A Sleep Scientist Explains Daylight Saving Time Myths

Permanent daylight saving time is widely favored by the public, and the U.S. House of Representatives may or may not follow the Senate in its recent approval of such a change in law. But, according to senior behavioral and social scientist Wendy M. Troxel, that extra hour of evening recreation in the spring and summer comes at a major cost to people’s sleep, mood, alertness, and productivity for the remainder of the year.

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Effects of Technologies on Deterrence

Researchers examined potential effects that emerging technologies could have on U.S. national security policy and identified long-term effects that these technologies might have on effectiveness and stability—two major aspects of deterrence relationships.

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How Conflict Escalation Works

Senior political scientist Samuel Charap describes two types of conflict escalation (accidental and deliberate) and what might be done to mitigate such escalations.

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Early Childhood Development Lessons Map

This Lessons Map is an aid to navigating five case studies on efforts to make “at-scale” changes in the field of early childhood development. Produced by RAND Europe for the Bernard van Leer Foundation, these case studies look at initiatives in Peru, Brazil, Israel, and the Netherlands. Each tells the story of how large-scale change was achieved; reflects on the critical conditions enabling impact; and captures relevant lessons for governments, practitioners, and organizations seeking to achieve similar results.

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Mid-Atlantic Regional Climate Impacts Summary and Outlook

Part 1 of this tool details significant weather events that occurred from December 2021 through February 2022; Part 2 characterizes seasonal temperature and precipitation compared with historical averages; Part 3 describes seasonal weather forecasts and pertinent information for the spring season; and Part 4 presents an interactive tool that shows an analysis of future projected changes in precipitation, compared with climate normals, across the Mid-Atlantic.

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MORE AT www.rand.org/t/TLA386-8
Research Briefly
U.S. COVID vaccine campaign prevented nearly 140,000 deaths; the criminal history of unemployed American men; and more

Commentary
Help for poor, single mothers

Environmental Justice
How historic redlining continues to affect communities

News
Jason Matheny named new RAND president and CEO

The Q&A
Russia’s ambitions and the war in Ukraine

Talking Sense
The economic potential of foreign-language learning

Giving
A $1 million gift to upgrade the archives at RAND and preserve history

Civilian Casualties
Hard lessons for the U.S. military from the battle for Raqqa

A Syrian shopkeeper opens for business amidst the dust and rubble of Raqqa in 2017. RAND researchers found the U.S.-led coalition to retake the city from ISIS made “considerable efforts” to protect civilians. But the nature of the battle, and how the military fought it, ensured widespread destruction and underscored the need for greater commitment to avoid harming civilians.
Nearly two-thirds of the unemployed men in a recent study shared one important characteristic: They all had an arrest on their record. Employment services and job placement programs need to do more to help them get past the high hurdles these arrests put in their career path.

Researchers from RAND and the State University of New York looked at survey data from thousands of Americans in their mid- to late 30s. They found that those who had experienced a sustained period of unemployment—four weeks or more in a single year—were much more likely to have a criminal record.

In fact, around 64 percent of the unemployed men had been arrested at least once in their lives for a non–traffic offense. More than 45 percent had been convicted. The percentages were similar among Black, White, and Hispanic men, but that’s easy to misinterpret. Black men, in particular, were much more likely to have been unemployed in the first place, so even a similar percentage yielded a disproportionately higher total number who had also been arrested.

Employers routinely check an applicant’s record before making a job offer, so those arrests and convictions can carry a life sentence for job seekers. Yet federally funded career centers and other job placement programs provide little or no information to help applicants address and overcome a criminal record. The study results suggest those programs should more directly focus on serving the high number of unemployed people held back by a criminal record.

The study, funded by Arnold Ventures, was the first to estimate how many unemployed American men have criminal histories. Previous research has shown that as many as one in three American adults has been arrested at some point, a product of decades of aggressive law enforcement policies and practices.

MORE AT
www.rand.org/tr/EP68882
COVID-19 Vaccine Campaign in the U.S. Prevented Nearly 140,000 Deaths

COVID vaccines may have saved nearly 140,000 American lives in just the first few months of shots, a state-by-state analysis concluded. The findings underscore the importance of getting vaccines into more arms, especially in underserved communities that have not had easy access to them.

Almost from the moment the first vaccines became available, sharp differences emerged in how quickly different states were able to roll them out. Some, like Vermont, had a majority of their residents fully vaccinated within months. Others, like Alabama and Mississippi, barely vaccinated a third of their residents in the same time.

That variation allowed researchers to measure, for the first time, how death rates in each state fell as vaccination rates ticked up. The National Institute on Aging sponsored the study.

Before the vaccines came out, the United States had been on a trajectory to hit 709,000 COVID deaths by early May 2021. But as more and more people got vaccinated, the curve began to bend. The U.S. actually recorded just under 570,000 deaths by May 2021—meaning that nearly 140,000 people who would have been predicted to die didn’t.

Most states saw 40 to 60 fewer deaths for every 100,000 residents than they would have if the vaccines didn’t exist, the researchers found. In New York, the number was closer to 120, the highest rate of averted COVID deaths in the country. In Hawaii, it was just over ten, the lowest rate.

The researchers, from RAND and Indiana University, cautioned that their data could not account for community-level factors that might have also pulled down death rates, such as lower population risks or changes in mobility. Nonetheless, they concluded that early vaccination campaigns saved potentially tens of thousands of lives. That makes it imperative, they wrote, that health officials continue to expand access to vaccines, especially in minority and low-income communities that have been less likely to receive them.

MORE AT www.rand.org/n210818

Female Physicians Earn an Estimated $2 Million Less than Male Physicians over a Simulated 40-Year Career

Female physicians earn tens of thousands of dollars less every year than male physicians with the same experience, in the same specialties. Over the course of a career, researchers found, that adds up to a $2 million pay gap between men and women doing the same work.

The researchers looked at data on more than 80,000 U.S. physicians. They found that female physicians made nearly $20,000 less than their male colleagues in their first year of practice, and the gap only widened from there. By their tenth year, female physicians were making, on average, around $40,000 less—even taking into account the hours they worked, the type of practice they were in, their location, the number of patients they saw, and their medical specialty.

The average male physician could expect to make around $8.3 million over the course of a 40-year career. The average female physician: a little less than $6.3 million. The gap was somewhat narrower for primary care doctors, and somewhat wider for surgical specialists.

That income disparity starts to become apparent in the same early-career years when women shoulder a disproportionate share of domestic and family responsibilities, such as child care, the researchers noted. Better family leave policies and child care coverage have helped reduce the income gap in other highly trained professions. More-transparent salaries have also been shown to foster more-equitable pay.

The study, by researchers from RAND and several universities and institutions, provides the most comprehensive look to date at income differences between male and female physicians. It was sponsored by the National Institute on Aging.

MORE AT www.rand.org/t/EP68787

MORE AT www.rand.org/n210818
Poor Single Mothers Need Higher Wages, Not Husbands

By Kathryn A. Edwards

For more than a quarter century, the U.S. government has been sending an unmistakable message to poor, single mothers: Get married. If America genuinely wants to address poverty and achieve gender equality, this has to change.

Readers can be forgiven for missing last year’s 25th anniversary of the Personal Responsibility and Work Opportunity Reconciliation Act, which proclaimed that “marriage is the foundation of a successful society” and fulfilled then-President Bill Clinton’s earlier campaign promise to “end welfare as we know it.” There wasn’t much to celebrate. A full generation later, the share of children in single-parent homes has increased, child poverty is mostly unchanged, and employment among unmarried (and married) mothers has plateaued.

In hindsight, one shouldn’t have expected better from legislation so steeped in cultural myths. Single mothers had been labeled a social problem since the 1960s, even though their portrayal—as welfare queens and teen moms who didn’t want to work—never matched the statistical reality. Just before reform, the median benefit for a typical welfare family (a mother and two children) was a miserly $366 a month (or $658 including the value of food stamps); 70 percent of female recipients were older than 25; and about half stayed on welfare no more than a year—most commonly leaving the program for a job. In the three decades before 1996 (and the quarter century that followed) unmarried mothers worked more than married mothers. Welfare rolls were increasing in the early 1990s, but that was in no small part because the U.S. had just been through a deep recession.

True, families headed by unmarried mothers were very likely to be poor. (This is still the case: More than 30 percent of them are below the poverty line today.) This wasn’t for lack of effort. Many jobs in the U.S. didn’t (and still don’t) pay enough to support a family on a single income. The inflation-adjusted hourly wage for the bottom 10 percent of female earners has hardly budged in 50 years: It was $8.24 in 1973, and it reached $10.52 just before the pandemic hit. At that rate, someone who works 35 hours a week, the national average, earns just over $19,000 a year. Worse, such low-wage jobs offer little se-
security, with fluctuating, insufficient hours or frequent layoffs.

Instead of addressing this economic problem head on, Congress chose to address the social phenomenon—the unmarried part, rather than the poor part. The 1996 legislation turned welfare into block grants to states, which had broad discretion. The money could be given as a temporary cash benefit to women and children, but the other three specified uses were (1) promoting work and marriage, (2) ending out-of-wedlock pregnancy, and (3) encouraging two-parent families. Congress averred that mothers should be married, then gave states money to support the effort.

States have treated the block grants (called Temporary Assistance to Needy Families, or TANF) as a slush fund to support things as varied as child care subsidies, drug courts, college scholarships, textbooks, preschool, free marriage classes, and pregnancy crisis centers that counsel against abortion. Sometimes the money simply plugs holes in the state budget. In at least one case, the funds have been grossly embezzled.

Some would argue that the references to marriage in the 1996 law were merely rhetorical, not intended as an antipoverty policy. Maybe. But Congress soon clarified in the Defense of Marriage Act that marriage was between a man and a woman and reformed the tax code to be more pro-marriage. Follow-on proposals included earmarking TANF spending for marriage counseling. Marriage promotion remains prominent in anti–child poverty agendas today.

Others would argue that the legislation was about promoting work and should be viewed in the context of other congressional action, such as the increase in the Earned Income Tax Credit, which subsidizes single mothers’ low wages. But if lawmakers want to encourage women to work, there are much better ways: Research unambiguously demonstrates that the two most important policies are mandatory paid family leave and broadly subsidized child care. The U.S. remains the only developed country with neither.

Congress enshrined into law the opinion that mothers should be married. However hollow that 1996 avowal to marriage was, Congress has not, in the 25 years since, said that mothers should have paid family leave, or affordable child care, or a wage that lifts a family out of poverty. The persistence of poverty among unmarried mothers offers a reminder that economic problems need economic solutions.

A version of this commentary originally appeared on BloombergQuint (now BQ Prime) in April 2022. Commentary gives RAND researchers a platform to convey insights based on their professional expertise and often on their peer-reviewed research and analysis.
Russia’s Ambitions

\[quote\]

“I wanted to be wrong,” Dara Massicot tweeted on the evening of February 23. It was just before dawn on the following day in Moscow and Kyiv, and the Russian invasion of Ukraine had begun. “The next days and weeks will be dark times and a humanitarian catastrophe.”

Massicot is a senior policy researcher at RAND who specializes in Russian military strategy. Long before the war in Ukraine, she had documented a shift in Russian thinking and posture toward its neighbor, a focus on reining it back from the West at all costs. She had also detailed serious shortcomings in Russian ground forces, and an overall lack of preparation for a major ground war.

She came to RAND from the U.S. Department of Defense, where she served as a senior analyst for Russian military capabilities. But her interest goes back even further. As a teenager, she convinced her high school to let her take Russian language classes at a nearby university.

She had no illusions as Russian forces gathered on the Ukrainian border. “What unnerves me is how methodically they’re going through this,” she told The New York Times weeks before the invasion began. “It’s by the book. You know what’s coming next and it shows up.”

\[translation\]

I have seen hand-to-hand combat once in real life and a thousand times in dreams. Those who say that war isn’t terrible know nothing about war.

The war in Ukraine is such an ugly, high-casualty event. The way they’re fighting it is so hard, and the scars that both sides are sustaining will outlast this conflict for generations to come.

You wrote recently about Russia’s ‘culture of indifference’ to its own soldiers. How do you see that shaping the future of the conflict?

Russia made a series of incorrect assumptions about Ukraine’s will to fight and, as a result, they had insufficient planning around force protection. The Russian military has suffered significant casualties because of that, and that has really hurt unit cohesion and morale. What we’re seeing now is small units just trying to execute their orders and survive.

The Ukrainians intercepted a message that seems to be a Russian soldier talking to his wife. He’s telling her, ‘The only way I’m getting out of Ukraine is if I’m killed or injured.’ But then they drift to talking about their young son, and the soldier says, ‘The last thing I want—I want you to make sure he does not join the army. Talk to my mom, get my uncle to do this.’ He’s walking through this administrative process to pull strings so his son won’t have to serve when he turns 18.

If that’s true, it’s such a warning shot for Russian leaders about the damage they’ve done to their own professional enlisted group.

You’ve studied Russian grand strategy. What lessons do you think Russia takes from this conflict? Does it look or act any differently going forward?

My coauthors and I looked at official strategy documents, but also at how Russia has
allocated its resources. We concluded that they don’t have a force that is structured to do what they attempted to do—that is, a large land invasion of one of the biggest countries on the continent.

Now, with their expenditures in Ukraine and the sanctions starting to bite and their growing isolation, it’s going to be extremely difficult for them to restore their military capabilities. We also found that Russia did not have tight control over other countries in its so-called sphere of influence, and that trend is going to continue now that its economic influence might be on shaky ground.

When future historians look back on this, what question do you most want to know the answer to?

I hope we’ll understand the extent to which the Russian high command knew about all of the problems that were hidden at lower levels within their force. Did they know, and thought they could get away with this war because the Ukrainians wouldn’t fight back? Or were they totally oblivious to what was happening on the ground in their own units?

What made you want to become an expert on Russia?

It’s a land of such extreme contrasts. It has beautiful landscapes, incredibly warm friendships and family ties, a rich history of intellectual ideas—and yet, it can also be such a brutal and dangerous place. When I first started studying Russia in the late 1990s, the narrative was that the Cold War was over and Russia was beaten. But that’s not how the Russians saw themselves.

Is there an overarching question that you’re trying to answer with your research?

My goal is, and always has been, to accurately forecast what the Russian military is doing. They’re not—they were never—weak or irrelevant. But nor are they the Soviet war machine anymore. So my goal is to forecast what they’re doing, and what it means for the United States.
Reporters who reached the Syrian city of Raqqa in October 2017 found an apocalypse of dust, death, and rubble. NPR described it as a “wasteland of war-warped buildings and shattered concrete.” The New York Times called it a ghost city.

The United States had promised the most precise air war in history to destroy the Islamic State across its strongholds in Iraq and Syria. Yet by the end of the U.S.-led battle for Raqqa, the group’s de facto capital, as many as 80 percent of the buildings were deemed uninhabitable. Several thousand civilians who had survived months of shelling and street fighting had nowhere to go for safe drinking water within the wreckage.

Researchers from RAND spent months analyzing the battle and asking what the United States could have done better to protect those civilians from the harms of war. They found that military leaders too often lacked a complete picture of conditions on the ground; too often waved off reports of civilian casualties; and too rarely learned any lessons from strikes gone wrong. Raqqa may have been a victory, but it was also a smoldering monument to how much more the military could do to protect civilians.
A photo taken at sunset from the Al-Thakana neighborhood at the center of Raqqa shows the partial destruction of several buildings, including a school. Inset: Residents of Raqqa gather in the morning to drink tea after they had been allowed back into the city to inspect their homes.
What happened in Raqqa

“The Department of Defense has exactly zero permanent staff who wake up every morning with the sole priority of preparing the military to reduce civilian harm in combat,” said Michael McNerney, senior international and defense researcher at RAND. “Protecting civilians is important to everyone in the department, but it’s the top priority for no one.”

The story of what happened in Raqqa is not the same as the story playing out now in Bucha and Mariupol, where Russian forces have deliberately targeted civilians. The United States’ emphasis on minimizing civilian harm was “quite clear and strong” up and down the chain of command, researchers found. But the way in which the U.S. military waged war in Raqqa too often undercut that commitment.

By the time U.S. forces and their allies encircled Raqqa in May 2017, their goal was no longer just to drive out the few thousand ISIS fighters holed up in the city. It was to annihilate them. American troops called the campaign Operation Eclipse. Their partners in the Syrian Democratic Forces (SDF), who would do the fighting on the ground, called it the Wrath of the Euphrates.

The ISIS fighters inside Raqqa had dug in for a last stand after three years of fighting across Iraq and Syria. They had tunneled between buildings and draped canopies over streets to hide their movements from aerial surveillance. They had rigged the city with explosives and herded civilians into front-line positions as human shields. It would soon become clear that, despite overwhelming air power, the U.S. had not done enough to disrupt those preparations and weaken ISIS positions before the battle.

SDF forces pushing into the city were met with such brutal resistance that they nicknamed one ISIS position, at a traffic roundabout, the Circle of Hell. Pinned down by snipers, they would call for airstrikes—often giving U.S. planners just minutes to assess the target and look for any civilian activity nearby. Artillery teams just outside the city kept up such an intense barrage to support the SDF that they burned out the barrels of two howitzers.

SDF fighters finally pulled down the ISIS flag that had flown above the Circle of Hell in October 2017. All around them, an estimated 11,000 buildings were damaged or destroyed, including hospitals, mosques, schools, and water facilities. A U.S. commander told The Washington Post it had been some of the most intense urban fighting since World War II.

The Pentagon has acknowledged that U.S. airstrikes and artillery fire “more likely than not” killed 178 civilians during the battle. Outside
organizations like Amnesty International and Airwars say the true toll is many times higher than that. Their workers, often on the ground in Raqqa, have identified 744 civilians whose deaths they attribute to U.S. strikes, and have reports of hundreds more.

What happened? The Pentagon itself asked RAND to answer that question, and to scrutinize its entire approach to protecting civilians. Researchers interviewed more than 80 people involved in the battle and its aftermath, from commanders to planners and pilots to humanitarian aid workers and journalists. They reviewed thousands of pages of after-action reports, civilian casualty assessments, and strike logs.

Raqqa, they found, was a “perfect storm of strategic and operational challenges. ... a cautionary tale about civilian harm in 21st-century conflicts.”

The vast majority of airstrikes, researchers found, were not well-planned in advance. They were what the military calls “dynamic” strikes, often called in by fighters on the ground, with little time to mitigate risks to civilians. Military planners, meanwhile, were “starved of local information.” With few U.S. intelligence sources inside Raqqa, they had to rely on aerial surveillance, which could not see civilians huddled in the basement of a building or under a collapsed roof. And SDF forces fighting block by block often preferred to take down an entire building with an airstrike rather than take more casualties to their dwindling forces by searching it for a single sniper.

The military’s failure to “shape the battlefield” with precision strikes before the battle meant that ISIS fighters could keep falling back and regrouping, often into densely populated areas. The U.S. decision to encircle Raqqa made it far more dangerous for civilians trapped inside the city to find their way to safety.

“Military officials would say, ‘We totally respect the law of war. We never intended to harm civilians,’” McNerney said. “And that was true. They weren’t trying to kill civilians. But they could have operationalized that better and really thought through the risks to civilians from the very earliest stages of planning.”

Using data to help mitigate harm in future operations

Late one night in the lead-up to the battle, the U.S. bombed a former school where it believed ISIS was hiding weapons and fighters. When reports of civilian casualties started to emerge, officials reviewed surveillance images and—
In what became a common sight as people returned to Raqqa, a wheelbarrow stacked with salvaged clothes sits amid the rubble of partially destroyed buildings.
seeing no clear evidence of civilians buried in the rubble—dismissed the reports as not credible. Workers with Human Rights Watch went to the scene, interviewed survivors, learned that families had also taken refuge in the school—and produced a list of 40 people killed in the strike, by name.

RAND researchers saw that same pattern play out dozens of times. The U.S. military had said it would investigate any time a civilian death was more likely than not caused by its operations. In Raqqa, researchers found, officials required much more than that—a “smoking gun”—to investigate a civilian casualty report. Much of the time, as at the school, officials would review surveillance images showing the wreckage from a strike—but not who was buried under it—and say they saw no evidence of any civilians.

Even the records the military did keep on civilian casualties were often scattered on different computer servers. In one case, an official investigating a civilian casualty report had to get on a plane and fly to another country to retrieve a needed database. “I know from experience that data [on civilian casualties] are missing,” one operator told the researchers, “but I can’t tell you how much.”

As a result, the military had no way to look across data for lessons it should learn. Civilian casualty assessments were filed away and forgotten, with no effort to put them together in a way that could reveal patterns. Even the units involved often didn’t find out what had ever come of the assessments.

“The military simply does not have the right processes or systems in place to effectively learn from its mistakes and provide accountability to victims,” said Gabrielle Tarini, a policy analyst at RAND who helped lead the research. “Better data might sound boring, but it is critical for helping DoD understand the root causes of civilian harm and implement the right solutions in the next operation or conflict.”

The military should be more open to working with outside organizations on the ground to validate reports of civilian casualties, researchers concluded. It should overhaul how it analyzes, collects, and stores those reports—and improve its use of standardized forms to capture key information, from date and time to how the target was chosen to estimates of civilian harm.

More generally, it needs people in the Pentagon and in each command whose sole job is to worry about civilian casualties. It needs a “center of excellence” that can pull together expertise and data on preventing civilian harm, conduct research, and disseminate the lessons learned across the force.

Earlier this year, Defense Secretary Lloyd Austin called for a top-to-bottom review of how the U.S. military can better prevent and respond to civilian casualties. He was responding, in part, to RAND’s reports—but also to investigative work by The New York Times that analyzed the military’s own data and found a pattern of missteps in air campaigns in the Middle East that put civilians at risk. The U.S. has a “strategic and a moral imperative” to do better, Austin said.

That is going to require addressing issues that cut across the military, from training to planning to operations, researchers concluded. Otherwise, they warned in the final line of their report, “there is a real risk that the tragic circumstances seen in Raqqa will be repeated.”
Researchers Find Significant Returns for Investing in Foreign Languages

Near one in five people around the world can speak English. For all its odd sounds and tricky spellings, it is the global language of business, science, entertainment, and diplomacy. Companies like Airbus in France, Nokia in Finland, and e-commerce giant Rakuten in Japan may not have much in common—but they all share English as their official corporate language.

But then again, if one in five people can speak English, that means the other four cannot. A new study from RAND Europe looked at how much the United Kingdom could gain if it spent a little more time learning other languages. If just 10 percent more students mastered Arabic, Mandarin, French, or Spanish, researchers found, the economic returns could be measured in billions of British pounds.

“We’re not saying everybody should now stop learning math and science and just put all their eggs into the language basket,” said Marco Hafner, a senior economist and research leader at RAND Europe—who, as a native of Switzerland, grew up with four official languages. “But if the UK wants to become a bigger player on the international field again, it’s going to need to invest in other languages. It can’t continue to rely on English always being the global language.”

Hafner is an expert at putting dollar and pound figures on health and social challenges. He has shown, for example, that the wealthy countries of the world stand to lose hundreds of billions of dollars in trade and productivity if they don’t help lower-income countries vaccinate their people against COVID-19. He has estimated the value of getting enough exercise (up to $338 billion per year worldwide), getting enough sleep (up to $411 billion every year in the U.S. alone),
and not having to get up multiple times in the middle of the night to use the bathroom ($44 billion per year in greater daytime productivity, just in the U.S.).

A linguistics professor at Cambridge University challenged him to do the same kind of study for learning languages. It was not an idle request. In 2004, the UK dropped a requirement that all high school–age students learn a second language, and language study collapsed. Nearly 90 percent of young adults in Europe can read and write in a second language. In the UK, the number now is closer to 30 percent.

Hafner and his team built a mathematical model of trade flows across countries, taking into account everything from the distances involved to the strength of cultural and colonial ties. They found that not speaking a common language acted as a kind of tax. It made doing business that much more difficult and expensive, and that much less attractive.

Then they looked at what would happen if the UK cut that tax.

If 10 percent more secondary students learned to speak Arabic well enough to use it in a business meeting, the economic gains would add up to around £928 million by 2050. Ten percent more Mandarin speakers would add another £717 million. French would be worth £673 million, and Spanish, £631 million.

That’s just in direct trade—greater exports, more demand for British services. But consumers would also find more products on store shelves, with lower prices. And workers would find it easier to land a good-paying job. When the researchers added in those benefits, they found that greater fluency in those four languages would boost the UK economy by at least £43 billion through 2050.

One British pound is worth around 1.25 U.S. dollars. So that works out to nearly $54 billion.

“If people speak more, if they can communicate better, that reduces trade costs because you remove the language barrier,” Hafner said. “If you want to set up a subsidiary in China, you really need to speak the language when you go over there if you want to be successful.”

The UK has estimated that a free-trade deal with Japan would be worth around £1.5 billion over 15 years. Greater attention to learning languages, RAND Europe found, could be worth £2.9 billion over the same time period. Even assuming that it would cost £480 per student per year to offer more language classes—the price of an intensive Mandarin program available in the UK—the economic returns would still likely be two to one.

It’s hard to make direct comparisons with the United States, where more than 20 percent of people speak a language other than English at home. U.S. studies have historically found mixed, or even negative, economic returns to bilingualism—at least partly because the data are skewed by Spanish-speaking immigrants working long hours for very low pay. But some have found that studying a second language can boost future earnings by a few percentage points.

In the UK, news headlines have warned for years of a looming “language crisis.” Wales now requires students to learn English, Welsh, and a third language. Scotland, likewise, requires English plus two other languages. A recent report from the influential British Council described the need to refocus on foreign languages as critical. Otherwise, it warned, the UK stands to lose not just business opportunities, but cultural awareness in a globalized world.

Hafner and his team have presented their findings to members of parliament and to the UK Department of Education. “We hope it at least sparks a discussion about the need for language education, and the potential benefits,” Hafner said, “especially if Britain wants to become a more important global player.”

After all, he said, “French used to be the world language, and look where we are now.”
On the north side of Denver, people have a word for the stench that often drifts through their windows and under their doors: purijuana. It’s a combination of the Purina pet food factory up the street, and the many marijuana operations that have made the neighborhood their own. Residents surveyed in 2012 also described smells of “sewer, animal rendering, vehicle exhaust, and death.”

It’s no accident that this community has lived for decades with the smokestacks, freeway traffic, and clanging railyards that other parts of Denver can ignore. It and many others across America were redlined starting in the 1930s, marked on government maps as too “hazardous”—as in, too Black or too immigrant—for federal home loans. When zoning officials needed somewhere to put a new factory or freeway, those redlined neighborhoods were like a bullseye that they hit again and again and again.

Researchers from RAND have developed a free online tool that shows the results. It maps those historic red lines against more than a dozen environmental hazards, from air pollution to toxic waste sites to smothering summer heat. It shows, for more than 200 metro areas, where one racist policy continues to shape lives even decades after it was revoked.

“It’s meant to start conversations,” said Carlos Calvo Hernandez, an assistant policy researcher at RAND and a student at Pardee RAND Graduate School, who did much of the data work. “Community advocates can just point to the map and say, ‘Here is what we’ve been talking about for years or decades. This is what’s been happening in our community.’”
Structural racism

Candi CdeBaca grew up in the north Denver neighborhood known as Swansea. It was once an industrial enclave for eastern European immigrants; today, the language on the streets is Spanish. Generations of families, drawn by jobs at the smelters or meatpacking plants, put down roots that reach deep. It’s not uncommon to find grandparents, parents, and children all living together on the same block. Their neighbors include a stockyard, a toxic Superfund site, and the concrete moat of Interstate 70—which, CdeBaca says, “tore a huge gash in the community.” The neighborhood had no grocery store until this year, and too few sidewalks—but dozens of warehouses repurposed for industrial marijuana grow operations.

“We physically are on the wrong side of the tracks,” said CdeBaca, a fifth-generation resident of Swansea who was the first in her family to graduate from high school, then earned two college degrees before moving back to the same block where she grew up. “It’s like it’s okay to pollute these neighborhoods because their populations are seen as expendable. This is happening in cities throughout the United States.”

Researchers at RAND wanted to give communities like Swansea a tool to help them document the hazards they face and push for change. They started with redlined maps of 202 metro areas that the University of Richmond had digitized and put online. The maps cover cities as small as Portsmouth, Ohio (population 18,252) and Winthrop, Massachusetts (19,316) up to Chicago, Los Angeles, and the individual boroughs of New York City. Nearly one in five Americans can find where they live on those maps.

Then the researchers started pulling in data.

They marked areas with high concentrations of sooty air pollution, linked to asthma, cardiovascular disease, and early death. They showed where water in nearby streams could be dangerous to drink. They charted flood risks, hazardous waste sites, even maximum monthly temperatures and the density of tree coverage. Users can select a metric and then see how the redlined neighborhoods in their city
RAND’s mapping tool can show not just where those disadvantaged communities are, but where communities that were specifically disadvantaged by government policy are.

have fared compared with those that weren’t cut off from government home loans.

The overall pattern is clear and consistent: more pollution, more hazards, more risk in the redlined communities. On average, for example, communities that the government once labeled “hazardous” still have less than half of the tree canopy coverage even now than neighborhoods the government considered “best.” The pattern seems to be especially strong in some cities, especially those in the Northeast and Midwest, and weak or nonexistent in others.

“We wanted to provide a particularly rigorous way to think about structural racism and how to target efforts to address it,” said Jaime Madrigano, an adjunct policy researcher at RAND and an associate professor at the Johns Hopkins Bloomberg School of Public Health.

“We’re not just saying, ‘Here are some environmental hazards that exist, and here’s how they track with race and ethnicity,’” she added. “It’s, ‘Here’s where there was a racist policy in place, and now here’s where the environmental hazards are.’”

Seeking a more equitable path forward

Armando Payan worries about the air that children breathe in their north Denver school near the freeway. He’s challenged city politicians to bring their bicycles and see how long they last on neighborhood streets rumbling with heavy trucks. “We’re a dumping ground for the city,” he said.

But there’s another hazard the community has had to mobilize against, and it’s not one that appears on RAND’s maps: gentrification. “Most of the people looking to buy up here are affluent professionals,” said Payan, a real estate agent, “and they come with a lot of money.” The community wants more parks, less traffic, and cleaner air, of course—but it worries those are the very things that will make it more attractive to builders and buyers.

RAND researchers have heard that same concern about “green gentrification” from many other communities as they dig beneath the hazards on their maps. One city cleaned up a polluted creek, for example—and then installed kayak ramps, which the creek’s existing neighbors pointed out were certainly not for them. The researchers are now working with community advocates in several cities to develop a set of best practices for untangling the environmental legacy of redlining without causing additional harm.

“It’s a lot more complicated than just stamping out the environmental hazards that are causing these injustices,” said Sameer Siddiqi, an associate policy researcher at RAND. “Policymakers who want to remedy these injustices are going to have to struggle with how to protect the residents who are there.”

That’s especially important right now. The Biden administration has made environmental justice one of its signature policy initiatives. It has pledged to ensure that 40 percent of federal investments in climate, clean energy, and environmental projects benefit disadvantaged communities. RAND’s mapping tool can show not just where those disadvantaged communities are, but where communities that were specifically disadvantaged by government policy are. The work that community organizers, local leaders, and researchers are doing now will, they hope, mark out a more effective and equitable path forward.

In the communities of north Denver, picket signs now decorate some front yards, warning in Spanish: “My community is not for sale.” The area anticipates potentially billions of dollars in revitalization projects, including a concerted effort to plant more trees. But residents want those to come with protections for existing homeowners and renters, more investment in affordable housing, and hiring preferences for people already in the neighborhood.

“These mega-investments are not community led, not community supported, and they’re exacerbating the push-out of communities that are already there,” said CdeBaca, who, among many other things, is leading a fight against the proposed development of a nearby golf course, one of the few areas of open space in the community. “Governments need to take responsibility for not only cleaning up dirty land, but also putting in place mechanisms to protect the people in those spaces.”

She doesn’t need a megaphone to get that message out anymore. In 2019, she ran for a seat on Denver’s city council, pledging to do more to help communities like hers—and won.
Jason Matheny, an economist, technologist, national security expert, and longtime civil servant, has been named president and chief executive officer of the RAND Corporation. Matheny is the sixth president and CEO of RAND. He succeeds Michael D. Rich, who has led RAND since 2011.

Matheny recently led White House policy on technology and national security at the National Security Council and the Office of Science and Technology Policy. Previously, he was founding director of the Center for Security and Emerging Technology at Georgetown University and director of the Intelligence Advanced Research Projects Activity (IARPA), where he was responsible for developing advanced technologies for the U.S. intelligence community. Before IARPA, he worked for Oxford University, the World Bank, the Applied Physics Laboratory, the Center for Biosecurity, and Princeton University.

“Jason has long respected RAND’s rigor and integrity and has been a voracious consumer of RAND analysis for decades, including while serving in senior U.S. government leadership positions,” said Michael Leiter, chair of the RAND Board of Trustees. “As a scientist and longtime civil servant, Jason has a deep appreciation for RAND’s accomplishments and distinctive place in the world. He is a compelling speaker and a serious listener, and he is known as a generous and inclusive leader. From our first discussions with him, we were struck by his belief in RAND’s ability to help solve the world’s most important public policy challenges and by his vision for supporting future generations of policy researchers and leaders.”

The board considered nearly 200 potential leaders from a variety of professional and personal backgrounds. “We engaged with RAND staff, leadership, clients, grantmakers, donors, and other stakeholders to help better understand what type of leadership RAND requires at this moment and in the coming years,” Leiter said. “To narrow the field, we carefully evaluated candidates’ past performance and vision for RAND’s future. At the end of this process, Jason’s vision, intellectual leadership, research experience, and innovative mindset truly set him apart.”

“It’s an honor to join RAND, an organization whose people and work I’ve so long admired,” Matheny said. “Since its founding nearly 75 years ago, RAND has been committed to rigorous, unbiased analysis addressing the world’s biggest challenges. A new century has brought on new challenges and new opportunities, and we need RAND’s help now more than ever.”

Matheny has served on many nonpartisan boards and committees, including the National Security Commission on Artificial Intelligence, to which he was appointed by Congress in 2018. He is a recipient of the Intelligence Community’s Award for Individual Achievement in Science and Technology, the National Intelligence Superior Service Medal, and the Presidential Early Career Award for Scientists and Engineers. He was also named one of Foreign Policy’s “Top 50 Global Thinkers.”

Matheny holds a Ph.D. in applied economics from Johns Hopkins University, an M.P.H. from Johns Hopkins University, an M.B.A. from Duke University, and a B.A. from the University of Chicago.
A $1 million gift from Rita Hauser will help upgrade the RAND Archives.

Rita Hauser, an international lawyer, philanthropist, and committed RAND supporter, has made a $1 million gift to RAND. The gift will support the RAND Archives, which collects, preserves, and provides access to materials that document the origins, development, operations, and impact of RAND and its research from 1948 to the present.

More and more scholars and journalists are using the RAND Archives—an important way to share RAND’s historical and ongoing impact. Hauser’s contribution will help RAND invest in several important enhancements that will extend the reach and influence of its archival holdings. “We are grateful for this generous gift to maintain and upgrade such a critically important asset,” said Brandon Baker, vice president of Development at RAND.

In recognition of the gift, the Archives will be renamed the Hauser RAND Archives. The gift will help RAND modernize the Archives facility, including constructing a new storage vault for preservation, a digital preservation studio, a processing room, and an archival research room. “RAND is such an important institution—one that truly embraces quality and objectivity as core values,” said Hauser, president of the Hauser Foundation and former member of the RAND Board of Trustees. “I’m honored to help preserve the organization’s intellectual history and keep these records accessible for the benefit of RAND, the community, and future generations.”

The Hauser RAND Archives contains materials deemed to be of permanent historical value that capture the organization’s legacy of innovation and its enduring contributions to public policy and decision-making. The Archives team makes the collection accessible to RAND staff and external scholars from universities and research organizations around the world who are writing books, journal articles, and dissertations.

At RAND, Hauser serves as a member of the Tomorrow Demands Today fundraising campaign cabinet. She helped to establish the advisory board of the RAND Center for Middle East Public Policy and helped fund RAND’s Strategic Rethink project, which explored important strategic questions facing the United States.

Throughout her career, she has been committed to peace, diplomacy, and humanitarian efforts. She chaired, for two decades, the International Peace Institute and was chair of the advisory board of the International Crisis Group. She has served as United States Ambassador to the United Nations Commission on Human Rights, as a member of the United States delegation to the 24th UN General Assembly, as a member of the President’s Foreign Intelligence Advisory Board, and as a member of the President’s Intelligence Advisory Board.

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