

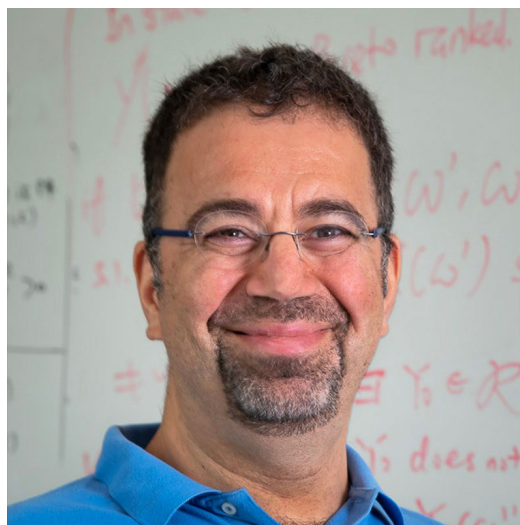
THE FOLLY OF TRYING TO CONTROL TECHNOLOGY

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May 2023

Technological progress in the last two centuries, and especially in the recent past, has been nothing short of amazing. So why are we so unhappy? Why aren't we all rich? Why are we so unequal in material success? Why is social unrest just as wrenching as it was in earlier, poorer times?

When Daron Acemoglu speaks, I listen. Well on his way to a Nobel Prize, Acemoglu is probably the most productive “young” economist out there. (He’s 53, but has been regarded as outstanding since his twenties.¹) His popular books are written with co-authors, usually James Robinson or Simon Johnson. Acemoglu’s new book, *Power and Progress: Our 1000-Year Struggle Over Technology and Prosperity*, co-authored with Johnson, is a sequel to Acemoglu’s excellent 2012 book with Robinson, *Why Nations Fail: The Origins of Power, Prosperity, and Poverty* and addresses the above questions. Given the vast scope of their undertaking, the authors perform adequately. But while some of the remedies they propose for the problems they identify are sensible, some — in particular, reining in technological change through government action — are flat-out wrong.



Daron Acemoglu

[Source](#)

In 2012 the authors laid out their intellectual approach, which is that we have to study *institutions* — the state and its laws, social customs, and other aspects of organized human behavior — to understand the economy and economic change. They helped establish a school of thought called “[new institutionalism](#).”² Here, they build on their earlier work to solidify their proposition that progress, far from being automatic, is driven by the choices we make about technology and how to divide its rewards.

¹ The John Bates Clark medal is given each year by the American Economic Association to “that American economist under the age of forty who is judged to have made the most significant contribution to economic thought and knowledge.” Acemoglu received the medal in 2005.

² Lest this article turn into a history of economic thought, something that I’d love to write about, I avoid it by instead referring the reader to https://en.wikipedia.org/wiki/New_institutional_economics, accessed on April 18, 2023. The article says, “Institutions are the ‘rules of the game’, both the formal legal rules and the informal social norms that govern individual behavior and structure social interactions...” These are contrasted with *organizations* such as firms, universities, clubs, and so forth, which new institutionalism regards as lower on the totem pole of analysis.



Simon Johnson

[Source](#)

I'm skeptical of this last part. Technological progress is driven by what science offers us and, more importantly in this context, by economic demand. It is rare (although not unknown) that the demand comes from government; more often it bubbles up from below, reflecting individual consumer choices.

And dividing the rewards, at least initially, can only be done by the market; people are paid their marginal product.³ Redistribution can alter the end result for better or for worse, but *must* interfere with the efficient allocation of resources, including human resources. Resolving the tension between allocative efficiency and socially desirable outcomes is a moral and societal decision, not an economic one.

Along the path to identifying problems and presenting their solutions, Acemoglu and Johnson teach a great deal of economic history. That is the book's most valuable contribution; I found its policy prescriptions deeply unsatisfying because it pretends we can control the advancement of technology when we cannot.

But it's a great read.

THE LEGACY OF UTILITARIANISM

The authors originally called the book *In the Name of Progress*, a much more confrontational title than the one that the publisher later imposed on them.⁴ They begin by describing Jeremy Bentham's eighteenth-century design for a "panopticon," a wheel-like architectural concept for a prison that allows the warden to supervise his prisoners with brutal efficiency by enabling him to see all of them at once. (No such prison was ever built.) The design could also, in principle, be used for factories.

³ More precisely, they are paid the perceived value of their marginal product, as seen by their employers and competing employers, who assess this value under conditions of imperfect information. In other words, labor markets are far from perfect and only get the value of a worker roughly right.

⁴ <https://www.youtube.com/watch?v=pqh0z8JoYRo>

Bentham wanted to impose this awful idea on society “in the name of progress,” which to him was an end that justified almost any means.⁵ Acemoglu and Johnson use the panopticon metaphor to highlight the sacrifices that ordinary people have made so that the remarkable technological progress of the last 1000 years, and more importantly the last 250 years, could unfold. The authors’ logic seems to be that everybody knows about the benefits, so they feel compelled to point out the human costs. Fair enough. But there are problems with the authors’ proposed remedies.

THE LONG TIME LAG BETWEEN PROGRESS AND PROSPERITY

As we’ve moved from a mostly agricultural to an industrial and then a postindustrial economy, wages have risen by a large multiple. This is common knowledge and undisputed. But, as the authors emphasize, the rise in workers’ wages due to technological progress sometimes does not occur in the worker’s lifetime. They document this astonishing time lag over the broad sweep of history from medieval times to the present. It is little consolation to a factory worker in the miserable conditions of 1830s Britain to know that his great-grandchildren in the 1910s will prosper (and that the work will be safer and easier).

One of the authors’ remedies for this problem is a call for greater worker bargaining power and participation in the democratic process. This is both too much and not enough. It is not enough in that it has already been tried and there is still a time lag. (The authors credit the political and bargaining power of workers with the rise in wages that began around 1850, three generations after the First Industrial Revolution began; that is the basis of their desire to strengthen workers’ rights now.) It is too much in that it might interfere with progress by distorting economic incentives and killing the goose that lays the golden eggs.

Their more ambitious remedy is to “keep a tight rein on automation.” They advocate this even while praising the tremendous benefits of automation in the past. I’ll return to that thought.

THE DECLINING LABOR SHARE OF NATIONAL INCOME

Nobody with a heart *wants* workers to be poor — but a worker cannot be worth more than his or her marginal product. If he does not produce a profit for his employer, he will not be hired. Profits could be shared a little more generously with workers but not dramatically so: after-tax corporate profits in the United States are at an all-time high of 11% of GDP,⁶ compared to a

⁵ Bentham has gotten something of a bad rap because of the panopticon and, more broadly, his overly mechanical approach to solving social problems. He is considered the founder of utilitarianism, the philosophy that says “the greatest happiness of the greatest number...is the measure of right and wrong” (https://en.wikipedia.org/wiki/Jeremy_Bentham, quoting Bentham [ca. 1776]).

We are all utilitarians now, in the sense that there is no clearly better metric of either progress or fairness — and in the sense that the utility theory which underpins modern finance has its roots in Bentham’s “moral calculus.” However, Bentham had a tin ear for promoting utilitarianism and it did not catch fire until, well into the 19th century, his disciple John Stuart Mill transformed it into what we now call classical liberalism (Mill and his contemporaries just called it liberalism).

⁶ <https://www.bloomberg.com/news/articles/2021-12-06/stock-market-u-s-corporations-hit-record-profits-in-2021-q3-despite-covid#xj4y7vzkg>

long-term average of 7%.⁷ If that entire difference were transferred to workers, they would get roughly a 7% raise.⁸ Weak tea. The path to more prosperous workers, if it exists, is elsewhere.

How might we find that path? The labor share of income has been declining in relative terms in the United States; here are some possible reasons:

- Automation — machine labor replaces human labor
- A “superstar” effect wherein workers with postgraduate degrees, entrepreneurs, and a few other categories of people can command large paychecks while others cannot
- Competition from cheaper labor in emerging markets
- The decline of unions and a pro-business or libertarian tendency in politics starting around 1970 or 1980
- Corporate greed, fundamental contradictions of capitalism, an economy and political system that is “broken,” and some other bromides not really worth repeating.

The first three are real, and the fourth can be debated. The superstar explanation is covered extensively in other work. I’ll focus on the replacement of human labor by machine labor because automation and the cheapening of unskilled labor are what *Power and Progress* is about. And, with the rise of useful artificial intelligence (AI), skilled labor faces potential threats too.

A VOYAGE THROUGH HISTORY

The thick middle of *Power and Progress* is a thousand-year history of technology that asks whether it generates shared prosperity. The rise in standards of living always came eventually — no working person in the developed world is as poor as a medieval peasant — but, as noted earlier, the delay was often decades or even centuries long. This time lag is a main focus of the book, so the authors carefully document the historical connection between technical progress and economic prosperity to fortify their point.

MEDIEVAL PROGRESS AND POVERTY

The first evidence that amazing technology does not always produce widely shared benefits comes from the cathedral-building era of the High Middle Ages — thus the “thousand years” in the book title. (We’d have a hard time building those cathedrals today.) The technological advances achieved in medieval times were immense, but after all those centuries of innovation, workers and peasants still lived at the edge of subsistence.

Much of the economic growth went to “feeding more mouths.” (Malthus was right looking backward from 1798 — he was just a terrible forecaster.) The rest of the growth went to

⁷ <https://twitter.com/SoberLook/status/1479041538273562624/photo/1>, using FRED data. Long-term is 1947-2022.

⁸ 4% “excess” profits divided by labor share of GDP, roughly 56%.

kings, landowners, and the church. This observation about the distant past is the point of departure for Acemoglu and Johnson's critique of technology throughout the book. Some people are enriched immensely, while many are hurt.

A MIDDLE-CLASS REVOLUTION

The authors then show that the economic transformation which set us on a long-term path to abundance, the First Industrial Revolution, didn't produce much prosperity among the common people until almost a hundred years later. By the time Horace Greeley wrote about this revolution in 1851, "muscular force or mere labor" had become almost worthless; machines did a better job. This drove many children, who worked for shockingly low pay, into the labor force and far too many were treated cruelly. The real incomes of UK workers saw no improvement — possibly degradation — over the many years from the beginning of the First Industrial Revolution to the time of Greeley's comment.

Then, in the second half of the 19th century, real wages improved rapidly and a vast middle class emerged in the US, the UK, and elsewhere. The Second Industrial Revolution of 1870-1920 accomplished this, but only, the authors argue, with the help of "sufficient bargaining power for labor." This is a recurrent theme of the book, but I regard labor activism as a necessary but not sufficient condition. I credit the cornucopia of invention in that period — the automobile, the airplane, the telephone, petroleum refining, the electrification of everything...most of the features of modern life.

DIRIGISME

Moving into the twentieth century, Acemoglu and Johnson speak favorably of the Nordic path in the 1920s and after, the New Deal, and the Trente Glorieuses (thirty glorious years) in postwar France. These state-directed attempts at shared prosperity were mostly successful, and the authors would like to try them again. It's not communism or socialism but *dirigisme*, the idea that a democratically elected government can help the economy grow by giving it direction. I'd caution that it works (Japan 1950-1989) except when it doesn't (Japan 1990-2023).

THE SILICON AGE

Acemoglu and Johnson date modern times, in a technological sense, to 1959-1960 when hackers on the ninth floor of MIT's Tech Square building began to promote the idea that "information wants to be free." (Phooey — as a provider of information I want to be paid.) The authors draw a connection between this hippie-like pipedream and the "liberal" — that is, classical liberal — tendency for

businesses [to become] better organized against labor and government regulations... [E]ven more importantly, a new vision maintaining that maximizing profits and shareholder values was for the common good became an organizing principle for much of society... The new vision was of a 'digital utopia'...

The authors then document falling real wage growth rates, and falling real wages in some industries, as the overall growth rate of the economy-as-measured faltered starting in the

early 1970s and as the softening intensified in the years after the global financial crisis of 2008.

I'd counter that unskilled wages have always been low, and while falling relative to everybody else are still much higher than before modern times. Meanwhile, middle-skilled workers have participated decently in the overall rise in living standards, and highly skilled workers have gotten rich. The good news that the authors overlook is the huge increase in the *number* of highly skilled workers, enabling the emergence of a mass upper-middle class, about 20% of the US population.

REINING IN TECHNOLOGY

Of the remedies Acemoglu and Johnson propose for the problems they identify, the one they cover most thoroughly is “controlling technology.” The authors promote this idea very seriously; this book review is not capacious enough to summarize it. Let's skip to asking whether it's possible or desirable to rein in technology.

The authors refer to two broad categories of public action:

1. Employment-focused industrial policy, that is, encouraging technology that adds to the number of jobs and discouraging innovations that reduce it; and
2. Acting vigorously to stop the development of technologies regarded as dangerous.

The first category is more likely to succeed, at least in carefully specified industries. In an IMF-sponsored article written by Acemoglu alone, he writes,

The transformative technologies of the 20th century, such as antibiotics, sensors, modern engines, and the internet, would not have been possible without the government's support and leadership... Even more relevant...is the example of renewable energy.⁹

That's right. I would never argue that government is useless on the tech front. But these examples are of positive support for technologies that governments wanted to promote. These were good calls.

It's much harder to prohibit or restrain a technology that a government *doesn't* want. There are successful examples: no private citizen or corporation has been allowed to develop nuclear weaponry. Laws have been effective at banning “experiments involving DNA from highly pathogenic bacteria or genes coding for toxins” — but viral gain-of-function research, closely related and intensely controversial in the wake of COVID-19, has been supported by a US government agency in the name of disease prevention and treatment.¹⁰

⁹ <https://www.imf.org/external/pubs/ft/fandd/2021/03/COVID-inequality-and-automation-acemoglu.htm>

¹⁰ The quote is from the National Institutes of Health at <https://profiles.nlm.nih.gov/spotlight/dj/feature/regulation>.

Putting reins on technology can also do serious harm. An otherwise successful, middle-income country, Sri Lanka banned synthetic fertilizers in 2021, crippling the country's agricultural sector and causing a near-famine that required international food relief.¹¹ In 2002, Zambia created an even worse famine by banning GMO foods; the country's president, who thought GMO foods were "poison," didn't even get bad press from the catastrophic episode.¹² One shouldn't rely on the wisdom of technology regulators!

ARTIFICIAL INTELLIGENCE: THREAT OR MENACE?

How (and whether) to somehow rein in artificial intelligence has become the burning question of the year, perhaps the decade. Despite doubts about its long-term safety, large corporations, university laboratories, and independent researchers are pursuing AI like crazy. Writing in *The Free Press*, Peter Stevenson argues persuasively "Why No One Can Control AI"; read it.¹³ I wouldn't count on being able to rein in *any* promising technology through public action. If the incentives are right, someone — in some country — will do an end run around the restriction.

An illustration of how hard it is for regulators (or anyone else) to stay ahead of fast-changing technology is the sudden emergence of ChatGPT. Six months ago, the hot topic was restraining Google. Now, OpenAI/ChatGPT has upended the world, causing teachers to scrap term paper assignments (!) and artists and writers to wonder how they'll survive. Why "experts," despite mostly good intentions, think they can manage the wildly unpredictable path of innovation is a true mystery.

By the way, stocks that benefit from ChatGPT, such as NVIDIA, have outperformed Google massively in recent months.¹⁴

A CONTRASTING VIEW FROM NOAH SMITH

Noah Smith, a former assistant professor at Stony Brook (now a full-time writer) and a self-described centrist like Acemoglu and Johnson, is one of my favorite commentators on economic matters. His writing suggests that Acemoglu and Johnson, railing against the destruction of jobs by some (not all) technologies, are alarmed by a mirage; technology creates many more jobs than it destroys.

¹¹ Sri Lanka has the highest per capita income in South Asia, \$13,387 in purchasing-power-adjusted 2023 US dollars. After the government that banned fertilizers fell, the restrictions were later lifted and the country has begun to recover from its self-imposed misery. See <https://foreignpolicy.com/2022/03/05/sri-lanka-organic-farming-crisis/>.

¹² Upon his death, the *New York Times* reported on August 20, 2008, "President Levy Mwanawasa of Zambia, whose economic policies won the confidence of international donors and whose robust criticism of President Robert Mugabe of Zimbabwe made him an anomaly among African heads of state, died Tuesday in France." <https://www.nytimes.com/2008/08/20/world/africa/20mwanawasa.html> I guess the *Times* thought that famine in Africa is normal. It isn't. See <https://theconversation.com/sub-saharan-africas-food-security-has-turned-out-better-than-feared-but-risks-remain-159839>.

¹³ <https://www.thefp.com/p/why-no-one-can-control-ai>

¹⁴ As this goes to press, Google (parent company: Alphabet) has released Bard, a competitor to ChatGPT. We'll see if this changes the dynamic in the market for AI-related equities.

Smith writes, “Forty years of corporations using automation as an excuse to fire workers, and yet somehow everyone still has a job — I don’t get it.” Anticipating the objection that there are a lot of discouraged workers who are not counted in the unemployment numbers, Smith shows a chart with the caption, “There are only 47 months [out of the 912 months from 1947 to 2022] with higher prime-age EPOP [employment-to-population ratio] than right now.” Prime age is 25 to 64. Then, showing the rising inflation-adjusted median income of Americans (although not rising as fast as GDP), Smith concludes, “Oh, and median income just keeps going up and up. Damn you, automation!”¹⁵

Who’s right? If, over the very long term, increased automation really took away jobs on net, there would be a *lot* of unemployment. There is almost none. While the US population grew from 63 million in 1890 (the first year for which reliable unemployment data exist) to 334 million today, the unemployment rate fell to roughly 4% in every “full employment” business boom during that long period. Every single time. Obviously, a massive number of jobs have been created, either because of technological progress or in spite of it.

But Acemoglu and Johnson are interested in “well-paying, secure jobs,” which are (either in fact or in our faulty memories) scarcer than they used to be. They want to bring these jobs back. The authors are about half right. During what Stephen Sexauer and I called “the age of experts,” 1947-1973,¹⁶ there was more job security for ordinary people, especially in unionized occupations, but the paychecks were much skinnier than we remember and most of the jobs were terrible. Working on an assembly line for 35 years — or in a coal mine or steel mill — is a nightmare, not a dream. White-collar workers had it better, but there were far fewer of them. Office work was for the fancy people, Rob Petrie (Dick Van Dyke) and his wife Laura (Mary Tyler Moore) living in Scarsdale.

In short, automation or, more broadly, technological progress takes away crappy jobs and creates good ones (the ones that the Federal Reserve calls “nonroutine cognitive”). Almost all of these good jobs are done by people of at least average intelligence. But, by definition, half the population is below average. There is less for them to do. No one disputes this. That is a problem for which there is no obvious solution. The reining-in of technology advocated by Acemoglu and Johnson might preserve low-skilled jobs for a while, but would also tempt less self-restrained entrepreneurs and governments in other countries to run us out of business and make the low-skilled job situation even worse. It happened once in the 1970s with competition from Japanese automakers and it could happen again.

Smith’s rendition of economic history makes a lot more sense than Acemoglu and Johnson’s. But, as the comedian Louis C.K. said, “Everything is amazing and nobody’s happy.” We’d be fools to deny that modern life presents some new and challenging social and economic problems.

¹⁵ <https://twitter.com/Noahpinion/status/1654809899950542848>

¹⁶ Sexauer, Stephen C., and Laurence B. Siegel. 2017. “The Age of Experts: A Review of Marc Levinson’s *An Extraordinary Time*,” with Stephen C. Sexauer, *Business Economics* (October 26).

CONCLUSION: THE UNFAIRNESS OF IT ALL

The authors are right to point out that changes in technology do not automatically make us all more prosperous. There are winners and losers, although the overall level of living in advanced societies is so much higher than in primitive ones that one should not be faulted for repeating the maxim, “A rising tide lifts all boats.” Eventually. It just does not lift them equally or at the same time. How much lift you get depends on your location, native ability, ambition, choice of a trade or profession, support from your family, and most of all luck. We all tend to underestimate the importance of luck. Life isn’t fair.

Time lags matter. The message of *Power and Progress* is discouraging in that technological advances help everybody, but with such immense lags, often longer than any individual’s lifetime, that we have to do something to help the people left behind. But do what? For Acemoglu and Johnson, the magic ingredient is judiciously applied state power, favoring workers over corporations and sprinkling fertilizer on promising industries. This formula has had mixed results. Despite attempts to prop them up, some of our most historically cherished industries have just about disappeared, and new ones employ tens of millions of people in jobs that weren’t even imagined a half-century ago.

Since about 1965 we’ve acted instead as though income redistribution, not industrial policy, is the magic ingredient. It has also had mixed results: our poor are rich in material terms by the standards of many countries, but still poor in terms of safety, education, and in some cases family structure. The US between 1965 and the present has carried out the most expensive experiment in income redistribution in history, to the tune of \$84 trillion over that period in today’s money.¹⁷ We’re still startlingly unequal.

LAST WORD

I had fun reading *Power and Progress* and I learned a lot of history. But I’m not sure we need a 400-page history and social science book — well-written and entertaining as it is — to remind us, as John F. Kennedy said so succinctly, that “life isn’t fair.” It’s unfair because we don’t know where, as individuals, we’ll come out in the economy’s future response to technological change. We charge our government with the task of making it fairer, but that is better accomplished by enforcing the rule of law and helping the less fortunate than by trying to direct the entire future course of technological development in a way *imagined by those directing it* to be helpful.

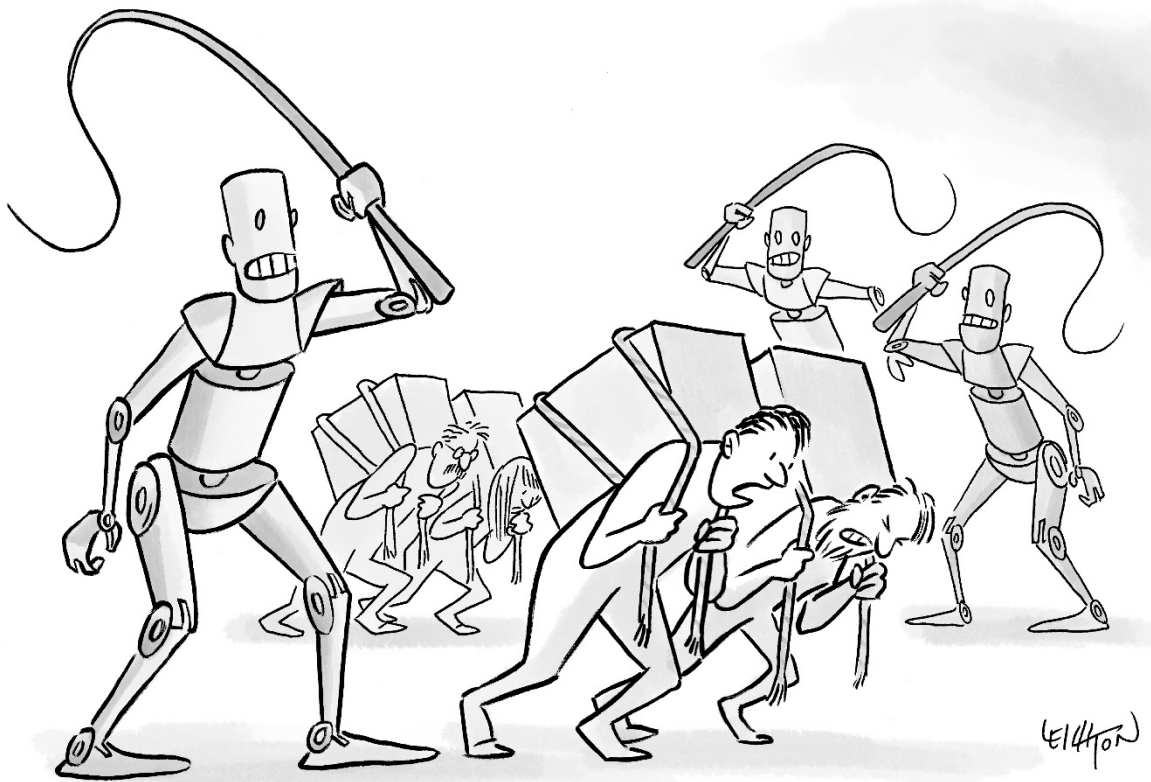
Leave technology alone.

¹⁷ Calculated by Tom Coleman (University of Chicago) based on data in Auten, Gerald E., and David Splinter [2022a], “Income Inequality in the United States: Using Tax Data to Measure Long-Term Trends” (working paper); and [2022b], “Online Appendixes to ‘Income Inequality in the United States: Using Tax Data to Measure Long-Term Trends.’” Both papers are at <http://davidsplinter.com/>.

The total excludes transfers internal to the Social Security system arising from the benefit formula, and also excludes some other transfers. That amount is a little less than four times 2022 U.S. GDP, but is in fact a much larger multiple of then-current GDP because the economy has grown over time.

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The author thanks Stephen C. Sexauer, CIO of San Diego County Employees Retirement Association, for his excellent comments.



"To think this all began with letting autocomplete finish our sentences."