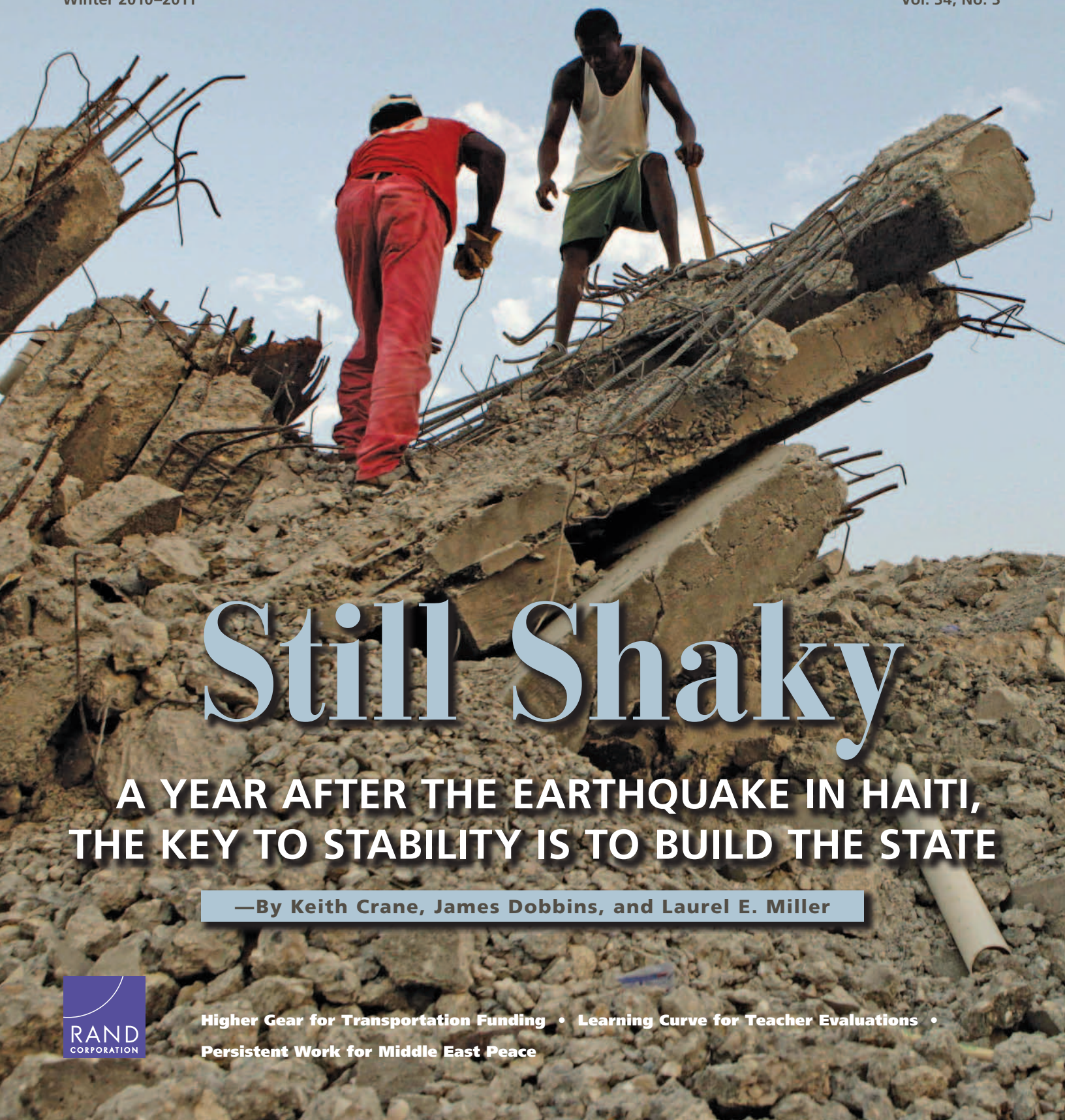
RAND REVIEW

Winter 2010–2011 Vol. 34, No. 3



Still Shaky

A YEAR AFTER THE EARTHQUAKE IN HAITI, THE KEY TO STABILITY IS TO BUILD THE STATE

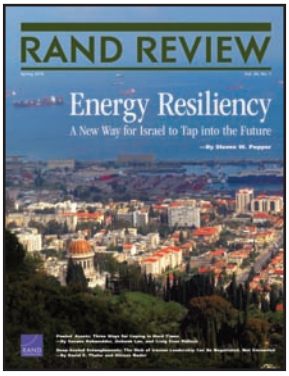
—By Keith Crane, James Dobbins, and Laurel E. Miller

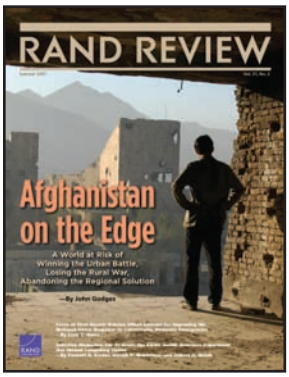
RAND CORPORATION

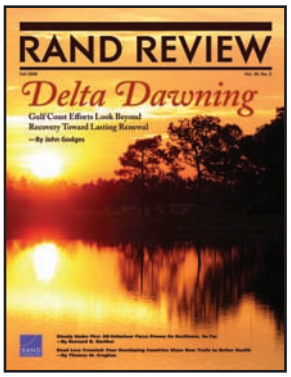
Higher Gear for Transportation Funding • Learning Curve for Teacher Evaluations • Persistent Work for Middle East Peace

Get the Big Picture

RAND Review covers the big issues with an eye for the important details.







For previous editions and free online subscriptions, visit randreview.rand.org

RAND REVIEW

Editor-in-Chief
John Godges

Associate Editors
Paul Steinberg, Mary Vaiana

Assistant Editor
Miriam Polon

Proofreaders
Christina Pitcher, Kelly Schwartz

Designer
Eileen Delson La Russo

Graphic Artist
Sandra Petitjean

Production Editor
Todd Duft

Circulation Coordinator
Saci Detamore

Web Producer
Jason Walkowiak

Editorial Board
Timothy Bonds, Cynthia Cook, Jeffrey Hiday, James Hosek, James Kahan, Iao Katagiri, Lindsey Kozberg, Kevin McCarthy, Elizabeth McGlynn, K. Jack Riley, Charlene Rohr, Shirley Ruhe, Mary Vaiana, Martin Wachs

RAND Board of Trustees
Paul G. Kaminski (chairman), Philip Lader (vice chairman), Barbara Barrett, Richard J. Danzig, Francis Fukuyama, Richard Gephardt, Pedro Jose Greer, Jr., John W. Handy, Bonnie Hill, Lydia H. Kennard, Ann McLaughlin Korologos, Peter Lowy, Michael Lynton, Ronald L. Olson, Paul H. O'Neill, Michael K. Powell, Donald B. Rice, James E. Rohr, Hector Ruiz, Carlos Slim Helú, Donald Tang, James A. Thomson, Robert C. Wright

Trustees Emeriti
Harold Brown, Frank C. Carlucci

RAND Review is published periodically by the RAND Corporation, a nonprofit institution. The mission of the RAND Corporation is to help improve policy and decisionmaking through research and analysis. Opinions are those of the authors and do not reflect positions taken by RAND, its board, or its clients.

LETTERS Send letters to: Editor, *RAND Review*, 1776 Main Street, P.O. Box 2138, Santa Monica, CA 90407-2138, or e-mail godges@rand.org

PERMISSIONS For information about using material published in *RAND Review*, visit www.rand.org/publications/permissions.html

COPIES For hard copies of *RAND Review*, call (877) 584-8642 (toll free) or (310) 451-7002 (outside the United States); send a fax to (412) 802-4981; or e-mail order@rand.org

REPORTS Most reports cited in these pages may be purchased. To place credit card orders, contact RAND at the phone numbers or e-mail address listed immediately above. National Book Network (NBN) also carries selected RAND titles. Call NBN at (800) 462-6420.

SEARCH RAND documents can be searched by author, title, and category at www.rand.org/search/pubs_search.html

© Copyright 2010 RAND Corporation
RAND is a registered trademark.

RAND: OBJECTIVE ANALYSIS. EFFECTIVE SOLUTIONS.

Message from the Editor

Three Chances to Set Politics Aside

The RAND Corporation organized an event in November called Politics Aside 2010. It was a weekend retreat scheduled on the heels of the November election to promote civilized nonpartisan discourse in contrast to the antagonism of the campaign season.

Participants sought common ground on matters of great consequence: international security, economic globalization, catastrophe preparation, education reform, the role of the media, and so on. Having attended many of the conversations, I can attest to the good-natured efforts of those present, regardless of their political views, to leave their ideologies at the door, to focus on the facts, and to treat one another with respect.

In this issue, the three feature stories on Haitian recovery, teacher accountability, and transportation finance offer proposals that should transcend partisan divides. But in tight economic times, the allocation of resources for these purposes over others could ignite political dynamite. To pursue these purposes and other worthy goals outlined here, let us hope that we can set politics aside in the years ahead for more than a weekend at a time.

—John Godges

AP IMAGES/ARNULFO FRANCO

On the Cover

On August 25, 2010, two men remove rubble from a Port-au-Prince building destroyed by the January 12 earthquake. By some estimates, only 2 percent of the 250 million cubic meters of debris in the capital city had been cleared, for reasons ranging from lack of equipment and money to an abysmal property records system, leaving most Haitians to live and work around the piles of debris.

RAND REVIEW

The Flagship Magazine of the RAND Corporation

Winter 2010–2011 Vol. 34, No. 3

4 *News*
- Ceaseless psychological losses
- Aging Anglos and Americans
- Decreasing defense dollars
- Susceptible space systems

8 *Perspectives*
Civil Civics
Leaders Gather for Post-Election Opportunity to Set Politics Aside

10 *Perspectives*
Power of Ideas
How Foundations Can Generate Knowledge to Spark Change
By M. Christine DeVita

12 **Learning Curve**
Neither Teacher Standards Nor Payment Programs Guarantee Higher Student Achievement
Essays by Richard Buddin and Daniel F. McCaffrey

16 **COVER STORY**
Still Shaky
A Year After the Earthquake in Haiti, the Key to Stability Is to Build the State
By Keith Crane, James Dobbins, and Laurel E. Miller

24 **Higher Gear**
To Fund Transportation, Congress Should Tax Travel, Not Fuel
By Paul Sorensen, Liisa Ecola, and Martin Wachs

30 *Publisher's Page*
Middle East Peace
Sometimes, It Takes Persistent Work to Prepare for a Fleeting Moment
By James A. Thomson

Childhood Psychological Problems Foreshadow Long-Term Losses

People who suffer in childhood from conditions such as depression and substance abuse attain less education, are less likely to be married, and have incomes about 20 percent lower over their lifetimes than do other people, according to a RAND study published in the March 31, 2010, online edition of *Social Science & Medicine* and funded by the National Institute on Aging.

"This study shows that childhood psychological disorders can cause significant long-lasting harm and can have far-reaching impacts on individuals over their lifetimes," said James Smith, the study's lead author and the distinguished chair in labor markets and demographic studies at RAND. The paper was coauthored by Gillian Smith, a medical student at Washington University in St. Louis.

Researchers examined data from the Panel Study of Income Dynamics, which has followed American families for more than 40 years. The panel study is unique, because it follows siblings from the same family, allowing researchers to compare one sibling who did have childhood psychological problems with another who did not. Researchers were also able to account for childhood problems that might have been caused by physical illnesses, showing that the psychological problems were not the result of physical illnesses.

The RAND study found that people who reported having psychological problems during childhood averaged $10,400 less in income per year than siblings who did not have similar problems. The lower income was partly a consequence of working an average of seven fewer weeks per year. The principal cause of the ongoing economic damage during adulthood appears to be recurring psychological problems.

As shown below, if the average annual losses are accumulated over a lifetime and multiplied by the estimated number of adult Americans who experienced these problems in childhood, the total lifetime economic damages for all those affected would be $2.1 trillion. Large as this estimate is, it likely underestimates the true costs, because it does not take into consideration noneconomic costs, such as lower quality of life.

People who reported childhood psychological problems were also 11 percent less likely to marry than were their siblings who had not suffered such problems. Even when people in the former group did marry, the income earned by their spouses was lower than what was seen among other couples. Moreover, on average, such affected individuals reported about half a year less of schooling than did those with no reported problems. The schooling differences were greater among those who reported childhood drug or alcohol problems.

"Our focus has been on trying to curtail such things as obesity and smoking in childhood, as well it should be," James Smith noted. "But we cannot ignore the enormous potential of identifying and treating psychological problems early in life." ■

Long-Term Economic Costs of Childhood Psychological Conditions Are Very High

Average *annual* loss in income for an adult with a history of a childhood psychological condition		Average *lifetime* loss in income for an adult with a history of a childhood psychological condition		Number of U.S. adults with histories of childhood psychological conditions		Total lifetime costs for all U.S. adults with histories of childhood psychological conditions
$10,400	Accumulated over lifetime →	$300,000*	x	7,000,000**	=	$2.1 trillion

SOURCE: "Long-Term Economic Costs of Psychological Problems During Childhood," *Social Science & Medicine*, July 2010, Vol. 7, No. 1, pp. 110–115, James Patrick Smith, Gillian C. Smith.
NOTES: *Assumes a 3-percent real discount rate. **Assumes current prevalence of 5 percent of adults who had experienced psychological problems in childhood.

Older Americans Are Less Healthy Than English but Live Longer

Middle aged and older Americans have higher rates of chronic diseases and of new incidences of disease than their peers in England, yet the Americans also have an overall lower death rate, according to a recent study published in *Demography* by James Banks and Alastair Muriel from the Institute for Fiscal Studies and by James Smith, the distinguished chair in labor markets and demographic studies at RAND.

"If you get sick at an older age, you will die sooner in England than in the United States," said Smith. "It appears that at least in terms of survival at older ages with chronic disease, the medical system in the United States may be more effective than the system in England."

The study expands on an earlier analysis by Smith and Banks. The earlier study found that Americans between the ages of 55 and 64 suffered from diseases such as diabetes at rates up to twice those seen among people of similar ages in England. In the new study, researchers found that the higher prevalence of illness among Americans aged 55 to 64 extended to those in their 70s. For this older group, the cancer prevalence was more than twice as high in the United States, and the diabetes prevalence was almost twice as high (see left side of figure).

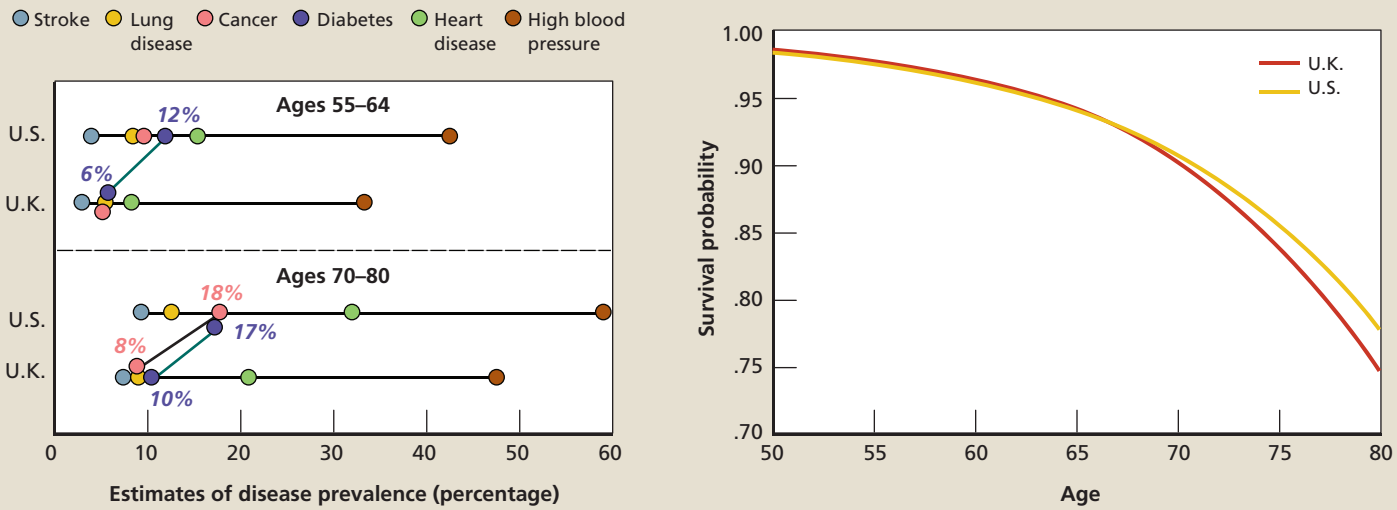
Despite these patterns, death rates among Americans were about the same in the younger age group and even lower at older ages (see right side of figure). There are two possible explanations: Either the people in England simply die faster of the same conditions than their American peers, or the Americans are diagnosed sooner than are the English. It is likely some combination of both.

"Both explanations imply that there is higher-quality medical care, in terms of survival, for older people in the United States than in England," Smith said. But that is not the end of the story, according to the study.

"The health problem in the United States is that Americans in adulthood become much sicker at much earlier ages than the English and many other Western Europeans do. Americans spend much more money dealing with this excess illness," the study emphasized. "The U.S. health problem is not fundamentally a health care quality or health insurance problem (though these factors are important, too). It is a problem of excess illness, the solution to which may lie primarily outside the health system."

As Banks concluded, "The solution may be to alter lifestyles or other behaviors." ■

Older Americans Are Less Healthy Than Their British Peers . . . but the Americans Live As Long, or Even Longer, at Older Ages



SOURCE: "Disease Prevalence, Disease Incidence, and Mortality in the United States and in England," *Demography,* October 25, 2010, Vol. 47, Supplement, pp. S211–S231, James Banks, Alastair Muriel, James P. Smith.

Three Recent Studies Help U.S. Military Agencies Save Money

U.S. Secretary of Defense Robert Gates has stressed the need to rein in Pentagon spending. Three recent RAND studies have identified saving opportunities for U.S. defense agencies. Such savings can be quantified as either money saved or costs avoided.

Army Field Hospitals. To provide surgical and trauma care for soldiers close to combat action, the U.S. Army uses combat support hospitals—mobile, deployable hospitals housed in tents and expandable containers. When deployed, these hospitals have the most modern medical equipment; when not deployed, they keep a partial set of equipment at home for training and leave the rest in storage. Much of this equipment is never or seldom used and, thus, becomes obsolete.

A RAND team led by senior behavioral scientist Matthew Lewis developed a new equipping strategy for field hospitals that would eliminate much of their equipment that is currently sitting in storage or never being used for training. When deployed, the hospitals would instead draw on shared sets of up-to-date and well-maintained equipment. The proposed strategy, which has been endorsed by the U.S. Army Surgeon General, would reduce total equipment replacement costs from $1 billion to less than $700 million and reduce total needed upgrade costs by $62 million annually.

AP IMAGES/BURHAN OZBILICI

U.S. Army Lieutenant Laura Schlenker and Private First Class Christa Sprano set up a tent as part of a field hospital to treat injured Kashmiri earthquake survivors in the devastated city of Muzaffarabad, Pakistan, in October 2005.

Aircraft Maintenance. U.S. Air Force flying wings have their own maintenance organizations. RAND researchers suggested that consolidating certain maintenance functions at centralized repair facilities (those functions not performed on the airfield flight line) could improve effectiveness and efficiency.

According to this study, led by senior management scientist Robert Tripp, such measures could save up to $300 million annually for the F-16, KC-135, and C-130 fleets combined, because the savings from reductions in maintenance personnel would greatly exceed the transportation costs and infrastructure investments needed to establish the centralized facilities.

Compensation Reform. Military retirement benefits currently vest at 20 years of service, offering a strong incentive for people with between 10 and 19 years of service to remain in the military. Unfortunately, this system might encourage some people to stay in occupations longer than optimal and others to retire after 20 years in occupations where that would be sooner than optimal.

Recommended changes have included reducing the fraction of total compensation going toward retirement benefits and increasing the fraction going toward cash pay, moving vesting earlier, and initiating the payment of retirement benefits later. A RAND team led by senior economists Beth Asch and James Hosek compared different compensation proposals and suggested an optimal combination of changes. RAND estimated that the U.S. Army could reduce annual compensation costs by 3 percent. If a similar percentage could be saved from the other services, then the total annual savings in personnel costs would be more than $2.5 billion.

These three recent projects are representative of many RAND studies that, taken together, account for several billions of dollars in savings and cost avoidance for U.S. taxpayers. ■

For more information: *Assessing Compensation Reform: Research in Support of the 10th Quadrennial Review of Military Compensation*, RAND/MG-764-OSD, ISBN 978-0-8330-4567-6, 2008; *New Equipping Strategies for Combat Support Hospitals*, RAND/MG-887-A, ISBN 978-0-8330-4996-4, 2010; *A Repair Network Concept for Air Force Maintenance: Conclusions from Analysis of C-130, F-16, and KC-135 Fleets*, RAND/MG-919-AF, ISBN 978-0-8330-4804-2, 2010.

Ability to Deter Attacks on U.S. Space Systems "May Be Eroding"

Potential adversaries understand that U.S. space systems significantly enhance U.S. conventional warfighting capabilities, and a growing number of prospective foes are acquiring the ability to degrade or to destroy those systems, according to a new RAND study.

"In the past, satellites, though inherently fragile, were relatively isolated from threats because of the inability of most adversaries to reach them," said Forrest Morgan, a RAND senior political scientist and the study's author. "Now, while satellites continue to be fragile, the spread of space weapon technology is creating a distinct first-strike advantage for opponents who could launch a surprise attack in space against selected U.S. systems at the onset of a future conflict."

The study finds that strengthening America's "first-strike stability" in space—that is, making U.S. space systems resilient enough to withstand a confrontation and to prevent it from growing into a crisis—could be a tough challenge given the nature of outer space and the degree to which potential adversaries believe the United States is dependent on vulnerable systems there.

While declaring that America's first-strike stability in space "appears to be eroding," the study finds that some space systems are more vulnerable than others. For example, weather satellites are probably safest from attack, because the political cost of attacking them is high and the robust infrastructure supporting them would limit the impact of an attack.

The study also finds that different types of attacks—nondestructive ones (such as jamming satellite signals) versus destructive ones—offer different costs and benefits to attackers at different levels of conflict. For example, since commercial satellite communication platforms typically support a host of international users beyond U.S. forces, the political costs and military risks of destroying those assets might deter the opponent from attempting to do so until the conflict escalated to a higher level.

The study concludes that the United States should implement a coordinated national space deterrence strategy designed to operate on both sides of a potential adversary's cost-benefit calculus by simultaneously *raising the costs* and *reducing the benefits* of acting. The table shows selected elements of that strategy, along with some potential means to fulfill it.

"We propose the broad outlines of a comprehensive space deterrence regime," said Morgan. "But there is still a need to determine the most effective and affordable mix of strategies, policies, and systems for strengthening space deterrence." ■

For more information: *Deterrence and First-Strike Stability in Space: A Preliminary Assessment*, RAND/MG-916-AF, ISBN 978-0-8330-4913-1, 2010.

Some space systems are more vulnerable than others.

U.S. Space Deterrence Strategy Should Raise Costs and Reduce Benefits of Attack

Elements of Strategy	Potential Means to Fulfill Strategy
Raise Costs of Attack: Condemn the use of force in space, and declare that the United States will severely punish attacks on its space systems and those of its allies in ways, times, and places of its own choosing.	Bolster emerging international taboos on space warfare through diplomatic engagement, treaty negotiations, and other means. Enhance the credibility of U.S. threats to punish space aggressors through diplomatic, economic, and, if necessary, military actions.
Reduce Benefits of Attack: Persuade potential adversaries that the probability of deriving sufficient benefits from attacking space assets would be too low to risk the inevitable costs of U.S. retribution.	Conceal vulnerabilities of space systems, and demonstrate the ability to operate effectively without space support. Pursue ways to make vulnerable U.S. space systems more resilient and defendable, and demonstrate the capability to deny potential adversaries the benefits of attack.

Civil Civics

Leaders Gather for Post-Election Opportunity to Set Politics Aside

MORE THAN 200 POLICYMAKERS, civic and business leaders, researchers, and philanthropists gathered around Los Angeles this past November for a weekend of panel discussions, seminars, and conversations collectively known as Politics Aside 2010. RAND organized the events to promote nonpartisan discourse in the wake of the heated election season.

Held in a variety of venues—RAND's headquarters campus, Sony Pictures Studios, the Creative Artists Agency, and nearly a dozen private homes—the wide-ranging conversations throughout the weekend addressed national and global challenges across the policy spectrum. While some participants considered the implications of a nuclear Iran or the media's changing role in informing policy, others pondered the potential consequences of climate change, education reform, health care reform, or the security situation in Mexico. Still other voices shared first-hand experiences, from the frontlines in Afghanistan to the U.S. Gulf Coast during the Deepwater Horizon oil spill.

Proceeds from Politics Aside support RAND's Investment in People and Ideas program, which funds research inquiries into critical but often underappreciated policy areas and helps to attract the world's top talent to focus on these challenges. ■

PHOTO BY DIANE BALDWIN

Michael Lynton (right), chairman and chief executive officer of Sony Pictures Entertainment and cochair of Politics Aside 2010 (pictured here with his wife, Jamie), initiated the weekend by lauding its unique substantive format: "Politics Aside is a very welcome antidote to an excess diet of political punditry and 30-second attack ads. This is a different kind of production for Sony Pictures, but one that we are honored to host."

PHOTO BY DIANE BALDWIN

Dennis Miller moderates the discussion with Michael Lynton, chairman and chief executive officer of Sony Pictures Entertainment; Karen Elliott House, former publisher of the Wall Street Journal*; and venture capitalist Jerry Murdock, a major investor in Twitter.*

"I was just lining my parrot's cage with Kindles."
—Dennis Miller, comedian and moderator of a panel on the changing role of the media

"You shouldn't mourn newspapers going under. You should mourn newsgathering going under. Newspapers paid for that. The distribution is not the issue; it's what's distributed."
—Karen Elliott House, former publisher of the Wall Street Journal

"We're approaching a time when the vast majority of us will all be linked to each other. That's going to have profound consequences in the way we organize ourselves in society."
—Jerry Murdock, venture capitalist

"To the extent that democracies cannot deliver basic services to their citizens, the prestige of democracy relative to an efficient authoritarian country like China is going to suffer."
—Francis Fukuyama, senior fellow, Stanford University

"China is aging far more rapidly than a traditional developing economy. Their economy won't grow at 10 percent forever."
—Michael J. Boskin, senior fellow, Hoover Institution

PHOTO BY DIANE BALDWIN

Former U.S. ambassador Paula Dobriansky says that despite recent global shifts in power, the United States is still "predominant militarily" and "indispensable to any collective security arrangement." At left is Michael Portillo, former member of the British Parliament.

PHOTO BY DIANE BALDWIN

American Red Cross executive Charley Shimanski, RAND senior fellow and retired U.S. Coast Guard Admiral Thad Allen, and former U.S. ambassador Charles Ries share a light moment during an otherwise sobering conversation on catastrophe response.

"We need a long-term doctrine that has clear exit points for moving from response to recovery. The incident that keeps coming to mind is the transition from emergency shelter to long-term shelter after Hurricane Katrina."
—Admiral Thad Allen, U.S. Coast Guard (retired) and national incident commander, Deepwater Horizon Unified Command

"We need the public to understand that making a difference in Haiti in 6 or even 12 months is like expecting the federal government to boil the ocean."
—Charley Shimanski, regional chief executive officer, American Red Cross

"The best thing that Americans can do for Haitians is to buy their products. Give them jobs that are sustainable. The country doesn't like being a charity ward."
—Charles Ries, executive vice president, Clinton Bush Haiti Fund

PHOTO BY GREG MANCUSO

Jonathan Alter, senior editor of Newsweek, *joined a panel discussion on education reform following a screening of the documentary film* Waiting for "Superman," *which explores the current state of education in the United States. Joining Alter on the panel were Lesley Chilcott, producer of the film; John Deasy, deputy superintendent of the Los Angeles Unified School District; and Brian Stecher, acting director of RAND Education.*

Power of Ideas

How Foundations Can Generate Knowledge to Spark Change

By M. Christine DeVita

M. Christine DeVita is president of The Wallace Foundation, based in New York City. The foundation's website is www.wallacefoundation.org

IN OCTOBER, NEW YORK CITY Deputy Mayor Dennis Walcott did something out of the ordinary at a press briefing: He built his remarks around a new RAND study, *Hours of Opportunity*, to help demonstrate the value of the investments that the city, in partnership with The Wallace Foundation, has made in finding new ways to coordinate and support after-school programs. This prominent attention from City Hall for a research study was unusual. What was not unusual was that a research study figured prominently in a Wallace Foundation initiative.

At Wallace, we believe that credible, independent research is an indispensable part of developing solutions to important, unsolved social problems. We came to this conclusion as a result of an assessment we undertook about a decade ago. As we reviewed the results of our work, we were not satisfied that we were reaping the maximum social return we could achieve from the dollars we were investing. More often than we liked, we saw programs created with our grants wither when our funding ended. Despite some important successes, we did not believe our work had contributed enough to improvements in the major public systems in which we were working.

Simply adding more "slots" in existing programs for children was insufficient.

Our dissatisfaction led us to something better, built on an awareness of what foundations *can* accomplish. Although foundations have no direct authority to compel change, and very limited funds relative to the problems they seek to solve, they can nonetheless take advantage of the fact that in a democracy, there is a robust market for new ideas. We restructured the foundation around the concept of creating change by developing and sharing effective ideas and practices.

Under the new approach, which some scholars call "creative philanthropy," we develop and test useful ideas "on the ground," gather solid evidence on the results of significant innovations, and then share that knowledge with the individuals and institutions that have the authority or influence to bring those effective ideas to life.

How does it work in practice? Here's a glimpse.

Out-of-School-Time. When we began to investigate this area, which encompasses summer and after-school programs, we commissioned RAND to investigate if what many people suspected was true. The resulting 2005 report, *Making Out-of-School-Time Matter*, challenged us and others in the field with its conclusion that simply adding more "slots" in existing programs for children was insufficient. Instead, programs needed to meet local needs and to be of sufficiently high quality to ensure that children kept participating long enough to benefit. Therefore, we worked with five cities to better coordinate and support their after-school programs. In 2009, we created an online cost calculator, based on a study by Public/Private Ventures, which is used hundreds of times every month by city leaders to figure out what it will cost to build quality programs. RAND's recent study, *Hours of Opportunity*, paves the way for us to encourage broader adoption of the lessons learned by cities trying out innovations in building out-of-school-time programs.

School Leadership. In 2000, we entered what was then a neglected area of school reform. It was widely believed that in the face of pending retirements, the main problem was a shortage of certified principals to lead our schools. Wallace commissioned labor market studies, including one from RAND, that helped us conclude there was no shortage. There were plenty of *certified* principals—but most were neither interested in holding jobs as principals nor well prepared to improve low-performing schools. Research helped leaders understand that the real problem was ensuring the right kind of preparation and the right kind of

incentives to attract good principals to low-performing schools. As a result, Wallace focused its efforts where they could do much more good. Based on research done at Stanford University, we built awareness of what made preparation effective, and we helped create new models, including the New York City Leadership Academy, of what good training looked like.

Arts. Wallace has spent many years funding arts organizations to help build new audiences. But two RAND studies, *Gifts of the Muse* and *Cultivating Demand for the Arts*, helped us and those in the arts field understand that focusing on the "supply side" was not sufficient. To reach our long-term goal of having more people participate in the arts, we would also have to improve arts education to reach prospective audiences when they were young.

Across these three areas, we've learned that for research to be the most valuable for leaders looking for solutions, it should

- be objective and credible. This means selecting qualified research partners well matched to the task.
- address real questions that field leaders have, which means asking them what they need to know to make progress. To promote action, research should also assess the costs and relative effectiveness of the approaches under study.
- be accompanied by observable examples of innovation, making findings more convincing to policymakers and practitioners.
- be communicated to those in a position of authority to make change. This sometimes-forgotten step ensures that our public leaders have the best available information (regardless of whether the results are positive or negative) upon which to act.

Private philanthropy exists to serve the public good, and foundations have many ways to fulfill that mandate. The approach Wallace has chosen—identifying nascent problems or issues not yet widely recognized, working to understand problems in new ways that illuminate potential solutions, and supporting and assessing the work of innovators—requires that we use all the assets at our disposal. That's why objective, credible, and useful research is a critical component of our approach. ■

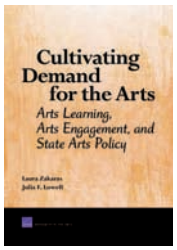
Related Reading

Creative Philanthropy: Towards a New Philanthropy for the Twenty-First Century, Helmut K. Anheier, Diana Leat, London: Routledge, 2006, 288 pp., ISBN 978-0-4153-7091-2.

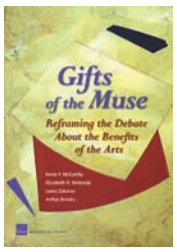
PHOTO COURTESY OF THE WALLACE FOUNDATION

M. Christine DeVita is president of The Wallace Foundation, whose mission is to improve learning and enrichment opportunities for children.

Cultivating Demand for the Arts, Laura Zakaras, Julia F. Lowell, RAND/MG-640-WF, 2008, 150 pp., ISBN 978-0-8330-4184-5, $30.50. As of press time: www.rand.org/pubs/monographs/MG640/

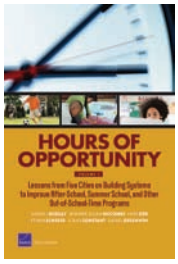


Gifts of the Muse: Reframing the Debate About the Benefits of the Arts, Kevin F. McCarthy, Elizabeth H. Ondaatje, Laura Zakaras, Arthur Brooks, RAND/MG-218-WF, 2004, 124 pp., ISBN 0-8330-3694-7, $20. As of press time: www.rand.org/pubs/monographs/MG218/



Hours of Opportunity, Volume 1: Lessons from Five Cities on Building Systems to Improve After-School, Summer School, and Other Out-of-School-Time Programs, Susan J. Bodilly, Jennifer Sloan McCombs, Nate Orr, Ethan Scherer, Louay Constant, Daniel Gershwin, RAND/MG-1037-WF, 2010, 102 pp., ISBN 978-0-8330-5048-9, $20. As of press time: www.rand.org/pubs/monographs/MG1037/

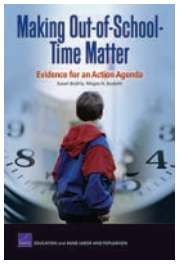
Hours of Opportunity, Volume 2: The Power of Data to Improve After-School Programs Citywide, Jennifer Sloan McCombs, Nate Orr, Susan J. Bodilly, Scott Naftel, Louay Constant, Ethan Scherer, Daniel Gershwin, RAND/MG-1037/1-WF, 2010, 116 pp., ISBN 978-0-8330-5049-6, $20. As of press time: www.rand.org/pubs/monographs/MG1037.1/



Hours of Opportunity, Volume 3: Profiles of Five Cities Improving After-School Programs Through a Systems Approach, Jennifer Sloan McCombs, Susan J. Bodilly, Nate Orr, Ethan Scherer, Louay Constant, Daniel Gershwin, RAND/TR-882-WF, 2010, 107 pp. As of press time (Web only): www.rand.org/pubs/technical_reports/TR882/

Improving School Leadership: The Promise of Cohesive Leadership Systems, Catherine H. Augustine, Gabriella Gonzalez, Gina Schuyler Ikemoto, Jennifer Russell, Gail L. Zellman, Louay Constant, Jane Armstrong, Jacob W. Dembosky, RAND/MG-885-WF, 2009, 178 pp., ISBN 978-0-8330-4891-2, $32. As of press time: www.rand.org/pubs/monographs/MG885/

Making Out-of-School-Time Matter: Evidence for an Action Agenda, Susan J. Bodilly, Megan K. Beckett, RAND/MG-242-WF, 2005, 152 pp., ISBN 978-0-8330-3734-3, $20. As of press time: www.rand.org/pubs/monographs/MG242/



Learning Curve

Neither Teacher Standards Nor Payment Programs Guarantee Higher Student Achievement

Teacher effectiveness continues to be a hot topic among U.S. lawmakers. RAND is currently working on several projects that could offer guidance as to how to measure teacher effectiveness and how to use those measures to improve teacher performance.

Two early pieces of RAND work shed light on the relationship between student performance on the one hand and two alternative variables on the other: traditional teacher qualifications and an innovative pay-for-performance program. Although this research should not be accepted as the last word on these issues, it does offer a good starting point for discussing them.

In the first study, RAND found no evidence that traditional teacher qualifications—including experience, education, and scores on licensure examinations—bear any relationship to growth in student achievement in Los Angeles public elementary schools. In response to such findings, some observers have argued for a greater reliance on alternative measures of effectiveness, such as "value-added" models, and for using such measures in pay-for-performance programs that are designed to motivate classroom teachers.

It is just as important to hold the accountability systems themselves accountable for measuring genuine progress.

Pay-for-performance programs are premised on the notion that rewarding teachers financially for student achievement gains can spur the teachers to be more effective in the classroom, thereby improving student performance. But RAND and its collaborators at the National Center on Performance Incentives found no evidence of such an outcome in one pay-for-performance program in Nashville public schools. In Nashville, the test scores rose quite evenly whether or not the teachers had been paid on the basis of their students' performance.

Although it evaluates just one pay-for-performance design, the Nashville study underscores the importance of putting all accountability and incentive systems to the test. The preliminary evidence from the two studies outlined below by Richard Buddin and by Daniel McCaffrey points to a crucial early lesson: It is not enough to focus on teacher qualifications or to offer teachers incentives based on student results; it is just as important to hold the accountability systems themselves accountable for measuring genuine progress.

Teacher Qualification Standards

By Richard Buddin, RAND senior economist

We examined the relationship between teacher qualification standards and student achievement by cross-referencing teacher data with five years of student test scores in math and reading in the Los Angeles Unified School District. Our analysis is based on a sample of more than 300,000 students in grades 2 through 5 who were taught by more than 16,000 different teachers.

By linking individual students to their classroom teachers, the data allowed us to examine student progress from year to year and across classrooms led by different teachers. The teacher-specific information included years of experience, academic degrees obtained, and licensure test scores. These matched student/teacher data are unusual in student achievement analysis.

Our results suggest that the teacher is indeed an important determinant of student achievement; how-

ever, there is no direct connection between the traditionally assumed measures of teacher effectiveness and student achievement. There is also little evidence to suggest that the teachers who *can* increase student achievement are concentrated in a few high-performing schools. In fact, the teachers who are effective at raising achievement are evenly distributed throughout the district. This suggests that simply reshuffling teachers from one school to another is unlikely to produce substantial improvement in student achievement in low-performing schools.

Teacher pay is typically based on experience and education level, because these characteristics are commonly assumed to correlate with teacher effectiveness. But we found that a five-year increase in teaching experience improved student achievement very little—less than 1 percentage point. Similarly, the level of education held by a teacher had no effect on student achievement.

Licensure scores had no effect, either. Considerable resources are expended on teacher licensure exams, which restrict entry into the teaching profession. California requires new elementary teachers to pass general aptitude, subject matter, and reading instruction competency tests. But when we compared licensure test results with teacher performance in terms of student test scores, we found no relationship. We also analyzed whether failing the licensure exam before later passing it was related to student achievement and found no statistically significant link.

Teachers with less experience and education and lower licensure scores are concentrated in schools with poor average test scores. However, these differences among teachers contribute little to the differences in student achievement growth. Teachers are making comparable improvements across a broad range of schools, and the performance difference among the schools is mostly the result of student background and preparation. Socioeconomic status is a strong predictor of student success.

A limitation of our research is that licensure test scores and teacher performance data are available only for teachers who pass the licensure tests, which are designed to set minimum teaching proficiency standards. Aspiring teachers who fail the tests might indeed have worse classroom outcomes than those who pass the tests and are allowed to teach.

While it is true that some teachers are much more effective than others, our findings suggest that the traditional measures of teacher quality do not predict classroom performance. The California evidence suggests that education experts should rethink the knowledge requirements of new teachers and develop measures that more accurately predict performance. Future research should focus on identifying specific teacher attributes or practices that enhance student achievement.

The traditional compensation systems might offer too much incentive for further education that does not appear to contribute to student performance and too little incentive for the "best" teachers to deliver their best performance on a consistent basis. Even if the more-experienced, better-educated, or more-skilled teachers (as measured by licensure exams) are better *able* to teach, they might not be persistently motivated to *apply* those abilities to the greatest extent.

This research on Los Angeles schools was part of a larger research project called "Teacher Licensure Tests and Student Achievement," which was sponsored by the Institute of Education Sciences in the U.S. Department of Education under grant number R305M040186. ■

AP IMAGES/GERALD HERBERT

Teacher Trenise Duvernay talks with Corey Boudreaux, 10, while teaching fourth-grade math at the Alice M. Harte Charter School in New Orleans on April 7, 2010. Duvernay is eligible for $2,000 a year or more in merit bonuses based on how well her students perform in classroom observations and on achievement tests.

Pay-for-Performance Programs

By Daniel F. McCaffrey, RAND senior statistician

It might be tempting to reward teachers for their performance rather than for their qualifications. But merely paying teachers for their performance will not necessarily lead to the desired outcomes.

AP IMAGES/MICHAEL DWYER

Former student Hannah Shaw, right, talks with chemistry teacher Anne McLaughlin during a vigil outside Central Falls High School in Central Falls, Rhode Island, on March 9, 2010. All instructors and staff were being fired after the end of the school year in a desperate move to improve student performance at the school.

The Project on Incentives in Teaching (POINT) was a three-year experiment in the Metropolitan Nashville School System in which about 70 percent of the district's middle school mathematics teachers (in grades 5, 6, 7, and 8) voluntarily participated in a controlled experiment to assess the effect of financial rewards for teachers whose students showed unusually large gains on standardized tests. Conducted between 2006 and 2009, the experiment tested the notion that rewarding teachers for improved scores would cause their students' scores to rise. It was up to the teachers to decide what, if anything, they needed to do to raise student performance. Thus, POINT was focused on the notion that a significant problem in American education is the absence of appropriate incentives and that correcting the incentive structure would, in and of itself, constitute an effective intervention and improve student outcomes.

By and large, the results did not confirm this hypothesis. While the general trend in middle school mathematics performance was upward over the period of the project, the students of teachers randomly assigned to the treatment group (eligible for bonuses) did not outperform the students whose teachers had been assigned to the control group (ineligible for bonuses).

In POINT, the maximum bonus an eligible teacher might earn was $15,000—a considerable increase over base pay in this system. To receive this bonus, a teacher's students had to perform at a level that historically had been reached by only the top 5 percent of middle school math teachers in a given year. Lesser amounts of $5,000 and $10,000 were awarded for performance at lower thresholds, corresponding to the 80th and 90th percentiles of the same historical distribution. Teachers were therefore striving to reach a fixed target rather than competing against one another. In principle, all participating teachers could have attained these thresholds.

It is unlikely that the bonus amounts were too small to motivate teachers assigned to the treatment group. It is also unlikely that the performance bar was set too high. About half the teachers could have reached the lowest of the bonus thresholds if their students had answered 2 to 3 more questions correctly on an exam of some 55 items.

In fact, POINT paid out more than $1.27 million in bonuses over the course of the experiment. In all, 51 of the initial treatment group of 152 teachers—more than a third—received a bonus. There were more bonus winners than expected on the basis of the district's historical performance, but this was because performance overall was rising, not because teachers in the treatment group were doing better than teachers in the control group.

The most positive effect of the incentives on test scores was detected among fifth graders during the latter two years of the experiment. But this finding is of limited policy significance, because the effect did not appear to persist beyond fifth grade. (Students whose fifth-grade teacher had been in the treatment group performed no better by the end of sixth grade than did sixth graders whose teacher the year before had been in the control group.)

The participating teachers generally favored extra pay for better teachers, in principle. But they did not endorse the notion that bonus recipients in POINT were better teachers or that failing to earn a bonus meant a teacher needed to improve. The experiment did not set off significant negative reactions of the kind that have attended the introduction of merit pay elsewhere. But neither did it yield consistent and lasting gains in test scores. Moreover, POINT appears to have had little effect on what teachers did in the classroom. It simply did not do much of anything.

While one might speculate that the middle school math teachers lacked the capacity to raise test scores, this is belied by the district-wide upward trend in scores over the period of the project. This trend is probably the result of some combination of an increasing familiarity with a test introduced in 2004 and an intense, high-profile effort to improve test scores to avoid sanctions from the federal No Child Left Behind Act of 2001.

It should be noted that POINT tested a particular model of incentive pay. Our findings do not mean that another approach would not be successful. It might be more productive, for example, to reward teachers in teams or to combine incentives with coaching or professional development. But our experience with POINT demonstrates the importance of quantifying and validating the rewards of any pay-for-performance experiment before expanding it beyond a pilot program.

From an implementation standpoint, POINT was a success. This is no trivial result, given the widespread perception that teachers are adamantly opposed to merit pay and will resist its implementation in any form. No doubt some of the ease with which POINT ran was due to the understanding that this *was* an experiment intended to provide evidence on whether such performance incentives would raise achievement. Even teachers skeptical of the merits of the policy saw the worth in conducting the experiment.

We believe there is an important lesson here: Teachers may be more likely to cooperate with a pay-for-performance plan if its purpose is to determine whether the policy is a sound idea than they are with a plan that is being forced on them in the absence of such evidence and in the face of their skepticism and misgivings. In the meantime, we continue to do work to understand the effects of new teacher evaluation and compensation reforms, including those that offer alternatives to the POINT model.

Grant support for the research on the POINT program came from Vanderbilt University and the U.S. Department of Education under grant number R305A060034 entitled "National Center on Performance Incentives." ■

Related Reading

Designing Effective Pay-for-Performance in K–12 Education, RAND/RB-9425, 2009, 2 pp. As of press time (Web only): www.rand.org/pubs/research_briefs/RB9425/

Teacher Pay for Performance: Experimental Evidence from the Project on Incentives in Teaching, Nashville, Tenn.: National Center on Performance Incentives, Vanderbilt University, 2010, Matthew G. Springer, Dale Ballou, Laura S. Hamilton, Vi-Nhuan Le, J. R. Lockwood, Daniel F. McCaffrey, Matthew Pepper, Brian M. Stecher. Also available as RAND/RP-1416-EDU. As of press time (Web only): www.rand.org/pubs/reprints/RP1416/

"Teacher Qualifications and Student Achievement in Urban Elementary Schools," *Journal of Urban Economics*, Vol. 66, No. 2, September 2009, pp. 103–115, Richard Buddin, Gema Zamarro. Also available as RAND/RP-1410. As of press time (Web only): www.rand.org/pubs/reprints/RP1410/

POINT simply did not do much of anything.

Sometimes, Incentives for Public-Sector Performance Work

UNDER THE RIGHT CIRCUMSTANCES, performance-based accountability systems can improve public services, but few have been evaluated. The intent of each system is to link financial or other incentives to measured performance. RAND examined nine systems in use in five sectors: child care, education, health care, public health emergency preparedness, and transportation.

The most clear-cut example of an effective system is cost-plus-time contracting for highway construction, which offers contractors a bonus for completing road and other projects ahead of schedule. But many of the conditions that work for highway construction are not found in other forms of public service. Teachers responding to the No Child Left Behind Act of 2001, for example, could "teach to the test" to improve test scores but not necessarily long-term learning. In many health care pay-for-performance programs, the financial rewards represent a small percentage of overall physician pay and thus might not serve as a strong incentive.

Several elements contribute to effective performance-based accountability systems: establishing goals that are widely shared among the groups involved, providing clear and observable measures, and offering incentives to individuals or organizations with control over the process. Creating an effective system also requires choosing the right design for it and then monitoring, evaluating, and adjusting it to meet performance goals. ■

Related Reading

Analyzing the Operation of Performance-Based Accountability Systems for Public Services, Frank Camm, Brian M. Stecher, RAND/TR-853, 2010, 56 pp., ISBN 978-0-8330-5004-5, $20. As of press time: www.rand.org/pubs/technical_reports/TR853/

Toward a Culture of Consequences: Performance-Based Accountability Systems for Public Services, Brian M. Stecher, Frank Camm, Cheryl L. Damberg, Laura S. Hamilton, Kathleen J. Mullen, Christopher Nelson, Paul Sorensen, Martin Wachs, Allison Yoh, Gail L. Zellman, with Kristin J. Leuschner, RAND/MG-1019, 2010, 272 pp., ISBN 978-0-8330-5015-1, $28. As of press time: www.rand.org/pubs/monographs/MG1019/

Toward a Culture of Consequences: Performance-Based Accountability Systems for Public Services—Executive Summary, Brian M. Stecher, Frank Camm, Cheryl L. Damberg, Laura S. Hamilton, Kathleen J. Mullen, Christopher Nelson, Paul Sorensen, Martin Wachs, Allison Yoh, Gail L. Zellman, with Kristin J. Leuschner, RAND/MG-1019/1, 2010, 50 pp., ISBN 978-0-8330-5016-8, $15. As of press time: www.rand.org/pubs/monographs/MG1019.1/

Still Shaky

A Year After the Earthquake in Haiti, the Key to Stability Is to Build the State

By Keith Crane, James Dobbins, and Laurel E. Miller

Keith Crane is the director of RAND Environment, Energy, and Economic Development. James Dobbins is director of the International Security and Defense Policy Center in the RAND National Security Research Division. Laurel Miller is a RAND senior political scientist.

It has been a year since a 7.0 magnitude earthquake battered Haiti on January 12, 2010, killing about 300,000 people, injuring 300,000 more, and leaving 1.3 million homeless. But even before the earthquake struck, Haiti faced monumental challenges. Today, with the international community having pledged nearly $10 billion in aid, the question is how to use that money most wisely.

Actions in many areas could yield positive outcomes in three to five years.

The long-term prosperity and peace of Haiti depend on its ability to build a more resilient state. Together, the Haitian government and international donors should focus on enhancing the effectiveness of the state by pursuing policies that have realistic prospects for implementation and are mutually coherent. Priorities include reforming the civil service and the justice systems, streamlining regulations for business, reconstructing housing and infrastructure, improving schools and health care, and ensuring donor cooperation. Actions in many of these areas could yield positive outcomes in three to five years. We believe the top priorities are as follows:

- In the overarching area of governance and public administration, the highest priority is building a competent and accountable civil service. That entails creating job descriptions, establishing standards for hiring and firing, constructing a system for merit-based promotions, setting competitive but responsible salary grades, and tying incentives to performance targets that are independently monitored.
- In the area of justice, the Haitian government needs to build a case management system that links police, prosecutors, judges, and prisons. In the related area of security, the government and the international community should agree to keep United Nations (UN) peacekeepers for at least the next five years, reducing the international military and police presence only gradually.
- With respect to economic policy and infrastructure, the Haitian government should eliminate unnecessary steps involved in registering businesses and transferring property and should reduce the cost and time needed for such procedures. As for housing, the two most urgent needs are the accelerated removal of rubble and the replacement of tent cities with housing that is more permanent.
- To increase access to education, the Haitian government should subsidize private-school teacher wages to be on par with those of public-school

AP IMAGES/RAMON ESPINOSA

Haitians scavenge for metal in the rubble of what was the tax collection office on September 30, 2010. The smoke comes from the burning of electrical lines for recycling the metal on the inside. The damaged National Palace appears in the background.

teachers, conditioned on teaching in accredited schools that charge capped fees. To improve health care, the Haitian government should shift the operation of public health centers and hospitals to nongovernmental organizations (NGOs) and other private institutions. For both education and health care, therefore, the government should focus on improving its planning and oversight capabilities rather than being a service provider.

- All major donors should submit their proposals to the Interim Haiti Recovery Commission and adapt them to align with other plans. Donors can also promote political consensus among Haiti's political leaders and encourage adherence to strategic plans.

Haiti's Ghosts

The prototypical fragile state is inaccessible, often land-locked, surrounded by weak or predatory neighbors, and wracked by tribal, ethnic, religious, or linguistic tensions. Haiti suffers from none of these disadvantages. It is surrounded by friendly, comparatively prosperous neighbors. It has many natural harbors only a few hours sailing distance from the largest market in the world—the United States—to which it has preferential access. Unlike some fragile states, Haiti has no precious gems, minerals, or other such resources over which parties might fight. Many of its government officials have the will, if not the resources, to improve their country's circumstances. And the Haitian diaspora nearby in North America is large, skilled, and economically supportive.

Haiti's fragility cannot be blamed on its geography or its demography, but rather on its history. Treated as a virtual pariah for much of the 19th century by reason of its national origins in a successful slave rebellion against France in 1804, Haiti has, to this day, remained culturally distinct and politically isolated from the Hispanic and Anglophone societies around it. Forced in the 19th century to pay France a massive indemnity for properties lost in that rebellion, Haiti became entrapped in a cycle of poverty and misgovernment from which it has never emerged.

Haiti's fragility cannot be blamed on its geography or its demography, but rather on its history.

AP IMAGES/ALEXANDRE MENEGHINI

Police raise the Haitian flag in front of the National Palace in Port-au-Prince on July 4, 2010. Six months after the January earthquake, no decision had been made to rebuild the main government buildings, and the future of 15 of the country's 17 collapsed ministry buildings remained unclear.

Although Haiti is not divided along ethnic or tribal lines, it is highly stratified along economic lines, with a small elite and a large number of very poor. In 2001, almost half the country's income went to the wealthiest 10 percent of society. Income inequality is among the widest in the world. The lack of a middle class is a problem not only because it weakens the economy but also because the middle class could provide a much needed source of talent for government bureaucracies and for businesses. Income inequality also results in very different interests among the different classes, making it difficult for them to find common ground. Haiti's failure to develop is often blamed on resistance from the small, wealthy elite to changes that might threaten their position. But in fact, resistance to change is manifest across the political spectrum from entrenched interest groups fearful of losing their slices of a very small pie.

Building a competent and accountable civil service is critical to building a more effective state.

Haiti's poverty, like the weakness of its government, is a product of its political culture as well as its history. Any effort to build a stronger, more resilient Haiti, one that is less dependent on external help, will depend on changing that political culture. The country's poverty will not be corrected with added resources alone, no matter how lavishly and wisely applied. For Haiti to develop a stable, representative government, the country's political forces must accept the legitimacy of the democratic process, even if it is not in their immediate interests. Any strategy designed to improve the effectiveness of the Haitian state must recognize that, despite positive signs prior to the earthquake, Haiti has not yet consolidated its democracy.

Haiti's long history of poor government was largely responsible for the extent of the devastation following the earthquake and for the country's almost complete dependence on help from abroad to deal with the consequences. The massive loss of life and infrastructure was, in great part, due to poor-quality construction materials and methods, made possible by lack of oversight and accountability. The difficulties that relief agencies faced in getting to damaged sites and in rescuing victims was compounded by Haiti's poor roads, ports, and airports. The earthquake demonstrated the weaknesses not only of Haiti's infrastructure but also, more fundamentally, of its institutions. Given its location, Haiti cannot avoid frequent hurricanes and occasional earthquakes, but the scale of the devastation can be reduced and the response improved.

Haiti's change of government in 2004 led to five consecutive years of economic growth and tentative progress toward better governance, indicating that, with better policies, Haiti can recover from the effects of the earthquake and embark on a period of improved security, social well-being, and economic growth. The Haitian government and the international community now need to lay the foundations for an effective state—one that can build and maintain infrastructure, deliver public services, and improve the lives of the Haitian people.

Governance and Public Administration

Reforming public administration is at the heart of state-building in Haiti. Two principal constraints on the state's effectiveness have been the paucity of skilled, trained, and properly organized government personnel and the lack of management systems within ministries and other government bodies. The capabilities of personnel below the most senior levels of the ministries are typically weak; in particular, there are too few people qualified to work in middle-management positions, and ministries have too many low-level staff. Hiring based on political patronage is endemic and deeply impairs competence and accountability. The deficiencies in planning, budgeting, executing policy decisions, and managing people and resources cut across all areas of government activity, including the government's ability to interact with donors.

Building a competent and accountable civil service is critical to building a more effective state. Attracting new talent, improving the quality of existing civil servants (through training and enforcement of performance standards), and building human-resource management tools and systems (such as job classifications, standards and procedures for hiring and firing, a promotion system based on merit, salary grades, and clarified career ladders) should be among the highest priorities for public-administration reform. Emphasis should be placed on creating a financial incentive system for good performance. Consideration should also be given to creating a fast-track program with enhanced salaries and prestige for highly qualified young people willing to enter and commit to at least several years of public service.

One item that has been on the reform agenda for decades is that of decentralizing government—that is, moving some responsibility for public administrative services out of Port-au-Prince. Haiti's 1987 constitution prescribes a three-tiered structure of local and regional government but does not clearly spell out which responsibilities belong to which levels. The most important step needed today is to specify the respective roles and authorities of the three levels of government. This will require legislation, but progress could be made in the meantime by clarifying the roles of officials performing the decentralized functions and by giving the officials the means to fulfill their responsibilities. Donors could be influential in this regard by consulting directly with local officials and by distributing their resources in ways that bolster local government.

State-building in Haiti will also require a discreet but very hands-on approach to political reform by the major donors. Rather than conditioning aid on performance (a technique that has seldom produced meaningful political reform), aid will need to be used subtly to grease the wheels of reform, to bolster the influence of its champions, and to reward those who advance the reform agenda. Projects need to be evaluated on their ability not just to increase economic output or to decrease poverty but also to reconcile competing interests, to secure political goals of importance to the donors, and thereby to redirect the competition for wealth and power to benefit society. Leverage of this sort is likely to produce results only if donors are united and if they prove capable of exercising their potentially massive influence in quiet, discreet, and subtle ways in support of the relatively few really essential reforms, particularly those requiring parliamentary action.

Justice and Security

Haiti's justice system is deeply flawed. The courts do not carry out their constitutional mandates. Laws are not applied. Judicial appointment procedures are not followed. Many judges have no legal education, and some are illiterate. The criminal code dates from the early 19th century. The courts operate in French, but only about 20 percent of the population speaks French. Haiti has no functioning forensic laboratory. There is no criminal-record system, so it is impossible to know whether a suspect has a prior record or is wanted in another jurisdiction. Many courthouses are in poor condition. Legal aid barely exists. The laws do not permit plea bargaining or alternative sentencing for minor crimes. Corruption is widespread, and relations are poor between the Haitian National Police on the one hand and prosecutors and judges on the other.

Many judges have no legal education, and some are illiterate.

Perhaps the most glaring manifestation of the justice system's dysfunction is the situation in Haiti's prisons. The conditions are horrific; an estimated 75–85 percent of the prison population is held in illegally prolonged pretrial detention. Many of these prisoners have never seen a judge. At least some have been detained longer than their sentences ever would have been.

Addressing prolonged pretrial detention cannot wait for significant progress in judicial reform. An ad

Brazilian United Nations peacekeepers point their weapons toward the National Penitentiary during a prisoners' uprising in downtown Port-au-Prince, Haiti, on October 17, 2010.

AP IMAGES/RAMON ESPINOSA

hoc panel for detainee review should be established with the power to review cases and, if appropriate, to order releases. Arguably, Haiti's parliament should authorize this by law, but since people are being held in pretrial detention precisely because current laws are not being obeyed, there is a strong case for authorizing such a panel by presidential decree. So that prisons do not continue to fill up with pretrial detainees, establishing the panel should be coupled with requiring that all arrest warrants be given an expiration date in accordance with procedural time lines.

Since its creation in 1994, the Haitian National Police has been given a broad range of responsibilities, including counternarcotics, border protection, maritime patrolling, certain quasi-military functions, and guarding the prisons. But in light of Haiti's economic conditions and poorly functioning government, as well as the small size of the police force, it has never been able to perform all these tasks. The force should focus on basic policing and on building Haitian ownership of security where police interact most directly with the population: on the streets and in the neighborhoods. This approach would be an important contribution to enhancing both the capacity and the legitimacy of the Haitian state.

One of Haiti's best prospects is to attract investment into the garment industry.

Beyond basic policing, Haiti will continue to be heavily dependent on the international community for security. The Haitian government, members of the UN Security Council, and the wider international donor community should acknowledge this reality and refrain from premature steps to reduce the international security presence. No country can enjoy sustained economic growth or public well-being if violence is endemic and crime goes unchecked.

Economic Policy and Infrastructure

Unless rubble is removed from building sites, reconstruction of housing and businesses cannot proceed. The removal of rubble is the most important step toward reconstruction that the Haitian government and the donor community can take. The government needs to ensure that there are sites prepared for rubble disposal, and donors should provide funds to contract with Haitians for the collection and removal of rubble. The tent cities now in use need to be replaced with something more permanent before the next hurricane season. Removing rubble now is the first step in building structures more permanent than tents.

For long-term growth, one of Haiti's best prospects is to attract foreign and domestic investment into the garment industry. Haiti has too many people working in agriculture. The country is heavily populated, and more land is cultivated than is ecologically sustainable. Labor-intensive industries, such as garment manufacturing, can provide an attractive source of jobs and income, especially given Haiti's competitive, low-cost labor force. To take advantage of such opportunities, the Haitian government and the international community need to do several things.

The government should eliminate unnecessary procedures involved in registering businesses and transferring property and should reduce the cost and time required for both. The process of registering a business in Haiti is one of the most complex and lengthy in the world. Registering a change in property ownership is even more onerous. The difficulties that Haitians face in engaging in economic activity have stifled economic development. The government should eliminate tax provisions that encumber growth, such as fees charged to street vendors and revenue taxes. The government should also eliminate import tariff

AP IMAGES/DIEU NALIO CHERY

A student leaves home in a refugee camp in Port-au-Prince, Haiti, on October 13, 2010. The January 2010 earthquake destroyed an estimated 110,000 homes and apartment buildings, leaving more than 1.5 million people to compete for new homes at the bottom end of the market.

AP IMAGES/RAMON ESPINOSA

Haitians reach out for books, donated by the Cuban government, on October 2, 2010.

exemptions, notably those given to NGOs. Once the economy shows signs of recovery, the government should shift the burden of taxes to higher-income groups by levying higher property taxes on real estate.

If Haiti is to enjoy sustained economic growth, then the country's infrastructure of roads, ports, airports, electric power, water, and sewage will need to be improved and maintained. Expanding the infrastructure is not just a question of building new highways, power plants, and the like. Systems are required for maintaining the infrastructure once built and for ensuring that utilities charge and collect enough revenue to cover the costs of services they provide.

Education and Health

There are three pressing needs for the education system in Haiti: substantially expanding *access* to education (which requires the government to spend many times more than it now does on education over and above the costs of rebuilding the roughly 5,000 schools destroyed in the earthquake); improving the *quality* of education (which means recruiting, educating, and training teachers; establishing a national curriculum; providing textbooks that align with content standards; and ensuring that students attend elementary school without dropping out for extended periods of time); and exerting *oversight* to guarantee access and to enforce quality controls, such as the establishment of a regulatory system to accredit and inspect schools and of teacher-training programs.

Only a third of Haitian children reach the fifth grade, and only 4 percent enter high school. In a nation that lacks a middle class, which would normally supply teachers, it is not surprising that teacher quality is extremely low. Tests administered to a representative sample of 1,200 private- and public-school teachers in 1996 showed that one in three teachers did not know how to sequence words alphabetically; eight in ten could not use the passive verb form in French; and fewer than one in ten performed satisfactorily on fourth-grade mathematics.

Haiti is unusual in that private institutions dominate the education sector. Prior to the earthquake, 80 percent of Haitian students were enrolled in private schools, which were financed by a combination of parent fees and subsidies from organizations, such as churches, charities, and foreign government aid. More than half of private schools were religiously affiliated.

Most private schools in Haiti are considered to be of lower quality than public schools. To help close the quality gap and to increase access to schools, the Haitian government should subsidize private-sector

teacher wages to be on par with public-sector salaries, with certain conditions. The wage supplement should be contingent on private schools entering into and annually maintaining the quality standards required for accreditation.

Haiti needs about 60,000 teachers, meaning the vast majority will have to come from within the country. Investing in Haitian teachers would improve schooling while establishing a large source of employment. To provide a stable source of funds, the wages of private-school teachers should be included in the education aid packages of international donors. A commitment by donors to pay a portion of teacher wages over a number of years would attract people to the teaching profession. It could also give donors influence in setting the conditions that teachers must satisfy, in establishing a wage schedule for desired teacher and school characteristics, and in offering rewards for teachers who remain in the profession and who continue their education and training.

Wages of private-school teachers should be included in the aid packages of international donors.

Private, nonprofit, and religious institutions are the primary providers of health care as well as education in Haiti. Many of the health care facilities are outdated, and much of the medical equipment is old or broken. About 40 percent of Haitians lack access to health care. The lack of doctors, nurses, and administrative professionals has posed a major challenge.

Given the lack of capacity and funding within the Haitian government to maintain public health facilities, the operation of *all* health centers and hospitals in Haiti should be shifted to NGOs and private institutions, allowing the government to concentrate on overseeing, monitoring, and evaluating the health service network. With donor assistance, the government could establish its own performance-based contracting mechanism for the provision of health services throughout the country.

A more immediate response to the unmet demand for health services would be to expand the use of Haiti's community health workers. Such workers have provided an effective means of extending the reach of health systems in fragile states. Their use is particularly appealing in Haiti because of the lack of access to care, the number of health problems stemming from a lack of basic health education and preventive services, and excess mortality linked to communicable diseases. Community health workers have been successfully utilized in several rural areas of Haiti, but their use is neither widespread nor supported by the public health system. The use of community health workers, either contracted or volunteer, could be made part of the requirements for the delivery of health services in Haiti.

Donor Cooperation

In the aftermath of the earthquake, donors effectively coordinated their *humanitarian* assistance, applying lessons learned from previous disasters around the world. But coordinating *reconstruction* assistance, as well as ongoing development aid, has proven more challenging.

The Interim Haiti Recovery Commission (IHRC), a joint Haitian government and donor body, was established to oversee this reconstruction and to improve donor coordination. Eventually, the IHRC is supposed to convert into an ongoing Haitian Development Authority without a foreign decisionmaking role. In addition, a multidonor trust fund, called the Haiti Reconstruction Fund (HRF), has been established for donors to pool their contributions, reduce overlap, and simplify management and administration. The World Bank's International Development Agency is trustee for the fund. In all, 59 donors have pledged $9.9 billion in support of these plans.

Our recommendations for donors are aimed at making the IHRC and HRF function effectively, at harnessing the power of NGOs and Haitian communities, and at helping the United States play a leadership role. All major donors, including the United States, should strongly support the HRF, encourage NGOs to support state-building, and exercise political leverage when needed.

It is striking that the United States, which has contributed 40 percent of official aid flows to Haiti for several years, has so far requested congressional authorization to donate up to only $120 million to the multibillion-dollar HRF. Only a substantial commitment to this fund will ensure that the United States has influence over its use—an influence commensurate with the overall U.S. contribution to Haiti. As a general rule, every official donor to Haiti should channel a significant portion of its aid through the HRF, since this fund can support state-building activities most efficiently.

International NGOs, which now have plentiful funds from the outpouring of donations from around

the world, should channel the money toward the long-term goal of eliminating Haiti's need for their support. NGOs should be expected either to make grants equal to 10 percent of their program funds directly to the Haitian state, including for budget support, or to pay customs duties on their imported vehicles and supplies. NGOs should also be required to withhold regular Haitian payroll and income taxes for their Haitian and expatriate staff.

There is no purely programmatic solution to many of Haiti's problems. Only politics will lead to reform on the necessary scale. Given that donors will be contributing an amount equivalent to 57 percent of Haiti's gross domestic product through 2011, and given that the top five donors (Venezuela, the Inter-American Development Bank, the United States, the European Union, and Spain) will account for more than two-thirds of this total, these donors should wield substantial influence on the political process. But political leverage will produce results only if it is exercised in a calculated yet discreet, careful, and sensitive fashion.

A prerequisite for better cooperation among donors is better coordination within the U.S. government. As in the Balkans during the 1990s and in Afghanistan and Pakistan today, U.S. policymaking can be strengthened by the appointment of a full-time, high-level coordinator with the rank and access to consult with the Haitian president and prime minister and to oversee the Haiti assistance budgets and policies of all U.S. government agencies. In September, the U.S. Department of State made progress by announcing the appointment of Thomas Adams as Haiti Special Coordinator, after RAND had recommended the creation of such a position. To improve donor coordination, and to support UN Special Envoy and IHRC Co-Chair Bill Clinton, the recently appointed Adams should now lead an effort to create a behind-the-scenes "friends of Haiti" small group of the largest bilateral and multilateral donors.

Core Priorities

The earthquake was a tragedy of extraordinary proportions. But the recovery effort now provides an opportunity to rectify some of the long-term problems besetting the Haitian state and burdening its people.

We have highlighted the need for improvements in public administration because effective bureaucratic institutions with well-qualified personnel, sound procedures, and clear responsibilities are the backbone of the state. Justice and security are priority areas for reform because they are essential to promoting the stability required for improvements in many other areas. Growth-oriented economic and infrastructure policies are crucial to lifting the Haitian people out of poverty. And ensuring the provision of accessible and reasonably high-quality education and health care is essential to the population's well-being. Improving these services would also help keep more of the middle class in Haiti, raising the skill level of the workforce.

AP IMAGES/BRENNAN LINDSEY

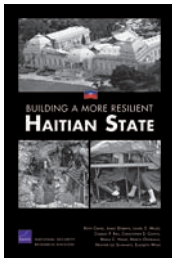
U.S. First Lady Michelle Obama shakes hands with workers from the United Nations and nongovernmental organizations during a visit to Port-au-Prince on April 13, 2010.

But state-building requires more than sound policies, for it is intimately connected with politics. State-building in Haiti cannot proceed without executive decisiveness, legislative action, and eventually the development of a national consensus on changing the constitution. A considerable burden rests on the shoulders of Haiti's political leaders, who will need to rise to the challenge of overcoming a history of fractiousness, patronage, and indecision. Donors have a role to play as well, working behind the scenes to help propel Haiti's success. ■

State-building requires more than sound policies, for it is intimately connected with politics.

Related Reading

Building a More Resilient Haitian State, Keith Crane, James Dobbins, Laurel E. Miller, Charles P. Ries, Christopher S. Chivvis, Marla C. Haims, Marco Overhaus, Heather Lee Schwartz, Elizabeth Wilke, RAND/MG-1039-SRF/CC, 2010, 208 pp., ISBN 978-0-8330-5043-4, $24. As of press time: www.rand.org/pubs/monographs/MG1039/



Higher Gear

To Fund Transportation, Congress Should Tax Travel, Not Fuel

By Paul Sorensen, Liisa Ecola, and Martin Wachs

Paul Sorensen is a RAND operations researcher with expertise in transportation planning. Liisa Ecola is a RAND senior project associate and city planner. Martin Wachs is director of RAND's Transportation, Space, and Technology Program and professor emeritus of city and regional planning and of civil and environmental engineering at the University of California, Berkeley.

With the pending reauthorization of the federal transportation bill, the U.S. Congress can steer the country toward a better path of financing the U.S. transportation system. We have identified promising options for shifting the country away from its increasingly obsolete method of relying on motor fuel taxes to fund highways and toward a method that would be fairer and more effective.

Motor fuel taxes, consisting of gasoline and diesel taxes, have long been the mainstay of highway finance at both the federal and state levels. Taxes on motor fuels are typically levied on a cents-per-gallon basis. This means that they must be periodically raised to keep pace with inflation and improved fuel economy. Elected officials, however, have grown increasingly reluctant to take on this politically unpopular task. As a result, fuel tax receipts have fallen precipitously over recent decades when measured in terms of real dollars per mile of travel, leaving insufficient revenue to maintain, let alone expand, the road network. The anticipated introduction of more fuel-efficient vehicles and alternative fuel options in the coming years, though desirable on other grounds, will accelerate the deterioration of highway revenue.

It is now possible to charge drivers directly for the miles they travel instead of relying on fuel taxes and other indirect fees.

The good news is that the next reauthorization of federal transportation programs presents Congress with the opportunity to start transforming how the nation raises funds for its roads. Harnessing innovative technologies, it is now possible to charge drivers directly for the miles they travel instead of relying on fuel taxes and other indirect fees. Shifting to charges based on vehicle-miles of travel (VMT) would ensure that all drivers pay in proportion to their use of the roads. If Congress fails to make this shift, the country will miss a critical opportunity to develop a more sustainable source of highway funding, to reduce traffic congestion, and to price travel more fairly than has been the case for close to a century.

Mileage-based road use fees could be implemented in various ways, but three options appear to offer the greatest promise: (1) estimating mileage based on a vehicle's fuel economy and fuel consumption, (2) metering mileage based on a device that combines cellular service with a connection to the onboard diagnostics port, and (3) metering mileage based on a device that contains a global positioning system (GPS) receiver. Significant political, institutional, and cost-related uncertainties make it difficult to determine the optimal configuration of equipment at this juncture. But in its reauthorization of the transportation bill, Congress should set aside funds for activities that could resolve these uncertainties by testing the alternatives in realistic settings, thus setting the stage for implementing VMT fees within the coming decade.

AP IMAGES/JAE C. HONG

Traffic moves along the 405 Freeway in Los Angeles in October 2010. The freeway facelift has caused so much gridlock that commuters are tweeting their complaints while driving. The $1-billion upgrade requires complete closure at times.

A New Set of Wheels

For nearly a century, motor fuel taxes have been the primary source of funds for constructing and maintaining the nation's highways. Adopted as an indirect means of charging drivers for the costs of using the highway system, fuel taxes now account for almost two-thirds of highway user fees and about half of highway expenditures. But political resistance to tax increases of any sort, dramatic increases in fuel economy, and the rise of alternative energies (such as biomass and electricity) to power cars have eroded the role of fuel taxes as a reliable revenue source.

One problem is that the federal gas tax was last raised to 18.4 cents per gallon in 1993 and has since lost approximately a third of its value to inflation. Additionally, while the total number of vehicle-miles traveled in the United States has doubled over the past three decades, fuel consumption has risen by only 50 percent during that time. Better fuel economy is good for the economy, energy independence, and reduced air pollution. But better fuel economy also means that motorists drive more miles with each fill-up at the pump and pay substantially less through fuel taxes per mile of driving than they did in past years.

In contrast, VMT fees, enabled by new electronics and communication technologies, could potentially generate a reliable revenue stream while upholding the core principle that users should pay for the system in proportion to their use. VMT fees would be based on the amount of travel rather than the amount or type of fuel. VMT fees could also be set higher for peak-hour travel in congested corridors to help reduce congestion, and the fees could vary with vehicle emission characteristics to encourage more rapid adoption of less polluting vehicles.

But shifting to VMT fees would have disadvantages as well. It would entail considerable cost to retrofit the entire fleet of vehicles on the road. There are privacy concerns related to monitoring travel behavior. It is not apparent that instituting VMT fees or increasing them to keep pace with inflation would ignite less opposition than would an increase in fuel taxes. And administering VMT fees would almost certainly be more costly and complex than collecting fuel taxes.

Nonetheless, the motivations for shifting to VMT fees are strong. Current and projected revenue shortfalls are the most pressing concern. Figure 1 shows that since 1980, growth in vehicle-miles traveled on the nation's roads has far outpaced growth in fuel consumption. The gap has kept widening, which means the funding has kept tightening. Moreover, the gap will widen further over the foreseeable future, based

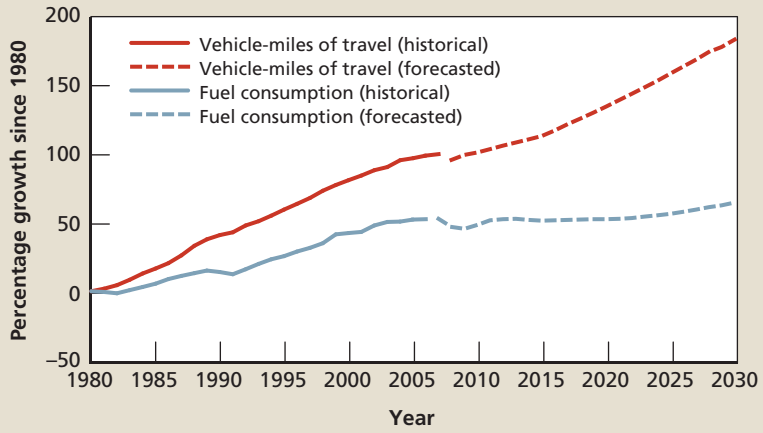
on the expectation that more fuel-efficient vehicles, along with alternative fuel options, will achieve greater market penetration in the years to come.

We examined what would happen to revenue if fuel taxes were replaced with VMT fees on an initially revenue-neutral basis beginning in 2015. As two bases of comparison, Figure 2 shows one trajectory with fuel taxes fixed at current levels and another with fuel taxes rising five cents per gallon in 2015. The other four lines, bunched together, show the projected revenues from four different VMT revenue streams: a flat fee of roughly 1.1 cents per mile (the amount that produces a revenue-neutral shift in 2015), an upper and lower bound that represent the range of revenue if the miles traveled were to grow 10 percent higher or lower than estimated, and a VMT fee structure in which passenger vehicles would pay slightly lower VMT fees per mile and trucks higher VMT fees per mile (0.8 cents per mile and 3.4 cents per mile, respectively).

The projections illustrate why, absent the five-cent increase in fuel taxes, VMT fees would be an attractive alternative revenue source. Even under the most conservative scenario in which the growth in road travel is 10 percent less than expected, VMT fees would still generate roughly 20 percent more revenue by 2030 than would the current rate of fixed fuel taxes. The reason is simple: As vehicle-miles of travel grow, VMT fees grow with them.

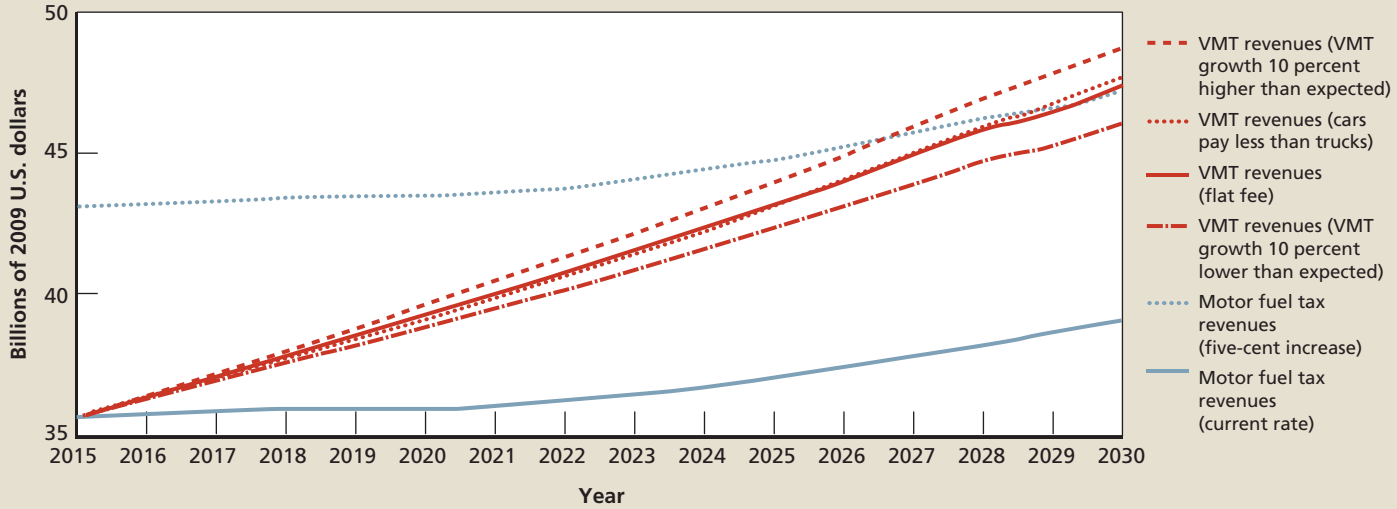
A national system of VMT fees would require widespread support from the states. In our interactions with transportation officials in states ranging from Texas to Vermont, we found that the states are interested in the potential of VMT fees to offset their declining revenue, and state officials are following current pilot programs using VMT fees with great interest. We also found that states would like the federal government to take the initiative. State officials believe that the federal government should exercise leadership

Figure 1—Historical and Forecasted Growth in Miles Traveled by Vehicles Far Outstrip That of Fuel Consumption



SOURCE: *Highway Statistics 2007*, Washington, D.C.: Federal Highway Administration, 2007, Table 5.2.1; *Transportation Energy Data Book*, Edition 27, Oak Ridge, Tenn.: Oak Ridge National Laboratory, 2008, Table 2.7; *Annual Energy Outlook 2009*, Washington, D.C.: U.S. Energy Information Administration, 2009, Tables 45, 60, 65, 67.

Figure 2—Only a Big Increase in Motor Fuel Taxes Could Compete with Revenues Based Instead on Miles Traveled



SOURCE: Computed by authors based on data from *Annual Energy Outlook 2009*, Washington, D.C.: U.S. Energy Information Agency, 2009, Tables 45, 60, 65, 67.
NOTE: VMT = vehicle-miles of travel.

in setting technical standards to prevent the development of multiple and potentially incompatible systems in different states and regions.

Three Suggested Models

We used several criteria to identify the most promising options for implementing a national system of VMT fees. The system should be capable of metering mileage traveled across the entire national road network. A system with limited capabilities should come at low cost, whereas a higher-cost system should support more-sophisticated pricing policy options—that is, the ability to vary rates by time or location of travel. The system should allow for effective enforcement, require minimal administrative support from the states, and impose a minimal burden on drivers. Of the 11 system configurations we identified and assessed, 3 offer the greatest promise, providing alternative tradeoffs between cost and capabilities.

The first option is to meter mileage based on fuel consumption. Under this approach, all vehicles would be equipped with an identifier, likely a radio-frequency identification (RFID) tag embedded in the license plate or registration sticker. When a driver fills up at a gas station, electronic readers at the pump would detect the vehicle ID and determine its fuel-economy rating based on the make and model. The expected mileage would then be calculated from the number of gallons purchased, with a corresponding charge added to the fuel price, while fuel taxes (built into the retail price) would be subtracted. Vehicles not yet equipped with an identifier would pay the fuel taxes rather than the mileage charges.

Though offering limited flexibility, this option would likely be the least expensive, given the relatively low cost of RFID technology. It would also provide a fallback system—existing fuel taxes—to charge vehicles lacking their identifiers. This pay-at-the-pump model could also be used to collect fees for most vehicles if a transition to more-sophisticated metering equipment were pursued over the longer term.

The second option is to meter mileage based on a device that would combine cellular service with a connection to the same onboard diagnostics port that has been required in all new vehicles since 1996 to support emissions checks. This approach would make it possible to determine the area of travel with rough accuracy and also to vary rates by vehicle characteristics, state or regional jurisdictions, and dense urban districts subject to congestion tolls. The location data would make it possible to accurately allocate mileage fees among jurisdictions. Fees could be collected through either a pay-at-the-pump model, wireless communication with a central billing agency, or a debit card system that would allow people with privacy concerns to insert prepaid debit cards into the onboard unit. While this technology configuration remains to be demonstrated in the context of road pricing, this option could provide a high level of metering flexibility at lower cost than the third option.

AP IMAGES/CHARLES DHARAPAK

Construction workers await the arrival of President Barack Obama at a highway road project funded by the American Recovery and Reinvestment Act in Columbus, Ohio, on June 18, 2010.

The third option is to meter mileage based on a device that would contain a GPS receiver. The only difference between this and the previous approach is that the onboard unit would rely on GPS, rather than cellular technology, to identify the area or even the specific route of travel. This technology has been demonstrated in prior U.S. trials and is currently being used in several road-pricing programs in other countries. If the price of the equipment can be reduced through large-scale production, and if current privacy concerns associated with using GPS can be overcome, then this option would be even more promising.

States would like the federal government to take the initiative.

All three options face obstacles in terms of cost, administrative complexity, and political acceptability. Each option would be more expensive, possibly much more expensive, than collecting fuel taxes. Moving the point of collection from a small number of entities (fuel wholesalers) to a much larger number (retail fuel

AP IMAGES/THE TELEGRAPH, JASON VORHEES

Drivers make their way through the five-way intersection of State Highway 22, State Highway 11, State Highway 18, State Highway 44, and U.S. Highway 129 in Gray, Georgia.

stations or individual motorists) would make it harder to detect and to prevent tax evasion. Administration of the system could require new tax collection channels, a new national agency or expanded state powers, cooperation from cellular providers and gas stations not currently involved in collecting fuel taxes, support from the Internal Revenue Service, national technology specifications and certification, and enabling or conforming state legislation. Even with all these, it would still be necessary to either index or periodically raise VMT fees to keep pace with inflation, and there is no indication that such increases would be politically easier to ratify than raising fuel taxes.

Dead End for Fuel Taxes

In considering the public acceptability of VMT fees, the experts we consulted offered two salient observations. First, there is little public understanding of the current challenges in transportation finance and thus of the motivations for a transition to VMT fees. Second, concerns that the government might begin to track personal travel behavior remain a potent obstacle to the acceptance of sophisticated in-vehicle metering equipment. To make for a smoother transition from fuel taxes to VMT fees, concerted public education and outreach will likely be imperative on the issues of finance and privacy.

It is not apparent that metering road use would be any more threatening to privacy than using cell phones.

As for finance, if the people and government of the United States want to continue to rely on user-based financing, then the time to end reliance on motor fuel taxes and introduce a new approach is rapidly nearing. With recent technology improvements, we are now capable of charging drivers directly for their use of the road network. Roads can be priced similarly to a utility by metering consumption and, if desired, charging more during periods of peak demand. Charging road users more precisely for particular trips on particular roads at particular times would make VMT fees fairer and more efficient than fuel taxes, and would provide a much more stable source of revenue as the country pursues greater fuel-efficiency and shifts away from petroleum-based fuels.

With respect to privacy, it is not apparent that metering road use would be any more threatening to privacy than using cell phones, but there is genuine concern that the government would surreptitiously track the travel of each citizen without his or her knowledge. Most technology and policy experts agree that VMT fee systems could be structured so that privacy would be maintained. Travel records could be stored in individual vehicles, not in a central repository, and could be erased once payments are made. It is also possible that many motorists would prefer to forgo privacy protection to have access to detailed bills showing each and every trip so that the charges could be audited and drivers could be sure they are paying for trips they actually made.

One of the most important arguments in favor of VMT fees is a subtle one. Relying on fuel taxes in an era of growing concern about fuel efficiency and greenhouse gas emissions creates an untenable contradiction between public policy goals. Any governmental policies aimed at reducing gasoline and diesel consumption to address environmental or energy security concerns would directly undermine the goal of raising sufficient revenue through fuel taxes to maintain and improve the nation's vital road network.

If the country succeeds in encouraging the vast majority of truckers and motorists to drive plug-in hybrids, electric vehicles, fuel-cell vehicles, or even solar vehicles, it will still need to pay for road construction and maintenance. Drivers should still be responsible for such costs, even if they drive nonpolluting vehicles. The nation should put an end to fuel taxes and other such programs that discourage government pursuit of energy efficiency over the long term for fear of losing

transportation revenue in the short term. Quite simply, it will not be possible to rely on the gas tax as a road user fee when cars are no longer powered by gas.

Congress in the Driver's Seat

Innovation is afoot. Several countries in Europe have already developed automated systems to charge trucks for distance traveled on major highways, and New Zealand levies distance-based road use charges on diesel-powered trucks and passenger vehicles alike.

In the United States, Oregon and the Puget Sound Regional Council in the Seattle area have conducted trials demonstrating the feasibility of GPS metering equipment for assessing VMT fees, and the University of Iowa has recently completed a dozen similar trials in other parts of the country. The results are quite encouraging, but questions remain. It would be worthwhile to invest in additional trials to evaluate technical options and components, to explore the cost and reliability of alternative collection and enforcement mechanisms, and to expand the experiments to more participants and more states.

As it debates the new transportation bill, Congress should consider ways to prepare for the adoption of direct user fees. Alternatively, Congress could reject such a transition and raise fuel taxes to provide needed revenue, though the revenue issue would then need to be addressed again in five or ten years as the adoption of more fuel-efficient conventional vehicles as well as alternative-fuel vehicles accelerates. Or, continuing in the vein of the recent stimulus bills, Congress could allow the nation to begin paying a greater share of its road and transit bills from general revenues, as most other countries do; however, given the extent of the federal budget deficit, along with competing demands for general revenue, such a course would almost certainly result in a considerable reduction in the size of the federal transportation program.

The hope in many quarters is that Congress will seize the opportunity to begin building the architecture of a national system of direct user charges. The early deliberations could address how the system would be configured, what types of pricing policies it would need to support, the appropriate institutional roles for various participants from the public and private sectors, and a plan for making the transition from fuel taxes to VMT fees. Beyond expanding the current trials to demonstrate technology options on a larger scale, Congress might also put an early system of VMT fees into actual practice on a voluntary or limited basis.

To bolster the prospects of implementing a national VMT fee system by 2015, Congress should fund a set of preparatory activities that encompass planning, research, technology development, expanded trials, and education and outreach. Such a massive undertaking would likely require a designated governmental entity, granted the requisite level of authority, to shepherd these efforts.

It is time for Congress to act and for citizens to ensure that it does. The forthcoming debate will indicate whether the nation's system of governance has the ability to make complex technological choices that can simultaneously improve the efficiency, equity, and environmental performance of surface transportation in this country. ■

It is time for Congress to act and for citizens to ensure that it does.

Related Reading

"After the Motor Fuel Tax: Reshaping Transportation Financing," *Issues in Science and Technology*, Vol. 25, No. 4, Summer 2009, pp. 85–88, Martin Wachs. Also available as RAND/EP-20090631. As of press time (Web only): www.rand.org/pubs/external_publications/EP20090631/

Implementable Strategies for Shifting to Direct Usage-Based Charges for Transportation Funding, National Academy of Sciences, Transportation Research Board, National Cooperative Highway Research Program, Web-only document 143, 2009, 150 pp., Paul Sorensen, Liisa Ecola, Martin Wachs, Max Donath, Lee Munnich, Betty Serian. Also available as RAND/RP-1395. As of press time (Web only): www.rand.org/pubs/reprints/RP1395/

Share Your Thoughts

In their essay entitled "Higher Gear," RAND transportation researchers suggest that the United States replace taxes on the amount of motor fuel consumed with fees on the amount of miles traveled. This shift would ensure that all drivers pay for road maintenance in proportion to their use. Would you support the idea as described in this essay? Why or why not?

Comment

Join the discussion at
randreview.rand.org/facebook/winter2010

Find us on: facebook

Middle East Peace

Sometimes, It Takes Persistent Work to Prepare for a Fleeting Moment

PHOTO BY DIANE BALDWIN

By James A. Thomson

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

U.S. President Barack Obama's commitment to achieving a comprehensive peace in the Middle East has potentially opened a policy window for strategic planning on this critical issue, even if the day-to-day impediments to the process are daunting. Over the past decade, RAND's work in the region has attracted attention as suggesting a viable way forward. We hope to make the most of this opportunity.

The work began in 2003 when two private citizens, believing that RAND's objectivity might shed light on the prospects and challenges of a future Palestinian state, gave us generous gifts to conduct work that could not be funded by RAND's usual sources.

Working closely with Palestinian leaders, we focused on a question no one else had considered: Assuming that a new state was established, what would it need to succeed? We looked at the areas of health, education, governance, internal security, demography, economics, water, and infrastructure, identifying what was needed and estimating the resources required. We also developed an infrastructure concept, known as the Arc, which presented a stunning visual image of what a successful Palestinian state might look like. Publication of the study in April 2005 attracted substantial media coverage in the United States, Europe, and the Middle East. The research team presented the work in important government, academic, and business venues.

But the election of Hamas in January 2006 dramatically changed the context. For the rest of that year, our work went into a holding pattern as the international community tried to figure out how to respond to the new Palestinian government. As Fatah assumed governance in the West Bank while Hamas remained entrenched in Gaza, the RAND team nonetheless continued to disseminate its ideas.

We renewed contacts with decisionmakers and experts and began new research to adapt to the reality of divided Palestinian governance. Recently, we designed a series of demonstration projects—including the first regional transit system for the West Bank—that could begin to be implemented immediately under current security arrangements while laying the foundation for more extensive projects. Palestinian Authority Prime Minister Salam Fayyad is particularly interested in working with us to develop a transportation master plan, which he sees as the fulcrum for the development of other key infrastructure systems such as water and energy. In each area, the key to success will be working hand-in-hand with Palestinian decisionmakers.

Public attention to the work has gained momentum. In October, I joined a RAND team in discussing our work with representatives of the U.S. National Security Council, the U.S. Department of State, and the U.S. Agency for International Development. In November, the Arc was named Future Project of the Year at the World Architecture Festival in Barcelona. Reporters and bloggers are talking about the Arc and related demonstration projects, seeing them as possible ways to improve the daily lives of Palestinians, whatever the state of formal peace negotiations. We have recently published our original Arc volume as RAND's first enhanced e-book with embedded videos, taking advantage of the Arc's inherent visual appeal, and will soon reprint the hard copy book to meet renewed demand for it.

In many ways, this Palestine initiative is classic RAND work. It addresses a vital policy issue from multiple interrelated dimensions. It strives to ask and answer the questions that *should* be addressed, not necessarily the obvious ones. It is work that has been, for several years, ahead of the curve. And it has staying power. Routine transportation and infrastructure work might have been done by others. But RAND is uniquely equipped to balance planning, innovative design, infrastructure, economic, security, and political considerations.

That's why we believe Palestinian decisionmakers view us as a trusted, objective adviser who can help them find solutions to their difficult problems. The trust that we have gained over the years has positioned us to make an important contribution whenever a sometimes-fleeting policy window opens. ■

Visit www.rand.org/palestine for more information.

Amgen is proud to support RAND

Transforming the language of life **into vital medicines.**

At Amgen, we believe that the answers to medicine's most pressing questions are written in the language of our DNA. As pioneers in biotechnology, we use our deep understanding of that language to create vital medicines that address the unmet needs of patients fighting serious illness—to dramatically improve their lives.

For more information about Amgen, our pioneering science and our vital medicines, visit www.amgen.com.

AMGEN®

Pioneering science delivers vital medicines™

©2010 Amgen Inc. All rights reserved.

The RAND Corporation is grateful to Amgen, a Premier Sponsor of Politics Aside 2010.

Politics Aside is a postelection retreat that engages policymakers, opinion leaders, philanthropists, and RAND's leading thinkers in a nonpartisan examination of pressing policy challenges. Proceeds support RAND's Investment in People and Ideas program, our vehicle for funding research inquiries into critical but often unappreciated policy areas and attracting the world's top talent to focus on these challenges.
www.rand.org/politicsaside

RAND

HEADQUARTERS CAMPUS
1776 MAIN STREET, P.O. BOX 2138
SANTA MONICA, CA 90407-2138

OFFICES
SANTA MONICA, CA
WASHINGTON, DC
PITTSBURGH, PA
NEW ORLEANS, LA/JACKSON, MS
BOSTON, MA

DOHA, QA
ABU DHABI, AE

CAMBRIDGE, UK
BRUSSELS, BE

REPRESENTATIVE OFFICE
MEXICO CITY, MX

NON-PROFIT ORG.
U.S. POSTAGE
PAID
THE RAND
CORPORATION

"Businesses and communities around the globe have always faced many challenges. What makes today different is that we are more interconnected than ever, and the pace of change is unprecedented. For those reasons, we established the PNC Chair in Policy Analysis at RAND to support new research on emerging or underappreciated issues. Daniel McCaffrey, who currently holds the chair, is a leading expert on measuring teacher effectiveness. PNC is committed to improving education for our children, and RAND has been an effective leader in promoting reform."

—James E. Rohr is chairman and chief executive officer of PNC Financial Services and a trustee of the RAND Corporation. His personal gifts have launched a strong RAND presence in the Pittsburgh area, and PNC's support has funded leading research on important policy issues.

Generous contributions from donors such as James E. Rohr and PNC Financial Services enable RAND, a nonprofit institution, to fund groundbreaking research in the public interest.

CP-22-1012