Virtual Schools

Will education technology change the nature of learning?

Can new education technologies short-circuit change-resistant politics and remake our schools? Or are well-intended advocates once again overhyping the ability of electrons and processors to solve thorny problems of teaching and learning?

In this Education Next forum, John Chubb of Edison Schools and Stanford University political scientist Terry Moe make the case for the transformative power of today’s technology. Twenty years ago, this duo coauthored the debate-changing Politics, Markets, and America’s Schools. Their new book, Liberating Learning: Technology, Politics, and the Future of American Education, lays out a bold vision of the future.

A more skeptical view of technology’s potential impact on education is offered by Larry Cuban, professor emeritus of education at Stanford University and author of Oversold and Underused: Computers in the Classroom.

EDUCATION NEXT: How likely is it that technology will make advances in education in the next decade that go far beyond any changes that have taken place in the past?

John Chubb and Terry Moe: The worldwide revolution in information technology has globalized the international economy, made communication virtually instantaneous and costless, put vast storehouses of information within reach of everyone on the planet, and in countless other ways transformed how life is lived. Technology is destined to transform American education as well. The driver of change is simple enough: technology has enormous benefits for the learning process, and they promise to change the nature of schooling and heighten its productivity. Curricula, teaching methods, and schedules can
Technology is going to have transformative effects not only on education, but also on politics—effects that will weaken the opponents of change and open the political gates.

— JC and TM

all be customized to meet the learning styles and life situations of individual students; education can be freed from the geographic constraints of districts and brick-and-mortar buildings; coursework from the most remedial to the most advanced can be made available to everyone; students can have more interaction with teachers and one another; parents can readily be included in the education process; sophisticated data systems can measure and guide performance; and schools can be operated at lower cost with technology (which is relatively cheap) substituted for labor (which is relatively expensive).

But the advance of technology is also threatening to powerful education groups, and they will resist it in the political process. Precisely because technology promises to transform the core components of schooling, it is inevitably disruptive to the jobs, routines, and resources of the people whose livelihoods derive from the existing system. And these people are represented by organizations—most prominently, the teachers unions—that are extraordinarily powerful in politics, and are even now taking action to prevent technology from transforming American education.

Such resistance is not new. Technology is just the latest target of their politics of blocking. The key question is whether this resistance can be overcome. And the answer, as we will later explain, is yes. Technology is going to have transformative effects not only on education, but also on politics—effects that will weaken the opponents of change and open the political gates. This is the real crux of the story. In the years ahead, it is the political transformation that will make the educational transformation possible.

Larry Cuban: Technology is linked to progress in the American mind and has a rich history in the culture. Because both public and private schooling have been deeply embedded in society for the past three centuries, educational technology (by which I mean the various communication and information devices and processes that

Virtual School, Real Growth
(Figure 1)

The Florida Virtual School has seen course enrollments grow dramatically, from 77 at its 1997 inception to 113,900 course enrollments in the 2007–08 school year. While nonpublic school students account for most middle-school enrollments, the much larger enrollment in high school courses is driven by public school students.
administrators and teachers use to make schooling efficient and effective) also has a rich history (e.g., textbooks, chalkboard, film, radio, computers).

U.S. school reformers have a tradition of overselling and underusing technological innovations. Thus the chances of widespread adoption in schools of new classroom technologies in the next decade are in the 70 to 90 percent probability range, but the probability of routine use in most schools for instruction is much lower, in the 10 to 20 percent range. Through social networks of policymakers, researchers, practitioners, and tech promoters, pace-setting urban and suburban districts adopt innovations and then adapt them to fit the local context and goals. Over time, laggards go through the same process, retaining parts of the innovation, and then move on to the next one. In public schools, changes occur piecemeal and incrementally. Regardless of what technological enthusiasts predict, no “revolutions” in technology use have occurred in U.S. schools and classrooms. But evolution does.

**EN:** What can we learn from technological adoption in education in the past?

**LC:** In tracking such technological innovations as film, radio, television, videocassettes, and desktop computers over the past half century, I found a common cycle. First, the promoters’ exhilaration splashes over decisionmakers as they purchase and deploy equipment in schools and classrooms. Then academics conduct studies to determine the effectiveness of the innovation as compared to standard practice; they survey teachers and occasionally visit classrooms to see student and teacher use of the innovation. Academics often find that the technological innovation is just as good as—seldom superior to—conventional instruction in conveying information and teaching skills. They also find that classroom use is less than expected. Formal adoption of high-tech innovations does not mean teachers have total access to devices or use them on a daily basis. Such studies often unleash stinging

---

**SOURCES:** Florida Taxwatch
rebukes of administrators and teachers for spending scarce dollars on expensive machinery that fails to display superiority over existing techniques of instruction and, even worse, is only occasionally used.

Few earnest champions of classroom technology understand the multiple and complicated roles teachers perform, address the realities of classrooms within age-graded schools, respect teacher expertise, or consider the practical questions teachers ask about any technological innovation that a school board and superintendent decide to adopt, buy, and deploy. Is the new technology simple to use? Versatile? Reliable? Durable? How much energy and time will I as a teacher have to expend to use the new technology for what net return in enhanced student learning? Will the innovation help me solve problems that I face in the classroom? Providing teachers with economic or organizational incentives to use technology won’t answer these practical questions. Were policymakers, researchers, designers of the innovation, and business-inspired reformers to ask and then consider answers to these questions, perhaps the predictable cycle might be interrupted.

**JC and TM:** It is a mistake to view previous technological innovations—television, say—as telling indicators of how information technology will affect the nation’s school system. Yes, television has done little to change public education. And yes, the failure to put it to more creative uses does highlight how weak the incentives are among educators for throwing off the chains of tradition.

But television is a simple, one-way conveyor of information that allows for no interaction or input. Its potential for education was limited from the outset. The fact is, television and other technological innovations of the past are in a different league—by many orders of magnitude—from the revolution in information technology. This revolution is not a reform. It is a new social reality.

Today’s public educators are part of society. They want to use computers and modernize their schools, and evidence suggests they have been moving in this direction.

---

**Technological innovations of the past are in a different league—by many orders of magnitude—from the revolution in information technology.**

—JC and TM

---

**College Students Learning Online** (Figure 2)

The percentage of students at U.S. postsecondary institutions taking at least one online course doubled between 2002 and 2006.


---

**College Students Learning Online** (Figure 2)

The percentage of students at U.S. postsecondary institutions taking at least one online course doubled between 2002 and 2006.


---
But absent competitive pressure, they have incentives to make only the most incremental of changes, those that don’t threaten anyone’s jobs or disrupt established routines. Their approach to information technology is rooted in the status quo: it is about making the existing system work better without really changing it. In the new social reality, however, this isn’t going to cut it. There will be competition. There will be pressure. There will be change.

**EN:** What, if anything, can we learn from the processes of technological change in other industries?

**JC and TM:** Dramatic advances in information technology have transformed the products we buy and the business firms that make them. An illuminating perspective on how these changes have come about in private industry can be found in Clayton Christensen’s work on “disruptive innovation.” Apple, for instance, successfully introduced its personal computer as a toy for children, thus not directly competing with DEC (Digital Equipment Corporation) and other established makers of mainframe and minicomputers. Its market was “nonconsumers”: people not being served by the big manufacturers, and for whom the alternative was nothing. In so doing, Apple did not provoke the opposition of the big boys, and personal computers soon flourished.

In *Disrupting Class*, Christensen and coauthors Curtis Johnson and Michael Horn argue that technology will triumph in public education in the same way. Virtual schools, for example, can offer AP physics or remedial math or Mandarin or whatever else local districts are not offering. And they can cater to constituencies—students who are gifted, live in rural or inner city areas, need extra credits for graduation, and so on—that are underserved by the current system. In so doing, virtual schools can compete against nothing (see “How Do We Transform Our Schools,” *features,* Summer 2008). And because of budget constraints and parent-student demand, districts and states will welcome these new suppliers and won’t see them as threats to be snuffed out (see Figure 1).

We agree that these forces will allow virtual schools to get a foothold in public education, and thus that there is something to learn from private industry. But public education is part of government, and is not subject to the competitive dynamics of the marketplace. The teachers unions and their allies will be wary of contracting out educational services, even to help groups that are currently underserved, because they know where it all leads. Their incentive is to resist. And they will try to use their power to keep the lid on, and maintain control over, the numbers and types of cyberschools that can move into the field. That’s why, in the end, it all comes down to politics—and whether the opponents can block.

**LC:** Manufacturing, banking, and communications are a few of the industries that have been transformed technologically. While public schools and such industries have common characteristics (e.g., leaders, headquarters staff who coordinate and control people, bureaucratic rules, planning for the future, building budgets, providing services), they differ in substantial and fundamental ways. First, their purposes differ. Industries seek profit while tax-supported schools are expected to convert children into adults who are literate, law abiding, engaged in their communities, informed about issues, economically independent, and respectful of differences among Americans. Schools are held publicly responsible for achieving those ends; industries are responsible to shareholders only. Second, in deciding policies, schools are accountable for democratic and public deliberations; even with recent revelations of corrupt practices among CEOs and boards of directors and meltdowns in the mortgage lending community, minimal public oversight of corporate governance currently exists. Finally, the criteria for success differ. Businesses have earning reports and stock prices as measures of success; schools seeking multiple purposes—see above—are expected to show immediate, midterm, and long-term results, many of which are hardly reducible to numbers.

One industry that is outside of K–12 education yet similar to it in its multiple
In the future, American education will become a blend of “home schooling”—differently construed—and brick-and-mortar public schooling. —JC and TM

Public purposes and has unreservedly embraced computer-based technologies is higher education (see Figure 2). Because higher education is not compulsory and adults enroll voluntarily in colleges and universities, market incentives come into play. Colleges and universities look for a competitive edge that will give them an advantage in their market niche. Both public and private institutions seek to attract students and faculty and increase their prestige among similarly situated schools. Moreover, higher education is largely nonunion.

Whereas some of these institutions go for the working adult market (e.g., University of Phoenix) with extensive online course offerings, most colleges and universities remain research and teaching organizations with online courses that are marginal to their core operations. Still, nearly every professor and student has at least one computer available daily (many have two or more). For universities and four-year colleges, computers have transformed academic research and analysis in the natural and social sciences, humanities, and professional schools.

The puzzle is teaching, which has not been transformed. Classroom instruction for large groups of students (25 or more) across community colleges, state universities, and elite institutions differs little from what occurs in secondary public schools. That fact suggests that even with abundant access to new technologies, competitive market pressures, no union interference, and enormous encouragement from institutional policymakers, constancy in patterns of teaching sets the education context apart from those industries that have experienced top-to-bottom technological transformation.

EN: Do you think that technological change is likely to increase significantly the amount of home schooling? Why or why not?

LC: Cyberschools and distance education have increasingly connected isolated rural students and home-schooled children to teachers and resources that were heretofore unavailable to them. Slight increases in home schooling may occur—say from 1.1 million students in 2003 to 2 or 3 million by the end of the decade. The slight uptick would be due to both the availability of technology and a far broader menu of choices for parents. Online college curricula and offerings from for-profit entrepreneurs give home-schooling, anxious college-driven, and rural parents new options. Even though cheerleaders for distance learning have predicted wholesale changes in conventional site-based schools for decades, such changes will occur at the periphery, not the center. Most parents will continue to send their children to brick-and-mortar public schools and expect those schools to achieve the many goals mentioned above. I do not predict that most high school students will enroll in online schools. Yes, many will take a course here and there, but the comprehensive high school in most suburban districts and proliferation of small high schools in urban systems will continue to enroll the vast majority of eligible teenagers.

JC and TM: With the advance of technology, home schooling is destined to increase—and decrease. It will increase because distance learning will offer a vast array of new opportunities, and learning from “home”—from anywhere but the school building—will gain dramatically in popularity. Many more students will take all their classes through virtual schools. But more important, the great majority of American students will ultimately choose to take some of their classes remotely and some through brick-and-mortar schools.

On the other hand, far fewer kids will be home schooled in the traditional sense. In the past, home schooling meant that parents taught their kids at home. But in the coming years, almost all the kids who study entirely “at home” actually will be “going to school”: schools that have well-developed curricula and bona fide teachers and administrators, but operate at a distance.

In the future, then, home schooling as we know it will largely cease to exist, and the boundaries between learning at home and public schooling will essentially break down. American education will become a blend of “home schooling”—differently construed—
and brick-and-mortar public schooling. Most students will do some of their academic coursework outside the brick-and-mortar setting—making home schooling a very mainstream activity—and traditional home schoolers will be more fully integrated into the larger education system (see “Home Schooling Goes Mainstream,” features, p. 10).

All of this will be resisted by the unions and their allies, because today’s home schoolers are not part of current education budgets, and as they join the system they are competitors for scarce resources. But long term, as technology changes the balance of political power, the resistance will fail.

**EN:** Are charter schools, private schools, or afterschool programs likely to adopt innovations more rapidly than traditional district schools?

**JC and TM:** The early adopters will arise from outside the traditional public school system. Most important are charter schools that deliver education entirely over the Internet. Nearly 200 of these virtual schools have already sprung up in 19 states, serving almost 200,000 students, and the trajectory is sharply upward. Some individual schools have grown spectacularly fast, such as PA Cyber, which enrolls 8,000 students only eight years after opening.

As students enroll in cybercharters, they stimulate a growing market for more and better online technologies and content. They also put competitive pressure on traditional public schools to innovate or lose students and revenue. These high-tech new-comers add to the competitive pressure already created by some 4,000 brick-and-mortar charters operating in 40 states, broadening the constituency for charter schools beyond families disaffected with inner-city public schools.

Competition from early adopters, coupled with performance pressures arising from accountability reforms, will force all schools—including private schools and low-tech charter schools resting on their laurels—to consider technological solutions. Change will not be even or uniform. It will occur faster and more consequentially in districts and states where unions are weak, where parent demand and involvement are high, where unmet needs are greatest, and where budgets are tightly constrained. But as the tide begins to rise, and as the balance of power in politics begins to shift with it, the other districts and states will eventually follow.

**LC:** Except for those public charter schools, magnets, and theme-driven schools that advertise themselves as using technology, including those operated by for-profit and nonprofit organizations such as High Tech High, Edison, and Mosaica, I have not found charter or private schools (a highly diverse sector made up of elite independents and sectarian and nonsectarian schools) more open (or closed) to technological innovations than public schools. Increased competition from charter schools may have modest to strong effects in urban districts (but not suburban or rural ones), where a critical mass (one-third or more) of students attend these schools full-time. The same rationale for adoption of computers (e.g., improve achievement, transform teaching and learning, and as preparation for an ever-changing labor market) prevails across public and private school sectors. The critical issues remain teacher involvement in decisions about buying and using devices and available funding, rather than openness to technological innovation. Afterschool programs are another category, since they are tangential to regular public schools and often use technology as an inducement to get students through the door once the last school-day bell rings.

**EN:** How much of schooling can technology really displace?

**LC:** It is a mistake to assume that if schools just adopt classroom technologies, academic achievement will improve, teaching will change dramatically, and students will be better prepared for the 21st-century workplace. Evidence for each reason to adopt technology is at best skimpy and at worst missing altogether.
Many administrative activities can be (and have been) computerized (e.g., purchasing, scheduling, accounting, personnel data). Collecting student performance data and making it easily and readily available to teachers and principals has potential for delivering lessons and individual help to students “just in time.” But to achieve the important purposes of tax-supported public schooling, especially in urban districts, the bedrock of schooling remains an organizational structure introduced in the mid-19th century: the age-graded school, where each teacher has her classroom and students of roughly the same age have to learn a chunk of the curriculum before being promoted to the next grade.

Advances in new technologies have hardly made a dent in this permanent structure. Charters, for-profit schools, cyber-schools, and private schools embrace the same organizational format. All of the predictions for a technological Nirvana assume that the age-graded school will melt away. It hasn’t so far because strong social beliefs about schooling and deeply embedded political and economic structures keep it alive and kicking. It is within the age-graded school that the individual teacher’s knowledge, skill repertoire, and experience matter in connecting to her students. That relationship continues to be the moral, social, and cognitive centerpiece for teaching and learning to occur and cannot be replaced by machines, however cleverly constructed. Until the age-graded school and funding mechanisms change, the use of new technologies for classroom instruction will remain peripheral.

**JC and TM:** Technology will do more than bring high-quality information to bear on the education process. It will change the education process itself, transforming and sometimes replacing the role of the teacher, and altering the core means of instruction. Most schools of the future will be hybrids, with students still taught by teachers in classroom settings—for parts of the day. But students will spend much more time learning directly and often remotely through technology. Young students will require more personal attention. But as students grow up and gain the skills to work independently, the time with technology will increase and the time with teachers will decrease.

Technology will differentiate segments of the learning process. Teachers will often be the first source of instruction, helping kids master core concepts and skills. Then, technology will provide customized remediation for students not able to grasp the core and acceleration for students ready for specialized and enriching extensions. Programs to teach literacy skills, from the essentials of decoding on up, already exist. So, too, do programs to teach math skills, from basic to advanced. More effective differentiation means narrower gaps in achievement. It also means a far greater number and variety of course options—AP, IB, and even university-sponsored—available to all kids, regardless of the community in which they live: technology as equity.

For some students, particularly those who are older, who have special learning needs or academic interests, or whose schedules or locations make it difficult for them to attend brick-and-mortar schools, the core instructional process will be online. School communities, with lots of interaction among students and teachers, will be built virtually. Brick-and-mortar schools will be very different places than they are today: using more technology, staffed by fewer but more able teachers, working with much better information, and delivering instruction better matched to student needs.

**EN:** What are the most promising innovations in education technology?

**LC:** Since the 1990s, school boards and superintendents have generally moved swiftly to adopt technological enhancements to administrative functions by placing them online and automating many routine procedures. The collection of individual student achievement data is now possible technologically, and its dissemination to teachers swiftly offers many opportunities for intervention, remedial work, and enrichment. For classroom instruction, many school boards have also adopted interactive whiteboards, student clickers, and handheld devices for teachers and...
students to collect data for field projects or for what is happening in a classroom. Some highly motivated individual teachers have created imaginative uses of computers for students to learn. Such efforts are promising innovations that can incrementally improve teaching and learning. For-profit schools, that is, schools run by businesses (e.g., Edison Schools), often give students and teachers abundant access to machines and integrate technology use in their overall school design.

The majority of public school teachers, however, view technological innovations as burdensome add-ons. Teachers need to be directly (not as tokens) involved in adopting and using technological innovations and in establishing on-site technical assistance and facilitating teachers-helping-teachers use existing technologies in daily lessons (e.g., Apple Classroom of Tomorrow experience in the 1980s and 1990s; Berkeley [CA] Teacher Led Technology Challenge project in the late 1990s). Such involvement can lead to teachers creatively integrating the innovation into routine classroom instruction. Unfortunately, this approach remains distant from the current mind-set among policy elites and vendors anxious about getting new devices into classrooms.

JC and TM: The most promising innovations can be grouped into two broad categories, instruction and information. As it is, schools are universally organized for kids to get all of their instruction in classes of 20 to 30 led by a teacher. Technology is treated as an add-on to this structure. Elementary kids typically visit a computer lab once a week. A few computers also sit at the backs of classrooms, for kids to use, if time allows, after the teacher is finished teaching the core lesson. At the secondary level, computers are largely for word processing and Internet research and have little to do with core courses. It need not be this way.

Every educator knows that kids need individual help. Each student is not going to understand material through the same presentation, with the same exercises, or at the same pace. Technology can teach from multiple angles and with multimedia—animation, simulation, online teachers—and very interactively, with students constantly engaged and providing input. Technology can customize instruction literally for every student. Kids could have substantial amounts of customized remediation or acceleration, and even entire courses. Education could be dramatically differentiated.

Until recently, schools were in the Stone Age of information—knowing almost nothing about the achievement of their students or the success of teachers in promoting it. Today, accountability systems require annual student testing in reading and math, and provide objective and reliable (if limited) measures at least once a year. Moreover, technology is fast making it feasible to monitor student progress with online assessments that can be integrated with curricula throughout the school year. Information systems can help teachers adjust their instruction on the fly, reteaching skills that haven’t been learned, easing up on skills that students master quickly, and customizing by student.

Administrators can become more effective as well. Information systems can immediately show principals and district officials which classrooms are succeeding and which are struggling, which parts of the curriculum are being learned and which are going over kids’ heads. Sophisticated statistical programs can help administrators draw vital inferences about the learning process, especially about the extent to which each teacher is providing “value-added” to students (after allowing for differences in student backgrounds and other influences on learning that teachers can’t control). As information becomes available, it will be impossible to ignore, even if it speaks the unspeakable secret that some teachers are highly effective and others are not. As schools are forced to deal with the truth—and pressured to improve—students will benefit.

EN: What role will school boards and teachers unions play in using technology to reform schools? In short, what are the politics of adopting technology?

LC: The politics of adopting new technologies remain a top-down (school board
Unions will resist technology. Their mission is to protect the jobs of teachers in the regular public schools. —JC and TM

School boards and parents will fight efforts to substitute machines for teachers, even when champions of reducing labor costs dress up the purchase of new technologies as overall savings and a technological Utopia. —LC

and superintendent), elite-driven (civic and business leaders, vendors) operation largely determined by the district’s history of innovation, available resources, and responsiveness to key stakeholders. Unions have played a largely peripheral role in either endorsing (some union chapters have gotten district approval for schools in which new technologies are central) or opposing classroom technological innovations (cybercharter schools, for example). School boards and parents, however, will fight efforts to substitute machines for teachers, even when champions of reducing labor costs dress up the purchase of new technologies as overall savings and a technological Utopia. They will resist such moves because they see the purposes of public schools as more than efficiency and working to bolster a growing economy through supplying skilled graduates.

JC and TM: Unions will resist technology. Their mission is to protect the jobs of teachers in the regular public schools, and real technological change—which outsources work to distant locations, allows students and money to leave, substitutes capital for labor, and in other ways disrupts the existing job structure—is a threat to the security and stability that the unions seek. For decades, the unions and their allies have been the major obstacles to education reform, regularly using their formidable political power to block or weaken the reforms they do not like, from accountability to school choice to pay for performance. No surprise, then, that they are already working to kill or limit virtual charters, and to ensure that technology fits neatly into the status quo.

But this time they won’t succeed. Technology has a far-reaching capacity to transform politics. As distance learning proliferates, for example, teachers will be less geographically concentrated in districts, considerably more dispersed, and much more difficult for unions to organize. The substitution of technology for labor will lower the demand for teachers. The teaching profession will become much more diversified and less conducive to sameness and solidarity. There will be many new schools and a dramatic increase in choice and competition. All these developments, operating together in mutually reinforcing ways, will work to sap the organizational strength of the teachers unions, undermine their political power, and weaken their ability to block in the policy process. As they are less and less able to block them, reforms of all kinds—not just those that are high tech—will begin to flow through.

School boards are a bit more nuanced. They clearly do not want to lose students and revenue to cyberschools or other sources of competition. Many board members are also beholden to the unions, which are influential in local elections, and school boards have regularly joined forces with the unions—in the courts and state legislatures—to oppose competitive threats. Yet school boards in districts with especially active parents, weak unions, limited budgets, and kids whose needs are going unmet may have incentives to embrace technological change and become early adopters. In rare cases, school boards may see that, by acting entrepreneurially, they can set up their own cybercharters and win over students and revenue from other districts, thus using competition to make themselves better off; indeed, a small number of districts around the country (in Pennsylvania and Wisconsin, for example) are already blazing this trail.

Technology is a double-barreled agent of change. It generates the innovations that make change attractive, and at the same time it undermines the political resistance that would normally prevent change from happening. There will be struggles and setbacks, and the process will take decades. But the forces of resistance will ultimately be overcome, and American education transformed. This will mean real improvement for the nation, its children, and its schools. It will also bring the dawning of a new era in which education politics is more open, productive changes are more readily embraced, and learning is liberated from the dead hand of the past.
RESEARCH & ANALYSIS FROM THE CATO INSTITUTE

REGULATION
THE CATO REVIEW OF BUSINESS AND GOVERNMENT
Four times a year since 1977, Regulation has offered immediately usable insights about regulatory policies from leading economists, policy analysts, and legal experts. Regulation guarantees the objective in-depth analysis needed to stay on top of regulatory and economic policymaking in Washington, D.C. Written in clear, unambiguous terms, it has examined every market, from environmental and labor law to health and transportation, and nearly every government intervention, from interstate commerce regulation to price controls.

SUBSCRIBE TODAY!
CATO.ORG/SUBSCRIBE

<table>
<thead>
<tr>
<th></th>
<th>1 YEAR</th>
<th>2 YEARS</th>
<th>3 YEARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals</td>
<td>$20</td>
<td>$35</td>
<td>$50</td>
</tr>
<tr>
<td>Institutions</td>
<td>$40</td>
<td>$70</td>
<td>$100</td>
</tr>
</tbody>
</table>

THE CATO JOURNAL
AN INTERDISCIPLINARY JOURNAL OF PUBLIC POLICY ANALYSIS
A unique and timely public policy journal for policymakers, scholars, and interested laypeople, the Cato Journal provides insightful and engaging analyses of key issues by leading scholars and policy analysts three times each year. America’s leading free-market public policy journal since 1981, its topics run the gamut of policy issues from foreign policy and banking to domestic issues like health care and education, not to mention economic freedom and international development concerns.

SUBSCRIBE TODAY!
CATO.ORG/SUBSCRIBE

<table>
<thead>
<tr>
<th></th>
<th>1 YEAR</th>
<th>2 YEARS</th>
<th>3 YEARS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals</td>
<td>$22</td>
<td>$38</td>
<td>$55</td>
</tr>
<tr>
<td>Institutions</td>
<td>$50</td>
<td>$85</td>
<td>$125</td>
</tr>
</tbody>
</table>

RECENT RESEARCH FROM THE CATO INSTITUTE


Reports are free at Cato.org. Call for print copies: $6

Buy your copy at bookstores nationwide, by calling 1-800-767-1241, or visiting Cato.org