“When I’m 64”

How Aging U.S. Baby Boomers Have Begun to Carry That Weight

—By Nicole Maestas, Julie Zissimopoulos, Susann Rohwedder, and Linda G. Martin

An Aging Europe

Wonder How You Manage to Make Ends Meet
Several stories in this issue address the broader implications of local decisions: the initiative to make California the world’s first jurisdiction to fully legalize marijuana, the coordination of drug enforcement data throughout Europe, and the decisions by aging workers across developed countries to remain in the workforce at higher rates than did their counterparts of preceding generations.

This latter phenomenon became very real to me at dinner a few weeks ago. As I was conversing with the chairman of the English department of a midsized university in Los Angeles, he began describing the turning point that he had reached in life and the difficult decision he faced.

At 66, he could retire, but personal and practical matters kept him working. He had two children in graduate school to support. His wife was busy in her career. Technological advancements in the forms of electronic books and enlargeable computer fonts had made it possible for him to continue reading academic texts and grading papers despite his macular degeneration. Most of all, he truly loved and enjoyed his work, steering bright young minds through literary journeys.

On the other hand, he loved and enjoyed his work only to a point. He didn’t need to manage the petty interdepartmental politics anymore. He would like more free time to explore his own city. He also felt guilty about squatting in a tenured post when so many young would-be professors were unemployed. After all, he confided, they could probably do the job as well as he could for less money, which would benefit the university that had been so good to him for so long.

It would be better for everyone, he proffered, if the university and similar workplaces could institutionalize some kind of optional semi-retirement arrangement that would allow experienced employees like him to continue contributing at reduced levels of responsibility and pay while opening the doors of opportunity for new blood.

The turning point reached by this professor resembles the crossroads that an entire generation, the baby boom generation, is just beginning to encounter, as its eldest members turn 64 this year. Our cover story by Nicole Maestas, Julie Zissimopoulos, Susann Rohwedder, and Linda Martin, coupled with a sidebar from RAND Europe about aging in Europe, assesses the demographic, economic, cognitive, and health care implications of a generation that seems destined to rewrite the rules of retirement, just as it has rewritten the rules of so many other social institutions.

—John Godges
Spillover Effect—
For the Gulf Coast, Can We Make the Smart, Long-Term Choices?

As RAND policy researcher David Groves peers out the window of his New Orleans-bound aircraft, he surveys the scene below. “You can see the deterioration of the wetlands. More open water, fewer trees and grasses.”

He has been working on coastal restoration and hurricane protection planning but sees the need for much more work to be done. “Without a comprehensive strategy for restoring critical areas and re-managing river flows and floods,” he said, “the region’s vulnerability to future hurricanes will grow. The oil spill makes the restoration challenge even more difficult. The question now is: Will Louisiana and the nation make the smart, long-term choices that can lead to sustainability?”

Coastal Protection. Groves and others involved in RAND projects in the Gulf states are working with Louisiana’s Office of Coastal Protection and Restoration on a 2012 update of the state’s Comprehensive Master Plan for a Sustainable Coast. The research team is developing a quantitative tool to help establish priorities for restoration and protection projects. RAND researchers are also leading a collaborative effort with Tulane and Dillard Universities, funded by the National Oceanic and Atmospheric Administration, to help New Orleans develop better citywide strategies for reducing hurricane flood risk.

Health Care. In the wake of the recent Gulf Coast oil spill, the issue of mental health has come to the fore once again, given a rise in depressive symptoms and even suicide among fishermen and others who rely for their livelihoods on the Gulf’s abundant but damaged resources. “Developing additional evidence-based services to promote emotional well-being and resilience is critical to long-term community recovery,” said Ben Springgate, a RAND researcher and cofounder of REACH NOLA, a community-academic umbrella organization leading joint health programs, services, and research in New Orleans.

Workforce Development. In the past five years, RAND has learned that none of the issues in the Gulf can be tackled in isolation. Therefore, RAND has chosen to focus on an overarching, pervasive, and pressing economic challenge facing the Gulf states: the development of a workforce to support the region’s economic progress in the coming decades. As with environmental challenges, workforce requirements often do not respect municipal or even state lines, which is why RAND is focusing on regional economic needs and related issues, such as housing, education, and health care.

RAND has also found that strategies for solving the region’s problems must be crafted with a focus on both short-term needs and long-term solutions. Local and state organizations working alone do not have the resources to tackle the complex regional problems. Funding will likely need to come from an assortment of state and federal government agencies and other organizations. ■
Not So Rash—
Reassessing Food Allergy Diagnoses and Treatments

The fraction of Americans who believe they have food allergies has been pegged at some 30 percent or more and seems to be growing. Yet according to a new RAND study of the scientific literature on food allergies, the true figure is probably closer to 1 or 2 percent.

It’s impossible to know for sure, according to the report, because the tests that are most often used to diagnose food allergies just don’t do the job very well. As a result, many Americans may be restricting their diets unnecessarily or taking other unneeded steps.

A food allergy is an overreaction of the body’s immune system provoked by ingesting, or sometimes merely coming in contact with, a particular food. Reactions range from minor swelling of the lips and an itchy throat to potentially fatal anaphylactic shock. The standard treatment is to remove the suspected problem food from a person’s diet.

RAND’s study, published in the Journal of the American Medical Association on May 12, 2010, was the first comprehensive look at the scientific literature on food allergies. Researchers reviewed the available medical evidence published between 1988 and 2009 on the prevalence, diagnosis, management, and prevention of food allergies. The research team focused on studies that had examined allergies to cow’s milk, hen’s eggs, peanuts, tree nuts, fish, and shellfish—foods that account for more than half of all food allergies. Among the findings:

- The ability of tests that are commonly used to diagnose food allergies to distinguish folks who are truly allergic from those who aren’t is poor. Such tests include either pricking the skin with tiny amounts of the suspected food and looking for reactions or measuring food-specific antibodies in the patient’s blood. (Among tests, the “gold standard” is to feed patients minuscule amounts of the suspected allergen, preferably in disguised form, and to alternate it with a placebo.)
- Desensitizing individuals with severe food allergy (by exposing them to increasing amounts of the food to build up a tolerance) shows promise in preventing the severe reactions sometimes seen with accidental ingestion of certain foods, such as peanuts, but it is too soon to confirm the benefits of this approach.
- Avoiding problematic foods remains the only real means of managing food allergies.

“While there have been gains in our understanding of how to diagnose and manage people with food allergies, the lack of standardized criteria for diagnosis makes it difficult to compare management strategies across studies and limits our ability to determine best practices for the condition,” said Paul Shekelle, director of the Southern California Evidence-Based Practice Center at RAND and the senior author of the study.

More clinical research is needed to gain a better understanding of promising treatments, such as immunotherapy, and of approaches that may help prevent the development of food allergies in high-risk infants (those with a family history of food and other allergies), according to the study.

The tests that are most often used to diagnose food allergies just don’t do the job very well.
News

Few Health Reform Options Could Have Insured More at Less Cost

The recently enacted federal health care reform law provides health insurance coverage to the largest feasible number of Americans, while keeping government costs as low as possible, according to RAND research published in the June edition of *Health Affairs*.

“The only alternatives that would have covered more Americans at a lower cost to the federal government appeared to be politically untenable, involving substantially higher penalties for those who don’t comply with mandates, along with lower government subsidies and less-generous Medicaid expansion,” said Elizabeth McGlynn, the study’s lead author and codirector of RAND’s COMPARE initiative.

According to the analysis, 28 million Americans will be newly insured by 2016 under the provisions of the Patient Protection and Affordable Care Act. The law builds on the existing structure of health insurance in the United States—a combination of private and public sources of coverage.

The study examined how the outcome of health care reform would differ if components of the law were structured differently. Researchers simulated more than 2,000 alternative policy scenarios using RAND COMPARE, a microsimulation model designed to evaluate how health reform proposals would affect the American health care system.

The figure delineates the “policy frontier,” which contains the results of more than 2,000 scenarios simulated for the study. Compared with the new health reform law (highlighted in red), only a few scenarios would produce better results (“more people insured at less cost”). Those scenarios represent only small improvements over what is expected by 2016. For example, 4 million more people would be insured with no additional cost to the federal government if the annual penalty for individuals who fail to purchase health insurance were increased to $1,200 per person from $750 (as the new law provides).

The analysis showed that a few strategies could cut federal spending by up to $20 billion a year without decreasing the number of newly insured. However, this would require placing a higher financial burden on the lowest-income segment of the U.S. population.

“On balance, the new law appears to have landed on a distinctive plain of the policy frontier,” said McGlynn.


Investing in Police Yields Quantifiable Benefits in Preventing Crime

Existing research on the costs of crime and the effectiveness of police can be used to create credible cost-benefit analyses of the value of investing in more police officers, according to a RAND study.

“Many cities face financial difficulties and have to make tough choices about how to spend taxpayers’ money,” said Paul Heaton, the study’s author and an associate economist at RAND. “The best available research suggests that police officers generate considerable value in economic terms.”

The costs of crime include those borne by victims, insurers, government, and society at large. The costs also include those that are tangible, such as a victim’s medical bills or lost productivity, and those that are intangible, such as reduced quality of life in a crime-ridden neighborhood.

The study estimates the cost of crime in seven major cities. Crime costs the residents of Dallas approximately $3.4 billion annually, or 4 percent of that city’s economic activity, while annual crime costs for residents of Chicago are roughly $8.3 billion, or nearly 6 percent of Chicago’s economic activity.

As a case example of the cost-benefit approach, the study compared the costs and benefits of the roughly 10-percent expansion of the police force in Los Angeles that began in 2005 at a projected cost of $125 million to $150 million per year. As the table shows, these additional officers are projected to reduce crime costs in the city by about $475 million each year, a value substantially above the cost of hiring the officers. The large net benefits come mostly from averting homicides.

The study reviewed several analytical methods, each with its pros and cons, for estimating the costs and benefits of police. The choice of methods and assumptions will influence the outcomes of the cost-benefit calculations. Many police investments, such as the expansion in Los Angeles, appear favorable across a wide range of alternative modeling assumptions.

“Public safety policymakers in a city should know the cost of crime to their city,” Heaton said. “This study provides the simple steps these communities need to estimate the crime cost, as well as steps to estimate the return on investment in police.”


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**The large net benefits come mostly from averting homicides.**

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### Increasing the Number of Police in Los Angeles by 10 Percent Would More Than Pay for Itself in Crime-Reduction Benefits

<table>
<thead>
<tr>
<th>Crime Type</th>
<th>Average Yearly Number of Crimes in Los Angeles, 2005–2007</th>
<th>Projected Crimes Averted per Year from a 10-Percent Increase in Police</th>
<th>Cost per Crime (in U.S. dollars)</th>
<th>Annual Projected Cost Savings (in millions of U.S. dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homicide</td>
<td>453</td>
<td>42</td>
<td>$8,649,216</td>
<td>$363</td>
</tr>
<tr>
<td>Rape</td>
<td>951</td>
<td>0</td>
<td>$217,866</td>
<td>0</td>
</tr>
<tr>
<td>Robbery</td>
<td>13,743</td>
<td>814</td>
<td>$67,277</td>
<td>$55</td>
</tr>
<tr>
<td>Serious assault</td>
<td>14,169</td>
<td>414</td>
<td>$87,238</td>
<td>$36</td>
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<tr>
<td>Burglary</td>
<td>20,462</td>
<td>827</td>
<td>$13,096</td>
<td>$11</td>
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<tr>
<td>Larceny</td>
<td>59,704</td>
<td>0</td>
<td>$2,139</td>
<td>0</td>
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<tr>
<td>Motor-vehicle theft</td>
<td>24,872</td>
<td>1,094</td>
<td>$9,079</td>
<td>$10</td>
</tr>
<tr>
<td><strong>Annual aggregate cost savings (in millions)</strong></td>
<td><strong>$475</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Annual costs of increasing Los Angeles police force by 10 percent (in millions)</strong></td>
<td><strong>$125–$150</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td><strong>Annual Net Cost Savings (in millions)</strong></td>
<td></td>
<td></td>
<td><strong>$325–$350</strong></td>
<td></td>
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</tbody>
</table>


*Because the authors could not derive statistically significant estimates of the effect of police on reducing the incidence of rape and larceny, the authors assumed, conservatively, that none of these crimes was averted by additional police.*
News

Failure to Halt Pakistan-Based Militants Is Linked to U.S. Terror Plots

The rising number of terrorist plots in the United States with links to Pakistan, including the failed May 1 car bombing in New York City, is partly the result of an unsuccessful strategy by Pakistan and the United States to weaken the militant groups operating in Pakistan, according to a RAND study of counterinsurgency efforts in the country.

The study finds that militant groups persist in Pakistan because Pakistani leaders continue to support some of the groups and have not yet developed a counterinsurgency strategy that successfully protects the local population, holds territory, and develops more-effective governance.

“While Pakistan has had some success halting militant groups since 2001, these groups continue to present a significant threat not only to Pakistan, but to the United States and a host of other countries,” said Seth Jones, the study’s coauthor and a RAND senior political scientist. “A number of militant networks—including al Qaeda, Lashkar-e-Taiba, and Jaish-e-Mohammad—remain entrenched in Pakistan and pose a grave threat to the state and the region.”

Beyond al Qaeda, many foreign and domestic militant groups have established networks in Pakistan, especially in the Federally Administered Tribal Areas and Khyber-Pakhtoonkhwa Province, formerly known as the North-West Frontier Province (see the map). Faisal Shahzad, the suspect in the attempted Times Square car bombing, reportedly had ties to several of these groups, such as Tehreek-e-Taliban Pakistan and the Haqqani network.

The study highlights the short-term success of using unmanned aerial vehicles (UAVs) against senior al Qaeda leaders and deems this strategy worthy of continued support—although it does not offer a long-term solution. The two nations have cooperated in using UAVs for intelligence gathering, surveillance, reconnaissance, and occasionally targeting militants.

According to the study, the long-term objective of developing a comprehensive counterinsurgency strategy—one that includes rectifying deficiencies in local police forces, providing aid and assistance to displaced civilians, expanding development efforts, and creating new legal structures and improved governance—must take precedence over efforts to destroy the enemy if Pakistan is to end the militant threat.

Pakistan has long used its support of militant groups as a foreign policy tool, but that must come to an end, Jones argued. “The United States should restrict some military assistance to Pakistan until the nation ends its support of militant groups operating on Pakistani soil. U.S. strategy is focused too much on carrots and too little on sticks.”

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Answering the Call
Commencement Celebrates 40th Anniversary of Pardee RAND Graduate School

WITH EXHORTATORY REFRAINS urging graduates to “be the answer,” speakers at the June 12 commencement exercises of the Pardee RAND Graduate School (PRGS) capped a series of events marking the school’s 40th anniversary. Commencement speaker Admiral Mike Mullen, chairman of the U.S. Joint Chiefs of Staff, received an honorary degree, as did Albert Carnesale, chancellor emeritus of UCLA, and Ann McLaughlin Korologos, former U.S. Secretary of Labor and former chair of the RAND board of trustees who continues to serve as a member of the board. “We chose people who’ve been the answer, who’ve made the world a better place,” said Susan L. Marquis, dean of the school. “Now it’s time for our graduates to ‘be the answer,’ too. It’s time for them to stop just studying problems and to start fixing them.”

The anniversary events included panel discussions for alumni, donors, students, and families, along with the kickoff of the PRGS alumni association. A discussion of health care quality emphasized that people need to be convinced of a problem before being convinced of a solution. As a case study, the speakers noted, RAND’s quality assessment tools have altered the nature of the U.S. health care debate since 2003. A discussion of the role of analysis in policymaking underscored the growing importance of listening to those with differing opinions and the need to ensure that analysis is delivered to senior decisionmakers.

PRGS was founded in 1970 as one of eight U.S. graduate programs in public policy created to train future leaders in the public and private sectors in policy analysis. The school has the nation’s largest doctoral program in public policy. Its faculty is drawn from the researchers at RAND. On June 12, a total of 33 doctoral degrees and 30 master’s degrees were awarded. ■

“The real world of policy analysis and development is far messier than that found in textbooks. The brute reality, as written by [Harvard political scientist] Graham Allison, is that politics and government are inherently controversial. Public service is not simply a noble calling. It is a combat sport.”

—Susan L. Marquis, dean, Pardee RAND Graduate School, in her commencement remarks
“Being the answer’ is about more than just having the right answer. The most rigorous, well-reasoned, quantitative analysis in the world will fail and fall on deaf ears if the analyst ignores relationships. The importance of understanding challenges from someone else’s perspective becomes more and more evident to me with each passing day. I’m a Navy guy. I grew up on the sea, learning diplomacy with every port call. And I have found that no e-mail, no phone call, no PowerPoint slide can adequately substitute for face-to-face conversations. We can never—no person, no organization, no nation—go it alone. Those days are gone.”
—Admiral Mike Mullen (right), chairman of the U.S. Joint Chiefs of Staff, in his commencement address at the Pardee RAND Graduate School on June 12, 2010

“If your best analysis points to solutions that are taken off the table because they are ideologically suspect or simply because they’ve been embraced by the opposing camp, then the public interest suffers. You will need to take particular care that your own thinking and work transcend ideology. By doing so, you will be doing both what is right and what is needed.”
—James A. Thomson, president and chief executive officer of the RAND Corporation, in his commencement remarks

Jeffrey Wasserman (left), a 1988 PRGS graduate who is now on the PRGS faculty and is a coleader of RAND’s COMPARE initiative, moderates a discussion of health care quality with Pedro Jose Greer Jr., assistant dean of academic affairs at Florida International University College of Medicine, a member of the PRGS Board of Governors, and a recipient of the Presidential Medal of Freedom; Sean O’Neill, a PRGS student and M.D. candidate at the Feinberg School of Medicine at Northwestern University; Elizabeth McGlynn, a 1988 PRGS graduate who now holds RAND’s distinguished chair in health quality; and Neeraj Sood, a 2003 PRGS graduate who is now an associate professor in the pharmaceutical economics and policy program at the University of Southern California.
Filtering Through the Smoke

Legalizing Marijuana Would Slash Its Price, but the Effects on Use and Revenues Are Hazy

By Beau Kilmer and Jonathan P. Caulkins

California Governor Arnold Schwarzenegger has suggested that it is “time for a debate” about legalization. While such a debate is indeed taking place in the run-up to the November election, the debate is occurring mostly in the absence of impartial information about the effect of marijuana legalization on price, consumption, and tax revenues.

Weed Management

The price of marijuana after legalization would fall dramatically because there would be less legal risk for suppliers, more automation, and economies of scale. Farm field and greenhouse production would be extremely inexpensive. Even under a scenario in which production would be confined to “grow houses” that look (from the outside) identical to other residential houses, we would expect the price to drop by more than 80 percent, from the currently prevailing $300–$450 per ounce of sinsemilla (a high-grade form of marijuana) in California to about $40 per ounce.

Consumption would increase under legalization, but it is unclear by how much. The scientific evidence...
shows that potential and current marijuana users respond to price changes, so we expect that a large price decrease would lead to a consumption increase. We would also expect consumption to increase because legalization would reduce legal risks, lessen the stigma for some consumers, and boost availability and promotion. Factoring in all these effects, we cannot rule out increases in consumption of 50 to 100 percent or more. It is important to note, however, that even if marijuana prevalence were to increase by 100 percent, the prevalence rate would resemble that of the 1970s.

When the Ammiano bill was introduced in 2009, the state’s Board of Equalization estimated that a $50-per-ounce tax would generate nearly $1.4 billion in tax revenue annually from marijuana sales (about $1 billion from the excise tax and about $400 million in sales taxes). Although based solely on the Ammiano bill, this total sum has been used to indicate the revenue that could come from the passage of Proposition 19 as well. But there are four reasons why this figure may be too high.

First, the Board of Equalization assumed that prices would fall more modestly, so it estimated greater sales tax revenue per ounce sold. Second, the board assumed there would be no tax evasion from the $50-per-ounce excise tax; we find this highly unlikely. Third, if legalization were to increase the market share of higher-potency marijuana, then we would expect fewer ounces to be purchased per hour of intoxication; this, in turn, could reduce excise tax revenues per hour of intoxication by almost 50 percent relative to the board’s estimate. Fourth, the excise tax may not be set at or stay at $50 per ounce.

High or Low?
There are also reasons why the $1.4-billion revenue estimate from marijuana sales may be too low. Even with a $50-per-ounce excise tax and any costs associated with smuggling marijuana out of California, the price of sinsemilla produced legally in California would be lower than current prices throughout most of the United States. In fact, legalization in California could depress marijuana prices and increase consumption throughout much of the country, although such “exports” would be illegal under California law.

Thus, if marijuana were legalized in California and regulations made it easy for marijuana smugglers to buy legal, taxed marijuana—instead of purchasing it before the taxes were collected—then California could reap a lot of revenue, because there are six times as many marijuana users in the rest of the United States as in California. Such a windfall would depend not only on California regulations being permissive with respect to volume purchases, for example, but also on how the federal government and other states would react. California could also generate additional tax revenue from those who might travel to the state as drug tourists.

There is also the question of whether legalization would reduce law enforcement costs. Current estimates of the state’s costs of enforcing marijuana laws vary widely, from $200 million to nearly $1.9 billion a year. We estimate that these costs are likely in the lower range, probably less than $330 million a year. Our analysis recognizes that misdemeanor and felony offenses have different costs, that marijuana offenders are less likely to be prosecuted than are other drug offenders, and that the former receive shorter sentences when convicted.

But if marijuana is legalized, we should not assume that the freed-up law enforcement resources would be returned to the general fund. These resources would likely be used for other law enforcement purposes rather than be refunded to taxpayers. Moreover, there would be new administrative and enforcement costs of managing marijuana distribution and addressing tax evasion.

There are other uncertainties. Spillover effects on the use of alcohol or other drugs could have budgetary consequences as large as those stemming directly from changes in marijuana use. Or, if the federal government retaliated by withholding certain federal funds in the same way that some federal highway funds in the 1980s were made contingent on states setting the minimum age for purchasing alcohol at 21, those losses could offset the fiscal benefits of marijuana legalization.

While uncertainty abounds, we hope that presenting the relevant data concerning prices, consumption, tax revenues, and enforcement costs in a systematic fashion can lend some clarity to a hazy debate.

Related Reading
Illicit drug use is a problem that spills across the wide-open borders of Europe. Considerable effort has been devoted to collecting information about the demand and supply of illegal drugs across the continent. Much of the work has focused on tracking demand-side indicators, such as problem drug use, demand for treatment, and drug-related deaths and infectious diseases.

Supply-side indicators are harder to define and thus to measure. Various law enforcement agencies report information on drug seizures, arrests, and prices, but in many European countries the current data-collection efforts are insufficient to gauge the effectiveness of supply-side interventions. For this reason, the European Commission asked RAND Europe to recommend ways to improve the understanding of illicit drug markets and supply-reduction efforts in Europe.

The foremost insight from our research is that it is crucial for European Union (EU) member states to collect information not just about raw drug prices but also about “purity-adjusted” prices. Heroin purity, for example, varies considerably across locations and time and is usually substantially less than 100 percent (see the figure). It would not be unusual if a gram of heroin purchased for €75 in one part of a city was 20 percent pure and in another place was 30 percent pure. The purity-adjusted prices would be €375 per pure gram in the first place (€75/0.2) and €250 per pure gram in the second (€75/0.3).

Since the drug distribution network could respond to law enforcement–induced shortages by changing the amount of pure drug in each bag instead of changing the street price, a focus on the raw street price could lead to the incorrect conclusion that the enforcement effort did not influence the market.

For policy purposes, the utility of information about prices, arrests, and seizures depends not just on how much information is collected but also on how it is maintained in databases. Currently, most countries report information about the total number of drug seizures and the total weight to international organizations. However, this information is of limited value for understanding changes in drug markets and supply-side interventions, because it is not clear whether changes in seizures over time reflect strategic responses by drug traffickers, changes in law enforcement effort, or both.

Because some EU states are further along in developing data systems that can be used to measure the illicit drug supply, we offer recommendations for the immediate, near, and long terms. Recommendations for the immediate term do not require much coordination or large expenditures. Subsequent recommendations will likely require more of both.

Purities, Weights, and Users
The immediate need is for solid information about purity-adjusted prices. Fortunately, even some jurisdictions that do not make undercover purchases nevertheless analyze the purity of the illegal drugs that are frequently seized. Using just such forensic laboratory data on purity, we created a method to estimate purity-
adjusted prices, combining self-reported price information with laboratory-provided purity information. This method requires only occasional (such as annual) observations of the nominal price per raw gram; these observations can be obtained from a variety of sources, including surveys of users.

Thus, the European Commission should obtain and analyze the purity information that is already available from forensic laboratories. Most of the respondents from a survey that we conducted of the European Network of Forensic Science Institutes reported that they do collect purity information in computer databases and would be willing to share it with researchers.

Also of immediate concern, the commission should help develop a formal network of researchers, law enforcement officials, forensic scientists, and policymakers to create a blueprint for building a pan-European database of drug seizures and to explore other ways that forensic laboratory data can be used. For example, we encountered a laboratory that had used chemical signature analysis, which is more detailed than typical purity analyses, to determine that all of the drugs originating in a single wholesale purchase had been distributed within just a few weeks. The laboratory was also able to use a separate analysis to link couriers arrested on different days by virtue of similarities in the design of the secret compartments in their luggage.

In the near term, we recommend that EU countries expand their reporting of drug seizures. Beyond information about the total number and total weight, it would be useful to know the median weight seized. That way, it would be possible to determine whether a few large seizures were having a disproportionate effect on the statistics. It would be preferable if this information were reported for “weight bins” (for example, seizures less than or equal to 1 gram, between 1 and 10 grams, between 10 and 200 grams, more than 200 grams).

Such bins generally represent retail, mid-level retail, and wholesale transactions. Reporting the information by bins would allow law enforcement officials to learn whether certain activities were dominating the market.

In the long term, the commission could regularly collect information from heavy drug users, who account for most consumption and can therefore provide valuable information about prices, dealers, sales, and market conditions. It would also be helpful to obtain information about the typical quantity consumed by users, broken down by age, gender, race, ethnicity, and frequency of use. Other long-term goals include standardizing the definitions of drug-trafficking offenses and creating a pan-European database with consistent, incident-level information about drug seizures across Europe.

The purpose of creating better indicators and collecting additional information is to improve governments’ understanding of illicit drug markets and the effects of different supply-reduction efforts; such an understanding must underpin ongoing efforts to improve drug control strategies. The European Monitoring Center for Drugs and Drug Addiction’s efforts to develop consistent demand-side indicators have made it easier to follow consumption patterns, to make useful comparisons, and to target scarce prevention and treatment resources. Those efforts have taken years, and it would be surprising if it did not take time to develop indicators of similar quality on the supply side. Nonetheless, tangible benefits can be reaped in the short run with modest steps.

It is crucial to collect information not just about raw drug prices but also about “purity-adjusted” prices.

Related Reading
“When I’m 64”

How Aging U.S. Baby Boomers Have Begun to Carry That Weight

By Nicole Maestas, Julie Zissimopoulos, Susann Rohwedder, and Linda G. Martin

Nicole Maestas leads the RAND Economics and Statistics group, and Julie Zissimopoulos is a RAND senior economist. Both are professors of economics at the Pardee RAND Graduate School. Susann Rohwedder, associate director of the RAND Center for the Study of Aging, is also a research fellow with the Network for Studies on Pensions, Aging, and Retirement, an independent organization located at Tilburg University in Tilburg, the Netherlands. Linda Martin is a RAND senior fellow and an adjunct professor in the Johns Hopkins Bloomberg School of Public Health in Baltimore, Maryland.

As U.S. baby boomers near retirement, America’s economic growth and the solvency of the Social Security Trust Funds appear to be at serious risk. But older American workers are retiring at later ages than they have in the past and will likely continue to do so in the future. This changing work pattern will help ease the downward pull on economic growth and the financial strain on Social Security and Medicare.

The trend toward delayed retirement could also be good news for the cognitive capacities of aging baby boomers. Cross-national data from 13 developed countries have shown a correlation between delayed retirement and the delayed onset of cognitive declines, with both delays being more characteristic of older Americans than of older Europeans.

Despite these positive signs, the percentage of Americans aged 50 to 64 who report the need for help in daily personal care activities, such as getting into or out of bed or getting around inside the home, has risen significantly over the past decade as boomers have poured into this age bracket. This trend is in sharp contrast to the disability decline found among Americans aged 65 and over. The reason for the setback among boomers is not clear, although many who report the disabilities say they are due to health problems that began in their 30s and 40s.

The Long and Winding Road

The end of the 20th century witnessed a profound change in retirement behavior. For more than a century, the labor force participation rate of U.S. men over age 65 had fallen steadily, from 75 percent in the late 1800s to just 16 percent in 1990. But at the end of the 20th century, this rate began to rise. Meanwhile, the rate of older women participating in the labor force rose as well, following a remarkable upsurge in participation among younger women over many decades.

The age distribution of the U.S. workforce has shifted dramatically in the past 20 years, a shift that...
will continue in the next 20 years. Figure 1 shows snapshots of 1990, 2010, and 2030 based on real and projected data from the U.S. Bureau of Labor Statistics. The figure highlights three features of population and workforce change over this time span.

The first is the striking shift in the age distribution. In 1990, it had a pronounced triangular shape; but by 2030, it will become almost rectangular. The primary force behind this change is the postwar birth of the baby boomers between 1946 and 1964. The triangular shape in 1990 arose from the bulge of boomers in the younger age groups, as indicated in the figure. The bulge is still evident in 2010, with boomers occupying the middle age groups, but it is less evident in 2030 as the boomers age.

The population grows older as the large boomer cohort ages; the aging effect is compounded by rising life expectancy and lower birth rates in subsequent cohorts. Life expectancy among those 50 and older in developed countries rose by 0.2 years per calendar year in the 20th century and continues to lengthen at a good clip. Although fertility and mortality are the principal forces shaping the age distribution of the workforce, immigration also plays a role. Because immigration inflows mostly augment the bottom half of the age distribution, they help to slow population aging.

The second feature apparent in Figure 1 is a sharp slowdown in labor force growth, indicated by the gold bars. Labor force growth between 2010 and 2030 is projected to be 10.5 percent—less than half the growth seen between 1990 and 2010. The slowdown in labor force growth will lead to a corresponding slowdown in U.S. economic growth per capita unless there is an offsetting influence, such as an increase in labor productivity, workforce participation, or immigration.

Tempering the drag on labor force growth is the third feature evident in the figure: a notable rise in employment among the elderly. Figure 2 charts the historical and projected labor force participation rates by age and sex from 1950 to 2030. For men aged 55 to 64, the rate of decline slowed in the 1980s and then flattened. For men 65 and older, the rate of decline also slowed in the 1980s, and then, remarkably, the trend reversed in the 1990s. The Bureau of Labor Statistics assumes a flattening of the trend by 2010 for men 65 to 74 and by 2020 for men 75 and older.

Just as important is the rise in labor force participation among women. Between 1950 and 2000, the participation rates for all women between the ages

![Figure 1—Through 2030, the U.S. Labor Force Will Keep Growing Older, Especially as Baby Boomers Keep Working](image-url)
of 25 and 64 roughly doubled. Although the rate for women 65 and older remained low, it began rising between 1990 and 2000, and it is projected to rise further through 2020 and then flatten.

The above projections assume that recent labor force participation trends will taper off. However, if participation keeps rising after 2020 at the same rate as before—and there is good reason to think it might keep rising—then the ratio of nonworkers to workers, also known as the economic dependency ratio, would be far lower in 2030 than expected. That is, instead of 62 non-workers aged 16 and older per 100 workers in 2030 there would be just 53 nonworkers per 100 workers. In short, the economic impact of population aging on America’s future standard of living depends a great deal on the evolution of labor force participation among older workers.

Here Comes the Sun

One of the primary reasons why retirement rates have dropped is the change in the skill composition of the workforce. Educated people work more because they are paid more, have more fulfilling jobs, and face fewer physical demands. Another reason for longer working lives has been the rise of dual-earner families, with husbands working longer to accommodate the careers of their wives and with women gaining incentives to extend their work lives to qualify for more retirement benefits.

Yet another reason is the changing nature of work itself. Technological advancement since 1960 has favored cognitive and analytic skills over manual and routine skills, a shift that appears to have favored women especially. As technological change has made jobs less physically demanding and as the Americans with Disabilities Act has required employers to provide reasonable accommodations for those with disabilities, it has become more possible than ever to work in the presence of health limitations.

The United States is not unique with respect to changes in the ages at which workers retire. Across the developed world, the average labor force participation rate of older women has climbed dramatically since the 1980s, and the downward trends for older men reversed between 1994 and 2004 (see Figure 3). The similarity of these patterns across time and space points to common factors—such as the growth in educational attainment, technological change, and labor force participation among married women—as the primary driving forces; and to reforms in U.S. Social Security, private pensions, and employment protection law, the form and timing of which have been unique to the United States, as secondary forces.

The prospect for future increases in workforce participation at older ages is quite good. Workers may not only want to work longer, but they may need to work longer to support consumption over a longer lifespan. The steady increase in life expectancy that has steadily increased in recent decades is expected to continue (see Table 1).

Figure 2—Since 1990, the Workforce Participation Rates Have Risen for U.S. Men and Women Who Are 65 and Older


NOTE: Dashed lines denote projections.
been seen over the past 150 years or so has shown no imminent limit to human lifespan.

Perhaps surprisingly, reforms to the U.S. Social Security program were not a major force behind the turnaround in labor force participation by older men in the 1990s, but the reforms will likely be a force in the future. Many of the reforms that increased the return to work at older ages were not effective until 2000, and the phased-in increase in the Social Security full retirement age will not be fully implemented until the 1960 birth cohort turns 62 in 2022.

Older workers are also becoming closer skill substitutes for younger workers. In 1990, a retiring 65-year-old had on average 10.9 years of schooling, while an entering 25-year-old had 13.5 years of schooling, a gap of 2.6 years. In 2010, a retiring 65-year-old will have on average 12.6 years of schooling, while an entering 25-year-old will have about 13.9 years, halving the education gap to 1.3 years. By 2030, a retiring 65-year-old will have 13.5 years of schooling, while, if current trends continue, an entering 25-year-old might have around 14 years, further closing the gap to just half a year. For the first time in history, labor force entrants will not be substantially more educated than those retiring. This trend should raise the demand for older workers, particularly in jobs where the productivity return to experience is high.

Perhaps the biggest constraint on employer demand for older workers in the future will be health care costs. The rising prevalence of disease, chronic conditions, and obesity among people aged 65 to 69 suggests that an aging workforce will surely increase the cost of providing health care to older workers. Even when an employee is eligible for Medicare, the employer is the primary payer and Medicare is the secondary payer.

Population aging will be less severe in the United States than in many other developed countries for the simple reason that fertility rates in the former fell only half as far as in the latter following the baby boom. Figure 4 shows how several developed countries compare on two dimensions: population aging and capacity for labor force adjustment. In terms of aging, the United States is in the middle, on course to experience a moderate increase in the percentage of its population over 65 through 2030. The U.S. economy is also well positioned for labor force adjustment, having already attained elderly participation rates well above those for most developed countries.

Sisters and coworkers Garnett Crooks, 73, and Cora Farmer, 70, greet customers at Sonic Drive-In in Las Cruces, New Mexico. Whether it is the effects of the recession, the need for extra cash, or the search for social interaction, more elderly are rejoining, or staying in, the workforce.

Figure 3—Across the Developed World, Growing Percentages of Men and Women Between the Ages of 55 and 64 Are Working

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NOTE: The OECD average participation rate is the population-weighted average of the participation rates in Canada, France, Germany, Italy, Japan, the Netherlands, Norway, Spain, and the United States.
In contrast, many European countries, including the largest, will face moderate to high population aging, yet virtually no one over 65 in those countries works. While this leaves ample room for adjustment in Europe, it might be particularly difficult given the mutually reinforcing social norms and social insurance systems that encourage early retirement. Perhaps the main area in which the United States faces greater challenges than do the other developed countries is its health care system, with its high costs and its mixture of private-sector insurance with Medicare.

U.S. policymakers could promote greater labor force participation among older Americans by abolishing the remaining work disincentives that are built into private and public pensions and by promoting information campaigns that help older Americans understand the rules governing their pension and Social Security benefits. Encouraging work at older ages would counteract the slowdown in labor force growth while helping to shore up the finances of Social Security and Medicare. As men and women extend their working lives, they will enhance their own retirement income security while easing the strain of an aging population on economic growth.

Happy Ever After in the Market Place

The trend toward delayed retirement in the United States has contributed to a growing interest in finding ways to arrest the cognitive decline associated with aging. Mental exercises might help, but laboratory experiments involving small numbers of people for short periods of time have yielded inconclusive results about the likely benefits. In contrast, retirement involves millions of people who make life-altering transitions from environments with set demands on cognitive performance to environments without such demands. If the effect of retirement on cognitive ability could be estimated, then the effect of mental stimulation on cognitive ability more generally might also be established.

Estimating the effect of retirement on cognitive ability is challenging because workers choose when to retire. Furthermore, workers with greater-than-average cognitive decline tend to retire earlier than others, in which case cognitive decline leads to retirement, not vice versa. If this effect was empirically important, it would lead to the retired having lower cognitive ability on average compared with those not retired, holding age constant, even if retirement had no effect on cogni-
Retirement in Europe—was designed to be closely comparable, with the explicit objective of facilitating cross-country comparisons of many measures, including cognitive performance. The year 2004 was the first for which the data were available from all three surveys. Aside from being queried about a number of different topics, older individuals in all 13 countries were subject to the same test of cognitive performance, a test measuring immediate and delayed word recall. In the test, an interviewer reads a list of ten nouns (such as “lake,” “car,” and “army”) and asks the respondent to recall as many words as possible from the list in any order. After about five minutes of asking other questions, the interviewer again asks the respondent to recall the nouns previously presented. The total score is the sum of the correct answers recalled at the two times, with a range of 0 to 20.

There is a striking correlation across countries between the fraction not working for pay in their early 60s and how individuals of that age perform on the cognitive test. As shown in Figure 6, the average cognitive performance is highest in countries where the fraction not working is lowest, as in the United States, England, and Denmark. In contrast, Italy, France, and Spain have larger fractions of the population who are not working for pay in retirement whatsoever. Moreover, the rate of decline in cognitive ability over time would be larger among those who choose to retire under this scenario than among those who choose not to retire, holding age constant.

In order to isolate any effect that retirement itself might have on cognition, one needs to find a third factor that determines the timing of retirement in an important way, but that itself is not influenced by variations in cognitive ability. Prior research has shown that differences in tax and benefit policies across countries create large differences in the incentives to keep working. In the United States, for example, Social Security benefits are adjusted upward if an individual delays claiming these benefits, while in some other countries the pension benefits are not affected by additional work. The result is a large systematic variation in the average retirement age across countries (see Figure 5). Therefore, public pension policy can be used as that third factor to help identify the effect of retirement on cognitive ability, particularly when combined with newly available data measuring cognition across developed countries.

Before turning to the data, let us consider two theories as to why retirement could cause cognitive decline. The first suggests that workers engage in more mental exercise than do retirees because work environments provide more cognitively challenging and stimulating environments than do nonwork environments. We can call this theory the “unengaged lifestyle hypothesis.”

The second theory suggests that the very prospect of early retirement induces a decreased level of mental exercise while still on the job. For example, a 50-year-old worker in the United States who expects to work until 65 has a much greater incentive to continue investing in human capital than does a comparable worker in Italy who expects to retire at 57. In other words, incentives for early retirement could cause a reduction in mental exercise at work well before actual retirement. We can call this theory the “on-the-job retirement hypothesis.” Taken together, these two hypotheses suggest that variations in mental exercise associated with both the work environment before retirement and the home environment after retirement might causally influence cognitive ability.

The newly available data that make it feasible to investigate the effect of retirement on cognitive ability come from analogous surveys done of older people in the United States, England, and 11 other European countries in 2004. The set of surveys—the U.S. Health and Retirement Study, the English Longitudinal Study of Ageing, and the Survey of Health, Ageing, and Retirement in Europe—was designed to be closely comparable, with the explicit objective of facilitating cross-country comparisons of many measures, including cognitive performance. The year 2004 was the first for which the data were available from all three surveys.

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Retirement leads, on average, to a drop in cognitive performance of 4.7 on a 20-point scale.

Strikers in Paris on May 27, 2010, joined those across France who protested government plans to raise the retirement age past 60, one of the lowest even in Europe. The placard in foreground reads, “I want the same retirement as Juppe, Woerth,” referring to former French Prime Minister Alain Juppe and current Labor Minister Eric Woerth.

Figure 6—Cognitive Scores Are Lower for Men and Women in Their Early 60s in Countries Where a Larger Fraction Is Retired at That Age


their early 60s, and their average cognitive performance is lower. Overall, based on the data in Figure 6, retirement is associated with a reduction in cognitive score of about 4.9 points on a 20-point scale.

To establish the extent to which this finding describes the causal impact of retirement on cognitive ability requires applying econometric methods that take into account the pension policies across the 13 countries—that is, modeling the third factor described above that drives differences in the timing of retirement across countries, but that does not itself influence cognitive performance. Doing so yields an estimate of the causal relationship that is close to the one obtained from the informal observation in Figure 6: Retirement leads, on average, to a drop in cognitive performance of 4.7 on a 20-point scale.

The estimated effect of retirement on cognition is very large indeed. It is important to keep in mind that the estimate here is of not just the immediate effect of the onset of retirement but rather the combined effect of a much more extended process of retirement that may start—at least for some—already while on the job. Early retirement appears to have a significant
negative impact on the cognitive ability of people in their early 60s that is both quantitatively important and causal.

Can the very large effects identified here be plausible? They are based on a powerful natural experiment that involves a major change in lifestyle (from work to retirement) and that is unmatched in size (populations from multiple countries) and duration (several decades of people operating under given pension policy settings) when compared to common laboratory experiments. Future research will have to investigate the roles of education, environment, and other factors in cognitive ability.

As outlined above, older Americans have reversed a century-long trend toward early retirement and have raised their workforce participation rates, especially beyond age 65. This is good news not just for the fiscal balance of the Social Security and Medicare systems but also for the standard of living of older Americans—and probably for their cognitive capacities as well.

**Getting By with a Little Help**

Despite indications that American baby boomers will have longer careers and potentially sharper memories than members of the preceding generation, their greater need for help with personal care activities is troubling. At a minimum, this increasing need among Americans aged 50 to 64 poses challenges related to future health spending, demand for health care and other support workers, prospects for continued labor force participation, and thus access to employer-sponsored health insurance.

Data from the National Health Interview Survey from 1997 to 2007 indicate that there was a statistically significant increase in the proportion of Americans aged 50 to 64 who reported the need for help with two activities of daily living: getting into or out of bed or a chair, and getting around inside the home (see Figure 7). The overall rate of needing help with any such personal care activity remained quite low within this age group, having risen from 1.3 percent in 1997–1999 to 1.8 percent in 2005–2007. But given the substantial personal and societal costs of caring for those with such limitations, the upward trend bodes ill for the future.

Beyond the nearly 2 percent of baby boomers between the ages of 50 and 64 who reported “needing help” with personal care activities in 2005–2007, about 42 percent of them reported “having difficulty” with at least one of nine common physical functions, and many reported having difficulty with more than one function (see Figure 8). There was no statistically significant trend overall, but difficulty with four functions related to mobility and the lower body did increase significantly between 1997 and 2007 for Americans in this age group. These functions included standing for two hours, walking a quarter mile, climbing ten steps without resting, and any combination of stooping,

![Figure 7—Almost 2 Percent of Middle-Aged Americans “Need Help” with at Least One Personal Care Activity](image1)

![Figure 8—Forty-Two Percent of Middle-Aged Americans “Have Difficulty” with at Least One Common Physical Function](image2)


NOTES FOR FIGURES ABOVE: Asterisks denote statistically significant increases from 1997 to 2007. Data are from the National Health Interview Survey.
The two most frequently cited causes of having difficulty with any physical function were arthritis or rheumatism and back or neck problems.

bending, or kneeling. There was also a significant increase in reports of using special equipment, such as a cane, wheelchair, special bed, or special telephone.

The two most frequently cited causes of having difficulty with any physical function in 1997–1999 and 2005–2007 were arthritis or rheumatism and back or neck problems. Likewise, these two were the most commonly cited causes of needing help with any personal care or routine household activity at both the beginning and end of the study period. In the case of needing help, though, the top two causes switched places from one decade to the next. There was a significant decrease in the reporting of arthritis or rheumatism as a reason for needing help, while there was a significant increase in back or neck problems.

There was also a prominent and growing role for diabetes as a cause of needing help among those aged 50 to 64, as there was for depression, anxiety, or emotional problems; nervous system conditions; and other musculoskeletal conditions, such as tendinitis and bursitis. Nervous system conditions include many and varied ailments, such as paralysis, migraine, epilepsy, multiple sclerosis, Parkinson’s disease, and amyotrophic lateral sclerosis, or Lou Gehrig’s disease.

The self-reports of causes suggest that weight problems did not play an important role in the increase in need for help with personal care activities. Indeed, most obese people did not need help with personal care. However, some respondents might have been reluctant to cite weight problems, even though they were invited to cite as many as five causal conditions. The increased reports of back or neck problems, other musculoskeletal conditions, and diabetes may have been related to the growth in obesity.

For seven of the top ten conditions reported as causing people to need help in 2005–2007 (the ones named above plus hypertension), the most common age at onset was between 30 and 49. For the three other conditions (heart problems, lung or breathing problems, and vision problems), the onset was most common at age 50 and older. It is possible, as suggested in a recent report from the Institute of Medicine, that children and young adults with once fatal injuries or conditions are surviving to midlife and contributing to the growing need for help at these ages. If so, a lowering of the age of onset of the causal conditions would have been expected during the study period. There were no statistically significant changes in age of onset between 1997 and 2007, but the analysis was limited by the small numbers of people reporting any particular cause.

The fact that the most important causes of disability at ages 50 to 64 are conditions that tend to appear before age 50 indicates possible opportunities for prevention and early intervention. Such efforts might well pay off in reversing the growing disability rates among those in their 50s and early 60s. If successful, such efforts might also help more middle-aged Americans reach the age of Medicare eligibility in relatively better health, contributing to the continuation of a decades-long decline in potentially very costly disability among those over the age of 65. In the shorter term, delaying the onset and reducing the prevalence of disability would facilitate participation in life activities, including employment in the formal workforce, and thus further enhance the predicted longer work lives of baby boomers.

Related Reading


An Aging Europe
Wonder How You Manage to Make Ends Meet

RESEARCHERS AT RAND EUROPE, an independently chartered European affiliate of the RAND Corporation with offices in Cambridge and Brussels, have been assessing which policies could prevent or mitigate the adverse consequences of falling birth rates and population aging across Europe. The policy debate has focused on promoting immigration, encouraging more childbearing, raising the retirement age, and encouraging more women to join the workforce.

So far, the researchers have reached these conclusions:

• Immigration is not a feasible way to reverse population aging.
• National policies can slow fertility declines under the right circumstances.
• No single policy intervention will necessarily slow fertility declines.
• Assisted reproductive technologies might help, depending on behavioral responses.
• What works in one country might not work in another.
• Population policies take effect slowly and so are often politically unattractive.

Allowing large numbers of working-age immigrants to enter European Union countries is not a feasible solution, because the sheer numbers of immigrants needed to offset population aging in Europe would be unacceptable in the current political climate. Immigration could nonetheless be a tool for slowing, as opposed to preventing, population aging.

Government policies can work. France, which was the first European nation to experience a decline in its fertility rate and which has had an aggressive set of pronatalist policies in place for decades, now has one of the highest fertility rates in Europe.

Countries have made progress by pursuing multiple policies. France offers generous child-care subsidies and rewards families for having at least three children. Sweden offers flexible work schedules, quality child care, and extensive parental leave. Policies that remove workplace and career impediments to childrearing are key. European countries that have made it easier to have and to raise children tend to have higher fertility rates than those that have not.

Another approach would be for governments to promote assisted reproductive technologies, such as in vitro fertilization. Although this approach could be cost-effective relative to other measures, the benefit could be wiped out if the technologies encourage couples to delay starting families, because older women find it harder to conceive, either naturally or with assistance.

What works depends on the political, economic, and social context in each country. In Poland and the former East Germany, the transition to a free market economy triggered fertility declines by reducing the incentives for childbearing, whereas the French have long been concerned that declining fertility poses a threat to their economy.

Policies to increase fertility take at least a generation to expand the labor pool, so politicians tend to focus on mitigating the short-term effects of population aging. One policy for doing so is to expand participation in the workforce, either by promoting longer working lives or by encouraging new entrants, such as women, to join the workforce. Related to this are policies that seek to enhance the productivity of older workers.

**Related Reading**


Accountability for NCLB
A Report Card for the No Child Left Behind Act

By Brian M. Stecher, Georges Vernez, and Paul Steinberg

Brian Stecher is associate director of RAND Education. Georges Vernez is a senior social scientist at RAND. Paul Steinberg is a RAND communications analyst.

It has been nine years since the U.S. Congress passed, with bipartisan support, the No Child Left Behind Act of 2001 (NCLB), a landmark in primary and secondary education. Aside from setting the ambitious goal that all students would be proficient in reading and mathematics by the year 2014, NCLB set the country along a determined path of judging schools by student outcomes; providing strong accountability with “teeth” for enforcement; using parental choice (and the marketplace as a whole) to drive improvement; measuring performance of ethnic, racial, socioeconomic, and other subgroups; requiring stronger teacher qualifications; and basing improvement efforts on research-based practices.

Much has been said about NCLB, but as Congress is likely to consider reauthorizing the law upon reconvening in January 2011, what lessons can legislators draw from what has happened over the past nine years? We have analyzed the progress made as a result of the law and studied how school administrators, teachers, and parents have responded to it. Based on these observations, we offer a set of recommendations for changing the law if it is reauthorized.

Progress Made
Overall, NCLB has succeeded in establishing a nationwide school and teacher accountability infrastructure that focuses on student outcomes and emphasizes improving the lowest-performing schools and students. However, the flexibility that NCLB provided to the states has resulted in the establishment of 52 different accountability systems—one for each state, the District of Columbia, and Puerto Rico—each with different academic standards, different student proficiency levels, and different teacher requirements. These variations mean that “student proficiency” and “highly qualified teachers” are defined differently in every state of the nation. Voluntary efforts now underway in some states to adopt national “common core standards” could ameliorate the situation, but the outcome of these efforts is yet to be determined.

Progress to date in the share of students who are proficient in reading and mathematics suggests that the goal of having 100 percent of the nation’s students proficient in these two subjects by 2014 will not be met. At the same time, the law’s narrow focus on these two academic areas and the states’ reliance on similarly narrow tests have resulted in unintended outcomes, such as narrowing the school curricula, encouraging teachers to focus on some students at the expense of others, and discouraging the development of higher-thinking and problem-solving skills.

Although the number of students taking advantage of the law’s provisions for school choice and for
supplemental educational services has increased over time, the participation rates of students eligible for either option remain low. Part of the reason for low participation is administrative (sometimes related to inadequate notification to parents of their options), and part of the reason is the preference of parents. Parents often choose not to participate either because they are satisfied with their children’s school or performance, because they do not want to disrupt their children by switching schools, or because of the inconvenience of the alternative schools offered.

But parental knowledge about the provisions of the law, about the performance of schools, and about their school choice options remains uneven. A majority of parents still do not know whether their children’s schools need improvement or not. When parents are made aware of the situation, they are often notified of their choice options too late to make an informed decision about transferring their children to a different school.

As intended by the law, districts and schools identified for improvement have engaged in a flurry of improvement activities, including the implementation of the interventions and corrective actions mandated by the law (see the table). However, the states typically have not implemented the most severe restructuring interventions for the chronically lowest-performing schools.

The law mandates these interventions only for schools and districts that receive federal Title I fund-

### Successive Interventions Await Schools That Fail to Make “Adequate Yearly Progress”

**Stages of Intervention for School Improvement Under the No Child Left Behind Act of 2001**

<table>
<thead>
<tr>
<th>If school misses “adequate yearly progress” (AYP) for two consecutive years</th>
<th>Identified for Improvement, Year 1</th>
<th>Identified for Improvement, Year 2</th>
<th>Corrective Action</th>
<th>Restructuring</th>
</tr>
</thead>
<tbody>
<tr>
<td>All interventions must occur simultaneously:</td>
<td>• Offer parents school choice</td>
<td>Additional intervention:</td>
<td>Additional interventions (one or more of the following):</td>
<td>Additional interventions:</td>
</tr>
<tr>
<td>• Offer supplemental educational services (tutoring, remediation, or other academic instruction) given by a state-approved provider</td>
<td>• Develop improvement plan</td>
<td>• Decrease school’s management authority</td>
<td>Phase 1—Develop restructuring plan</td>
<td></td>
</tr>
<tr>
<td>• Notify parents</td>
<td>• Allocate 10 percent of federal Title I funds for professional development</td>
<td>• Extend school day or school year</td>
<td>Phase 2 (one or more of the following):</td>
<td></td>
</tr>
<tr>
<td>• Receive technical assistance from districts and states</td>
<td></td>
<td>• Restructure school’s organization</td>
<td>• Reopen school as a charter school</td>
<td></td>
</tr>
</tbody>
</table>

**If school misses AYP for an additional year**

<table>
<thead>
<tr>
<th>If school misses AYP for an additional year</th>
<th>If school misses AYP for an additional year</th>
</tr>
</thead>
</table>

**SOURCE:** Reauthorizing No Child Left Behind: Facts and Recommendations, 2010.

**NOTES:** In schools identified for corrective action or restructuring, the district must also continue to offer school choice and supplemental services. A school exits school improvement, corrective action, or restructuring status only if it makes AYP for two consecutive years.
ing, but more than half of all public elementary and secondary schools in the United States receive some Title I funds. Since 1965, the U.S. Department of Education has been disbursing these funds to schools and districts with high percentages of students from low-income families. States can also extend these interventions to other schools, using state resources.

In terms of federal funding, there was an overall 51 percent increase (in constant dollars) in Title I appropriations between 1997–1998 and 2004–2005, but the share of Title I funds going to the highest-poverty districts remained essentially the same. An increasing share of the total Title I funds over these years was allocated to district-managed services (from 9 to 21 percent), whereas a decreasing share was allocated to individual schools (from 83 to 74 percent).

Title I funding added more dollars per low-income student to elementary schools than to middle or high schools. For elementary schools, the funding also added a significantly higher amount of personnel resources per low-income student to the schools with the lowest poverty rates than to the schools with the highest poverty rates—$825 versus $449, respectively.

Highly qualified teachers should be offered incentives to teach in low-performing schools.

Changes Recommended
If Congress reauthorizes NCLB, it should consider making the following changes to the law:

• **Promote more-uniform academic standards.** In giving states the flexibility to set their own standards, the expectation was that states would set high standards. But this expectation has not been met in some places, leading to substantial inconsistency across the states, putting students in some states at a disadvantage in preparing for college and careers, and serving the country ill with regard to bolstering economic competitiveness. Setting and requiring nationwide standards could achieve greater consistency across states. If current voluntary efforts among the states bear fruit, that will signal a significant accomplishment; if not, other options should be considered, including requirements for common standards.

• **Promote more-uniform teacher qualification requirements.** As is true for academic standards, the states have set highly variable requirements for “highly qualified” teachers. Minimizing these variations across states is desirable for the same reasons as those for academic standards.

• **Set more-appropriate improvement targets.** Given the rate of progress in student achievement since NCLB was implemented, its goal that 100 percent of the nation’s students should be proficient by 2014 not only is unattainable but also might discourage principals and teachers in their improvement efforts. Instead of a proficiency target, schools and teachers should be held accountable for the learning growth of all students. Alternative accountability approaches that incorporate such growth without imposing the current targeting structure should be explored.

• **Broaden the measures of student learning.** The fact that states rely mostly on multiple-choice tests to measure student learning in reading and mathematics discourages the development of the higher-thinking and problem-solving skills that are essential for economic viability and also shortchanges subjects other than math and reading. Broadening the test measurements to include open-ended answer formats, such as written responses to math questions, and holding schools accountable for subjects other than math and reading would be desirable. In particular, schools should be held accountable for achievement in history, social studies, and science, while schools should be asked to report on student participation in music, art, health, and physical education.

• **Give teachers incentives to teach in low-performing schools.** Teachers in schools that have been identified for improvement continue to be less likely to be highly qualified than are teachers in schools not so identified. Given the critical role that teachers play in student learning, highly qualified teachers should be offered incentives, such as higher salaries or lower class loads, to teach in low-performing schools.

• **Allow for a more flexible system of interventions.** The current system of interventions for schools identified for improvement is rigid and mechanical. A more flexible and effective system would allow states and districts to identify and prioritize the schools most in need and to design consequences to address their particular needs. A number of states and districts use independent “inspectors” to conduct field reviews of schools to provide
more complete information about local practices and improvement options. This approach might be expanded further.

- **Broaden staff development.** Staff development now focuses on academic content and effective instruction, but improvement and major restructuring in schools will not take place on a large scale until the problem-solving capacity of school leaders and teachers throughout the nation is increased. Therefore, staff development should be broadened to include the identification of teaching and learning problems, the development of interventions geared to those problems, and the use of the tools and practices required for effective implementation of those interventions.

- **Enhance school choice.** Few parents have taken advantage of the option to move a child from a school identified for improvement to a school not so identified. States could take steps to ensure that parents learn of their options in a timely fashion. But some choices reflect simply a parental decision not to change schools. Moreover, many districts have no schools available for transfer. Policymakers need to recognize the limited benefits of school choice. Meanwhile, efforts for school improvement should focus on all schools while continuing to offer school choice. Another way to enhance school choice would be to reverse the order in which the instructional options are now made available, offering supplemental educational services first and school choice second.

- **Commit more resources to developmental activities, especially for students with special needs.** Schools and districts frequently report that they do not receive the technical assistance they need to improve learning among students with disabilities and those with limited English proficiency. Resources should be committed for experimentation to find better instructional methods and programs for these students and for all students; such experimentation might also focus on identifying better strategies for allocating the resources provided by the federal government.

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By James A. Thomson

James A. Thomson is president and chief executive officer of the RAND Corporation.

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