

# Economic Watch

US

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Economic Analysis

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## Structural Series: The Challenges of Public Education

### Quality Reform Starts at the Ground Level

- A solid public education system is the foundation for sustained economic growth, democracy, and social mobility
- Past reform efforts have had limited success in closing the achievement gap between advantaged and disadvantaged students
- The next wave of reform needs to provide equal access to quality education

*"If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war. As it stands, we have allowed this to happen to ourselves. We have even squandered the gains in student achievement made in the wake of the Sputnik challenge. Moreover, we have dismantled essential support systems which helped make those gains possible. We have, in effect, been committing an act of unthinking, unilateral educational disarmament."* - A Nation at Risk: The Imperative for Educational Reform, U.S. Department of Education Report, April 26, 1983

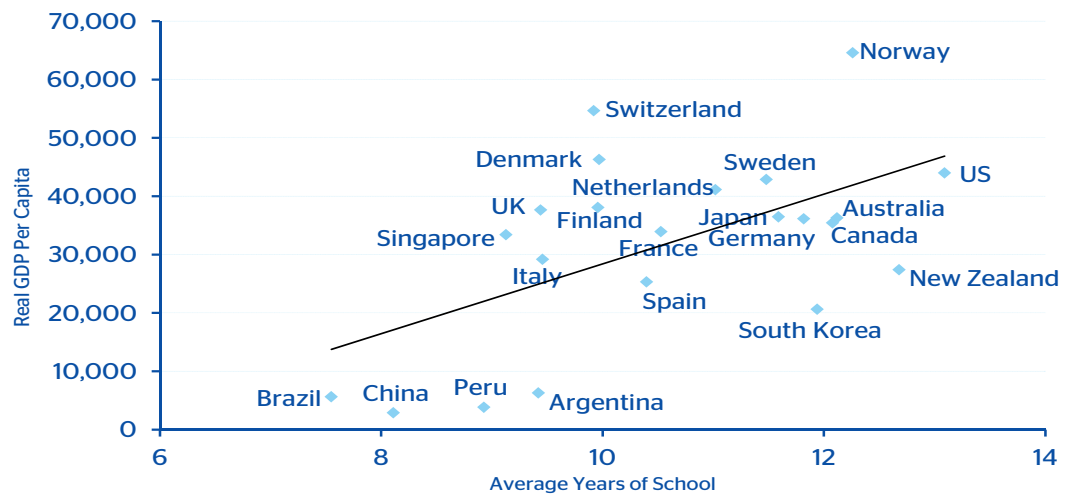
Education is a quintessential part of the "American Dream" - a stepping stone towards a successful future and a foundation for economic prosperity. As members of society, we have the right to a good education, yet the value of that right is often taken for granted. In a world where globalization and technology demand new and more complex skills from workers, the U.S. cannot afford to have a public education system that does not prepare students for the challenges of such an economy. Whether it is the quality of the programs, the curriculum, parental involvement, or balancing public education with privatization, an appropriate understanding of the challenges at hand is the first step to improving the system.

Public elementary and secondary education is at the core of education reform. This is because unlike the private sector, public schooling is meant to be available to all residents regardless of economic status or location. In the U.S., access to school is no longer an issue; however, the system still struggles to provide *equal access to quality education* for all. In this paper, we focus on the main challenges and reforms of the elementary and secondary public education system under the proven assumption that educational reform that starts at the primary stage has the greatest influence on a child's future. Furthermore, if society and government are able to overcome the challenges of K-12 education, the road to post-secondary education should be smoother. Of course, college education in the U.S. is characterized by other barriers such as extreme and often unaffordable costs, but this is a subject for a later analysis.

## Education and the Economy

Education is an important step towards a productive economy. The link between education and economic growth seems obvious on the surface - as people become more educated they are more likely to find successful careers with stable incomes, in turn being able to support a family, buy a house, and spur other forms of consumer activity. The average amount of schooling generally has a positive relationship with economic development (Chart 1). An NBER working paper by Fernald and Jones (2014) highlights the fact that approximately 75% of growth in the U.S. since 1950 can be attributed to increased educational attainment and research. Furthermore, the Alliance for Excellent Education, an organization based in Washington, DC, has pointed out that nearly 65,700 additional jobs would have been created if 90% of students in 2012 had graduated high school, compared to only 73% that actually earned a diploma that year. Similarly, if 100% of these students in the Class of 2012 had graduated, the U.S. could have seen an additional \$236 billion in personal income over the students' lifetimes. Still, the value of education goes far deeper, providing ground for social mobility, democracy, and political stability.

Chart 1  
**Real GDP Per Capita and Average Years of Schooling, 2010**  
 (Constant 2005 USD)

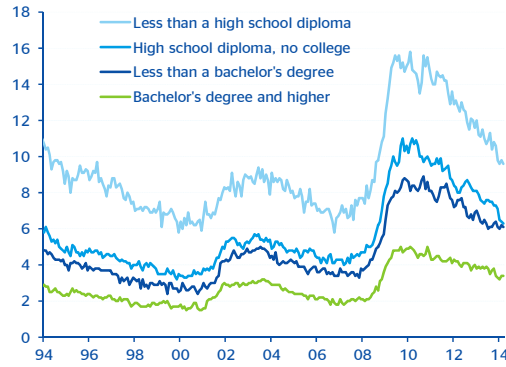


Source: World Bank, OECD, & BBVA Research

## Education as a Driver of Income and Productivity

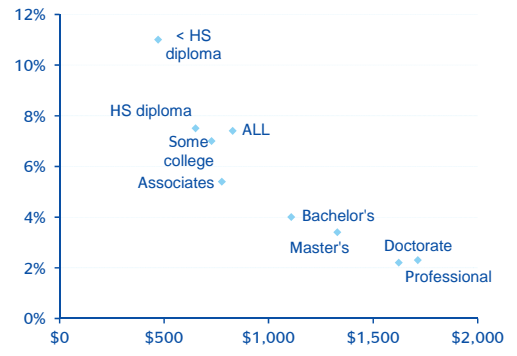
Higher labor productivity ultimately leads to improvements in economic growth. Standard economic models of growth emphasize the role of human capital formation. The overall process of invention, innovation, and efficiency advancements are much more typical among a highly educated population. Among the various publications on this topic, a study by Hanushek and Kimko (2000) measured the relationship between labor force quality and math and science test scores. The authors found that test performance was closely related to productivity differences on an international level, which in turn were more related to schooling rather than other cultural factors. Another more recent study by Cubas, Ravikumar, and Ventura (2013) looked at PISA scores and found that test performance was significantly related to differences in labor quality across countries.

Chart 2  
Unemployment Rate by Educational Attainment (%)



Source: U.S. Census Bureau & BBVA Research

Chart 3  
Unemployment Rate & Median Weekly Earnings by Educational Attainment, 2013



Source: U.S. Census Bureau & BBVA Research

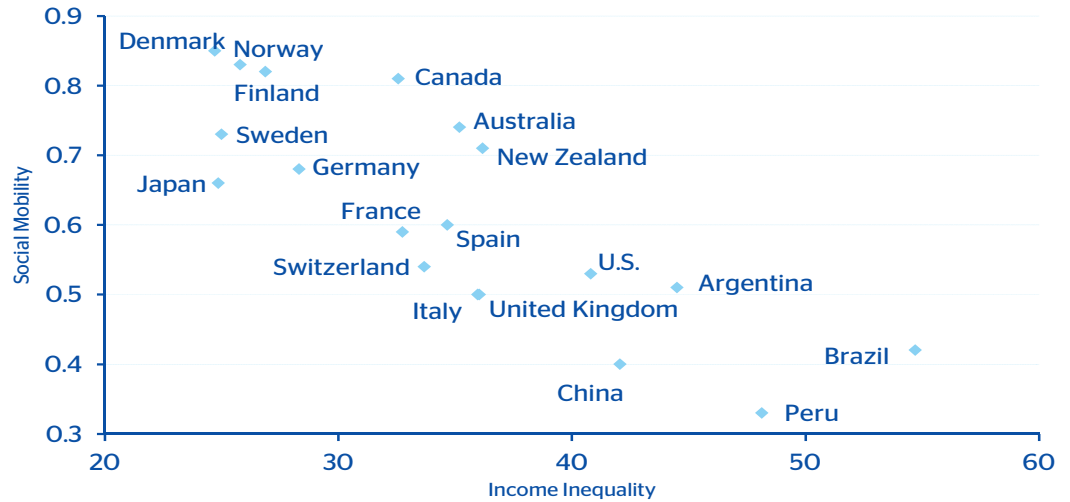
In addition, as individuals become more qualified employees via experience and education, they are more likely to be financially stable. According to data from the U.S. Census Bureau, those with a high school degree earn nearly 40% more per week on average compared to those who did not attend or finish high school (Charts 2 and 3). Climbing up the ladder, the data suggest that individuals with an advanced degree earn at least a quarter more than those with only bachelor's degrees.

**Education as a Driver of Social Mobility**

Education is also a means to reduce income inequality in the U.S. as it is one of the only ways that individuals can strive to improve their socioeconomic status. Recent studies by Miles Corak (2013) have shown that countries with higher income inequality tend to have lower levels of social mobility. This relationship is depicted by the negative correlation between the Gini Index (as reported by the World Bank) and a measure of social mobility, which is calculated as one minus the intergenerational earnings elasticity of each country (Corak, 2013).

In the U.S., access to quality public education is a key factor, as it is often the case that the kids stuck in bad neighborhoods miss out on opportunities for better education. Various studies on the topic have questioned whether it is the bad neighborhood or the bad school that is to blame, and there isn't always a clear answer. A 2011 analysis by sociologists Wodtke, Harding, and Elwert suggests that growing up in bad neighborhoods (i.e., high poverty, unemployment, welfare assistance, and few well-educated adults) significantly reduces high school graduation rates. Often times, these schools are stigmatized as underperforming institutions without accounting for the difficult environments where they have to operate.

Chart 4  
Income Inequality and Social Mobility

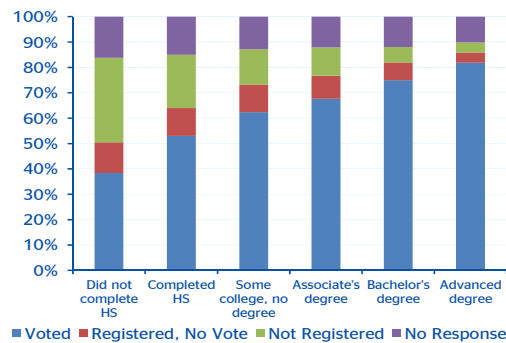


Source: Corak (2013), World Bank, & BBVA Research

### Education as a Driver of Democracy and Political Stability

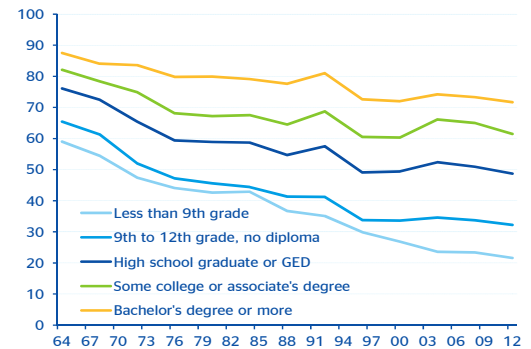
As education boosts economic growth and encourages social mobility, the divide between rich and poor becomes less severe. In turn, we are likely to see a more stable foundation for democracy and political stability. Consistent educational standards across the country help create a base level of knowledge that becomes useful when these individuals have a say in how the country is run. The right to vote is an important part of what makes this country so special, but only to the extent that citizens know and understand the political questions at hand. As Thomas Jefferson once said, "I know no safe depository of the ultimate powers of the society but the people themselves; and if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion by education."

Chart 5  
Voting & Registration by Educational Attainment (% in 2012 presidential election)



Source: U.S. Census Bureau & BBVA Research

Chart 6  
Voting by Educational Attainment Over Time (%)



Source: U.S. Census Bureau & BBVA Research

Those who are educated and are contributing to society are more likely to vote and pay attention to the ramifications of their involvement. Charts 5 and 6 indicate that people are more likely to vote as they advance in their educational careers, as those with less than a high school degree seem to be much less involved in the democratic system. Educated voters are more likely to have a say in what is most beneficial for them and their communities. Regardless, democracy is at its best when voters know the consequences of their actions and decisions, something that is less likely to be the case if they are not raised in a community with proper access to quality education. A society that is more invested in the consequences of its political actions is likely to be more stable and less susceptible to uneasiness or uncertainty.

### The Evolution of Education Reform

Education reform has been a constant ever since the U.S. was founded. From the secularization movements of the nineteenth century to the democratization movements of the 1960s and 1970s, the American education system was transformed into the compulsory, secular, professional, bureaucratic, and regulated network that it is today. While prior reforms were aimed at increasing student enrollment and accountability, the current wave focuses more on quality.

On April 26<sup>th</sup> 1983, President Reagan’s National Commission on Excellence in Education published a report titled *A Nation at Risk: The Imperative for Education Reform*. The report identified a series of trends that portrayed a failing education system. Specifically, it pointed out a consecutive decline in average Scholastic Assessment Test (SAT) scores between 1963 and 1980. *A Nation at Risk* also highlighted the disappointing fact that nearly 13% of 17-year-olds could be considered functionally illiterate, with this share around 40% among minorities (Table 1).

Table 1  
**1983’s *A Nation at Risk* Key Findings**

|   |
|---|
| U.S. students came in last nearly 37% of time when scored against other industrialized nations            |
| Approximately 23 million adults and about 13% of all 17-year-olds in the U.S. are functionally illiterate |
| Average achievement on standardized testing is lower compared to 26 years ago                             |
| Average verbal and math scores fell 50 and 40 points, respectively, between 1963 and 1980                 |
| Almost 40% of 17-year-olds cannot draw conclusions from written material                                  |
| Only one-fifth of 17-year-olds can write a persuasive essay   |
| Only one-third of 17-year-olds can solve a multi-step math problem  |
| Remedial math courses in public 4-year universities increased 72% between 1975 and 1980                   |
| Average tested achievement of college graduates has declined  |
| Business and military leaders spending millions on costly remedial education and training                 |

Source: U.S. Department of Education & BBVA Research

Due to its provocative wording and discouraging findings, *A Nation at Risk* triggered what Peterson (2007) calls the “excellence movement”, which strived to improve the quality of education by increasing accountability, transforming the teaching profession, and promoting parental choice. In the beginning, the “excellence movement” was deeply influenced by economic notions of market efficiency, de-regulation, competition, and free choice. Prominent economists like Milton Friedman proposed the use of publicly funded vouchers to pay for the family’s school of choice, noting that “education spending will be most effective if it relies on parental choice and private initiative - the building blocks of success throughout our society.”

Soon after the publication of *A Nation at Risk*, several states started to implement standards that progressively increased in complexity; they also developed tests and devoted resources to

teacher training. In 1989, President Bush and state governors decided to adopt national goals for K-12 education to be met by 2000. The movement towards standards-based education continued during Bill Clinton's presidency, when Congress passed the Improving America's School Act of 1994 (a reauthorization of the Elementary and Secondary School Act [ESEA] of 1965) and the Goals 2000: Educate America Act of 1994. Both acts represent the government's efforts to encourage accountability and close achievement gaps by apportioning federal money based on school performance.

Efforts to foster accountability reached a highpoint with the signing of the No Child Left Behind (NCLB) Act of 2001, a new reauthorization of the ESEA of 1965 which was implemented to grant equal access to quality education. NCLB required states to establish a testing system by which the performance of public schools could be measured. Schools that received federal funds under Title 1 (the section that regulates the aid to disadvantaged students) were expected to make an Annual Yearly Progress (AYP) in test scores. A series of corrective actions were targeted toward schools that failed to make AYP continually. Actions ranged from requiring the school to create and follow an improvement plan after two consecutive years of failure to a complete restructuring if the school were to underperform for five years in a row.

Table 2  
**Corrective Measures under the No Child Left Behind Act of 2001**

| No. of Years Failing AYP | Corrective Measures  |
|--------------------------|--|
| 2                        | Schools are publicly labeled as <i>in need of improvement</i> , and must develop a two-year improvement plan. Students have the option to transfer to a better school within the district.                               |
| 3                        | Schools are forced to offer free tutoring and other supplemental education services to struggling students.  |
| 4                        | Schools are labeled as requiring "corrective action," which might involve wholesale replacement of staff, introduction of a new curriculum, or extending the amount of time students spend in class.                     |
| 5+                       | Restructuring of the entire school. Common options include closing, transitioning into a charter school, hiring a private company to run the school, or asking the state office of education to run the school directly. |

Source: U.S. Department of Education & BBVA Research

The professionalization of the teaching profession has also been impacted by NCLB as the law demanded that schools receiving funds under Title 1 have access to high-quality teachers. As a result, teacher certification became overindulged across states while innovative organizations like Teach for America were implemented to recruit college graduates from prestigious institutions. However, efforts to attach teacher compensation to student performance rather than years of experience and degrees earned have failed in most of the country due primarily to opposition from teachers unions.

Despite its ambitious goals and tough corrective measures, NCLB has been criticized for being a one-size fits-all solution that ignores idiosyncratic elements of schools and school systems. In addition, critics have also argued that NCLB's strong emphasis in scoring overlooks the importance of a comprehensive curriculum that prepares students for the challenges of a global economy. In response, the U.S. Department of Education has offered each state educational agency the option to request flexibility for specific requirements of the NCLB Act of 2001. This can be done in exchange of rigorous state-owned development programs to close achievement gaps and to improve educational outcomes. According to the Department of Education, 45 states, the District of Columbia, Puerto Rico and the Bureau of Indian Education have requested ESEA flexibility. In return, these states have committed to adopt college- and career-ready standards as well as design new measures to provide high quality education. Contrary to NCLB mandates, failing schools don't have to be closed but instead turn around using alternative methods.

Parental choice has also faced many obstacles. Modern school vouchers have been used only in a few cities. Often, these vouchers face strong opposition from teachers, public schools, and even

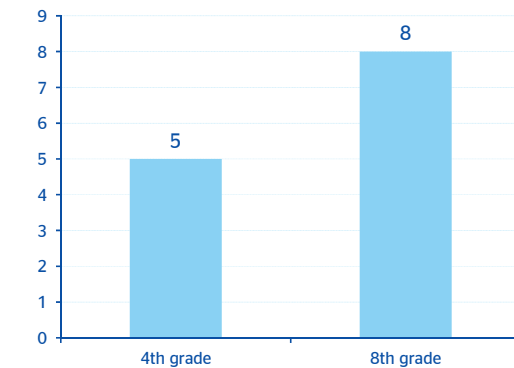
state courts. Opponents argue that vouchers do not lead to better academic performance, impose a risk to the secular spirit of public education and encourage segregation.

Charter schools also have their skeptics. Diane Ravitch, a leading author on the subject, argues that charter schools, in a similar vein to private schools, attract the most highly motivated students (and parents) and leave behind the underperforming students. Rather than intensify the competitiveness with true public schools, Ravitch suggests that charters should collaborate with the public system. Even still, charter schools have become the closest and perhaps the most successful option to the idea of parental choice. Today, parents in forty-one states plus D.C. have the option of sending their children to independently-run charter schools rather than traditional public schools. The popularity of charter schools has increased significantly since inception, with enrollment rising from 300,000 to 2.1 million between school years 1999-2000 to 2011-2012, or from 0.7% to 4.2% of total public school students.

### Assessing Education Reform

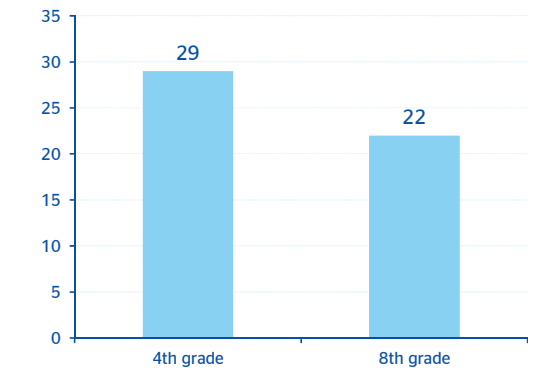
Thirty-one years have passed since the release of *A Nation at Risk*. Meanwhile the achievement goals of NCLB were expected to be met in 2014. However, despite three decades of the “excellence movement”, metrics suggest that for the most part, the U.S. has not reached all of the desired outcomes voiced back in 1983. Since then, results have been mixed, though on the surface it appears that the country is making progress. According to the Department of Education’s National Assessment of Educational Progress (NAEP), average mathematic scores for fourth- and eighth- graders in 2013 were 29 and 22 points higher, respectively, compared to the first assessment year in 1990. As for reading, average scores for fourth- and eighth- graders were 5 and 8 points higher, respectively, than in 1992. Overall, average scores are slowly approaching proficiency levels.

Chart 7  
**NAEP Average Improvement in Reading Scores, 1990-2013 (Points)**



Source: U.S. Department of Education & BBVA Research

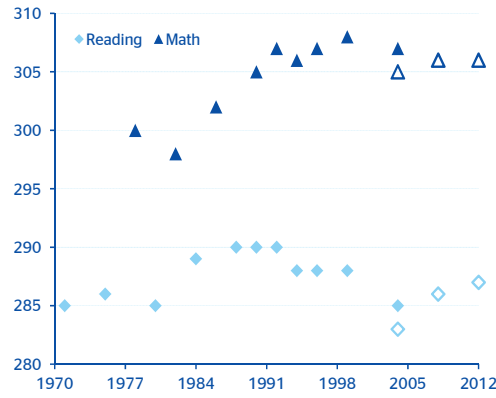
Chart 8  
**NAEP Average Improvement in Math scores, 1990-2013 (points)**



Source: U.S. Department of Education & BBVA Research

At the regional level, test performance varies across states. According to the NAEP, almost every state has progressed in fourth and eighth grade mathematics since 1992. However, only 16 and 15 states have reported improvements in fourth- and eighth- grade reading, respectively. The long-term NAEP survey, which measures a consistent body of knowledge over time, shows virtually no improvement in reading and mathematics achievement for 17-year-olds since 1990. The downward trend in SAT scores observed between 1960 and 1980 reverted for mathematics, but the average score for critical reasoning has continued to decline.

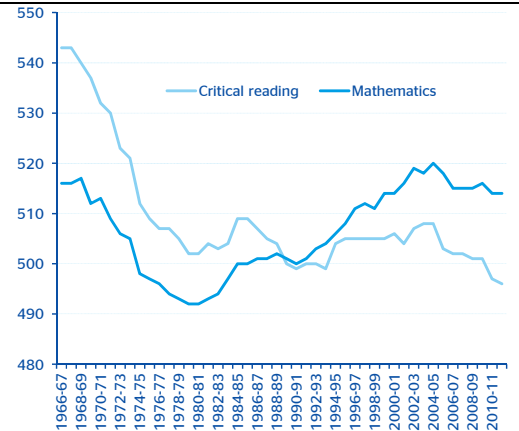
Chart 9  
Long-Term NAEP Scores for 17-Year-Olds (%)



Source: U.S. Department of Education & BBVA Research

\*NAEP made administrative changes to their assessment in 2004, however results are still comparable.

Chart 10  
SAT Trends in Math and Reading (Average Scores)

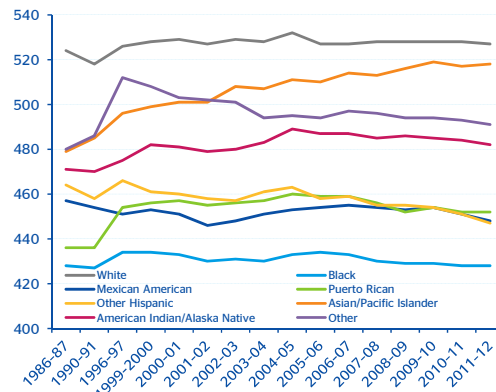


Source: U.S. Department of Education & BBVA Research

Despite improvements at the aggregate level, both the conventional and long-term NAEP surveys reveals that achievement gaps by race and ethnicity have experienced little change. This phenomenon exposes the limitations of NCLB and the “excellence movements” across the nation to close the gap between white (the group with the highest average scores) and non-white students. The long-term NAEP survey does show some narrowing in the White-Black gap and the White-Hispanic gap between 1973 and 2013, yet the gaps have not changed since 2008.

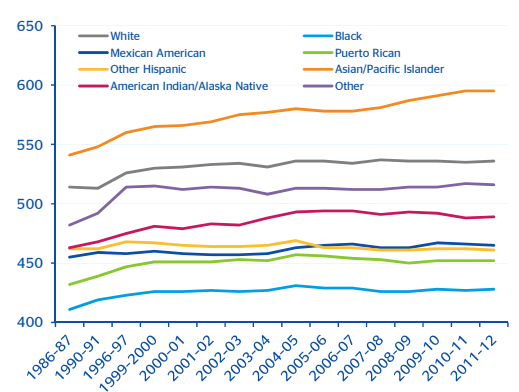
Over time, SAT scores portray a similar picture. By race and ethnicity, gaps in critical reading scores have widened between whites and minorities, except for Asians/Pacific Islanders. When it comes to math scores, only Asians/Pacific Islanders exhibit an upward trend, widening the gap between them and the rest of the groups for which there has been little change.

Chart 11  
SAT Score Gap by Ethnicity: Critical Reading (Average Scores)



Source: U.S. Department of Education & BBVA Research

Chart 12  
SAT Score Gap by Ethnicity: Mathematics (Average Scores)



Source: U.S. Department of Education & BBVA Research



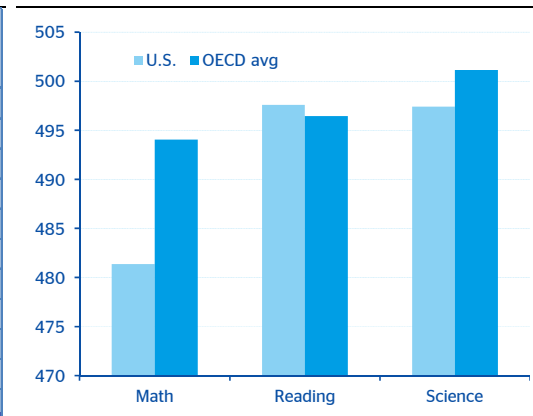
From an international perspective, results are still unsatisfactory. Results from the Program of International Student Assessment (PISA) continue to show American 15-year-old students lagging behind their peers in other advanced nations. In 2012, the U.S. ranked 27<sup>th</sup> in mathematics, 17<sup>th</sup> in reading, and 20<sup>th</sup> in science among a total of 34 nations. The U.S. education system was consistently outperformed by sixteen education systems from other advanced economies. These results are more striking considering that the U.S. government spends more money per full-time equivalent student than any other, behind only Switzerland, Norway and Luxemburg. Ultimately, it seems that public education in the U.S. does not prepare students for higher learning as well as in other developed nations. It is clear that those who have the choice are seeking alternative options, with only 55% of early education students attending public schools in the U.S. compared to an average 84% in other OECD countries. Similarly, teacher salaries in the U.S. are much lower than in other developed economies, even for those with similar higher education status. However, teachers in the U.S. spend much more time teaching compared to almost every country, totaling 1,050 and 1,100 hours per year vs. the OECD average of 779 hours.

Chart 13  
GDP Per Capita & Expenditures Per Pupil  
(Constant 2011 USD, 2008)

| Ranking | Country             | Gross Domestic Product Per Capita | Expenditures per pupil |
|---------|---------------------|-----------------------------------|------------------------|
| 1       | Luxembourg          | 86,995                            | 18,891                 |
| 2       | Switzerland         | 46,944                            | 14,061                 |
| 3       | Norway              | 57,360                            | 13,600                 |
| 4       | United States       | 47,274                            | 12,404                 |
| 5       | Austria             | 40,717                            | 12,247                 |
| 6       | Denmark             | 40,156                            | 11,632                 |
| 7       | Netherlands         | 43,082                            | 10,517                 |
| 8       | Belgium             | 38,477                            | 10,258                 |
| 9       | Sweden              | 38,995                            | 10,180                 |
| 10      | Ireland             | 41,677                            | 10,082                 |
|         | <b>OECD Average</b> | <b>35,204</b>                     | <b>9,012</b>           |

Source: OECD & BBVA Research

Chart 14  
PISA Test Results for Math, Reading, & Science  
(2012 Mean scores)



Source: OECD & BBVA Research

### The Ongoing Education Debate

There is no right answer for where the root of underperformance and achievement gaps lies. Teachers, parents, communities, and the government have all taken the heat for a poor education system, but often times it is a combination of circumstances that is to blame. The current debate on education draws from each of these factors in an attempt to find the best approach for future reform.

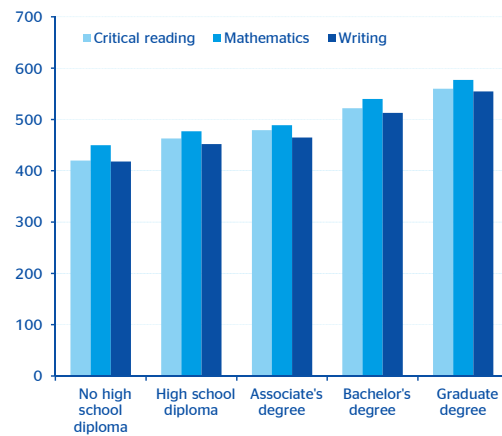
Teachers are the backbone of the education system but often suffer from conflicting mandates that regularly drive new educators out of the profession while cementing those who survived long enough to gain tenure. A 2008 NBER study “Certification and Teacher Effectiveness” speaks to the varying qualifications of public school teachers, concluding that hiring criterion for new teachers should focus less on the applicants’ undergraduate degree and GPA, and more on their experience and training on the job.

The NBER study’s findings also bring about the issue of whether having a range of diversely qualified teachers is sustainable. The alarming truth, pointed out by Jalongo and Heider (2006), is that 46% of new teachers in early childhood education actually quit teaching after five years or less, with a rate up to 50% for teachers in urban areas, which happen to be the ones that need more assistance. Furthermore, they found that 90% of teachers in the U.S. are hired as replacements for those who have left for reasons other than retirement.

Another study into the detriment of teacher attrition found that attrition levels grew 50% from 1993 to 2008 and Kopkowski, the author of the study, estimated that the cost was roughly \$7 billion per year as districts scrambled to replace teachers. The unfortunate connection between teacher qualifications and the rate of attrition means that, even if teachers are qualified and capable of the job, too many of them leave their positions in a short period of time, not only without the intention of coming back, but also forcing the district to hire new teachers who, on average, have less experience. A 2011 report from the Alliance for Excellent Education, the largest share of teachers nowadays are in their first year of teaching, compared to in 1987-88 when there were more teachers with 15 years of experience than any other level.

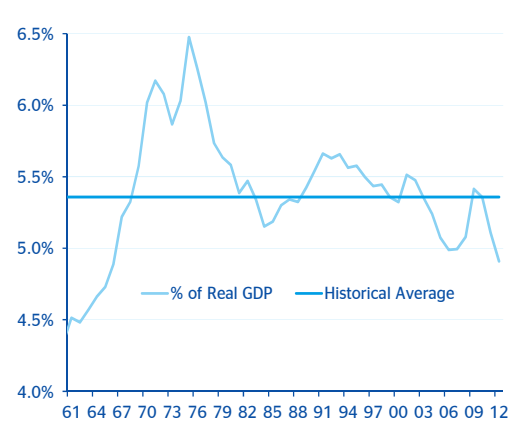
Parents and communities are also closely related to the problems with early education. It has been proven that children are more likely to have a better education if both parents are educated and therefore tend to put more emphasis on finding the best schools for their kids. In fact, SAT test scores show that students are more likely to perform better on these standardized tests if their parents also had superior performance (Chart 15). A report from Dubow, Boxer, and Huesmann (2009) noted that the parental education level is a significant predictor of student outcomes and achievement as adults. Another study by Grossman, Kuhn-McKearin, and Strein (2011) found that parental expectations for their children were also related to educational achievement.

Chart 15  
**Highest Level of Parental Education and Student SAT Scores (Average)**



Source: U.S. Department of Education & BBVA Research

Chart 16  
**Real Government Spending on Education (% of GDP)**



Source: BEA & BBVA Research

Last but certainly not least is the government's role in education, both at the federal and state/local level. Many people turn to spending on education as the biggest problem and subsequently, the best solution. However, the aforementioned rankings point toward a definite disparity between the quantity and quality of educational funding and attainment. As a percentage of GDP, real government spending on education has fallen below its historical average (Chart 16); however, U.S. expenditures per full-time student are 39% higher than the OECD average.

State education systems are very vulnerable to business cycles. For example, according to the Center of Budget and Policy Priorities, between FY08 and FY14, federal funding for schools and other non-entitlement grants declined in 34 states. Moreover, while state revenues have improved, funding levels are still limited, making it hard for states to improve key services such as education. Changing demographics also put pressure on state finance to prioritize finances toward healthcare and other services.

The overall debate is about the government's role in facilitating access to quality education, not simply additional funding. Currently, there is no national curriculum as states have most authority

over the required topics necessary for graduation, particularly when it comes to years studied in each subject and the range of levels covered. The problem here stems from the decentralized nature of education that is rooted in the basic structure of the 50 states. As a result there are significant differences across states in terms of funding, standards, curriculum, etc. Aforementioned reforms have aimed at addressing the lack of a national strategy, with NCLB requiring standardized testing. However, a more comprehensive and consistent curriculum across states may help to create increased homogeneity when it comes to general knowledge and preparedness for post-secondary education.

### Next Steps in Education Reform

Although past reforms have achieved some success in terms of improving educational outcomes, particularly accountability via standardized testing, these reforms have not helped much to reduce the achievement gap between advantaged and disadvantaged students. Future reform efforts should facilitate the opportunity for disadvantaged students to achieve through the public school system what wealthier families can do via private education. This will help protect the social mobility mechanism that is critical to keeping the “American Dream” alive. As Milton Friedman once said, “Improved education is offering a hope of narrowing the gap between the less and more skilled workers, of fending off the prior prospect of a society divided between the ‘haves’ and ‘have nots,’ of a class society in which an educated elite provided welfare for a permanent class of unemployables.”

Nevertheless, there are certainly other factors that can be held accountable for the lack of progress in closing the achievement gap; for example, limited access to healthcare, internet and technology access, household composition, crime, language barriers, chronic unemployment, etc. These issues should also be addressed in parallel to education reform so that students can take full advantage of what the public education system has to offer.

Since the publication of *A Nation at Risk*, evidence has shown that equal access to quality education is hard to achieve in a decentralized system, where 50 state agencies have a stake in education outcomes. Therefore, it seems that the system needs a broad overhaul in which states give up some control in order to implement a national curriculum and national standards. This will ensure that all students across the country are getting the same basic knowledge and are measured on the same standards, with the same access to high quality content. As an example, Australia, also with a decentralized education system similar to the U.S., has officially moved towards adopting a national curriculum to eliminate outcome disparities.

Assuming that there is agreement among states, designing a national curriculum won't be easy. The challenges of a global economy demand sophisticated skills that do not come simply from a core curriculum in math and science, but also involve learning other languages, critical and creative thinking and social skills that help to form individuals that can have a positive contribution to society. The need for a comprehensive education curriculum becomes more urgent with the many challenges that the U.S. and the rest of the world face like global warming, aging demographics, social and political polarization, increasing income inequality and population growth. With a more advanced public education system, there should be a reduced need for private schools, ultimately creating a more level playing field for students across the country.

Finally, in order to get the best out of a high quality national curriculum, society needs to give public education the place it deserves on the list of national priorities. According to a 2013 study conducted by the Pew Research Center, nearly two-thirds of the respondents feel that the current education system needs at least major changes. However, education is rarely at the top of the list of American's public concerns when it comes to democratic elections. Somehow, there needs to be a movement to emphasize the value of education not only as a way to strive for a better life but as the most effective instrument to create productive and active members of society.

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