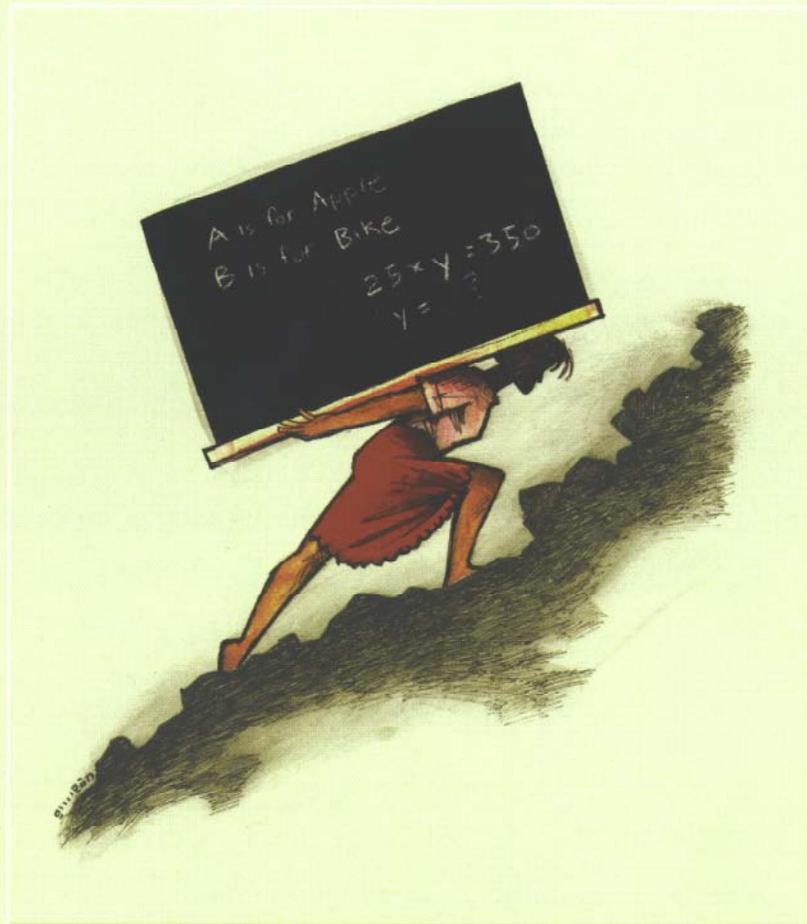


THE COST *of* REMEDIAL EDUCATION

*How Much Alabama Pays When
Students Fail to Learn Basic Skills*



by Christopher W. Hammons, Ph. D.



The Alabama Policy Institute (API) is an independent, non-profit research and education organization that is issue centered and solution oriented. We provide in-depth research and analysis of Alabama's public policy issues to impact policy decisions and deepen Alabama citizens' understanding of, and appreciation for, sound economic, social and governing principles.

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***The Cost of Remedial Education: How Much Alabama Pays
When Students Fail to Learn Basic Skills***

by Christopher W. Hammons, Ph.D.

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Executive Summary

One out of every three graduates from Alabama's public high schools receives a diploma without possessing basic reading, writing, or math skills. State colleges, universities and employers are forced to teach these individuals basic skills to bring them up to speed.

Remedial education, or developmental education as it is more commonly called these days, is just one of the expenses the state must bear to compensate for the lack of basic skills among these students. Other costs include poor productivity, lost revenue, more expensive social programs, and personal losses that may affect these individuals for a lifetime and the state for generations.

This study, using data from state and national sources, calculates the financial impact on Alabama's institutes of higher education and employers when students leave high school without basic skills. Using five different strategies for estimating costs, we conservatively figure the financial impact on the state is between \$304 million and \$1.17 billion a year. Our best estimate of the annual economic impact on the state of Alabama is \$541 million per year.

Outside commentators and reviewers provide some additional insight on the expenses of remedial education and offer some suggestions as to how to reduce these costs.

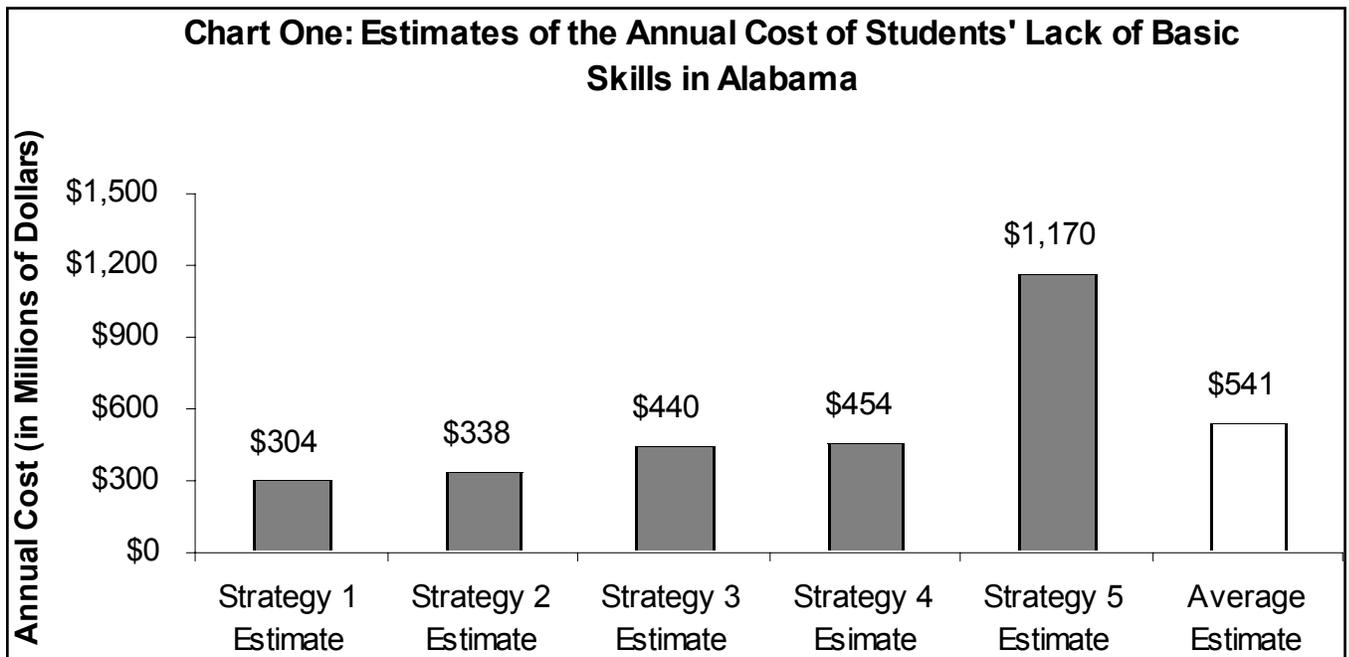


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Introduction

The plight of students who drop out of high school has received considerable attention from state policy-makers and the media. Less attention has been paid to students that graduate from high school but lack the basic skills they need to compete in college or the workplace. While we would like to assume students who earn a high school diploma possess basic skills in math and reading, we often find this not to be the case. Nowhere is this more evident than in the dramatic increase in remedial education (more often called “developmental” education) offered at the college level and by employers. These programs are designed to improve the academic skills of many who have recently graduated from high school.

This study calculates the financial costs when students in Alabama graduate from high school without having acquired at least basic academic skills. We use data provided by the state and federal government, field interviews, and surveys of community colleges, universities, and businesses. Calculating these costs is complicated by a lack of hard data on the subject, the ambiguity in defining “basic skills,” and the difficulty in specifying the costs that result as a lack of those skills.

At every stage of our analysis we make conservative assumptions based on the data available. Therefore, our final estimate of \$541 million may be low. This estimate is considered conservative because it does not include financial expenditures associated with college work that is “watered down” but not labeled as developmental, the costs of technology used to compensate for lack of basic skills among employees, capital expenditures needed for developmental education, the large number of employees who need remediation but never receive it, and the impact on students that graduate from high school with minimal skills.

While we would like to assume students who earn a high school diploma possess basic skills in math and reading, we often find this not to be the case. Nowhere is this more evident than in the dramatic increase in remedial education offered at the college level and by employers.

Strategy One: Calculating the Direct Costs of Remedial Education to Alabama's Institutes of Higher Education and Business Community

One method of measuring the economic costs of students leaving high school without basic skills is to calculate the direct expenditures made by institutions of higher learning and businesses to bring recent high school graduates up to speed. To do this, we obtained data for all community colleges and all public universities in the state for the 2001-2002 academic year. We also surveyed a random sample of eight private universities and mailed out 1,000 surveys to businesses throughout the state of Alabama.

The Costs to Community Colleges

Remedial education is most extensive at the community college level. Every community college in the state we surveyed offers some type of remedial education. Alabama is no different than the rest of the nation: a recent national study indicates 98 percent of all community colleges offer some type of remedial classes.¹ Remedial courses are usually offered in English, writing, and math. Students are not awarded college credit for the completion of these courses. Rather, the completion of these classes is usually required before students can enroll in college-level courses.

Nationally, 42 percent of all freshmen entering community college take at least one remedial class.² By comparison, Alabama state records indicate there were a total 17,561 first-time freshmen in the fall of 2001 with 94 percent of them coming from Alabama. Of these first time freshmen 10,185 (or 77 percent of all freshmen) were high school seniors in the Alabama public school system the year before, indicating most new community college freshmen enroll right out of high school.³ Of this group 4,488 enrolled in remedial classes their freshmen year. In short, we see 44 percent of all first time freshmen that come right out of Alabama's high schools are in need of remediation before they can take college level work. Alabama fits the national pattern almost perfectly.

Most of the community college faculty and personnel we spoke with noted that while they are concerned about the quality of students entering their institutions, and the large percentage of students that require remediation, developmental education comprises only a small part of the overall community college mission. There is some statistical evidence to support this claim.

During the 2001-2002 academic year, Alabama's community college system reported 149,065 hours of course work labeled as developmental or remedial.⁴ This figure represents about eight percent of all credit hours

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offered at two-year colleges in the Alabama College System. Therefore, while a large percentage of students that go to community colleges take some sort of remedial education class, developmental education constitutes only a small part of what community colleges do.

While developmental education is not the main focus of community colleges, a substantial amount of money is spent on such programs. During the 2001-2002 academic year, students in Alabama paid a total of \$9,689,225 in tuition and fees to community colleges for enrollment in remedial classes.⁵ This figure, while not trivial, may vastly underestimate the full costs of remedial education that goes on at the junior college level. The tuition and fees students pay for their education only covers part of the expense as the true cost of instruction is subsidized with state and federal funds.⁶

State records indicate tuition and fees cover about 20 percent of the expense of educating students. What this indicates is that the real costs of developmental classes, if we make the conservative assumption that these classes have the same operating expenses as other classes, is closer to \$48 million. There are a number of reasons why even this figure may underestimate the true costs of remedial education.

First, there are costs associated with developmental education programs that extend beyond classroom contact hours. Most developmental programs rely heavily on expensive diagnostic exams, computer assisted learning, and often have additional administrative costs associated with such programs. Most of the community colleges we looked at offered some form of a developmental education center, usually staffed with several advisors, counselors, and a director. These costs are not considered in our calculations, which are based only on the cost of classroom hours across the college. Because of the additional support and resources that are required of developmental education programs, the per-class costs of running such programs may be substantially higher than the average class.

Second, the estimate we provide is based solely on courses classified as developmental. To some extent, the teaching of basic skills permeates the curricula of all classes. In part, this is a function of dedicated teachers making sure their students are performing up to speed. It also indicates that many classes labeled as “college level” are still dedicating time to teaching students basic skills.

We asked several faculty members at community colleges to estimate how much time was spent in college level courses bringing students “up to speed.” Their responses ranged from “some,” “a little,” and “about five percent.” In short, most faculty members felt the remedial component of most classes was fairly small because students in need of remediation had already completed a designated remedial class.

There was greater concern, however, that while little remediation goes

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The true cost of remedial level work is masked because the definition of college level work has been lowered to provide remedial courses to teach students skills they should have learned already.

on in college level classes the classes themselves may have been watered down to compensate for the skill levels of the students. As Dr. Jim Jolly of Gadsden State Community College observes, “An algebra class that was once one semester may now be two so that students have more time to learn the concepts.”⁷ In short, while faculty members might not see much remedial education in their immediate classes, the overall curricula itself may reflect the difficulty many students have with basic skills.

A survey of college catalogs supports this contention. Many classes are labeled as college level but that might be more accurately described as remedial. Community college catalogs list courses such as basic English, basic math, elementary algebra, and intermediate algebra as college level courses when these subjects are normally taught at the high-school level. The true cost of remedial level work is masked because the definition of college level work has been lowered to provide remedial courses to teach students skills they should have learned already.

The third reason why our initial estimates may be too low is because, in all probability, not all students needing remediation take remedial classes. While most faculty members we interviewed contended the colleges do a good job of testing students before they are allowed to sign up for college level courses, there were some concerns. While the Alabama College System, which governs the states community colleges, requires placement tests of all students seeking a degree or certification there are exceptions to this requirement which tend to vary by college.

Several of the states community colleges do not require placement tests for students who are not seeking degree credit, who are not taking English or math courses, or who are transient students intending to transfer to another college or university. Many colleges will exempt students from placement tests if they meet certain cutoff scores on the Math and Verbal section of the SATs. In many cases, these scores were below both the national and state average.

Such loopholes make it possible for students with poor reading, writing, and math skills to take college level courses even though they are unprepared. While we know that 44 percent of junior college students in the state take some form of remedial class, such loopholes mean the percentage of students in need of remediation may actually be higher than the percentage of students who get it. With reading and writing and integral part of college level work regardless of the subject, it is difficult to believe that some remediation does not occur for students who make their way into college level classes but have not completed a single developmental class.

In short, the initial estimate that \$48 million is spent by Alabama’s two year colleges to teach basic reading, writing, and math skills is probably low. If we assume a mere five percent of all course work beyond developmental courses (that is, five percent of college level courses is used to

bring students up to speed) the cost increases to almost \$82 million. If 10 percent of all college level class time is used to bring students up to speed, that cost rises to over \$113 million. These are, however, speculative estimates. The exact amount of remedial education that occurs in college level classes is impossible to quantify. For this reason, we will stick with our initial calculation based only on those courses clearly labeled as developmental, which indicates a cost of \$48 million.

The Costs to Four-Year Institutions of Higher Education

Developmental education is not limited to junior colleges. A survey of the college catalogs of many of Alabama's public four-year colleges and universities indicates similar types of remedial courses are also offered at these institutions.

In the fall of 2001 there were 16,518 first time freshmen at Alabama's public four-year universities. Of course many of these students are not from Alabama, some may have graduated from private schools, and others may be transferring from junior colleges. What we do know is that of the 8,753 new freshmen that came right out of Alabama's public schools, 1,609 of them enrolled in remedial classes before they could start college level work. This means that 18 percent, or nearly one in five, of the students graduating from Alabama's public high schools need help before they can start college level work.⁸ Once again, Alabama mirrors a national trend as reported in a November 2003 study by the Department of Education which found that nationally 20 percent of all new freshmen at four-year colleges and universities take developmental classes.⁹

These figures seem to be in line with the estimates given to us by the English and math faculty at several state colleges and universities. When asked what percentage of their incoming freshmen completed some sort of remedial classes their estimates ran from a low of five percent to a high of 30 percent depending on the school, for an average of 17.5 percent.

State data indicates a total of 44,290 total remedial hours were completed by students at state colleges and universities during the 2001-2002 academic year.¹⁰ Students taking remedial courses paid almost \$5 million in tuition and fees to take these courses at state universities.¹¹ Tuition and fees, however, only cover 14 percent of the costs of educating students at public institutions.¹² If we add in state and federal subsidies, that cost rises to over \$35 million to cover developmental classes.

This \$35 million estimate may be low, however, because it neglects the additional expense of remedial education that occurs in classes not labeled as such. The costs could be much higher if there were some means of calculating what percentage of students with minimal academic skills avoid remediation but still lack skills enough to succeed in college level courses. "I would say about 50 percent of students entering college are not

We heard concerns about the quality of students at private universities regardless of the academic standing of the school.

prepared for college level work, “says Dr. Sergey Belyi of Troy State’s Math Department.¹³ Professor Belyi also notes only about 30 percent of incoming freshmen get the remedial help they need, leaving some that slip through the cracks.

Professor Frank Walters of Auburn University’s English Department notes many of the students that enter are “minimally prepared” for college level work. “They are still tied to the models they were taught in high school and demonstrate the usual difficulties in using the language, mechanics, and so on.”¹⁴ The professor also noted that some time is spent in regular college level courses bringing students up to speed.

Our initial estimate may also be low because it neglects capital investments associated with developmental education. All of the four-year universities and colleges we surveyed offered some form of tutoring, laboratories, or workshops to assist struggling students with their math and English skills. Many of the “learning centers” have expensive hardware and software as well as dedicated staff. These additional expenses are not figured into our \$35 million figure.

Remedial education also occurs at private colleges and universities. We solicited course catalogs from eight private universities in the state. All of the private schools offered some type of developmental classes, from Basic Math to Fundamentals of Writing. Are the students at these private institutions, many which bill themselves as better than their public counterparts, any more prepared for college?

We heard concerns about the quality of students at private universities regardless of the academic standing of the school. “In general they [our students] are well prepared to start college level course work from an intellectual standpoint,” says Professor Bruce Atkinson, Chair of Samford University’s Math Department. “What they generally lack are the study skills necessary for college level work. They have been used to getting all homework done in class, and having tests that are a repeat of the homework. They generally do not know how to study mathematical concepts.”¹⁵

Dr. Kelly Morris, Chair of the English Department at Faulkner University, echoes these concerns. At Faulkner, Dr. Morris estimates 40 percent of entering students take some remedial type classes. Various explanation for this offered by Professor Morris include the non-traditional age of many Faulkner students, the background of many students, and poor educational experiences. “I believe that the need for developmental education is generally a result of inadequate emphasis and support for education in the homes and communities of many students, and to a lesser extent a result of inadequate education in schools.”¹⁶

Enrollment data at the private universities proved difficult to collect. Much of what was collected was anecdotal, estimations, or incomplete.

What we were able to calculate is that the entirety of the private college and university student body counts for less than 10 percent of all the college students in the state. In the fall of 2001, only 22,376 of 224,452 college students statewide (including junior colleges) attended private institutions.¹⁷

We previously found 18 percent of all incoming freshmen in Alabama four-year colleges enroll in developmental classes. If we apply the same pattern to Alabama's private colleges, then 922 of approximately 5,122 private school freshmen have taken remedial classes in college.¹⁸ At an average tuition and fees rate of \$1,035 per class, private school students spend just under \$2 million a year on remedial classes.¹⁹ This estimate may be low because it does not reflect any institutional, state, or federal aid that may be used to subsidize student education. Nonetheless, it provides a conservative estimate of out-of-pocket expenses.

In short, our calculations for community colleges, state colleges and universities, and private institutions indicate over \$85 million a year is spent to teach college students material they have (or should have) already had in high school.

The Cost to Alabama's Employers

Our calculations of the expenditures made by Alabama businesses to remediate employees are based on a survey of 77 employers in the state.²⁰ The employers who responded to our survey maintain 26,104 employees in Alabama. This represents 1.3 percent of Alabama's workforce of roughly 2 million employees.²¹

To encourage honest responses, our employers were promised anonymity. However, we can disclose that respondents represent a wide cross-section of Alabama's business community — retail stores, construction companies, industrial manufacturers, high tech companies, health care industries, professional services, and others. The businesses range in size from 2 employees to over 13,000 employees. Several companies have been doing business in Alabama for over for 100 years while others have been in business for less than 10 years. The average length of time these companies had been in business is 40 years. In short, we have a good cross-section of the Alabama business community.

The businesses reported spending \$451,225 helping workers with basic skills such as reading, writing, and arithmetic during the last fiscal year. If we divide the total reported costs of remediation by the total number of employees hired by our respondents, we find these businesses spend \$17.29 to re-teach employees basic reading, writing, and math. While the costs of training new hires is probably more expensive than training senior level employees, calculating the cost per employee this way allows us to generalize from our sample to the population at large. By

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extrapolating this per employee cost of remediation to the entire state, we arrive at a figure of over \$34 million spent by Alabama employers to help their employees overcome poor basic skills.

The businesses in our sample also reported spending \$2.45 million on technology to assist employees that struggle with basic reading, writing, and math. These expenditures included things like cash registers that make change because the employees can not add or subtract correctly. Some companies purchase touch screen computers with pictures of food items on them so employees do not have to read the computer screens. One business reported spending so much money on technology that they were not able to quantify it but estimated that it ranged in the “hundreds of thousands.” Using the hard data provided to us by the business in our sample, we calculate these businesses spend \$93.81 per employee on technology to compensate for lack of skills. If all businesses in the state spend the same amount per employee, we are looking at a statewide expense of over \$185 million.

To better understand the challenges faced by these employers, we asked them to rate their new employees reading, writing, and math skills using the standards set forth by the Alabama Department of Education.

The Alabama Department of Education defines reading skills as “Student’s ability to read and comprehend articles, poems, editorials, manuals, and other similar materials.” Students should be able to “demonstrate literal understanding, interpret passages, apply critical analysis strategies, and utilize strategies that enhance comprehension.”²² Our respondents indicated that approximately 68 percent of their new hires met this definition.

The Alabama Department of Education defines writing or language skills as “Grammar skills, punctuation, word choice, sentence structure, and organization skills for writing.” Students should be able to “recognize correct grammar usage, demonstrate appropriate word choice, recognize correct sentence structure, use correct capitalization and punctuation, and use appropriate organizational skills for writing and revising.” According to our respondents, 59 percent of their new hires met this standard.

The Alabama Department of Education defines math skills as “Mostly basic Algebra 1 skills and some pre-geometry skills.” Students should be able to “perform basic operations on algebraic expressions, solve equations and inequalities, apply concepts related to functions, apply formulas, apply graphing techniques, represent problem situations, and solve problems involving a variety of algebraic and geometric concepts.” About 51 percent of the new hires employed by our respondents met this standard.

When asked in conclusion what percentage of their new hired employees needed remediation with basic skills, our respondents indicated that 32 percent or nearly 1 in 3 of their new employees needs help with reading,

writing, and math.

The frustration felt by some employers is evident in some of the comments we received from those who completed our survey.

A financial company with several thousand employees in the state writes that “It has become increasingly difficult to find candidates that meet our minimum standards. Most instructions, policies, etc. must be written at a middle school level. Written communications from entry level employees is extremely poor.”

A much smaller real estate company noted that they have trouble finding employees who can perform basic clerical tasks correctly, such as writing memos and taking phone messages. In particular, this firm noted that one employee “invented” her own filing system because she lacked the skills to alphabetize the folders by name.

A “temp agency” was perhaps the most vocal of our respondents, probably because they encounter a large number of applicants with minimal skills seeking employment. The owners of the temp agency have several diagnostic tests they use to measure an applicant’s basic skills. “You would think that a high school graduate would know how many inches are in a foot. Sadly, a large majority cannot answer this question correctly,” notes the owner. “The system produces graduates that do not possess even the basic tools to succeed in the workplace. If corporate America produced end-products equal to the end-products of the public school system, our economy would collapse.”

The total monetary cost to Alabama’s business community is over \$219 million in the last fiscal year to compensate for a lack of basic reading, writing, and math skills among their employees.

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A Conservative Estimate of the Direct Costs to Alabama's Colleges, Universities, and Employers

If we total the expenditures by the colleges, universities, and businesses in the state we reach a figure over \$304 million.²³ This figure is likely to be low because we excluded many expenses connected with remedial education — expenses such as learning centers, computer and software expenses, tutors, diagnostic materials — incurred by institutions of higher education. We also excluded from our calculations remedial classes taught in vocational schools, which often enroll students with some of the poorest academic skills.²⁴ Our calculation is based solely on direct expenditures for remedial education reported by the institutions and employers. The expenses to Alabama's employers are also likely to be low for reasons explained in the next section. In sum, the \$304 million is a conservative calculation as to the direct expenses associated with developmental education.

Annual Cost to:	In Millions of Dollars:
<i>Community Colleges</i>	\$48
<i>Four-Year Colleges and Universities</i>	\$37
<i>Businesses</i>	\$219
Total	\$304

Strategy Two: Calculating the Costs of Lost Profits to Alabama’s Employers

In addition to measuring the direct expenses that employers incur in teaching their employees skills that should have been learned in high school, we can also measure the additional costs of lost earnings. Businesses lose money when they maintain employees on the payroll that are performing poorly, require time in remediation, and drain resources from the employer. These losses are in addition to the direct expenses occurred in paying for training or technology to compensate for employees’ lack of skills. By calculating the costs of lost earnings and adding them to the direct costs of remediation efforts and technology expenses, we get a more realistic estimate as to how much it costs Alabama’s employers when students graduate without basic skills.

Calculating these “lost earnings” is based on the simple and widely accepted premise that businesses are motivated by profit. Employers will hire the most qualified person they can for the pay they are offering. Given a fixed salary or hourly wage, businesses seek to maximize the return on their investment by getting the best employee they can for the money. Employers will avoid candidates with inferior work and academic skills if they can find better employees for the same price. Employers will prefer to hire employees with good basic skills or employees that have been remediated successfully through community colleges or universities.

We know from our survey, however, that employers are not always successful in doing this. The businesses we survey contend that about 1 in 3 of their employees is in need of some help with basic reading, writing, or math skills. We also know that \$219 million was spent on remediation and technology in the last fiscal year to assist these employees. Why would employers take on such a tremendous expense?

The answer lies in the profit motive. Employers believe that the money invested in remedial training and technology will produce a return greater than the expense. If remediation and technology were a losing proposition, employers would have little incentive to invest in either.

Our survey data indicates \$34 million is spent on direct remediation for employees. Alabama’s employers must assume that the direct cost of teaching basic skills such as reading, writing, and math will be recouped through the increased productivity of the employees. In other words, the employers expect that these employees have the potential of producing at least \$34 million in returns once they are up to speed. If the employers did not think they could produce at least an equivalent return, they would not have any financial reason to make the expenditure.

By extension, a conservative means of gauging lost earnings is simply

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to add to the total cost of remediation a figure equivalent to that spent on direct remediation by businesses. This means Alabama's employers not only bare the cost of the \$34 million to pay for the remedial efforts, but also feel the loss of at least \$34 million in potential savings if they simply could find competent employees.

We have already accounted for the direct costs of remedial education to Alabama's employers in Strategy One, but here we add the additional \$34 million in lost earnings to our estimate. This is probably a low estimate of lost earnings because it assumes that employers lose only an amount equal to the direct costs of remediation. In other words, this calculation assumes that no costly mistakes are made by incompetent employees, that additional personnel are not needed to compensate for the weak employees or train them, that employees will be successfully remediated and eventually pay for the cost of their remediation, and that the cost of technology is merely the cost of doing business.

Annual Cost to:	In Millions of Dollars:
<i>Community Colleges</i>	\$48
<i>Four-Year Colleges and Universities</i>	\$37
<i>Businesses</i>	\$253
Total	\$338

Strategy Three: Recalculating the Costs of Lost Profits to Alabama's Employers

The previous calculation assumes that employees in need of remediation are still productive employees, and that the cost of remediation is merely an additional expense of doing business. The truth of the matter is that many employers tell us that employees who lack basic skills are frequently the worst employees in terms of job performance. One employer provided the example of employees in their construction company who serve as construction workers but have difficulty with basic math associated with the job such as adding and subtracting fractions, converting from inches to feet, and understanding angles. In short, employees who lack basic skills may not individually produce enough return to cover the costs of their own employment. These losses are masked by the overall productivity of other employees. Nonetheless, they represent a real loss to the state's business community in terms of lost productivity.

It is very difficult to calculate the costs of poor performance by employees who lack basic skills. One way to approach this challenge is to start with the premise that all employees that possess a college or high school diploma possess adequate reading, writing, and math skills. We will assume these employees need no remediation. While this premise is contrary to what most employers tell us, it will allow us to assume that the only employees that lack basic skills are those that have not finished high school or obtained a GED. To this end, we can pretend that the only employees in need of remediation are those that never finished high school. During the 2001-2002 academic year, 26,625 students dropped out of Alabama's high schools.²⁵

We then assume that while non-degreed employees are working they are less productive than employees that possess adequate reading, writing, and math skills. To calculate the losses in productivity caused by employees that lack basic skills, we assume that businesses lose per year the same amount of money on poor employees as the state has invested in their education. That is, in 2001 it costs the state of Alabama \$5,908 per year per student to educate students in its public schools. Assuming that this expense produces at least a comparable return for the money (the alternative being that state spending on education is a losing investment), we postulate that a worker who has received two years less education (at \$5,908 per year) as a result of dropping out his sophomore year will produce \$11,816 less than a worker who has graduated from high school.

Of our 26,625 dropouts, 41 percent of them dropped out their freshmen year in high school. An additional 25 percent of dropouts leave during their sophomore year, only 2 percent drop out during their junior year,

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and the remaining 32 percent drop out sometime during their senior year.

We cannot know whether a student completed a year and then dropped out or dropped out before the year commenced. To compensate, we will assume the student dropped out at the mid-term of the year in which they leave. Given this assumption, students who drop out their freshmen year lack 3.5 years of education, sophomore drop outs lack 2.5 years, juniors lack 1.5 years, while students who dropped out their senior year lack 0.5 years of education.

Taking into account the number of dropouts, their collective lack of education, and the per year equivalent loss of productivity as a result of this lack of education, we estimate that businesses lose over \$355 million a year as a result of workers who perform below par because they lack basic skills.

Annual Cost to:	In Millions of Dollars:
<i>Community Colleges</i>	\$48
<i>Four-Year Colleges and Universities</i>	\$37
<i>Businesses</i>	\$355
Total	\$440*

Strategy Four: An Alternative Means of Estimating the Number of Students Lacking Basic Skills and the Costs

Our previous strategies assumed that all students in need of remediation are either high school drop outs or graduates that lack basic skills. Perhaps we have been mistaken by assuming that some students who receive a diploma fail to learn basic skills in high school. If this is the case, then we may have overestimated the number of students that are in need of remediation when they enter the workforce or college. To recheck our previous estimates we can recalculate the number of students in need of remediation in a different manner.

We originally calculated that out of 63,707 students in 1997 that entered high school, 26,625 dropped out sometime over the next four years and lacked basic skills when they left. Of those students that did graduate from a public high school we were able to determine that 12,194 were remediated in college.²⁶ Thus, a total of 38,819 high school students did not learn what they were supposed to learn (for one reason or another) while in high school. Is this number accurate?

One way to compare our estimates with an outside source is to use NAEP data. The National Assessment of Education Progress is a skills test administered by the U.S. Department of Education in states that agree to participate. Alabama is one of those states. Using standardized testing procedures, the Department of Education produces what it calls the “Nation’s Report Card” to assess what percentage of students have basic skills in reading, math, and English. Using NAEP statistics we can recalculate the number of “successful” high school graduates in strategy four using data from an outside source. This figure will provide some basis for comparison between our calculations in strategies one through three.

According to data from the latest test (2003) 53 percent of all 8th graders in the state possess basic skills in math while 65 percent possess basic skills in reading.²⁷ “Basic skills” is the lowest level of achievement possible. If we average these two skill areas together, it means that 59 percent of all 8th graders have minimal skills while 41 percent of all 8th graders have less than basic skills.

If we assume that of the 63,707 students that entered high school in 1997, 41 percent of them lack basic skills, we find that 26,119 of them need remediation — a figure remarkably close to our calculations using drop out rates which totaled 26,625 students. It may be the case that students struggling in 8th grade are the same students that eventually drop out, and that is why the numbers are so close.

State data indicates that of the students that did enter high school in the fall of 1997, a good number of them graduated in the spring of 2001 when 37,082 diplomas were issued. If we use the national average that 1 in 3 of these graduates will need remediation in college we get a figure of 12,360, only a few hundred students off from our figure of the number of college students actually enrolled in remedial classes (12,194) using state data.

The total number of students needing remediation using this alternative calculation is 38,479; that is 38,479 students lacking basic skills when they leave high school (whether as graduates or drop outs). Our calculation using state data was 38,819 students. The fact that these figures are so remarkably close reveals two things. First, that when we compare national trends to Alabama's situation, the state is no better or worse than many other states. Applying national patterns to Alabama produces estimates almost exactly the same as the calculations based on state level data.

Second, if we use this alternative means of estimating the number of students in need of remediation, and pair it with an alternative means of calculating the costs of remediation to the state as a whole, we again get figure that is not far off from our original estimates. If we assume that the student lacking basic skills needs two years remediation on average (high school graduates needing less, drops-outs needing more-the midpoint of a four-year high school education being two years), and that the cost of remediation is no more or less than the cost of those years of high school education (\$5,908 per year per student), we calculate that the total costs of remediation for students who leave high school yet lack basic skills is over \$454 million to compensate for their lack of skills.

Annual Cost to:	In Millions of Dollars:
<i>Community Colleges</i>	-
<i>Four-Year Colleges and Universities</i>	-
<i>Businesses</i>	-
Total	\$454*

* Figure not based on individualized costs to colleges or businesses, but using public school per pupil spending rate and the total number of students in need of remediation as a means to capture the statewide expense.

Strategy Five: Calculating Life-Time Costs of a Poor Education

Strategy five investigates lifetime benefits that students in need of remediation may lose as a result of poor education. We know statistically that the more education a person has the higher their earning potential. Using our data we can project the economic gain that is lost to the state over a 30-year period when students lack basic skills.

We have assumed up to this point that the cost of remediation is a wash. That is, if it costs \$11,816 to remediate a student who is two years behind in her basic skills, the benefit of learning those skills will produce an even return down the line. If we assume that possessing basic skills results in a more productive employee, then the benefits of remediation are likely to be much greater than the initial costs of doing so. This is especially true if one considers the long-term potential of any employee or worker. Conversely, failure to remediate a student or worker may ultimately cost society much more in the long-term as well. In short, the impact of students leaving high school without basic skills has costs that are difficult to quantify but have tremendous social and personal implications — prison, welfare, illiteracy, and unemployment.

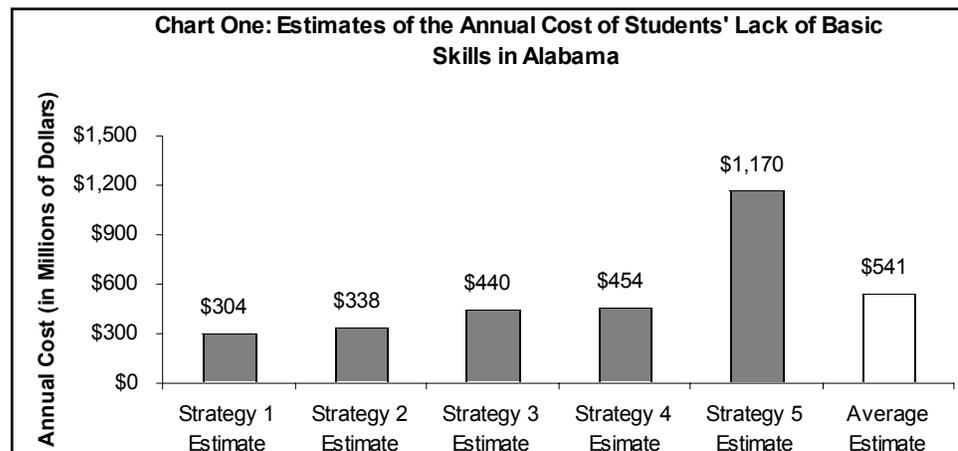
To estimate the long-term impact on society, we use our estimate from strategy three (\$443 million) and project that the costs of remediation provide a modest 3 percent return on expenditures. If we assume the average “working” life of a student or employee is 30 years, those expenditures produce a value of over \$1.09 billion for the state.

Even this may be too low. Our three percent return rate is merely meant to keep up with inflation. The return on other investments such as Treasury bonds has been slightly higher, and the return on the stock market has historically been considerably higher. In short, even our projection of a billion dollar value for the state may be too low because we have either underestimated the return or because our prior estimates (in strategy three) only look at the costs of remediating students that dropped out of high school and not those that graduated but still lack basic skills.

In sum, strategy five provides an interesting means of calculating the long-term impact on society when students fail to learn basic reading, writing, and math skills. Over the course of these students’ lifetimes, this lack of skills will cost the state more than a billion dollars.

In short, the impact of students leaving high school without basic skills has costs that are difficult to quantify but have tremendous social and personal implications — prison, welfare, illiteracy, and unemployment.

Table Five — Calculating Life-Term Costs of a Poor Education: Strategy 5	
Annual Cost to:	In Millions of Dollars:
<i>Community Colleges</i>	\$48
<i>Four-Year Colleges and Universities</i>	\$37
<i>Businesses</i>	\$1,085
Total	\$1,170 (rounded to nearest million)



Best Estimate of the Economic Cost of Remediation

Our five strategies produce five different estimates as to the financial impact on the state when students leave high school with poor reading, writing and math skills. The \$304 million estimate is almost certainly too low. It only includes direct expenses for remediation and overlooks many additional associated expenses such as capital expenses, lost productivity, and developmental education that occurs in college classes. The \$1.17 billion dollar estimate may be too high. Perhaps we have overestimated how long these employees will work (maybe 20 years instead of 30) or what the rate of return would be on their efforts (maybe 3 percent is too high). Of course, we may have underestimated these things as well. Most of the estimates are clustered in the low to middle hundreds of millions of dollars. By averaging the five estimates together, we arrive at a figure of \$541 million. If we exclude strategy five and just average the first four we get \$384 million. In sum, our best estimate of the annual economic cost of remediation to the state of Alabama is between \$384 to \$541 million.

COMMENTARY

Why do so many students and employees require remedial education? This is a difficult question to answer, and doing so forces us to realize that we are really looking at two different populations—high school dropouts and high school graduates.

High school dropouts receive the brunt of attention when this question comes up, but the concerns are less about academic ability (or failure) and more about the personal situations that these students face — broken homes, pregnancy, crime, poverty, language barriers, and poor educational support at home. In many ways, many of the problems that these students face are outside the ability of the school system and educators to address. Perhaps this is why they receive more attention from the media and lawmakers. These students and their problems seem larger and so much more complex that they demand greater attention.

Our second population — students that graduate from high school but lack basic skills — receive far less attention. The barriers they will face and the financial burden they place on the state, however, should not be overlooked. Given that these students have received from the state a diploma certifying that they possess basic skills, the question as to why so many of them need remediation takes on greater urgency. This is particularly true when education dollars become increasingly valuable.

Perhaps, then, we should rephrase the question. Why do so many students that graduate from Alabama’s public high schools need remediation if they have just received a diploma?

There are varied explanations as to why so many high school graduates need remediation. Some remedial education experts say that the public school system does not prepare students for college level work. “Reading skills are not taught after elementary school,” says Dr. Thalia Love, Director of Developmental Studies at Calhoun Community College. “Since the content areas [in college courses] depend on reading comprehension and study skills, those skills may be weak. I don’t feel that the high schools actually teach these skills. If students are not required to do high level thinking/critical thinking, they will enter college weak in those areas.”²⁸

“My personal opinion is that high schools are not preparing students for college level work, particularly in English,” says Jefferson Davis Community College Learning Lab Coordinator, Heather Stone. “Students are not learning how to write essays in high school and many never write a term paper. Our English 101 and 102 focus on how to write a term paper. Both of these are core courses and students come to us very unprepared for them.”²⁹

John Edgar of Southern Union State Community College notes that in the field of mathematics he sees a steady increase in the number of students

Why do so many students that graduate from Alabama’s public high schools need remediation if they have just received a diploma?

that are ill prepared for college level math courses. “I feel the students are less prepared [for college level math]. The biggest problem in Alabama is block scheduling for high school students. The students finish the course in one semester. They are rushed through the material and do not have the practice time needed to master the math skills. They could also go a full year without a math class.”³⁰

Echoing the sentiments of many of his peers at other institutions, Dr. Jim Jolly, Dean of Instructional Services at Gadsden State Community College, notes that such problems are symptomatic for many of today’s college freshmen. The quote, while lengthy, provides a good summary of the challenge that community colleges face:

“Many recent graduates come to us with very minimal skills in math, reading, and writing. Why? It’s hard to say. The teachers are often not very prepared. It’s sad, but the schools struggle to hire and retain qualified teachers. Many of them are ill prepared to teach students. These are people who struggle with the subject matter themselves, or are just not very good teachers. It also stems from parental pressure on teachers to pass a kid who really shouldn’t be passed. These social promotions result in kids making it all the way to their senior year in high school, and then to us, with out really preparing them for college level work. When the students get here they can’t take notes, they have poor study skills, they are not used to working on their own, and as a result they perform poorly on tests.”³¹

It is hard to assess what impact the state’s relatively new skills test will have on the quality of high school graduates. It seems to be a step in the right direction, but the intent of the exam may need to be revisited. Passing the exam, called the Alabama Graduation Exam, is required of all students before they can receive a high school diploma. The exam emphasizes what the state calls “fundamental” skills. While the definition of “fundamental” skills is somewhat murky, the state Superintendent of Education stresses that “fundamental” does not mean “basic or advanced.”³²

Aside from the graduation exam’s emphasis on “fundamentals” rather than “basic or advanced” skills, the application of the exam itself provides evidence that students may not be receiving the full benefit of their education.

For instance, the graduation exam should not be confused with a “comprehensive” exam that tests what students have learned over the course of their high school education. The exam is first administered in the 10th grade. If it is passed in the 10th grade the student does not have to take the exam again before graduation. To this end, the test is really not a measure of what students have learned in high school, but what they have learned prior to 10th grade. The state’s description of the exam makes this

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clear, noting that: “Although Alabama’s new graduation exam is generally written on an 11th grade level, some of the skills that will be tested actually will be taught in the seventh and eighth grades.”³³ In some areas, then, the graduation exam is not really a measure of what a high school graduate should know but what a junior-high student should know.

If students fail the exam in the 10th grade the state allows students to take the exam up to a total of six times over the next two years. According to the state Department of Education “Alabama is one of the nations leaders in the number of opportunities it gives its high schools students to pass a graduation exam.” This leads to the concern that the last two years of high school are now spent teaching some students material that should have been mastered in the 7th and 8th grade. Indeed, the state stresses that students who fail the exam will receive remedial help. The graduation exams can be retaken immediately after one of the remedial classes has taken place, raising the additional concern as to how much knowledge will be retained by the time the student graduates high school.

All of this is not to say that the problems in Alabama are any different from those of other states. Alabama is not out of line with other states, but has the same problems that they do. The solution to these problems — how to produce stronger high school graduates and stretch education dollars — may ultimately be found by looking at the policies other states have adopted as well.

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COMMENTARY**by Jay P. Greene, Ph.D.****Senior Fellow, Education Research Office****The Manhattan Institute for Policy Research****Davie, Florida**

Almost half of minority students fail to graduate from high school with a regular diploma. Students who do graduate can't apply to college unless they have taken a certain number of English, math and other courses while in high school.

For students to be able to attend virtually any four-year college, they need to graduate from high school, have a set of required courses on their high school transcripts and demonstrate basic literacy. The shocking reality is that fewer than one in five minority students has passed these three hurdles and is thus “college ready.”

Think of the K-12 educational system as a pipeline: Students enter the pipe in preschool and, if all goes well, flow all the way through and out the other end into college. But some students “leak” out of the pipeline by dropping out of school or failing to acquire college-ready skills. And when it comes to minority students, the pipe is currently so leaky that only a trickle of those students flow into college. Expanding affirmative action policies and financial assistance is like opening the spigot at the end of the pipe wider — it’s beside the point if the pipe is leaking badly. We can beef up affirmative action all we like and it won’t increase the flow of minority students into college, because the K-12 system just doesn’t produce enough college-ready high school graduates.

Almost half of minority students fail to graduate from high school with a regular diploma. Students who do graduate can’t apply to college unless they have taken a certain number of English, math and other courses while in high school. Virtually all colleges believe this minimum set of high school courses is necessary for students to acquire college-ready skills. More than half of minority high school graduates lack these required courses and are unable to apply to college. And among those who have graduated from high school with the right courses on their transcripts, there is another small portion that has somehow managed to pass these hurdles without possessing basic skills in reading, which colleges would expect of any minimally qualified applicant.

According to the Census, in 2000 there were approximately 1.2 million black and Hispanic 18-year-olds in the United States. Only about 631,000 of them actually graduated from high school with a regular diploma. Of these graduates, roughly 287,000 had taken the high school courses that would allow them to apply to even the least selective four-year colleges. And about 69,000 of these students could not perform at the “basic” or better level on the 12th grade reading test administered by the U.S. Department of Education, leaving only 218,000 college-ready minority graduates. In that same year, four-year colleges admitted 244,000 minority students.

Thus, virtually all college-ready minority students went on to attend college, as well as some students who may not have been college-ready, or who had left school not college-ready but who caught up later in the community college system. In short, many minority students will require remedial education in order to get into college, even after they receive a high school diploma.

Chris Hammons has done an excellent job of estimating the costs of remedial education, while making the reader sensitive to the difficulties of such estimates. Dr. Hammons has also helped the reader understand the real-world implications of students leaving high school lacking basic academic skills. Given the clearly enormous burden of the lack of basic skills, we are left with the question of what should be done to address this problem.

While the effectiveness of remedial education is difficult to study, the few studies that have been conducted show that students who participate in remedial education are significantly more successful in college than are students who need such education but fail to enroll in the requisite courses. Independent assessments by researchers like David Breneman and William Haarlow repeat that “remediation is surely a good investment.” A study I conducted on remedial education in Michigan suggests that the cost of remedial education per full-time equivalent student in post-secondary schools is about 10 percent less than the cost to produce a “successful” student in high school.

If, as these observations suggest, remedial education is effective and relatively cheap, there is no reason to favor curtailing it. The observation that the lack of basic skills costs post-secondary schools and employers a great deal of money does not mean that the money spent on it is wasteful or unnecessary. To the contrary, with almost half of high school students lacking basic skills, the evidence suggests that we ought to devote even more resources to remedial education.

Rather than cutting back on those who are treating the problem, we should focus our energies on identifying the cause and preventing its occurrence. There is certainly an element of truth in the observations of some remedial education instructors that the social problems of students account for some portion of their failure to acquire basic skills in high school. But educators can do little to change those social conditions. Instead, it is more productive to consider ways in which schools can reduce the number of students who graduate having never learned basic skills.

While this study does not deal at length with solutions to the problem, it is reasonable to conclude with some possible solutions to this burgeoning problem of remedial education:

1. Public school districts and private schools should implement a

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The only strategy that can meaningfully improve minority representation in higher education is to improve the quality of the K-12 education system so that it produces more college-ready minority students.

rigorous test that students must pass before graduating from high school. At the very least, this would re-enforce the idea that there is an academic standard high school students are expected to attain in order to graduate. While it is no panacea, a graduation test would help to shore up the integrity of a high school diploma and give high schools a greater incentive to ensure that their students acquired basic skills.

2. Public school districts and private schools should shoulder at least some of the financial burden of addressing the lack of basic skills among their graduates. A number of organizations have proposed some sort of “money-back guarantee” for high school diplomas. In other words, if high school graduates are unable to demonstrate mastery of basic skills, schools would have to pay for at least some of the cost of remedial education for those students. This financial responsibility would provide a further incentive to schools to ensure that their graduates were minimally competent.

3. Allow families to choose the elementary and secondary schools their children attend. Parents should be able to choose alternative schools for their children when a school or district fails to provide an adequate education. One of the reasons that America’s system of higher education attracts the best students from all over the world is the presence of a competitive system that provides students with choices. Post-secondary students can choose among a large number of community colleges, public universities, private colleges, or vocational schools. Meanwhile, elementary and secondary students are assigned to their schools, and are unable to escape poor performing schools unless they possess the financial wherewithal to relocate to a better public school district or pay tuition at a private school. Offering K-12 student the same kind of school choices that we already provide college students will create a more competitive elementary and secondary system that delivers higher quality and greater opportunities.

The only strategy that can meaningfully improve minority representation in higher education is to improve the quality of the K-12 education system so that it produces more college-ready minority students. We might disagree about how the K-12 system can best be improved, but we should stop wasting our energies on heated debates over affirmative action and focus them on the source of the problem. Unless we fix the leaks in the K-12 education pipeline, no higher education policy can possibly improve minority opportunities to attend college.

COMMENTARY

by **Matthew Ladner, Ph.D**

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This study carefully and methodically attempts to quantify the remediation costs of educational deficiencies of Alabama students. Despite conservative estimates, the costs are startlingly large. The results of this study raise two vital questions. First, what has the state tried in the past to improve public education? Second, what can it do in the future that will be more productive?

First, Alabama public schools do not fail to impart academic skills because of a lack of state funding. Alabama has been steadily increasing spending on public education for decades, always in the hope of improving the quality of education. In 1960, Alabama spent \$241 per public school student (approximately \$1,400 in today's dollars) according to the National Center of Education Statistics. Alabama taxpayers spent \$5,658 per student in 2000. The bad news is that many of Alabama students are not learning despite this huge spending increase. Spending has quadrupled on a per-student, inflation adjusted basis between 1960 and 2000.³⁴ As the findings of this study indicate, it is both a human and a financial tragedy that quality of education did not improve despite large increases in spending.

Furthermore, available test score data shows that a fresh crop of likely dropouts and students requiring remediation is in the pipeline. The National Assessment of Educational Progress (NAEP) exams, a national test given to samples of students across the country, found that 48 percent of Alabama 4th graders performed "below basic" in reading in 2003.³⁵ Students who fail to learn reading in the early grades often fall into a spiral of academic failure. "Below basic" in reading serves as a euphemism to describe an inability to read and comprehend grade level material. Children failing to learn basic literacy skills tend to fall further and further behind grade level with each passing year, and many ultimately drop out of school. Furthermore, the results of this study indicate that even those who graduate have failed to master basic skills needed for academic and career success.

On recent international tests of student performance in math and science, American seniors scored 19th out of 21 countries, behind all of our major economic competitors. Alabama's worst performing districts are therefore depressing places indeed — low-performing districts in a low performing state in a low-performing country.

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The problem with Alabama public schools is not a lack of spending but a collapse in the productivity of spending. States keep spending more, but have almost nothing to show for it in the form of improved student learning. As dissatisfaction mounts, school administrators, teacher union officials and others demand more of the same: higher spending. When that spending is delivered but fails to produce the desired results, the cry goes out again for yet more spending.

Alabama's future depends not upon spending yet more money in public schools, but rather upon finding ways to get far greater bang for each education buck. One proven method for increasing education productivity involves parental choice programs such as charter schools and school vouchers, which produce higher student test scores at a lower average cost than the traditional public schools. In addition, because of the creation of competition for students, choice programs provide a powerful incentive for the public schools to improve their performance. The time for a change in Alabama education policy is now, and the key to getting better performance from low-performing Alabama schools will be to give parents the ability to choose the best school to suit their child's needs. In order to be assured of future economic progress, we no longer tolerate huge portions of our public school students failing to learn the basics.

Currently, Alabama is one of the few remaining states that provides no meaningful options to parents. Alabama has no meaningful provision allowing students to transfer either between schools within school districts or between schools in different districts. Alabama law has yet to allow for the creation of charter schools, while 41 other states have done so. Likewise, Alabama is not among the six states that have enacted voucher programs, nor the seven states to enact education tax-credit legislation. Alabama is one of only four states nationwide to have done none of these parental choice reforms.³⁶

While Alabama has enacted no choice based reforms, Florida has embraced most of them. Florida has become the nation's leading state in school choice, having passed four statewide school choice programs in recent years. Florida's vigorous reform program includes charter schools, the A+ Program, which provides school vouchers for children in failing schools, the McKay Scholarship program, which has made every child with a disability eligible to receive a voucher, and a tax credit for donations to privately financed school-choice charities. The non-partisan Collins Center for Public Policy has released an analysis of the Florida tax credit concluding that the credit will save the state \$3,844 per student using a scholarship credit voucher. The Collins Center estimates that the credit will save Florida taxpayers more than \$55,000,000 per year, and more than \$600,000,000 over the next decade. Providing low-income students a better education of their own choosing at a substantially lower cost to the tax-

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payer is a win-win scenario for children and taxpayers. Not coincidentally, Florida has witnessed substantial improvement on 4th grade reading NAEP scores (a gain ten times larger than the national average) while Alabama's reading scores have been flat since the early 1990s.

In the past, opponents of school choice have stymied choice-based reform based on the argument that they are unconstitutional. Recently, however, the U.S. Supreme Court recently confirmed the constitutionality of the most effective program known for increasing education productivity—school vouchers. Voucher programs simply give parents coupons to be redeemed for education services at a public or private school of their choice. Because parents in voucher programs have often chosen to send their children to private religious schools, groups like the American Civil Liberties Union (ACLU) had brought suit in the attempt to have them declared unconstitutional. The court upheld the constitutionality of Cleveland's school voucher program in a decision delivered by Chief Justice William Rehnquist. The Supreme Court ruled that so long as it is parents instead of the government choosing the schools, voucher programs do not represent the establishment of a religion, as parents are free to choose between secular and religious options. The majority decision represents a lifesaver for thousands of parents in Cleveland, Milwaukee and Florida who are already using vouchers to send their children to the school they have chosen as best for their needs. Even more importantly, the decision gives a green light for states across the country to implement meaningful and effective education reform.

Wealthy people in our society have the ability to choose between high-performing public schools by paying to live in school districts with a higher cost of living, or by paying private school tuition. School choice is widely available, in other words, for families of means but not for low-income families. The Cleveland voucher program represents an attempt by the state of Ohio to level the playing field for parents living in a school district where 72 percent of the students fail to graduate. The Ohio legislature was not willing to accept this sort of abject failure, and neither should we. Policymakers around the nation can now move forward legislation to increase school choice, the most effective program for raising academic achievement among low-income students. The Supreme Court decision clearly shows that a program allowing parents to choose between public, private and religious schools is just as constitutional as the GI Bill, which allows soldiers to choose between public, private and religious universities. From this point forward, we have an amazing opportunity to raise student achievement and to improve public education by empowering parents to choose what is best for their children.

School choice profoundly increases the productivity of education spending. In Cleveland, low-income parents receive a voucher whose

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value is substantially less than the per-pupil spending in the public school system, but which allows them to choose schools in which the students perform much better academically. Vouchers thus deliver much greater bang for the buck. Strong evidence from Harvard economist Caroline Hoxby also demonstrates that competition for students with private schools not only increases student test scores in the public schools, but also results in higher pay for public school teachers, as school administrators are forced to pay good teachers higher wages in order to prevent them from leaving to join competing schools. Students learn more, parents get choices, teachers get paid higher salaries, and taxpayers save money.

United States Secretary of Education Rod Paige recently commented on school choice, saying that while America enjoys a voyage of choice and freedom overall, our education system missed the boat. "It's surprising that a country that says it values education hasn't powered it up with the energy of choice. But it's not just a surprise. It's a disgrace," Paige said. He went on to add, "Giving parents greater choices and kids more chances does not hurt public education, it strengthens it. It brings us closer to equality." With no charter schools, no vouchers, no tax credits, and no public school choice, Alabama is far behind the national curve on school choice.

It is simply not possible to spend your way to high-quality schools — it has been tried for decades without success. Alabama students will not meet and exceed national averages for student performance without reforms to improve the productivity of spending. Alabamians must either steel themselves for continued disappointment of the sort related in this study or else begin making fundamental changes to get improved educational value out of the taxpayer's investment in education.

Hopefully, a researcher will conduct a research similar to this report in 10 years and find substantial improvement. Hopefully, such research would show substantially lower rates of college and university remediation, and business spending substantially less on teaching basic skills to employees. Simultaneously, Alabama's NAEP reading scores would be substantially improving rather than repeating the stagnation of the 1990s to the present. Absent substantial reform, however, don't get your hopes up.

¹U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, "Survey on Remedial Education in Higher Education Institutions: Fall 2000," November 2003.

²*Ibid.*

³Total number of freshmen attending Alabama community colleges was calculated using data from Alabama Commission on Higher Education, documents entitled *Student Head Count Enrollment Trends by Level, 2001-2002* and *Student Origins of First Time Full Time Freshmen at Alabama Public Institutions in Fall 2001*. Enrollment in technical colleges was excluded. Enrollment in remedial education figure taken from Alabama High School report from fall of 2001, document entitled *2000-2001 Alabama Public School Seniors Enrolled in Alabama Public Colleges and Universities, Fall 2001*, p. 53. Total number of freshmen attending Alabama community colleges was calculated using data from Alabama Commission on Higher Education, document entitled *Student Head Count Enrollment Trends by Level, 2001-2002* and *Student Origins of First Time Full Time Freshmen at Alabama Public Institutions in Fall 2001*.

⁴Alabama College System Data on Credit Hour Productions for Summer 2001, Fall 2001 and Spring of 2002. Document provided by the Department of Postsecondary Education.

⁵Tuition and fees calculated based on records from Alabama Commission on Higher Education, *Annual Tuition and Required Fees Combined, 1998-1999 to 2001-2002*. Calculated at \$65 per credit hour.

⁶Calculated from data provided by Alabama Department of Post Secondary Education. Documents entitled *Sources of Current Fund Revenue Trends, Fiscal Years 1995-1996 through 1999-2000* and *Unrestricted Educational and General Expenditures by Object, 1999-2000*. Note that more current data than this was not available at the time this study was being conducted and we were told that financial data usually has a two or three year lag period before it is made public.

⁷Telephone interview with Dr. Jim Jolly, Gadsden State Community College, July 31, 2003.

⁸Enrollment in remedial education figure taken from Alabama High School report from fall of 2001, document entitled *2000-2001 Alabama Public School Seniors Enrolled in Alabama Public Colleges and Universities, Fall 2001*, p. 53.

⁹U.S. Department of Education, National Center for Education Statistics, Postsecondary Education Quick Information System, "Survey on Remedial Education in Higher Education Institutions: Fall 2000," November 2003.

¹⁰Alabama Commission on Higher Education Credit Hour Production Reports, 1999-2002.

¹¹Calculated using data from Alabama Commission on Higher Education Survey, *Annual Tuition and Required Fees Combined, 1998-1999 to 2001-2002*. Calculation based on \$108 in tuition and fees per credit hour.

¹²Integrated Postsecondary Data Systems (IPEDS), Finance FY 1999. Document entitled *1998-1999 Current Funds Revenues and Expenditures*.

¹³Correspondence of June 26, 2003.

¹⁴Correspondence of July 27, 2003.

¹⁵Correspondence of October 21, 2003.

¹⁶Correspondence of October 27, 2003.

¹⁷Calculated using data from the Integrated Postsecondary Education Data System (IPEDS), Fall

Enrollment Counts 1991-2001.

¹⁸This figure is based on an estimated 5,122 freshmen at Alabama's private four-year colleges and universities during the fall of 2001, as reported to IPEDS by the respective institutions.

¹⁹Tuition rate calculated using data from IPEDS Fall 2002 Institutional Survey data, US Department of Education. Median tuition and fees for four-year private schools in Alabama reported as \$345 per hour. Our estimate based on 6 hours (or two classes) per freshmen.

²⁰We mailed out 1,000 surveys to Alabama businesses. Our response rate of 7.7% is fairly typical for a mail our survey. Anywhere between 5%-10% return is considered a good response.

²¹Statistics on U.S. Business by State 2002, U.S. Census Bureau.

²²Definitions for reading, writing, and math skills taken from criteria established in "Great Expectations: A Guide to Alabama's High School Graduation Exam," 2003, pp. 10, 12.

²³Rounded to the nearest million.

²⁴We excluded these schools from our analysis because it was too difficult to distinguish expenditures on remedial courses from expenditures on job related skills.

²⁵According to the National Center for Education Statistics, there were 63,707 9th graders in Alabama public school in 1998. Four years later, when these students should have been graduating, there were only 37,082 graduates. The difference between the two figures is used as the drop out rate for high school students. Our calculation rate is only one percent less than the projected 14.1 percent drop out rate reported by the Alabama Department of Education.

²⁶Enrollment in remedial education figure taken from Alabama High School report from fall of 2001, document entitled 2000-2001 Alabama Public School Seniors Enrolled in Alabama Public Colleges and Universities, Fall 2001, pg. 53.

²⁷The test is administered to 4th and 8th graders in public schools.

²⁸Dr. Thalia Love, Director of Developmental Studies Program, Calhoun Community College.

²⁹Heather Stone, Jefferson Davis Community College, July 11, 2003

³⁰John Edgar, Southern Union State Community College, June 6, 2003.

³¹Telephone interview with Dr. Jim Jolly, Gadsden State Community College, July 31, 2003;

³²"Great Expectations: A Guide to Alabama's High School Exit Exam." State Publication, Alabama Department of Education, January 2003, p. 2.

³³Ibid.

³⁴Figures from the Digest of Education statistics, available at <http://nces.ed.gov/programs/digest/d02/tables/dt168.asp>

³⁵Alabama NAEP results are available at <http://nces.ed.gov/nationsreportcard/states/profile.asp>

³⁶Kentucky, North Dakota and Montana are the other three states with no public choice programs. Source: *School Choice in the States*, publication of the Heritage Foundation.