial education. Nationwide, about 40 percent of all first-year students will need remedial education before they can enroll in credit-bearing courses. An estimate of 2008 college students under the age of twenty-five<sup>b</sup> shows that 44 percent of all students at public two-year institutions and 27 percent of all students at public four-year institutions enrolled in a remedial course.<sup>13</sup> While remediation is a problem for students of all racial backgrounds, students of color face more significant consequences, as they have disproportionately low access to high-quality education<sup>14</sup> and are correspondingly overrepresented in remedial classes.<sup>15</sup> Additionally, while the conventional wisdom is that only lower-performing students need remedial help, in reality this is not the case. One survey showed that four out of five students taking remedial courses had a high school grade point average above 3.0.<sup>16</sup> These facts imply a larger failure of American high schools to prepare all students for the needs of education at the next level.

Moving forward, remediation cannot be seen as a viable solution to the preparation gap between high school and postsecondary course work. Studies on the effects of remediation on postsecondary outcomes indicate that remediation is a poor substitute for a high-quality high school education.<sup>17</sup> Compared to peers who are not in need of remediation, students who must take remedial courses are about half as likely to graduate.<sup>18</sup> Indeed, even in the case of students with similar skill levels, the more remedial courses students have to take, the less likely they are to graduate.

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<sup>a</sup> The Condition of College and Career Readiness reported by ACT is an empirically derived (based on the performance of students in college) benchmark that provides the minimum score needed on an ACT-tested subject area to demonstrate a 50 percent chance of obtaining a B or higher or about a 75 percent chance of obtaining a C or higher in the corresponding first-year credit-bearing college course. College courses can include college algebra, English composition, biology, and introductory social science courses.

<sup>b</sup> It is important to note that many students take remedial coursework for reasons having little to do with the failings of the nation's high schools. Postsecondary institutions have become a significant resource that offers opportunities to retrain laid-off workers, reeducate older students, and teach English to recent immigrants. Some of these enrollees are likely classified as taking courses that are considered "remedial." In an attempt to control for this, the analysis presented in this brief looks only at students younger than twenty-five years of age.



## **The Real Cost of Remedial Education**

Not only is remediation an ineffective solution to the preparation gap problem, it is also a wasteful use of public and private dollars. Helping students catch up to the expectations of postsecondary work affects the nation's overall economic strength and involves significant costs for taxpayers, postsecondary institutions, and students.

Remedial courses represent a cost that taxpayers must pay twice—first for students to learn material in high school and then again for students to relearn that material at the postsecondary level. And the price tag is not small. It is estimated that, nationally, the cost of remediation in public institutions for students enrolled in the 2007–08 school year alone was \$3.6 billion. (See Appendix A for more details, state-by-state figures, and methodology.)

Under normal circumstances, this cost would be difficult enough for state and local governments to bear, but as states face huge budget shortfalls, maintaining this level of spending will prove even more challenging. Even after the infusion of funds from the American Recovery and Reinvestment Act, states will have to account for budget shortfalls approaching an estimated \$100 billion in 2011 and more than \$130 billion in 2012.<sup>19</sup> This has led U.S. Secretary of Education Arne Duncan and others to suggest that cutting the need for remedial education is one significant area where states can see savings in the coming years.<sup>20</sup>

In addition to the direct cost of remediation, the connection between remedial course work and lower college completion rates yields an additional public cost. Every year, taxpayers pay substantial sums to financially assist low-income and/or high-achieving students in the form of grants or tuition relief. However, if students receiving this assistance leave their postsecondary institution before earning a credential, the aid becomes a lost investment. An analysis by the American Institute for Research shows that between 2003 and 2008, states spent more than \$1.4 billion, and the federal government over \$1.5 billion, in grants to students who did not return to postsecondary education for a second year.<sup>21</sup> Many of these are likely to be students whose participation in remedial classes factored into their decision to drop out. As a result, because so many students graduate from high school unprepared to persist and succeed in college-level course work, a significant portion of taxpayers' investment in postsecondary education remains unfulfilled.

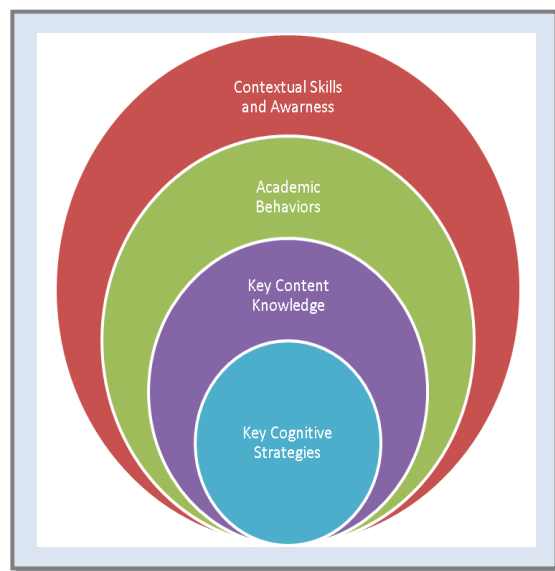
Students must bear a significant cost for the nation's remediation problem as well. The direct cost to students comes in tuition and fees, which have steadily climbed over the last thirty years. Students pay 42 percent of total postsecondary costs at public four-year colleges and 14 percent of costs at two-year colleges.<sup>22</sup> Because remedial courses often do not contribute credits toward a degree, the investment in taking these courses is a sunk cost for students. Beyond the monetary costs students incur, there is also the issue of lost time. Students not only pay for these classes but also squander time that could have been spent taking classes that contribute to their degrees.

There are also lost benefits associated with students who attend some college but are unable to complete any kind of postsecondary degree because of a lack of readiness. Nationally, the average annual wages of individuals who have attended some college but never completed a degree are \$17,000 less than those with a bachelor's degree.<sup>23</sup> This translates to less tax revenue as well as less disposable income for individuals to spend and invest in the economy. The nation would realize as much as \$2 billion in additional earnings if students who dropped out of college due to a lack of readiness graduated at the same rate as nonremedial students.



## The High School Postsecondary Gap: Driving the Need for Remedial Education

One way that local, state, and federal policymakers can be aggressive in reducing the need for remediation is to ensure that the high school experience is aligned with the demands of postsecondary work. Through surveys of college faculty and further analysis of what it takes to succeed in college, researcher David Conley from the University of Oregon has identified four different areas that are important to postsecondary success:



- **Key cognitive strategies.** According to Conley’s research, the most important area for success in college is key cognitive strategies. These competencies include critical thinking and problem-solving skills as well as the ability to make reasoned arguments. Such understanding is important to students’ success in college classrooms and also to their ability to apply knowledge to solve complex problems. Consequently, beyond the college classroom, employers identify these skills as important to career success and cite that new employees lack many of these skills.<sup>24</sup>
- **Key content knowledge.** In addition to these skills, students must also demonstrate an understanding of key content important to postsecondary success. This key content knowledge is less about knowing specific facts and more about understanding the big ideas that define a discipline. Surveys of college faculty highlight that too many students have an inadequate understanding of the fewer but bigger ideas that are important to their success in college classes.<sup>25</sup> Furthermore, high school course requirements are poorly aligned to college expectations, and it is not uncommon for students to graduate high school without having taken the right courses to get into college.<sup>26</sup> As a result, evaluation of student performance on skills needed to succeed in college by ACT shows that a large majority of high school students took math, reading, and science courses at their schools, but many of them did not gain college-ready skills in the process.<sup>27</sup>
- **Academic behaviors.** Even with content knowledge and cognitive strategies in hand, the effect of one’s ability to manage the increased level of work in postsecondary classrooms cannot be underestimated when it comes to college success. The average postsecondary course requires extensive out-of-class preparation and a substantial time commitment. Equally challenging is that students are often not used to receiving the postsecondary level of critical feedback from faculty. Succeeding in this environment requires that students be able to study independently and within study groups, accept critical feedback, and objectively assess their level of competence in an area and seek help where needed.





## **State Efforts at Aligning Secondary and Postsecondary Systems**

### **California's Early Assessment Program**

California's Early Assessment Program (EAP) represents one of the most significant state efforts to align secondary teaching and learning with postsecondary demands. Through the EAP effort, K–12 and higher education stakeholders came together to agree upon the knowledge and skills that constitute college-level mastery. These groups in turn created a test that is administered to rising high school seniors in math and literacy. Students who hit the determined mark on the EAP test can skip remedial course work and go straight to taking credit-bearing classes in college. Those who fail to meet the EAP benchmark are provided with a set of courses that can be taken online or at their schools that help them reach proficiency. In addition to assistance provided to students, teachers are also provided significant assistance. The California State University (CSU) system has embedded EAP standards into preservice training for teachers. At present, more than 9,600 teachers have taken one or both of the literacy courses aligned with EAP and more than 2,000 teachers have done so in math.

Promising results have been seen for students and schools participating in EAP. For example, CSU studies show that schools fully participating in the Expository Reading and Writing course, which was designed to improve student outcomes for those who fail to meet the EAP English-readiness mark, improve on the state's eleventh-grade test twice as fast as nonparticipating schools. Additionally, students who take this course have a better chance of passing the university system's placement test.

Overall, further research is needed to gauge the correlation between the results of the actual EAP test on a student's need for remedial course work at the postsecondary level. Nevertheless, EAP represents a strong model of how states can better align secondary and postsecondary systems and send clearer signals to students and teachers on what constitutes college readiness.

### **Illinois's College and Career Readiness Act**

Illinois has also been leading in the efforts to align the state's secondary system with postsecondary demands in an effort to reduce remediation. The state has worked to advance this goal through a pilot program called the College and Career Readiness (CCR) Act, Public Act 095–0694. Under Illinois statute and grant guidelines distributed by the Illinois Community College Board, community colleges receive funds to lead partnerships with high schools to align their respective systems. Participating high schools and community colleges take significant steps to ensure this alignment occurs and that necessary efforts are made to reduce the need for remediation. These actions include diagnosing the need for remediation through ACT scores or alternative college placement exams, aligning high school and college curricula, and providing resources and academic assistance to students to enrich the senior year of high school through remedial or advanced course work and other interventions.

Evaluations of the CCR pilot program demonstrate success in addressing the college-readiness skills raised in Conley's research, discussed earlier in this brief. For example, to address key content knowledge areas, pilot sites facilitated conversations between high school teachers and community college faculty to ensure the alignment of courses with the skills and knowledge students need to attain. To improve academic behaviors, many sites included coaching on competencies such as study skills to complement the subject-based content areas. Through College 101 classes, students were also provided with contextual understanding regarding what it takes to navigate the postsecondary system. As lead investigator for the evaluation of the CCR, Debra Bragg highlights the impetus for and challenges of the initiative, "What's really disconcerting is the growth in remedial courses while still needing to hold the line on academic standards. The dilemma is how you sustain yourself as an institution of higher education when the largest growing number of students is below college level. That's really troubling to community college leaders. But if we can align curriculum better and for those who need it, and find a very effective strategy at the high school level, then we could move a fair number of students out of the remediation track."



- **Contextual skills and awareness.** Success in college not only is determined by students' skills and drive, but also requires a deeper understanding of the college culture. Students must know where to get help, know how to navigate the financial aid and admissions process, and be able to demonstrate other areas of understanding important to college success. Faculty surveys report that these areas are hugely important to postsecondary success, and far too many students lack this understanding when they begin their postsecondary work.

Increasingly, states are recognizing that the misalignment between the demands of postsecondary education and students' experiences in high school can lead to a need for remediation. Faced with this preparation gap, some states are making efforts to ensure that college-ready competencies as defined by Conley and others are being addressed by high schools. (See text box on previous page for an example of these efforts in Illinois and California.)

## **A Focus on High Schools:** **Reduce the Need for Postsecondary Remedial Education**

In an era of tight fiscal constraints and growing demand for a well-educated workforce, the nation cannot afford to engage in the same practices and expect different results. Policymakers, parents, teachers, and other stakeholders must work together to address the long-standing needs of high schools while being cognizant of the emerging opportunities and demands facing schools and the nation. To achieve these goals, all students must be taught to standards that are truly aligned to postsecondary expectations; low-performing high schools must receive the assistance they need to improve; and, with declining budgets, resources must be leveraged strategically.

Aligning secondary school standards to postsecondary demands is a significant component of an overall strategy in reducing the need for remediation. The state-led Common Core State Standards Initiative in English language arts and mathematics represents an important step in this process. By focusing on key content areas and requiring students to apply cognitive strategies such as critical thinking and analytical problem solving, these standards of college and career readiness are more closely aligned to postsecondary demands.

For many high schools, especially the lowest performers, this will not be an easy transition. To ensure that significantly more high schools are preparing students for college and career success, a more systemic approach is needed to improve teaching and learning in the nation's lowest-performing high schools. This approach must include sharper indicators to identify when schools are facing challenges, build district capacity to create systems of assistance for the lowest-performing schools, and utilize data-driven and research-based strategies to turn the schools around. Using these and other tactics, the nation's lowest-performing schools can begin preparing students with the content knowledge, skills, and competencies needed for success at the postsecondary level without remediation.

Unfortunately, much of this work has to be done against the backdrop of decreasing revenues and increasing needs. In this context, states, districts, and schools will have to do more with less and will need to marshal resources in innovative ways to achieve these goals. One area of opportunity in this area is a more strategic use of technology. For example, schools and districts are increasingly utilizing technology such as computer adaptive assessments and online and blended learning strategies to identify and strengthen skills where students are most deficient. Districts and states are also adopting virtual learning



technologies in order to remove time and place barriers standing in the way of delivering rigorous college preparatory courses to students.

Schools and districts must be aided in these and other efforts to ensure that students are college and career ready. Reforming the nation's high schools so that they are capable of achieving this goal will not be easy, but a failure to act will have costly short- and long-term impacts. In the short term, taxpayers, students, and their families can no longer afford to pay double for the education students should have received in high school. In the long term, the nation's economy cannot grow unless more students enter postsecondary education with the requisite skills to complete their degree. Ensuring that all secondary school students are college and career ready is not only an issue of social justice; it is also critical to the nation's current and future global economic standing.





## Appendix A

<b>Savings and Earnings Benefits from a Reduced Need for Remediation</b>			
State	Remediation Savings*	Additional Earnings**	Total Benefit to State Economy
Alabama	\$51 million	\$29 million	\$80 million
Alaska	\$7.9 million	\$3.9 million	\$12 million
Arizona	\$81 million	\$51 million	\$132 million
Arkansas	\$34 million	\$16 million	\$50 million
California	\$780 million	\$352 million	\$1.1 billion
Colorado	\$62 million	\$33 million	\$95 million
Connecticut	\$84 million	\$19 million	\$103 million
Delaware	\$13 million	\$6.4 million	\$20 million
District of Columbia	\$1.5 million	\$700,000	\$2.2 million
Florida	\$123 million	\$101 million	\$224 million
Georgia	\$75 million	\$46 million	\$121 million
Hawaii	\$14 million	\$7.8 million	\$22 million
Idaho	\$12 million	\$6.7 million	\$19 million
Illinois	\$86 million	\$69 million	\$155 million
Indiana	\$52 million	\$38 million	\$90 million
Iowa	\$37 million	\$25 million	\$62 million
Kansas	\$37 million	\$24 million	\$61 million
Kentucky	\$39 million	\$28 million	\$66 million
Louisiana	\$71 million	\$28 million	\$99 million
Maine	\$13 million	\$5.8 million	\$18 million
Maryland	\$72 million	\$44 million	\$116 million
Massachusetts	\$46 million	\$30 million	\$76 million
Michigan	\$114 million	\$72 million	\$185 million
Minnesota	\$51 million	\$37 million	\$88 million
Mississippi	\$36 million	\$14 million	\$50 million
Missouri	\$59 million	\$32 million	\$91 million
Montana	\$9.8 million	\$4.9 million	\$15 million
Nebraska	\$25 million	\$13 million	\$38 million
Nevada	\$23 million	\$16 million	\$39 million
New Hampshire	\$9.2 million	\$6.9 million	\$16 million
New Jersey	\$71 million	\$50 million	\$121 million
New Mexico	\$25 million	\$14 million	\$39 million
New York	\$248 million	\$100 million	\$348 million
North Carolina	\$113 million	\$55 million	\$168 million
North Dakota	\$9.7 million	\$5.9 million	\$16 million
Ohio	\$126 million	\$63 million	\$189 million
Oklahoma	\$99 million	\$24 million	\$123 million
Oregon	\$52 million	\$21 million	\$73 million
Pennsylvania	\$94 million	\$58 million	\$153 million
Rhode Island	\$8 million	\$6.5 million	\$15 million
South Carolina	\$55 million	\$25 million	\$81 million
South Dakota	\$7.7 million	\$4.8 million	\$12 million
Tennessee	\$43 million	\$27 million	\$70 million
Texas	\$298 million	\$164 million	\$462 million
Utah	\$31 million	\$21 million	\$52 million
Vermont	\$8.2 million	\$3.6 million	\$12 million
Virginia	\$80 million	\$60 million	\$140 million
Washington	\$59 million	\$40 million	\$99 million
West Virginia	\$16 million	\$11 million	\$27 million
Wisconsin	\$66 million	\$41 million	\$107 million
Wyoming	\$8.5 million	\$4.8 million	\$13 million
<b>United States</b>	<b>\$3.6 billion</b>	<b>\$2 billion</b>	<b>\$5.6 billion</b>

\*Remediation savings were estimated by multiplying the cost of one course by the number of students under twenty-five years of age who take at least one remedial course. To calculate the full cost of a course in a two- and four-year public institution, the average total direct educational and related costs per full-time-equivalent student was found for two- and four-year public institutions in each state using data from the Delta Project on Postsecondary Education Costs, Productivity, and Accountability.<sup>28</sup> These averages were divided by ten, the assumed number of courses taken annually by a typical full-time student, to find a per-course cost. For the purposes of this analysis, it was assumed that the cost of a remedial course is equal to the cost of a non-remedial course. To estimate the number of students under twenty-five years of age who enroll in at least one remedial course, the percentage of students under twenty-five years of age enrolled in a postsecondary institution during the 2007–08 school year who reported taking a remedial course in the National Center for Education Statistics 2007–08 National Postsecondary Student Aid Survey (41 percent of full-time and 44 percent of part-time students in two-year public institutions, and 26 percent of full-time and 34 percent of part-time students in four-year public institutions<sup>29</sup>) was multiplied by the total number of students under twenty-five years of age enrolled during the 2007–08 school year in each state by institution sector and attendance intensity as provided by the Delta Project.<sup>30</sup> To keep estimates conservative, it is assumed that these students requiring remedial course work enrolled in just one remedial class throughout the duration of their time in college. Due to limitations in data availability, remediation savings are not an annual figure, but rather estimates of the combined remediation costs attributed to students enrolled during the 2007–08 school year that were accrued at any time prior to and including that school year.

\*\* To calculate additional earnings, the salary difference between students who attend “some college” and students who earn a two-year degree was multiplied by the number of students who are expected to have graduated if they do not need remedial reading (potential new graduates). The number of potential new college graduates was calculated by multiplying the remedial student count (above) for each state by 28 percent, the difference in completion rates between those who enroll in remedial courses (29 percent) and those who do not (57 percent).<sup>31</sup> This potential new graduate count was then multiplied by the difference in average earnings between individuals with “some college” and an “Associate’s Degree” in each state.<sup>32</sup>



## Endnotes

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<sup>1</sup> U.S. Department of Education, National Center for Education Statistics, *The Condition of Education 2010* (NCES 2010-028), Indicator 21 (Washington, DC: Author, 2010).

<sup>2</sup> National Center for Education Statistics, computation by NCES PowerStats on 2/14/11 using U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

<sup>3</sup> Bureau of Labor Statistics, “Education Pays,” available at [http://www.bls.gov/emp/ep\\_chart\\_001.htm](http://www.bls.gov/emp/ep_chart_001.htm) (accessed January 5, 2011).

<sup>4</sup> T. Lacey and B. Wright, U.S. Department of Labor, Bureau of Labor Statistics Monthly Labor Review, *Occupational Employment Projections to 2018* (Washington, DC: U.S. Department of Labor, 2009).

<sup>5</sup> A. Carnevale, N. Smith, and J. Strohl, *Help Wanted: Projections of Jobs and Economic Requirements Through 2018* (Washington, DC: Georgetown Center on Education and the Workforce, 2010).

<sup>6</sup> College Board, *The College Completion Agenda 2010 Progress Report* (Reston, VA: College Board, 2010).

<sup>7</sup> R. Freeman, “Does Globalization of the Scientific/Engineering Workforce Threaten U.S. Leadership?” *Innovation, Policy and the Economy* (2006): 123–57.

<sup>8</sup> R. Greene, “Obama Urges U.S. to Gain World Lead in College Graduates,” *Bloomberg*, February 25, 2009.

<sup>9</sup> S. J. Ingels, L. J. Burns, X. Chen, E. F. Cataldi, and S. Charleston, *A Profile of the American High School Sophomore in 2002: Initial Results from the Base Year of the Education Longitudinal Study of 2002* (NCES 2005–338) (Washington, DC: U.S. Government Printing Office, 2005); C. E. M. Kolb, “The Cracks in Our Education Pipeline,” *Education Week*, July 12, 2006.

<sup>10</sup> J. Greene and M. Winters, *Public High School Graduation and College Readiness Rates: 1991–2002* (New York: Manhattan Institute for Policy Research, 2005).

<sup>11</sup> ACT, *The Condition of College and Career Readiness 2010* (Iowa City, IA: ACT, 2010)

<sup>12</sup> Ibid.

<sup>13</sup> National Center for Education Statistics, computation by NCES PowerStats on 2/9/11 using U.S. Department of Education, National Center for Education Statistics, 2007–08 National Postsecondary Student Aid Study (NPSAS:08).

<sup>14</sup> Education Trust, “Fact Sheet: Teacher Quality” (Washington, DC: Education Trust, 2010).

<sup>15</sup> Ibid.; Attewell et al.; U.S. Department of Education, National Center for Education Statistics, *Digest of Education Statistics 2008* (Washington, DC: Author, 2009); P. Riley Bahr, “Preparing the Unprepared: An Analysis of Racial Disparities in Postsecondary Math Remediation,” *Journal of Higher Education* 81 (2010).

<sup>16</sup> Ibid.; Strong American Schools, *Diploma to Nowhere* (Washington, DC: Author 2008).

<sup>17</sup> J. C. Calcango and B. Long, *The Impact of Postsecondary Remediation Using a Regression and Discontinuity Approach: Addressing Endogenous Sorting and Noncompliance* (New York: National Center for Postsecondary Research: 2008); T. Bailey, *Rethinking Developmental Education in Community College* (New York: Community College Research Center, 2009); C. Adelman, *Principal Indicators of Student Academic Histories in Post-Secondary Education, 1972–2000* (Washington, DC: Department of Education, Institute of Education Sciences, 2004).

<sup>18</sup> Strong American Schools, *Diploma to Nowhere*.

<sup>19</sup> E. McNichol, P. Oliff, and N. Johnson, *States Continue to Feel Recession’s Impact* (Washington, DC: Center on Budget and Policy Priorities, 2011).

<sup>20</sup> Secretary Arne Duncan, *The New Normal: Doing More With Less* (American Enterprise Institute, November 17, 2010).

<sup>21</sup> M. Schneider, *Finishing the First Lap: The Cost of First-Year Student Attrition in America’s Four-Year Colleges and Universities* (Washington, DC: American Institute for Research: 2010).

<sup>22</sup> College Board, *Trends in College Pricing* (Reson, VA: College Board, 2007).

<sup>23</sup> U.S. Bureau of Labor Statistics, “Education Pays.”

<sup>24</sup> American Management Association, *AMA 2010 Critical Skills Survey* (Washington, DC: Author, 2010); J. Casner-Lotto and L. Barrington, *Are They Really Ready to Work?* (New York: Conference Board, 2006).

<sup>25</sup> D. Conley, *Understanding University Success* (Eugene: Center for Education Policy and Research, 2003).

<sup>26</sup> P. Barth, “A Common Core Curriculum for the 21st Century,” *Journal for Vocational Special Needs Education* 26, no. 2 (2003).

<sup>27</sup> Ibid.

<sup>28</sup> Delta Project on Postsecondary Education Costs, Productivity, and Accountability Trends in College Spending Online, computation by Alliance for Excellent Education on 2/8/11 using U.S. Department of Education Integrated Postsecondary Education Data System surveys.

<sup>29</sup> See note 13.

<sup>30</sup> See note 28.

<sup>31</sup> Strong American Schools, “Diploma to Nowhere.”

<sup>32</sup> Unpublished data compiled by Economic Modeling Specialists, Inc., for the Alliance for Excellent Education in summer 2010.

