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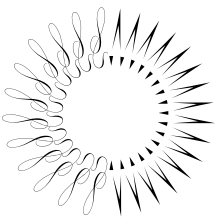
T Trust

The Pew Charitable Trusts



States of Innovation

Even before the coronavirus, states were seeking new ideas
and policies to meet the challenges of today—and tomorrow.



TIME CAPSULE

In the last decade of the 20th century, The Pew Charitable Trusts and its funding partners embarked on a new approach to wilderness protection, using land management tools to determine what areas were appropriate for conservation, forming partnerships with aboriginal communities and businesses, and focusing on protecting publicly owned and largely undisturbed lands. For example, Pew and these coalitions worked together to protect old-growth forests in the United States and Canada, such as the Hobo Cedar Grove in the St. Joe National Forest in Idaho. By 2000, these joint ventures had contributed to the protection of more than 100 million acres of forest.

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Cover: Photo illustration by Richard Friend

The Next Great Idea



Thomas Edison was America's most prolific inventor of the 20th century, holding nearly 1,100 patents in the United States. This record of success seems to prove Edison's maxim that "to have a great idea, have a lot of them."

As the world confronts the effects of the coronavirus, it will take great ideas—a lot of them—to invigorate public health, rebuild economies, grow our investment in science, and encourage innovation. In a series of stories that leads off this issue of *Trust*, we provide information that can help accomplish these goals: The Pew Research Center analyzes survey results showing the virus's widespread impact on Americans' daily lives, Pew biomedical scholar Marta Łuksza answers questions about how new viruses emerge and new vaccines are developed, and we report on how states can plan for the fiscal implications of the virus on their budgets and services.

This is not the first time Pew has recognized the threat of pandemics. Fifteen years ago, we made grants to the Trust for America's Health to help key decision-makers at the federal, state, and local level develop plans to manage the effects of a major infectious disease outbreak. Those efforts included partnerships with the American Medical Association and the U.S. Chamber of Commerce, and educational campaigns that warned that in the time it would take to develop a vaccine to fight a new virus, hospitals would be overrun, ventilators and effective medications would be in short supply,

and medical care would have to be rationed. Pew also worked with experts to develop a set of best practices for states, informing resources that are still being provided today by the Center for Infectious Disease Research and Policy at the University of Minnesota. As Georges Benjamin, then the executive director of the American Public Health Association, said in a 2006 *Trust* story about those efforts, "It's not a matter of *if* a pandemic flu will happen, but *when*."

Today, unsurprisingly, states are at the forefront of efforts to contain the COVID-19 outbreak—and, concurrently, plan for an economic recession. Dozens of state and local governments—working with Pew—are using data to inform policy, make funding decisions, and help better manage everything from disaster response to expanding broadband and tracking infectious diseases, all things that will be especially relevant in responding to the pandemic, as we explain in this issue.

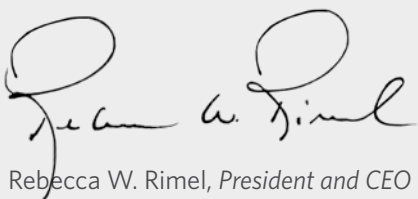
Still another challenge that states are confronting is improving transportation infrastructure. In an innovative attempt to protect people and animals, some Western states are investing in smart solutions to address the mass migration of wildlife across streets, bridges, and highways. As we report in this issue, environmental scientists and traffic engineers at the state level are finding solutions to a problem that costs more than \$8 billion annually.

As the world confronts the effects of the coronavirus, it will take great ideas—a lot of them—to invigorate public health, rebuild economies, grow our investment in science, and encourage innovation.

Government innovation relies on open discussion and reliable information. But since 2004, 2,100 local newspapers have closed in the United States—and the number of newspaper employees has dropped 47 percent. As print advertising revenue has shrunk, digital ads have not kept up for many news organizations. Newspapers can try to make up for lost earnings, but, as the story "The Loss of Local News" reports, once a hometown paper shutter its doors, the communities it served cannot make up the lost attention to local government, civic life, and commerce. One bright spot

is in Pittsfield, Massachusetts, where a small group of local investors bought *The Berkshire Eagle* from a large out-of-state media company, hired additional staff, and launched new content. As you'll read here, local ownership of newspapers is an old idea made new again, helping to rebuild the connection between a community and its paper in a modern, digital age.

Innovation also requires people trying new things in new roles. So I'm closing this column on a personal note: I'm transitioning into a senior adviser role at Pew on July 1. I'm delighted to say that our board found a new president and CEO very close to home: Susan Urahn, our executive vice president and chief program officer, who has been with Pew for more than 25 years (see Page 4). Sue is an ideal person for these times, with deep experience working with states and a keen appreciation for the environmental challenges facing the globe. I expect that, like Thomas Edison, she will relish the opportunity to find and develop good ideas—a lot of them.



Rebecca W. Rimel, *President and CEO*

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A New CEO and President for Pew

Susan Urahn to take the helm in July



Susan K. Urahn will become the president and CEO of The Pew Charitable Trusts on July 1, taking the reins from Rebecca W. Rimel, who is retiring after leading the organization for 32 years.

Urahn, who joined Pew 25 years ago, has served as executive vice president and chief program officer since 2016.

“Sue has been an important part of Pew’s success in state policy, health care, and conservation, and her breadth of experience is unmatched,” says Robert H. Campbell, chair of Pew’s board of directors. “She is also a strategist and creative thinker who will champion Pew’s core values and protect the organization’s reputation for nonpartisanship, fact-based research and recommendations, and integrity.”

Urahn came to Pew in 1994 with more than a decade of policy research experience at the Minnesota House of Representatives and the University of Minnesota, where she also received her bachelor’s degree in sociology and doctorate in education policy and

administration. Initially, she served as a key member of Pew’s planning and evaluation division, and then directed the department from 1997 to 2000. In that role she helped evaluate all of the institution’s grants and other projects, including environmental work. After seven years leading Pew’s education and state policy portfolio, Urahn helped launch the Pew Center on the States and served as its director from 2007 to 2012. She then became executive vice president, leading all of Pew’s work on state policy, economics, and health care, and four years ago became chief program officer.

“I have had the wonderful opportunity to partner with Sue Urahn for more than 25 years,” says Rimel, who will transition into a temporary senior adviser role on July 1. “She is an intellectually curious and strategic leader who has conceptualized and managed a large portfolio of projects that have successfully improved public policy and the lives of the public.”

Rimel joined Pew in 1983 as health program manager, became executive director five years later,

and in 1994 was named president and CEO. She oversaw the growth of the organization from a grant-making foundation endowed by members of the Pew family into a global research and advocacy institution with offices and staff working not only at its Philadelphia headquarters but in Washington, D.C., and throughout the United States, Europe, and Australia.

“I am deeply grateful to the board of directors and to Pew’s staff throughout the world. And I want to offer special thanks to Rebecca for her leadership and example over these past three decades,” Urahn says. “I have been privileged to see the real impact we have, not only on the lives of individuals but also on communities around the globe. As we look ahead, the challenge—and the opportunity—for all of us is to build on Pew’s strengths with fresh perspectives, innovation, and creativity. Despite the current uncertainty, I know that we will continue to work together with the same commitment that has brought us so far.”



Crater Rim Drive in the Hawaii Volcanoes National Park shows damage caused by the earthquake and eruption of the Kilauea volcano in May 2018. Needed repairs in the park, such as restoring paved roads, totaled \$92.7 million in 2018. *Dudarev Mikhail/Shutterstock*

In National Parks, Repair Backlog Affects Roads—and Visitors

BY JOHN BRILEY

The appeal of America's national parks, from the best known to the most obscure, is as varied as our country's culture and topography. But certain attributes tie the entire park system together, chief among them a reliable network of roads to bring visitors into and through the sites.

Today, many of the more than 5,000 miles of paved roads, tunnels, and bridges maintained by the

National Park Service (NPS) are showing their age, and park managers are grappling with a backlog of transportation-related repairs that's part of deferred maintenance totaling \$12 billion across NPS sites nationwide.

About half of that accounts for needed repairs to roads and other transportation-related assets, with NPS categorizing \$4.8 billion of those repairs as high

or highest priority. Last year, the agency's funding requests for "megaprojects," or transportation repairs that would greatly exceed the agency's core funding, amounted to nearly \$2 billion, well beyond the \$325 million appropriated. Examples of damaged roads and related assets stretch throughout the park system. In Yellowstone National Park, damage on the Grand Loop Road is part of nearly \$370 million worth of transportation-related repairs (as of May 2019). Alaska's Denali National Park needs over \$30 million in such repairs, including significant maintenance on the park's extensive unpaved roads. The Natchez Trace Parkway, a 444-mile scenic roadway that runs through Mississippi, Alabama, and Tennessee and includes stops for hiking, biking, and horseback riding, faces a deferred-maintenance list totaling almost \$350 million. At Cape Cod National Seashore, more than \$30 million is needed to fix roads and parking lots used by the more than 4 million annual beachgoers.

Some national park transportation systems are over a century old and, even with periodic updates, many are showing their age. That, coupled with increased visits—more than 300 million in each of the past five years—and inconsistent funding, has made it difficult for NPS to keep up with needed repairs.

The backlog directly affects visitors by limiting or cutting off access to historic sites, wildlife viewing areas, campgrounds, restrooms, and hiking trails. Left unaddressed, the deferred maintenance could also hurt the local jurisdictions that depend on park visitors: In 2018, tourists spent more than \$20 billion in gateway communities and supported more than 329,000 jobs.

With so much riding on the infrastructure within our national parks, The Pew Charitable Trusts is urging Congress to ensure sufficient funding to address deferred maintenance as it works to reauthorize the Fixing America's Surface Transportation (FAST) Act, which will expire in September.

Last summer, the Senate Environment and Public Works Committee approved a proposal to reauthorize the surface transportation act and included a more than 20 percent increase in overall funding for NPS programs. That would help, but ideally the House and the Senate will approve dedicated funding for the full \$4.8 billion needed to repair all the agency's priority transportation-related assets and allocate at least \$350 million annually for megaprojects on federal and tribal lands.

"Congress has an opportunity to address these long-overdue repairs and restore our parks for generations to come," says Marcia Argust, who directs Pew's work to restore America's national parks. "It's a smart investment that will protect visitor access and safety, as well as create jobs."



Orange Chen/Unsplash

States Prioritize Broadband Access

From surfing the web to communicating with family and friends, internet access was increasingly intertwined with the daily lives of most Americans even before the coronavirus pandemic forced people to stay home to work, study, and watch movies and concerts. And a reliable, high-speed connection—broadband—is also fast becoming a necessity for businesses of any size, linking them with customers around the world as easily as those down the street. That's especially true when customers prefer to, or are obliged to, shop from home.

What's more, the pandemic also increased the need for health care providers to connect with patients via telehealth or telemedicine.

But according to the Federal Communications Commission, some 21 million Americans still lack access to broadband, and leaders in those communities cite a growing gap between the resources and opportunities available to their residents and those living in places that have a robust network. They are also recognizing the critical role that broadband plays in efforts to modernize transportation networks and improve health care.

For these reasons, states are making it a priority to bring broadband to those who lack access to it—with a particular focus on providing "last mile" connections, the part of a network that connects a local internet provider to residences and small businesses.

To see what actions are working, The Pew Charitable Trusts examined state broadband programs nationwide, then interviewed more than 300 leaders, lawmakers, local officials, and broadband providers in nine states: California, Colorado, Maine, Minnesota, North Carolina, Tennessee, Virginia, West Virginia, and Wisconsin. The detailed findings were published in a February report that was 18 months in the making, "How States Are Expanding Broadband Access."

It found that although no single approach works for expanding broadband access, successful state programs have most of these five elements in place: a policy framework, planning and capacity building, funding and operations, program evaluation and evolution, and stakeholder engagement.

Twenty states have set up dedicated broadband offices, and although their benchmarks might differ based on speed, coverage, and timelines, most define success by how many more residents they are able to connect. Minnesota, for example, wants to ensure that by 2026, every home and business has access to speeds of 100 megabits per second (Mbps) to download data and 20 Mbps to upload it, which allows easy access to big files such as videos.

Areas that still lack such high speeds are often the most difficult and expensive to serve, either because the population is sparse—meaning fewer customers—or because their geography makes extending wired and wireless infrastructure more challenging. To place more fiber conduit, the hard tubing that houses fiber optic cables, states are allowing internet service providers to access utility poles and passing “dig once” rules that require conduit to be run alongside highway

construction. And to help make projects economically viable, states are offering grants and loans to providers to cover a portion of installation costs.

States such as Maine and North Carolina are also helping unserved or underserved communities to identify broadband needs and goals, initiate conversations with providers, evaluate their options, and carry out broadband infrastructure projects.

This kind of engagement with communities and other stakeholders is necessary if states want to receive widespread support for their expansion efforts, says Anne Stauffer, who directs Pew’s broadband research initiative.

“Technology is just one part of the solution,” Stauffer says. “Bringing broadband to rural or otherwise more expensive areas requires partnerships between state leaders, communities, local governments, and internet service providers.”

—Anne Usher

Republicans and Democrats Distrust Political and Election News on Social Media Sites

As we approach the 2020 elections, a large majority of Americans are familiar with the major social media sites in the rapidly expanding digital universe. A number of them are also sources for political and election news for many Americans, according to a new analysis of data from the Pew Research Center’s Election News Pathways project.

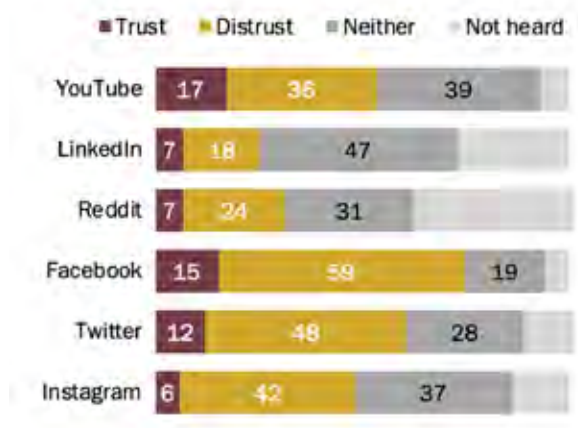
A survey of 12,043 U.S. adults who are members of the center’s American Trends Panel, conducted in the fall, found that despite Americans’ level of familiarity with these social media sites, both Democrats and Republicans (including independents who lean toward either party)—in an unusual display of bipartisan convergence—register far more distrust than trust of social media sites as sources for political and election news. And the most distrusted sites are three giants of the social media landscape: Facebook, Instagram, and Twitter.

Facebook is the most widely used of the six social media sites examined when it comes to getting political and election news, and it is distrusted by about six-in-ten, or 59 percent, of U.S. adults, the authors write. That includes almost equal percentages of Democrats and independents who lean Democratic (59 percent) and Republicans and independents who lean Republican (62 percent). Close to half of all U.S. adults also say they distrust Twitter (48 percent), and about four-in-ten (42 percent) distrust Instagram.

Not everyone, however, is as concerned about the credibility of social media sites as sources of political

Few trust social media as a place to get political and election news

Percent of U.S. adults who _____ each source as a place to get political and election news



Source: Pew Research Center

and election news. Those who say social media sites are their “most common” way of getting this news express more trust in those sites and voice less concern about the influence made-up news could have on this year’s election.

—Demetra Aposporos



Misha Friedman/Getty Images

The Coronavirus Pandemic

A special report: The Pew Research Center reports that nearly 90 percent of Americans say the virus has changed their lives in some way. A Pew biomedical scholar explains the science of the virus—and the search for a vaccine. And a Pew analysis points out ways that states can prepare for the pandemic’s impact on their budgets and services.

Survey Finds Virus Has a Profound Effect on Americans’ Daily Lives

As the number of confirmed COVID-19 cases spread across the nation this spring, and schools, workplaces, and public gathering spaces across the United States remained closed, a Pew Research Center survey released on March 30 found that the coronavirus outbreak is having a profound effect on the personal lives of Americans in a variety of ways. Nearly 9 in 10 U.S. adults say their life has changed at least a little as a result of the outbreak, including 44 percent who say their life has changed in a major way.

Amid calls from medical experts for social distancing to avoid spreading the virus, a similar percentage of Americans—91 percent—say they would be uncomfortable attending a crowded party.

And the virus is affecting many other details from daily life—from working conditions, with 40 percent of adults ages 18–64 saying they were doing their jobs from home—to religious practices, with more than half of U.S. adults saying they had prayed for an end to the spread of the virus—including some who say they seldom or never pray and people who say they do not belong to any religion (15 percent and 24 percent, respectively).

More than 4 in 10 Americans say their lives have changed in a major way

Percentage saying that, as a result of the coronavirus outbreak, their personal life has ...

	Changed in a major way	Changed, but only a little bit	Stayed about the same
All adults	44	44	12
Men	41	46	12
Women	47	41	11
White	45	45	10
Black	34	43	22
Hispanic	47	43	10
Ages 18-29	43	45	12
30-49	46	43	10
50-64	42	42	16
65+	45	45	9
Postgrad	61	34	5
Bachelor's degree	54	40	5
Some college	43	45	12
HS or less	35	48	16
Upper income	54	39	6
Middle income	44	45	10
Lower income	39	44	16
COVID-19 state health impact to date			
High	51	39	9
Medium	43	44	12
Low	40	47	13

Note: Share of respondents who didn't offer an answer not shown. COVID-19 state impact based on per-capita cases and/or total number of cases.

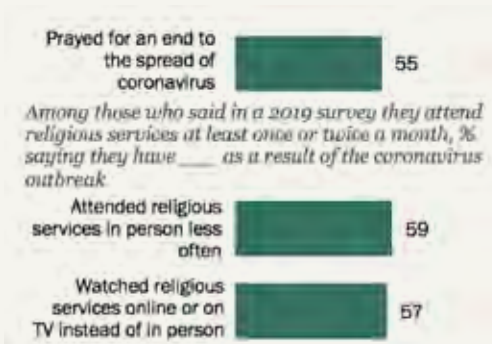
Amid coronavirus outbreak, most Americans are uncomfortable going to a party, restaurant, or polling place

Percentage saying that, given the current situation with the coronavirus outbreak, they would feel **uncomfortable** doing each of the following ...



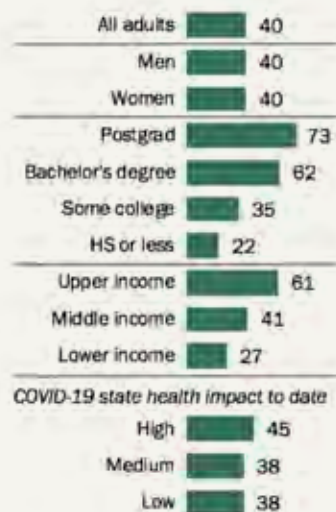
Many Americans say they have changed religious habits due to coronavirus outbreak

Percentage saying they have ...



Four in 10 working-age adults have worked from home because of the coronavirus outbreak

Percentage of working-age adults saying they have worked from home as a result of the coronavirus outbreak ...



Note: Share of respondents who didn't offer an answer not shown. COVID-19 state impact based on per-capita cases and/or total number of cases.

Source: Pew Research Center

How Do Viruses Evolve?

A Pew biomedical scholar explains how new ones emerge—and how vaccines are developed

The first cases involving a new coronavirus—SARS-CoV-2, or the disease named COVID-19—appeared in Wuhan, China, in December 2019. Although in the same family as the coronaviruses that caused severe acute respiratory syndrome (SARS) in 2003 and Middle East respiratory syndrome (MERS) in 2012, this new disease has already spread to more people and caused more deaths. At the same time, other viruses such as influenza—known as the flu—continue to evolve, adapt, and infect millions of people each year, making the ability to develop effective vaccines

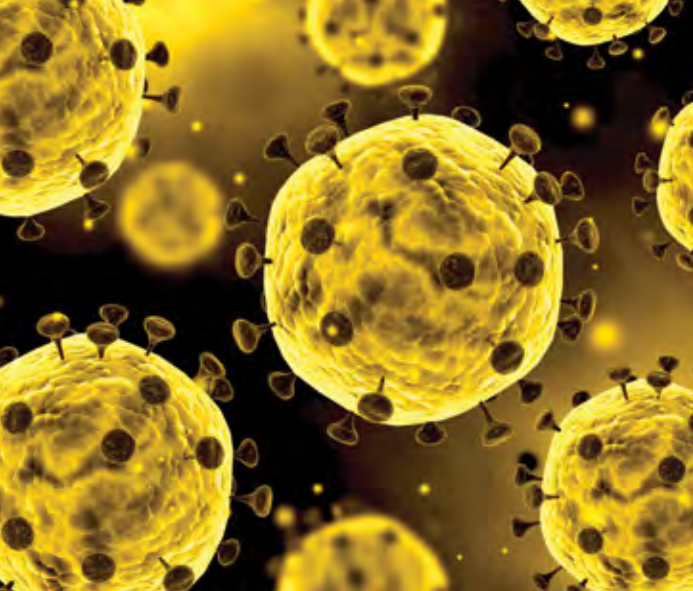
critically important. In her work, Marta Łuksza, a 2019 Pew biomedical scholar and computer scientist, explores how immune interactions drive the evolution of the flu virus. Łuksza, an assistant professor at the Icahn School of Medicine at the Mount Sinai Health System in New York, talked with Pew to help put viral spread into context.

Q. What is a coronavirus?

Coronaviruses are a family of viruses that cause symptoms of respiratory illness in humans, similar to the



Courtesy of Marta Łuksza



Coronaviruses draw their name from the corona, or halo, that projects from the viral membrane. *Stocktrek Images, Inc./Alamy*

flu or the common cold. Often found in bats and other mammals or birds, coronavirus can prove dangerous when transmitted between animals and people.

Q. How does a virus first emerge?

A virus may first emerge in humans after a chance interaction with an animal host, during which a person becomes infected. In many cases, viruses only transmit from animals to humans but cannot be transmitted from one human to another. In rare cases, however, the virus can survive transmission among people.

Doctors and other health professionals first identify a new virus after testing for known illnesses and finding no match. If they cannot assign the virus through testing to known protein markers or genetic material from a particular virus and there is a growing number of similar cases, this may point to something new, such as the recently identified SARS-CoV-2 virus.

Q. Why do some viruses seem to spread more widely than others?

Both biological and demographic factors can facilitate viral spread. Biologically, if a given virus is capable of infecting the body through accessible entry points, such as epithelial cells in the nose, it can enter the respiratory tract and spread relatively easily. When a person coughs or sneezes, the virus can circulate in the air and on surfaces. Viral spread can also depend on how fast a virus is able to replicate itself, thereby dispersing to other parts of the body or to new hosts. Demographically, dense populations where people live in close proximity are more likely to experience rapid viral spread than populations that are sparse.

Q. Why do people respond differently to viral infection?

People's immune systems have memories of prior infections that affect how they will respond to a virus. To prevent infection once the body has been exposed to a virus, it produces proteins called antibodies that identify and neutralize potential threats. For instance, when people contract the flu, they have likely built up some degree of immunity due to previous exposure, including the flu vaccine. In the case of a new coronavirus, the immune system has not seen this virus before, and the adaptive response is slower.

Q. What is the process for developing a new vaccine?

First, researchers need to isolate the virus and identify its antigens—viral proteins that serve as the best vaccine targets—against which the immune system is likely to create antibodies to defend the body from infection. However, each virus is different and requires further growth and testing in a lab, where a range of production technologies are used. There are currently three platforms for development of the flu vaccine, including virus growth in chicken eggs, in mammalian cells, or created synthetically from the DNA sequence of the vaccine candidate strain. For a vaccine against a newly emerged pathogen, the next step is clinical trials, during which the safety, including possible side effects, and effectiveness are tested.

For many pathogens, for example, the measles virus, the vaccine does not have to be modified in the future and remains effective over time. But other pathogens, such as the flu virus, have the ability to escape the vaccine's recognition by acquiring new mutations in its antigens. This is why a biannual evaluation of the flu vaccine is critical—to update the antigens contained in the vaccine.

Researchers, including me, work with organizations like the World Health Organization and participate in biannual consultations to help select flu vaccines for the Northern and Southern hemispheres. Based on publicly available genetic sequence data on the flu from individuals around the world, researchers re-create the evolution of viruses to see which mutations have occurred and how frequently they are circulating. Antigenic data—information related to antibodies that are triggered in the body by exposure to different protein markers on a virus—also help labs to characterize viral proliferation and how well vaccines block the virus. This information is critical to help public health officials determine how infectious disease is dispersing globally and across continents.

How States Can Plan for Budgetary Effects of Coronavirus—and Market Swings

Stress testing procedures help policymakers anticipate a range of scenarios

BY JEFF CHAPMAN

The coronavirus is already affecting state budgets, from pressure on public health systems to revenue losses from canceled events. Lawmakers in states such as California are passing emergency funding measures, while other officials—including Maryland Governor Larry Hogan—are looking at withdrawing money from rainy day funds to meet emergency needs.

But the ultimate fiscal impact of the outbreak—and of the recent drop in oil prices—is highly uncertain. In addition, state legislatures will need to wrap up their budgets for fiscal year 2021 well before having any clear answers. With such a high level of uncertainty, policymakers need to design contingency plans that begin with robust reserves. If they don't have such reserves, lawmakers may find that when they return to their Capitols next year—or sooner if they need to hold emergency sessions—they will need to identify tax increases and spending cuts.

But how cautious should states be? No matter how events unfold, the current situation serves as an example of why policymakers need to think regularly about the resilience of their budgets. Circumstances outside the control of state governments—and that could have a significant impact on revenue and expenditures—tend to occur with little warning.

To be better prepared, a handful of states have begun using “budget stress tests” to examine different scenarios and estimate potential shortfalls from adverse events—such as the fiscal and economic effects of a fast-spreading disease, for example. By using these estimates to plan, policymakers can reduce the impact of a fiscal crisis and keep long-term priorities on track.

In this case, a stress test would start by looking at the possible impact to a state's economy of the coronavirus and oil price shocks. The potential effects will differ by state or region: For example, if the disruption in world trade continues to reduce imports and exports, manufacturing states that are more reliant on the global economy for raw materials and parts could be particularly vulnerable. If travel continues to decline because of legal restrictions, widespread illness, or people avoiding others

who may be sick, states with tourism-based economies may feel the impact especially hard.

The testing helps analysts translate perceived economic vulnerabilities into potential fiscal impacts, including reductions in revenue because of declining economic activity or increased pressure on Medicaid programs. Again, each state may have unique fiscal vulnerabilities, such as a tax system that relies heavily on severance taxes on oil production or an unemployment insurance trust fund in danger of insolvency.

Stress tests cannot predict how adverse events like those facing states today will play out, but they can help estimate the size of a budget gap under various scenarios. By considering a range of possible outcomes—from a milder impact to more severe—lawmakers can determine the amount of risk they are willing to accept.

With information from these tests, budget writers can then compare potential gaps between revenue and spending with the resources available to make up the difference. If they find they have insufficient funding options to close any potential hole, they may choose to boost savings or forgo new tax cuts or spending plans until more information is available.

Ideally, this testing would happen as part of the regular budgeting process. For example, Minnesota has been using stress testing to set targets for how much money the state needs to save to cover unanticipated revenue shortfalls for at least two years. When the state has a budget surplus, one-third of the extra money is automatically deposited in the rainy day fund—under state law—until the target is met.

Regardless of what kind of impact the coronavirus ends up having on state economic and fiscal conditions, this kind of uncertainty can throw fiscal policy into disarray—unless lawmakers employ strong analytical tools, such as budget stress tests, that can give them the information they need to make educated decisions that meet the needs of their constituents.

Jeff Chapman directs The Pew Charitable Trusts' state fiscal health initiative.



STATES EMBRACE THEIR ROLE AS LEADERS OF INNOVATION

With tightening revenues and the continuing effects of the coronavirus, state leaders are seeking new ideas and embracing new policies to meet the challenges of today—and tomorrow.

By Stephen C. Fehr

By the end of this decade, Governor Ned Lamont wants Connecticut to become the first state to deliver all government services digitally. Governor Kristi Noem anticipates that the advent of fifth-generation wireless technology will allow South Dakota to eliminate nagging gaps in internet service. And Governor Steve Sisolak intends for Nevada to develop into a model center for secure data storage, known as blockchain.

Around the country, state leaders are pursuing innovation because of its potential to reshape their economies. Even before state revenues were hit by the fallout from the coronavirus pandemic, most state economies were growing at a slower rate than before the past decade. Going forward, state revenue is likely to be restrained while service demands increase. The federal government, mired in trillion-dollar deficits and stymied by partisanship, is limited in how much it can help, notably in building infrastructure and combating the effects of climate change. That leaves it up to states to fill the void.

“Coming out of the Great Recession, it was hard for most states both to recover revenues and to catch up on the latest innovations,” says Michael Thompson, a Pew vice president who heads the government performance group. “Now, states are likely to encounter the same challenges until the fallout from the coronavirus settles. On the other hand, ignoring the advances in tech and data will only set states back further.”



SHIFT FROM COAL TO FIBER BRINGS JOBS BACK TO WESTERN COLORADO

In Delta County, Colorado, a rural area five hours west of Denver, two coal mining companies closed between 2014 and 2016. Nearly 1,000 jobs were lost, a devastating blow for a close-knit community of 31,000 residents—and the equivalent of losing 30,000 jobs in the Denver metro area.

Jobs, and people, had already been leaving Delta County before the mines closed: Between 2010 and 2014, the county experienced the largest population decrease in western Colorado. Meanwhile, lack of access to broadband kept new businesses from establishing themselves in the county—and forced some existing businesses to abandon the county, just as the coal companies did.

Colorado divides itself into economic development regions and, in 2015, Region 10, which includes Delta County, received a grant from the state Department of Local Affairs to prepare a broadband implementation plan for the county.

Region 10 partnered with the Delta-Montrose Electric Association (DMEA), a local electric cooperative that connects fiber to members' homes, which awarded a contract to Lightworks Fiber & Consulting, a locally owned business, to build the network. Lightworks hired and trained former coal miners to lay fiber-optic cable. The company has become the largest private employer in Delta County, with about 100 workers—more than 80 percent of whom had been employed by coal companies.

Now, with robust broadband access, Delta County finds its population growing. People from urban areas seeking a quieter lifestyle can move to Delta County and work from home or from a co-working site. Maybe best of all, says Virgil Turner, Region 10's broadband project director, some people who left the county are returning. "The kids who left to find a job are coming back home now," he says. "And they're bringing their friends."

The cast that will confront these changes will be unlike the one in 2010. Eight governors and 5,000 legislative seats are up for election this fall in voting that also will determine which party draws the legislative district maps next year. The Nov. 3 federal election also could have a bearing on how state lawmakers set policies on pressing national issues, and how they interact with Washington.

As in the past, The Pew Charitable Trusts will attempt in the 2020s to play a role supporting innovators. A decade ago, as the Pew Center on the States was taking off, Pew began helping states set policy on issues such as public-sector pension funding, corrections costs, and effective budget management. That work will continue as the organization embraces new challenges facing tomorrow's generation, from improving access to the civil justice system to new protections for flood-prone areas.

For their part, state officials are asserting their influence over innovation policy with a sense of urgency. Gov. Phil Murphy entered office in 2018 with an ambitious plan to foster what he called a culture of innovation in New Jersey government, including a 10-course training program for state workers. Maine Gov. Janet Mills, saying that innovation drives growth, has established a "department of the future" to help carry out the state's first economic development makeover in more than 20 years. Hawaii Gov. David Ige has dubbed his plan for embracing technology and innovation a "trajectory change," aimed in part at generating all of the state's electricity from clean, renewable sources in 25 years.

State leaders say they're aggressively pushing new ideas because, as Ige says, "It seems that each year, change happens faster and faster." When the 2010s began, Michigan lawmakers gave General Motors tax breaks so that the automaker would build an electric vehicle called the Volt at a Detroit plant. This year, also with state tax incentives, that same plant began producing an electric self-driving shuttle and a battery-powered, zero-emissions Hummer. The trend to driverless vehicles may reshape state economies and government revenues as fewer cars and parts will be manufactured, sold, and driven, reducing transportation-related jobs, motor fuel and vehicle tax collections, and income from driver fees as the autonomous vehicles change how many government services are delivered in everything from public safety to transporting schoolchildren.

FOR THEIR PART, STATE OFFICIALS ARE ASSERTING THEIR INFLUENCE OVER INNOVATION POLICY WITH A SENSE OF URGENCY.

Data will have the same impact on innovation.

Up to now, state officials have used data and evidence to evaluate performance outcomes, often tying funding to programs proven to work. Beginning in 2010, Results First, a project founded by Pew and The John D. and Catherine T. MacArthur Foundation, was instrumental in getting state and local governments to think differently about using data to inform their policy and funding decisions.

As this decade begins, the explosion of data is striking, and state officials are only beginning to grasp its power to inform their decision-making. The data is found in the routine administrative records that state agencies collect every day, from birth and death records to Medicaid participation to use of social services to vehicle registrations; add to that the ubiquitous personal data from smart devices, social media posts, web pages, crowdsourcing, GPS, and cloud computing, among other technologies.

As a result, almost overnight the ability of state officials to identify and analyze datasets has become a necessity in government. “Data is fast emerging as an asset as valuable if not more valuable than cash,” says Beth Blauer, executive director at the Johns Hopkins University Centers for Civic Impact. “In the next 10 years, government will begin to redefine public service and assign more and more value to people who have basic data use skills.”

Data analysis could reveal trends, patterns, and connections in state services that would improve air and water quality, disaster response, public safety, traffic management, tax collection, and child care—and help fight the spread of disease. Data from multiple Texas agencies assisted authorities in determining which areas of Houston needed the fastest response during Hurricane Harvey in 2017. Data

from jails and emergency rooms are behind a current effort in Connecticut to find permanent housing for people languishing in a cycle of jail, detox, emergency rooms, and homelessness.

The surge in data also could help state and local governments detect cyberattacks at a time when these threats are increasing. Last year, hackers with ransomware attacked governments in Louisiana and Texas, among other places. New Jersey has implemented a statewide monitoring system in which sensors detect network threats in all 21 counties and alert authorities of malicious activity. Officials say more innovative ideas will be needed. “We are on the front lines of a new battle, every day, in every state,” says Governor Doug Burgum of North Dakota. “We are under attack by hackers trying to access our infrastructure systems.”

Other pressing state problems—some old, some new—also are benefiting from novel thinking. The recent wildfires in the West, the rash of hurricanes, chronic

flooding, and other violent natural disasters are putting an emphasis not only on costs, response, and mitigation, but also on how states take action on climate change. In a first, California Gov. Gavin Newsom is asking California voters to approve a \$4.8 billion “climate resilience bond” in November to address risks from natural disasters, drought, sea level rise, and higher temperatures. Massachusetts started a Municipal Vulnerability Program, in which

state officials award grants to local communities that assess their climate weaknesses and develop response plans.

The rising interest in innovation policy coincides with daunting challenges for America’s youngest and oldest citizens. Vaping is addicting another generation, as smoking cigarettes did in previous generations. Youth suicide rates are rising at alarming rates, putting a focus on access to mental health care; Iowa, in response, has created a separate mental health system for children, and Ohio is pouring \$675 million into K-12 mental health counseling and other wellness services. At the other end of the life span spectrum, state officials are preparing for an increasingly older population. By 2030, Californians over 60 will

**" DATA IS FAST
EMERGING
AS AN ASSET
AS VALUABLE
IF NOT MORE
VALUABLE
THAN CASH. "**



HOW UTAH IS OPENING ITS CIVIL COURT SYSTEM TO BETTER SERVE CITIZENS

By the time H. Dickson Burton, president of the Utah State Bar, sent his letter to the state Supreme Court, Utah’s civil legal system had broken down. Thousands of Utahans were on the losing side of problems with debt collection, disputes with landlords, foreclosure, and other small claims. Most did not hire a lawyer because they did not know how to find one or believed that the court costs would exceed the value of the case.

“Access to justice in Utah remains a significant and growing problem,” Burton said in his August 2018 letter. “There are times well before a court action when some simple advice from an attorney could prevent a problem or resolve a conflict.”

Out of Burton’s letter came one of the nation’s most ambitious efforts to reimagine the way the judiciary regulates legal services. The state Supreme Court named a working group that concluded that the legal community needed to find “disruptive innovations” to increase citizens’ access to legal services at an affordable cost.

The court established a new profession called the LPP, or licensed paralegal practitioner, who can charge lower fees than an attorney for carrying out many of the same tasks but cannot appear in court. The court also set up a pro bono system and recommended that lawyers provide at least 50 hours of free legal services a year to low-income Utahans.

The court and bar also recognized that advances in technology are driving a new market for legal services handled by nontraditional providers. “Technology, especially online legal services, exponentially increases the potential to improve access to justice,” said the working group.

Utah’s small claims courts were the first in the nation to pioneer online dispute resolution, or ODR, in which two parties settle disputes via communication on a computer or mobile device without having to hire a lawyer, take time off from work or show up in court. And now ODR projects exist in governments in two-thirds of the states and Canada, China, and Mexico.

Utah Supreme Court Justice Constandinos Himonas says if ODR proves successful, the digital platform could be used in traffic cases and misdemeanors, saving time for clerks, judges, and defendants. “The mind shift we have to get around here is, courts should be a thing, not a place,” he says.



OREGON AND OTHER STATES GIVE WORKERS A CHANCE TO SAVE FOR THEMSELVES

Three years ago, more than a third of workers in Oregon didn't have access to an employer-sponsored retirement plan. Small-business owners generally shied away from providing the plans, saying they were too costly to run.

So, Oregon policymakers decided to create a statewide pool that covers small businesses if they do not have their own plan and enables their employees to save their earnings through individual retirement accounts, known as auto-IRAs. Privately managed, the program, known as OregonSaves, sets a default employee contribution of 5 percent, and eligible workers are automatically enrolled, although they can opt out. The whole idea is to make retirement saving easier for workers and to help businesses offer a no-cost, low-burden benefit to their employees.

Although Oregon rolled out its program first, California, Connecticut, Illinois, Maryland, and New Jersey have developed similar plans, and at least four other states have created voluntary programs for employers. During the first year in Oregon, only 29 percent of eligible workers opted out, and the latest trends show increasing participation. The success has helped spur new legislation at the federal level to make it easier for businesses to join the pools and offer retirement plans to their employees.

"We all know just relying on Social Security as a vehicle for retirement income is not enough," says Saleem Noorani, who owns three liquor stores in Oregon and served on an advisory committee representing business owners' views to state lawmakers. "Any retirement savings plan is just another line item. I wanted to make sure for any small-business employer that this is as easy as it possibly can be." He says that most small-business owners use simple payroll computer programs and that adding retirement deductions should be easy. "From then on it's automatic—they won't even see it."

outnumber children under 18 for the first time. Gov. Newsom has called for a "master plan on aging" that addresses the growing demand for in-home care and transportation at a time of a nursing shortage.

Nurses are not the only workers needed in the innovation economy: States are undergoing a transformation of the workforce that requires higher levels of skills and postsecondary education in cybersecurity, sustainable agriculture, renewable energy, and bioscience. So, officials are thinking differently about how to train adults and teenagers. Alabama has created a School of Cyber Technology and Engineering for high school students. Vermont has enlisted Microsoft to help expand the state's digital skills training. Indiana is using a grant from Google to offer coding training to people who are incarcerated to prepare them for jobs when they are released.

One potential roadblock to implementing change is that the push for states to innovate comes at a time when angry differences between the political parties have seeped into many statehouses.

These rifts could hamper progress on problem-solving, political leaders warn. "Let's not allow anything dividing our nation to divide our state," Republican Gov. Gary Herbert of Utah said in his 11th and final State of the State address in January. The goal is to put governance first by using data that promotes bipartisan, meaningful policy debates that lead to solutions.

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Stephen C. Fehr spent three decades reporting about state government for The Kansas City Star and The Washington Post before joining Pew's state fiscal team.



Copies of *The Berkshire Eagle* decorate a table in Dottie's Coffee House and Lounge in Pittsfield, a town in western Massachusetts. The paper is owned by local investors who are dedicated to covering local news.



THE LOSS OF LOCAL NEWS

Newspapers are closing—and those that remain are often a shell of their former selves. With fewer reporters covering news that affects Americans' daily lives, researchers are asking what it means for civic life.

BY DANIEL LeDUC

PHOTOGRAPHS BY DANA ULLMAN FOR
THE PEW CHARITABLE TRUSTS



The Pew Charitable Trusts

The building of the *Waycross Journal-Herald* (above) now sits empty and the newspaper's stories—and the history of the town—now only exist in its archives. The Waycross, Georgia, chronicle published not only local news but major national events, such as the assassination of President John F. Kennedy (right). More than a hundred years old, the paper printed its final daily edition in September 2019.



The Pew Charitable Trusts

On Sept. 30, 2019, the *Waycross Journal-Herald* published a particularly newsworthy obituary: its own. Under the banner headline “Stop The Presses,” the 105-year-old publication, which billed itself as South Georgia’s Greatest Newspaper, reported that the day’s edition would be its last.

With the announcement, the *Journal-Herald* joined the ranks of the more than 2,100 newspapers that have closed in the United States since 2004.

This growing dearth of local news outlets is leading researchers to call the places that have lost papers “news deserts,” and academic studies are finding a correlation between less local news and decreased civic participation in those places.

The Pew Research Center has been watching these trends. It recently reported that in 2018, the last year for which cumulative data were available, overall newspaper circulation in the U.S. shrank 8 percent and industry revenues dropped 13 percent—continuing a spiral that began in the mid-2000s. The center also calculated that between 2004 and 2018, newspaper newsroom employment dropped by almost half—47 percent. And the coronavirus has exacerbated the concerns, with *The New York Times* reporting in March that smaller local papers were laying off staff and reducing print editions because of the loss of advertising as businesses closed during the pandemic.

As stark as those statistics are, one other finding from the Pew Research Center was notable: A center survey found last year that 71 percent of Americans said they believed their local news organizations were doing well financially.

“That’s pretty striking,” says Amy Mitchell, who leads journalism research at the center. “And it really speaks to quite a gap in awareness among the public—and a challenge for the industry.”

If many Americans aren’t aware of the financial challenges their local news organizations face, residents of hundreds of communities are nonetheless seeing their local papers disappear—with those that remain working with vastly diminished resources.

“The newspaper has historically been the prime source of information on everything from what’s happening at the town council meetings to who’s running for office to something as mundane as deciding how to spend your money wisely when you see an ad for a sale at a local store,” says Penny Abernathy, the Knight Chair in Journalism and Digital Media Economics at the Hussman School of Journalism and Media at the University of North Carolina. “Newspapers have provided most of the news that built communities.”

A flip through yellowing binders of old papers shows the range and depth of more than a century of daily

editions of the *Journal-Herald* as it chronicled life in Waycross. Nevertheless, the end came quickly there: The staff was told on a Friday afternoon that the following Monday would be the paper’s last day. The news spread around Waycross as it often does in a small town—by word of mouth and, in this modern day, a few Facebook postings.

Local businessman Dave Callaway remembers not believing it at first, as if it were a rumor that a reporter hadn’t checked out for accuracy.

“It was definitely a shock,” he says. “You sort of take it for granted, like drinking coffee every morning. What happened if all the coffee dried up? What are you going to drink?”

Gary Griffin, who is 69, spent his entire career at the *Journal-Herald*, starting off as a sports writer and ending up managing editor.

“We would have tour groups come through. And I would tell them, your hometown newspaper mirrors your life. We’re here to tell your life story,” he recalls. “What’s the first big thing that happened? You were born. Your parents likely, back then, trotted down to the *Journal-Herald* to place a birth announcement. Then you get a little older and you hit a home run in a Little League baseball game, and your name gets in the paper.”

And then, he continues, come “the engagement announcement, the wedding write-up. Then you have your own little bundle of joy. And you’re putting a birth announcement in. Then what’s the last big thing? The obituary. That’s the main drawing card of a small hometown newspaper, as far as readership.”

The daily newspaper’s last sports editor has taken over the *Journal-Herald* name and launched a weekly version in October, but Griffin notes that with a weekly publication schedule it’s possible for a local resident to die and be buried with some folks not learning the news in time to go to the funeral.

And he says there are other unknowables about happenings in Waycross now that the paper is weekly. Less than six weeks after the daily paper shuttered, the question of whether to continue a special local sales tax was voted down in a low-turnout election. The city and surrounding Ware County would have used the \$47 million from the tax for public safety needs, road resurfacing, parks, and other infrastructure projects.

Griffin says in earlier elections, the paper would not take a stand on its editorial page on whether the tax should be passed, but the news pages would detail the proposals, and stories would serve as a reminder to voters to go to the polls. And previously, the tax had passed easily. But the last story about the tax extension

in the new weekly version of the paper came out six days before Election Day. Only 14 percent of registered voters ended up casting a ballot.

The daily *Journal-Herald* would have informed people about the tax question, says Larry Purdom, a reporter at the paper, a local historian, and a high school classmate of Griffin's. "It would have explained the situation, where the money was going to go," he says. "And without that, nobody knew."

Penny Abernathy at the University of North Carolina is the author of a report called "The Expanding News Desert," which documented the 2,100 papers that have closed and explored the consequences for their communities. The report cites a 2011 finding from the Federal Communications Commission that said that newspapers are the best medium to provide the public service journalism that shines a light on the major issues confronting communities—and gives residents the information they need to solve their problems.

"But, in many communities today, there is simply not enough digital or print revenue to pay for the public service journalism that local newspapers have historically provided," the report said. "Therefore, the fate of communities and the vitality of local news—whether delivered over the internet, the airwaves, or in print—are intrinsically linked."

Traditionally, newspapers have relied on advertising to supply 85 percent of their operating costs. And Abernathy says that between 2000 and 2010, print advertising revenues dropped to levels not seen since the 1950s. The transition to digital online sites has been quick but has not produced nearly the needed resources. Abernathy says about 75 percent of all digital revenue has gone to Facebook and Google, leaving newspapers, television stations, and digital startups to divvy up what's left.

And the Pew Research Center's latest analysis says only 14 percent of Americans reported paying for local news, such as by subscribing to a paper, in the last year.

Television remains the first choice for most Americans for local news, according to the center's surveys. But TV usually doesn't cover the small-town community news that is being left behind in many places. The nearest television station for Waycross' nearly 14,000 residents is in Jacksonville, Florida, more than 75 miles away.

And the local news that is being produced isn't feeling very local for many people these days. Staff cutbacks at newspapers mean the local papers that remain are sometimes filled with stories from surrounding places to help fill the coverage gaps. Readers and viewers notice that, says Pew's Amy Mitchell.

"About half of our respondents say that the bulk of their local news covers an area outside where they live," she says. "And people that were more likely to say that coverage was focusing on other areas were those that lived in more rural segments of the country."

There are now 200 counties in the U.S. with no formal news organization covering the local government and community events, according to Abernathy. She says the residents of the areas left behind are often poorer, older, and less educated than other places. "As a result," she says, "you can say that the economically struggling communities are the very communities that need those kinds of critical information tidbits that help them craft a new future."

Instead, Mitchell says that the very concept of what news is for many Americans is changing. About 30 percent of people told Pew that they now get news from what she calls "second tier" sources such as small online sites, local government agencies, and local organizations such as schools and churches rather than traditional newspapers with professional reporters and editors.

"The role that your friends and others now play in passing things on, and the new kind of structure in how you might get those, whether it's in your social media thread or news alerts that are popping up on your phone—it's just a very different experience than what we had, say, three or four decades ago," Mitchell says.

So, increasingly, researchers are turning their attention to what this new approach to news means for a community's civic life.

Analysis by business professors at the University of Illinois at Chicago and the University of Notre Dame studied the cost of localities borrowing money, such as bond issues for large building projects, and found that counties that had lost newspapers ended up paying higher interest rates than similar counties that still had a local paper.

"Our evidence indicates that a lack of local newspaper coverage has serious financial consequences for local governments and that alternative news sources are not necessarily filling the gaps," one of the Illinois professors, Dermot Murphy, wrote recently in the *Columbia Journalism Review*.

The study also found that government inefficiencies increased. County employee wages increased, and so did the number of employees. "More tax dollars flow to government positions after a newspaper ceases to monitor government activities," Murphy wrote.

Another study has found less voter participation in local elections once a newspaper closes in a community, with few people showing up at the polls and fewer contested races.

"We think one of the important roles that newspapers provide for communities is to tell them



Kevin Moran, executive editor (above, left), and Fred Rutberg, publisher, of *The Berkshire Eagle*, print their newspaper on site with their own press (at left). When Rutberg and other investors bought the paper four years ago, they decided to cover more local news to keep readers interested.



what local government is actually doing,” says one of the report’s authors, Jay Jennings at the Center for Media Engagement at the University of Texas. “If you don’t know what local government is doing for your community, why would you want to be a part of it?”

Social media and the rise of citizen journalists don’t fill the same role, he says, because untrained reporters often don’t understand rules of fairness and objectivity and because citizen journalists often bring personal agendas to the local topics they write about.

Jennings’ research, which is continuing, includes long interviews with reporters and editors at the papers still in operation about how they view their work.

“They’re really doing more with less. And they’re really being innovative and working hard and trying to find solutions to cover local government as best they can,” Jennings says. “They talk about democracy. They always talk about how important it is. The editors especially say that this is something they have to prioritize, that they think it’s important.”

Fred Rutberg was listening to a lecture a few years ago by a prominent national journalist who said that democracy required citizenship and a town square where people could discuss the issues that mattered to them. He leaned over to his wife and said, “That’s *The Berkshire Eagle*.”

The retired judge was referring to his local newspaper in western Massachusetts. The venerable paper traces its roots back to the founding of the nation, has long been known for the quality of its local news coverage, and has produced alumni who have gone on to work at *The New York Times*, *The Washington Post*, and *The Wall Street Journal*.

But in the 1990s, the paper was sold to out-of-town corporate ownership and in subsequent years was beset with budget cuts and staff reductions. Readers began to notice that there were fewer stories about what was going on in their county.

So Rutberg put together a small group of local investors that included top executives of major businesses who had vacation homes in the bucolic community known for its summer cultural life.

They purchased the paper four years ago and decided they had to offer more, not less, to residents to keep them reading the paper in a coverage area that runs the length of the state from the Connecticut border up to Vermont.

They created a Sunday features and arts section, all locally produced; expanded local sports coverage; and, at a time when most papers are shedding staff, are adding four reporters. It’s a financial gamble, but one that Rutberg, now the publisher, says is working so far. While most papers are losing print subscribers, the *Eagle* is holding steady—and digital readership is up.

“We’re developing what I like to call an emotional connection with our readers,” says editor Kevin Moran, “whether it’s providing the news and information that they need, or entertaining them, or providing thought-provoking commentary, or having a thriving letters to the editor section and commentary section.

“One of the things that we hear frequently from people is they thank us for giving them their newspaper back.”

One of those readers is Melissa Baehr, who stops in each morning to buy her coffee and the day’s *Berkshire Eagle* at Palmer’s Variety Store, down the street from her house in Pittsfield, Massachusetts. The daily ritual keeps her in touch with her neighbors—and so does reading the paper. She not only relies on it to tell what she needs to know about her community, she also depends on it to highlight the needs of the Berkshire Community Action Council, where she works.

“I help support low-income individuals in our community, specifically children around wintertime, with our warm clothing program, which serves over 2,000 children every year,” Baehr says. “*The Berkshire Eagle* has always supported the program. Usually when that article [about the program] hits the paper, we see a huge increase in donations, cash donations, new coat donations, new boot donations, and new warm clothing. I have people calling me on the phone, saying what can I do to help?

“It just goes to show you how important the local paper is.”

Daniel LeDuc is the editor of Trust.

Melissa Baehr buys a copy of *The Berkshire Eagle* every day, a ritual that keeps her in touch with the community. It also helps her work. She manages a program that helps support low-income individuals in the community, and when the *Eagle* runs an article about what the nonprofit is doing, she sees a spike in donations. “It just goes to show you how important the local paper is,” she says.



Listen to “The Loss of Local News”, a three-part podcast series, at pewtrusts.org/afterthefact.

BUILDING BRIDGES

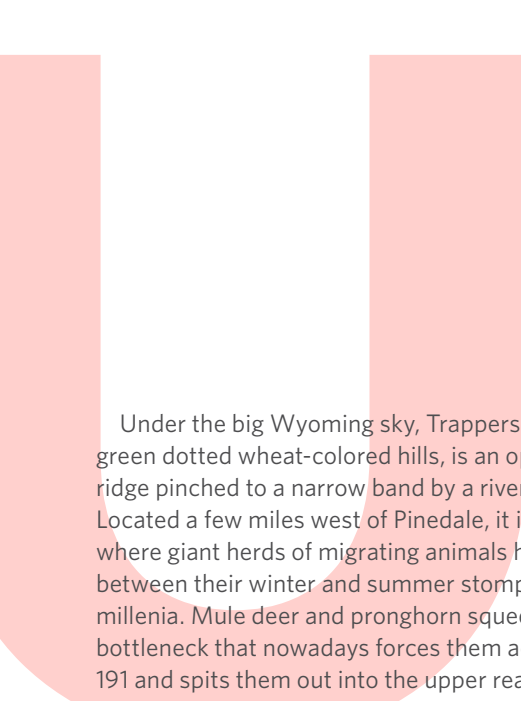


A herd of pronghorn antelope is shown grazing in a field of dry grass at sunset. The sky is a vibrant mix of orange, pink, and purple, with the silhouettes of the Rocky Mountains visible in the background. The pronghorns are in the foreground, some looking towards the camera and others grazing.

WILDLIFE CROSSINGS PROTECT PEOPLE, ANIMALS, AND THE MAJESTY OF OUR LANDSCAPES.

BY JENNIFER S. HOLLAND

A herd of pronghorn graze at sunset in the shadows of the Rocky Mountains in Pinedale, Wyoming. In wide-open ranges in the United States, animals still roam the same migration routes they have for thousands of years. Although busy highways, fences, and construction threaten these ancient habits, man-made structures are also providing solutions. *Joel Sartore/National Geographic Creative*



Under the big Wyoming sky, Trappers Point, with its green dotted wheat-colored hills, is an open-sagebrush ridge pinched to a narrow band by a river on either side. Located a few miles west of Pinedale, it is also a place where giant herds of migrating animals have traveled between their winter and summer stomping grounds for millennia. Mule deer and pronghorn squeeze through this bottleneck that nowadays forces them across Highway 191 and spits them out into the upper reaches of the Green River Basin heading toward Jackson Hole.

When wildlife is forced to cross roads, it creates a safety issue—for both animals and humans. Across the country, drivers hit 1 to 2 million animals each year, according to a Federal Highway Administration report. Approximately 200 people die (as do most of those animals), 30,000 more are injured, and the cost to all of us is upward of \$8 billion. At the ecologically vital Trappers Point crossing, some 85 vehicle-animal collisions used to occur annually. “I remember seeing maintenance guys coming back with truckloads of deer to take to the landfill,” said Peter Hallsten, Pinedale’s resident engineer since 1997, with the Wyoming Department of Transportation (DOT).

But Trappers Point is ultimately a success story. In 2012, the Wyoming DOT completed construction of an \$11 million project that includes two wildlife overpasses, six underpasses, and some 12 miles of fencing that funnels the animals to these safe crossings traversing above or beneath the highway. In the first three years post-construction, tens of thousands of animals used the structures, and wildlife-vehicle collisions fell by 80 percent. In addition, mule deer movement back and forth across the road increased by more than 60 percent and pronghorn more than 300 percent, contributing to stronger and healthier populations of these migrating animals.

Trappers Point helped prove an important supposition: Building wildlife-friendly transportation infrastructure can be a win for drivers and animals alike. The project has marked the beginning of a growing trend.

In western Colorado, a series of two wildlife overpasses, five underpasses, and fencing with “escape ramps” for trapped animals reduced carnage by almost 90 percent by the second winter after construction on Highway 9 through the Blue River Valley. Lottery money plus a significant contribution from a local landowner

funded the project, which should pay for itself in reduced accidents in around 22 years, according to a recent study commissioned by The Pew Charitable Trusts and compiled by the Center for Large Landscape Conservation.

“The work around wildlife crossings and animal migration is exciting because the science is so cutting-edge,” said Matthew Skroch, a manager for Pew’s public lands and rivers conservation team, which has been working on the issue. “It’s only been in the last decade that scientists have been able to follow animals in real time, and it’s revolutionizing how we understand them.” Pew is working in this space to help reduce traffic fatalities, protect animals, and promote more wildlife-friendly transportation policies—which in turn will help preserve wildlife migration corridors and promote healthy and connected landscapes. The work is essential to both the ecosystems and local economies across the West, which are fully intertwined.

In Utah, the Parleys Canyon overpass between Salt Lake City and Park City, completed last year for \$5 million, has drawn not just ungulates, or large hooved mammals, but also bobcats, cougars, coyotes, and even a yellow-bellied marmot, emphasizing how reconnecting migratory landscapes severed by roads, housing, industry, and other development benefits many types of native wildlife.

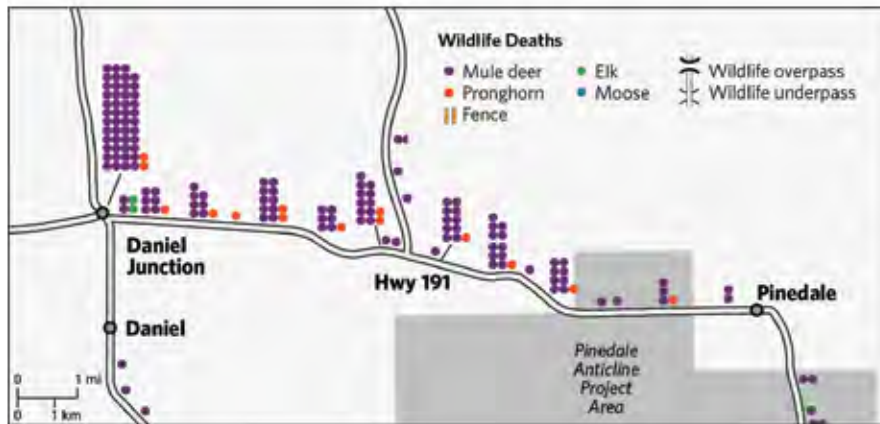
In Washington, plans for the Snoqualmie Pass project on I-90, part of a \$1 billion highway renovation to be completed by 2029, call for a total of 27 structures over 15 miles. The crossings are designed to connect both terrestrial and aquatic (e.g., creeks that house spawning trout) habitat along one of the busiest interstate corridors in the Pacific Northwest. (Construction along the first 7-mile stretch, at \$551 million, was funded by the 2005 gas tax.)

And in Nevada, a series of bridge and tunnel projects across U.S. 93 and I-80 in Elko County, completed in 2018, has led to a 50 percent decrease in mule deer collisions with each subsequent migration. (Funding came from a variety of state and federal sources, including Nevada’s highway safety program and the American Recovery and Reinvestment Act.) “This is the first project of its kind to address a migration at such a large landscape scale, at four major crossing locations,” said Nova Simpson of the Nevada DOT. Wrecks are down 98 percent in some areas. Last year, the Federal Highway Administration gave the state an environmental excellence award for the project.

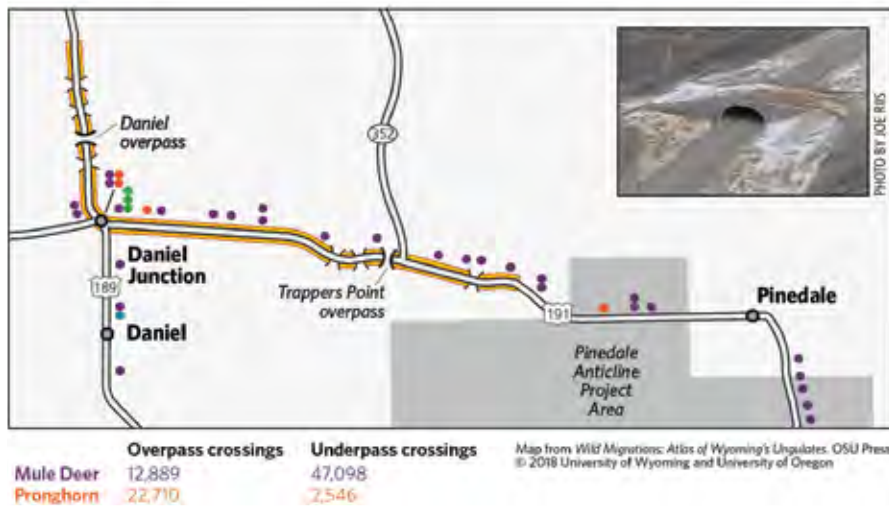
Despite the constant tug of war over limited funds, the list of examples—including a number of crossings back East, in North Carolina, Florida, and elsewhere—continues to grow. That expansion should continue apace as more states, and possibly the federal government if currently proposed legislation succeeds, catch on.

Wildlife Mortality before and after Crossing Structures

2007



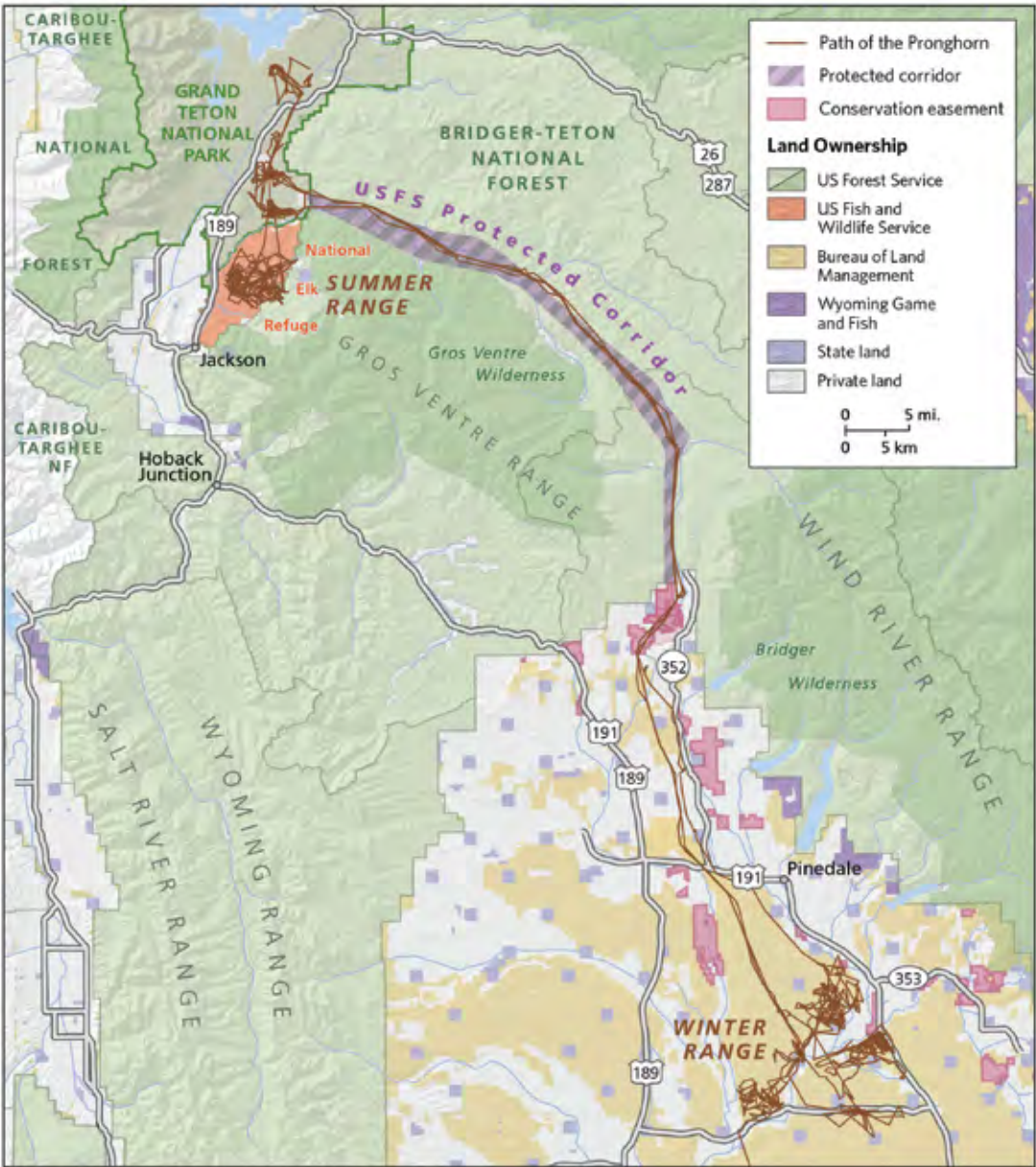
2012



Migrating pronghorn appear small as they traverse the highway overpass, below, at Trappers Point in western Wyoming. Such wildlife crossing points benefit both drivers who can avoid dangerous collisions and the animals that travel well-trod paths. Maps, left, show the five-year reduction in animal deaths, represented by dots, in the area near Trappers Point after this crossing was installed.
Joe Riis/National Geographic Creative

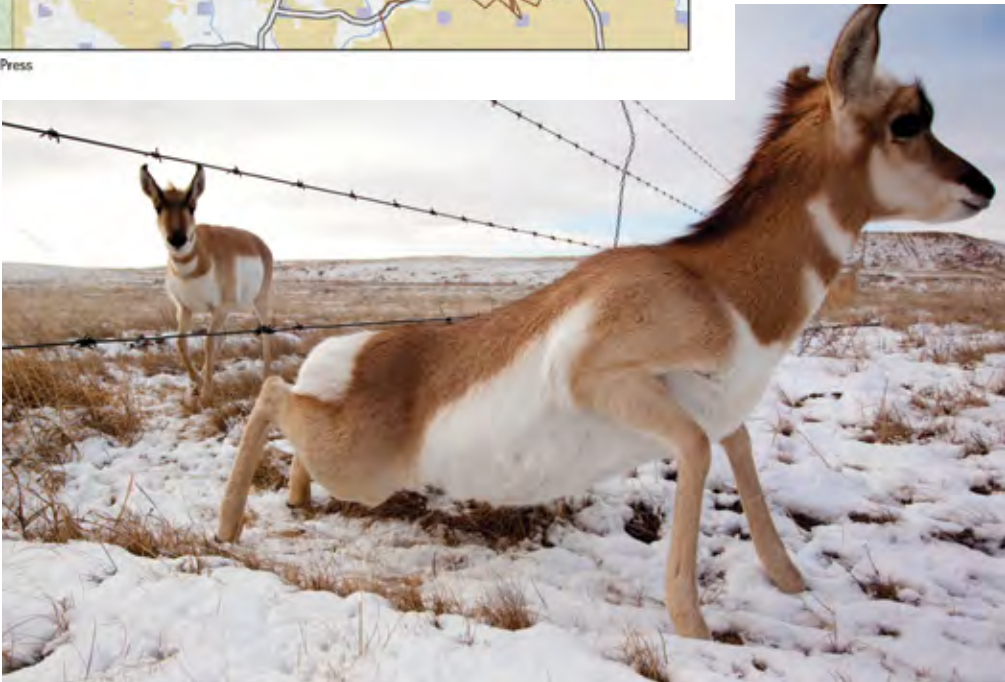


Path of the Pronghorn Protected Corridor



Map from Wild Migrations: Atlas of Wyoming's Ungulates. OSU Press
© 2018 University of Wyoming and University of Oregon

The map, above, outlines the extensive area that pronghorn travel between their winter and summer ranges, in brown lines, as well as the patchwork of landowners along the way. The portion shown in gray lines was the first U.S. corridor to gain federal protections. At right, a pronghorn slithers beneath a barbed wire fence in Medicine Hat, Alberta, Canada. Such barriers present obstacles for animals that have followed the same land routes for millennia. Joel Sartore/
National Geographic Creative



“Clearly, this is a problem we know how to fix,” said Matthew Kauffman, wildlife researcher at the USGS Wyoming Cooperative Fish and Wildlife Research Unit, and it’s one that cuts across stakeholders, from transportation agencies to tribes to conservation groups to hunters. Not only can properly designed wildlife crossings nearly eliminate collisions at key points in the landscape, he said, “they promise to reconnect fragmented habitat” and preserve perhaps the grandest natural phenomenon still at work in the American West: the great migration of ungulate herds.

For thousands of years, these herds have etched out pathways between the mountains and valleys, chasing summer resources and taking refuge from harsh winter weather. Their ultimate aim is successful reproduction, and the migration routes that support this goal are passed down through generations, in some herds practically down to the hoofprint.

“It’s not just a matter of [the herds] getting from point A to point B,” said Kauffman. “It’s about nourishment—they follow the green-up of plant growth in spring, which we call ‘surfing the green wave,’ allowing them to build and carry energy through the entire ecosystem.” The corridors are not just throughways but important habitats unto themselves, he said, and barriers such as highways or fences can be disastrous for the animals.

That any of these migrations still occur in the United States is remarkable. Every day, collectively, we drive some 4 trillion miles over more than 4.2 million miles of mostly paved roads, and ongoing road building in the U.S. has led to a 50 percent increase in wildlife-vehicle collisions in the last two decades. Additionally, with railways and mines, towns, agriculture, new housing, and industrial development, humans are continually putting up obstacles to wildlife.

Then there is the “invisible” threat: fencing. “We don’t consider its potential impacts, and there are literally millions of tons of fencing on the landscape,” said Andrew Jakes of the National Wildlife Federation. Depending on the context, fences can be a conservation tool or a roadblock. Either way, Jakes said fencing is a pervasive infrastructure that has profound influence on wildlife and ecosystems.

Building wildlife crossings isn’t a new idea. Europe and Canada were early adopters; Banff National Park in Alberta, for example, constructed six overpasses and 38 underpasses for its herds some 20 years ago. Even the engineers who laid Wyoming’s stretch of I-80 in the early 1970s placed concrete tunnels in spots where wildlife movements were known to occur; most animals rejected the dark passageways, and understanding their preferences would be vital to future successes.

Camera traps have been essential in this regard, revealing how animals react to structures. It turns out some will readily enter well-designed underpasses

(mule deer), others cross only open bridges (pronghorn), and different species navigate different kinds of fences in their own ways. For example, pronghorn can get “piled up” for weeks behind a right-of-way fence, unable to leap it. This evidence suggests animals that can’t navigate barriers are changing their behavior or being fully excluded from places they used to go.

Looking to Wyoming’s herds, scientists decided to learn migratory routes from the animals themselves. “We realized the best way to solve the problem is to map the actual corridors,” said Kauffman, “and let the animals show us exactly where they want to go and how they want to get there.” Looking to the herds would also make clear any challenges, barriers, and threats they faced along the way, he said.

Thankfully, tracking technology has improved immensely since early wildlife researchers documented paw prints and scat and chased weak radio signals by plane or on foot. Today’s GPS collars allow scientists to monitor the exact location of an entire herd from behind a laptop, as data ping to satellites every few hours, 24-7.

After years of such data collection, Kauffman co-founded the Wyoming Migration Initiative based at the University of Wyoming. Among other conservation tools, its research team has created an online “migration mapper” that planners and conservationists can use to identify and prioritize animal corridors.

Such intensive work in Wyoming uncovered some incredible journeys. Hall Sawyer of Western EcoSystems Technology Inc., a scientific consulting firm, and colleagues with the University of Wyoming and Wildlife Conservation Society documented the now-renowned “Path of the Pronghorn,” a 100-mile stretch used by a dedicated herd from the Green River Basin to Grand Teton National Park. It’s the first corridor to get federal designation and protection, albeit limited to a 40-mile section of U.S. forest land. Sawyer also documented the longest deer trek known so far in America: mule deer herds’ 300-mile round-trip journey in western Wyoming—across highways and over more than 100 fences—between wintering grounds in the Red Desert of lower central Wyoming and summer range amid the slopes of the Hoback Basin just south of Grand Teton National Park, near the state’s western border.

Across the West, the issue of migratory corridors is on the docket. In 2018, then-Secretary of the Interior Ryan Zinke issued a secretarial order requiring officials in Western states to identify ungulate winter ranges and migration corridors on federal lands that has facilitated mapping and other conservation efforts in the last two years. Congress is also beginning to show interest in connecting the new migration science with public lands and wildlife policy. A bipartisan bill called the Wildlife Corridors Conservation Act is making ripples, if not waves, in the lower chamber with a national proposal for



WHEN WILDLIFE IS FORCED TO CROSS ROADS, IT CREATES A SAFETY ISSUE—FOR BOTH ANIMALS AND HUMANS.

Pronghorn dodge traffic, coming and going, in western Wyoming.
Joel Sartore/National Geographic Creative

designating wildlife corridors. And a Senate committee recently passed—unanimously—a new highways bill that allocates some \$250 million for wildlife-friendly bridges and underpasses.

Still, the patchwork of public, private, state, and tribal land ownership can complicate efforts to conserve habitat and corridors. “Things can become very polarized in local areas, especially at the urban-rural interface, and where landowners feel unheard,” noted Nevada DOT’s Simpson. Case in point, in Island Park, Idaho, angry property owners feeling ignored by decision-makers and worried about land access and views thwarted plans for wildlife crossings across the Targhee Pass. “That’s why we have to create partnerships and find common ground.” Of course, many landowners are, and have long been, excellent stewards of the corridors that run through their properties.

Casey Stemler of the U.S. Fish and Wildlife Service, the coordinator for the Department of the Interior’s secretarial order, said that, with so many different interested parties, “the value of voluntary and proactive conservation cannot be understated in the West.” Although going in with a regulatory, top-down approach could lead to a lot of slammed doors, he said that joint ventures aimed at preserving habitat represent landscape conservation at its best. Still, many experts assert that some regulatory framework—combined with collaborations at the state and local levels—would go a long way toward providing substantive and lasting conservation measures for migrating wildlife.

Whatever policies are or aren’t in play, diverse partnerships are key, noted Pew’s Skroch. “It’s a matter of bringing together all of the disparate pieces—DOTs, state wildlife agencies, tribes, NGOs, property owners—to look at the science and figure out what works toward the common goal of conserving big game migration

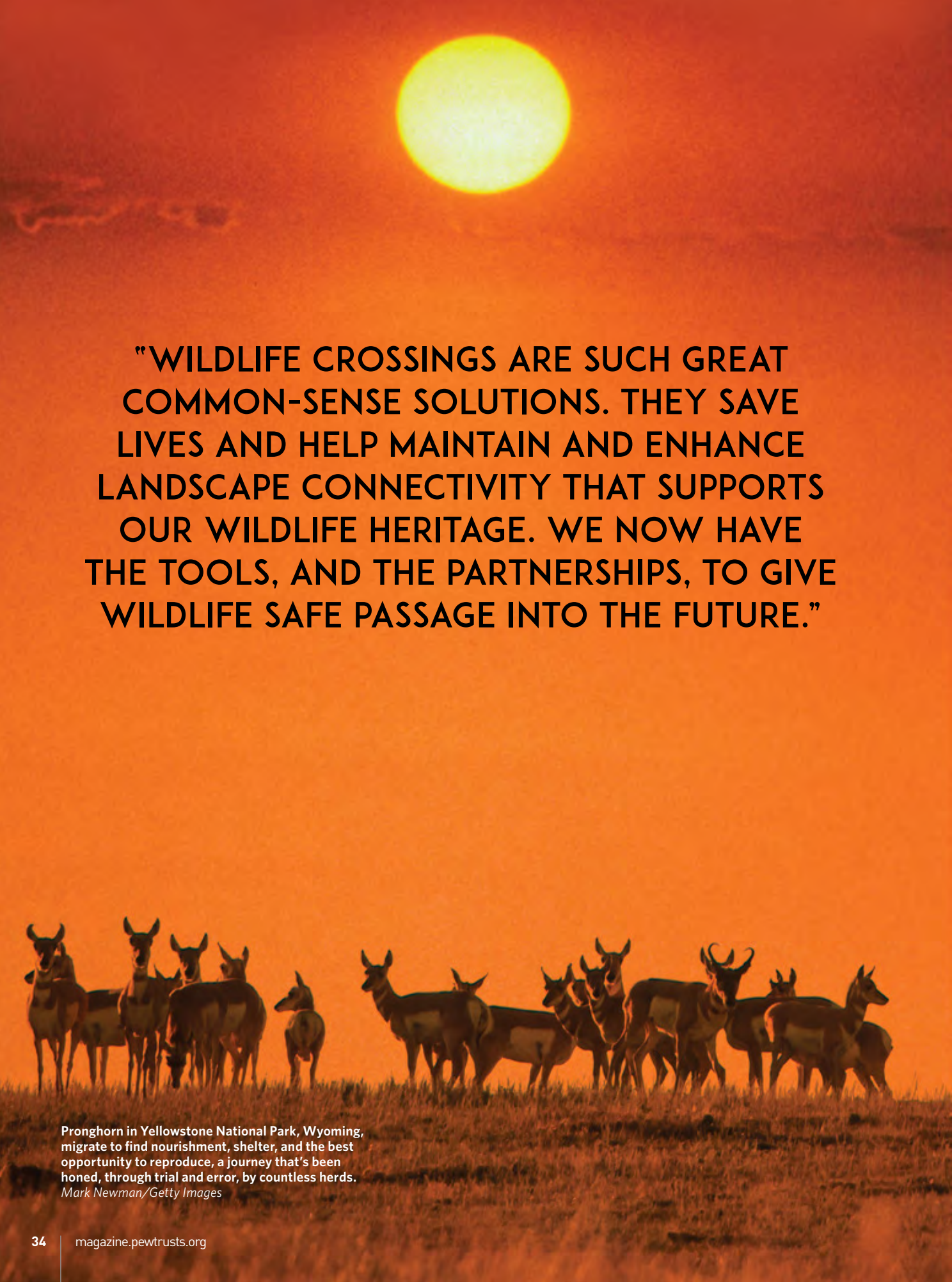
habitat.” To that end, the Western Association of Fish and Wildlife Agencies, Wyoming Migration Initiative, and Pew held regional workshops in 2017 and 2018 attended by wildlife managers from many Western states. More recently, Pew has helped bring together agencies and stakeholders in Nevada and California, respectively, to assess how wildlife movement and transportation infrastructure interact, with an eye on future collaborations for safe-passage projects.

Safety is on the agenda in a number of states—Wyoming, Nevada, California, New Mexico, and others—that have completed studies to identify priority areas for future initiatives. Last summer, the Western Governors’ Association passed a resolution calling for better collaboration and more resources for wildlife-friendly transportation infrastructure, and Governor Jared Polis of Colorado signed the first-of-its-kind executive order to protect migration corridors and seasonal habitats. Other governors are considering similar action.

Along with competing land uses, limited funding can hold back wildlife crossing projects. Costs vary widely depending on geography, type of structure, and design, but overpasses in particular run well into the millions, and projects with multiple structures can ring up tabs above \$50 million. “With so many competing priorities and declining revenues, the solution doesn’t always have to be big, shiny new overpasses,” said Pew’s Skroch. “Sometimes, depending on the target species, retrofitting existing culverts or tunnels with fencing to guide the animals can be extremely effective.” As much as possible, officials are making animal crossings part of already-funded highway construction or improvements. For example, Washington’s Snoqualmie Pass project is part of the state’s more general (\$1 billion) overhaul of part of I-90.



A remote camera captures elk migrating through Wyoming. Camera traps and GPS collars—important tools for understanding ungulate migrations—reveal how the animals adapt to crossing structures and where they're going. Joe Riis/National Geographic Creative



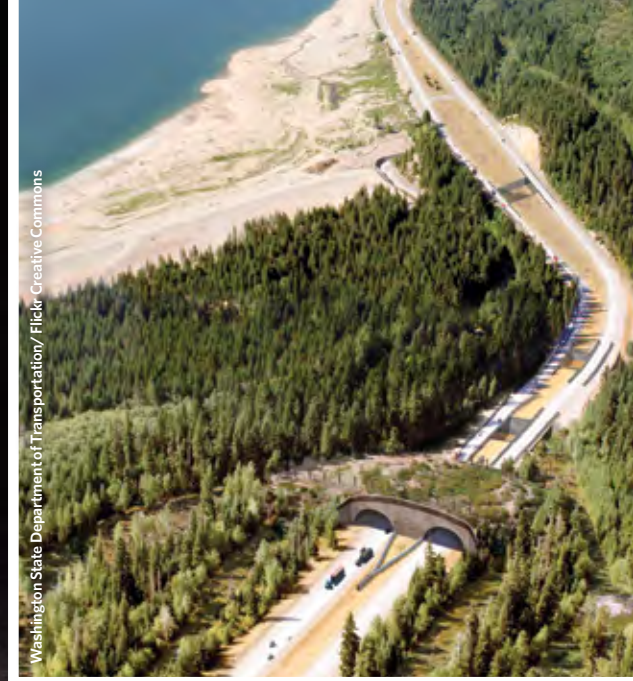
**"WILDLIFE CROSSINGS ARE SUCH GREAT
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Pronghorn in Yellowstone National Park, Wyoming, migrate to find nourishment, shelter, and the best opportunity to reproduce, a journey that's been honed, through trial and error, by countless herds.

Mark Newman/Getty Images



Morten Flach Sortland/Getty Images



Washington State Department of Transportation/Flickr Creative Commons

An automobile's headlights capture a mule deer, left, on a highway in southwestern Utah. Above, right, a bird's-eye view shows a rendering of the Snoqualmie Pass wildlife overpass on I-90 in Washington, one of 27 structures that, when completed in 2029, will connect terrestrial and aquatic habitats along one of the busiest corridors in the Pacific Northwest.

Still, as yet there's no dedicated federal money for the actual construction of new crossings. However, the Department of the Interior's secretarial order has provided \$6.4 million to fund state wildlife agency efforts to identify corridors and collision hot spots, plus another \$1.8 million for data analysis and mapping assistance to the respective states. And the bipartisan proposal now in the Senate, America's Transportation Infrastructure Act of 2019, would allocate \$250 million in grants over five years for projects aimed at reducing wildlife-vehicle collisions.

Engineers, meanwhile, are trying to cut costs through more modular designs and cheaper, greener materials such as precast concrete and composite materials. Construction is evolving: California may soon see the first overpass in North America made of fiber-reinforced polymer, a light, durable material that can include recycled plastic. (Engineers are eyeing a site in Siskiyou County, near the Oregon border, for the new structure.) If applied widely, such a material could greatly economize future projects.

But even bridges of traditional concrete and steel construction are proving to be cost-effective solutions over the long term. Wyoming engineer Hallsten said that first seeing animals readily using the structures at Trappers Point "felt like winning the Super Bowl." That

whole project, he said, should pay for itself in 15 years of reduced collisions, if not sooner.

Today, the United States—not just in the West but also in Florida, New Jersey, and elsewhere—has hundreds of wildlife bridges and underpasses. Some are new, some old but improved, and more are in the works. And they've been wildly successful at reducing deadly interactions between drivers and animals. The win-win is crystal clear.

Also important, said Kauffman, is that third winner, the natural landscape. Linked habitat allows herds to move freely, giving them the options—such as mates, food and water resources, and pathways—that let them thrive. Connectivity also supports higher biodiversity and can soften the blow to animals from habitat loss, drought, disease, and other threats. "Wildlife crossings are such great common-sense solutions," said Pew's Skroch. "They save lives and help maintain and enhance landscape connectivity that supports our wildlife heritage. We now have the tools, and the partnerships, to give wildlife safe passage into the future."

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Jennifer S. Holland is a former staff writer for National Geographic specializing in life sciences.

In the Beginning Was the Word

A Pew Research Center analysis of the texts of nearly 50,000 sermons provides new insights into four major Christian traditions.

BY DAVID O'REILLY

Legend has it that the shortest sermon ever preached was on a sweltering Sunday to a congregation itching to get to the beach.

"If you think it's hot in here," said the pastor, pointing to that realm of eternal punishment far below his feet, "just imagine what it's like *down there*." Soon they were out the door.

True story? It's hard to say. Pollsters have paid scant attention to what churchgoing Americans actually hear during worship services. But now the Pew Research Center has harnessed new techniques to identify, collect, and analyze the sermons that religious leaders in thousands of U.S. churches have delivered to congregants and shared on church websites.

The product of that research is "The Digital Pulpit: A Nationwide Analysis of Online Sermons." It's a computational analysis of nearly 50,000 sermons from more than 6,000 congregations that examines in unprecedented detail the lengths and word choices of sermons across four major Christian traditions: Catholic, evangelical Protestant, mainline Protestant, and historically black Protestant. (For practical reasons, the analysis did not include the preaching at mosques, synagogues, and other non-Christian houses of worship.)

The Digital Pulpit, which was released in December, contains "lots of interesting information," in the view of James F. Kay, dean emeritus of Princeton Theological Seminary and professor emeritus of homiletics and liturgics. "Some of these are confirmatory of anecdotal experiences," he says, such as the relative brevity of Catholic homilies, and the image of a powerful, intervening God in black Protestant preaching. "But there are some new things here that belie the anecdotal."

Among the report's major findings:

- The average sermon across all four traditions lasts 37 minutes. Sermons at black Protestant churches run more than three times longer, at 54 minutes, than the average Roman Catholic homily of 14 minutes. Evangelical sermons average 39 minutes,

while those at mainline Protestant churches typically run 25 minutes.

- The median word count of the analyzed sermons was 5,502, with those of black Protestant churches the longest at 6,139, and evangelical churches close behind at 5,938. Mainline Protestant sermons averaged 3,251 words, while Roman Catholic homilies were shortest by far, at 1,847.
- Historically black Protestant sermons are roughly as long as evangelical Protestant sermons when measured by word count, but 38 percent longer when measured by duration. "This suggests," the report says, "that there may be more time in sermons delivered at historically black Protestant congregations during which the preacher is not speaking, such as musical interludes, pauses between sentences, or call and response with people in the pews."
- Evangelical, mainline, black Protestant, and Catholic traditions share a common language, but each uses its own distinctive words and phrases. Evangelicals, for example, are likelier to hear word sequences such as "eternal ... hell," "trespass ... sin," or "bible ... morning" than are mainline Protestants, who are likelier to hear such word groups as "gospel ... lesson" or "disciples ... betray." The analysis found, however, that evangelical sermons referred less than 10 percent of the time to hell, redemption, and damnation.

Black Protestants will encounter the expression "powerful hand," the word "praise," and the exclamation "hallelujah ... come!" far more than do congregants in other Christian traditions. Catholics, meanwhile, hear such distinctive words as "diocese," "chalice," "eucharist," "parishioner," and "homily"—the term Catholicism prefers over "sermon" to denote a commentary on Scripture.

- Nine out of 10 sermons and homilies across the four Christian traditions cited books of the New Testament, but only six out of 10 cited the Hebrew Bible, or Old Testament. And references to the Old Testament decreased markedly during Easter Week.

- “Jesus” ranks 20th in frequency of word use, after such generic words as “say,” “people,” and “come.”

The idea for the project began three years ago, says Dennis Quinn, a computational social scientist at the Pew Research Center, as members of its data labs team “began asking ourselves: ‘If you could conduct a web scraping, what subject matters are really ripe for the picking?’” The center began employing web scraping, a technique that uses automated computer programs to harvest data from websites, in 2015 to search patterns of word use in domains such as congressional news releases and social media.

Alan Cooperman, director of religion research at the center, proposed a robust analysis of sermon language, says Quinn, who steered the project. “First we had to build the tools to find the sermons, which was the lion’s share of the work.” He and his colleagues began with all the Christian congregations found on Google Places, which identifies most of the estimated 350,000 churches in the U.S. After pinpointing a representative sample of churches with active websites (these tend to be larger and more urban than the national average), the team began programming its scraper to start the automated task.

“To do that, we had to train computers to identify where churches would post their sermons online, and how to distinguish sermons from, say, budgets or potluck supper announcements,” explains Quinn. “Every morning for weeks during the data collection there’d be 800,000, 900,000, a million ‘sermons’—most of no value. “It was like a dog you want to fetch a ball and it keeps coming back with a mouse. We had to go in there and say, ‘This is a sermon; this is not.’”

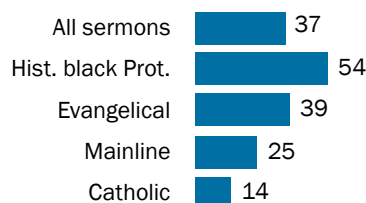
Researchers refined word choices, document lengths, and formatting that eventually guided the computers to better identify sermons, the “vast majority” of them posted in video and audio formats that computers then transcribed into text. The final dataset contained 49,719 sermons from 2,156 evangelical congregations, 1,367 mainline Protestant congregations, 422 Catholic parishes, and 278 historically black Protestant congregations. The remaining 2,208 churches could not be reliably classified or belonged to other religious groups whose congregations appeared when researchers searched for the term “church.” All of the sermons were delivered from April 7 to June 1, 2019, a period that included some of Lent and Easter Sunday.

“One of the most interesting findings regards evangelicals—and the nuanced distinction that certain expressions may be distinctive to a particular tradition but not necessarily common within that tradition,” says Kay. “The report shows that evangelicals have only one chance in 10 of hearing terms such as ‘eternal hell’ or ‘damnation’ in the ordinary course of preaching.”

Although God’s condemnation of the unworthy is core to evangelicals’ understanding of salvation, Kay speculates that sermons on the topic “may be meeting resistance” in the pews. “So it’s a hypothesis that maybe

Median historically black Protestant sermon is over three times as long as median Catholic homily

Median length (in minutes) of sermons delivered in churches of each religious tradition



Source: Pew Research Center

the doctrine just doesn’t preach.”

Kay also noted the report’s finding that the term “eucharist” seems to enjoy precedence over “Mass” in Catholic homilies. This, he surmises, may be the result of efforts by the Second Vatican Council of 1962-65 to find a common language with Protestant churches, many of whom had used “Lord’s Supper” to describe communion.

“I also find very interesting the apparent decline in the use of the Old Testament in mainline Protestant preaching,” says Kay. He speculates this may come from Protestantism’s broad use of a common lectionary starting in the 1970s. Developed in a spirit of ecumenism by teams from the Vatican and the majority of Protestant denominations, this recommended sequence of Scriptural readings emphasizes gospel stories over Old Testament passages and has become the standard for Catholic and most mainline Protestant clergy in the U.S., he says.

Although Kay was unacquainted with the popularity of the phrase the “powerful hand” in black Protestant churches, he was not surprised to learn of it. “There’s a very strong theme in black preaching of a God who makes a way when there is no way,” he says. “So when you’re preaching to an oppressed or harassed community, you’re going to draw out certain themes from Scripture that you wouldn’t use with a white, middle-class suburban community.”

And the fact that Catholic homilies are far shorter than Protestant sermons probably springs from the differing place of preaching within the two traditions, he says. “The Roman Catholic focus has always been on the consecration [of bread and wine] and the presence of Christ in the Mass,” notes Kay.

“For classical Protestants, the emphasis is on Christ’s presence in the proclamation of the word of God.”

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David O’Reilly was the longtime religion reporter for The Philadelphia Inquirer.

States and the Fiscal Constraints Autonomous Vehicles May Bring

Driverless cars and trucks could provide many benefits, from safer highways to improved mobility, but widespread adoption could shrink the vehicle-related revenue streams that states rely on.

BY KIL HUH

Autonomous vehicles have the potential to do more than change the way we reach a destination or deliver goods. Vehicles that partially or entirely replace human drivers could change state economies as well. New research for The Pew Charitable Trusts shows that even moderate use of AVs could affect the fiscal outlook of states that collect substantial taxes and fees from cars and trucks through a range of revenue streams that would diminish.

Although there is no consensus on how quickly driverless vehicles will be a common sight on the road or on their potential long-term market share, more than 80 companies are testing AVs across 36 states and the District of Columbia. According to the U.S. Department of Transportation, the widespread introduction of AVs could increase the productivity of workers, facilitate long-haul freight movement, and significantly improve road safety by reducing crashes caused by human error. Nevertheless, the prospect of extensive AV adoption raises other safety issues as well as concerns about cybersecurity, data privacy, and the impact on the economy.

States currently collect about 8 percent of their total revenues from vehicle-related taxes and fees on sales, licensing, registration, and fuel—a key source of funding for infrastructure maintenance and improvements. They also collectively receive billions more from a wide range of related economic activity, including car rentals, auto repairs, vehicle financing, parking, ride-sharing, and gas stations.

The research, conducted by William F. Fox, a professor at the University of Tennessee at Knoxville, and published by Pew, examines the effect of the adoption of AVs on tax revenue in California, New Hampshire, New York, Ohio, Tennessee, and Texas. The research focused only on transportation-related taxes and fees, assumed that AVs will be largely electric-powered, and modeled the direct fiscal changes using each state's current tax structure. (Other considerations for states that were not directly

modeled in this analysis include potential changes in employment in motor-vehicle-related industries such as trucking, taxi services, and auto manufacturing.)

The analysis assumes that AVs eventually replace person-driven vehicles entirely and examines five scenarios with different timeframes and the number of cars and trucks needed to meet total demand. The reduction of the number of vehicles would largely result from shared ownership and pooled travel. Assuming moderate rates of full adoption and vehicle reduction—a 30-year AV phase-in and a 40 percent drop in the number of vehicles on the road—implications for states varied widely and depend on a state's revenue portfolio.

New research for The Pew Charitable Trusts shows that even moderate use of AVs could affect the fiscal outlook of states that collect substantial taxes and fees from cars and trucks through a range of revenue streams that would diminish.

For example, transportation-related revenues in Texas—which, of the six states studied, relies most heavily on vehicle-related revenues—would drop by nearly a third over a 15-year period, from 18.4 percent of total state revenue in 2025 to 12.7 percent in 2040.

Conversely, New York's vehicle-related revenues are already less than 5 percent of total state revenue. Although vehicle-related revenues would drop by more than half in the Empire State, projected overall revenue would decline by a much smaller amount: from 4.6 percent in 2025 to 2.1 percent in 2040,



Cameras, an essential part of a self-driving car, are mounted on a model that was featured last year at CES, the world's largest annual consumer technology trade show. Autonomous vehicles on the road would affect not only driver safety, mobility, and traffic, but also the fiscal functioning of states that depend on revenue streams from vehicle-related taxes and fees. *Justin Sullivan/Getty Images*

the smallest fiscal impact among the six states. And because New Hampshire now collects the country's lowest rate of state taxes as a percentage of personal income, its decline in vehicle-related revenue would be only 3.3 percent between 2025 and 2040.

Not all the effects of AV adoption on states and communities would be negative, of course. AVs can be expected to improve quality of life through greater mobility—for the elderly, people with disabilities, and children too young to drive, for example—and could result in decreased traffic accidents, enhanced productivity, and reduced emissions.

Yet the potential reduction in revenues, job losses in vehicle production and operations, and new investments needed to accommodate widescale adoption of AVs suggest that state policymakers should begin examining adjustments in tax policy. Some experts, for example, advise shifting to new taxes or fees on road use or

vehicle miles traveled, rather than relying so heavily on revenue sources such as fuel taxes, to compensate for the potential loss of revenue needed to provide essential public services.

Twenty-nine states already permit AVs to be operated on their roads, and automakers, ride-sharing services, and technology companies are racing to bring self-driving cars to market. State policymakers will have an important role to play in the rollout of this new technology by developing policies that balance the needs of increasing mobility, ensuring safety, reducing traffic congestion, and preserving fiscal health.

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Kil Huh leads Pew's work on fiscal and economic policy. A version of this article first appeared in Governing on February 20, 2020.

Pew experts explore innovative ideas on the most critical subjects facing our world.



A fisherman holds his catch of tuna in Tarawa, Kiribati, where fishing is one of the most common occupations. Kiribati consists of 32 atolls and one raised island that straddle the equator in the central Pacific Ocean and has one of the largest marine protected areas in the world. *Jonas Gratzner/Getty Images*

Market-Based Regional Agreements Can Help Achieve Large-Scale Marine Conservation

*Changing how fishing days are sold to foreign fleets
would save governments money, study shows*

BY JIM PALARDY

When countries cooperate to manage the ocean, they can promote a more equitable distribution of the costs of setting up marine protected areas (MPAs).

New research by Juan Carlos Villaseñor-Derbez and Christopher Costello from the University of California, Santa Barbara, and John Lynham from the University of Hawaii at Manoa, published Jan. 2, 2020, in the journal *Nature Sustainability*, provides an example of how this cost distribution might work.

Although closing or otherwise limiting fishing in regions of the ocean, such as through the establishment of MPAs, can result in regionwide benefits to all stakeholders dependent on fish stocks, the costs of doing so often are paid by only a small group, such as individual governments and their fishing communities. This new research finds that market incentives and other rules that make the playing field more equitable can allow these stakeholders to recoup some, or potentially all, of their costs.

Using a combination of vessel-tracking information and revenue data from fishing, the researchers assessed the impact of the Phoenix Islands Protected Area (PIPA), a 408,250 square kilometer area in Kiribati and one of the largest MPAs in the world. They found that, because of the unique nature of the regional fisheries management system in the area, the 20-percent decrease in revenue following the implementation of PIPA was smaller than would be expected based only on the 35-percent reduction in fishing effort.

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Long-term allocations

Despite a global movement to increase the area of the ocean under protection, experts have a limited understanding of how establishing an MPA affects the economy of the implementing country.

To examine the economic implications of creating MPAs, the study looked at Kiribati's decision to establish PIPA within the context of the Parties to the Nauru Agreement (PNA). This group of nine countries in the Pacific Ocean banded together in 2007 to collectively regulate foreign fishing fleets targeting skipjack and yellowfin tuna within their waters. Under the PNA's Vessel Day Scheme (launched in 2012), countries allocate and sell approximately 45,000 vessel-days—the right for a single vessel to fish for one day within a given country's waters. In 2016, a vessel day was selling for approximately \$9,000. Revenue from this vessel-day scheme (VDS) represents more than half of all governmental revenue for some of the PNA member countries.

An important mechanism within the VDS allows for trading of vessel-days among PNA countries. Traditionally, trading has occurred to address annual variability in where the fish are. The study found that this structure can reduce some of the overall costs of MPAs while also distributing those costs more equitably among PNA countries.

In 2016, Kiribati received its normal allocation of 11,000 vessel-days but sold only 7,479 days to fishing vessels in its waters, in part due to the reduction in available fishing area from PIPA. However, although VDS fishing effort within Kiribati decreased by approximately 35 percent, its revenue from selling fishing licenses decreased by only 20 percent. This finding suggests that Kiribati was able to recoup some of the costs of the MPA by trading vessel-days to neighboring countries, which now potentially benefit from the MPA's existence. Overall, the PNA still sold the full allocation of 45,000 vessel-days and actually increased total revenue from the VDS by about \$28 million.

Allocation rules

The researchers also found that the allocation rules for PNA's VDS could further reduce the burden on each member country of future MPA designations. Currently, allocations are based on two factors: fishing effort, which accounts for 60 percent of the allocation and is based on each country's average over the previous seven years, and biomass—how many fish are estimated to be in a country's exclusive economic zone (EEZ)—which accounts for the other 40 percent and is based on the prior 10 years' average. The parties, however, have the ability to change how they weigh each of these two factors.

Under that structure, large MPAs will reduce a country's allocation of vessel-days over time as fewer boats purchase fishing rights in its EEZ. However, basing the allocation primarily, or even solely, on biomass would significantly reduce the costs of the conservation action, in some cases by as much as 99 percent.

Next steps

With a growing number of countries looking to establish large MPAs to achieve conservation goals, the results of this study provide insight into how to more equitably distribute the costs of conservation among all parties receiving the benefits.

"MPAs provide lots of benefits, including to fisheries, through the spillover of fish and the protection of spawning grounds," Lynham says. "Our analysis shows how well-designed markets can reward governments that provide these benefits and ensure that large MPAs are a win-win for all parties involved."

Jim Palardy directs research projects for The Pew Charitable Trusts' conservation science initiative.

Largely Unexplored, Chilean Patagonia Needs Protections

A scientist explains the importance of safeguards for delicate and little-known ecosystems in Patagonia, a region like no place else on Earth.



BY VRENI HÄUSSERMANN

When I first came to Patagonia in the summer of 1995, the roads were small and unpaved and it all felt very adventurous and remote. As a biologist, you dream of exploring new regions and discovering new species, and I knew I had come to the right place. Chilean Patagonia is the most beautiful, least known, and most exciting place to explore natural history. Since 2002, I have made it my home.

Patagonia has some 50,000 miles of coastline—if you could stretch it all out, it would wrap around the planet twice. It also has the largest fjord region in the world—greater than Norway’s—created when huge ice fields from long ago retreated and the remaining basins filled with water. I think one of the biggest tasks in science today is to understand this region, because only if we understand it will we love it, and only if we love it will people want to protect it and use it sustainably. But it is a huge and difficult job.

Several factors have made Patagonia hard to explore. Researchers here generally worked close to their universities—there was little known about the areas close to them, so they had little incentive to travel farther, where conditions were more challenging. As expeditions were launched in the fjords in the 18th and 19th century, the big boats often stayed in the deep waters because of fears that the

vessels would be damaged by the rocky shorelines, and they missed the rich biodiversity along the steep fjord walls.

The technology of that era also didn’t allow for deep-water exploration—the fjords have a freshwater layer, with little diversity on the top. Most of the fascinating and colorful marine life and cold-water corals are deeper than 50 feet. That requires sophisticated diving gear and robots.


Today, we have those tools, but the research is very slow and time-consuming because we are virtually starting from scratch in an unexplored area, and there is so much to inventory and study just to give us a baseline of what’s there.

Further delays come from the weather. We get extreme rainfalls and storms. And the farther south we go, the wilder it gets. In many regions, the coastlines we seek to explore can only be accessed a couple of days a year because of strong storms. And we sometimes find the most unexpected things.

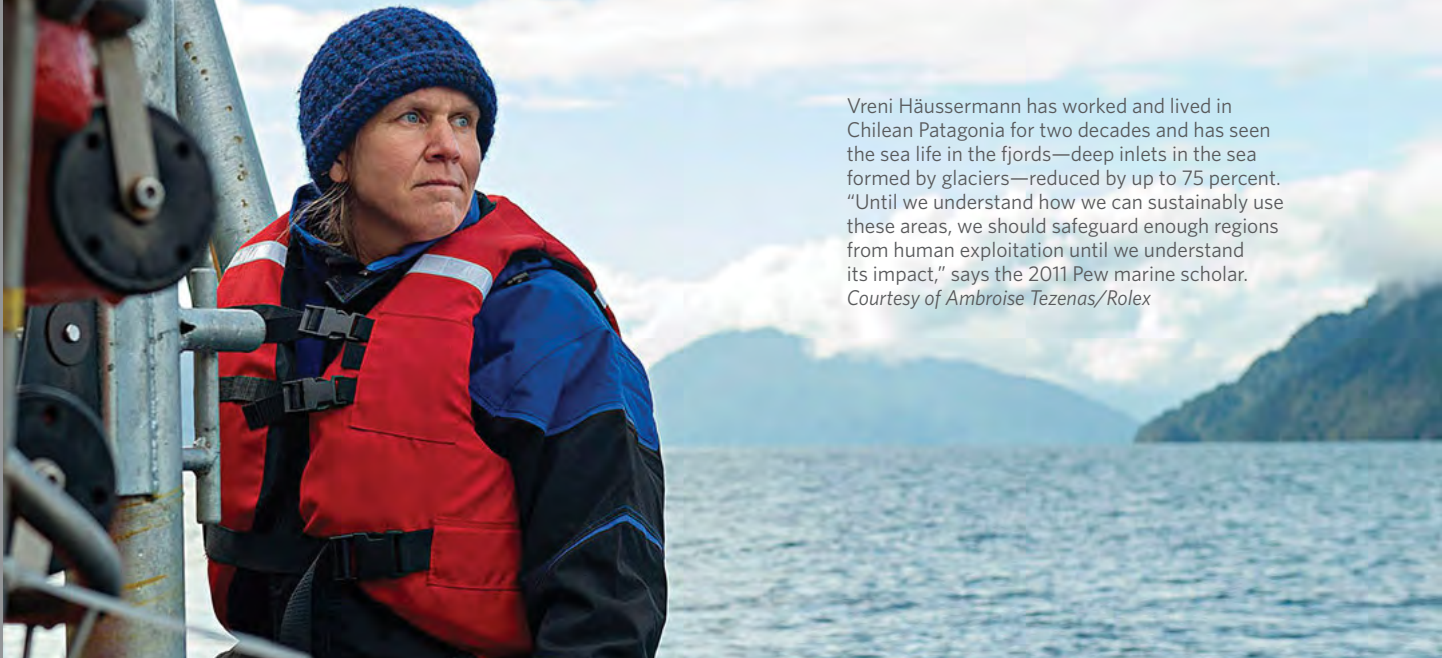
In 2015, we found more than 350 dead sei whales—big baleen whales—on some remote shores many weeks after they had died. Where in the world can this happen that you have hundreds of dead whales for weeks, and nobody sees them? There were so many that we had to get satellite pictures instead of researching it on the ground—it was actually easier to take pictures from space.

But as difficult as the conditions can be, I continue to be fascinated by the fjords. They have a few species from the deep sea living in shallow water, which allows us to study them without a submarine. That’s why the Huinay Scientific Field Station, on Comau Fjord, about 60 miles southeast of the city of Puerto Montt, is an attraction for scientists studying cold-water corals. It’s also an attraction for scientists studying ocean acidification. It’s been calculated that conditions in the fjords match how acidic the oceans will be by 2100. So, we basically have a laboratory for studying what will happen in the future, and how corals and other calcified animals deal with it.

The freshwater fish in Patagonia are yet another attraction for researchers. There are salmon all

A vibrant underwater photograph of a rocky seabed in the Comau Fjord. The scene is teeming with marine life. In the foreground, a large, bright orange starfish with five distinct arms is the central focus. Surrounding it are several dark purple starfish of various sizes. Interspersed among the starfish are numerous sea urchins with long, sharp spines. The rocks are covered in patches of green and yellow algae. The water is clear, and the background shows more of the rocky underwater landscape.

A bright starfish takes center stage in the Comau Fjord in Chilean Patagonia. Most of the rich marine life in Patagonia's fjords is found deeper than 50 feet—a depth that requires special diving gear or robots for exploration. In addition, extreme storms limit how often scientists can study the ecosystems in the water, leaving much of the aquatic region largely unexplored.
Solvin Zankl/naturepl.com



Vreni Häussermann has worked and lived in Chilean Patagonia for two decades and has seen the sea life in the fjords—deep inlets in the sea formed by glaciers—reduced by up to 75 percent. “Until we understand how we can sustainably use these areas, we should safeguard enough regions from human exploitation until we understand its impact,” says the 2011 Pew marine scholar. *Courtesy of Ambroise Tezenas/Rolux*

over this region that are not native to the Southern Hemisphere, and we don’t know the area’s original fish fauna. It’s likely that many species have already gone extinct, and that others are among the most threatened fish species in the world because of the competition with the salmonids.

And as remote as this region is, I am seeing changes occurring just in the relatively short time that I’ve been here. When I began diving here 20 years ago, there was a lot of diverse, colorful sea life. Today, diversity has been greatly reduced, and the abundance of sea life has been reduced by up to 75 percent. There are many species we can hardly find anymore in Comau Fjord.

So, the very baseline of what we are here to study is shifting. But the shift is silent and slow. People who visit say, “Oh, it’s so beautiful. It’s incredible.” And although it is still incredible, it was much, much more diverse and abundant two decades ago.

The most reasonable explanation is that a mixture of human activities and climate change are causing these differences. But the problem is that we have many things going on at once in Chilean Patagonia: We now have small-scale fisheries, shellfish harvesting, lots of salmonid farming. And we also have some natural environmental cycles and climate change. So, for us as scientists, it’s very tricky to say exactly what activity is behind certain changes, and to understand what is happening and why.

If we had the baseline data that we would in other more studied areas, we would see which regions had changed. We need reference areas without human impact, and we hardly find these anymore.

And Chilean Patagonia is not one place, but many: It’s extremely diverse—it includes three biogeographic provinces and at least 13 to 15 different eco-regions. We may learn a bit and have a small reference area

in central or southern Patagonia, but that adds little to our knowledge of what’s happening in northern Patagonia. Basically, every fjord is different and contains different life. We really cannot even predict what we will see if we go diving a couple of hundred meters next to a place we know, because each place can look completely different.

In one way, it’s exciting, because you feel like you’re exploring something new. But it’s also frustrating, because you wonder whether you’ll ever understand what is there. And, of course, only by knowing what is there can we know what is rare, fragile, and worth protecting.

My work here has convinced me that we need marine protected areas throughout the eco-regions of Chilean Patagonia. As long as we don’t understand what is going on in a region and what effects human activities have on a place, we must be cautious. Until we understand how we can sustainably use these areas, we should safeguard enough regions from human exploitation until we understand its impact.

The heritage of this part of the world is not only for Chileans but for everybody on the planet, because Chilean Patagonia is a unique place on Earth. And even if you live far away, you should want to preserve it for the next generations. To me, it’s the most beautiful place on Earth.

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Vreni Häussermann, a 2011 Pew marine fellow, is the scientific director of the Huinay Scientific Field Station in Chilean Patagonia. As part of her Pew fellowship, she worked to increase awareness and appreciation of fjord biodiversity and the importance of sustainable management, conservation, and marine protected areas.

How Much Do You Know About the U.S. Census?

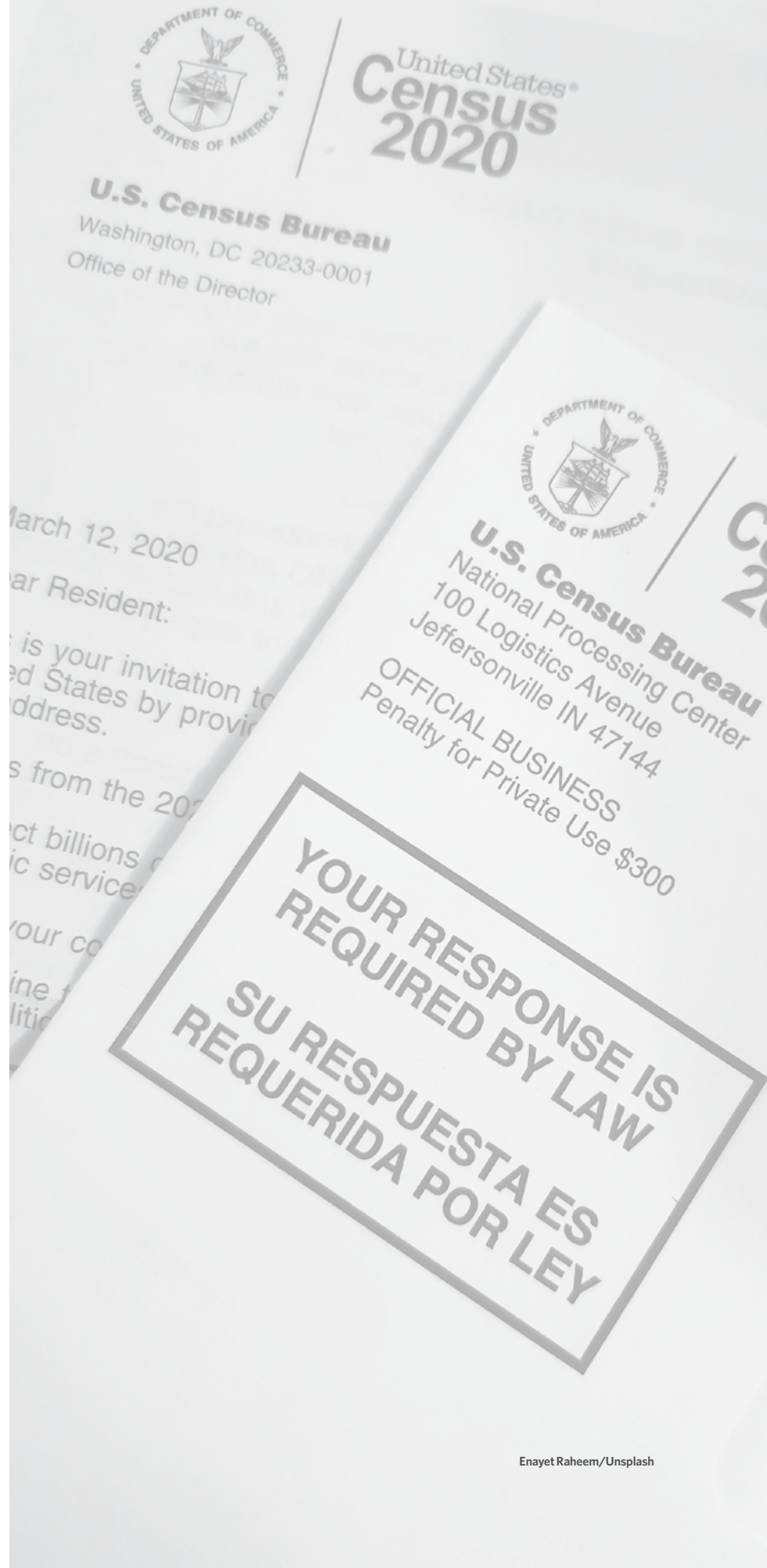
The U.S. census is a massive, complicated government project that aims to count every resident of the United States. Beginning in 1790, the census has occurred once every decade, and it's changed drastically over the years. Test your knowledge of the U.S. census by taking our 10-question quiz.

- 1.** The census is supposed to count every U.S. resident at their usual address on April 1, Census Day. Who in the U.S. is NOT included in this count?
 - a. Tourists and business travelers from other countries
 - b. Immigrants living in the U.S. illegally
 - c. Newborns who haven't come home from the hospital yet
- 2.** Which of these questions is NOT asked in the 2020 census?
 - a. Are you a U.S. citizen?
 - b. What is your race?
 - c. What is your age?
- 3.** Information from the 2020 census is used to...
 - a. Redraw the boundaries of political districts
 - b. Enforce immigration laws
 - c. Count the number of trees in each community
- 4.** When does the 2020 census counting officially begin?
 - a. Jan. 21, 2020
 - b. March 15, 2020
 - c. April 1, 2020
- 5.** What does the Census Bureau generally do if people do not fill out a census form?
 - a. Sends a note warning them that they will be fined
 - b. Sends an employee to visit the home address to try to persuade them to respond
 - c. Sends the police to the door to obtain an answer
- 6.** For the first time in the 2020 census, most Americans will be asked to ...
 - a. Provide information about their pets
 - b. Say where they were born
 - c. Respond online
- 7.** How will the U.S. Postal Service work with the Census Bureau during the 2020 census?
 - a. The Postal Service will stop mail delivery to people who do not complete their questionnaires
 - b. Postal carriers will deliver census material
 - c. Postal clerks will help people fill out census forms
- 8.** Which response category will be new on the 2020 census form?
 - a. Same-sex spouse
 - b. Middle Eastern/North African origin
 - c. A box for gender other than male or female
- 9.** The Census Bureau proposed a change in the race question that did not happen. What was it?
 - a. Instruct people that they could check only one racial category
 - b. Add five new racial categories
 - c. Combine the race and Hispanic origin questions into one question
- 10.** What will the first numbers from the census be used for?
 - a. To determine which racial groups are growing the fastest
 - b. To determine how many seats each state gets in the U.S. House of Representatives
 - c. To find out which cities are losing population

Turn page for answers

Answers

1. **A:** Tourists and business travelers from other countries
2. **A:** Are you a U.S. citizen?
3. **A:** Redraw the boundaries of political districts
4. **A:** Jan. 21, 2020
5. **B:** Sends an employee to visit the home address to try to persuade them to respond
6. **C:** Respond online
7. **B:** Postal carriers will deliver census material
8. **A:** Same-sex spouse
9. **C:** Combine the race and Hispanic origin questions into one question
10. **B:** To determine how many seats each state gets in the U.S. House of Representatives



Enayet Raheem/Unsplash

Stateline, an initiative of The Pew Charitable Trusts, is a team of veteran journalists who report and analyze trends in state policy with a focus on fiscal and economic issues, health care, demographics, and the business of government. More stories are available at pewtrusts.org/stateline.



A crop cutter mows down a cornfield devastated by drought on the plains of eastern Colorado, a state that taxes farms based on average production over 10 years. Other states, however, impose a much heavier tax burden on farms—a real threat to farmers' ability to earn a living when crop conditions are poor and profits are down. *John Moore/Getty Images*

Property Taxes Sink Farmland Owners

BY APRIL SIMPSON

Doug Schmale's family farm straddles the Great Plains in two parts: 4,500 acres in western Nebraska and a separate 160-acre plot in eastern Colorado. Schmale pays wildly different property taxes on either side of the border.

"The last time I ran the numbers, I was paying somewhere close to five or six times as much in Nebraska than I was paying in eastern Colorado," said Schmale, a third-generation wheat farmer. "And the better land, and the better school system, is in eastern Colorado."

Schmale's situation illustrates the load that farmers carry in Nebraska: a heavy property tax burden that, on top of a poor farm economy, threatens their ability to earn a living. On average, Nebraska farmers pay \$16,200 in property taxes per year, among the highest figures of any state. And the state relies heavily on that money: More than a quarter of its total property tax revenue, much of which pays for public education, comes from farmland.

In fact, Nebraska brings in more cash taxing farmland than any state but California and Texas.

But as farmland continues to increase in value, even amid declining farm prices and weather woes, and

farmers see their tax bills rise, some in the Nebraska Legislature want to give farmers some relief—even at the potential cost of state revenue.

There is no relationship, critics say, between how the land is taxed and landowners' ability to pay for it, and Nebraska's antiquated system reflects a time when property ownership was an indication of wealth and income.

"I wish more than anything else that I could leave the state of Nebraska and move my farm to another state," Schmale said. "Almost any state would be better than here."

Nebraskans are not alone in carrying a heavy tax burden on agricultural property in comparison with their profit margins, said Katherine Loughhead, a policy analyst with the Washington, D.C.-based Tax Foundation. The Northeast region is notorious for its high property taxes.

Policymakers in Nebraska, Iowa, and other agriculture-intensive Midwestern states prioritize property tax cuts, Loughhead said. "But real, lasting property tax reform is difficult to accomplish, so these debates can take years to play out."

The Nebraska Revenue Committee introduced a bill this week that would lessen the property tax burden for taxes levied by school districts. The multistep plan would reduce the tax evaluation for agricultural property for school district taxing purposes from 75% of its taxable value to 55% over a two-year period. Residential and commercial properties would be taxed from 100% down to 85% over three years.

Nebraska also would use excess state revenue to increase state aid to K-12 education so school districts are less reliant on property taxes. In his budget address this week, Republican Governor Pete Ricketts recommended putting roughly \$500 million over the next three years toward property tax credit relief by controlling local and state spending. Ricketts increased the property tax credit relief fund by more than 20% last year.

A grassroots group also is collecting signatures for a ballot initiative to provide all residents a rebate on their property taxes.

Assessing a smaller share of a property's value is a promising start, said Adam Weinberg, communications and outreach director with the Platte Institute, a free-market think tank in Omaha. But even as Nebraska is spending \$275 million a year on direct subsidies for property taxes, they are at historic levels for agriculture.

"If you look at the share of property taxes relative to their income, there aren't too many people who would pay 40 or 50% of their income to run a business," Weinberg said.

The Nebraska Legislature has tried before to tackle the issue based on past complaints, but tax revenue

and a lack of economic resources have limited its ability to address the problem. In 2017, taxes on agricultural property, which are overwhelmingly drawn from the state's rural areas, were 47% of the state's net farm income.

Agricultural land values increased substantially alongside commodity prices that reached record highs around 2010. But property valuations have continued to rise, even as crop prices decline and farmer woes pile on. Trade uncertainties, lower yields, natural disasters, and more have resulted in slimmer profit margins.

Wheat prices, for example, have fluctuated for more than a decade. This month, they're roughly \$5.60 a bushel, well below a high of \$9.40 a bushel in 2012.

"I'm in a commodity that prices in the Third World, and I'm paying First World taxes," Schmale said.

The latest Census of Agriculture from the U.S. Department of Agriculture showed that in 2017, 43,000 Nebraska farmers paid \$686.5 million in property taxes, a 43% increase from the previous census in 2012, and a 206% increase from 1997.

(The census figures reflect property taxes paid by producers for the farm share of land, machinery, buildings, and livestock. They exclude taxes paid by landlords, which would result in significantly higher figures.)

By comparison, 37,000 Colorado farmers and ranchers paid about \$129 million, or \$3,500 each. Nebraska farmers paid nearly five times as much, both collectively and individually.

Only two states collected more property tax from farmers than Nebraska. In California, 65,000 farmers paid \$1.1 billion, or roughly \$17,300 each.

In Texas, which has no state income tax, 236,000 farmers and ranchers paid \$698 million, or roughly \$3,000 each.

Following Nebraska are Iowa (\$538 million), Illinois (\$432 million), Ohio (\$412 million), and Minnesota (\$403 million).

Nationally, 1.9 million farms paid \$9.4 billion in property taxes, for an average of roughly \$4,900 per farm.

Five years earlier, 2 million farms paid about \$3,800 each. Between 2012 and 2017, property taxes overall increased about 27%.

A Structural Inequity

States vary in what property they tax and how. For example, the taxable value of agricultural land in Colorado is based on a 10-year average of the earning or productive capacity of the land, regardless of the property's market value.

"As a result, the actual values of agricultural property are often much lower than their market values, and they tend to be relatively stable from year to year," according to the 2018 annual report

from the division of property taxation at the Colorado Department of Local Affairs.

But the system is not without faults. Broader qualifications for farms and ranches in Colorado have resulted in people falsely claiming an agricultural tax status. Among the qualifications are that the land is used for grazing livestock, is in a conservation reserve program, or has forestland in a forest management program.

"There's literally companies out there that will run goats on your property for a couple days just so you can say you're agricultural property," said Chris Stiffler, a senior economist with the Colorado Fiscal Institute in Denver.

For farmers like Schmale, the tax burden dings his standard of living, retirement savings, and ability to pay for new machinery.

Agricultural land values increased substantially alongside commodity prices that reached record highs around 2010. But property valuations have continued to rise, even as crop prices decline and farmer woes pile on.

"For an equal-sized farmer in Nebraska and a comparable-sized farm in eastern Colorado, those guys are always going to be ending up better," Schmale said. "They're going to have a competitive advantage."

The Nebraska bill doesn't go far enough, but it's a "good step in the right direction," said Republican state Senator Curt Friesen, who's among the Revenue Committee members to sign on to the bill.

"We have all said we didn't get there in one year, so we're not going to fix it in one year," said Friesen, who's also a corn and soybean farmer.

But critics seek a long-term solution. Without a constitutional amendment, a new group of senators could change the property tax calculation. Some also question whether the state will have enough money to cut property taxes without other revenue to make up for it.

Lawmakers tend to keep an eye on what neighboring states are doing because every state wants to remain competitive and avoid losing residents over high taxes, said the Tax Foundation's Loughead.

"We've had an overreliance on property taxes for a long time," said John Hansen, president of the Nebraska Farmers Union, "and the Legislature and the governor have not been willing to step up and accept the responsibility to fix a structural inequity."

Grassroots group True Nebraskans is collecting signatures to put a ballot initiative on the 2020 ballot that would provide a 35% rebate of the property tax all residents pay and credit it to their state personal or business income tax.

The proposal wouldn't require local governments to change their policies and attempts to move Nebraska toward a consumption-based tax revenue stream, according to advocates. The state ranks among the lowest in the United States in sales taxes and school aid.

But critics of the initiative, including Ricketts, warn that it would result in significant state tax increases if adopted.

"The governor has accused us of attempting to blow a hole in the state budget," said True Nebraskans' campaign manager Patrick Bonnett. "To that I say, the Legislature has spared precious little to the hole that's been blown in local Nebraska families' budgets."

'We'll Tough It Out'

In 2017, Frederic "Fritz" and Nancy Oltjenbruns were fed up. That year, they paid Lancaster County, Nebraska, roughly \$50,000 in property taxes for their 585-acre family farm in Ceresco, 20 miles north of Lincoln. They took home about \$30,000 for themselves.

"With that kind of money, you would think our kids could converse with Einstein and our roads would be paved in silver," Fritz said. "We didn't think we were getting much value for our money."

The couple became the poster children for the Cornhusker State's property tax woes when they left their 150-year-old family farm behind. After considering states including South Dakota, Minnesota, Iowa, and Kansas, they settled near Warrensburg, Missouri. They bought 850 acres on the Blackwater River with 2-foot-thick topsoil and a third more rain than Ceresco, so they no longer worry about drought.

"The first year down here was the best crop of my entire career," Fritz said.

The next year wasn't, given the region's historic flooding. But the Oltjenbruns say they're still better off.

"We'll tough it out," Fritz said.

In Missouri, they paid \$1,100 in property taxes for their farm in 2018. After they added a 60-foot grain bushel and 100-foot machine shed, their taxes increased, to \$1,200 in 2019.

Overall, Missouri farmers paid roughly \$235 million in property taxes in 2017, a 21% increase from 2012.

"You can't help but notice," Nancy said, "things are different when you move to another state and wonder, why does it have to be this way?"



April Simpson is a staff writer for Stateline.

A Pledge to Do More

The Giving Pledge seeks to transform the world through philanthropy.

BY DEMETRA APOSPOROS

This year marks a decade since the launch of the Giving Pledge, a new model of philanthropy. The pledge, a brainchild of Bill and Melinda Gates and Warren Buffett—who were also its first signatories—is a public promise made by some of the world’s wealthiest individuals to give away at least half of their fortunes to charitable causes during their lifetimes or in their wills.

The idea is meant to propel a new standard for generosity, encouraging those who are able to “give more, give sooner, and give smarter,” according to the pledge. “At its best, philanthropy takes risks that governments can’t, and corporations won’t,” Bill and Melinda Gates wrote in their 2020 annual letter, which highlights the work of their foundation, now in its 20th year.

The Gateses, who have long been interested in global health, moved particularly quickly as the COVID-19 pandemic unfolded. They committed \$50 million, along with others, to help identify, assess, develop, and scale up treatments, an effort that ultimately aims to make these treatments available and affordable for all. That endeavor accounts for half the total that the couple has earmarked for fighting the pandemic across many avenues: increased testing and improved public health efforts in their hometown of Seattle; early research at the epicenter of the outbreak in China; and better detection and protection of at-risk populations in Africa and Southeast Asia.

Although the Giving Pledge, which is administered by the Bill & Melinda Gates Foundation, signifies a commitment to giving and encourages big bets, it doesn’t tell people how or where they should direct their efforts. “Philanthropy is very personal,” Melinda Gates explained in a 2010 interview on public broadcasting. “To us, it doesn’t matter what people give, whether it’s to the culture or to climate, humanity, or societal issues.” The pledge also doesn’t manage funds from its signatories or provide any oversight on participants’ giving. Instead, it encourages philanthropists to support issues that they find personally inspiring and that can benefit society.

Forty American signatories joined the pledge during 2010, its debut year, but the idea quickly garnered global attention, with the first international philanthropists joining in 2013. Today, a total of 206 pledgers are spread across 23 countries.

More than 20 of these philanthropists have partnered with Pew. Bill and Melinda Gates, for instance, supported the Pew Research Center’s extensive survey work on how people are using libraries in the digital age, an effort that helped answer questions about which services the public relies on most. The research found that access to in-depth resources and databases, free computers and internet, and use of library buildings as public gathering places were among those most highly prized. Overall, 63 percent said their community would suffer a major negative impact if their local library were to close. The Gateses were also among supporters of the Pew Research Center’s work on the evolution of the internet and how Americans use this technology, and their desire to learn about digital tools such as smartphones, apps, and 3D printers.

“The Giving Pledge has opened the door to a new type of philanthropy, one which has the potential to tackle problems at scale and to solve them not just for the short term, but in perpetuity.”

—SALLY O'BRIEN | PEW'S SENIOR VICE PRESIDENT FOR INSTITUTIONAL PARTNERSHIPS

Another signatory who has closely collaborated with Pew through the years is Dallas businesswoman and philanthropist Lyda Hill. She often cites Buffett’s observation that the Giving Pledgers are among the few whose philanthropic capacity allows them, or even obliges them, to tackle the problems and challenges that others can’t and won’t do. Hill has certainly taken that advice to heart in her partnership



Melinda and Bill Gates in Kirkland, Washington, in January 2019. The Giving Pledge is a brainchild of the couple and Warren Buffett.
Xinhua Xinhua/eyevine/Redux

with Pew. Her lifelong interest in science and the natural world and her philanthropy's focus on measurable results have led her to support Pew's work to protect the ocean and marine life, improve food safety, and promote smarter use of antibiotics to help curb antibiotic resistance. Most recently, Hill and Pew have collaborated on a project aimed at helping to restore America's national parks after decades of deferred maintenance, an effort that we hope will spur lasting change for these treasured places.

"I wanted to do big things through my philanthropy and am fortunate to be in a position to do so," Hill has said. "Giving money away is harder than many people realize—you want to be generous, but you also want to be wise. The Giving Pledge has created a community of philanthropists. Each has their own goals and interests, but we share a commitment to giving it away and exchanging lessons about how to approach philanthropy with intention and impact."

"Joining the Giving Pledge means becoming part of a motivated community where some of the world's most engaged philanthropists can discuss their challenges, successes, and failures, and share ideas about smarter giving and how to best leverage their philanthropy," says Robert Rosen, director of philanthropic partnerships at

the Bill & Melinda Gates Foundation, which oversees the Giving Pledge.

Ten years on, it's clear that this visionary initiative has helped to foster a greater culture of giving. "The Giving Pledge has opened the door to a new type of philanthropy, one which has the potential to tackle problems at scale and to solve them not just for the short term, but in perpetuity. That takes significant investment, and the willingness and ability to stay the course," says Sally O'Brien, Pew's senior vice president for institutional partnerships. "This aligns closely with Pew's investment philosophy and has provided a number of opportunities for partnership between Pew and members of the Giving Pledge, who share our commitment to creating lasting change for the public good in the U.S. and across the globe."

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For more information about philanthropic partnerships at Pew, please contact senior vice president Sally O'Brien at 202-540-6525 or sobrien@pewtrusts.org.

Demetra Aposporos is the senior editor of Trust.

Why Public Opinion Polls Don't Include the Same Number of Republicans and Democrats

It's all about representing groups in their actual proportions within a country.

BY COURTNEY KENNEDY AND SCOTT KEETER

Newcomers to polling sometimes assume that if you are asking Americans questions about politics, it's only fair to include an equal number of Republicans and Democrats. Although this notion makes some sense on the surface, it's based on a misunderstanding of what polling is intended to do. The goal of a national political survey isn't to artificially even the playing field. It's to represent groups in their actual proportions within the country. And a wide range of evidence shows that there are more Democrats than Republicans in the United States today.

Gold-standard, nonpartisan surveys have found for decades that more U.S. adults identify with or lean toward the Democratic Party than the Republican Party—whether these surveys take place under GOP or Democratic presidential administrations. That is the finding of two of the highest-quality surveys that use nationally representative data collected through in-person interviews: the General Social Survey and the American National Election Studies. It's also the result obtained by numerous other reputable surveys that poll Americans by telephone or online using randomly selected samples of adults, including those done by us here at the Pew Research Center, as well as those done by Gallup, Fox News, Kaiser Family Foundation and The Associated Press-NORC. (The Census Bureau, which runs the nation's most authoritative surveys, notably does not ask Americans about their partisan affiliation.)

But polls aren't the only source of evidence on this question.

In the 31 states that register voters by party, the number of Americans registered as Democrats outnumbered those registered as Republicans by nearly 12 million in mid-2018. Registration with a party is an imperfect measure of whether a person currently identifies with that party, especially in the South. But nationwide comparisons find that registration is

closely associated with self-identification, and the two appear to be growing more correlated over time.

In addition, commercial voter files—which attempt to predict the partisanship of voters in all 50 states and the District of Columbia based on information such as address, race, age, and primary vote history—indicate that there are more Democratic registered voters than Republican registered voters in the country today.

Determining the right ratio

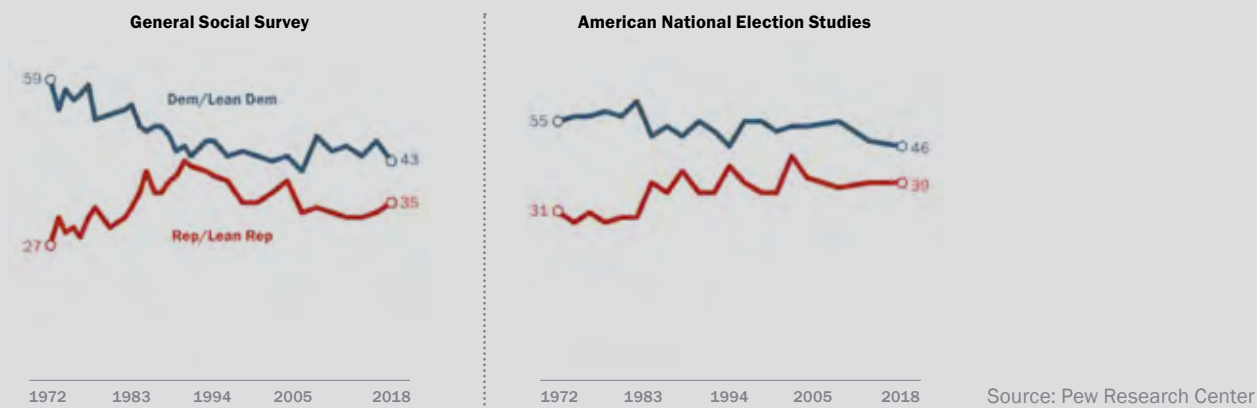
Of course, the important question for pollsters who want to accurately reflect the partisan composition of the country is not “Are there more Democrats than Republicans?” but rather “What is the correct ratio of Democrats to Republicans?” The answer to this question depends, in part, on whether we are talking about the general public, the smaller subset who are registered to vote, or the even smaller group of people who are likely to vote in a given election (“likely voters”). Evidence suggests that the Democratic advantage is somewhat narrower among registered voters than the general public—and often even narrower among likely or actual voters.

Among the general public, recent Pew Research Center telephone surveys find that Democrats and Democratic-leaning independents outnumber Republicans and Republican leaners by about 7 percentage points, similar to what the 2018 General Social Survey found. This Democratic-Republican balance is one of the factors we use to weight the Pew Research Center's American Trends Panel (along with a core set of demographics including sex, race, age, region, and other characteristics measured in high-quality government surveys). All of our survey reporting is based on weighted data, rather than raw data that has not been adjusted to meet these parameters.

Among registered voters, the Democratic advantage in party affiliation is typically about

Benchmark surveys show more Americans identify as Democrats than Republicans

Percentage of U.S. adults who usually think of themselves as a ...



3 percentage points smaller than it is among the general public in our surveys. The reasons for this are well understood: Compared with the general public, registered voters tend to be older, wealthier, and more likely to be non-Hispanic whites and homeowners, all of which are characteristics associated with a higher probability of being a Republican.

Among likely voters—those registered voters deemed to have the greatest propensity to turn out in an election—or actual voters in recent elections, the share of Republicans is usually, but not always, higher than it is among registered voters, largely for the same reasons that registered voters are more likely to be Republican than those who are not registered. (Beyond the characteristics of the individual, a person's likelihood of voting is determined by a variety of factors, including the specific candidates and circumstances in a given election.)

All of this is to say that there is no single “correct” ratio of Democrats to Republicans for all U.S. public opinion polls. And because the fortunes of the parties and their leaders ebb and flow over time, the ratio has tended to vary modestly over the years (albeit with Democrats representing a higher proportion than Republicans most of the time in the past couple of decades). Party affiliation is not a demographic characteristic like gender or race, which means people can change their affiliation based on what is going on in politics or because of other factors.

That said, party affiliation is a very stable attitude. This is also one of the reasons that different polls generally get similar—but not identical—estimates for party affiliation. Other reasons poll estimates might differ include sampling error, different weighting practices, variations in question wording and context, and differences in survey mode (that is, whether questions are asked by phone, online, or by other means).

Why election results might differ from the Democratic-Republican ratio in the general public

Obviously, just because more Americans identify as Democrats than Republicans doesn't mean that Democrats always win the presidency (or control of Congress). There are many reasons that this is the case, including the fact that a sizable share of the public does not vote. Previous research has found that nonvoters are much more Democratic than are regular voters. Democrats also are somewhat more clustered geographically than Republicans, a factor that sometimes dilutes their electoral strength.

Candidates and campaigns, meanwhile, carry their own unique features that influence how or whether people vote. In 2010, for example, Republicans voted at higher rates than Democrats in the midterm election and won control of the House of Representatives, despite the Democrats holding a 3-point party affiliation advantage in Pew Research Center polls of registered voters that year. In contrast, Democratic engagement (and turnout) in 2018 was substantially higher than it had been in 2014, leading to a strong Democratic performance in the 2018 congressional elections and the Democrats winning control of the House.

So what does all this mean for consumers of political polling? In general, poll watchers today should expect to see more Democrats than Republicans in a national survey, particularly one designed to reflect the views of U.S. adults (as opposed to registered or “likely” voters). These partisan breakdowns don't necessarily favor one side or the other; rather, they reflect the population in question as accurately as possible.

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Courtney Kennedy is director of survey research and Scott Keeter is a senior survey advisor at the Pew Research Center.

How the Pacific Region Paved the Path to Successful Shark Conservation

A decade of protection changed a species' image from villain to vulnerable

Sharks are vital animals—to a healthy global ocean and, in many regions, to the economy and culture. Recognizing this, Pacific Island nations have created eight shark sanctuaries—in the Cook Islands, Federated States of Micronesia (FSM), French Polynesia, Kiribati, Marshall Islands, New Caledonia, Palau, and Samoa—that cover more than 17.1 million square kilometers (6.6 million square miles), along with the first regional shark sanctuary. These countries have also supported or led on proposals to list sharks and rays on the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Convention on the Conservation of Migratory Species of Wild Animals (CMS).

To learn more about shark conservation in the region, The Pew Charitable Trusts caught up with Carlotta Leon Guerrero (seen below, top), a former senator and regional leader in Guam; Willy Kostka (middle), executive director of Micronesia Conservation Trust; and Juney Ward (bottom), shark and ray conservation officer of the Secretariat of the Pacific Regional Environment Programme.



Why was a regional shark sanctuary needed?

Kostka: Healthy oceans are vital to small island nations in the Pacific, especially Micronesia, where whole economies and populations can depend on fisheries for their survival. Establishing the Micronesia Regional Shark Sanctuary was a vital step toward protecting marine and coastal biodiversity, given sharks' central role both culturally and in terms of conservation.

Some islanders depend on sharks for sustenance and utilize the remaining parts for making traditional tools, jewelries, and handicrafts, while others consider sharks as ancestral deities and totems. Sharks are migratory, and we saw the need for cooperation between jurisdictions to ensure protection and consistent enforcement.



Leon Guerrero: Tuna fisheries are a major source of income for nearly all the islands, but our people didn't know that sharks and other animals were being caught and killed as bycatch. Considering the importance of sharks to our ocean ecosystems and also to many of our cultures, the shark sanctuary model made sense to our leaders. Implemented well, a shark sanctuary allows for the continued fishing of tuna but reduces the number of sharks killed.

Why has the regional sanctuary been a success?

Kostka: Pacific small island nations unite as a region and coordinate through multinational summits and organizations such as the Association of Pacific Island Legislatures, the Micronesia Islands Forum, the Parties to the Nauru Agreement, and the Micronesia Traditional Leaders Council.

Because of these organizations' support, half of the world's shark sanctuaries are in the Pacific. The ocean connects these nations, so working together to protect their main natural resource sets an important precedent.

Leon Guerrero: Guiding members of the community on how to express their support for the creation of their own shark sanctuary was key. In Guam, students appeared before the legislature. In Pohnpei, women hosted a sharks-themed skirt-sewing contest, and the winning entry was framed and placed in the airport. In Kiribati, students ages 15-25 created a song, dance, and poetry road show to help villages learn and understand.



Gray and blacktip reef sharks feed off the coast of Mo'orea in French Polynesia, one of the Pacific Island nations where shark sanctuaries help ensure the health of the animals and the economies of fishery-dependent countries. *Stephen Frink/Getty Images*

In addition, in-depth discussions at traditional meetings with village elders led to the crafting of Kiribati's resolution supporting shark protections.

What were the biggest obstacles to the regional sanctuary?

Kostka: Each jurisdiction in Micronesia had to pass its own laws to establish jurisdictional sanctuaries. Unlike the other Micronesia Challenge jurisdictions, the FSM consists of four states with over 600 islands spread over more than 1 million square miles. Each of the states, and the national government, had to pass its own legislation.

Leon Guerrero: The two most difficult obstacles we faced were the commercial fishing industry and perceived cultural traditions around consumption. Historically, commercial fishers had a free pass to kill as many sharks as they wanted until we started pushing for protections. Even now, the industry continues to lobby for a return to the days when they killed hundreds of thousands of sharks with no oversight.

What has this monumental accomplishment inspired?

Ward: I have seen a growing momentum and commitment from Pacific leaders to protect sharks and rays and their critical habitats. Also, the governments of Fiji and Samoa led successful proposals to list mobula rays on Appendices I and II and blue sharks on Appendix II of CMS in 2014 and 2017, respectively. Fiji also led a proposal for mobula rays to be listed on Appendix II of CITES. A number of Pacific countries made voluntary commitments to protect sharks, rays, and other iconic marine species during the U.N. Ocean Conference in 2017. Most recently, Fiji, Palau, and Samoa supported the successful CITES listing of 18 species of sharks and rays in August.

Kostka: A year after the FSM Congress passed the shark law, Micronesia Conservation Trust coordinated a regional symposium on the Micronesia Shark Sanctuary, which included high-level representatives from Palau, Marshall Islands, the Northern Mariana Islands, Guam, and the FSM. As a result of the symposium, the FSM and its states identified inconsistencies in the state and national shark laws and took steps to align those laws.

Additionally, Palau became one of the world's most ambitious ocean conservation champions to date by declaring 80 percent of its waters a marine sanctuary in 2015, and the FSM enacted a law protecting 10 percent of its waters from commercial fishing in 2017. The first Marine Terrestrial Conservation Enforcement Academy was hosted on Guam, with participation by officials from the FSM states and Palau. As a result, the FSM and Palau are now fining owners of ships that violate those national laws.

Leon Guerrero: I've seen regional awareness shifting around the dynamics of the commercial fishing industry and conservation. For so long, distant water fishing nations had free rein to dictate to our small island nations the terms and conditions for resource exploitation. The creation of shark sanctuaries helped regional leadership to see that they could have influence and control in an arena where they are so often not even invited to sit at the table. I also think our leaders are realizing that our ability to protect the ocean is always three steps behind our technological capacity to harm the ocean, and this is overwhelming to say the least. We need to do more, and we need to do it better, and we need to do it faster.

RETURN ON INVESTMENT

*The Pew Charitable Trusts applies a rigorous, analytical approach to **improve public policy, inform the public, and invigorate civic life**, as these recent accomplishments illustrate.*

IMPROVING PUBLIC POLICY



Ranger Mali Djarrbal helps take care of the same land and water where his ancestors lived and worked in the Arafura Swamp in Australia's Northern Territory. The swamp is in one of the country's new Indigenous Protected Areas. *Arafura Swamp Rangers Aboriginal Corporation*

Australian Government announces protection for 40 million acres

The Australian Government announced in October it will fund seven new Indigenous Protected Areas (IPAs)—land that is developed and managed by Traditional Owners and sustained through a working partnership with government—covering 40 million acres of land in South Australia, Queensland, and the Northern Territory. The proposed new reserves will be added to the 35 million acres of IPAs funded in 2018 and the existing IPA network, which protects 168 million acres. The proposed areas will protect a

diverse range of habitats, including tropical rainforests, wetlands and rivers, savannah woodlands, desert shrublands, and mountain ranges. When two of the new IPAs are added to existing reserves in the Central and Western deserts, it will form one of the largest contiguous areas of protected land in the world. For the past decade, Pew has worked with a partnership of more than 40 Indigenous land and sea management groups to support development of the IPA network and the growth in Indigenous Ranger jobs.

Carbon farming in the Australian Outback

In December, the government of Western Australia issued a new policy that will allow ranchers on state-owned pastoral leases to earn and trade carbon credits by reducing grazing and allowing the regeneration of native trees and other vegetation that absorb carbon dioxide. Known as carbon farming, the practice enables Western Australian leaseholders to participate in the Commonwealth's Government Emissions Reduction Fund and receive income from selling carbon credits to industrial entities to offset the pollutants they generate. The Western Australian government's action follows a two-year effort by Pew's Outback to Oceans project, which worked with local ranchers and government officials to provide an important incentive to conserving biodiversity.

Virginia creates flood preparedness fund

In March, Virginia Governor Ralph Northam signed into law the Virginia Community Flood Preparedness Fund, a new revolving loan program to fund flood risk reduction activities. This program will support community-scale projects and nature-based solutions such as buying out repeatedly flooded properties, restoring floodplain, or installing living shorelines, and is estimated to be funded with approximately \$45 million annually. In January, Pew released a poll showing that 84 percent of registered voters in the state—across party lines—favor this type of investment for community flood risk reduction. Pew was the primary organization advocating for dedicated funding for the program and prioritizing nature-based flood mitigation projects.

Missouri legislature hears Pew research on state broadband practices

Pew broadband research initiative staff testified in October before the Missouri House of Representatives on findings from the team's report on how states are expanding access and offered some tactics for connecting underserved communities. Such testimony fulfills a key goal of the initiative to inform policymaking through research. At the request of the state's lieutenant governor, the broadband team will continue engaging with the Missouri State Legislature through 2020. The team will provide an overview of "broadband basics" to state lawmakers, specifically focusing on the technical components of a connection and the various impacts broadband has on communities. Additionally, the team will provide research to help Missouri make progress toward its connectivity goal.

New boreal protected area established in Northwest Territories

In November, Ts'ude Niljine Tuyeta, also known as the Ramparts River and Wetlands, became Canada's third protected area jointly established by Indigenous and Crown governments as part of Canada's commitment to meet the U.N. Convention on Biological Diversity targets of protecting 17 percent of its land and inland waters by 2020. The 2.5 million-acre protected area, located on the traditional lands of the Sahtu First Nations in the Northwest Territories, is prime northern boreal forest habitat. It supports a wide array of waterfowl, migratory birds, and species at risk including peregrine falcons, mountain caribou, and wolverine. Pew and its partners in the International Boreal Conservation Campaign were instrumental in the Ramparts first receiving interim protection in 2006 and helped the Sahtu develop and advance a proposal to Canada's Nature Fund that enabled it to be designated as a jointly managed territorial park and Indigenous Protected Area.

Nations commit to Cape Town Agreement

At a ministerial conference on illegal, unreported, and unregulated fishing and vessel safety in Torremolinos, Spain, in October, 48 countries—including China, South Korea, the United Kingdom, Chile, Argentina, and Panama—signed a formal declaration pledging ratification of the Cape Town Agreement on fishing vessel safety in time to bring it into force by the October 2022 deadline. The treaty, which would enable better coordination and more stringent inspections of vessel safety and labor conditions, requires ratification by a minimum of 22 nations with a combined 3,600 fishing vessels over 24 meters in length. Pew achieved observer status at the International Maritime Organization in December 2017 and has worked to revitalize interest in the agreement by highlighting the clear link between illegal, unreported, and unregulated fishing and substandard safety and labor practices aboard fishing vessels. The agreement now has 13 signatories with an aggregate total of 1,431 vessels. If the commitments made at the Torremolinos conference are realized, the treaty will enter force on time and with more than sufficient numbers of countries and fishing vessels, resulting in the achievement of a major objective of the project.



Protections secured for rays

At its annual meeting in December, the Western and Central Pacific Fisheries Commission agreed to increase protections for threatened manta and mobula rays by mandating that fishing vessels that primarily use two types of gear—purse seine, which uses large netting, and longline, which uses a sometimes miles-long line with baited hooks—immediately release these species when caught within the commission's jurisdiction, an area that covers close to 20 percent of the Earth's surface. Pew worked with various governments to support the adoption of the proposal.

A mobula ray jumps from the Sea of Cortez in Cabo San Lucas, Mexico. *Gudkov Andrey/Shutterstock*

Fiscal federalism expertise in demand

Pew's fiscal federalism initiative has recently worked with and informed decision-makers in three notable circumstances.

- In Washington state, the team in November briefed an intergovernmental working group tasked with recommending steps to promote activities that could lessen the impact of natural disasters in the state. The Office of the Insurance Commissioner expressed interest in including the initiative's proposals for tracking disaster spending in the office's working group recommendations, which are due this fall.
- In September, U.S. House Budget Committee staff members reached out to the fiscal federalism initiative as their first source of advice when developing an agenda for a forthcoming hearing on the impact of federal investments on state and local governments, indicating that Pew is seen by policymakers as a go-to expert in the field of federal and state spending.
- Fiscal federalism initiative staff members were invited to brief the White House Office of Management and Budget in November. Seven education policy specialists participated in a conversation about the project's recent chartbook, "Two Decades of Change in Federal and State Higher Education Funding." The briefing opened the door for additional meetings on Pew's veteran and student loans default and repayment work, thus providing more opportunities to use Pew's data and analyses to inform policymakers.



Morsa Images/Getty Images

Young adults, their parents, and financial independence

In October, the Pew Research Center released a report exploring public attitudes about young adults, financial independence, and the role parents play in the lives of their young adult children. The report found that most Americans think young adults should be financially independent from their parents by the time they are 22 years old, and most parents with children ages 18 to 29 say parents are doing too much for their young adult

children. Meanwhile, the share of young adults who could actually be considered “financially independent” from their parents by their early 20s—an assessment based on their annual income—has fallen in recent decades. A center analysis of Census Bureau data finds that, in 2018, 24 percent of young adults were financially independent by age 22 or younger, compared with 32 percent in 1980.

Americans' election year news habits

The Pew Research Center in January launched a year-long research initiative, Election News Pathways, exploring how Americans' news habits and attitudes relate to what they hear, perceive, and know about the 2020 U.S. presidential election. In an experimental dissemination effort, the project prioritizes releasing data in real time over producing narrative reports. A central feature is a digital, interactive tool allowing journalists and other data-savvy professionals to conduct their own analyses of the center's survey questions. The center will update the data tool with new findings throughout the year. A study on media polarization accompanied the launch; it found that Republicans and Democrats place their trust in two nearly inverse news media environments. Overall, Republicans and Republican-leaning independents view many heavily relied-on sources across a range of platforms as untrustworthy. At the same time, Democrats and independents who lean Democratic see most of those sources as credible and rely on them to a far greater degree. Furthermore, evidence suggests that partisan polarization in the use and trust of media sources has widened in the past five years.

Europe's unauthorized immigrants

In November, the Pew Research Center published a report that provided its first estimates of the unauthorized immigrant population in Europe. It found that at least 3.9 million unauthorized immigrants—and possibly as many as 4.8 million—lived there in 2017. Overall, unauthorized immigrants accounted for less than 1 percent of Europe's total population of more than 500 million people living in the (then) 28 European Union member states, including the United Kingdom, and four European Free Trade Association (EFTA) countries (Iceland, Liechtenstein, Norway, and Switzerland). And among the roughly 24 million noncitizens of EU-EFTA countries living in Europe, less than one-fifth were unauthorized immigrants in 2017.

Americans say there is too much economic inequality

The Pew Research Center published in January a report examining Americans' attitudes about economic inequality in the U.S. The report found that most Americans say there is too much economic inequality, but less than half call it a top priority. Democrats and Democratic leaners are much more likely than Republicans and those who lean to the GOP to say reducing economic inequality should be a top priority for the federal government to address (61 percent versus 20 percent). Similarly, Democrats are nearly twice as likely as Republicans to say there is currently too much economic inequality in the U.S. (78 percent versus 41 percent).



Varying American attitudes on climate change

The Pew Research Center released in November a report on U.S. views of climate change, finding that majorities of Americans say the federal government is not doing enough to reduce the effects of global climate change. While there is strong consensus among Democrats (90 percent, including independents who lean to the Democratic Party) on the need for more government efforts to reduce the effects of climate change, Republican views are divided along ideological, generational, and gender lines. A majority of moderate or liberal Republicans (65 percent, including GOP-leaning independents) say the federal government is doing too little to reduce the effects of climate change. In contrast, only about one-quarter of conservative Republicans (24 percent) say the same, while about half (48 percent) think the government is doing about the right amount and another 26 percent say it is doing too much. Among younger Republicans—adults in the Millennial generation and Generation Z, ages 18 to 38 in 2019—52 percent think the government is doing too little on climate. By comparison, 41 percent among Generation X and 31 percent of Baby Boomer and older Americans say this. Republican women (46 percent) also are more inclined than GOP men (34 percent) to think the government's efforts on climate are insufficient.



Theo Wargo/Getty Images

Pew Center for Arts & Heritage fellow wins a Grammy

Composer Jennifer Higdon, a 1999 Pew arts fellow, received a Grammy Award in the category of Best Contemporary Classical Composition for her “Harp Concerto,” performed by Yolanda Kondonassis and the Rochester Philharmonic Orchestra in New York. Higdon has previously won two Grammys and the Pulitzer Prize, among many other awards. The 2020 Grammy Award ceremony took place on Jan. 26.

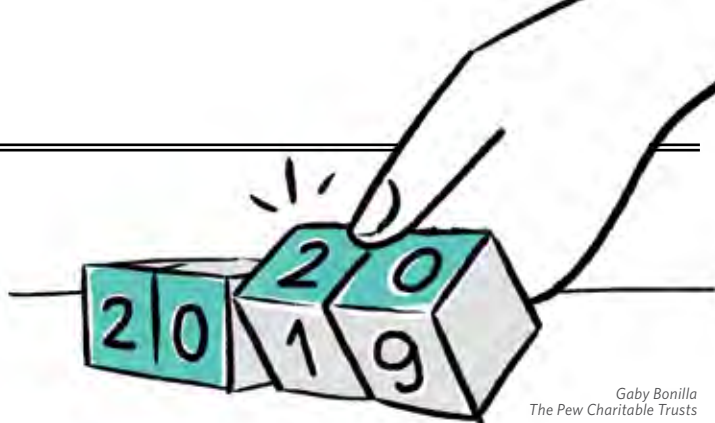
Pew Center for Arts & Heritage fellows receive national accolades

Trapeta B. Mayson, a 2002 Pew fellow in the arts, has been named by the Free Library of Philadelphia as the 2020-21 poet laureate for the city of Philadelphia. Since 2012, four of the city’s five poet laureates have been Pew fellows. In addition, Pew fellows were recognized in “best of 2019” lists from national and international publications. Among the most notable were the inclusion of playwright and director Tina Satter’s “Is This a Room” on *The New York Times*’ list of the year’s best theater pieces; *The Washington Post* naming dancer and choreographer Rennie Harris’ “Lazarus,” created for the Alvin Ailey American Dance Theater, as one of the 10 best dance works; and *The Philadelphia Inquirer* including on its list of best classical works of 2019 “Aniara,” a new work composed by Robert Maggio and performed by the choral group The Crossing—a work that also received a project grant from the Pew Center for Arts & Heritage.

Pew holds event on the future of fiscal oversight in Philadelphia

Pew convened a meeting of nearly 100 civic leaders on “Fiscal Oversight in Philadelphia: Three Decades of PICA and Policy Options for the Future” in January. The event followed publication of “The Future of Fiscal Oversight in Philadelphia,” Pew’s issue brief examining the generally positive performance of the Pennsylvania Intergovernmental Cooperation Authority (PICA), a state agency that has overseen the city government’s finances for nearly three decades and is slated to expire in 2023. City leaders are considering whether to try to have PICA renewed. Pew’s Philadelphia research and policy initiative expects to stay engaged with the PICA issue through future research and convenings.

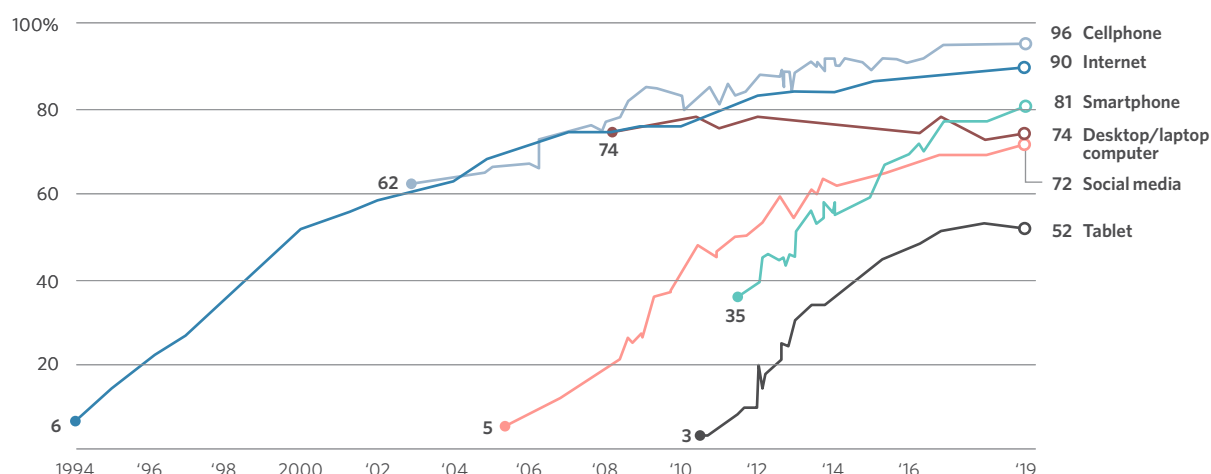
How the U.S. Changed Over the Past Decade



Over the past decade, the United States has experienced technological advancement, demographic shifts, and major changes in public opinion. Here's a look at how the Pew Research Center documented the evolution of a decade.

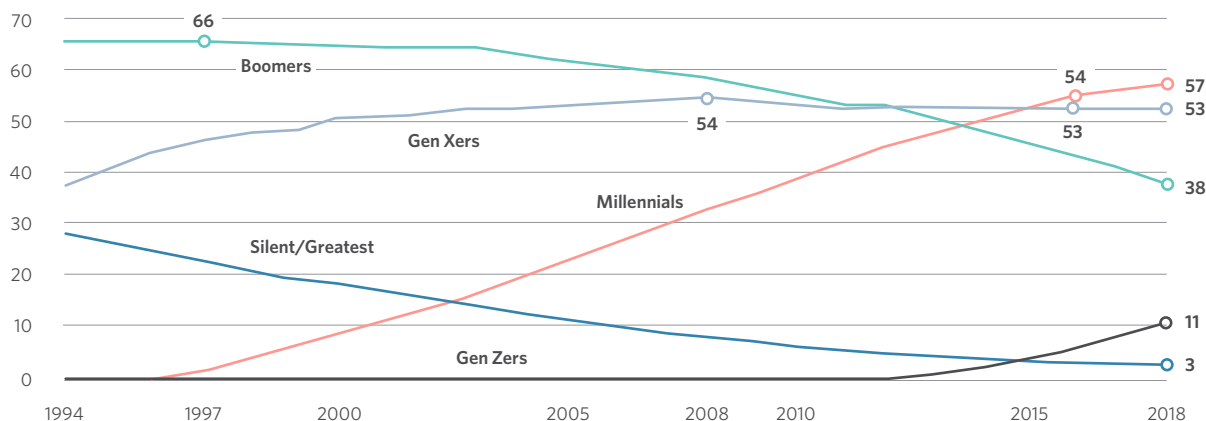
Tech use has become the norm. As of 2019, 9 in 10 U.S. adults say they go online, 81% say they own a smartphone and 72% say they use social media.

% of U.S. adults who say they own or use each technology



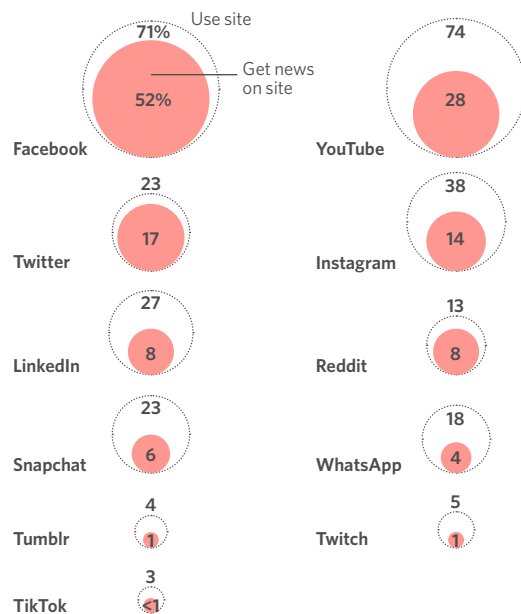
Millennials have surpassed Generation Xers as the largest generation in the U.S. labor force. There were 57 million Millennials (born 1981 to 1996) working or looking for work in 2018. That was more than the 53 million Gen Xers (born 1965 to 1980) and well ahead of the 38 million Baby Boomers (born 1946 to 1964).

U.S. labor force, in millions



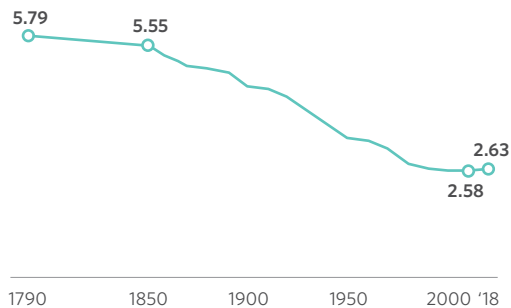
Social media sites surpassed print newspapers as a news source for Americans in 2018 with 1 in 5 adults saying they often get news from social media.

In 2019, % of U.S. adults who...



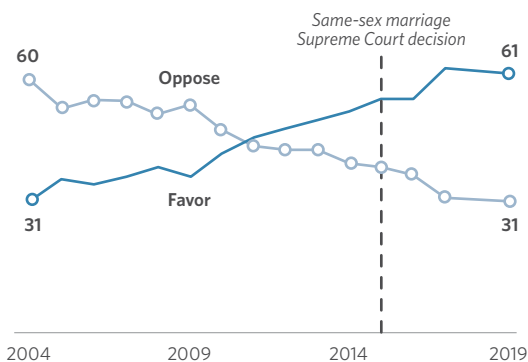
The 2010s will likely be the first decade in at least 160 years to see an increase in the average number of people living in U.S. households. In 2016, a record 64 million people, or 20% of the U.S. population, lived with multiple generations under one roof.

Average number of people per household



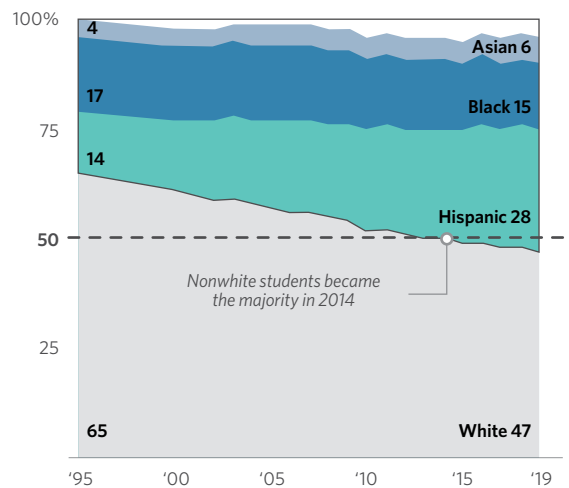
Same-sex marriage has the backing of a majority of U.S. adults.

% who ___ allowing gays and lesbians to marry legally



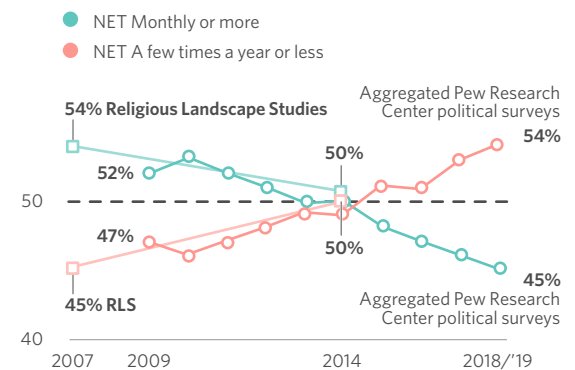
Nonwhites are the majority of K-12 students in public schools, and account for the majority of the nation's newborns.

% of public school students, by race/ethnicity



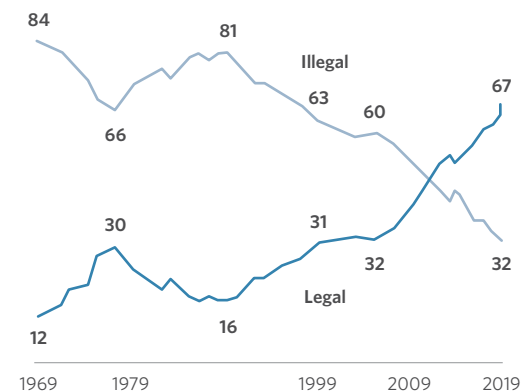
It's become more common for Americans to attend church a few times a year or less (54%) than monthly or more (45%).

% of U.S. adults who say they attend religious services



Americans increasingly support the legalization of marijuana, while less than a decade ago, in 2010, fewer than half (41%) did so.

Do you think the use of marijuana should be made legal, or not? (%)





When wildlife is forced to cross roads, it creates a safety issue—both for animals and humans.

Building Bridges, Page 26

