



The Blip

John Mauldin | July 30, 2013

This week's *Outside the Box* does not make me feel good, but author Benjamin Wallace-Wells does explain Robert Gordon's views better than anyone I have seen. (And of course the whole point of *Outside the Box* is to yank us out of our comfort zones from time to time.)

Dr. Robert Gordon is a professor of economics who has held a named chair at Northwestern University for decades; but as the author of this piece says, "[T]he scope of his bleakness has given him, over the past year, a newfound public profile." Gordon offers us two key predictions, both discomfiting. The first pertains to the near future, when, he says, our economy will grow at less than half its average rate over the last century because of a whole raft of structural headwinds.

His second prediction is even more unsettling. He thinks the forces that drove the second industrial revolution (beginning in 1870 and created largely in the US) were so powerful and so unique that they cannot be repeated.

(A corollary view of Gordon's, mentioned only indirectly in this article, is that computers and the internet and robotics and nanotech and biotech are no great shakes, compared to the electric grid and internal combustion engine, as forces for economic change. Which is where he and I part company.)

He thinks, in short, that we do not understand how lucky we have been, nor do we comprehend how desperately difficult our future is going to be. If nothing else, Gordon has provoked some serious reaction from leading figures who are not quite ready to throw in the towel. "Very impressive," former Treasury Secretary (and leading Fed Chairman candidate) Larry Summers texted Gordon last August, the day after he published a working paper titled "Is U.S. Economic Growth Over?" Ben Bernanke delivered a commencement address this spring considering the paper's implications. And of course the techno-optimists have been buzzing around Gordon like angry hornets. (An interesting TED-talk anecdote along these lines is related herein.)

Gordon makes me very uncomfortable, too, but he's got me thinking not only about how we find growth but also about how we do a better job of managing our affairs, nationally and globally. I think Gordon's totally bleak view misses more than half the story, but it's up to all of us who still believe in the future of this country and this planet (and its increasingly dominant if not altogether wise species) to reject naysaying attitudes and stand right up on our hind legs and envision and create that future.

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And it is quite possible that we will find ourselves with two very different parallel futures for the world. In one, the haves may see their lives get dramatically better, while in the other those less fortunate may suffer an even greater economic and political disparity. That is not a formula for a workable future.

I'm in New York City this afternoon, working on too many projects. But I am going to take off in a few hours and make my way down to Bobby Van's at the close of the markets to meet with the Friends of Fermentation and my great friend Art Cashin. I wanted to see him yesterday, but he had a doctor's appointment. Then this morning I read in his daily letter:

Missing Mauldin – My good friend John Mauldin is on one of his New York "drive-bys" on his way to the annual fishing visit to Leen's Lodge in Maine with another friend, David Kotok, and an economic brain trust. Since he was in town, he thought he might drop in on the Friends of Fermentation nightly conclave, as our mutual friend Dennis Gartman had done so notably last week.

Unfortunately, I had a late day doctor's appointment that would most likely mean I might miss the FoF seminar myself. So, I gave John the wave-off until another time.

That's when the roof fell in. You would have thought I had canceled Christmas. On learning of the wave-off, the FoF offered me sackcloth and ashes. How could I dare cancel a rare opportunity to have John join the session? Even Bob Pisani was not happy.

Ironically, the doctor's office was empty and the test results were all good. (Obviously, none had to with my mental state or acuity.)

When I slinked into the FoF at mid-session, I was the proverbial skunk at the picnic. Since I had deprived them of access to John's wit and wisdom (leaving them with only me), I was told the bill was on me. I left with a much thinner wallet amid barely suppressed hissing. I'll never wave-off Mauldin again, even if there are riots in the streets. Next time, John!

Next time indeed. I can't leave a friend out in the cold.

Have a great week! My son Trey joins me tomorrow, and then we fly on to Maine Thursday morning. This is one of those weeks that I look forward to all year. So many friends. I think this may be the 7th or 8th year Trey has gone. He has grown up with these guys, and it is a special bonding time for both of us. And who knows, maybe this year I'll finally catch more fish than he does! All bear markets have to end someday, don't they?

You're getting ready to slow down analyst,



John Mauldin, Editor
Outside the Box

The Blip

By Benjamin Wallace-Wells

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What if everything we've come to think of as American is predicated on a freak coincidence of economic history? And what if that coincidence has run its course?

Picture this, arranged along a time line.

For all of measurable human history up until the year 1750, nothing happened that mattered. This isn't to say history was stagnant, or that life was only grim and blank, but the well-being of average people did not perceptibly improve. All of the wars, literature, love affairs, and religious schisms, the schemes for empire-making and ocean-crossing and simple profit and freedom, the entire human theater of ambition and deceit and redemption took place on a scale too small to register, too minor to much improve the lot of ordinary human beings. In England before the middle of the eighteenth century, where industrialization first began, the pace of progress was so slow that it took 350 years for a family to double its standard of living. In Sweden, during a similar 200-year period, there was essentially no improvement at all. By the middle of the eighteenth century, the state of technology and the luxury and quality of life afforded the average individual were little better than they had been two millennia earlier, in ancient Rome.

Then two things happened that did matter, and they were so grand that they dwarfed everything that had come before and encompassed most everything that has come since: the first industrial revolution, beginning in 1750 or so in the north of England, and the second industrial revolution, beginning around 1870 and created mostly in this country. That the second industrial revolution happened just as the first had begun to dissipate was an incredible stroke of good luck. It meant that during the whole modern era from 1750 onward – which contains, not coincidentally, the full life span of the United States – human well-being accelerated at a rate that could barely have been contemplated before. Instead of permanent stagnation, growth became so rapid and so seemingly automatic that by the fifties and sixties the average American would roughly double his or her parents' standard of living. In the space of a single generation, for most everybody, life was getting twice as good.

At some point in the late sixties or early seventies, this great acceleration began to taper off. The shift was modest at first, and it was concealed in the hectic up-and-down of yearly data. But if you examine the growth data since the early seventies, and if you are mathematically astute enough to fit a curve to it, you can see a clear trend: The rate at which life is improving here, on the frontier of human well-being, has slowed.

If you are like most economists – until a couple of years ago, it was virtually all economists – you are not greatly troubled by this story, which is, with some variation, the consensus long-arc view of economic history. The machinery of innovation, after all, is now more organized and sophisticated than it has ever been, human intelligence is more efficiently marshaled by spreading education and expanding global

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connectedness, and the examples of the Internet, and perhaps artificial intelligence, suggest that progress continues to be rapid.

But if you are prone to a more radical sense of what is possible, you might begin to follow a different line of thought. If nothing like the first and second industrial revolutions had ever happened before, what is to say that anything similar will happen again? Then, perhaps, the global economic slump that we have endured since 2008 might not merely be the consequence of the burst housing bubble, or financial entanglement and overreach, or the coming generational trauma of the retiring baby boomers, but instead a glimpse at a far broader change, the slow expiration of a historically singular event. Perhaps our fitful post-crisis recovery is no aberration. This line of thinking would make you an acolyte of a 72-year-old economist at Northwestern named Robert Gordon, and you would probably share his view that it would be crazy to expect something on the scale of the second industrial revolution to ever take place again.

"Some things," Gordon says, and he says it often enough that it has become both a battle cry and a mantra, "can happen only once."

Gordon assumed his present public identity – as a declinist and an accidental social theorist, as a roving publicist of depressing PowerPoints – last August, when he presented his theory in a working paper titled "Is U.S. Economic Growth Over?" He has held a named chair at Northwestern for decades and is one of the eminent macroeconomists of his generation, but the scope of his bleakness has given him, over the past year, a newfound public profile. It has been a good time to be bleak, and Gordon, bleaker than everyone else, commands attention. "Very impressive," the former Treasury secretary Larry Summers wrote Gordon from his iPad the day after the paper appeared. Ben Bernanke, the Federal Reserve chairman, delivered a commencement address this spring considering the paper's implications, and the financial press has weighed in vociferously for and against.

Gordon has two predictions to offer, the first of which is about the near future. For at least the next fifteen years or so, Gordon argues, our economy will grow at less than half the rate it has averaged since the late-nineteenth century because of a set of structural headwinds that Gordon believes will be even more severe than most other economists do: the aging of the American population; the stagnation in educational achievement; the fiscal tightening to fix our public and private debt; the costs of health care and energy; the pressures of globalization and growing inequality. Over the past year, some other economists who once agreed with Gordon – most prominently Tyler Cowen of George Mason University – have taken note of the recent discoveries of abundant natural-gas reserves in the United States, and of the tentative deflation of health-care costs, and softened their pessimism. But to Gordon these are small corrections that leave the basic story unchanged. He believes we can no longer expect to double our standard of living in one generation; it will now take at least two. The common expectations that your children will attend college even if you haven't, in other words, or will have twice as rich a life, in this view no longer look realistic. Some of these hopes are already outdated: The generation of Americans now in their twenties is the first to not be significantly better educated than their parents. If Gordon is right, then for all but the wealthiest one percent of Americans, the rate of improvement in the standard of living – year over year, and generation after generation – will be no faster than it was during the dark ages.

Gordon's second prediction is almost literary in its scope. The forces of the second industrial revolution, he believes, were so powerful and so unique that they will not be repeated. The consequences of that breakthrough took a century to be fully realized, and as the internal combustion engine gave rise to the car and eventually the airplane, and electricity to radio and the telephone and then mass media, they came to rearrange social forces and transform everyday lives. Mechanized farm equipment permitted people to stay in school longer and to leave rural areas and move to cities. Electrical appliances allowed women of all social classes to leave behind housework for more fulfilling and productive jobs. Air-conditioning moved work indoors. The introduction of public sewers and sanitation reduced illness and infant mortality, improving health and extending lives. The car, mass media, and commercial aircraft led to a liberation from the narrow confines of geography and an introduction to a far broader and richer world. Education beyond high school was made accessible, in the aftermath of World War II, to the middle and working classes. These are all consequences of the second industrial revolution, and it is hard to imagine how those improvements might be extended: Women cannot be liberated from housework to join the labor force again, travel is not getting faster, cities are unlikely to get much more dense, and educational attainment has plateaued. The classic example of the scale of these transformations is Paul Krugman's description of his kitchen: The modern kitchen, absent a few surface improvements, is the same one that existed half a century ago. But go back half a century before that, and you are talking about no refrigeration, just huge blocks of ice in a box, and no gas-fired stove, just piles of wood. If you take this perspective, it is no wonder that the productivity gains have diminished since the early seventies. The social transformations brought by computers and the Internet cannot match any of this.

But even if they could, that would not be enough. "The growth rate is a heavy taskmaster," Gordon says. The math is punishing. The American population is far larger than it was in 1870, and far wealthier to begin with, which means that the innovations will need to be more transformative to have the same economic effect. "I like to think of it this way," he says. "We need innovations that are eight times as important as those we had before."

There are many ways in which you can interpret this economic model, but the most lasting – the reason, perhaps, for the public notoriety it has brought its author – has little to do with economics at all. It is the suggestion that we have not understood how lucky we have been. The whole of American cultural memory, the period since World War II, has taken place within the greatest expansion of opportunity in the history of human civilization. Perhaps it isn't that our success is a product of the way we structured our society. The shape of our society may be far more conditional, a consequence of our success. Embedded in Gordon's data is an inquiry into entitlement: How much do we owe, culturally and politically, to this singular experience of economic growth, and what will happen if it goes away?

There are some people, scattered around this planet, for whom the question of economic growth many years hence is urgently important, for whom it seems to blot out all other matters. Economists, and think-tankers, and environmentalists concerned with climate change, and the dreamier kind of CNBC host, yes. But also ordinary people – liberals alarmed about their children's student debt or conservatives outraged about the national deficit – who are not convinced that we will grow rich enough to pay these bills in the future, who hold ambient anxieties that things are getting not better but worse.

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Among growth-worriers, there is a science-fiction streak. To be possessed by nightmares about the future requires that one be dreaming about the future in the first place. I don't think I have had a single conversation about long-term economic growth that did not involve a detour into the matter of robots. Not robotization, but robots: how their minds worked, their strategies when engaged in a game of chess.

Very strong and well-defended opinions about the driverless car are held. People in this camp are open to the possibility that the future could be very different from the present, and so robots, evocative of a wholly transformed world – perhaps for good, perhaps not – are of special interest. One leading theorist in the Gordon camp urged me to read a Carter-era text called *The Zero Sum Society*, which suggests a grim dystopia that emerges once economic growth hits zero point zero, at which moment to gain anything requires that you take it from somebody else. "Once you start to think about growth," the Nobel laureate Robert Lucas has said, "it is hard to think about anything else."

Earlier this year, Gordon flew out to Long Beach to give a TED talk detailing his theory and its implications. TED's audience is so primed for optimism about the future that Gordon, a rebuker of futurists, knew before he began that he'd lost the room – not in a Seth MacFarlane-at-the-Academy Awards way, but in a Bill O'Reilly-at-Al Sharpton's-political-group kind of way, as a matter of tribal identity. TED had invited MIT's Erik Brynjolfsson, an expert in the economics of technology and a known optimist about future breakthroughs, to give the counterpoint address. Gordon (short, round, and earnest) projects a donnish air; Brynjolfsson (tall, redheaded, bearded), the kind of cocky casualness that in Silicon Valley scans as cool. Gordon gave his account; introduced his graph; emphasized the abject poverty of life at the turn of the twentieth century; demonstrated how each American deficiency in education, inequality, demographics limited how much our economy might grow – and then, sensing that the crowd was not all that much moved, sat back to watch Brynjolfsson make the case against.

Brynjolfsson let a long beat elapse. "Growth is not dead," he said casually, and then he grinned a little bit, and the audience laughed, and the tension that had lingered after Gordon's pessimism dissipated. Brynjolfsson had the aspirational TED inflection down cold: "Technology is not destiny," he said. "We shape our destiny."

The second industrial revolution itself, he said, proved the point. After factories were electrified, Brynjolfsson explained, "the amazing thing is productivity didn't increase in those factories for 30 years – 30 years!" It sometimes take a while for humans to figure out how to use innovations, he said, and perhaps we are just now beginning to comprehend the full possibilities of computerization. In Brynjolfsson's view, we are now in the beginnings of the new machine age, an extended moment of revolution in artificial intelligence. "A child's PlayStation," he said, is more powerful than a military supercomputer from 1996; a chess program contained on a cell phone can defeat every grandmaster. Brynjolfsson pointed out that Watson, the IBM AI project, having successfully amassed enough everyday knowledge to defeat the grand champions on *Jeopardy!*, was "now applying for jobs at call centers, and getting them. In finance, and in law, and getting them."

Economists often note that even experts are very bad at predicting the world to come and constantly underestimate it. Optimists like Brynjolfsson say that though productivity gains from computer technologies have declined since 2004, that's no reason to expect the decline to continue. They see prospects. A recent McKinsey report detailing economic sectors that might grow found, for instance, great possibilities in intelligent machines: trillions of dollars in the so-called Internet of Things, for instance, and 3-D printing.

I called Brynjolfsson at his office at MIT to try to get a better sense of what a roboticized society might look like. It turns out the optimist's case is darker than I expected. "The problem is jobs," he said. Sixty-five percent of American workers, Brynjolfsson explained, occupy jobs whose basic tasks can be classified as information processing. If you are trying to find a competitive advantage for people over machines, this does not bode well: "The human mind did not evolve to multiply triple-digit numbers," he told me. The robot mind has. In other words, the long history of Marx-inflected pleas, from "Bartleby" through to *Fight Club*, that office work was dehumanizing may have been onto something. Those jobs were never really designed for the human mind. They were designed for robots. The existing robots just weren't good enough to take them. At first.

At opposite ends of the pay scale, there are jobs that seem safe from the robot menace, Brynjolfsson said – high-paying creative and managerial work, and non-routine physical work, like gardening. (The smartest machines still struggle to recognize an ordinary kitchen fork if it is rotated by 30 degrees.) As for the 65 percent of us who are employed in "information processing" jobs, Brynjolfsson said, the challenge is to integrate human skills with machine capacities – his phrase is "racing with machines." He mentioned a biotech company that relied on human workers to refine the physical shapes of synthetic proteins, jobs at which the most sophisticated algorithms remain hopeless. I expressed some doubts about how many jobs there might be in endeavors like this. "The grand challenge is: Can we scale them up?" Brynjolfsson said. "We haven't seen that yet. Otherwise, employment would be going up rather than down."

Even among the most committed stagnation theorists, there is little doubt that innovation will continue – that our economy will continue to be buttressed by new ideas and products. But the great question at the center of the growth argument is how transformative those breakthroughs will be, and whether they will have the might to improve human experience as profoundly as the innovations of a century ago. One way to think about economic growth is as a product of human capital and technology: At moments like this, when human capital is not growing much (when the labor force is unlikely to grow, when it is not becoming more educated), all of the pressure rests on technology. For this reason, some economists who think Gordon greatly understates the potential of computers still agree that it will be hard for technology to sustain the growth rates we've become accustomed to. "We're not going to get to 2.25 percent GDP growth – that's way out on the tail," Dale Jorgenson of Harvard told me. "There's going to be a slowdown. It's not a secular stagnation. It's a change in demography. And this is a watershed event."

Provoked by Gordon's paper, Daniel Sichel of Wellesley and a team of collaborators have worked out a model by which future U.S. growth might match the rates it has historically achieved. It was not a science-fiction scenario, Sichel explained to me; it required a faster rate of improvements in microprocessor technology, and new computer technologies to be adopted quickly by sectors (education, health care) that

have tended to move more slowly. But this is Sichel's optimistic model; his median projection – his sense of what is most likely to happen – isn't much more hopeful than Gordon's. That we might continue to experience the kind of growth we've enjoyed for the past several decades remains a defensible possibility. But so does Gordon's idea, that something great is gone.

In 2007, Mexicans stopped emigrating to the United States. The change was not very big at first, and so for a few years it seemed like it might be a blip. But it wasn't. In 2000, 770,000 Mexicans had come across the Rio Grande, but by 2007 less than 300,000 did, and by 2010, even though violence in Mexico seemed ceaseless, there were fewer than 150,000 migrants. Some think that more Mexicans are now leaving the United States than are coming to it. "We're never going to get back to the numbers we had in the late nineties," says Wayne Cornelius, a political scientist at UC–San Diego who has spent the past 40 years studying this cross-border movement. A small part of this story is the increase in border protection, but the dominant engine has been the economic shifts on both sides of the border – it has become easier for poor Mexicans to improve their quality of life in Mexico and harder to do so in the United States. Because migrants from a particular Mexican village often settle in the same American place, they provide a fast conduit of economic information back home: There are no jobs in construction or housing. Don't come. The Pew Hispanic Center has traced the migration patterns to economic performance in real time: a spike of migration during 1999 and 2000, at the height of the boom; a brief downturn in border crossing after the 2001 stock-market crash followed by a plateau; then the dramatic emptying out after the housing industry gave way in 2006. We think of the desire to be American as a form of idealism, and sometimes it is. But it also has something to do with economic growth. We are a nation of immigrants to the extent that we can make immigrants rich.

These hingelike mechanisms, in which social changes depend upon the promise of rapidly escalating well-being, are studded throughout the aftermath of the second industrial revolution. The United States did not really become a melting pot until the 1880s, when the economy was beginning to draw on the breakthroughs of electricity and the engine and attract migrants from Southern and Eastern Europe. The labors that housework required in the nineteenth century were so consuming that housewives in North Carolina walked 148 miles a year carrying 35 tons of water for nonautomated chores. It took until the fifties for household appliances to decline so much in price that they were ubiquitous; the next decade was the one of women's liberation. The prospects for African-American employment increased most dramatically during World War II and in the period just after: 16.4 percent of black men held middle-class jobs in 1950; by 1960 it was 24 percent; by 1970, 35 percent. Progressives will often describe the history of social liberation by quoting Martin Luther King Jr.'s line that the arc of the moral universe bends toward justice; the implication is that metaphysics are somehow involved. But this history has also taken place during unique economic times, and perhaps that is not coincidence.

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