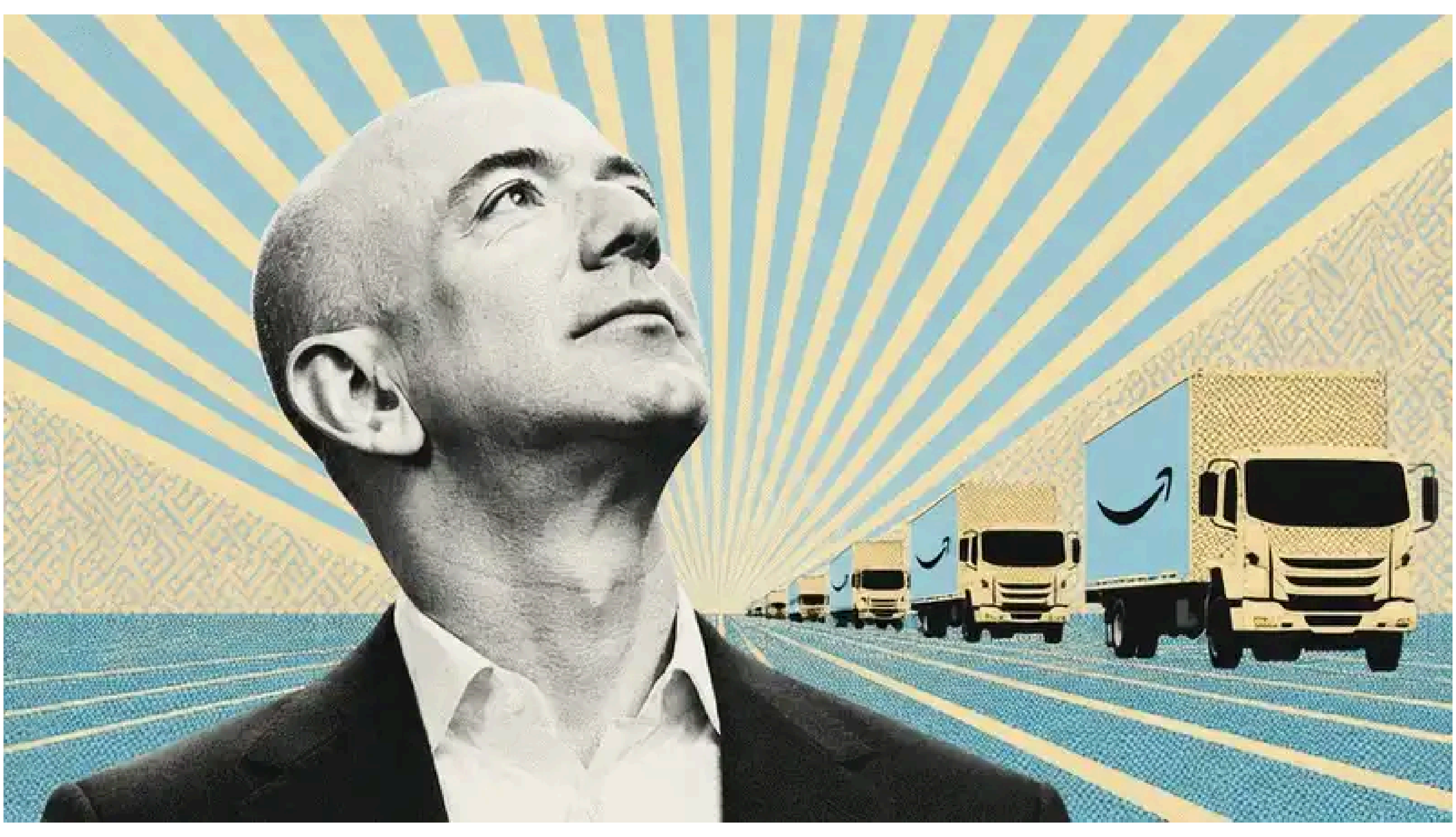
Jeff Bezos Earned His Amazon Fortune

The Amazon founder's innovations save customers 22 hours a year on average, giving them the gift of time.

MARIAN L TUPY
JUL 01, 2026



Amazon founder Jeff Bezos recently made a point that every critic of billionaire wealth should confront: "If I do my job right, the value to society and civilization from my for-profit companies will be much, much larger than the good that I do with my charitable giving."

To see if he is correct, consider the one resource that is truly finite: time. Modern debates about wealth start in the wrong place. They begin with the fortune. They should begin with customers and their time. Mr. Bezos is worth roughly $275 billion. That number offends many people because they assume wealth must have been taken from someone else. But Amazon didn't become valuable by force. It became valuable because hundreds of millions of people chose to use it.

Consumers weren't forced to buy books, batteries, diapers, cables, razors, tools, groceries or printer ink from Amazon. They did so because Amazon saved them time, money, effort or uncertainty. Sellers weren't forced to use Amazon's marketplace. They did so because it gave them access to demand. Firms weren't forced to use Amazon Web Services. They did so because renting computing power was cheaper than building and maintaining their own information-technology infrastructure. That is capitalism: People get rich by creating something others value enough to buy.

The Bezos fortune looks large because it is visible. The value Amazon created is harder to see because it is dispersed. A mother who doesn't drive to a store to buy diapers doesn't appear in an economic headline. A small business that reorders supplies in two minutes doesn't make the evening news. A rural customer who gains access to goods once available only in cities doesn't receive a subsidy check with Amazon's logo on it. Yet each transaction saves time, and time is limited.

Consider the arithmetic. Suppose an hour of labor is worth about $64, roughly the average gross domestic product per hour worked in the countries in which Amazon operates. If Mr. Bezos' fortune corresponded to the total value that Amazon created, his $275 billion would represent about 4.3 billion hours of saved time. Divided among Amazon's more than 300 million active customers, the saving comes to about 14 hours per customer over Amazon's life. That's nothing. Many customers save that in a month.

But entrepreneurs don't capture all the value they create. The Nobel Prize-winning economist William Nordhaus estimated that innovators keep only a small share of the social value—roughly 2%—produced by their innovations. Under that assumption, Mr. Bezos' $275 billion fortune implies that Amazon created about $13.8 trillion in total value for society.

At $64 an hour, that means Amazon has saved its customers about 214 billion hours. Across 300 million customers over roughly 32 years (Amazon was founded in 1994), the saving equals about 22 hours per person a year. That is 25 to 26 minutes a week, or a little less than four minutes a day.

So the question isn't whether Mr. Bezos has too much money. It is whether Amazon has saved the average customer four minutes a day. The answer is yes. A single avoided trip to a store can save 30 minutes. Finding a product online instead of driving to three retailers can save an hour. Reading reviews can reduce the chance of buying the wrong product. Automatic reordering can save repeated errands. Price comparison can save money and time. Fast delivery can substitute for inventory kept in closets, garages, offices and warehouses.

The savings extend beyond retail. Amazon Web Services lowered the cost of starting and scaling companies. It gave firms computing capacity without the old capital expense. That made experimentation cheaper. Some firms failed faster. Others grew faster. Both outcomes matter. Cheap failure is part of progress.

Amazon also forced competitors to improve. Walmart, Target, grocery chains, hardware stores, logistics firms and online retailers responded with better websites, faster delivery, wider selection and lower search costs. Even people who dislike Amazon benefit when its competitors become better because Amazon raised consumer expectations.

Charity can do good, but Mr. Bezos is right: Business can do better. Charity moves existing resources toward chosen ends. Business, when it works, creates new value by reorganizing labor, capital, knowledge and logistics. Enterprise can improve how hundreds of millions of people spend their time every week. Some people will spend the extra time earning money to buy things they previously couldn't afford, helping their communities, enjoying the company of their loved ones, taking a holiday or relaxing.

That distinction is often lost. Critics praise entrepreneurs when they give money away, but condemn the process that made the money possible. That is backward. The social contribution of an entrepreneur usually occurs before the charitable foundation is created. It occurs when customers gain, workers earn, suppliers sell, competitors improve, and resources move to better uses.

None of this means Amazon is perfect. No large company is. Amazon can make errors. But that doesn't cancel the basic fact: Amazon created enormous consumer surplus.

The moral case for Mr. Bezos' wealth doesn't require blind admiration of his business acumen. It requires arithmetic. If Amazon saves each customer 22 hours a year, Mr. Bezos's fortune passes the Nordhaus test. If it saves more than that, society receives far more than he keeps.

It is easy to resent the billionaire. It is easy to ignore the saved hours. But the hours matter because time is limited. It is our most precious resource. Count the time saved, and Mr. Bezos' fortune becomes less mysterious and much more defensible.

A previous version of this article appeared in the Wall Street Journal *on 5/26/2026.*

Time Pricing the Fourth of July Cookout

Independence and abundance.

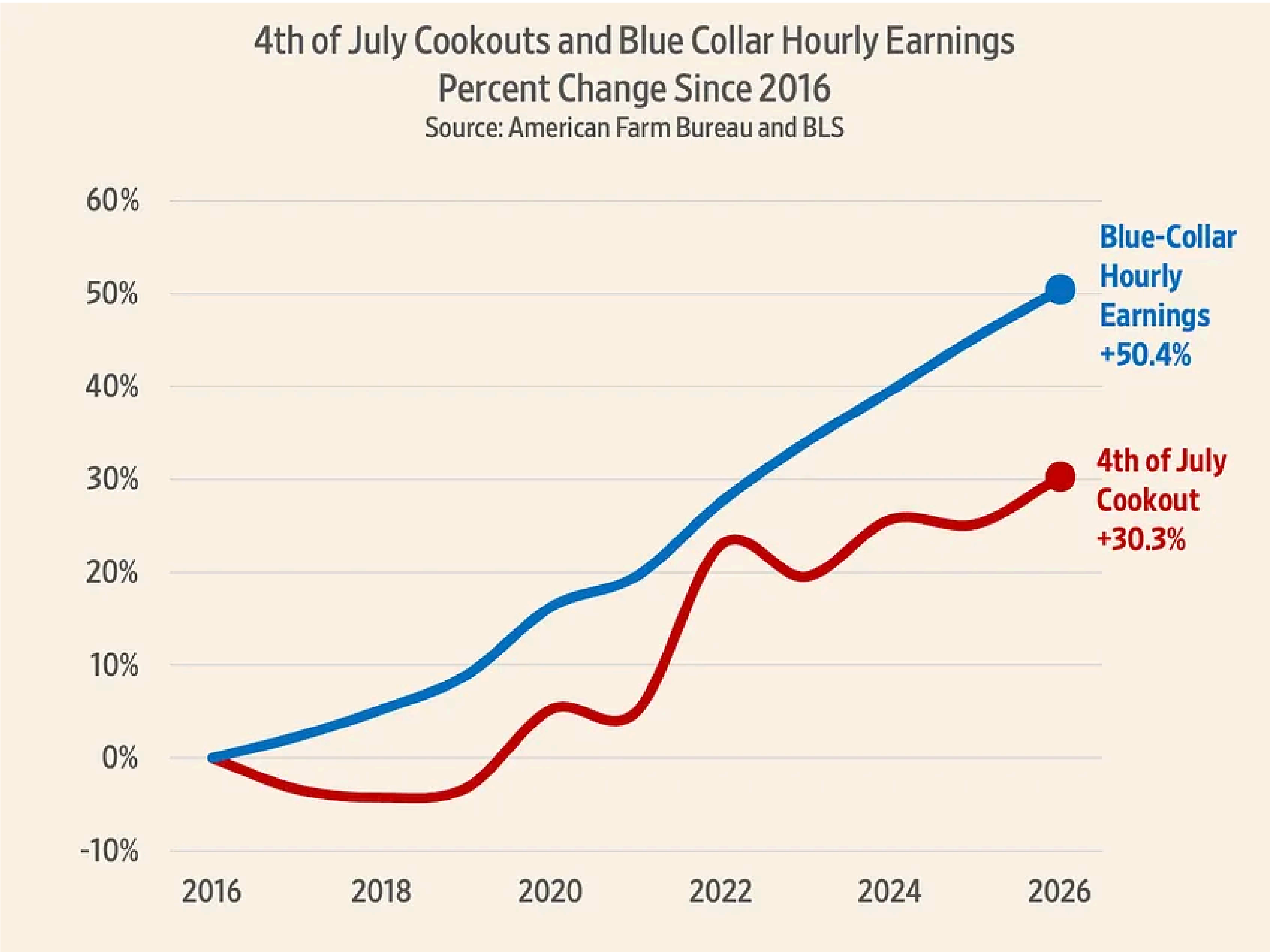
GALE POOLEY

JUL 04, 2026

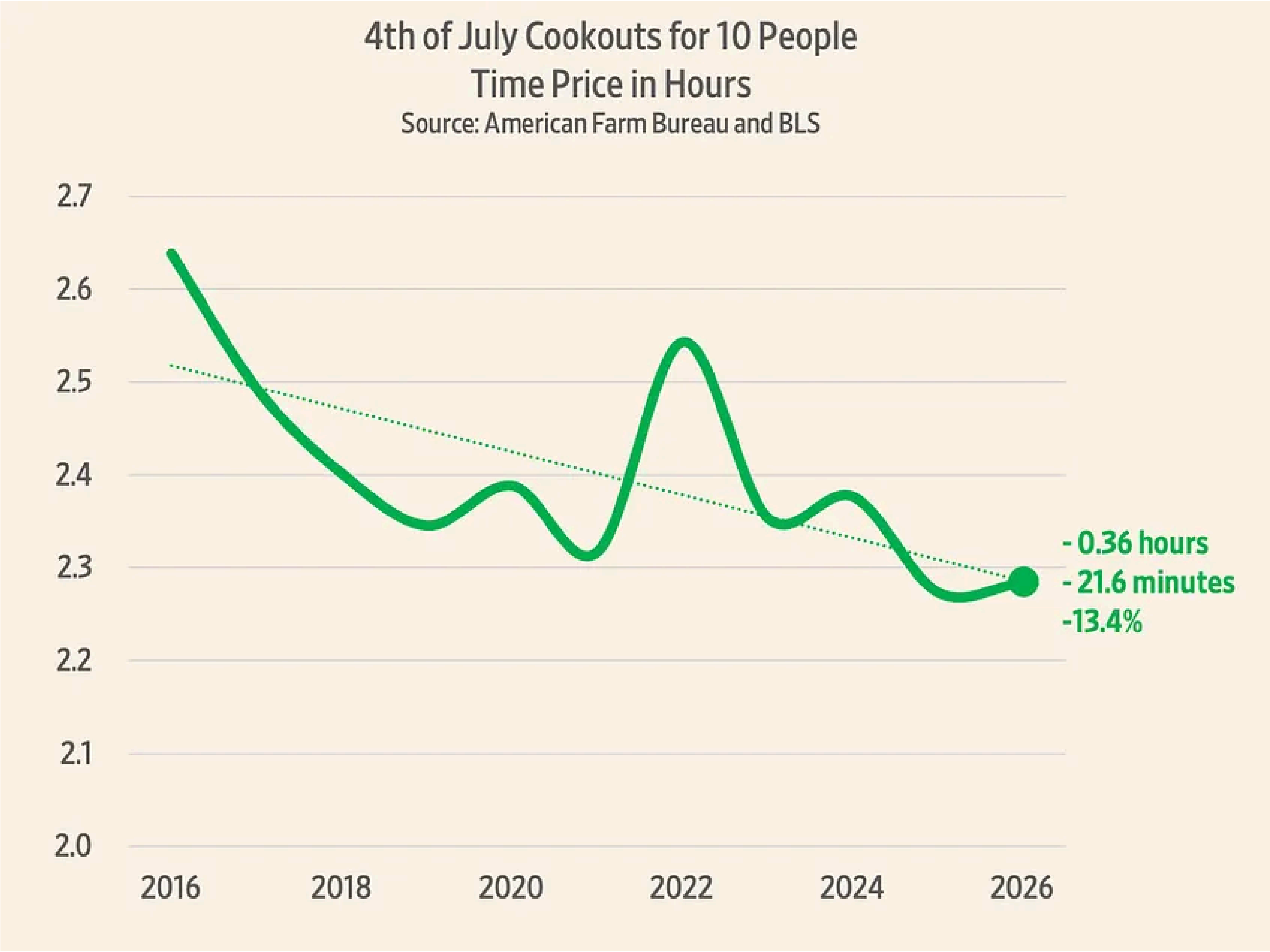
Every year, the American Farm Bureau Federation estimates the cost of a traditional Independence Day cookout. The basket includes summer cookout staples such as cheeseburgers, chicken breasts, pork chops, potato chips, pork and beans, fresh strawberries, homemade potato salad ingredients, fresh-squeezed lemonade ingredients, chocolate chip cookies, and ice cream.

Since 2016, the dollar cost of this basket has risen 30.3 percent, from $56.67 to $73.82. At first glance, that suggests celebrating the Fourth of July has become significantly more expensive.

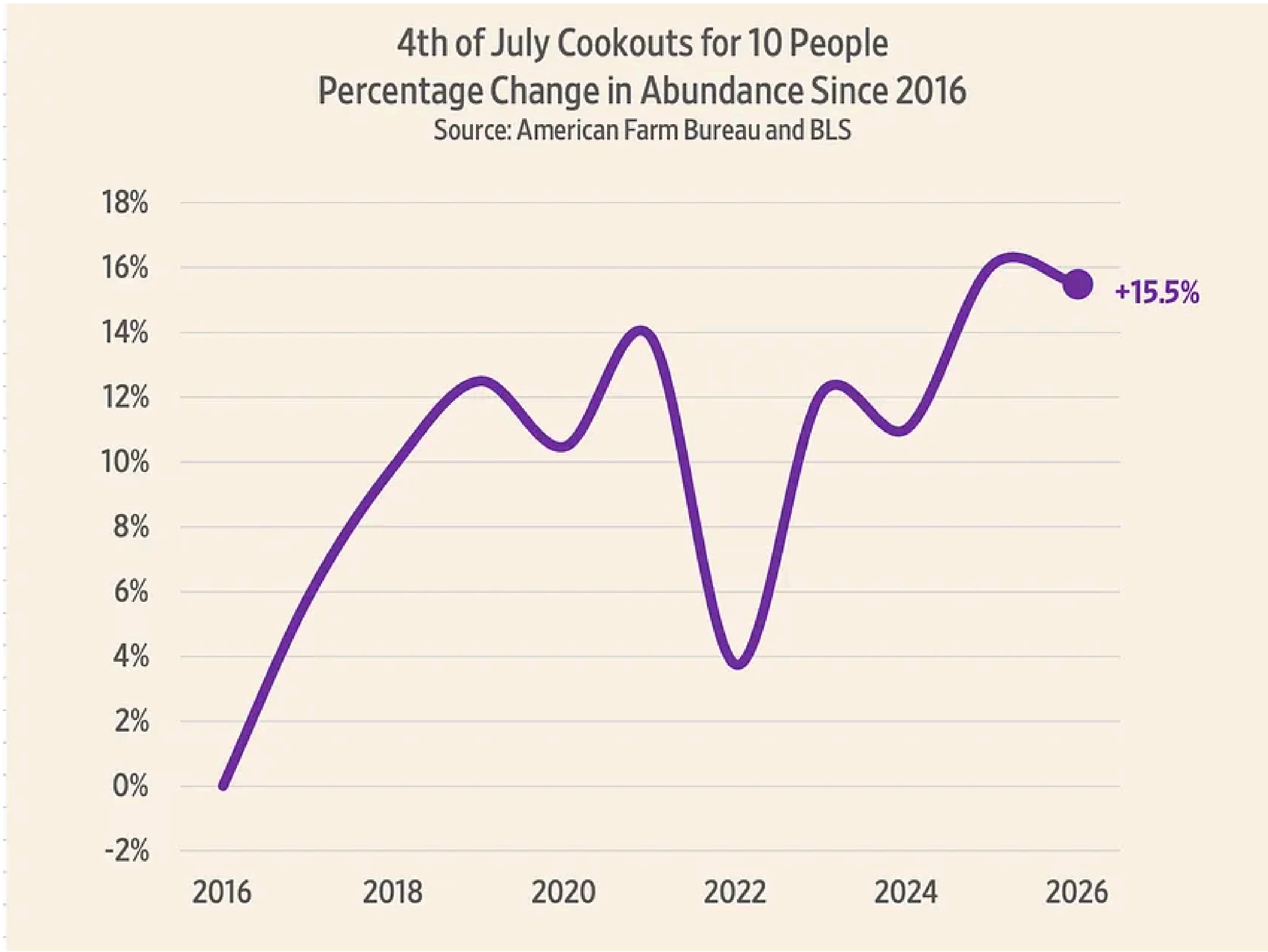
But money prices tell only half of the story. The real question is not how many dollars the meal costs, but how much time people must work to earn those dollars. Since 2016, blue-collar worker hourly earnings increased 50.4 percent, from $21.48 to $32.31 per hour.



Because wages rose faster than prices, the time price of the cookout actually fell 13.4 percent—from 2.64 hours of work in 2016 to just 2.28 hours today, a savings of 21 minutes.



Another way to measure progress is to ask: *How much more does the same hour of work buy?* We call this the abundance multiplier. Compared with 2016, the same amount of work today buys 15.5 percent more.



America added 22 million people between 2016 and today, a population increase of 6.8 percent. Yet abundance didn't merely keep pace with population—it grew 2.28 times as fast. Every 1 percent increase in people produced a 2.28 percent increase in cookout abundance. That's the signature of superabundance: on average, every additional person contributes more than they consume. Even though there are 22 million more of us, we'll actually spend 7.5 percent less time working as a country to pay for our celebration compared with 2016.

Americans may spend more dollars, but they spend less of their lives earning this year's Independence Day feast.

Government money printing during the COVID-19 pandemic did cause a temporary spike, but we have returned to the long-term trend of decreasing time prices and increasing abundance.

This year saw a slight reversal. Compared with the record-low time price in 2025, food prices increased 4.1 percent while blue-collar hourly earnings rose 3.5 percent. As a result, the time price of the cookout edged up by just 0.5 percent—less than one minute of additional work. Even after that small increase, the Independence Day cookout remains substantially more affordable in time than it was a decade ago.

Find more of Gale's work at his Substack, Gale Winds.

Doomslayer: Progress Roundup

A new rule for supersonic flight, lab-grown oocytes, decentralized earthquake detection, and more.

MALCOLM COCHRAN

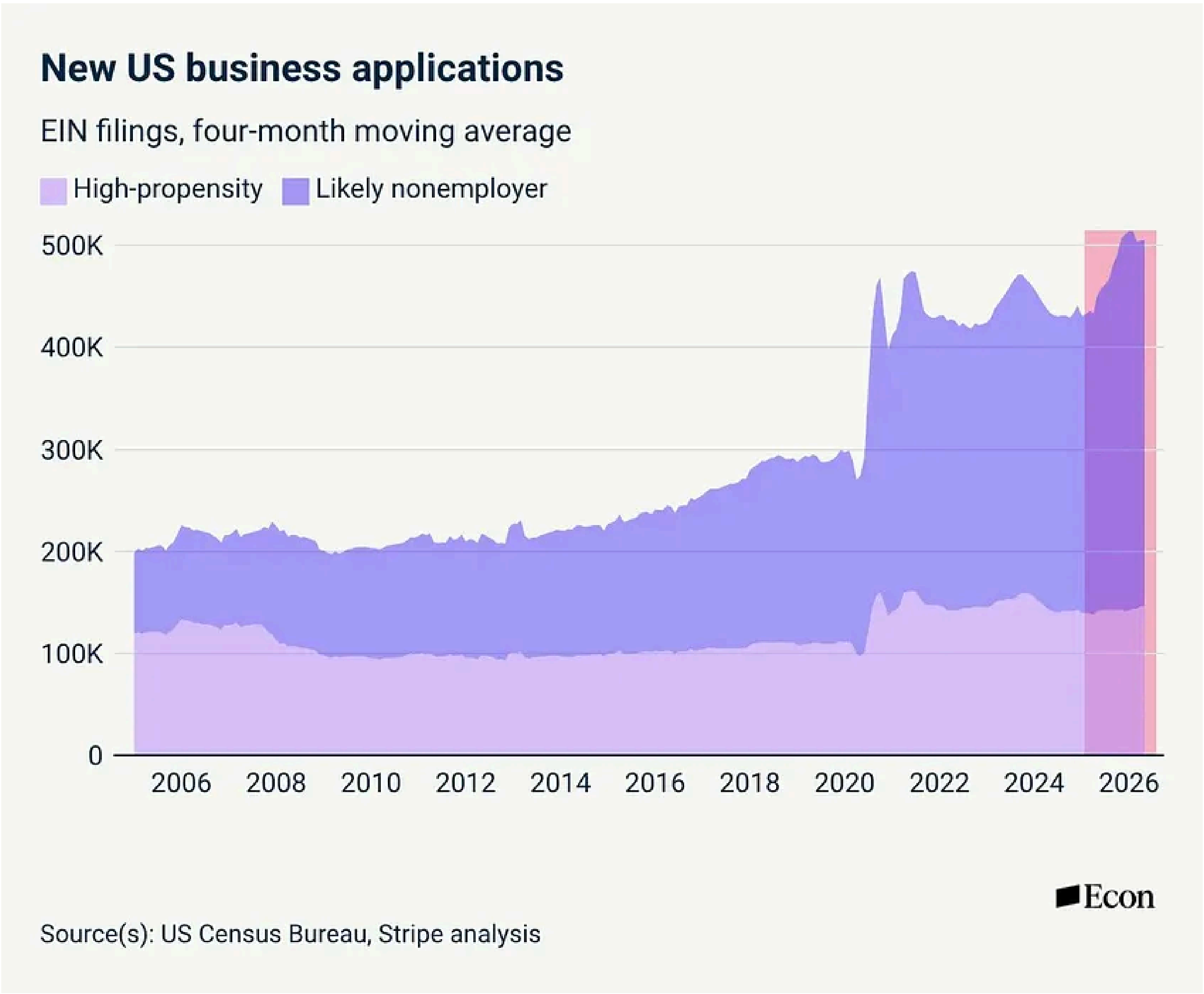
JUL 05, 2026

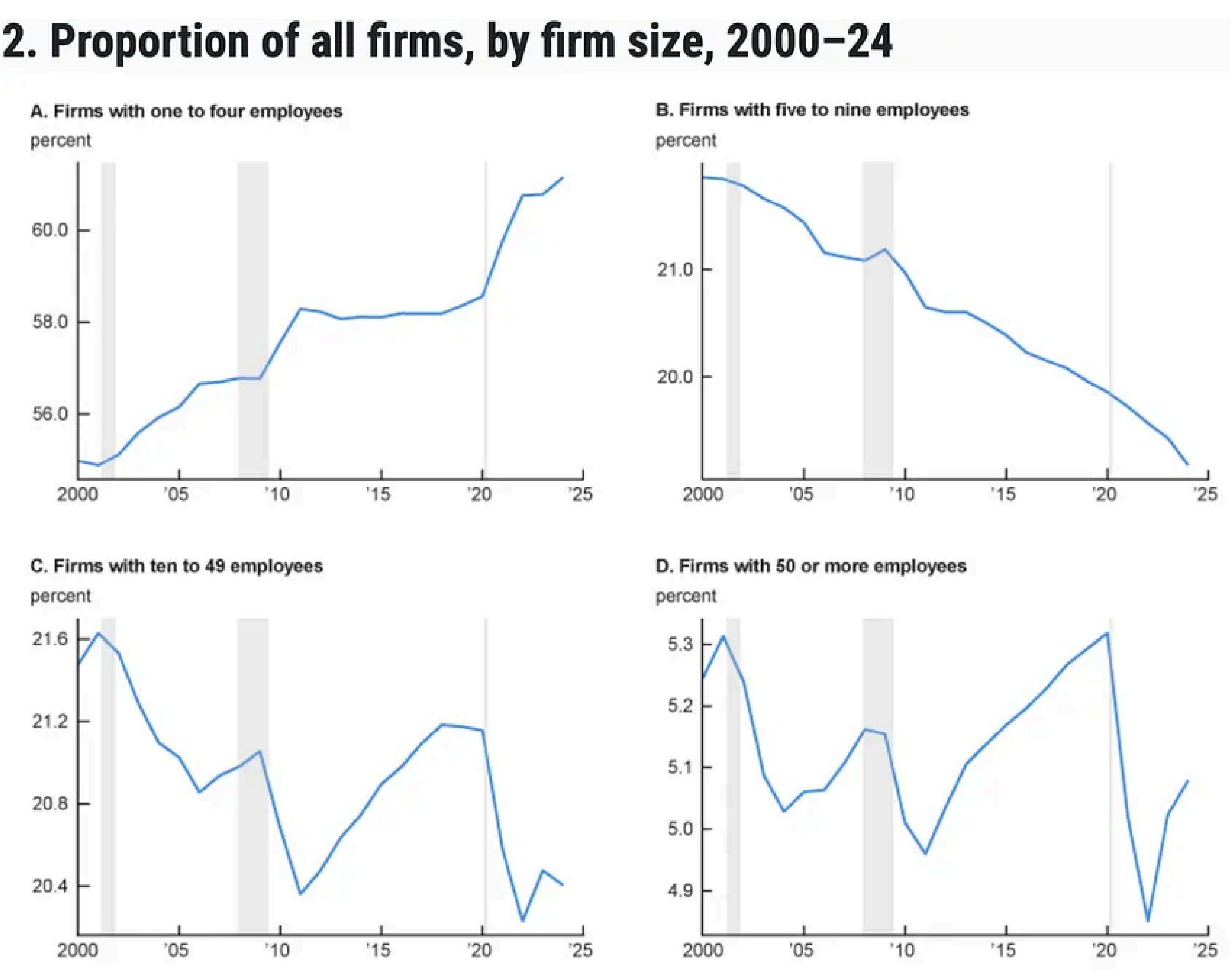
Economics & Development

- **The Federal Aviation Administration has proposed a new rule that would allow civilian aircraft to fly faster than Mach 1 over the United States** if their sonic booms stay below a strict noise threshold at ground level. If finalized, the rule, along with another planned rule that would set landing and takeoff noise standards for supersonic aircraft, would end the 1970s ban on overland civilian supersonic flight.
- **Finland has retired its analog copper-wire phone network**, material-intensive infrastructure made obsolete by fiber optic cables.

> A single fiber optic cable made from less than 150 pounds of silica can carry the same volume of information as multiple 1-ton copper cables.
>
> "Markets and Dematerialization," Jonathan H. Adler.

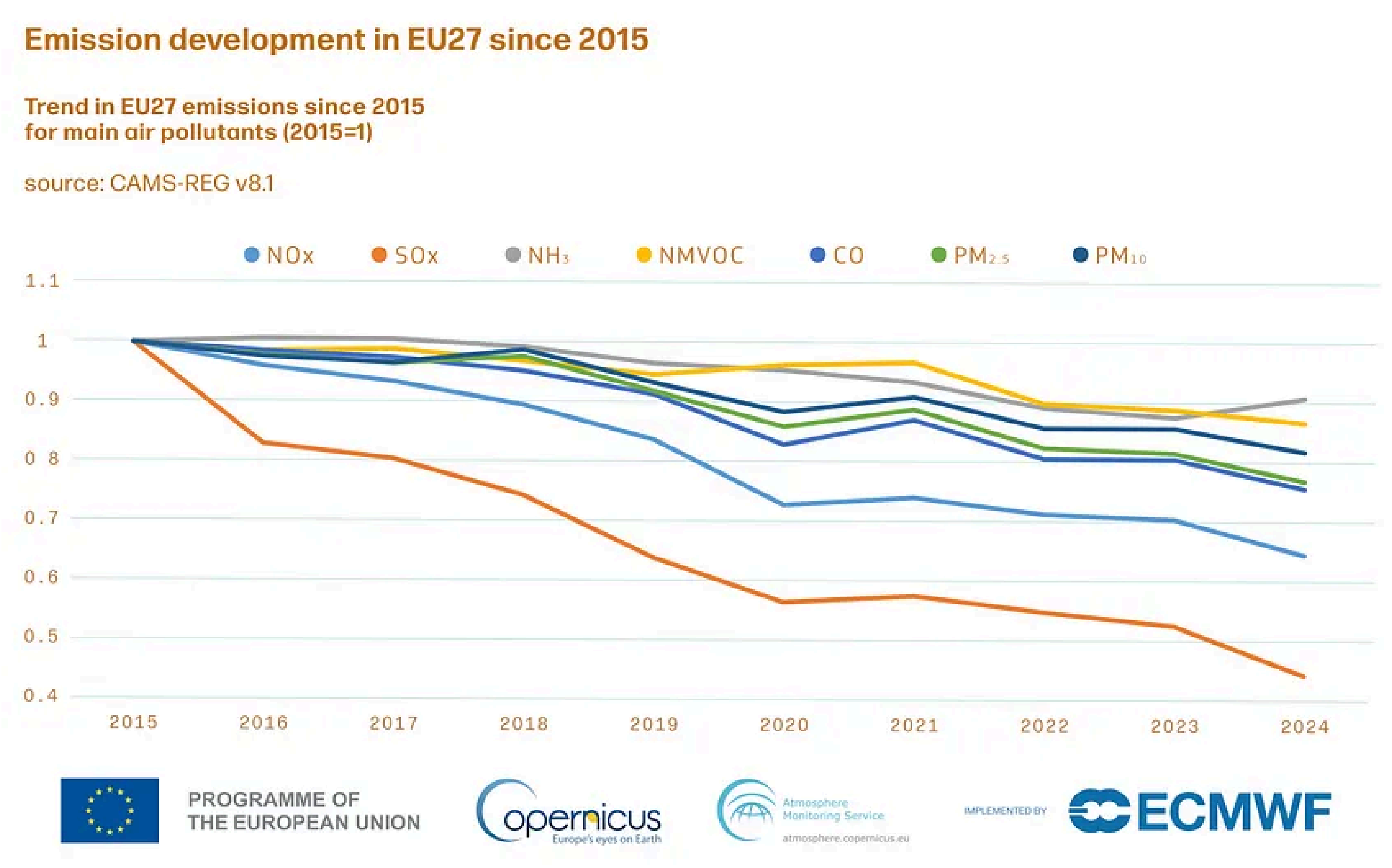
- **Artificial intelligence seems to be enabling a surge of solo entrepreneurs and tiny startups.**





Energy & Environment

- Ontario Power Generation has begun construction on what may become **the Western world's first grid-scale small modular reactor.**
- **Air pollution in Europe continues to decline**, according to the latest report from the Copernicus Atmosphere Monitoring Service.

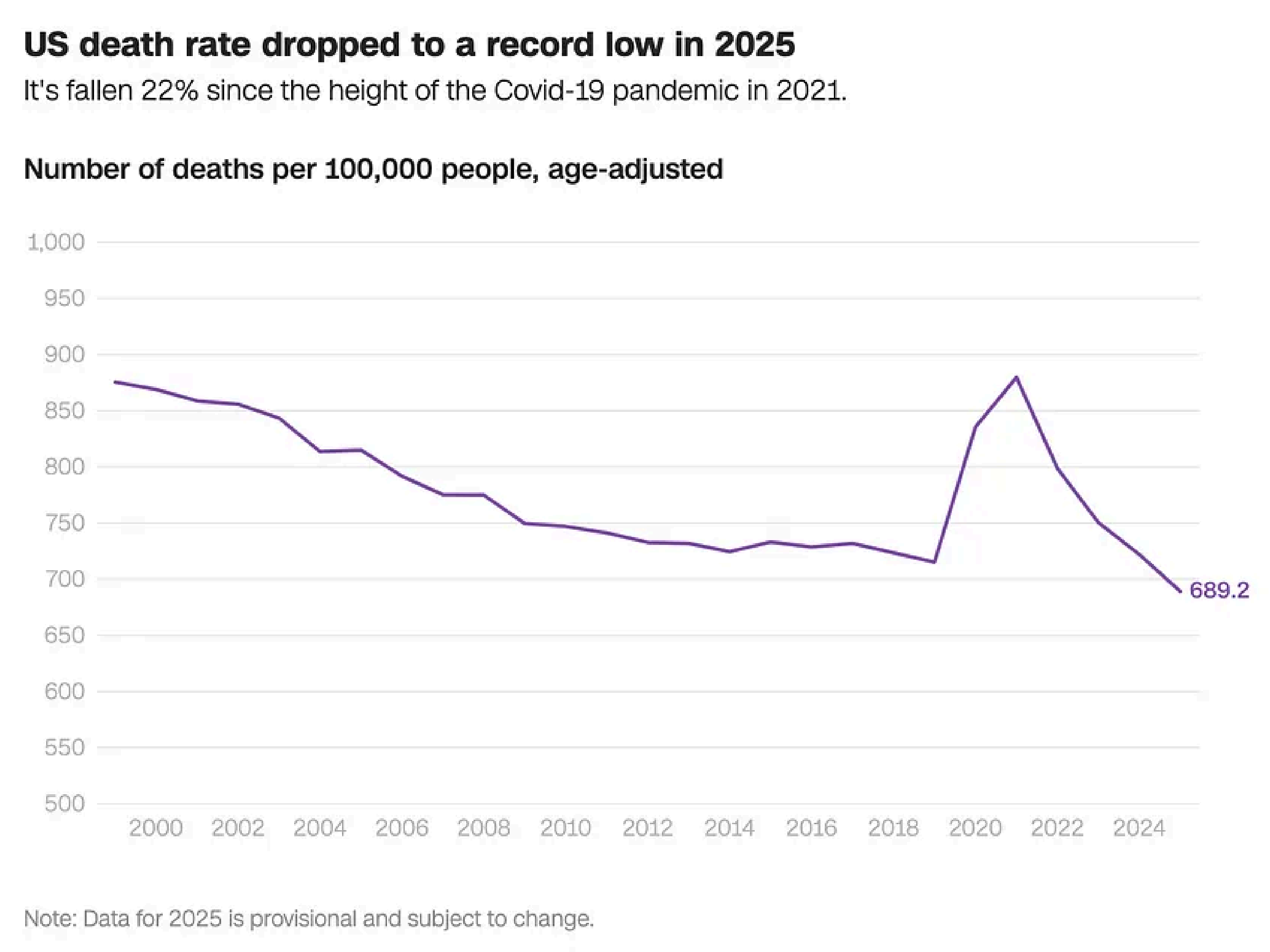


- Since 2020, and for the first time since the Middle Ages, **forests have occupied a greater land area in Italy than farmland**, with the former extending over more than a third of the national territory.
- **US Atlantic mackerel stocks, which were deemed overfished in 2017, now appear to be recovering**, with surveys turning up abundant quantities of mackerel and their eggs in 2024.
- **Red kites, once nearly wiped out in Britain, are now numerous enough that English conservationists are sending them back to Spain**. In the 1990s, Britain imported red kites from Spain and Sweden to rebuild the domestic population; since then, the UK population has risen from roughly 160 breeding pairs in 1995 to at least 4,600. In recent years, after surveys found only a handful of breeding pairs left in Extremadura, conservationists have released 126 English-born red kites to the Spanish region.

- For decades, **a coral community has been developing in the Port of Miami**, home to endangered staghorn and elkhorn corals, large brain corals, fish, manatees, turtles, and other marine life. Intriguingly, scientists have discovered that the Miami corals are **unusually resilient**. They have survived pollution, disease, freshwater runoff, and extreme temperature swings that devastated other staghorn and elkhorn coral populations in the region.
- The US Fish and Wildlife Service and Colossal Biosciences recently announced a plan to create **a cryogenic "BioVault" for the tissues and genetic material of around 2,300 species** protected under the Endangered Species Act.

Health & Demographics

- **In 2025, the age-adjusted death rate in the United States fell to a record low** of 689 deaths per 100,000 people, thanks partly to falling overdose deaths.



- **The FDA has expanded approval of Casgevy, a CRISPR-based gene therapy for sickle cell disease, to children as young as two.**

Science & Technology

- **A recent working paper finds that advice from large language models may make people's decisions less extreme**, despite the tendency of chatbots to behave sycophantically toward their users. In a large experiment, the researchers found that people who chatted with AI tended to move away from their initial judgments on a range of tasks, narrowing the gap between participants who started on opposite sides. The researchers propose that the mechanism is new information: even when the AI agreed with or flattered its users, it also offered new facts and counterarguments that sometimes changed their minds. Making the AI more sycophantic weakened that depolarizing effect, but did not reverse it.
- **Google's earthquake warning system**, which uses accelerometers in Android phones as seismic sensors, **sent alerts to 11.4 million people in Venezuela** last week, giving them precious seconds to prepare for the tremors. It's not yet known how many lives the warnings may have saved.
- **Conception, a biotechnology company trying to make human eggs in the lab, says it is making progress** toward that goal. This week, the company reported that it has produced early human egg cells, or primary oocytes, inside miniature ovaries grown from stem cells. The oocytes are not mature eggs, but Conception says they showed signs of entering meiosis, the special cell division required to make eggs, and forming into follicles, the ovarian structures that nurture developing eggs.

The Myth of American Decline

Economist Michael Strain argues that populism could kill the American dream.

CHELSEA OLIVIA FOLLETT

JUL 11, 2026

Americans are richer and safer than they were a generation ago, yet politicians and commentators across the ideological spectrum increasingly describe the country as broken. That pessimism has helped fuel populist movements on both the right and left that are hostile to markets, trade, and the institutions of liberal democracy.

In this episode of The Human Progress Podcast, our managing editor Chelsea Follett speaks with economist Michael Strain about the rise of populism, what the evidence says about American living standards, why inequality does not explain today's political discontent, and how policies built on a myth of national failure could undermine the prosperity and opportunity they promise to restore.

Below is an edited and abridged transcript featuring some highlights from the interview.

Joining me today is economist Michael Strain, Director of Economic Policy Studies at the American Enterprise Institute and a professor at Georgetown University's School of Public Policy. He is the author of *The American Dream Is Not Dead: But Populism Could Kill It* and co-author of "Have You Heard the Good News?" an essay in *The Free Press* that will be the main subject of our discussion.

Let's walk through this piece. You write that "Yes, we have real problems. But widen the aperture, and you'll see that there has never been a better time to be alive." Tell me about that.

I think that is self-evidently true. It's true whether you look at economic outcomes or broader measures of quality of life. But it's a very controversial statement. Opinion leaders, commentators, and politicians from both parties seem to agree that things are very bad and were much better in the past.

You say all this doomsaying feeds into the populist moment we are living in, and it comes from both sides. Are we living in a populist moment?

I do think we're living in a populist moment.

There's always been a populist strain in American politics, but it was amplified by the 2008 crisis. Pat Buchanan's message from his 1990s presidential campaigns and Donald Trump's message from 2016 are very similar. Bernie Sanders' message from the 1990s was very similar to his 2016 campaign. The financial crisis exacerbated this populist impulse: the share of the GOP primary electorate that voted for Buchanan in the run-up to Super Tuesday was around 25 percent; for Trump in 2016, it was around a third.

The financial crisis was global, and in fact we've seen a rise of populist politics globally—across Western Europe and the United Kingdom, for instance—that's quite similar to what's been happening here at home. My sense is that populist sentiment was reverting to its baseline by 2019, but then the pandemic stirred up a lot of populist sentiment. One characteristic of populism is that it pits the people against the elites, and the elites made a lot of mistakes during the pandemic, such as keeping kids out of school and issuing faulty public health guidance. That exacerbated the populist sentiment.

Tell me about horseshoe theory and the parallels you see between a figure like Zohran Mamdani on the left and a figure like Josh Hawley on the right.

Horseshoe theory is the idea that in a two-party system like ours, the far left and the far right tend to more closely resemble each other the further you go toward the extremes. You see it in support for specific policies: both the far left and the far right are more supportive of organized labor than the center left and center right. They are more supportive of using the tax code to penalize certain corporations or industries. But you also see convergence on a deeper level, where the far left and far right are both less supportive of the US Constitution and our Madisonian system than the center left and center right.

I think now is a good time to ask you what exactly you mean by populism, because people use that word in different ways.

I think of populism as characterized by three big things. The first is pitting the people against the elite. The second is a turn inward: the idea that the US should be economically self-sufficient, that globalization and international trade are bad, and that the US should be very skeptical of immigration and isolationist in foreign policy. The third is a deep pessimism about the current state of the country and prospects for the future.

That populist mentality gives rise to zero-sum grievance: the idea that for me to do better, you have to do worse. For the people to do better, the elites have to be made worse off. For native-born workers to do better, there have to be fewer immigrant workers.

The left and right define "elites" differently, with some overlap. Who are the elites being defined as the enemy by the populists on the right and the left?

Both left-wing and right-wing populists are skeptical of big business, rich people broadly defined, and the media. One important difference is that right-wing populists direct a lot of hostility toward immigrants in a way that left-wing populists don't. They wouldn't say immigrants are part of the elite, but they would say the elites are encouraging and allowing large immigrant inflows, which is bad for native-born Americans.

The narrative on both sides is that our economic system, and the political system that supports it, has been fundamentally broken for decades. That system exists to serve the interests of the elites, and, because society is zero-sum under their view, if the elites are doing better, the people are doing worse.

There's disagreement among populists on the right and left about what needs to be done to fix the system, but they agree that whatever replaces it should be much more intrusive. They agree that market outcomes should be altered much more substantially and that economic liberty should be much more curtailed.

So according to this narrative, life in the United States today is terrible, and we need to burn down the system. But you write that there has never been a better time and place to be alive than in the United States today. Lay out the facts for me.

That's self-evident from the data, especially if you focus on economic outcomes.

Over the last three decades, inflation-adjusted wages for typical workers have increased by 44 percent. Inflation-adjusted household incomes are way up as well. The wealth of the typical household, after adjusting for inflation, has more than doubled over the last three decades. Consumption is at an all-time high as well.

We should care more about the poor than we care about the rich, but if you look at low-income Americans, the bottom 20 percent or bottom third, their outcomes over the past several decades have improved faster than outcomes at the median. So, the evidence is very strong that from an economic perspective, there's really never been a better time to be alive.

What about inequality?

There's no question that inequality is a lot higher today than it was in the '70s, but most of that growth happened in the '80s and '90s. My reading of the evidence is that over the last 15 years or so, inequality has either stagnated or declined. Wage inequality has been declining in recent years, and I'm comfortable asserting that we've seen a reduction in income inequality over the last decade or two.

I would add that people overstate the importance of inequality. Inequality growth was really rapid in the '80s and '90s, but people didn't care about it because average wages were growing quickly, just not as quickly as incomes at the top. Inequality was falling in the decade after the financial crisis, but people were much more concerned about it because the 2008 financial crisis and the Great Recession were such traumatic events. So, I don't think inequality is really what people are reacting to.

You also discuss non-economic measures of well-being, such as crime and life expectancy. Tell me about some of those.

The story is much the same when you look at broader outcomes. The rate of violent crime has fallen dramatically in the past three decades. Life expectancy dropped in 2020 and 2021, but it's now once again trending in the right direction. Access to information has obviously never been higher. Leisure time, in terms of paid time away from work, has never been higher. Life in general has also become much safer; you're much less likely to die of an illness or in a car accident than in previous decades.

Now is actually a particularly strange time to be arguing that our outlook is bleak and life was better decades ago. Think about what artificial intelligence is likely to do for drug discovery, for curing diseases, and for educating kids. We are at the beginning of an age of marvels. We're likely to see astonishing innovations and improvements in quality of life in the next two decades.

You write that populist leaders actually seem to look down on American workers and households by behaving as if everyday people don't benefit from material prosperity, low prices, or relatively safe and comfortable jobs.

Can you make that argument comprehensible?

Take the argument that more people should make things with their hands. Many people hear that and think, "Okay, I can kind of get that." But think about the implications in an economy with a 4 percent unemployment rate. If we're moving more people into manufacturing, we're moving people out of services, and service workers earn more on average than manufacturing workers. So, the argument is really that people should move from a higher-wage industry into a lower-wage industry. That may be inconvenient for the populists chasing this vision, but it is just a fact.

There's an attitude here on the part of populists that it'll be better for people to work in an industry they have not chosen, that pays lower wages, in a job that's less physically comfortable or safe than their current job. That strikes me as patronizing and condescending, and antithetical to the way Americans should expect their government to treat them.

How does this piece relate to your book *The American Dream Is Not Dead*?

The message and arguments are quite similar. The view that the American dream is dead is quite common, with a large focus on the economic components of the American dream, and I don't see it that way.

You do fear that if enough people believe the dream is dead, they could kill it — that's the subtitle of your book. How could populism kill the American Dream?

The populist diagnosis of what ails the United States is fundamentally wrong, and the policies that flow from that incorrect diagnosis are going to be harmful. A big trade war or big new social programs or nationalization would be very bad for typical workers and households: wage growth would slow, real wages might even decline, and you'd see a reduction in the rate of innovation and productivity growth. More fundamentally, there's a real threat to our system of democratic capitalism if the government stops respecting the role that markets play in advancing prosperity and feels generally less constrained about stepping in.

Finally, if you introduce the pervasive belief that the game is rigged, that hard work doesn't pay off, that typical workers can't get ahead because the elites are expropriating all the economic gains, you dim people's aspirations, reduce work effort, and make people less tolerant of risk. You end up creating some of the very problems the populists are incorrectly arguing currently exist.

One thing you do in this book is invite two ideological opponents to provide rebuttals, one from the populist left and one from the populist right, so readers can decide for themselves. One of those arguments is that despite all your data points, there are still real segments of the population who are economically struggling. How would you respond?

There's no question about that, and we should be focusing our energy on those pockets of problems. If you're a 50-year-old man who did not graduate high school and has recently been laid off, you're in a tough spot, and public policy should be doing more to connect you with opportunities.

There have also been time periods of real struggle. 2008 to 2014 or so were bad years for lots of households. My goal is not to be Panglossian. Even when times are good, like they are right now, there are groups of Americans and places in America where things are not going well. But part of the problem of populism is that it doesn't want to focus our energy on those groups or places. It wants to focus on much larger projects like reordering the global trading system or the American healthcare system, and that's actually to the detriment of the Americans who are really struggling.

PROGRESS ROUNDUPS

Doomslayer: Progress Roundup

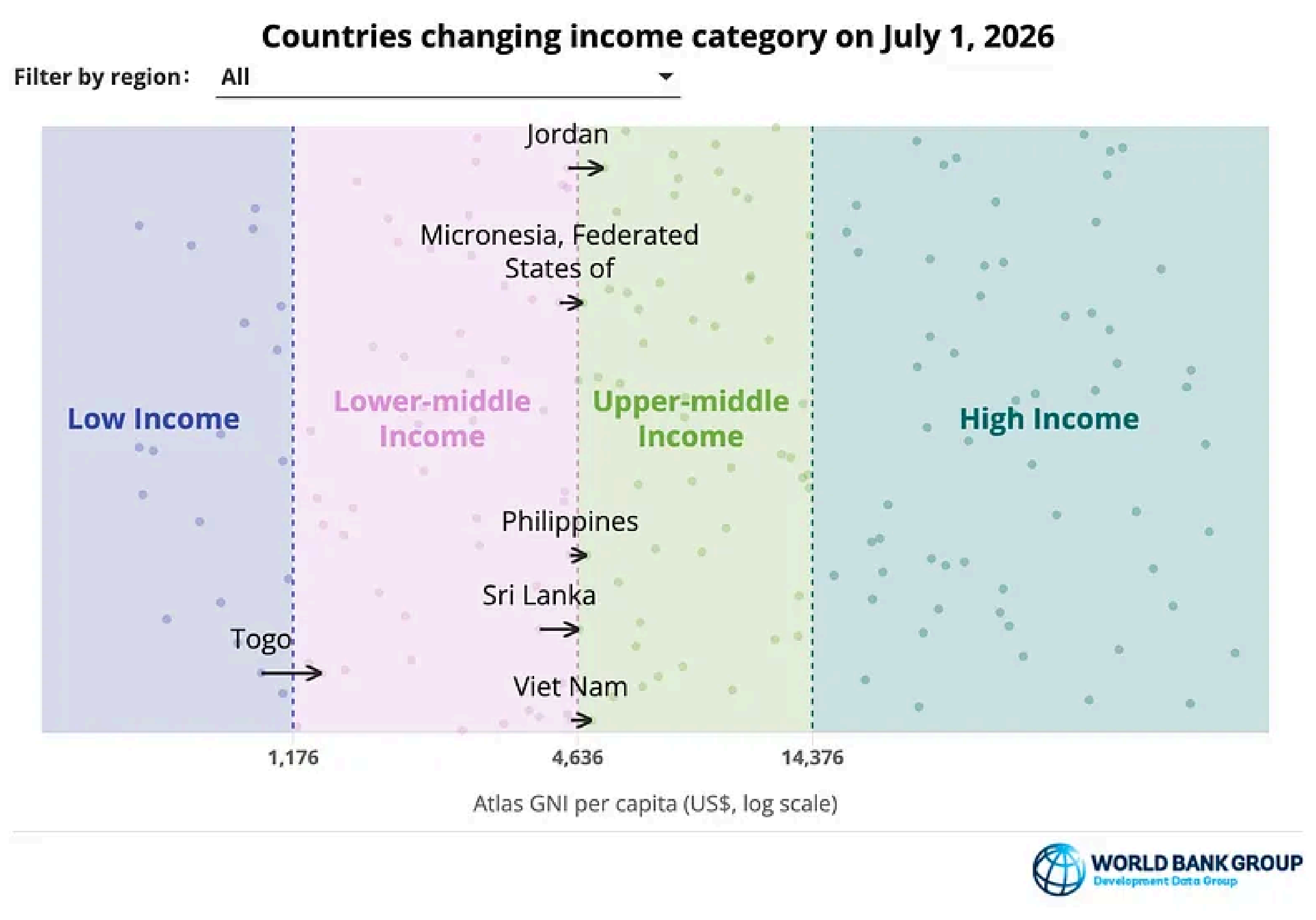
Native American YIMBYs, ancient quasars, accelerated nuclear innovation, and more.

MALCOLM COCHRAN

JUL 12, 2026

Economics & Development

- **Five countries—Vietnam, the Philippines, Micronesia, Sri Lanka, and Jordan—advanced from lower-middle income status to upper-middle income** this year, according to the World Bank. In addition, Togo moved from low to lower-middle income, but mostly thanks to a large reduction to its population estimate. No countries moved down.



- **Interjurisdictional competition is paying off in North America.** In Vancouver, the Squamish Nation is using a parcel of its land that is not subject to the city's zoning authority to build large residential towers that would be illegal under Vancouver's extremely restrictive zoning rules. And in the United States, data center developers are courting Indian reservations, attracted by the possibility of securing faster approvals from sovereign tribal governments.
- **Norway is currently building a 26.7-kilometer-long subsea road tunnel**, which will be the longest and deepest in the world once completed.
- **North Carolina has passed a law that will abolish mandatory parking minimums** in most of the state, following similar, though less extensive, reforms in California, Colorado, Montana, Washington, and Maine.

Energy & Environment

Conservation and biodiversity:

- **Two decades after rats were eliminated from Lundy Island in the UK's Bristol Channel, its seabird populations are soaring.** The island's total seabird population has risen from 7,351 in 2000 to more than 40,000 today, including 1,335 puffins and more than 150 breeding pairs of storm petrels, which had previously vanished from the island.
- **Researchers at Australia's Macquarie University have developed an AI system designed to detect trafficked marine wildlife in packages and luggage.** In simulated tests on bags that incorporated classic smuggling tricks, the system detected concealed shark fins and seahorses 95 to 96 percent of the time and sea cucumbers 86 percent of the time.

Energy and natural resources:

- **Since 1976, the solar panel industry has maintained a long-run learning rate of 26 percent, meaning that module prices have fallen by an average of 26 percent each time cumulative global production doubled,** according to a recent industry report. The report also notes that manufacturers shipped roughly the same volume of modules in 2025 as in 2024 while using about 20 percent less silver.
- **Several major automakers are adapting to high copper prices by replacing some of their copper wiring with aluminum.** Ferrari claims that switching to aluminum is not only cheaper but can reduce total wiring weight by up to 20 percent.
- **Four nuclear startups participating in Department of Energy reactor-testing programs have brought experimental reactors to criticality**, meaning they can sustain controlled nuclear chain reactions. The department had aimed to reach that milestone with at least three designs by July 4; the companies delivered four. Analysts at the Breakthrough Institute argue that **the programs are restoring a crucial stage in the nuclear innovation cycle** by allowing companies to build, test, and improve reactor designs before attempting to build costly commercial-scale plants.

The Ecomodernist

From Paper to Real-Life Reactors: The Holistic View of the Reactor Pilot Program

The July 4 deadline for the Department of Energy's Reactor Pilot Program (RPP) is just days away, and the program has met its central early test: three advanced test reactors have reached criticality on an extraordinarily compressed timeline…

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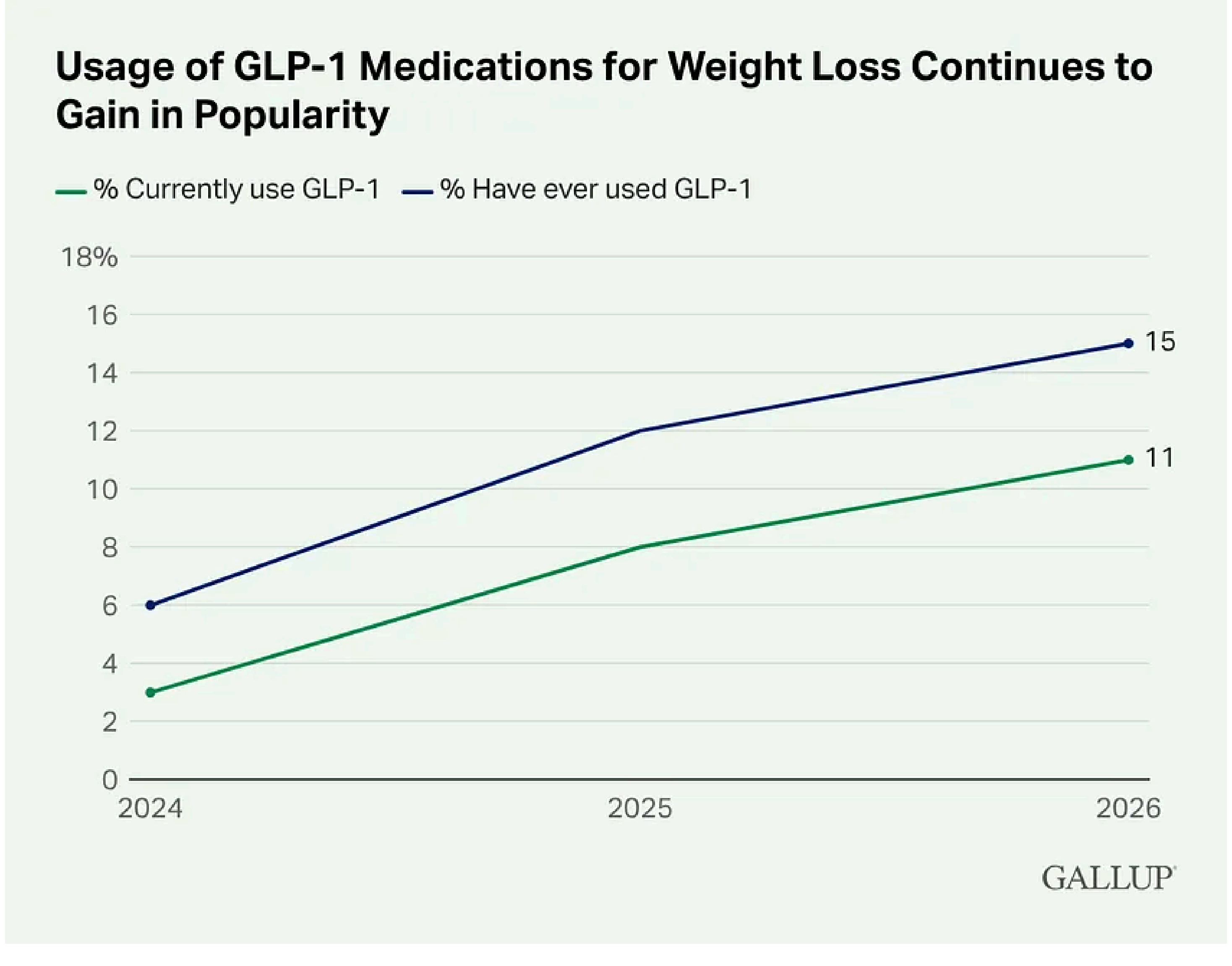
Pollution:

- **The Nuclear Regulatory Commission has proposed a practical disposal pathway for "Greater-Than-Class-C" nuclear waste**, the most radioactive category of low-level nuclear waste, which currently has no functioning disposal route and is instead being held at various power plants, hospitals, and other facilities across the country. The proposed rule would tailor disposal requirements to the radioactivity of the material, potentially allowing nearly 80 percent of GTCC waste to be buried near the surface rather than in a deep geological repository, which does not currently exist in the United States for this kind of waste.

Health & Demographics

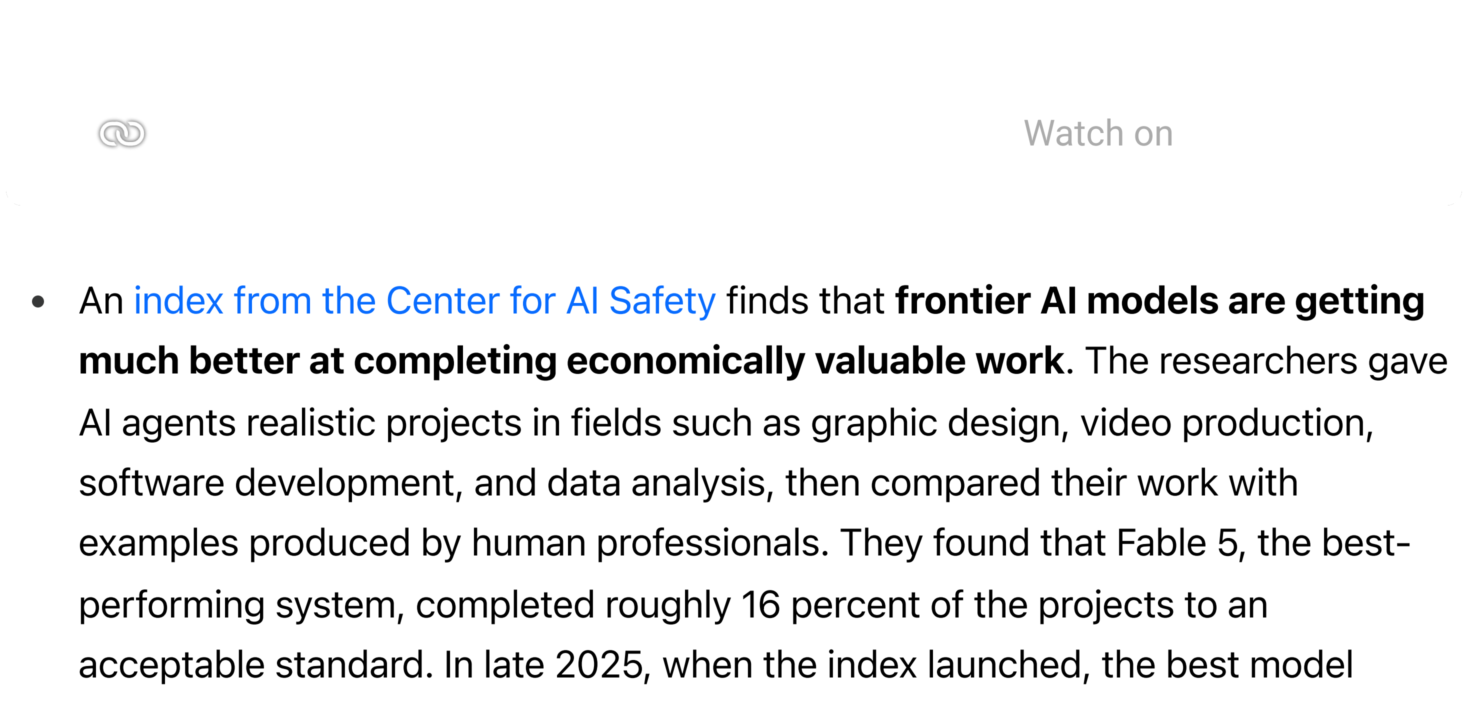
- According to a recent Gallup poll, **11 percent of US adults now take GLP-1 drugs for weight loss, up from 3 percent in 2024.**



- **The recent drop in US traffic deaths has continued into early 2026.** According to the National Highway Traffic Safety Administration, traffic deaths were 4.3 percent lower in the first three months of 2026 than during the same period of 2025. If the trend continues, 2026 will mark the fifth consecutive year of falling traffic deaths.
- ***Wolbachia*-infected mosquitoes are now being released in the DC area** in an effort to control mosquito populations. The released mosquitoes are all male, meaning they don't bite, and the bacteria they carry cause any eggs produced when they mate with wild females to fail to hatch.
- Likang Life Sciences, a Chinese biotech company, has begun building **a production line for AI-assisted personalized cancer vaccines**. The facility, expected to open in October, will start by producing LK101, an experimental mRNA vaccine tailored to the mutations in each patient's tumor.

Science & Technology

- **China has landed the booster stage of an orbital rocket**, replicating a version of the feat pioneered by SpaceX in 2015.



- An index from the Center for AI Safety finds that **frontier AI models are getting much better at completing economically valuable work**. The researchers gave AI agents realistic projects in fields such as graphic design, video production, software development, and data analysis, then compared their work with examples produced by human professionals. They found that Fable 5, the best-performing system, completed roughly 16 percent of the projects to an acceptable standard. In late 2025, when the index launched, the best model completed just 2.5 percent of projects acceptably.
- In its first 18 months surveying the sky, **the European Space Agency's Euclid Space Telescope discovered 31 quasars**, extremely bright galactic cores powered by supermassive black holes. Twelve date to the universe's first 770 million years, more than doubling the number previously known from that period. **The expanded sample could help astronomers explain how such enormous black holes formed so soon after the Big Bang.**

Violence & Coercion

- **Four men have been brought to trial in Sierra Leone over the alleged forced marriage of a 17-year-old girl.** Activists say the trial—the first of its kind in the country—shows that the national ban on child marriage is starting to be enforced.

The World Cup Is Putting American Abundance on Display

Four policy lessons we can take from our visitors' viral moments.

SCOTT LINCICOME

JUL 14, 2026

As briefly mentioned in my last column for *The Dispatch*, World Cup tourists' repeated astonishment with everyday American abundance has become a viral sensation—and in a very good way. Seemingly not a day goes by without some happy foreign soccer fan raving on social media or to the press about quintessentially "American" things—free drink refills, bottomless chips and salsa, ginormous sports stadiums, fancy cars, big houses, ranch dressing, frigid air conditioning, shiny hospitals, etc.—that we consider relatively mundane features of daily life in the United States. (Buc-ee's, Costco, and Texas Roadhouse have been particularly big hits, and for good reason.)

These viral posts have delighted American onlookers and captured endless media commentary on how the foreigners' innocent—and often hilarious—observations have helped unite a divided U.S. and remind us locals of just how good we have it. In an era of endless grousing about the U.S. economy—reflected in various surveys of American "sentiment" and sometimes even justified—the ongoing episode has been a welcome, optimistic change of pace *and* a loud, folk-libertarian reminder that a nation's capital, policies, and political class are most definitely *not* the same as its communities and citizens.

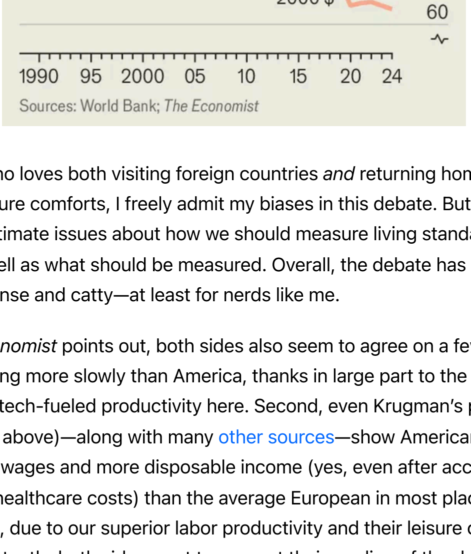
The scenes have also raised several noteworthy economic policy points—some good, some ominous—that deserve more attention.

Yes, We Have It Pretty Darn Good

For starters, the amazement of relatively wealthy foreigners—you don't take weeks off touring America if you're dirt poor—at relatively middle-class American environments is real-world evidence of our nation's immense everyday wealth.

The timing couldn't be better (and, no, I'm not talking about the A/C-less heatwave in Europe).

As *The Economist* just documented, earlier this year Nobel laureate Paul Krugman and several other elite economists got into a heated (and very wonky) online debate about whether Americans' living standards really were zooming ahead of those of our European counterparts. The main point of contention was how to measure individuals' purchasing power in both places, with one approach showing an increasing wealth gap and the other (Krugman's) a relatively steady one. You can see the difference in the chart below: Using a constant "purchasing power parity" adjustment shows France's GDP per capita—a standard way to measure individual wealth—to be declining versus that of the U.S., while using a "current PPP" adjustment shows little long term change, and thus a different wealth narrative.



As someone who loves both visiting foreign countries and returning home to my American creature comforts, I freely admit my biases in this debate. But both sides do raise some legitimate issues about how we should measure living standards across countries, as well as what should be measured. Overall, the debate has been delightfully intense and catty—at least for nerds like me.

Yet, as *The Economist* points out, both sides also seem to agree on a few things: First, Europe is growing more slowly than America, thanks in large part to the economic dynamism and tech-fueled productivity here. Second, even Krugman's pro-Europe data (see chart above)—along with many other sources—show Americans to have higher average wages and more disposable income (yes, even after accounting for out-of-pocket healthcare costs) than the average European in most places (yes, there are exceptions), due to our superior labor productivity and their leisure choices. Third, and most importantly, both sides want to support their reading of the data with an "eye test"—*i.e.*, visiting each place and just looking around—that the economists believe will confirm their own American/European wealth story.

Hilariously enough, thousands of European World Cup tourists—along with ones from Japan and other countries, too—have performed just that test, mere *days* after the economists proposed it. And the result is an absolute *rout* for Team America:

There are many reasons for the foreigners' astonishment. (A big one, in my opinion, is that these folks are seeing parts of Real America, especially in the Sun Belt and Midwest, that foreign tourists rarely visit, yet—as we've discussed here repeatedly—allow not-rich Americans to live *very* comfortable lives.) And, to be sure, not all the astonishment is genuine.

But a lot of it obviously is, and at its root lies the Great American Prosperity Machine. Deal with it, haters.

Capitalist "Charity" Is Still Good

Another fascinating and wholesome part of the foreigners' U.S. experience has been the outpouring of support they've received from both normie Americans—workers, neighbors, random passersby, etc.—and a wide range of American celebrities and companies. Most notable in this regard has been German soccer (*fußball*) fan Freddy, whose daily adventures in Middle America have earned him a giant online following *and* a Forrest Gump-like amount of in-kind support from pro sports teams, hotels, airlines, and a smattering of famous athletes, entertainers, and politicians (including at least one sitting governor who volunteered to help Freddy attend Germany's game in Toronto after a flight cancellation). Freddy's experience is unique, but only in terms of its magnitude: A wide range of U.S. businesses, municipalities, and influencers have rolled out the red carpet for these happy foreign visitors, greatly adding to the entire feel-good experience.

Unsurprisingly, this support has led dismissive cynics to explain that, *actually*, a lot of it is just a selfish attempt to boost sales, brands, and online engagement instead of genuine generosity and kindness. Some of those allegations are clearly false, but the correct ones are hardly worth complaining about. Instead, they evoke yet another lesson from Adam Smith: "It is not from the benevolence of the butcher, the brewer, or the baker, that we expect our dinner, but from their regard to their own interest."

Scholars (*ahem*) often apply this quote to explain that "selfish" market transactions among free people are not only mutually beneficial but also can have broader social benefits and generate the wealth individuals need to perform charity (which Americans do a lot of, by the way). But Smith's famous line also often applies to many "charitable" acts by corporations and celebrities: While maybe not motivated by pure altruism, these efforts are often a strategic effort to drive long-term profitability by improving brand reputation, attracting customers and workers, and generating more sales.

There's little reason to view such motivation as unseemly. First, the act still makes people better off in some way (and often entertains and encourages onlookers, too), so *who cares* whether it was done for "benevolent" or "selfish" reasons? "Dinner," in Smith's terms, still gets served. Second, it's usually impossible to say why these "charitable" people and firms decided to help Freddy (and any others in need)—and it's usually a combination of both sympathy *and* self-interest/promotion. On the latter motivation, see point 1 and Smith above. On the former, check out his other book.

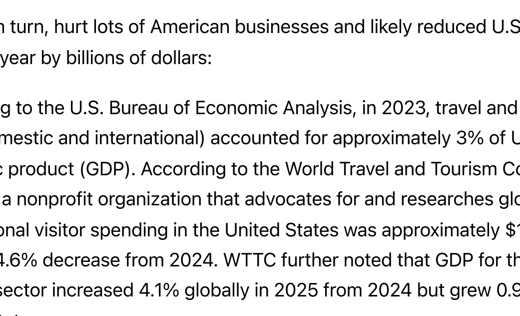
Tourism as a Massive US Services Export (And Source of "Soft Power")

Admittedly, the World Cup visitor story isn't all wine and roses, and there are—as noted—some less-optimistic policy lessons buried in here, too. For one thing, all these visitors are a stark reminder of the economic and geopolitical value of foreign tourism—and its recent, policy-driven decline here in America.

As we discussed last year, one of the more interesting and unfortunate results of Trump's tariff wars, deportations, and related overseas antagonism (threatening to invade Greenland, calling Canada the "51st state," etc.) has been foreigners' *independent* retaliation against U.S. goods and services. And tourism—a U.S. services *export*—has been the trend's most conspicuous victim. According to a May 2026 Congressional Research Service report, in fact, international visits were down in 10 of 12 months last year, with the only increases coming before Trump took office (January) and due to an abnormally late Easter (April):

Figure 1. Percentage Change in International Arrivals to the United States

Compared to same month in prior year



Source: International Trade Administration, *I-94 Monthly Summary and Analysis Reports, Final Release (Overseas, Mexico, and Canada)*, https://www.trade.gov/i-94-arrivals-program.

Notes: Blue bars denote increases.

This drop, in turn, hurt lots of American businesses and likely reduced U.S. economic growth last year by billions of dollars:

> According to the U.S. Bureau of Economic Analysis, in 2023, travel and tourism (both domestic and international) accounted for approximately 3% of U.S. gross domestic product (GDP). According to the World Travel and Tourism Council (WTTC), a nonprofit organization that advocates for and researches global tourism, international visitor spending in the United States was approximately $176 billion in 2025, a 4.6% decrease from 2024. WTTC further noted that GDP for the travel and tourism sector increased 4.1% globally in 2025 from 2024 but grew 0.9% for the United States.

On the bright side, CRS goes on to note that the World Cup could boost foreign visits and GDP growth in 2026, and—judging from the packed bars/restaurants and sky-high prices for match tickets, airline fares, and hotel rooms—you can easily see why. Even with a few embarrassing visa-related snafus, the monthlong event has been going pretty smoothly so far and is forecast to attract almost 1.25 million international visitors, each expected to spend more than $5,000 (nearly twice the typical international tourist). None of that erases the roughly $12.5 billion in lost international visitor spending that WTTC projected for 2025, but it's still a welcome rebound—especially for the smaller American businesses that depend heavily on foreign tourist spending each year.

The scenes of international comity surrounding the World Cup in 2026 are also a vivid, real-time reminder of how U.S. tourism is a market-based source of America's "soft power," improving the United States' image abroad and advancing U.S. geopolitical objectives without spending taxpayer dollars (or doing stuff far worse than just that). Scholars call this the "contact hypothesis," i.e., the notion that person-to-person encounters can affect overseas perceptions of a country in ways that no government messaging campaign or foreign aid package can match. World Cup visitors' ecstatic consumption of everyday Americana is soft power in (mostly) organic form, with our culture, hospitality, and abundance doing the diplomatic work that American government officials can't (or won't) do.

To be clear, the goodwill America earns from Waffle House, Bass Pro Shops, Fenway Park—and the Americans who live and work near these and other iconic spots—doesn't automatically translate into durable shifts in foreign acceptance of U.S. policy. But at a time when America's global image has taken a few (*ahem*) hits, having a million-plus foreigners document their travels and return home as amateur American ambassadors is a welcome development, reminding people everywhere that the words of one guy in the Oval Office don't represent a 350 million-person country.

The only question is whether the foreign tourism boost—and good vibes—can continue after the World Cup ends. The answer, unfortunately, will probably not be in Costco's hands.

Seeing the Linkages Between Trade and Peace

Relatedly, all these good vibes are a nice reminder of one of the ways that trade—in this case both foreign tourism and global sports entertainment—can help encourage peace. As I documented in a 2020 paper, a wide body of research finds that heightened foreign trade can meaningfully reduce (but not eliminate) the chances of armed international conflict through several channels:

> First, by making countries more commercially interdependent, trade encourages these nations to avoid war or other large-scale armed conflicts (which could impose substantial economic losses). Second, trade and commercial bargaining are more cost-effective than war as a means of resolving disputes with, or obtaining resources from, another country. Third, trade increases material prosperity (e.g., goods, services, investment, ideas) and promotes mutual tolerance and understanding. And fourth, free trade can limit the political power of domestic constituencies that may benefit from increased conflict.

Recent studies reinforce these conclusions. One finds a strong causal "peace dividend" from trade generally, i.e., that a doubling of bilateral trade reduces the probability of militarized conflict by roughly 30 percent. Elsewhere, a recent survey of almost 2,000 Japanese firms finds they routinely pushed for diplomatic solutions to supply-chain disruptions involving allies *and* adversaries alike—new support for the concept of "commercial peace," i.e., that global businesses have powerful incentives to oppose wars that might harm their facilities (or, you know, kill their customers).

Regardless of the driver, however, the outcome is clear: While global economic integration can't eliminate armed conflicts, policies that liberalize trade can make peace among nations more likely—especially when compared to the isolationist, antagonistic alternative the U.S. government is pursuing today.

In their modest but viral way, the million-plus foreigners now cheering in American bars are making a similar point.

A version of this article was published at The Dispatch *on 6/25/2026.*

Keeping Cool: The Air Conditioner That Changed America

The time price of air conditioning has fallen 98.6 percent since 1952. That ordinary luxury saves lives every summer.

GALE POOLEY

JUL 18, 2026

Heatwaves have pushed temperatures to record highs across both Europe and the United States. Yet the human toll between these two locales was dramatically different, with Europe recording more than 10,000 excess deaths in June.

This is a familiar pattern, notes Jack Nicastro:

> The United Nations estimates that the European continent accounted for approximately 175,000 heat-related deaths annually between 2000 and 2019. The Environmental Protection Agency, meanwhile, calculates that about 1,300 deaths per year in the US are due to extreme heat. (This translates to four heat-related deaths per million annually in the US and 235 heat-related deaths per million annually across Europe.)

Europe and the US differ in demographics, urban density, reporting methods, and climate patterns. Even so, the death rate due to heat in Europe is 59 times higher than in the US.

In the United Kingdom, only about five percent of homes have air conditioning. In the United States, roughly 93 percent do.

Research identifies 72°F and 45 percent humidity as optimal for maximizing office and mental productivity.

With sweltering temperatures once again gripping much of the world, it is worth appreciating air conditioning — the quiet invention that transforms dangerous heat into manageable discomfort, shields millions from heat-related suffering and death, boosts productivity, and makes once-hostile climates livable. It is a powerful reminder that wealth, innovation, and human ingenuity enable societies to adapt to nature's extremes and protect human life.

To understand why the US heat death rate is 59 times lower than that of Europe, it helps to begin with a young engineer named Willis Carrier.

The Father of Air Conditioning

Willis H. Carrier was born outside of Buffalo, New York on November 26, 1876, the same day inventor Alexander Graham Bell successfully demonstrated his large box telephone between Boston and Salem, Massachusetts. Carrier was an only child and attended a one-room schoolhouse. When he was nine years old he struggled to grasp the concept of fractions. His mother helped him master the idea using a pot of apples and slicing them into portions. Carrier remembered this event fondly as "the most important thing that ever happened to me."

Carrier was awarded a full scholarship to attend Cornell University. He majored in engineering, earning a Master's degree in 1901. After graduation, Carrier accepted a job at the Buffalo Forge Company for $10 a week.

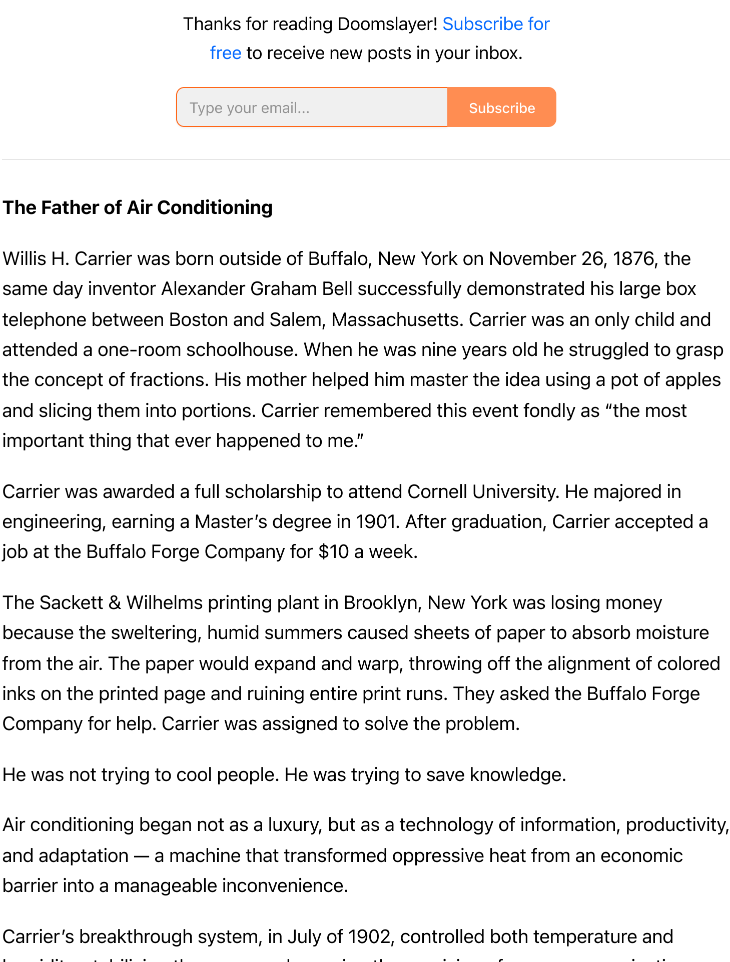
The Sackett & Wilhelms printing plant in Brooklyn, New York was losing money because the sweltering, humid summers caused sheets of paper to absorb moisture from the air. The paper would expand and warp, throwing off the alignment of colored inks on the printed page and ruining entire print runs. They asked the Buffalo Forge Company for help. Carrier was assigned to solve the problem.

He was not trying to cool people. He was trying to save knowledge.

Air conditioning began not as a luxury, but as a technology of information, productivity, and adaptation — a machine that transformed oppressive heat from an economic barrier into a manageable inconvenience.

Carrier's breakthrough system, in July of 1902, controlled both temperature and humidity, stabilizing the paper and rescuing the precision of mass communication.

Carrier applied for a patent on his invention, an "Apparatus for Treating Air," which became patent No. 808897 and was issued on January 2, 1906.



On December 3, 1911, Carrier presented what is perhaps the most significant document ever prepared on air conditioning – *Rational Psychrometric Formulae* – at the annual meeting of the American Society of Mechanical Engineers. It became known as the Magna Carta of Psychrometrics and tied together the concepts of relative humidity, absolute humidity, and dew-point temperature, thus making it possible to design air-conditioning systems to precisely fit the requirements at hand.

In 1915 Carrier and six other engineers formed the Carrier Engineering Corporation using their personal savings of $32,600. Carrier Global Corporation (NYSE: CARR), the parent company of the Carrier HVAC and refrigeration business, has a current market capitalization of approximately $56 billion. This valuation makes it one of the largest climate and energy solutions providers in the world.

"With his new company," Alexander Hammond notes, Carrier began to expand the use of air conditioning units by supplying hotels, department stores, movie theaters and private homes. His units were even installed in the White House, the US Congress and Madison Square Garden."

Another overlooked legacy of Carrier's invention is the birth of the summer blockbuster. Before air conditioning, movie theaters dreaded the hot months — few people wanted to sit in a crowded, sweltering auditorium. That changed in 1925 when the Rivoli Theatre in Times Square installed one of Carrier's new cooling systems. Crowds flocked in, many as eager for the cool air as for the feature presentation. Almost overnight, summer transformed from Hollywood's off-season into its most profitable season. Air conditioning didn't just cool theaters — it reshaped the economics of entertainment and helped create one of America's most enduring cultural traditions.

When New York City organizers launched the 1939 World's Fair under the motto "Building the World of Tomorrow," they sought technologies that would advance human progress and improve everyday life. Few embodied that vision better than modern air conditioning. During the Fair's first 100 days, nearly 1.3 million visitors toured the striking "Carrier Igloo of Tomorrow."

Carrier Corp's Igloo, image from New York Public Library Digital Collections.

Inside, guests learned how air conditioning worked, explored a modern refrigerated food store, and experienced Carrier's latest self-contained cooling systems — getting a glimpse of a future that would soon make homes, offices, and entire cities more comfortable, productive, and livable.

In 1985, Willis H. Carrier was inducted into the National Inventors Hall of Fame, and in 1998, *Time* magazine recognized him as one of the 100 most influential people of the 20th century.

By conquering heat and humidity with knowledge, Carrier enlarged the realm of human possibility. His invention transformed sweltering regions into thriving economies, extended human productivity, and brought comfort and prosperity to billions around the world.

One of the great triumphs of entrepreneurial capitalism is how quickly air conditioning traveled the familiar path from luxury to necessity. What began as an expensive convenience for a tiny elite became, within a generation, affordable to ordinary families. The market did not merely invent comfort — it democratized it.

In their report *Time Well Spent: The Declining Real Cost of Living in America*, Michael Cox and Richard Alm found that a 5,500-BTU air-conditioning unit cost about $350 in 1952. At the time, entry-level workers earned roughly 83 cents an hour, putting the time price at 422 hours.

Today, Walmart sells a far more efficient 6,000 BTU air-conditioning unit (with a remote control) for only $115. The current hourly wage for limited-service restaurant workers is around $19 an hour, putting the time price at six hours.

The time price has decreased by 98.6 percent. For the time it took US workers to earn the money to buy one unit in 1952, they get 70 today.

If air conditioning saves lives, why don't more Europeans have it?

Europe's electricity prices are typically much higher than the US, driven by higher taxes, network costs, renewable energy mandates, and energy import dependence. Customers in the US pay 17 to 19 cents per kilowatt-hour (kWh) compared to 25 to 32 cents in Europe. This means Europeans pay roughly 47 to 68 percent more per kWh than US customers.

Americans are also much richer than Europeans. According to World Bank data, American gross domestic product (GDP) per capita was $84,809 in 2024, while the European Union's was 25 percent lower at $63,585. That $21,224 difference could buy a lot of comfortable cooling.

The European Union also prioritizes environmental targets over human comfort by imposing strict regulations for heating and cooling, making these amenities much more costly. The commission encourages citizens to use fans instead of air conditioning. Imagine the government doing that in Phoenix and Atlanta in July. Italy, Greece, and Spain even announced temperature limits in public spaces during the 2022 heatwave in an effort to meet these environmental objectives. Spain limited air conditioners to be set no lower than 80°F. No wonder European productivity is 38 percent lower than the US.

Historic preservation laws and strict landlord rules frequently ban exterior window units to maintain aesthetic uniformity.

While air conditioning ownership increases households' electricity consumption, it may be a small price to pay for comfort and avoiding death.

The problem is not the climate but the policy mindset. Too many European regulators approach energy and technology through the ideological lens of scarcity rather than creative innovation and human flourishing. One reason such policies persist is that the officials who design them are largely insulated from the consequences of their decisions and rarely experience their costs directly. Instead, those costs are borne by millions of ordinary citizens.

Air conditioning is not ultimately a story about cooling. It is a story about knowledge. It transformed oppressive heat into comfort, inhospitable regions into thriving communities, and summer misery into year-round productivity. Coal, copper, and electricity become valuable only after humans discover how to harness them. The history of air conditioning is the history of knowledge triumphing over nature's constraints.

The ultimate resource is neither energy nor matter. It is the infinite capacity of human beings to learn, create, and discover.

This article appeared in The Daily Economy *on 7/13/2026.*

Doomslayer: Progress Roundup

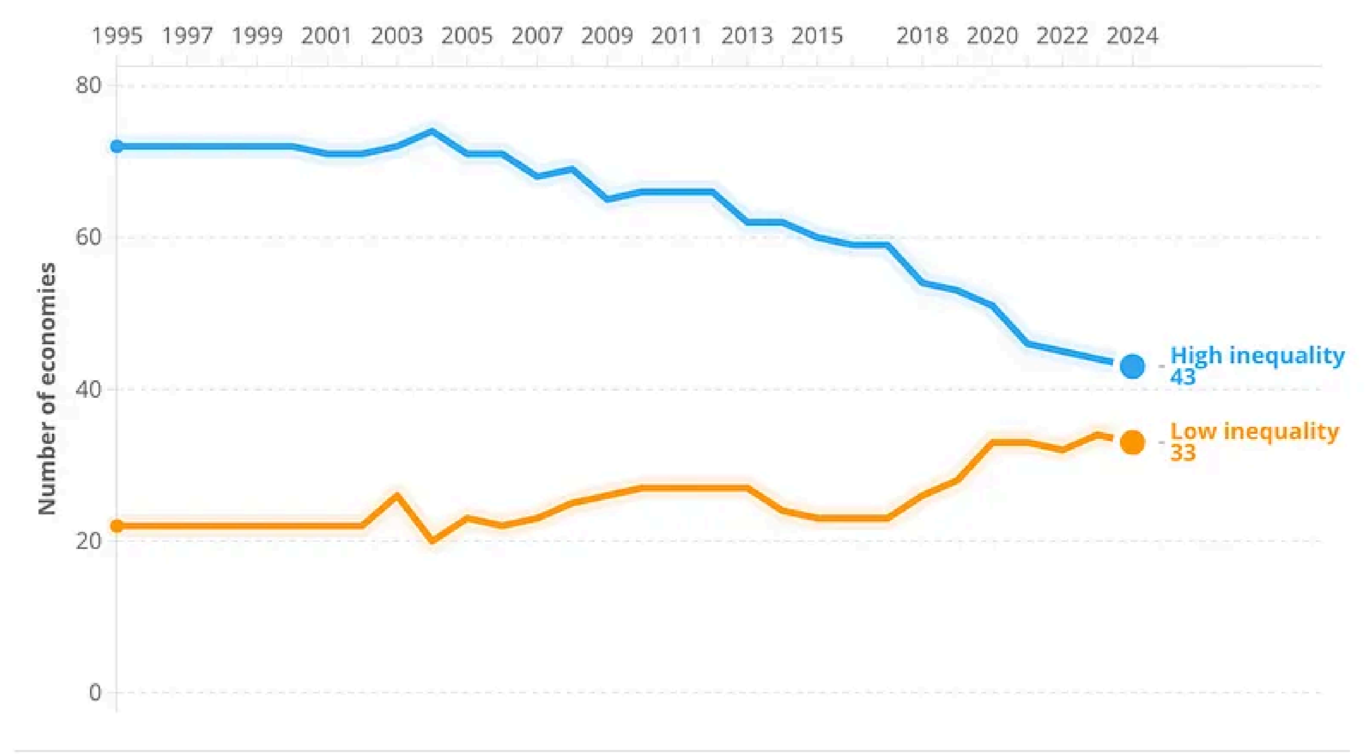
Wildfire resilience, a daylight-reflecting satellite, public service drones, and more.

MALCOLM COCHRAN

JUL 19, 2026

Economics & Development

- According to the World Bank, **the number of economies with high levels of inequality**, defined as having a Gini coefficient greater than 40, **fell by 40 percent between 1995 and 2024.** The Gini coefficient measures how unevenly incomes are distributed across a population, with zero representing perfect equality and 100 representing a situation in which one person receives everything.



Source: Atlas of Global Development 2026
Note: Economies with high inequality have a Gini index greater than 40; those with low inequality have a Gini index less than 30

WORLD BANK GROUP

Past Imperfect

A Reality Check on the Inequality Panic

Anthropic CEO Dario Amodei called for far higher taxation in a recent blog entry, arguing that current wealth concentration is higher than that of the Gilded Age and is about to get worse globally. The chart-topping singer Billie Eilish implored billionaires to...

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- The latest *Energy Progress Report*, jointly produced by five international agencies, contains some impressive figures:
  - **92 percent of the world's population had access to electricity in 2024, up from 84 percent in 2010.** About 86 percent of those still without electricity lived in Sub-Saharan Africa.
  - **75 percent of the global population had access to clean cooking fuels in 2024, up from 57 percent in 2010.**
  - **Global primary energy intensity**—the amount of energy used per unit of economic output—**fell from approximately 4.75 megajoules per 2021 purchasing power parity-adjusted dollar of GDP in 2010 to 3.76 megajoules in 2023**, a decline of about 21 percent.

Energy & Environment

- The co-founder of The Humpback Whale Project, a Brazilian research and conservation nonprofit, estimates that **the western South Atlantic humpback population has grown from around 2,000 whales four decades ago to roughly 35,000 today**, approaching or possibly matching its estimated pre-commercial whaling abundance.
- *The New York Times* recently reported on a research center in South Carolina that burns houses to better understand how wildfires spread through neighborhoods. Funded by the insurance industry, the **research identifies the physical mechanisms that allow flames and embers to ignite buildings** and is helping inform building standards and wildfire-mitigation programs across the country.

Food & Hunger

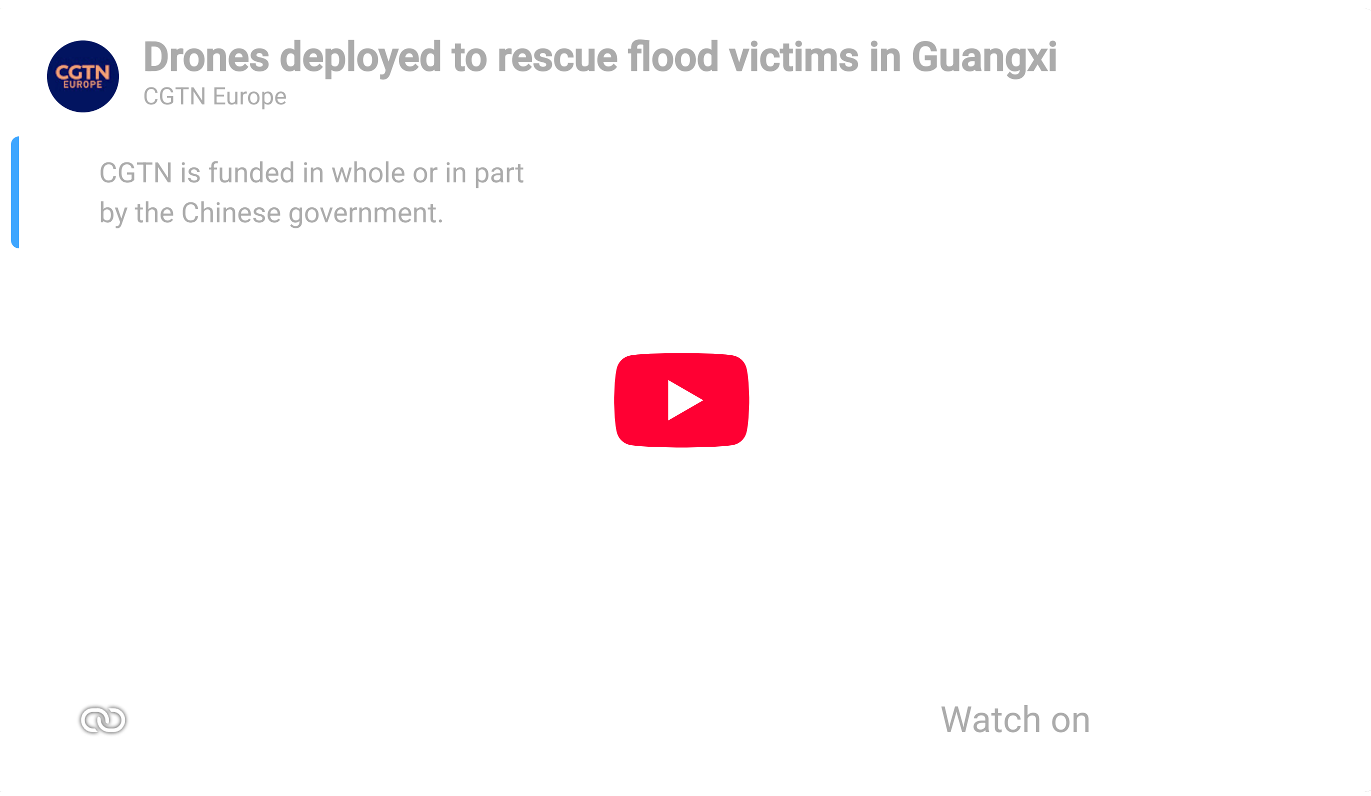
- **The European Union is substantially loosening its restrictions on certain gene-edited crops.** Last month, the European Parliament passed a law that will allow plants with genetic modifications that could occur naturally or through conventional breeding to bypass the EU's onerous approval process for genetically modified organisms. The new regulatory process is expected to take effect in around two years.

Health & Demographics

- **Fewer teenagers are dying in motor-vehicle crashes in the United States.** According to data from the US Department of Transportation, 2,899 teenagers died in crashes in 2024, 67 percent fewer than in 1975, though motor-vehicle crashes remained the leading cause of death for US teens.
- **Hospital-acquired infections have become less common in the US.** A CDC survey of 13,653 patients at 218 hospitals found that 2.6 percent had at least one infection acquired during care in 2023, down from 3.2 percent in 2015. Over the same period, the estimated annual number of infections fell from 687,000 to 518,000.
- **The FDA has approved a pill that blocks PCSK9**, a protein that limits the liver's ability to remove LDL cholesterol from the blood. **In trials, the drug lowered LDL cholesterol by roughly 60 percent.** Injectable drugs that treat high cholesterol the same way are already approved but carry list prices of around $500 per month. The new pill will be listed at $315 per month.
- **El Salvador** has become **the first country in Central America to eliminate trachoma as a public health problem.** Trachoma is an eye infection that can cause blindness after several untreated infections.

Science & Technology

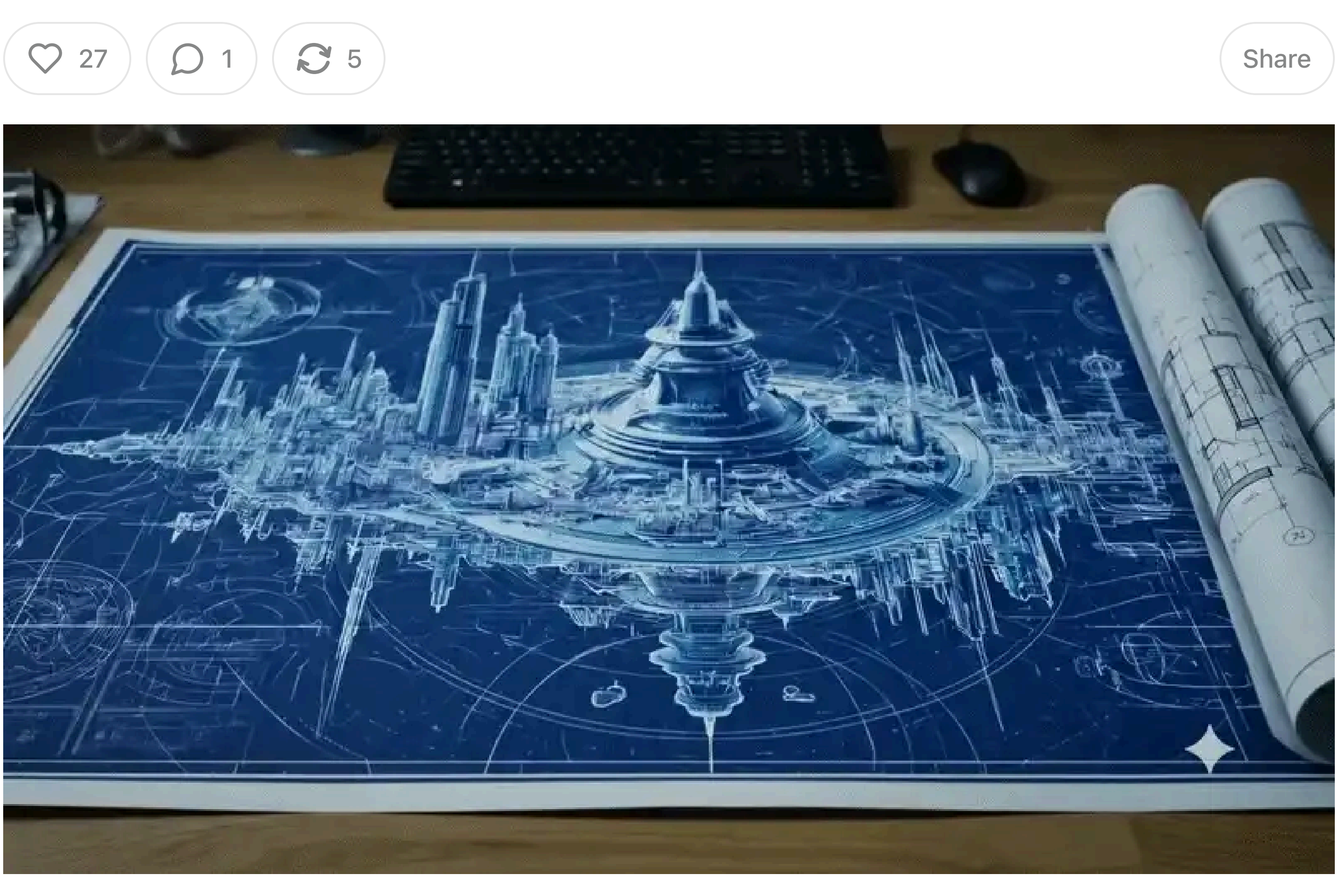
- The Federal Communications Commission has approved a test flight of **a satellite designed to reflect sunlight to the dark side of the Earth**, potentially useful for harvesting solar energy at night or simply illuminating an area without the need for electric lighting. The prototype satellite, Eärendil-1, is equipped with a 60-foot mirror that can light up a three-mile-wide circle on the Earth's surface.
- **Drones are now assisting with a variety of public services:**
  - In Australia, land managers used drones to clear an island of mice, and authorities are employing drone pilots to **help warn beachgoers about great white sharks.**
  - **In India, a pilot program is using drones to** rapidly transport **phlegm samples** from rural areas to laboratories **for tuberculosis testing**, helping patients avoid costly trips to distant testing centers.
  - During recent floods in China, **rescue operators used drones to deliver emergency supplies and** hoist stranded people **to safety.**



How to Escape the Productivity Slump

Removing policy barriers can unleash a new era of productivity and abundance.

HUMAN PROGRESS
JUL 22, 2026



by Jeremy Horpdahl

In a previous exploration of the housing affordability crisis, I observed a sobering reality: artificial scarcity is often a policy choice. We have placed arbitrary limits—mostly through local governments—on our ability to build homes, driving up costs and restricting opportunity. But this pattern of self-imposed constraint does not stop at the edges of our neighborhoods. It extends into the institutions and policies that shape economic growth. It is one of the primary reasons why, despite living in an age of extraordinary digital innovation, we remain stuck in a decades-long productivity slump.

Economists often measure technological progress using a concept called Total Factor Productivity (TFP). In simple terms, TFP measures how efficiently an economy turns labor, land, and capital into goods and services. When TFP rises, society discovers better ways to produce more with the same resources.

From the 1920s through the early 1970s, TFP in the United States and much of the developed world grew at more than 2 percent per year. This was the era that gave us commercial aviation, widespread electrification, antibiotics, and the Apollo program. The physical world was transformed in a single generation.

Since the early 1970s, however, productivity growth has slowed dramatically to less than 1 percent in most years. As investor Peter Thiel famously quipped, "We wanted flying cars; instead, we got 140 characters." Digital technologies have advanced rapidly, while progress in energy, transportation, infrastructure, and advanced manufacturing has been far slower. We can send vast amounts of information across the globe in milliseconds, yet we often struggle to build major infrastructure projects on time or on budget.

A 2020 paper by Nicholas Bloom and co-authors argues that good ideas are getting harder to find – that is, more investment in research and development has become necessary for each new patentable idea. However, more recent research by Teresa Fort and co-authors (currently in working paper form) suggests that this is not the case. The Bloom et al. result may, in fact, be an artifact of focusing on manufacturing firms, which were dominant from about 1970 to 1990. Fort and her co-authors show that patenting and innovation have shifted in recent decades, becoming dominated by firms in information, management, and professional services.

Because manufacturing is a physical process, it is much more likely to be subject to, for example, environmental regulations, whereas an IT firm operates in a much less regulated sector. So, our relative stagnation may not be the result of a scientific drought after all. Universities and research laboratories continue to produce remarkable discoveries. We are not failing at invention; we are failing at diffusion, the process of turning new discoveries into widely used products and services.

The Diffusion Deficit and the Permitting Veto

Innovation does not benefit society until it escapes the laboratory and enters the marketplace. The journey from a peer-reviewed paper to a consumer-ready product is long, expensive, and uncertain. Over time, policymakers have added layer upon layer of regulatory complexity to that journey.

Physical innovation requires physical construction. New technologies need testing facilities, advanced laboratories, semiconductor fabrication plants, energy infrastructure, and transportation networks. Yet building almost anything of significance in the modern West often requires navigating years of environmental reviews, public-comment periods, and multi-agency approvals.

Laws such as the National Environmental Policy Act (NEPA) and state-level counterparts such as the California Environmental Quality Act (CEQA) were originally intended to prevent environmental harm. Over time, however, they have increasingly become tools for the delay of progress. Because these laws frequently allow opponents to challenge projects on procedural grounds, they have contributed to what political scientist Francis Fukuyama calls a "vetocracy"—a system in which many actors can block decisions but few can make them. Average NEPA environmental impact statements now take almost four years to complete, with many extending far beyond a decade. Thankfully, the median is a bit shorter, but still about 2.5 years.

Consider the recent push to reshore semiconductor manufacturing. While the government has allocated billions of dollars in subsidies to build these vital factories, the physical construction is bottlenecked by years of permitting and environmental reviews. A state-of-the-art fabrication plant (commonly called a "fab") that takes 18 months to build in Taiwan or South Korea can take three to five years just to obtain a permit in the United States.

The result is predictable: projects take longer, cost more, and become less attractive to investors. Even when governments provide subsidies for strategic industries such as semiconductor manufacturing, years of permitting can slow implementation. Time is money, and prolonged regulatory uncertainty discourages investment in capital-intensive industries.

The solution is straightforward, even if politically difficult. Critical infrastructure, advanced manufacturing facilities, and research laboratories should face streamlined approval processes. If projects satisfy clearly defined environmental and safety standards, they should be approved in months rather than years.

Pull Mechanisms: R&D Prizes and Commercialization

Reducing regulatory barriers is only part of the solution. We must also rethink how innovation is encouraged and financed.

In addition to corporate financing, most governments try to support innovation through "push" funding. Researchers receive grants to conduct experiments, purchase equipment, and explore new ideas. This model, some economists argue, can be effective for basic science, especially when commercial applications may be years away.

Commercialization presents a different challenge. Many promising technologies fall into what innovators call the "Valley of Death" – the difficult period between a successful laboratory demonstration and a commercially viable product. At this stage, development costs rise sharply while uncertainty remains high.

That is where "pull" mechanisms become valuable. Instead of paying for research inputs, policymakers reward successful outputs. An Advance Market Commitment (AMC), for example, guarantees that a buyer will purchase a product if it is successfully developed. Rather than funding every possible approach, the sponsor commits to paying for results.

Economist Michael Kremer helped pioneer this approach through vaccine development programs. More recently, Operation Warp Speed demonstrated its effectiveness. The government did more than fund vaccine research; it guaranteed large future purchases for successful vaccines. By reducing market risk, policymakers encouraged firms to accelerate development and manufacturing simultaneously. The result was one of the fastest vaccine-development efforts in history.

Consider other approaches. Throughout history, prizes have also stimulated innovation. The Longitude Prize helped solve a critical navigation problem for maritime trade, while the Ansari X Prize helped launch the private spaceflight industry. Pull mechanisms align private incentives with public goals by rewarding success rather than political connections or grant-writing skill.

Breaking Local Monopolies and Regulatory Capture

When people hear the word "monopoly," they often think of large technology companies. Yet some of the most significant barriers to innovation exist at the local level.

The electric utility sector provides a clear example of how regulatory design shapes technological adoption. Because most utilities operate as regulated monopolies with government-guaranteed rates of return on capital investments, their business model relies on continuous, large-scale infrastructure growth.

Put simply, utilities make more money the bigger power plants and power lines they build, so they usually prefer huge projects over things like rooftop solar panels that let people generate their own power without the utility having to build as much infrastructure.

Decentralized energy technologies—such as local battery storage, micro-grids, and advanced management software—directly threaten this model by optimizing the existing grid and reducing the need for new capital projects. As a result, studies from the MIT Energy Initiative and industry financial analysts indicate that utilities frequently leverage legacy regulatory processes to delay or block these decentralized innovations from integrating into the wider network.

Similar dynamics exist elsewhere. State dealership franchise laws frequently restrict direct-to-consumer automobile sales, making it more difficult for new manufacturers to enter the market. Occupational licensing requirements now affect roughly one-fifth of American workers and can create barriers to entry that limit competition and labor mobility.

Innovation depends on what economist Joseph Schumpeter called "creative destruction" – the replacement of older, less efficient business models with better ones. When established interests use regulation to shield themselves from competition, they slow technological adoption and reduce future productivity growth. Encouraging competition and reducing regulatory barriers at the state and local level would help accelerate the diffusion of new ideas throughout the economy.

Choosing Abundance

The productivity slowdown is not an immutable law of nature. It is, at least in part, the consequence of policy choices. Human ingenuity remains as powerful as ever. We have more scientists, more capital, and better tools than any previous generation. The challenge is not generating ideas; it is allowing those ideas to spread.

By streamlining permitting processes, expanding the use of R&D prizes and Advance Market Commitments, and reducing barriers created by protected local monopolies, we can accelerate innovation in the physical world.

An additional one or two percentage points of annual productivity growth may sound insignificant. Yet when compounded over decades, the effects are transformative. Higher productivity means higher incomes, better health outcomes, more abundant energy, and greater opportunities for future generations. The ideas already exist. The question is whether we will allow them to flourish.

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Evolving Markets Drove the Remote Work Revolution

Free choices—not mandates—have made flexible work a lasting reality.

CHELSEA OLIVIA FOLLETT
JUL 23, 2026

Back in 2020, I noted, "The dramatic rise in telework amid the pandemic is a radical experiment, but its effects will be long-lasting." I was right. Rates of full-time, in-office work plummeted during the pandemic, and while many employers have since shifted from fully remote work to hybrid work schedules, hybrid work levels have remained stable since 2022. In 2025, 78% of full-time remote-capable U.S. employees are either hybrid or fully remote, with hybrid as the most common arrangement.

What is sustaining this transformation of the workplace? The inconvenient answer for those who see government action as the source of progress is that this transformation is thanks to freely chosen, mutually beneficial decisions by employers and employees rather than any top-down mandate.

The proof is in how durable these patterns have been. Millions of workers and employers continue to choose them because they work. Roughly half of the U.S. workforce consists of employees who are capable of working remote or hybrid jobs. The most common arrangement sees workers commute two days a week and work remotely the other three. Most workers appreciate the flexibility, with a mere 6% of remote-capable workers saying they prefer to work on-site full-time.

An analysis from the Bureau of Labor Statistics found that across industries, the rise in remote work and total factor productivity growth may be positively correlated, and many employees report higher productivity at home. Some research also suggests that hybrid and fully remote work may have positive effects on individual employee productivity, satisfaction, and physical health, as well as employee retention.

Historically, most improvements for workers have followed a similar pattern—wherein the market dictates employer-employee relationships, not government—despite a popular narrative to the contrary. The economist Benjamin Powell observed that legal labor standards, working-hour limits, and the introduction of a minimum wage in the United States and other wealthy countries after industrialization largely mirrored policies that employers had already implemented of their own accord. Legislation merely codified preexisting norms instead of prompting a change in industry practices.

Economist Price Fishback similarly noted, for example, "State laws limiting the number of working hours for women … passed after many employers had substantially reduced hours for women. Recent studies have found that the laws had relatively little effect."

A century ago, the Ford Motor Company pioneered limiting the workweek to five days. Ford's example soon inspired manufacturers across the country and around the world to adopt the Monday-to-Friday workweek. That occurred because employers discovered that productivity increased, while employees valued the extra leisure time. As the economist Ludwig von Mises put it, "The nineteenth century's labor legislation by and large achieved nothing more than to provide ratification for changes which the interplay of market factors had brought about previously."

Today, remote and hybrid work often benefits both employers and employees, and this work flexibility rise occurred in spite of many outdated government rules that hinder such arrangements. These rules are in desperate need of reform. For example, various federal tax rules discriminate against remote work arrangements, while differing state rules can subject remote workers to double taxation, and occupational licensing rules limit workers' options to move between states. If anything, the government has stood in the way of the great workplace transformation toward remote and hybrid work.

Calls to legally mandate remote or hybrid work are a misguided attempt to give the government credit for a shift that has already happened independently of government action. Premier Jacinta Allan of Victoria, Australia, announced that her state government will enshrine a legal right for employees, in both the private and public sectors, who can perform their job from home to do so at least two days a week. The law comes into effect in September.

The legal change will benefit few employees, as 65% of Victorians are already hybrid or remote, but it will create more bureaucratic headaches by adding unnecessary red tape for employers and employees alike. "WFH [work from home] is already happening, and there is no reason to legislate a one-size-fits-all approach," cautioned Andrew McKellar, the chief executive of the Australian Chamber of Commerce and Industry.

This represents perhaps the first example of a legal entitlement to work from home, coming long after the market has already made such arrangements widespread. "If you can do your job from home, we'll make it your right—because we're on your side," said Allan. In reality, it is employers and employees exercising their freedom in the market, not political mandates, that have made the flexibility of remote and hybrid work widely available today.

This article was originally published at RealClearMarkets *on 6/23/2026.*

PROGRESS ROUNDUPS

Doomslayer: Progress Roundup

Falling global hunger, a technique for saving sea ice, a new monkey, and more.

MALCOLM COCHRAN

JUL 26, 2026

31 3 Share

Energy & Environment

Conservation and biodiversity:

- **There are now close to 400 wild Asian elephants living in China, up from around 150 in the 1980s.**
- **The Hawaiian stilt and the razorback sucker are no longer considered endangered in the United States following substantial recoveries.**
- **A system of canopy bridges has apparently eliminated roadkill deaths for tree-dwelling animals along a road near Alta Floresta**, a small town in the Brazilian Amazon. Brazil's federal transport agency has made the design its recommended standard for highways.

Energy production:

- **Fervo Energy, a geothermal energy company, has drilled its deepest and most complex well yet**, reaching a measured depth of nearly 19,500 feet in just 21 days. The new well, Sawtooth 7, will contribute to a 400-megawatt geothermal power project in Utah scheduled to begin delivering electricity in 2028.
- **Cypress Creek Energy and Google have begun construction on** an energy project in Arkansas that is set to become **the largest solar project in the United States**. When completed, the facility will provide 2.5 gigawatts of solar capacity and 2.9 gigawatt-hours of battery storage, enough to power 315,000 homes.

Natural disasters:

- **The area burned in the Brazilian Amazon fell to 3.1 million hectares in 2025, the smallest area since at least 1985**, when satellite records began.
- **A British climate technology company is testing a simple method for preserving Arctic sea ice**: pumping seawater onto its surface during winter to create thicker ice. At the start of the 2026 melt season, treated ice near Cambridge Bay, Canada, was 20 inches thicker and more reflective than untreated ice, helping it melt more slowly. The pumps themselves use surprisingly little power. According to reporting in *The Guardian*: "The small pumps require less power than a toaster as they are only lifting the water from just under the ice to just on top."

Food & Hunger

- According to estimates from the United Nations' Food and Agriculture Organization, **the share of the world's population that was undernourished** [1] **fell to 7.8 percent in 2025, down from 8.1 percent in 2024 and 8.6 percent in 2022.** The decline marks the third consecutive year that global hunger has fallen, a welcome recovery after progress against hunger stalled during the 2010s amid conflict and economic stagnation, particularly in Africa, and then partially reversed during the COVID-19 pandemic as incomes fell and food prices rose. In Asia and Latin America, the rate of undernourishment has now fallen to historic lows.

FIGURE 2.1 UPDATED GLOBAL ESTIMATES POINT TO A DECREASE IN WORLD HUNGER IN RECENT YEARS FOLLOWING THE SHARP INCREASE FROM 2019 TO 2021

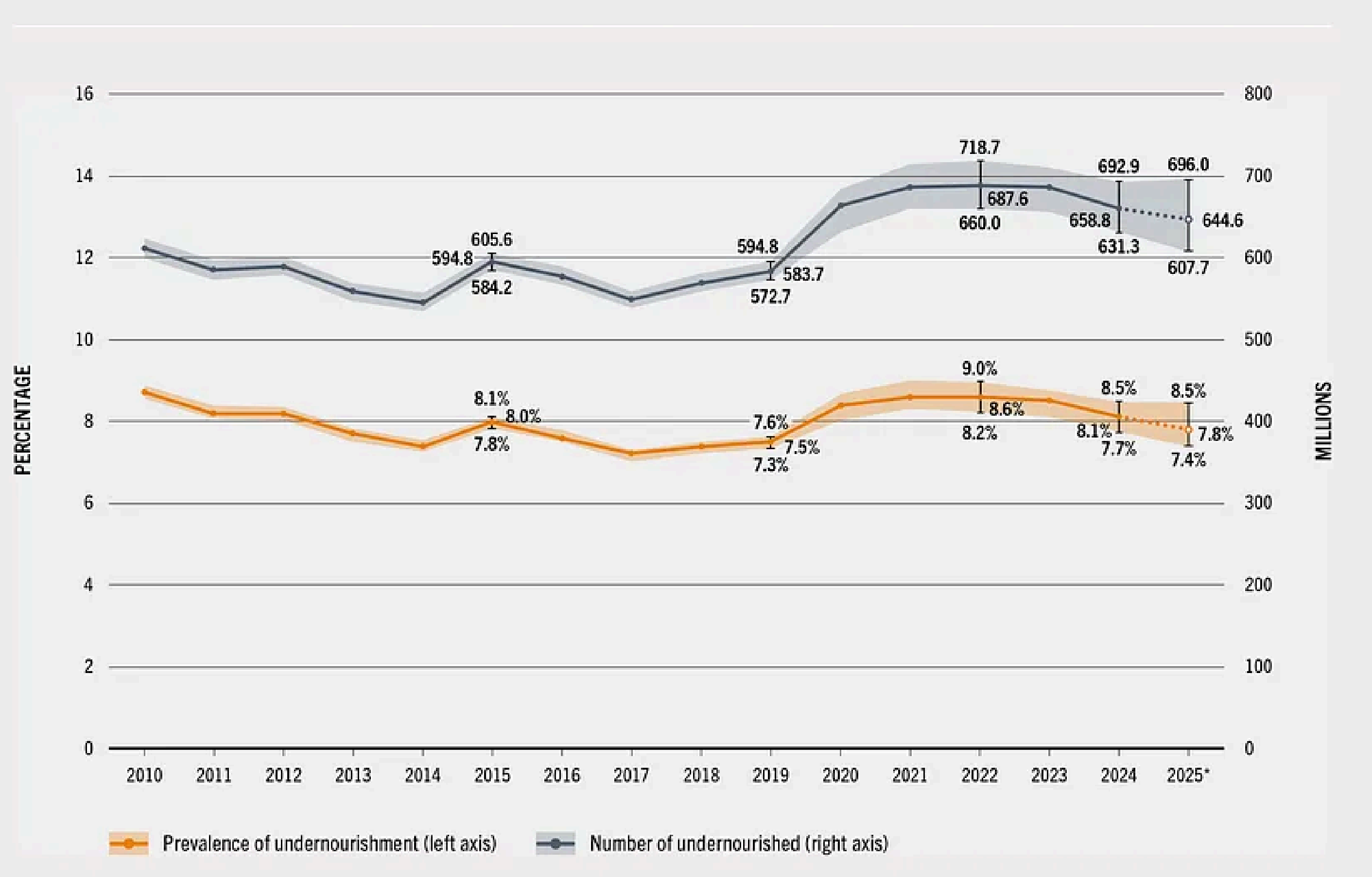
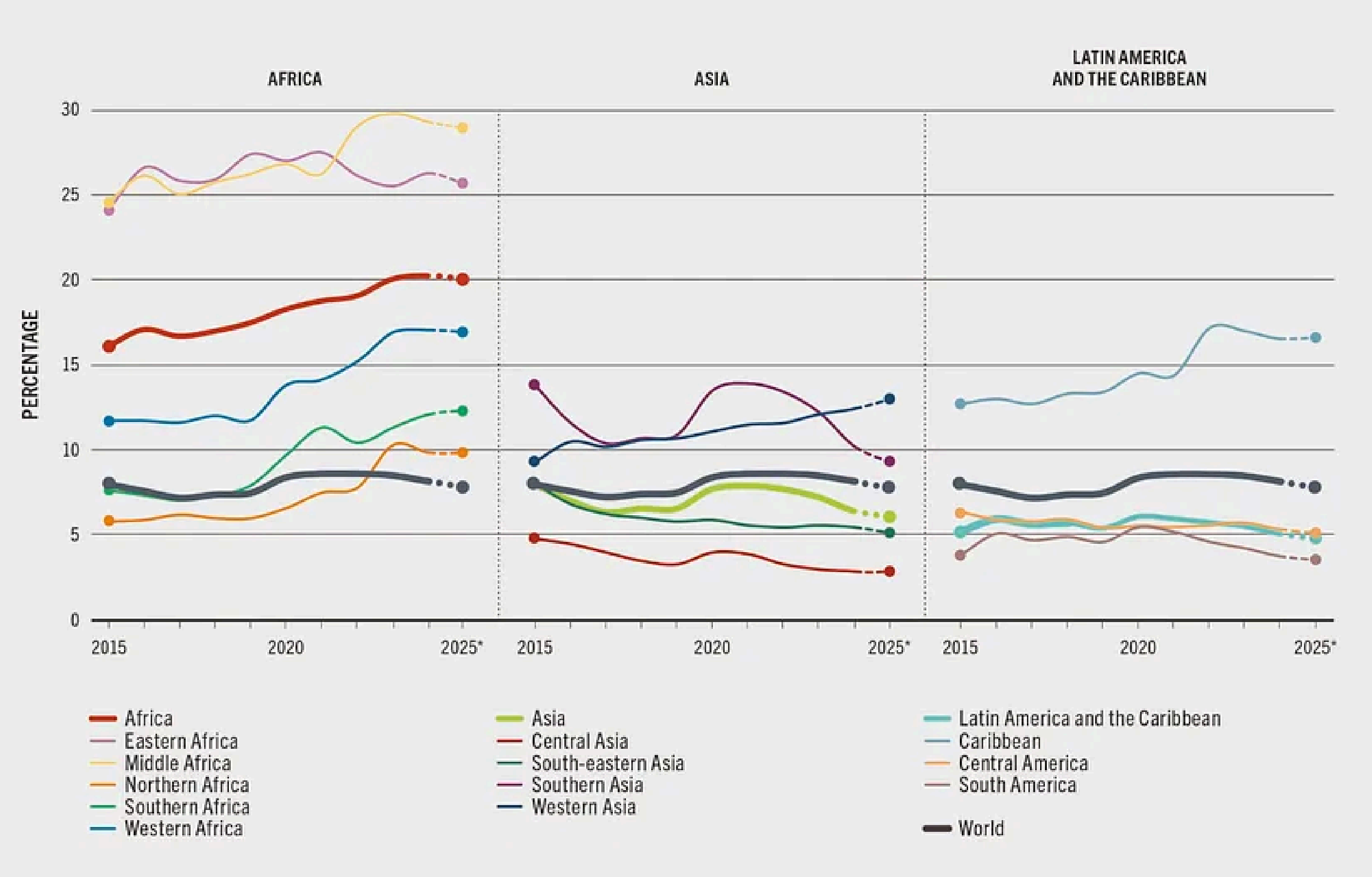


FIGURE 2.2 MOST SUBREGIONS OF ASIA AND LATIN AMERICA AND THE CARIBBEAN HAVE SHOWN STEADY PROGRESS IN REDUCING HUNGER IN RECENT YEARS, AND NEW ESTIMATES POINT TO A HALT TO THE PROLONGED UPWARD TREND IN HUNGER IN AFRICA



Health & Demographics

- **The World Health Organization reports that the global rate of road traffic deaths fell by 21 percent between 2011 and 2025**. The rate dropped or remained the same in every region except Africa.
- A new analysis from the Global Burden of Disease study finds that **the age-adjusted US death rate from ischemic heart disease, which is caused by blocked coronary arteries, fell 59 percent between 1990 and 2023**. The model also found especially large declines in the mortality burden attributed to smoking and particulate air pollution.
- According to recent estimates from the World Health Organization, **the number of people living in areas requiring mass trachoma interventions has roughly halved over the past decade**, falling from 190.2 million in 2016 to 92.0 million in 2026, while the estimated number suffering from the disease's advanced, potentially blinding stage has fallen 58 percent, from 2.8 million to 1.2 million.
- **India has approved its first dengue vaccine**, a two-dose vaccine from Takeda Pharmaceutical that, in a late-stage trial, was 80 percent effective against confirmed dengue during the year following the second shot.
- With assistance from the Gates Medical Research Institute, **India's Serum Institute is preparing for large-scale production of what could become the first new tuberculosis vaccine in over a century.**
- **Belgian medical researchers have restored sperm production in a man left infertile after childhood chemotherapy** using testicular tissue that had been frozen for 16 years. A year after transplantation, the tissue showed active sperm production and yielded a mature sperm cell.

Science & Technology

- **Another Waymo safety study, this time conducted independently** by the Insurance Institute for Highway Safety, finds that Waymo vehicles were involved in 68 percent fewer police-reportable crashes per mile than human drivers. The research also found that Waymo vehicles were involved in 81 percent fewer injury-causing crashes than human drivers and 91 percent fewer rear-end crashes in which they struck another vehicle.
- **European regulators have approved Science Corporation's PRIMA retinal implant**, which combines a tiny chip inserted beneath the retina with camera-equipped glasses to restore functional vision.
- **AI adoption continues to rise.** A recent Gallup poll finds that **47 percent of US employees said their organization was using AI** in the second quarter of 2026, up from 38 percent at the end of 2025. Recent research from Google estimates that **21 percent of tasks at the typical job are now completed with AI assistance.**
- **Skyroot Aerospace, an Indian startup, launched the country's first privately developed orbital rocket last weekend.**
- **A new species of monkey has been described in the Congo rainforest.**

Violence & Coercion

- **Today, throughout much of the chicken egg industry, newly hatched male chicks**—economically useless because they neither lay eggs nor grow efficiently for meat—**are gassed or thrown into industrial grinders. That horror may come to an end thanks to in-ovo sexing**, a relatively new technique that allows hatcheries to cheaply identify and destroy male chicken embryos before they are capable of feeling pain. According to a recent report from Innovate Animal Ag, an animal agriculture think tank, 40 percent of Europe's commercial laying flock had been sexed in ovo as of June 2026, up from 34 percent in 2025. The report also notes that the technology has been adopted by certain hatcheries in the United States, Brazil, and Australia.

EU Market Penetration of In-Ovo Sexing as of June 1, 2026

Share of EU Commercial Layer Hens Sexed In-Ovo

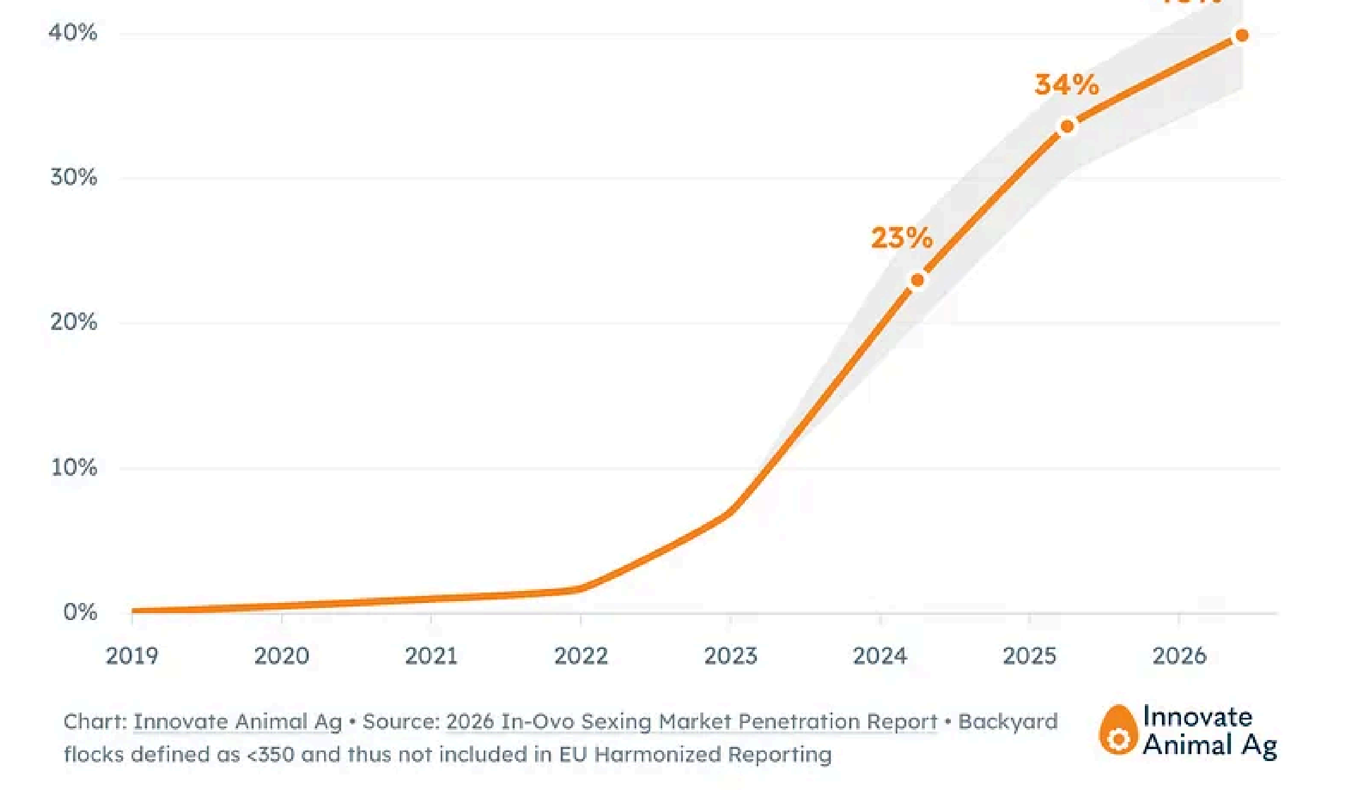


Chart: Innovate Animal Ag • Source: 2026 In-Ovo Sexing Market Penetration Report • Backyard flocks defined as <350 and thus not included in EU Harmonized Reporting

1 "Undernourishment means that a person is not able to acquire enough food to meet the daily minimum dietary energy requirements, over a period of one year."