RAND CORPORATION

OBJECTIVE ANALYSIS.
EFFECTIVE SOLUTIONS.

Innovating for Answers

Social and Economic Policy Research at RAND

For more than half a century, the RAND Corporation has broken new ground in confronting some of society's most complex problems—all with the goals of improving public health, educational achievement, economic performance, environmental well-being, and public safety in the United States and around the world. RAND researchers have helped to find answers to problems that were once deemed intractable. From managing environmental issues to combating crime to closing the achievement gap, RAND researchers have helped to identify effective, evidence-based policy solutions.

RAND combines leading-edge analytical tools and innovative methods with a distinct, interdisciplinary approach informed by decades of hands-on experience. RAND researchers understand that finding solutions to today's problems entails addressing the needs of a wide range of decisionmakers and then presenting and adapting policy options to stakeholders who may have different worldviews, values, and interests. Whether finding ways to build safer cities, strengthen the workforce, or improve the quality of education, RAND researchers understand that long time horizons are often needed for policies to have their desired effects—and that policies need to evolve during their implementation periods to reflect changing circumstances.

Sometimes, the most important innovations are not new products or new findings; rather, they are tools or methodologies that enable leaders to take a completely novel approach to a problem. Just as scientists often must build the laboratory equipment before they can conduct an experiment that has never been done before, RAND researchers develop and refine the tools for advanced policy analysis. Techniques that have been created or improved by RAND researchers over the decades include dynamic programming, game theory, linear programming, the Delphi technique, systems analysis, and Robust Decision Making.

Pioneering techniques developed for one area of RAND research have often been modified and applied to solve other kinds of problems. RAND's legacy of innovation and its interdisciplinary, iterative approach have augmented its ability to overcome emerging challenges.

The following are recent examples of RAND projects that have produced important new policies, framed issues in new ways (often thanks to new methods), balanced multiple priorities and difficult trade-offs, prompted meaningful change, and made decisionmaking easier:

Examples of How RAND Innovation Has Improved Social and Economic Policy

RAND research has

Calculated the real costs of dementia. A RAND study used an innovative approach to estimate, for the first time, the total cost of caring for U.S. dementia patients: $511 billion per year. This knowledge has changed how we think about caring for American elders.

Shown how cities can retain good workers while reforming pension plans. By applying techniques developed to help the U.S. military recruit and retain troops, RAND researchers have built a model that assesses the effects of pension reform proposals on the career decisions of public employees.

Used big data to make cities safer. A RAND study identified when predictive policing worked, when it did not, and how to use it best to reduce crime. The findings are being used to improve predictive policing across the United States.

Protected consumers from bad financial advice. A RAND study identified why current financial disclosures have not protected people from biased financial advisors. The findings have led to new, better disclosure guidelines and public awareness efforts.

"Our findings underscore the urgency of recent federal efforts to develop a coordinated plan to address the growing impact of dementia on American society."

Mike Hurd, director, RAND Center for the Study of Aging

Caring for Our Elders

Sometimes, RAND innovates by **reframing the debate or urging policymakers to focus on an issue that has not received enough attention.** While the United States was debating health insurance over the past decade, there was much less focus on the long-term care needs of an aging population. That changed when RAND researchers calculated the mushrooming costs of caring for dementia, estimated to reach as high as $511 billion annually by 2040 (in inflation-adjusted dollars). This game-changing research incorporated hard-to-measure factors—such as informal caregiving and lost wages—to focus national attention on the scale and scope of the problem.[1, 2]

Helping Cities Control Their Budgets

Some big problems can be addressed with **techniques that have proven effective in seemingly unrelated settings.** When a number of cities became concerned about mounting pension costs, RAND researchers realized that they could apply their techniques for managing troop retention and retirement in the U.S. military to anticipate teacher decisions about whether and when to retire. The researchers incorporated measures of individual teachers' decisionmaking into their model to project how teachers in Chicago would respond to different options for restructuring their pension benefits. This retention model can now be used to assess pension reform proposals by other school districts—and other public agencies, such as police forces—facing similar concerns about retaining their best workers without breaking their budgets.[3, 4]

Using Big Data for Community Safety

Every day, police officers across the United States work to prevent crime, solve past crimes, and identify potential offenders. Recently, many law enforcement agencies have turned to computer models and **new "big data" methods** to predict the location, circumstances, perpetrators, and victims of serious crime. These methods are known as "predictive policing." RAND researchers have learned that the way authorities use the information gathered through predictive policing is as important as the predictions themselves. Therefore, the researchers developed a guide to predictive policing to help police departments better prevent and investigate crime. The guide, one in a series of resources sponsored by the National Institute of Justice, provides assessments of some of the most promising technical tools for making predictions and tactical approaches for acting on those predictions. The guide also dispels myths about predictive methods and flags pitfalls to avoid when using these tools.[5]

Protecting Consumers from Bad Financial Advice

Individuals often turn to financial advisers for help in making investment decisions, but sometimes these advisers receive commissions from the investments they recommend. This creates incentives to give advice that may not be in the best interests of consumers. Congress has passed laws to deal with this problem by mandating that financial advisers disclose their compensation, but past research has shown that these detailed disclosure documents have been ineffective at helping consumers make informed choices. One proposed policy response was to simplify the disclosures. But by using **cutting-edge techniques in behavioral science**, RAND researchers demonstrated that disclosures, even very simple ones, are not effective by themselves. This is because many consumers have low levels of financial literacy. Instead, RAND researchers suggested that the disclosures be combined with other consumer protections that require the industry to act in the best interest of the consumer.[6, 7]

Ensuring That Autonomous Technologies Are Safe and Reliable

From self-driving cars to commercial drones, autonomous systems are reshaping how Americans commute, shop, and learn about the world. Autonomous systems, like other new technologies, have the potential to improve lives, but they can also introduce new risks to users and society. While others were focused simply on technological advancements, RAND researchers took a comprehensive approach that derived insights from a combination of sophisticated modeling and simulation runs and sustained engagement with city and regional planners to explore **the full array of policy implications** related to air quality, noise pollution, traffic management, privacy, and more. RAND researchers identified the trade-offs and key decision points in a framework that policymakers can use to craft regulations that strike the desired balance between ensuring public safety and fostering technological innovation.[8]

"This is an area where things are zooming along faster than many experts expected, and we need to think through now what it might mean to society."

James Anderson, director of RAND Justice Policy

> "RAND's American Teacher Panel [is] unique because we are trying to find out how teachers understand their standards and how they are upholding those standards in their classrooms."

Julia Kaufman, coauthor of RAND's American Teacher Panel studies

Improving Schools by Talking to Teachers

RAND has been at the forefront in designing effective and **innovative ways to measure opinions of the American public**, having launched the RAND American Life Panel in 2006 and having since conducted more than 400 surveys on such topics as financial decisionmaking, the effect of political events on self-reported well-being, inflation expectations, joint retirement decisions, health decisions, and Social Security. RAND researchers also applied these survey techniques to schools, given evidence suggesting that many school improvement efforts succeed or fail based on what teachers and school leaders think and do. Since 2014, RAND's American Teacher Panel and American School Leader Panel have garnered unique insights into educators' knowledge, attitudes, and practices and the conditions in which they work. Researchers now use these panels to obtain timely answers to questions about educational policies, such as the Common Core Standards, student assessments, and measures of teacher and school leader effectiveness, all of which depend on the knowledge and efforts of principals and teachers. These surveys are bringing educators' perspectives to the forefront of educational policymaking.[9, 10, 11]

Keeping Costs Down While Limiting Traffic Fatalities

Sometimes, policymakers are faced with tough trade-offs on how to improve safety while avoiding burdensome regulations that may increase costs and reduce employment. Globally, motor vehicle crashes are one of the top ten causes of death for people of all ages and the leading cause of death for people ages 15 to 29, with annual economic costs estimated at more than $240 billion. At the same time, preventing accidents can be difficult and costly. RAND researchers developed a user-friendly online tool that decisionmakers—primarily state health, transportation, and safety officials—can use to determine the most effective policies, balancing a range of trade-offs to prevent accidents and to estimate the injuries prevented and lives saved at the state level.[12]

Improving Access to Health Care

The more controversial or expensive the policy problem, the more innovation matters. For instance, the adoption and implementation of the 2010 Affordable Care Act has been marked by political strife and legal challenges. To help policymakers understand the impacts of proposed health insurance reforms, RAND researchers developed COMPARE, **a microsimulation modeling tool** that can be used to estimate the likely effects of health policy changes, including the effects on health insurance coverage, consumer out-of-pocket costs, and government spending. This tool was so critical to addressing claims about the Affordable Care Act that the U.S. Supreme Court cited RAND's work in its decision in *King v. Burwell*. RAND researchers then used the COMPARE model to help consumers gain access to the health care they were entitled to receive. RAND researchers wrote *From Coverage to Care: Strengthening and Facilitating Consumer Connections to the Health System*, a road map to help the newly insured navigate the health care system and connect with providers. The COMPARE microsimulation tool can also be used to better understand the likely effects of new and alternative health plans as they are developed.[13, 14, 15]

Helping the Private Sector Make Highly Complex Decisions

Like their government counterparts, companies need to make decisions about complicated issues in the face of deep uncertainty. For example, planning in the energy sector must account for controversial environmental issues, such as investments required to adapt to climate change. Taking advantage of the computational capacity of today's computers, RAND's **Robust Decision Making** (RDM) tool was designed to predict economic performance and outcomes across thousands of future scenarios to help companies identify which decisions were more likely to yield positive results in the largest number of scenarios. The results are assessed using statistical analysis and displayed using data visualization techniques to help decisionmakers understand which plans are likely to perform best under the most circumstances. RAND researchers continue to apply RDM to areas of private-sector decisionmaking that are in the public interest and to a wide range of public-sector areas, such as helping water agencies design projects that meet with broad consensus among constituents and ratepayers, including stakeholders with different perspectives on climate change policies.[16]

> "RDM provides a systematic approach to informing good decisions under conditions of deep uncertainty when predictions are unreliable."

Robert Lempert, leader of RAND's RDM studies

RAND researchers understand that effective policymaking is not a one-time event: It involves an ongoing series of decisions and actions by federal, state, local, and private-sector actors. Through continuing partnerships with longtime clients, RAND develops creative ways to collect the evidence and produce the analysis that decisionmakers need, to make the analysis available in real time, to elucidate potential risks and trade-offs, and to help ensure that the decisions made today will withstand tomorrow's changing environment.

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