Driven into a Corner: To Clean the Air, California Can Steer Old Cars and New Cars in Better Directions
—By Lloyd Dixon, Steven Garber, and Isaac Porche

Poor Connections: Trouble on the Internet Frontiers

Conflicting Benefits: Trade-Offs in Welfare Reform
By Jeffrey Grogger, Lynn A. Karoly, and Jacob Alex Klerman
This issue portrays the plight of public policies that are subject to conflicting goals—on the national, state, and international levels.

On the national level, welfare reform gave the 50 states considerable discretion in the design of their welfare programs. Some states chose policies with a primary goal of reducing the welfare rolls. Other states chose policies with a primary goal of raising incomes and reducing poverty instead.

Not surprisingly, the different bundles of reforms selected by the different states have led to diverging consequences. For instance, work requirements and federal time limits have reduced welfare use; however, only work incentives (cash supplements) have allowed working welfare recipients to earn incomes that are higher than those previously received from welfare alone. Meanwhile, the effects of welfare reform on children are less clear.

We are only now beginning to understand the economic and family consequences of welfare reform, even as federal policymakers debate stronger work requirements, as state policymakers review their own programs, and as many welfare recipients begin to reach their time limits. Jeffrey Grogger, Lynn Karoly, and Jacob Klerman urge policymakers to base their expectations for future reforms on the known consequences of the reforms of the recent past.

On the state level, California has made commendable progress in its decades-long effort to meet its air quality goals. However, recent policies adopted by the state have overlooked some cost-effective programs and focused instead on the goal of promoting new automotive technologies, which may be environmentally pristine but also tremendously expensive. Lloyd Dixon, Steven Garber, and Isaac Porche offer six recommendations to point the state down a more promising road.

On the international level, the information revolution has become subject to conflicting policy goals around the world. In China and Russia, the tension is between economic development and political stability; in Latin America, between economic integration and national autonomy; and in the greater Middle East, between economic investment and cultural resistance to the West. Where possible, RAND researchers suggest how to overcome these obstacles.

―John Godges
News

Staffing Suggestions Offered for Department of Homeland Security

President Bush has said the new Department of Homeland Security will “bring together the best intelligence information about our vulnerabilities to terrorist attack.” But assembling and managing the best workforce to make this happen will not be easy. A new RAND paper outlines the challenges that policymakers will likely face in implementing and improving the agency’s human resources system.

According to the paper, successful personnel management requires flexible compensation and personnel management tools that provide the following:

• performance incentives for both workers and managers
• recruitment and retention incentives for talented personnel
• managerial discretion and accountability
• the assurance of adequate resources to implement these policies
• transparency and oversight
• stability
• limited financial uncertainty for workers.

The paper notes that the current civil service system contains some, but not all, of these characteristics. The civil service system is not ideal, because it’s too cumbersome and rigid. Furthermore, federal managers don’t use certain tools, such as bonuses, that offer flexibility in managing personnel. Such flexibility-related tools can be highly effective.

The paper concludes that policymakers should make greater use of existing policies that provide flexibility and should develop, implement, and monitor effective methods for managing the new agency’s human resources system to ensure that it meets its goals.


Study Casts Doubt on Theory of Marijuana as “Gateway” Drug

Marijuana may not act as a “gateway” to the use of cocaine and heroin, in spite of assumptions that have guided U.S. drug policies since the 1950s, according to a new RAND study published in the journal Addiction. The study, however, does not argue that marijuana should be legalized or decriminalized.

The theory that marijuana use by young people causes some to progress to harder drugs, often called the “gateway effect,” has been used to oppose efforts to relax marijuana laws in several states.

“The marijuana gateway effect is probably not the best explanation for the link between marijuana use and the use of harder drugs,” said Andrew Morral, lead author of the study. He offered an alternative explanation: “The people who are predisposed to use drugs and have the opportunity to use drugs are more likely than others to use both marijuana and harder drugs. Marijuana typically comes first because it is more available.”

Morral and coauthors Daniel McCaffrey and Susan Paddock said the study should raise questions about the legitimacy of basing national drug policy decisions on the assumption that using marijuana increases the risk of using more-dangerous drugs.

“If our model of adolescent drug use is correct, then policies aimed at reducing or eliminating marijuana availability are unlikely to make any dent in the hard drug problem. When enforcement resources that could have been used against heroin and cocaine are instead used against marijuana, this could have the unintended effect of worsening heroin and cocaine use,” said Morral.

He also warned, however, against the relaxation of marijuana laws. “Relaxing marijuana prohibitions could affect the incidence of hard drug use by diminishing the stigma of drug use generally, thereby increasing adolescents’ willingness to try hard drugs,” Morral said.

“Moreover, marijuana itself can be a serious problem for those who become dependent on it.”

“The marijuana gateway effect is probably not the best explanation for the link between marijuana use and the use of harder drugs.”
Asbestos Litigation Surges

More than 600,000 individuals brought asbestos claims against more than 6,000 companies nationwide through the year 2000, and even the most optimistic projections suggest that at least as many people will file claims in the future. The cost to U.S. businesses is estimated to be $54 billion so far and could grow by another $210 billion, according to a recent RAND study.

Significantly for policy purposes, the study found that 65 percent of the compensation paid over the last decade went to people claiming noncancerous conditions. The increasing number of claims for noncancerous injuries explains much of the growth in the asbestos caseload. There is widespread agreement that a majority of the claimants without cancer are functionally unimpaired, meaning that their asbestos exposure has not yet affected their ability to perform activities of daily life.

Because the number and pace of asbestos lawsuits have risen dramatically in recent years and may increase even faster in the future, there could be renewed calls for reforms in the federal and state court systems that strain to handle the litigation, the study said.

“This surge challenges the notion that the litigation is manageable and raises new questions about whether there will be enough money to pay all the claims that are likely to be filed,” said Stephen Carroll, who headed the study.

For more information: Asbestos Litigation Costs and Compensation (RAND/DB-397-ICJ).

Study Sheds Light on Patient-HMO Conflicts

Despite widespread media and political attention to the contrary, most disputes between patients and their health maintenance organizations (HMOs) don’t involve denials of coverage for medically necessary care, according to a recent RAND study published in Health Affairs.

A key source of conflict between patients and their health plans is payment for emergency medical services. Laws in California and in other states require health insurance companies to pay for emergency room visits if “a reasonable person” would think that emergency services were necessary. But patients and HMOs often interpret the standard differently.

Of the patients who filed appeals over the denial of payment for emergency room care at the two HMOs studied, 95 percent won their appeals.

Lead author Carole Roan Grensenz noted that “people denied coverage may refrain from appealing for several reasons. They may not know they can file appeals, they may just not understand the process, or they may think they have little chance of success.”

Roughly 87 million Americans with private health insurance are enrolled in HMOs.

Threats to Children from Secondhand Smoke

Tobacco smoke threatens the health of millions of American children who live in homes where people smoke, according to a RAND study in the Archives of Pediatrics & Adolescent Medicine.

The study found that 19 million American children—28 percent of everyone in the United States 17 and younger—are exposed to tobacco smoke at home on a daily basis. Children’s exposure to secondhand tobacco smoke is linked to bronchitis, asthma, ear infections, sudden infant death syndrome, and school absences.

White children are more likely than others to be exposed to smoke at home, the study found. Children are also more likely to be exposed to smoke at home if they come from families that have lower incomes, less education, one or fewer parents at home, or live in the South.

“Secondhand tobacco smoke remains a serious threat to the health of a large proportion of our children.”
EVERY DAY MILLIONS OF ARABIC TELEVISION viewers across the Middle East are bombarded with anti-American sounds and images. What they see from state-run channels and from the Qatar-based Al Jazeera network is a nonstop barrage of incendiary images. What Arab viewers see from America, however, is a blank screen.

This will change, if Norman Pattiz gets his way. Pattiz is spearheading an effort to create a new non-commercial television news network targeted to the Middle East. The proposed network would look and sound much like CNN, except the United States government would own and operate it.

Pattiz is a member of the U.S. Broadcasting Board of Governors (BBG), which overseas all international nonmilitary broadcasting, such as the Voice of America and Radio Free Europe. He's leading a project to beam the "message of America" into the homes of 170 million Arabic-speaking viewers. The project's name is the Middle East Television Network, or simply MTN.

An overwhelming majority of Arabs say television is their first and main source of news, according to Pattiz. He claims there's a media war being waged in the Arab world, and the United States is not even on the playing field. The weapons include hate radio and television, incitement to violence, disinformation, government censorship, and journalistic self-censorship.

"We need to have a place where people can go to learn about U.S. policies, what U.S. culture is about, and who we are—from our own lips," said Pattiz, who recently spoke at RAND. "Right now, people in the Middle East do not have a place to get that information. And they're not going to have a place to get that information unless we create it."

Under the auspices of the BBG, Pattiz has already launched a highly successful radio station called Radio Sawa. Working with moderate Arab governments, Pattiz gained access to FM radio frequencies within a number of key countries and cities (see sidebar). The Arabic-language station offers a blend of news and popular music from both the Middle East and the West. The target audience is listeners 25 years of age and younger, who represent nearly 65 percent of the region's population.

"We thought by creating a music-driven format that we could attract the largest possible audience to what was also our public diplomacy mission," said Pattiz. Unlike the staid format of the Voice of America, this novel music-driven approach was controversial at first. Critics included the Middle Eastern media, who lambasted both the project and Pattiz. Even skeptics in the United States claimed he was turning venerable international broadcasting into MTV.

"The greatest message in the world doesn't mean a lot if no one is listening," said Pattiz. "To be effective, radio needs to connect with its listeners." It did. A recent 500-person, eight-week survey in Jordan found that 89 percent of those polled had listened to the station the day before. Also, 35 percent said they listened to Radio Sawa for news, compared with only 5 percent for the BBC.

By some accounts, Radio Sawa has become more popular than even the radio station operated by Saddam Hussein’s son, an FM station that previously had been the most popular in Iraq. Press accounts have noted that Radio Sawa has begun to change the lexicon in the region. For example, the station’s news reporting recast "martyrdom operations" as "suicide bombings." Apparently, this paradigm shift resonated with listeners.

With the runaway success of Radio Sawa, the White House soon solicited Pattiz for his thoughts on Arabic television. "Television networks in the Middle East, Al Jazeera and other government networks, are much like television networks in the United States today," explained Pattiz. "They do not form public opinion; rather, they pander to it, they react to it."

In a commercial enterprise, he said, you identify your audience, and you give them what they want. Al Jazeera staffers are smart, and they see commercial media trends in the United States. As such, they have...
positioned themselves among their viewers as the Arabic CNN. But according to Pattiz, “they’re more like ‘CNN meets Jerry Springer.’”

He noted that Al Jazeera knows what “turns on” its audience. In the Middle East where everything runs emotional, “turns on” in reality means “inflames.” “That’s why discussion programs are really screaming or yelling matches. They resonate with their audience,” said Pattiz. “If Al Jazeera had a slogan, it would be ‘all intifada all the time.’”

Enter MTN. “Our mission is a journalistic one,” said Pattiz. “Our mission is to promote freedom and democracy through the free flow of accurate, reliable, and credible news and information about America to audiences overseas. Our mission is to be an example of a free press in the American tradition. It’s silly not to take advantage of the things that we do better than anyone else in the world.”

What this broadcasting effort is not intended to become, according to Pattiz, is a propaganda mission or a front for the U.S. Department of Defense. “There are even some people who think I have an insidious plan to create some commercial enterprise in the Middle East and that I’m pursuing this to feather my own nest,” said Pattiz. “I’m not.”

Whatever the motive, the political response to MTN has been overwhelmingly positive. “The White House has endorsed the concept of Middle East television.” Pattiz also said key members of House and Senate authorizations committees have signed onto the project. “But they are authorizers. They aren’t appropriators.” That means they haven’t given him the money yet.

Still, Pattiz is optimistic about the future of MTN. He’s hoping to get enough money in the 2003 budget to launch the project and then hopes to secure the lion’s share of funding in the 2004 budget.

“In the Middle East, you have people who don’t care what the United States has to say,” said Pattiz. “They don’t like our policies. They believe they know our policies, which have been introduced to them in an environment that is hardly friendly to the United States.

“We need our own pipeline into the region. We need to control our own distribution so that we’re the masters of our own fate,” he said. “Because who’s going to play our message if not us?”

Radio Sawa, a new Arabic-language station, offers young people throughout the Arab world a blend of news and popular music from both the Middle East and the West. The station broadcasts 24 hours a day, 7 days a week on the following FM frequencies:

- Amman, Jordan: 98.1
- Kuwait: 95.7
- Dubai, United Arab Emirates: 90.5
- Abu Dhabi, United Arab Emirates: 98.7
- Doha, Qatar: 92.6

Radio Sawa on medium wave (MW):
- Egypt, Levant: 981 and 1260 MW
- Iraq and the Persian Gulf: 1548 MW

Radio Sawa is also available via Nilesat, Arabsat, and Eutelsat and can be heard by streaming radio at www.radiosawa.com.

Lady Liberty graces the screen of a video proposing the launch of the Middle East Television Network.
Battle Wombs
Why Some Drug Babies Are More Equal Than Others

SEE A “CRACK BABY” ON TV—physically harmed by the mother’s use of a drug—and you’ll probably feel contempt toward the mother. See a “fertility drug baby” on TV—physically harmed by the mother’s use of a drug—and you’ll probably feel compassion toward the mother.

The difference, according to Lynn Paltrow, a civil liberties attorney specializing in reproductive and health issues, is that crack mothers are typically portrayed in the media as African American “welfare queens” and fertility drug mothers as wholesome middle-class homemakers. Paltrow, who recently spoke at RAND, contends that contemporary drug laws are used unfairly to punish African American mothers.

Paltrow admits there are differences between fertility drugs and cocaine. But if anything, “much more has been proven about the potential harm from fertility drugs and carrying multiple pregnancies to term than from prenatal exposure to cocaine,” she said. “A lot of how we develop policy around pregnant drug users is much more about politics, race, and class than it is about scientific analysis of the risks of harm.”

Paltrow described a low-income African American woman whom she had previously represented in court. The woman gave birth to a child who tested positive for cocaine. The state of South Carolina charged the woman with child abuse on the theory that a fetus in South Carolina is really a person and that the woman’s drug use was therefore child abuse. The child, however, was born without health problems.

According to Paltrow, the woman stood before the judge and asked, “Your Honor, I have a problem. Could you please help me get into a residential [treatment] program?” He said, “No, I think I’ll just send you to jail.” And he sent her to jail for eight years.

Paltrow compared this woman to another in the Midwest who took the fertility drug Fertinex. This woman had been advised that if she became pregnant with more than two children, she would be jeopardizing the health of all the fetuses. The only way to reduce the risk would be to perform selective abortion.

She became pregnant with six fetuses and decided to carry them all to term. One baby died, one has a severe disability, and all of the five surviving babies require special health care. What did the mother get? A donated van, a glowing article in Good Housekeeping, and praise from millions of Americans.

“If one were to be consistent about viewing fetuses as persons and holding mothers accountable for the outcomes of their pregnancies, you would have to treat these two cases identically,” said Paltrow. “In fact, the fertility drug mother should—under this punitive view—be considered more culpable, because she had a fetus who died.”

To date, no state legislature has made it a crime to be pregnant and addicted to drugs. However, individual prosecutors continue to pursue such charges. In South Carolina, where a judicial rewriting of the child abuse statute has redefined a fetus as a child, any risk of harm to a fetus may be treated as child abuse.

“There’s something irresistible about these cases to local prosecutors who want to look like they’re doing something about the war on drugs, who want to appeal to their right-to-life local constituencies,” said Paltrow.

What’s more, in at least 18 states, a single positive drug test at delivery is considered a basis for reporting an incident of civil child neglect. Without any evaluation of parenting ability, a single positive drug test could result in a child being taken from the mother and put in the foster care system.

“I keep imagining an opportunity to stand in front of a panel of legislators and smack down on the table a cup containing my urine sample and say, ‘Okay, maybe there’s cocaine in there, maybe there’s marijuana in there, but what does that container tell you about whether I make dinner for my children every night?”

“More has been proven about the potential harm from fertility drugs and carrying multiple pregnancies to term than from prenatal exposure to cocaine.”
Whether I do homework with them? Whether I love them and am capable of caring for them?’

“And yet, our presumptions, our prejudices about drug users and particularly mothers is so extraordinary that that cup alone, in some states, might be enough to remove my children and put me in the position of having to do anything the state tells me to do in order to get them back.”

A woman in California tested positive for a drug, and her child was instantly taken away. “It took her three months to get her child back—even though the positive test was due to a drug given by physicians during labor,” said Paltrow. “She was a woman of color.”

She described the case of the Medical University of South Carolina, where the patient base is 70 percent African American. In 1989, a white nurse decided to do something about cocaine use among her black patients. In coordination with the hospital and local police, she established a policy to search pregnant woman for evidence of cocaine use. If positive, that information was turned over to the police. The women were taken out in chains and shackles, some still pregnant, some still bleeding from having just delivered a baby.

“They didn’t say, ‘Gee, we’re a hospital, maybe we should see if we have any treatment programs,’” said Paltrow. “They didn’t say, ‘Let’s do research and see if cocaine really is as damaging as we think.’ They simply had a meeting with the police and the prosecutor’s office.”

Of the 30 women arrested, 29 were African American. For the only white woman arrested, the nurse wrote in her medical record: “Patient lives with her boyfriend who is Negro.”

Paltrow was part of a team that challenged the legality of the hospital’s policy in the U.S. Supreme Court. The team argued that the testing policy constituted an illegal search, that in the guise of providing medical care, the hospital was secretly searching these women without their consent, without a warrant, and in violation of the Fourth Amendment.

“We did ultimately win, in part because we were able to say this isn’t just about pregnant drug addicts,” said Paltrow. “If it had been, we probably would have lost. This is about public hospital patients. If you can use doctors to search patients, then all people going into their doctors’ offices are not safe. I think that bothered six of the justices.”

According to Paltrow, we all buy into the illusion of ready access to drug treatment. “Among prosecutors, among judges, there’s this idea that you can just call up and get yourself into a program,” said Paltrow. “I’ve had a hell of a time finding treatment programs for my clients.

“I’m not suggesting that these women are just victims and that there’s no accountability or responsibility involved,” said Paltrow. “However, my clients have taken many steps to be responsible. They have called abortion clinics, sought drug treatment, and asked their friends and neighbors for help.

“What I see over and over again is that there are barriers every direction they try to move to improve their own lives,” said Paltrow. “The discussion now must shift from personal responsibility to some kind of collective and social responsibility, so that when these women do act responsibly, a door is not closed in their faces.”

One step in the right direction, according to Paltrow, is improved training in substance abuse issues for child welfare workers. The lesson for policymakers, she said, is to base policy on science and research, not on emotion or media hype. ■
California has made steady progress in reducing automobile pollution in the past three decades. The progress is due, in large part, to the increasingly stringent federal and state regulatory standards that have been imposed on the average exhaust emissions of new vehicles. The regulatory standards have engendered tremendous advances in the design of internal combustion engines.

Nonetheless, California and particularly the Los Angeles area still have a long way to go to meet federal clean air standards. Today, the state can choose among several options to move closer toward that goal. We believe that the state should adopt the programs that are most likely to achieve the goal at the least cost to society. In this regard, however, the state is veering off course. The problem is evident on two fronts, one pertaining to old cars that pollute heavily and one pertaining to new cars that emit absolutely no fuel or exhaust emissions.

A promising program to scrap old vehicles, which tend to have especially high pollution rates per vehicle, has been stalled. Old vehicles tend to spew high amounts of emissions for two reasons: The vehicles were subject to less-stringent emissions standards when they were built, and their emission control equipment has deteriorated over time. Scraping these vehicles would be a relatively low-cost way to clean the air and should remain a state priority.

Meanwhile, the state has aggressively pursued an ambitious program that mandates automakers to manufacture cars that produce no emissions at all. This program is the first step toward the California Air Resources Board’s (CARB’s) long-term goal of reducing emissions from the state’s vehicle fleet to zero. Although the program is appealing in the abstract—who wouldn’t want zero-emission vehicles?—we believe it is unwise in practice, considering the alternatives that are still available. The program may help to clean the air—but only at tremendous cost. Meanwhile, the program could divert resources from less costly ways to clean up the air.

California air quality managers are now moving in the wrong directions regarding both programs. The state has failed to secure the money to take older cars off the road. Meanwhile, the state has mandated that zero-emission cars be put on the road, but doing so will involve very high costs to automakers and consumers. California, instead, should jump-start the first program and ease up on the requirements of the second.

**Old Vehicles: Scrap ’Em**

In 1994, California promised the federal Environmental Protection Agency that it would implement a Voluntary Accelerated Vehicle Retirement (VAVR) program that would remove some cars and light-duty trucks 15 years old or older from the road. The plan was to buy and scrap 75,000 of the vehicles each year from 2001 through 2010.

Geographically, the program applies to the South Coast Air Basin, which includes all of Orange County and the urbanized portions of Los Angeles, Riverside, and San Bernardino Counties. The annual scrapping
target amounts to about 5 percent of the vehicles in the South Coast that are 15 years old or older and 2 percent of such vehicles in California as a whole.

The strategy is sensible, because older vehicles are some of the chief culprits in producing ozone, one of the pollutants subject to federal air quality regulations. Ozone forms when automobile emissions—non-methane organic gases (NMOG) and oxides of nitrogen (NOx)—react chemically with sunlight. In 1998, older vehicles accounted for just 11 percent of the miles driven by cars and light-duty trucks in the South Coast Air Basin but 39 percent of their ozone-forming emissions. In fact, the older vehicles accounted for 18 percent of the ozone-forming emissions from all sources, including industrial sources.

Under the VAVR program, state-licensed auto dismantlers would purchase older vehicles and destroy them. All VAVR transactions between car owners and dismantlers would be voluntary. The state would pay the dismantlers for every vehicle scrapped. Estimates indicate that the state would have to pay between $500 and $1,500 per vehicle to scrap 75,000 vehicles each year. The total amount of money needed to scrap the vehicles would be roughly $100 million per year for 10 years—or $1 billion over the decade. Unfortunately, the state has not found the money to implement the program.

CARB has nonetheless issued regulations for the program, and local air quality management districts are allowing auto dismantlers to use the program to earn “transferable credits.” Under this arrangement, the dismantlers can sell emission reduction credits generated by each scrapped vehicle directly to other businesses. The most common customers for the credits today are companies that buy the credits to offset ride-share requirements. But only about 5,000 cars per year are now scrapped statewide through such programs.

The fate of the VAVR program is very much in doubt. In fact, the program has recently been eliminated from the state strategy to meet federal clean air standards. Our analysis, however, shows that the program is a cost-effective means of achieving federal ozone standards. We conclude that the cost per ton of emissions reduced by the VAVR program would range from $3,700 to $33,300. This range compares favorably with the costs of many other components of California’s air-quality strategy that have already been implemented (see Figure 1).

Even more important for policy purposes, the VAVR program is likely to be even more cost-effective compared with other still available options for further reducing emissions of ozone precursors. Future options are likely to be less cost-effective than current programs and, thus, less cost-effective than a VAVR program. New technologies and additional creative thinking may provide California with attractive new options for reducing emissions further, but the programs that have already been implemented are by and large the most cost-effective ones that are politically acceptable.

In sum, the VAVR program is an attractive way to promote air quality in the South Coast Air Basin. If the program is not implemented, less cost-effective ones—or even ineffective ones—may be used instead in the continuing struggle to move California toward compliance with federal air quality standards.

**Degrees of Zero**

One program that may very well not be cost-effective is California’s Zero Emission Vehicle (ZEV) program. Adopted by CARB in 1990, the ZEV program requires auto manufacturers to sell at least 4,000 cars, minivans, light trucks, and sport utility vehicles in the state in 2003 that emit zero pollution. The mandated number of emission-free vehicles rises gradually to about 30,000 in 2015.

The ZEV program requires manufacturers to meet their fleet-average emission requirements in part with...
a specific kind of technology: a zero-emission vehicle. Such a technological mandate would make sense if zero-emission vehicles were necessary to meet air quality standards or if there were no way to meet air quality standards less expensively. We found, however, that neither is the case. Even though California will require a vehicle fleet with very low emissions to meet federal air quality standards, the state will not necessarily require a fleet with zero emissions. We also found that the cost of moving from very low to zero emissions could be extremely high.

We compared the costs and air quality benefits of various types of vehicles that manufacturers can use to satisfy ZEV program requirements. The costs include vehicle production costs as well as indirect costs, such as corporate overhead, warranty cost, and cost of capital. Over the long run, such costs are generally passed along to consumers. The various types of vehicles include the following:

- **Zero-emission vehicles (ZEVs).** ZEVs include battery-powered electric vehicles. They rely on either nickel-metal-hydride batteries, lead acid batteries, or lithium ion batteries. The electric vehicles come in three classes: full-function electric vehicles, which are similar in size to many vehicles on the road today; “city” electric vehicles, which are much smaller than typical passenger cars and have limited speed and acceleration; and “neighborhood” electric vehicles, which resemble golf carts and are not freeway capable. We limited our analysis to nickel-metal-hydride and lead acid batteries, because lithium ion technology continues to have important shortcomings. We also did not consider neighborhood electric vehicles because many policymakers, including CARB, feel that it is unlikely that these vehicles will displace many of the miles traveled by the types of vehicles currently on the road. ZEVs also include direct hydrogen fuel-cell vehicles, which can be fueled with either hydrogen gas, liquid hydrogen, or hydrogen embedded in metal. We analyzed the hydrogen gas option, which currently appears to be the most practical one.

- **Partial zero-emission vehicles (PZEVs).** Although awkwardly named, these vehicles are extremely clean gasoline-powered vehicles that produce almost negligible amounts of emissions. CARB allows manufacturers to satisfy part of their ZEV requirements with PZEVs. Five conventional gasoline-powered PZEVs can substitute for one ZEV. Large-volume manufacturers can satisfy up to 60 percent of ZEV program requirements with PZEVs. However, PZEVs are yet to be sold, and it will be many years before their on-road emissions can be verified.

- **Gasoline hybrid electric vehicles (GHEVs) that meet PZEV standards.** GHEVs integrate a gasoline engine with an electric motor. The advantage of a GHEV is that it combines a smaller (and thus easier to clean) gasoline engine with a smaller (and thus cheaper) electric battery. There is no loss of power, because the battery compensates for the lower power output of the smaller engine, and the vehicle can travel as far or farther than standard vehicles between refills. Compared to other PZEVs, GHEVs generate the same amount of exhaust emissions (from the tailpipe) and evaporative emissions (from the rest of the vehicle). But GHEVs also generate fewer “indirect” emissions associated with petroleum extraction, refining, and distribution because of
their higher gas mileage. Manufacturers can use GHEVs to fulfill an additional 20 percent of their ZEV requirement above the 60 percent that can be met with other kinds of PZEVs. Thus, ZEVs could conceivably fulfill as little as 20 percent of the ZEV requirement.

In comparing the various types of vehicles, we restricted our attention to the cost of eliminating an additional ton of the ozone-forming emissions of NMOG and NOx. As a point of reference, we looked at the cost-effectiveness of today’s vehicles that meet the toughest emissions standards outside the ZEV program. These vehicles are known as super ultra low emission vehicles, or SULEVs. They produce very little exhaust emissions and must also meet stringent evaporative emission standards. We first estimated the marginal cost per additional ton of emissions reduced by advancing just one technological step, from the SULEV to the PZEV.

We then calculated the cost per additional ton of emissions reduced by moving one technological step further, either incrementally from PZEVs toward GHEVs or directly all the way from PZEVs to the various kinds of ZEVs. In each of these cases, the basis of comparison was the PZEV, not the SULEV, because we assumed that manufacturers would first produce the maximum allowable number of relatively inexpensive PZEVs.

In every case, we estimated three ranges of cost-effectiveness: one for the near term (the first four years of production, representing initial investment costs), one for the longer term (high-volume production, representing economies of scale and also manufacturing improvements), and one for the average over time. We do not expect that manufacturing costs over the next decade will fall appreciably below our estimates absent significant and unanticipated technological advances.

Close to Zero Is Better Than Zero
Figure 2 shows our results. The most encouraging conclusion is that PZEVs are a fairly economical way to reduce ozone-forming emissions. Since PZEVs are conventional gasoline-powered vehicles, they require only incremental improvements on an existing and proven technology, rather than an entirely new technology. We found that reducing emissions from SULEV to PZEV levels will cost between $18,000 and $71,000 per ton of emissions. The lower end of this range is less than the cost per ton of other regulations that have recently been adopted. The upper end of the range exceeds the costs of recent regulations, but it is plausible that policies with costs this high will need to be implemented for federal air quality standards to be met.

We are not confident that it would be cost-effective to advance beyond the standard PZEV to a GHEV. This depends largely on whether GHEV batteries will last for the entire lives of the vehicles. If the hybrids’ maintenance costs (including battery replacement) are comparable to those of a typical PZEV, then GHEVs will be attractive. The GHEV’s life-cycle cost may even be less expensive than that of the typical PZEV in high-volume production, as indicated by the negative costs (or savings) that appear within our ranges of estimates in Figure 2. But if GHEV batteries need replacing, the average cost over time may be as high as $180,000 per ton of additional emissions reduced—more than twice the cost of moving from SULEVs to PZEVs.

The news gets worse. None of the exclusively battery-powered electric vehicles appears to be an economical way to reduce the emissions from PZEV levels to zero. Even after a decade of intensive research and development involving costs exceeding $500 million, battery-powered vehicles still face two formidable roadblocks: the high cost of batteries and the limited amounts of energy they can store. The limited energy storage restricts driving ranges between charges to less than 100 miles for most full-function electric vehicles. The
Keep Your Eyes on the Ball

Based on our analyses of the VAVR and ZEV programs, we make six recommendations to California policymakers:

1. **Revive the VAVR program.** Resources should be found to fund this attractive program.

2. **Abandon the goal of reducing emissions from the state’s vehicle fleet to zero.** The emissions do not have to be zero to meet federal air quality standards. Since the ZEV program was adopted in 1990, tremendous progress has been made in reducing emissions from internal combustion engines. ZEVs are now unnecessary. Rather than striving for zero emissions from some sources, the state should pursue the most cost-effective strategies for reducing emissions from all sources.

3. **Require passenger cars and smaller light-duty trucks to meet PZEV emissions standards.** CARB could gradually reduce the average allowable exhaust emissions from these vehicles to PZEV levels. CARB should also factor indirect emissions (from fuel extraction, processing, and distribution) into the fleet-average requirement. This inclusion would ensure that gasoline hybrid vehicles, which could become an attractive way to reduce ozone-forming emissions, would be appropriately encouraged.

4. **Eliminate the ZEV requirement.** Manufacturers should not be required to produce ZEVs. Our analysis shows that ZEVs are at best a very risky bet on cost-effectiveness grounds, but there are several reasons—discussed presently—why ZEVs may appear attractive to policymakers. Overall, however, we do not believe these reasons tip the balance in favor of ZEVs.

   One argument is that the ZEV program will spur technological development further than it otherwise would go. In particular, it is very difficult to know what would happen to fuel-cell research and development if the ZEV requirement were scrapped. However, by vehicles are extremely expensive to manufacture and show little long-term commercial promise. It makes no sense to continue investing in this technology.

Figure 2 shows that the cost could be lower for electric vehicles with lead acid batteries, but the size and weight of these batteries make it difficult to produce vehicles with broad appeal. In addition, the cost per ton of their emissions reduced may also just as likely turn out to be very high. The figure shows potentially lower costs for city electric vehicles. But these vehicles, which typically have a range of 50 to 60 miles, are very different from vehicles on the road in California today and may also have limited commercial appeal.

Direct hydrogen fuel-cell vehicles show much more promise than battery-powered electric vehicles, but a great deal of uncertainty remains. If fuel-cell-system costs fall sufficiently, then these vehicles could become an attractive part of California’s strategy for meeting ozone standards. Beyond questions of cost, fuel-cell vehicles also face a chicken-and-egg problem regarding infrastructure. A sparse infrastructure of hydrogen filling stations limits the attractiveness of the vehicles, while small numbers of vehicles limit the number of commercially viable fueling stations. It is too early to tell whether fuel-cell vehicles will become an economical way to reduce emissions from PZEV levels to zero.
By favoring particular technologies, the ZEV mandate could be pushing the wrong technology.

6. Focus on emissions standards, not technology mandates. CARB should set vehicle emissions standards and let the automakers determine how best to meet them, because automakers can be expected to meet the standards at least cost. CARB should continue to set very stringent fleet-average emissions standards for new vehicle fleets, but there is no need to set the standard for part of the fleet at zero or to require manufacturers to meet the average standard in part with ZEVs.

California has made remarkable progress in cleaning the air over the past 30 years. But much remains to be done. As for old vehicles, the state should accelerate their voluntary retirement. As for new vehicles, the state should continue to reduce their allowable emissions incrementally, but it should also allow the flexibility needed for different technologies to compete for roles in meeting air quality goals. It would also make sense for California to tighten the emissions standards on all new cars and light-duty trucks to the levels required for PZEVs and to reduce pollution from other vehicle and non-vehicle sources as well.

5. If the state chooses not to eliminate the ZEV requirement, then either delay it or allow fewer numbers of fuel-cell vehicles to satisfy the requirement in the early years. By delaying the program, CARB would allow time to evaluate the promise of fuel-cell vehicles, the only zero-emission technology that appears promising for the foreseeable future. If CARB does not want to delay the introduction of fuel-cell vehicles into the market, then CARB could increase the number of ZEV credits generated by each fuel-cell vehicle. A substantial increase would prevent a large number of battery-powered vehicles from being put on the road but would still allow CARB and the industry to gain a better understanding of the real-world potential of fuel-cell vehicles.

favoring particular technologies—in this case, battery-powered electric vehicles or direct hydrogen fuel-cell vehicles—the ZEV mandate could be pushing the wrong technology rather than spurring desirable technological development.

Another argument for the ZEV program is that it could insure against potential disappointments in the lifetime, in-use emissions of typical PZEVs. However, the ZEV mandate could be diverting the state away from better forms of insurance—such as research on how to reduce emissions from diesel vehicles, off-road equipment, and stationary sources. Strategies to achieve air quality standards at the least cost should explore the possibilities of reducing the considerable emissions from these sources before requiring ZEVs.

A third argument for the ZEV program is that it reduces carbon dioxide emissions (greenhouse gases) as well as ozone-forming emissions. In fact, the California legislature has recently directed CARB to develop regulations to reduce greenhouse gases. To reduce carbon dioxide emissions, however, it may be more cost-effective to increase overall gas mileage by raising the corporate average fuel-economy standard.

A fourth argument for the program is that it could reduce dependence on foreign oil. But to do so, it may make more sense to switch to alternative-fuel vehicles, such as those that run on compressed natural gas.

What concerns us most about the ZEV requirement is that it focuses on a very narrow set of technologies in its aim to reduce air pollution in California. The focus on zero-emission technologies seems particularly inappropriate given that ZEVs are not needed to meet air quality standards and that much lower-cost alternatives for reducing emissions appear to be available.
Conflicting Benefits: Trade-Offs in Welfare Reform

By Jeffrey Grogger, Lynn A. Karoly, and Jacob Alex Klerman

Jeffrey Grogger is a RAND research associate and professor of public policy at the University of California, Los Angeles. Lynn Karoly and Jacob Klerman are senior economists at RAND.

Federal and state reforms have ended welfare as we once knew it, but we are only beginning to understand the effects of the new programs. Many of the welfare reform policies instituted in 1996 have yielded favorable results, but some of the policies have clearly worked against others. In short, different welfare reform policies are better at achieving different goals. As lawmakers seek to refine the new welfare system, it is important that they understand the trade-offs that different policies entail.

The 1996 Personal Responsibility and Work Opportunity Reconciliation Act created a block grant program, called Temporary Assistance for Needy Families (TANF), which allowed the 50 states to experiment with different bundles of reforms. The federal legislation, in fact, incorporated several reforms that had already been the focus of state experimentation in the early 1990s. The federal legislation is now due for congressional reauthorization.

The federal act mandated the basics of welfare reform: tougher work-related requirements and a five-year time limit on the receipt of federally funded benefits. The states have determined the specific nature of the work-related requirements and the length of the state time limits. (A few states effectively have no time limit, because they will use state funds to extend benefits to those who reach the federal limit.)

Federal welfare reform also gave states flexibility that they did not have before. Some states have implemented financial work incentives, which allow recipients to keep more of their benefits when they find a job. Other states have imposed a “family cap,” which means that benefits no longer rise when families have babies while on welfare. Parental responsibility requirements (e.g., to obtain immunizations for children or to ensure school attendance) have also been implemented by some states.

Congress enacted the national legislation to further several goals: reduce dependency, increase employment, reduce unwed childbearing, promote marriage, and maintain two-parent families. States have identified additional goals: raise income, reduce poverty, and improve child well-being. Only now is it becoming possible to evaluate the success of welfare reform in meeting its disparate goals.

We have synthesized the current state of knowledge about the effects of welfare reform policies, with the aim of informing the debates about reauthorization and state welfare programs. We have compiled the results of 67 random assignment and econometric studies. The studies have assessed the effects of 11 reform policies (or combinations of policies) on 22 out-
comes. We group the outcomes into three domains: economic outcomes (welfare use, employment, earnings, income, and poverty), child well-being, and other outcomes (fertility, marriage, use of other government programs, and other measures of well-being).

Here are the key findings:

- Most studies show that welfare reforms have substantially reduced the welfare caseload.
- Most reforms have increased the employment and earnings of welfare recipients, but usually by only moderate amounts.
- Some reforms can raise income and also reduce poverty. (Income equals earnings plus welfare plus other income sources.) Generous financial work incentives generate the strongest income gains and poverty reductions. However, some of these favorable results may disappear as welfare recipients reach their time limits.
- The central economic trade-off is between reducing welfare use and raising income. The price for raising income is higher welfare use.
- Welfare reforms can have both positive and negative effects on children, and the effects appear to vary with the age of the child. Work requirements do not appear to have strong overall effects on children. The most positive effects are associated with financial work incentives, most likely because family income grows from combining work and welfare. However, both policies—work requirements and work incentives—are associated with negative effects on adolescents.
- Work requirements have no effect on marriage or fertility.
- There is little information available about the effects of welfare reform on the use of other government programs, such as food stamps, Medicaid, school nutrition programs, housing subsidies, and disability benefits. There is also little information available about the effects of welfare reform on food security, children’s health coverage, and savings in welfare households.

### Effects on Economic Outcomes

The U.S. economy flourished during the 1990s, at the same time that the states implemented reforms to their welfare programs. By 2001, the welfare caseload had fallen to about 2.1 million families, less than half its all-time peak of 5 million families in 1994. The fraction of welfare recipients participating in welfare-to-work activities, or actually working, increased rapidly. Employment rates and earnings of single mothers rose substantially. Family income rose. Poverty declined. Even the prior upward trend in nonmarital fertility leveled off.

Because these improvements occurred as welfare reform took place, some observers point to welfare reform as the cause. However, other policies also changed during the 1990s, notably the increases in the Earned Income Tax Credit, the uncoupling of subsidized health insurance from welfare receipt, and the increases in the minimum wage. The long and robust economic expansion was an important change in itself. Therefore, some of the improvements probably resulted from the strong economy and from changes in other policies, rather than from welfare reform.

Ideally, in designing welfare programs, lawmakers would consider the separate effects of each of the reform policies. Toward that goal, our synthesis aims to answer the question: What is the effect of a given policy (such as work requirements) on a given outcome (such as welfare use), holding all else equal? We also consider the effects of reform as a whole: the combined effects of the bundle of policies implemented together. We summarize our results in four tables.

Table 1 shows the effect of different welfare reforms and reform as a bundle on the five key economic outcomes: welfare use, employment, earnings, income, and poverty. An orange cell indicates that a reform (or bundle of reforms) has been found by most studies to contribute to an increase in an outcome, such as increased welfare use or increased employment. A brown cell indicates that a reform is associated with a decrease in an outcome. Note that either an increase or a decrease can be desirable, depending on the outcome. Gray cells indicate that roughly equal numbers of studies have identified increased and decreased results. Blank cells indicate that no studies exist at all.

Stars indicate the strength of the evidence provided by the existing literature. Four stars indicate the strongest evidence (several high-quality studies, most of which yield similar and significant estimates). Three stars indicate an intermediate level of evidence (two or three high-quality studies). Two stars indicate only weak evidence (a single high-quality study or two moderate-
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</table>

**Table 1—Consequences of Welfare Reforms for Economic Well-Being**

- **Increase**: ★★★ Much evidence
- **Decrease**: ★★★ Some evidence
- **Mixed**: ★★ Little evidence
- **No evidence**: ★ Insufficient evidence to assign direction with minimum confidence

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**Only strong financial work incentives have simultaneously raised income and reduced poverty.**
quality studies with significant estimates). One star indicates that the available studies offer insufficient evidence to assign a direction of effect with a minimum level of confidence.

Mandatory work-related activities (either employment or job training) have been studied more than any other reform. A substantial body of evidence shows that they generally reduce welfare use while increasing employment and earnings. However, when implemented in conjunction with the traditional welfare benefit structure, in which benefits fall nearly dollar for dollar as earnings rise, the work requirements have little effect on income. The earnings gained are not enough to offset the benefits lost.

Nonetheless, the evidence suggests that work requirements do decrease poverty. This finding may imply that the activities raise income primarily for those who live just below the poverty line. This interpretation is consistent with other evidence that such programs offer greater income benefits to relatively advantaged welfare recipients than to relatively disadvantaged ones.

Sanctions for noncompliance with work requirements may include either a partial or full reduction in the monthly welfare grant. Some evidence shows that sanctions and time limits both reduce welfare use, but we know relatively little about their effects on other economic outcomes.

Of all the policies shown in Table 1, only strong financial work incentives, either alone or in combination with work requirements, have simultaneously raised income and reduced poverty. (These effects were modest.) Strong financial work incentives allow welfare recipients either to keep more of their welfare checks as their earnings rise or to receive income supplements conditioned on full-time work. However, in contrast to the other reform policies, financial work incentives also increase welfare use, because families remain eligible for benefits even at higher levels of earnings.

The row in Table 1 that combines mandatory work-related activities with strong financial work incentives illustrates a central point. The row shows that it is possible to require work, to raise income, and to reduce poverty all at the same time. The key is to combine a work requirement with a relatively generous financial work incentive, so that earnings rise more rapidly than benefits fall. The trade-off for raising income, however, is higher welfare use.

Table 2 further highlights the trade-offs involved as policymakers seek to design welfare programs. For each of the three major policy reforms—work requirements, financial work incentives, and time limits—a check mark indicates whether that policy is likely to achieve one of three possible objectives of reform: reducing welfare dependency, increasing work, or raising income. From our synthesis, we conclude that work mandates reduce welfare use and increase employment, but they do not necessarily raise income. In contrast, strong financial work incentives raise employment and income but do not decrease welfare use. Time limits have similar effects as work mandates.

Depending on the decisionmaker’s objectives, different combinations of policies may be preferred over others. Policymakers who place a greater priority on reducing dependency and increasing work will favor work requirements and time limits. Policymakers who place more weight on raising income and reducing poverty will favor financial work incentives.

Returning to Table 1, we conclude that the combined effects of the reforms implemented during the 1990s have been a reduction in welfare use; an increase in employment, earnings, and income; and a reduction in poverty. However, the favorable effects on income and poverty represent what happened before most welfare recipients could have reached their time limits. The effects may become less benign as more recipients exhaust their benefits.

### Effects on Child Well-Being

Our knowledge of the effects of welfare reform on child well-being is quite limited, but there appear to be both positive and negative effects on children, and the effects can vary by age (see Table 3). For example, work requirements seem to have mixed effects on preschool children,
Table 3—Consequences of Welfare Reforms for Child Well-Being

| Reforms                                                        | Preschool                               | Grade School                             | Adolescents                              |
|                                                               | Child Abuse andNeglect (all ages)       | Behaviour Problems                        | Achievements Problems                     | Health Problems | Behaviour Problems | Achievements Problems | Health Problems |
|                                                               | Behaviour Problems                      | Achievements Problems                     | Health Problems                           |               | Behaviour Problems | Achievements Problems | Health Problems |
| Mandatory work-related activities                              | ★                                       | ★★★★★                                    | ★★★                                    | ★★             | ★★           | ★★★★★                | ★★             |
| Sanctions for noncompliance                                    | ★                                       |                                         |                                        |                |              |                      |                |
| Financial work incentives                                      | ★★                                      | ★★★                                      | ★★★                                    | ★★★           | ★★★          | ★★★                  | ★★★           |
| Financial work incentives conditioned on full-time work        | ★★                                      | ★★★                                      | ★★★                                    | ★★★           | ★★★          | ★★★                  | ★★★           |
| Mandatory work-related activities and strong financial work incentives | ★★★                                      | ★★★                                      | ★★★                                    | ★★★           | ★★★          | ★★★                  | ★★★           |
| Mandatory work-related activities and weak financial work incentives | ★                                        |                                         |                                        |                |              |                      |                |
| Time limits (before recipients reach limit)                    | ★                                       |                                         |                                        |                |              |                      |                |
| Time limits (after recipients reach limit)                     |                                         |                                         |                                        |                |              |                      |                |
| Family caps                                                    | ★                                       |                                         |                                        |                |              |                      |                |
| Parental responsibility requirements                           | ★                                       | ★★★                                      | ★★★                                    | ★★★           | ★★★          | ★★★                  | ★★★           |
| Reform as a bundle (before recipients reach time limits)       | ★                                       | ★★★                                      | ★★★                                    | ★★★           | ★★★          | ★★★                  | ★★★           |

- **Increase**: ★★★★★ Much evidence
- **Decrease**: ★★★ Some evidence
- **Mixed**: ★★ Little evidence
- **No evidence**: ★ Insufficient evidence to assign direction with minimum confidence
a positive effect on the health of grade-school children, and a negative effect on school achievement among adolescents. We cannot explain these discrepancies.

The most positive effects on children are associated with financial work incentives, most likely because family income increases as welfare recipients combine work and welfare. Strong work incentives alone or in combination with work requirements generally appear to decrease behavior problems and school achievement problems among children in grade school. However, the same reform likely increases both kinds of problems among adolescents. Depending on how financial work incentives are combined with work mandates, they may either improve health among grade-school children or contribute to impaired health among the same age group.

Because of the very limited evidence available, we have even less clarity about the overall effects of reform on child well-being than on economic outcomes. The bottom row of Table 3 shows a mixed effect on the behavior problems of grade-school children, a salutary effect on the health status of the same children, a mixed effect on the behavior problems of adolescents, and a detrimental effect on the achievement problems of adolescents. Yet these results should be interpreted cautiously. They are all based on two studies of bundles of reforms that are not very representative of those implemented in other states.

Furthermore, we know very little about the effects on children of parental responsibility requirements, such as providing child immunizations and other preventative health care. We also know virtually nothing about the effects on children of sanctions, time limits, and family caps.

Yet the early evidence suggests that welfare reforms affect children of different ages differently. There seem to be countervailing forces that both promote and impair behavioral, social, cognitive, and physical development. The prevailing effects are likely to depend on the strength of the opposing forces, on the child’s stage of development, and on other circumstances.

Clouding our understanding further, a nearly universal limitation of our conclusions is that they apply mostly to the short run. Understanding the longer-term effects of reform is especially pertinent for child well-being. Some aspects of child well-being, such as cognitive skills, are likely to take much longer to change than parental work habits. Even the shorter-term aspects of child well-being, such as behavior problems, could vary as children are exposed to cumulatively lower levels of welfare use and cumulatively higher levels of parental employment.

Whether the effects identified in this research will continue in the longer run—or whether they will be attenuated or exacerbated—remains to be seen. Long-run information on the effects of current welfare reforms on family structure and child well-being is crucial.

**Effects on Other Outcomes**

We are almost certain that mandatory work-related activities have neither a positive nor a negative effect on marriage or fertility (see the black cells in Table 4, which denote that a policy contributes to no change in an outcome). This conclusion is based on five years of follow-up data for seven programs and two years of follow-up data for five additional programs.

The rest of Table 4 reveals another series of trade-offs. The evidence indicates that work requirements (and other policies that leave income unchanged) can undermine other measures of well-being, such as food security and children’s health insurance coverage. Meanwhile, strong financial work incentives (and other policies that raise income) can enhance food security, children’s health insurance coverage, and savings.

Only the most limited evidence suggests that financial work incentives may also promote marriage—a principal goal of the 1996 legislation. This finding comes from a single random assignment experiment that is not corroborated by any others.

We do not know how financial work incentives may affect marriage when they are conditioned on full-time work or combined with work requirements. We also know little, if anything, about the effects of sanctions, time limits, family caps, or parental responsibility requirements on marriage, fertility, or other measures of well-being.

**Unknown Effects**

The tables show that our knowledge is strongest regarding the effects of welfare reform policies on welfare use, employment, earnings, and income. Our knowledge is weakest regarding the effects on children, especially preschool children, and on broader measures of well-being.
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<th>Reforms</th>
<th>Marriage</th>
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</tr>
</tbody>
</table>

| Increase | ★★★★★ Much evidence |
| Decrease | ★★★ Some evidence |
| Mixed    | ★★ Little evidence |
| No change| ★ Insufficient evidence to assign direction with minimum confidence |
| No evidence |          |
Among the various policies, we know a lot about the consequences of mandatory work-related activities. We know nearly as much about financial work incentives (either alone, when conditioned on full-time work, or when combined with mandatory work-related activities). We know much less about the consequences of other reforms. Overall, just under half of the cells in our tables (120 out of 242 cells) remain empty, indicating that no research has been done to assess the consequences of the policies. Another 37 cells (those with a single asterisk) are nearly empty.

Some of the gaps in knowledge are highly relevant for policy. There have been very few studies of the effects of welfare reform on the participation of poor families in the Medicaid program or on the health care coverage of children more generally. This omission is particularly troublesome in light of the apparent decreases in Medicaid enrollment following the implementation of TANF—despite 15 years of policy initiatives designed to increase the coverage of poor children.

With an increasing emphasis on work for mothers of children as young as age one, it is also unfortunate that so little is known about the effects of welfare reform on child development prior to school entry. This issue is especially relevant for policies aimed at improving early care and education.

Despite continued interest among many policymakers in promoting two-parent families and reducing out-of-wedlock births, little is known about how reform policies other than work mandates affect marriage and fertility. The short-run nature of most of the evidence limits our understanding of whether reform has accomplished its goals in these areas. Since marriage and fertility involve substantially more inertia than other aspects of behavior, we would expect the effects of welfare reform on such outcomes to become apparent only over a longer horizon. It should come as little surprise that most of the evidence from high-quality studies to date is both mixed and statistically insignificant.

A more general omission is any understanding of how reform has affected family decisions to enter welfare. Random assignment experiments reveal how policy reforms affect those who are either applying for or already on welfare. The experiments give no information about how families decide to apply for aid in the first place. There have been only a few econometric studies that focus specifically on welfare entry. This omission is significant, because recent findings indicate that as much as half of the recent decline in the welfare caseload is attributable to declining rates of entry.

The federal reauthorization proposals now on the table include modifications to current reform policies, such as work mandates. We have no direct evidence to weigh the merits of the proposed changes, other than extrapolating from experience with current policies. Moreover, our evidence on the effects of the reforms is limited to a time in which the strong economy played a key role in reducing welfare use and increasing self-sufficiency. We can only speculate on how welfare recipients may fare in a weakened economy.

In sum, the short-term results have been mostly positive, but the outcomes were assessed in a period when the economy was booming and before time limits were reached. Even under these conditions, there have clearly been trade-offs among the policies. We also suspect that progress will become harder to sustain as welfare recipients begin to reach their time limits in significant numbers. For these reasons, it is important that the federal and state policymakers who design welfare reform policies review and revise them with realistic expectations based on what we already know about the likely consequences.

Related Reading


Numerous obstacles keep the information revolution from spreading unfettered to the furthest reaches of the globe. RAND researchers have looked at four regions where the “information superhighway” has hit roadblocks: China, Russia, Latin America, and parts of the Middle East. The researchers map the obstacles unique to each region and, where possible, point the way toward potentially overcoming them.

Here are the key findings:

• In China, the government’s crackdown on dissidents is currently succeeding in cyberspace. However, as the use of the Internet expands across China as a cornerstone of economic development, the government will have a harder time suppressing information, perhaps making it easier for dissidents to push the country toward pluralization and maybe even democracy.

• In Russia, a similar tension exists between the urge to reap the economic benefits of the information revolution and the urge to control information that could threaten political stability or national security. Unlike China, however, it is unclear if Russia has either the will or the capability to become a full-fledged participant in the revolution in the foreseeable future.

• Latin American countries are at various stages of the revolution, yet many of the countries face similar difficulties: the scarcity of credit cards with which to pay for e-commerce, poor infrastructure for delivering purchases, and popular distrust of delivery procedures. Other hindrances include poor education, the flight of skilled people to the United States, and desires for national or regional autonomy. Mexico may offer the most promising model for overcoming some of these obstacles.

• Afghanistan and the developing countries of the Middle East are missing out on much of the revolution. Many of the countries resist the revolution. Meanwhile, efforts to spread the revolution in these countries give too little consideration to the plight of marginalized people and fail to build on the strengths of the local environment. Nevertheless, the establishment of local Internet centers with a “human face” could facilitate Internet use in small towns and villages.

China
Contrary to some predictions, the Internet is unlikely to spark major political change in China in the near future, according to a report by RAND analysts Michael Chase and James Mulvenon. The Internet may ultimately provoke change in Chinese society and politics, but the change will probably occur in an evolutionary, rather than revolutionary, manner.

The authors found that the government’s crackdown on dissident use of cyberspace has thus far succeeded. The term dissident refers not only to political dissidents active inside the People’s Republic of China, but also to activists residing overseas, members of the quasi-spiritual Falun Gong movement, Tibetan exiles, and others who use the Internet for purposes deemed subversive by Beijing. The report is one of the most thorough analyses ever conducted of Internet use by Chinese dissidents and of China’s response.

The Chinese government has managed to stifle the spread of Internet-based dissent primarily by employing “low-tech Leninist techniques,” according to the report. These measures include searches, arrests, con-
fiscation of computer equipment, strict government regulations, physical shutdown of parts of the information infrastructure, and the use of surveillance and informants. At least 25 people have been arrested in the past two years because of their online activities.

Simultaneously, the regime is becoming increasingly sophisticated in using high-tech measures, such as monitoring and filtering email, blocking email and web sites, and hacking web sites. Some nongovernmental groups have also launched “vigilante attacks” against dissident web sites, compounding the difficulty of ascertaining the level of official government sponsorship of such activities. There is also evidence that the government is using the Internet for its own political purposes, electronically spreading criticism of dissidents and bombarding their email addresses with thousands of bogus messages.

Internet use has spread quickly throughout China, growing from about 1 million users in October 1997 to more than 33 million by January 2002. Dissident political groups have adopted email and bulletin board sites as ways to spread information and ideas quickly and discreetly.

Dissident tactics include “Internet guerilla warfare,” which entails sending mass email messages (or “spam”) to large groups of people, sometimes including government leaders. The use of one-way Internet communication, large distribution lists, and different originating email addresses gives dissident groups two advantages. It enables the groups to transmit uncensored information to an unprecedented number of people and provides the recipients with plausible deniability of ever having requested the information.

Online dissidents are restricted by the currently limited demographics of the country’s Internet users, most of whom are young, well-educated men who live in eastern cities like Beijing and Shanghai. Less than two percent of China’s Internet users are rural peasants, who make up the bulk of the nation’s population.

Fissures within the dissident community present further challenges. “Enhanced communication does not always further the dissident cause,” say the authors. “In some cases, it serves as a potent new forum for discord and rivalry among various dissident factions.”

Commercial interests reinforce the government’s strategy, say the authors. The commercial Internet sector operates within a complex web of regulatory relationships, fiscal relationships, and close partnerships with the regime. The business environment in China also encourages the commercialization, not the politicization, of the Internet. For Chinese and foreign companies alike, “the point is to make profits, not political statements.”

Yet because China is committed to expanding its use of technology as a cornerstone of economic development and global prestige, the Internet is likely to become available to a wider segment of the nation’s population in the future. The increasing prosperity of Chinese society will make it more difficult for the government to suppress information and easier for dissidents to expand their efforts.

“While Beijing has done a remarkable job thus far of finding effective counterstrategies to what it perceives as the potential negative effects of the information revolution,” say Chase and Mulvenon, “the scale of China’s information-technology modernization would suggest that time is eventually on the side of the regime’s opponents.”

**Russia**

Russia’s internal development and its integration into the community of Western nations depend importantly on the extent of its participation in the information revolution. In January, in fact, President Vladimir Putin approved an “Electronic Russia” (E-Russia) program, calling for rapid acceleration in the use of information technologies in government, business, and society.

However, the Russian government is both limited in the...
resources that it can devote to the technologies and concerned about their political and national security ramifications. “It is very much an open question whether Russia has either the will or the capabilities” to fulfill its aspirations any time soon, say RAND analysts Jeremy Azrael and D. J. Peterson.

One priority identified by the E-Russia program is infrastructure development. Proposals have been made for the government-funded construction of a high-speed Internet “backbone” and for subsidized service to universities and research institutions. Numerous efforts are under way to organize high-tech “incubators” and “technoparks” around major universities and in communities—such as St. Petersburg, Zelenograd, Novosibirsk, and Krasnoyarsk—with large concentrations of highly trained programmers, mathematicians, and engineers.

Policymakers envision the technologies ultimately spreading throughout Russian society. The Putin administration has established the goal of having Internet access available in all higher educational institutions by 2005 and all secondary schools by 2010. The E-Russia program calls for the creation of a government-wide Intranet, the integration of agency databases, and the online drafting and discussion of federal legislation and regulations. Perhaps most intriguing given Russia’s history, the program literature states that widespread diffusion of information technology is “a prerequisite for the development of civil society based on free access to information through the global Internet.”

In short, Russia’s policymakers see the information revolution as spurring economic change and development, boosting Russia’s international competitiveness, improving the productivity and responsiveness of government, and creating a more educated, informed, and engaged citizenry.

Russia has made remarkable progress, especially considering where the country was a little over a decade ago, when the abacus was still used for accounting. Today, financial analysts and traders in Moscow monitor international markets in real time. A small but dynamic “New Economy” sector has emerged to meet the domestic demand for information and communications technologies and services. Well-educated Russian programmers have gained the esteem of Silicon Valley engineers. And more and more average Russians, including a variety of civic groups, are hopping onto the information superhighway.

Nonetheless, Russia remains far behind those nations with which Russian elites like to compare their country (see figure). Russia’s long-term capabilities are also in doubt. In 1990, 1.6 million Russians were reportedly employed in the science sector. In 2000, that number had fallen by half. With basic research in Russia hobbled by a lack of steady funding, many Russian scientists have left for Germany or the United States.

Meanwhile, Putin has authorized steps to bolster the government’s ability to monitor electronic communications and to ensure that they are used, in his words, “with particular responsibility.” In September 2000, he signed off on a national Information Security Doctrine. The doctrine warns against foreign penetration of Russia’s “scientific-technical space” and subversive efforts of Western governments “to reorient the scientific and technical ties” between Russia and other members of the Commonwealth of Independent States toward the West. In January 2002, he signed legislation to give a national security organ control over online transactions.
The impact of these control efforts is unclear. Azrael and Peterson predict only that “Russia’s more active participation in the information revolution seems certain to exacerbate the tension” between the E-Russia vision and the Information Security Doctrine. As in China, the trade-off is between economic growth and political stability. “While protagonists of a truly open society are hard to find among Russia’s top officials, there are many who understand that heavy-handed efforts to prevent access to and use of information technologies would jeopardize the economic benefits they are hoping to reap from the information revolution—and thus would threaten a key element of the regime’s legitimacy.”

**Latin America**

For the information revolution, there is no “Latin America.” Differences across the region are vast. The countries might be divided into three groups:

- the “leaders”—Mexico, Brazil, Argentina, Chile, and Uruguay—at the northern and southern ends of Latin America
- the successful “outliers,” like Costa Rica and some of the Caribbean islands
- the rest.

Among the leaders, Mexico is probably the leader, according to RAND analyst Gregory Treverton. Mexico also epitomizes most of the issues common to the region’s relatively advanced countries, particularly the broader political, social, and historical forces at work.

In Mexico, there are intriguing parallels between the Internet today and the railroad boom of the 19th century. Then, as now with the “digital divide,” the growing disparity of wealth that resulted from railroad building was socially disruptive. Owned by foreigners or local oligarchs, railroads generated growth but worsened the income distribution. The backlash against the social impact of the railroads contributed to the revolution of 1910. The railroad bubble burst, and Mexico has laid few railroad tracks since.

Today, there are few Internet start-up companies based in Mexico. Most of them are organized outside the country, even if they intend to conduct business in Mexico. The 125 firms in Mexico’s own “Silicon Valle” of Guadalajara, where high-tech start-ups are beginning to thrive, are all, like the railroads a century ago, foreign-owned—four-fifths American and the rest Asian.

The current hub-and-spoke configuration of global Internet fiber-optic cables is a metaphor for Latin America’s connections to the richer countries. The cables link Latin American countries primarily to the United States, not to each other. This metaphor evokes age-old concerns regarding national security and autonomy—with powerful echoes in Latin American history. If recent Internet history is any guide, advances in information technology will continue to be exploited fastest in the United States and Europe, leaving Latin America perhaps further behind and possibly reinforcing Latin American suspicions that the global “game” is rigged against it.

However, Mexico decided through the North American Free Trade Agreement that it couldn’t escape the United States and so should benefit from the U.S. economy as best it could. Mexico weathered the financial crises of the 1990s better than other Latin American regions because it was so closely tied to a booming U.S. economy. Other nations either will not choose or
will not be able to connect themselves so directly to the information revolution’s dominant nation.

The successful “outliers” in the region include Costa Rica and some of the island states in the Caribbean: the Cayman Islands, the Bahamas, St. Bart’s, Aruba, the British Virgin Islands, and the U.S. Virgin Islands. These countries share several things in common. Their governments are founded on trust and transparency. They have a well-established rule of law, high literacy rates, economic cultures in which businesses can prosper, populations that are fluent in English (in Costa Rica’s case, tolerable working knowledge), and, perhaps most important, political stability.

In much of northern South America, skilled people who can leave do leave, most often for the United States. The people are pushed out by violence, lack of opportunity, and populist politics that discourage innovation and individual enrichment. Many people flee to Miami, Los Angeles, or other U.S. cities that combine technological prowess with large Spanish-speaking populations.

Technology alone will be insufficient to propel Latin America forward. Education is the primary obstacle to economic progress generally in Latin America, whether in narrowing the income gap or in joining the information revolution. Dropout rates are high, rates of those repeating a grade in primary school are very high, teaching materials are outdated, and the worst teachers are in the primary schools. At universities, the teachers are poorly paid; moonlighting and part-time teaching are the norm.

Only a handful of Latin American countries have adult literacy rates at or above 94 percent. Since the opportunities afforded by information technology usually pertain to gathering information, literacy is an absolute prerequisite. Sadly, Latin America is not investing enough in literacy.

Greater Middle East

Afghanistan and its neighbors to the west—the developing countries of the Middle East—are missing out on much of the information revolution. Although pockets of high access to the Internet exist in these countries, they generally lag far behind developed countries.

The gargantuan task of rebuilding Afghanistan has naturally been the focus of much attention recently. But developing countries throughout the Middle East face challenges similar to those faced by Afghanistan, albeit to a lesser degree, according to RAND analysts Elham Ghashghai and Rosalind Lewis. All the countries need to strengthen and diversify their economies, educate and engage their young people, develop infrastructures to support economic growth, and lure back the educated professionals and businesspeople who have fled to other countries.

Information technology will be instrumental in meeting these challenges, but recent history shows that Afghanistan and the Middle East are often suspicious of, and resistant to, technological change. Many Middle Eastern states fear two by-products of the Internet in particular: dissemination of Western political thought and the spread of pornography. Many Middle Eastern leaders view the Internet as a Western-based agent of moral and political subversion. As a result, many countries strictly enforce limits on Internet connectivity.

Moreover, the information technology strategies that do exist in the region may serve only to widen the digital divide between the few “haves” and the more numerous “have-nots.” Current strategies are typically developed either to attract external investment for new infrastructures or to market hardware and software. These strategies give too little consideration to the plight of the poor and to the strengths of the local envi-
environment. If information technology is supposed to build and strengthen the economies of these countries, it must be adapted to local needs and cultures.

Ghashghai and Lewis propose a two-step approach to test the feasibility of enhanced Internet access in Afghanistan and elsewhere in the Middle East. The first step is to conduct research on the needs of potential users, on what they consider to be the benefits and drawbacks of using the Internet, and on what might induce them to use it. The research should also gauge the level of support from local government and private industry. The second step is to establish a prototype Internet center in a small town or village to test whether such a center can be tailored to local needs and traditions while helping inhabitants to realize the advantages of the Internet.

One or more small towns or villages should be chosen for the feasibility analysis, which should do several things. It should assess the needs and levels of interest and support. It should identify the institutions—such as mosques, schools, or cultural centers—that would attract widespread Internet usage. And it should identify the changes in local conditions—such as health, education, infrastructure, the environment, and political systems—that would be conducive to usage.

Based on the information gathered, Internet companies should be invited to form partnerships with a local business or development organization to establish a prototype Internet center. The primary motivations for establishing the center would be business development (putting local artisans and craftspeople in touch with end buyers rather than with middlemen) and job creation.

A successful Internet center would have a “human face.” For example, the center would probably feature one or more facilitators to provide translation services, to relay messages, to help make business contacts, and to facilitate use of the Internet in general. To address any governmental concerns, the facilitators could be licensed or supervised by the government.

Middle Eastern governments will not be able to bar connectivity to the Internet indefinitely. On the contrary, the pressing needs of Afghanistan, and the slow pace of economic progress throughout the Middle East, suggest that steps should be taken promptly to develop a practical and culturally acceptable approach to help the general population take advantage of the benefits of information technology sooner rather than later.

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Many Middle Eastern leaders view the Internet as a Western-based agent of moral and political subversion.

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Related Reading


*Issues Affecting Internet Use in Afghanistan and Developing Countries in the Middle East*, Elham Ghashghai, Rosalind Lewis, RAND/IP-231-CMEPP, 2002, 6 pp., no charge.


Don’t Make After-School Care the Next Big Myth

By Megan Beckett

Megan Beckett is a social scientist at RAND.

As more and more families find they need two breadwinners to make ends meet (and as welfare reform has led to more single parents who work), the number of “latch-key kids”—kids left to fend for themselves after school—has grown in the past several decades. Moreover, as parents worry about how their children will fare in an increasingly competitive society, the desire to provide them with academically enriching experiences continues to grow. There is also the ever-present concern that many kids left to their own devices will drift toward risky behaviors, like drug use or delinquency.

Increasingly, “after-school care” programs are being viewed as a panacea for these and other social and educational concerns. These programs typically provide a variety of activities—socializing, free time, games, reading, homework time, physically active play, and arts and crafts—for kids from ages 6 to 12. The programs are proliferating, and public money to support them is growing astronomically. For example, the budget for the largest single source of funding for after-school care, the federal 21st Century Community Learning Centers, increased tenfold from about $1 million annually in 1997 to $1 billion annually today.

In an era of scarce public resources and accountability, we need to know whether after-school care programs can meet the expectations pinned on them. The short answer is “we don’t know.”

In arguing for the value of after-school care programs, proponents point to the results from numerous program evaluations to bolster their claims, but a closer reading of those evaluations shows that few, if any, of the claimed results can be attributed to participation in these programs. While promising, these results are based on evaluations that suffer from a myriad of problems, ranging from poor measures of student outcomes, to inadequate (or, in many cases, no) control groups of students not in after-school care programs, to a failure to test if effects are statistically significant.

Attributing a real benefit to a program requires a convincing evaluation, such as a “gold standard” study where some kids are randomly assigned to participate in a program while other kids are not. Over a few months, to a year, to many years, differences in how well the kids in the two groups are doing can be measured, and if the kids were truly randomly assigned, changes in outcomes could be attributed to program participation.

No such convincing studies of after-school care programs have been done, and the field is at about the same stage as the school-based drug-use prevention field two decades ago. At that time, vast quantities of money were being funneled into subsequently disproved program strategies or into programs like D.A.R.E. (Drug Abuse Resistance Education) that had not been carefully evaluated. Later evaluations also showed that D.A.R.E. had very little or no effect and that the costs were not justified. As a result, the federal government has pushed for adopting better-designed programs, like Project ALERT, that have rigorous evaluations and yield credible and positive results.

Such evaluations have shown that drug prevention can work and, perhaps even more important, have helped to confirm the value of these programs to policymakers who fund them. Moreover, such evaluations have shown which drug intervention programs work and which do not, critical information for schools selecting a drug prevention program to implement.

Clearly, such rigorous evaluations are needed in the after-school care field. Many practitioners claim that such evaluations cannot be done; however, they were done—and done successfully—in the drug-prevention field as well as in the child care field. As new programs proliferate, they should not only be well designed but also have a rigorous evaluation design built in from the start. Only then will policymakers and the public have credible grounds for determining whether to continue to fund those programs or to redirect the money to more-effective alternative programs.

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