

MIT Alumni Books Podcast | The Rise and Fall of American Growth

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JOE This is the MIT Alumni Books Podcast. I'm Joe McGonagal, Director of Alumni Education.

MCGONEGAL:

The Economist's Robert Gordon's new book is *The Rise and Fall of American Growth, the US standard of Living Since the Civil War*, published last month by Princeton University Press. Gordon is the Stanley G Harris professor of the social sciences at Northwestern University.

He earned his PhD from MIT in 1967. Gordon's peers call the new book a masterpiece. Robert Shiller declared it Gordon's magnum opus. George Akerlof calls it a profound tour de force. Larry Summers says that if we're concerned about our economic future in America moving forward, we have to read this book. And that was three fellow MIT alumni commenting on it.

Well, Robert Gordon, tell me what prompted the beginnings of this book many years ago now.

ROBERT GORDON: Well, when I was an MIT graduate student, I had a summer job after the first year in graduate school. And I was assigned to study some new data on the American economic history that had come out a couple of years earlier.

And I noticed that there was, in addition to the remark in the book that I was looking at, that the speed of American economic progress picked up after 1920. I also noticed that there was a very noticeable hiatus in the growth of capital input-- that is, machines and equipment in the economy-- that lasted from the 1920s to the 1950s. So much so that the ratio of output produced to this capital equipment almost doubled those data in those 30 years, and it never happened before and it's not happened since.

So here is a historical anomaly staring me in the face. And indeed, that relationship forms the basis of the stunning result in my book that growth in what we call total factor productivity-- how much the economy produces given its hours of work and its capital equipment at total factor productivity-- rose much faster in the middle half of the 20th century than it had done ever before or that it's done since.

MCGONEGAL: In your acknowledgments, you single out Robert Solow, who supervised your PhD thesis. And you say, it struck you as you were finishing this that you were submitting a much improved

version of the PhD thesis 47 years late.

GORDON:

Oh yes. Well, he was my thesis supervisor. Although I think he'd tell you-- and he is alive and healthy today still to talk-- that I went off by myself and did the PhD thesis without any supervision. And I brought it in one day and plopped it on his desk, and there it was.

What strikes me in retrospect is that this disjoint behavior of output relative to capital was not something that was compatible with Solow's own growth theories that we learned that graduate students at the time.

In his theory and most others, output and capital grow at the same rate. And so the ratio of output to capital is constant. And in my 30 years that I discovered, the ratio of output to capital goes way up.

Now part of what I do in one of the chapters of the new book is I try to remeasure the capital in ways that solve some of that mystery, but only about half of that puzzle is ultimately solved. The rest of it is a great upward surge in the ability of the US economy to produce goods and services relative to the input of labor and capital.

MCGONEGAL:

You spend a lot of time in the bookstore, the first 300 pages, take us back in time to 1870 to 1940. There's a lot of wistfulness to, boy, if these metrics were actually accurate or as accurate as they are today.

It seems like that's an obstacle in writing this book for you that you had to do a lot of correcting and adjusting. Touch on the consumer price index being flawed.

GORDON:

It's flawed almost by design because it only covers marketed goods and services. And we had many of the great inventions of late 19th, early 20th century made huge differences in human welfare that were not included in GDP. Just the arrival of running water, waste disposal, the transition from horses to motor vehicles that cleaned up the streets.

The conquest of infectious diseases and the near conquest of infant mortality. All those things made a huge difference in people's lives but were not included in GDP.

To a lesser extent, we had the same problem now. 20 years ago, the arrival of the internet with a search engine all of a sudden made encyclopedias and dictionaries obsolete and provided great benefits. The arrival of e-commerce and web contact made some occupations obsolete, like most of the work the travel agents used to do in booking trips, now people do on

their own and prefer to do it because they have more control over what the outcome is, and they don't have to spend time on hold on telephone lines.

All of those attributes-- the convenience of an ATM machine, being able to get cash at any time of the day or night instead of having to limit your access to cash to the hours the bank that happened to be open. Many of these mansions of 10, 20, and 30 years ago likewise improved consumer well-being without being included in GDP.

And of course now everybody is pointing out the multiple benefits of smartphones that combine in one package a GPS unit, a camera, a web browser, and an exercise tracker, if you will, and make possible the breadth of social networks in a way that would not have happened if computing had been limited to desktops and laptops.

So it's an old phenomenon going way back in the mists of time that GDP and the consumer price index do not measure the full benefits of inventions.

MCGONEGAL: The three inventions you mentioned in 1879, the same three month period-- the electricity, the combustion engine, and the wireless-- for you in that special century, the internet age pales in comparison. But it would be wrong to characterize you as a technophobe in this book, even a techno pessimist. There is great hope towards the end of the book here, you give us very concrete policies that you feel the government could lay out to improve growth in the years to come.

GORDON: I want to make a very sharp distinction between the techno optimists who think that we're on the verge of an unparalleled period of economic growth and productivity growth versus my own view that we're going to muddle along with the same relatively slow productivity growth.

After all, if we look back to 1970 and take the last 45 years, and if we exclude the brief period in the late 1990s when the internet was invented and when it was implemented, the growth rate of productivity in the last 45 years, excluding the late 1990s, was about half that of the 50 years in the middle of the 20th century, from 1920 to 1970.

So I'm looking for future productivity growth to be in the same ballpark as that approximately 1.4% that happened after 1970. I'm looking for 1.2%-- not very different at all.

What I'm criticizing is the thought that we could go back to the pre-1970 period of almost 3% annual productivity growth-- something that we have not seen anything like in the last half

century. That's not techno pessimism, it's techno realism.

MCGONEGAL: Chapter 17, it almost sounds like an alumni reunion of MIT people here-- you've got David Autor, Erik Brynjolfsson, Daniela Rus. Hal Varian is mentioned. Curious how you see MIT'S future is as either playing a role in diminishing those headwinds-- those four headwinds you mentioned in the next quarter century-- or in shaping the techno realism and temper, maybe, the techno optimists.

GORDON: Well, we rely on research efforts from places like MIT to achieve the 1.2% growth and productivity than I'm expecting. I'm not expecting zero. It's not the death of innovation, it's not the end of innovation.

I think we'll have gradual incremental progress in the directions pointed to by the techno optimists like Erik Brynjolfsson. My only difference with him is not that I don't doubt that we're going to have more robots or artificial intelligence, and we're going to have some form of autonomous self-driving cars for at least part of the journey, if not the entire journey. But I caution that these new innovations, some of which are being developed further at MIT, are happening very slowly in the great context of the enormous size of our economy and the huge part of our economy that continues to do things just the same way we did 10 years ago.

I don't think MIT has much power to overcome the headwinds. After all, the education headwind, the slowing of the growth of educational attainment, is something that can't be countered by one institution that has a limited enrollment.

The inequality headwind, if anything, is exacerbated by MIT, which produces smart graduates that create innovations and in some cases become very rich as a result of forming new corporations. There's not much MIT can do about the demographic headwind, which is the aging of the population and the retirement of the baby boom generation. Or of the fiscal headwind, which is the combination of slowing economic growth with the aging population, meaning that our funds for social security and Medicare are going to run out probably before the consensus estimates and require that we have a future in which we have a smaller, less generous benefits for old age and perhaps combined with higher taxes to pay for it all.

MCGONEGAL: And Northwestern, you could argue the same, or other elite institutions.

GORDON: That's right. I think this slowdown is more profound than the ability of anyone or even all the institutions of higher education to overcome.

The real problems with our education system are at younger ages. We need it much more far reaching program of preschool education right down to the one-year-old child growing up in poverty with single parent families, usually headed by a mother.

We have an enormous vocabulary gap between poverty children and middle class children coming into kindergarten. We have an elementary and high school system which is funded largely by local property taxes and means that there are inherent inequalities between the resources available for those who need them the most in the poor areas of central cities and in many poor rural areas, compared to the affluent suburbs with their well funded elementary and high schools.

MCGONEGAL: You mentioned how elementary and secondary schools have made large investments in IT without any evident improvement in test scores. Colleges spend vast sums on smart classrooms that require ubiquitous handling of support staff without any apparent benefit.

At the end of that chapter-- this is Chapter 13-- you mentioned the rising digital divide between the developed and the developing world and how those in the developing world don't have access to computers and internet and so forth. How do you reconcile that? We've put all of this investment into infrastructure and internet access into schools without much of a result, and yet you seem to long for more of that in the developing world schools.

GORDON: Well, the story of the developing world is quite different than the United States where the developed countries in Western Europe or Japan or South Korea. In the developing world, we have poverty, we have fragmentary education, depending on where you look. We have enormous room to catch up to the leading economy, so I expect rapid growth, not slow growth, in Africa, in Southeast Asia over the next few decades as this inevitable process of catching up occurs.

Just as we had over the past 35 years a remarkable period of catching up in Singapore, Hong Kong, Taiwan, and South Korea. Several of those countries, particularly Hong Kong and Singapore, have reached US levels of per capita income. And there's no reason why we can't see some of the same thing happen in much of the rest of Asia, spread out over the next 30 to 50 years.

So my pessimism about the rate of growth in the United States in the future and of the other developed economies does not transfer into the emerging markets.

MCGONEGAL: Tell me about your reactions to the reactions to this book so far.

GORDON: I'm surprised that there is so much reaction outside of the narrow sphere of academics. I'm grateful to Paul Krugman for his enthusiastic review in the *New York Times*.

I learned today that as of this Sunday's *New York Times* Book Review of my book has made it into the top 20 nonfiction bestsellers and is the only University Press book in the elite group of bestselling nonfiction. So I'm basically very surprised that there is such a reception to a book that's so long and such hefty weight.

MCGONEGAL: You mentioned Walmart, Amazon, many of the big retail players, so I was tempted to put your book up on Amazon.com. And customers who bought your book also bought Jane Mayer's *Dark Money, the Hidden History of Billionaires*, Muhammad El-Erian's *The Only Game in Town, Central Banks and Avoiding The Next Collapse*, E.J. Dionne's *Why the Right Went Wrong*, and Peter Frankopan's *The Silk Roads*. What do you think that company? Is the algorithm doing its job there?

GORDON: Well, you can bet I'm not going to be reading any of them.

MCGONEGAL: And tell me what else you're reading right now.

GORDON: I'm reading student essays in my freshman seminar, which is called, did economics win the two world wars. It's a combination of history and economics and even military history. So a lot of my time in the winter quarter is spent reading what undergraduates are writing.

MCGONEGAL: The book is *The Rise and Fall of American Growth* by Robert Gordon from Princeton University Press. Robert Gordon, thanks very much.

GORDON: Thank you for having me.

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