

# **If We're So Dumb, Why Are We so Rich?**

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Once again a set of major international assessments shows American students “lagging” international performance in mathematics and science. In math the 2003 Trends In International Math and Science Study (TIMSS) ranked us 14<sup>th</sup> out of 25 participating European and Asian nations. We did better in science ranking 16<sup>th</sup> out of 25. The 2003 Program for International Student Assessment (PISA) shows that about two thirds of the other nations surveyed outperformed American students.

The PISA study is the latest in a steady drumbeat of reports on how American students aren't measuring up globally. And it looks like we aren't gaining ground. Most disappointing in the 2003 TIMSS and PISA assessments was that there was no real improvement since the tests were taken in the nineties, in spite of our aggressive emphasis on standards based reform and a huge increase in the share of students taking math, science and other more rigorous courses. And it's not just K-12 education. Only a few years ago a similar study the Other OECD indicators show that we have slipped from #1 to #4 in postsecondary attainment.

Cause for concern? You bet. You don't have to have the math and science scores of a rocket scientist to know that in the new high-tech economic world, math and science education is a key asset in global economic competition.

But wait a minute. If we're so dumb, why are we so rich? What explains America's remarkable economic performance in the face of educational failure? To put it bluntly, if America's so bad at math and science, how come we're so successful in the new high-tech global economy?

Just look at the numbers.

Japanese students are always among the front-runners in international assessments, including the PISA and the TIMSS studies. But the average purchasing power of American families is at least 40 percent greater than the average purchasing power of Japanese families.

In general, members of the European Union outperform us on TIMSS and PISA. But the U.S. productivity and gross domestic product per capita towers over the European Union nations by at least \$10,000 per capita. And the U.S. unemployment is consistently less than half the European level.

How can we reconcile our educational failure and economic success? The answer is that we may not have the world's *best* human capital, but we are pretty good and have *more of it*—and our economic agility allows us to use it more effectively.

***We're not the best educated, but we're pretty good.*** We may not be the pacesetters in the global educational race but we are in the middle of the pack in the chase to catch the breakaway leaders. And while we appear to be stuck in mediocrity compared with the world's more developed nations, we are still bona fide members in the exclusive club of the world's best-educated nations.

And, of course, it depends on which America we are talking about. There is much more variation in the American scores than the scores of other nations where education standards are nationwide and more tightly aligned to curriculum and teacher training.

Youth in America's affluent suburban school districts do almost as well as the top students in the top nations, but American students in poor urban areas are invariably near the bottom. Average scores of American students reflect wide differences in performance, not universal mediocrity.

***In the short term, being four times bigger than most of our current economic competitors lets us get away with not being the best at school.*** On average, we may be in the back of the postindustrial pack on math and science but, because of our size, we tend to have more high performers than the nations who do better than the United States.

A nation can get away with not being the smartest when it has the biggest workforce and the biggest economy. For instance, our population is roughly four times the size of that of France, Italy, and the United Kingdom and three times the size of Germany. As every economic and technology historian will tell you, knowledge, invention and economic innovation are social, not individual, products. Gutenberg's press and the Montgolfier brothers' hot air balloon seem to be among the only notable exceptions to this rule.

More is not always better. But oftentimes, four pretty good engineers tackling a business problem can beat the pants off one very good engineer working alone addressing the same issue. Similarly, four companies in the software business competing directly against each other are likely to produce better software than a single company.

Our size also insures that we have as many and often more of the highest scorers in our workforce. For example, our student population is twice as large as the Japanese school-age population. As a result the Japanese share of Japanese students in the top quartile of scores has to be twice as high as the US in order to have as many high scorers as we do. Similarly because we are four times as big as Italy, France and Great Britain and three times as big as Germany, the Italians, French and British have to quadruple our share of top scorers and the Germans have to triple our share in order to have the same numbers of excellent students as we do. And they usually don't.

In fact, using the 1996 TIMSS data on eighth-grade students, the Japanese rank 5<sup>th</sup> in math and we rank 18<sup>th</sup>. Sixty-four percent of Japanese eighth-graders scored in the top quartile of international benchmarks in math, compared with 28 percent of American students. But because our eighth-grade population is twice as large as the eighth-grade population in Japan, there are 970,000 U.S. students in the top international quartile, compared with 928,000 Japanese eighth-graders.

***America's agility gives us an extra edge in the global race. We may not have the world's best human capital or even the best technology, but we make better use of the human capital and the technology we have. It's not just how much you have. It's also how you use what you have.*** In the United States, labor markets are flexible, allowing employers enormous agility in hiring, paying, and allocating human resources. Even now, most American IT workers have no formal IT credentials. Pay varies with performance—and there are virtually no wage, benefit, or job guarantees.

In America, jobs are designed—and constantly redesigned—to maximize performance through an optimal mix of human capital, machine capital, and work organization. Our flexibility maximizes our returns on our human and machine capital investments.

Skill based immigration and our ability to go offshore for skilled labor is another source of flexible talent. Already more than half of our civil engineers and large shares of our technical and scientific workforce are foreign born.

In Europe and Japan, by comparison, access to jobs is highly regulated by skill certification. And jobs are protected shelters from economic and technological change. The results? Job security and structural rigidity. There's a place for everyone in the European and Japanese economies—and everyone stays in his or her place.

European and Japanese education and labor market systems have a tough time redesigning jobs or shifting human and machine capital investments in response to economic and technological change. America's markets for skill are more flexible, encouraging institutional agility and reducing credentialing barriers to individual mobility.

But there is a dark side to America's flexibility. Our flexibility allows us to get away with underinvestment in human capital. The effects of underinvestment are especially pernicious and unequal at a time when access to some form of postsecondary education has become the threshold requirement for access to the middle class. For postsecondary-have-nots, flexible can be just a fancy word for fired or for a job with low wages and no benefits. Here, the cost of educational failure is borne by those with low skills who are left with few options crowded together in our urban free fire zones or isolated out of the way in languishing rural communities. And the costs are borne privately by these geographically sequestered education-have-nots. They perform the riskiest work without a publicly funded safety net in a nation with the lowest tax rates in the developed world.

By way of contrast, the European systems have powerful incentives to invest in the human capital of every citizen. In Scandinavian countries benefit and earnings guarantees are rights of citizenship for both sexes at birth. In Germany and the southern European nations these same rights are tied to male family heads. In these systems every citizen has a powerful interest in the education of every other citizen. If one person does not get enough education to make them a productive worker, everybody else has to pay for their wage and benefit guarantees. It is the systemic differences between education and economic organization that ultimately explains much of the differences in dispersion of international test scores between the US and the other Anglo Saxon systems and the European welfare states

Ironically, while America's brutal efficiency creates social and economic inequality based on differences in the opportunity to learn, the equity-based European models, and the equally bureaucratic Japanese model, are in trouble because their lack of agility ran them into an economic ditch when they had to make the last couple of hard turns in the global economic race.

In recent years, the European and Japanese models have driven up costs, suppressing job creation and driving up unemployment. In contrast, the agile American model has boosted job creation *and* income inequality.

America's scale and flexibility have given us a competitive edge over the past few decades – albeit at an enormous cost in equity. The problem is that our advantages won't last. We cannot remain a first-rate economic power with a second-rate education system.

***Why won't America's agility and scale advantages last?*** Whose system wins the economic race in the long-term? First of all, it is clear that all forms of advantage are temporary in global economies. The European and Japanese versions of highly planned economies surged in the 1970s but lost out to American flexibility in the 1980s.

Eventually, our competitors will narrow our economic lead as they learn how to create their own versions of agility and scale. At that point, the competition will really come down to who has the best human capital—especially in a world where people are still nation bound and technology and financial capital ignore national boundaries as they hop across borders from one entrepreneurial opportunity to the next.

The Europeans already have first-rate technology and human capital, and they are trying to build scale through the European Economic Community. They are trying to become more agile with a slow but steady deregulation of their markets for skilled labor. Japanese technology is superb, and they are struggling with agility as well. Their new maverick Prime Minister Koizumo won because he promised to shake up Japan's “static” economic and education system.

Less developed nations also are trying to move up in the race and will become real competitors very soon. Nations like China and India certainly have scale. The

Chinese economy is still inflexible but it is opening up to market reforms slowly while steadily growing its human and machine capital. Most economists agree that first India and then China will surpass us in overall economic output in the foreseeable future. And the quality of the Chinese, Indian and Eastern European workforces have already grown to the point where they have become havens for outsourcing even our most skilled jobs. By 2050 China will grow to 1.3 billion people, surpassing the US, which will grow to a hefty 1.6 billion. The US will grow impressively to 426 million. All other conditions equal, at some juncture India will have four times our human capital and China three times as much as the US. The tables will be reversed on size advantages and we will have to compete on the basis of the universal quality of our skilled workers.

Nor does demography favor America in the competitive race. After growing by more than 50% between 1980 and 2000 the American workforce will only grow by 17% between 2000 and 2020 as the baby boom retires. Tight markets for skilled labor are inevitable. The share of American workers with at least some college increased by 20% between 1980 and 2000 but is projected to increase by less than 4% between 2000 and 2020. By 2020 more than 43 million baby boomers with at least some college will be between the ages of 55 and 75 years old. In addition, everyone agrees that the share of jobs that require at least some postsecondary education or training will continue to grow.

Who will replace the retiring baby boomers and fill new skilled jobs? Of course we could stop the boomers from retiring, go offshore or turn to skill-based immigration to solve our problem. But these are political nonstarters. Technology might substitute for the missing skilled labor. But that's just the economist's version of magical thinking. Besides with half a trillion dollars in public deficits already, with no end in sight, public borrowing will surely crowd out private technology investments.

At some point, if we are to retain our edge in the global economic race, we will have to rely on our homegrown and homebound human capital for our competitive edge. Eventually, we will have to close the education gap between our competition and ourselves. Eventually, as we lose the advantages of scale and flexibility, holding our own in the global economic race depends on our ability to move up in the global education race.

But there is more at stake than dollars and cents. The global contest is not only economic, it is also cultural. A lesson we learned in the Cold War and have learned anew in the age of terror. Our economic might is widely admired but the trump card that recommends us in the global contest of cultures is our promise of upward mobility and equal opportunity. Since the disappearance of the blue collar economy education allocates opportunity. That makes the unusually wide racial and class divergence in our international test scores their most telling and challenging aspect.