

November 19, 2015

To: Interested Colleagues

From: Lloyd Etheredge ¹

Re: **The Optimistic Case for Rapid Learning Economics**

This memorandum outlines, from three perspectives, an optimistic scientific case that a rapid learning system for macroeconomics is possible. Such an achievement, by using the best scientific methods, is likely to provide a better future for billions of people. The three perspectives are: 1.) The existence of “upgrade” variables, widely acknowledged by the profession; 2.) The existence of competing theories that will produce scientific learning about important challenges as new data systems allow them to be tested; 3.) The existence of improved scientific methods for data analysis and fast machine-assisted learning, developed by NIH and the biomedical sciences, that can yield rapid discoveries for US and other G-20 economies.

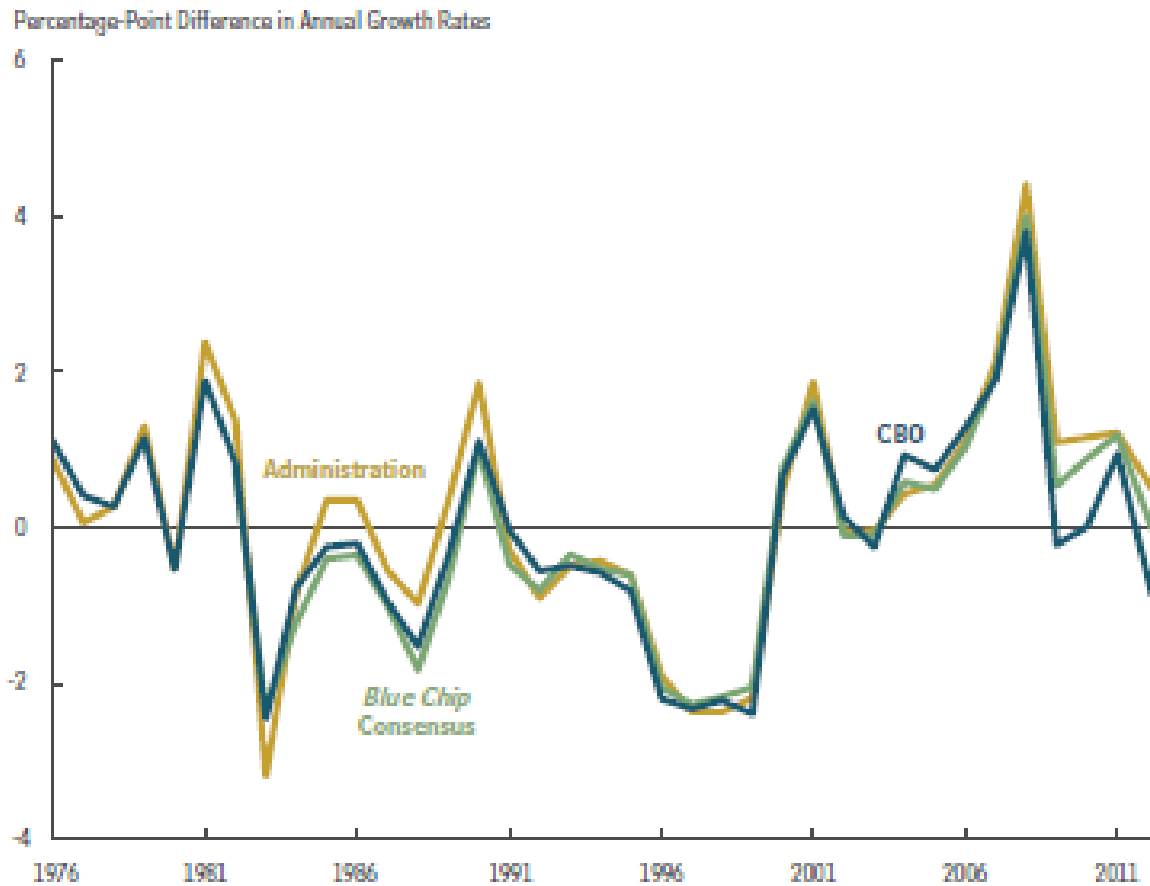
I. Missing “upgrade” variables acknowledged by professionals

The following graph compares the two-year GDP forecasting errors of the Congressional Budget Office, Administration, and about 50 private sector “Blue Chip” models since 1976.² They closely track one another. This is a highly competitive business. Almost everybody uses the same government data, traditional

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² Congressional Budget Office, CBO’s Economic Forecasting Record: 2015 Update (Washington, DC: Congressional Budget Office, February 2015). Online. Comparing Federal Reserve two-year forecasts produces similar results.

Table 1



Forecast Minus Actual Growth in Inflation-Adjusted Output: Two-Year Forecasts

Source: Congressional Budget Office, CBO's Economic Forecasting Record, 2015 Update, (Washington, DC: Congressional Budget Office, February 2015), p. 16. The Blue Chip Consensus is based on about 50 private forecasting models.

conceptual frameworks, and linear regression analysis of quarterly time series data. We should not wait for further progress from the current data system.³

³ The average (root mean square) forecasting error of 1.8, compared to an actual growth rate that might be 3.0, is large for scientific models in most fields, perhaps another reason to be optimistic.

There is professional agreement that there are several types of missing variables:

1.) The “mystery” variables that cause recessions/collapses and recoveries are missing: as CBO reports, forecasting equations miss "turning points";⁴

2.) By design, the predictable nonrational psychological mechanisms and societal forces (discovered by the other social sciences) that might affect economic behavior are missing. [Macroeconomic forecasting uses aggregate variables defined by accountants and the tax code; the coefficients are (without independent verification) *interpreted* as rational choices, although they might be compounds of several individual cognitive processes and emotions or organizational or cultural characteristics;

3.) New structural or systemic changes in the world – e.g., information age technologies and technologies (plus other factors) that change oil prices, sociological/cultural changes, and a globalizing economy - are missing. The analysis of standard quarterly time series data, with coefficients averaged across history, slows learning, limits reliability, and this also (as we will see below, in Larry Summers’s argument) might be dangerous.

Other recognized limitations and upgrade opportunities might be discussed. However, for current purposes, this inventory makes the point: The message is

⁴ *Op cit.*, pp. 7-11.

optimistic. Although nobody can know the results of new scientific research in advance, there already is broad professional agreement about several types of plausible variables for a To Do list and scientific upgrade.

II. Competing Theories and Policy Disagreements to Establish Initial Priorities

The second perspective that gives optimism for rapid learning is that there already are well-structured disagreements, with policy relevant implications, that can be tested quickly to improve economic science in the US and other G-20 nations. For example, here are five controversies:

A. “The Global Economy is in Serious Danger.”

The attached Op Ed piece (last month) by former Harvard President and former Treasury Secretary Larry Summers, “The Global Economy is in Serious Danger,” argues that there have been fundamental global changes.⁵ The coefficients have changed and there are new variables. Thus, it is dangerous to use conventional economic models and rely upon current economic science. The global economic recovery (that already has taken twice as long as estimated by conventional equations) will take much longer and the future could be surprisingly worse than we expect. [This argument requires that missing variables be identified, coefficients re-estimated, and deeper causes of changed coefficients (if they are found) be understood – and much sooner than the analysis of historical time series can achieve].

⁵ Larry Summers, “The Global Economy is in Serious Danger,” Washington Post, October 7, 2015.

B.) Economic science doesn't need further learning. Governments only need to listen to economists.

The attached Op Ed piece (earlier this month) by Nobelist Paul Krugman, “Austerity’s Grim Legacy,” argues that there are no missing variables of consequence.⁶ Economic recovery has been delayed, in the US and abroad, simply because governments stopped listening to the equations and sound policy advice.

This is a challenging counter-factual argument. A task for Krugman’s thesis is to explain apparently unreliable equations that scared people. G-20 governments listened when the crisis began but, after initial success, the fiscal stimulus policies also faltered in their prediction of recovery. Economic forecasters had no reliable estimates of how much time and money would be required to achieve the turning point. If we should renew the large fiscal stimulus solutions, can there be rapid learning to address the risk of new failure + massive national debts without achieving healthy growth?

C.) Linear equation models are giving the wrong result.

“How reliable are these tools? They work, but they don’t work great. People and institutions find ways around them.” - Olivier Blanchard⁷

The International Monetary Fund’s former Chief Economist, Olivier Blanchard, implies that global economic science can become more realistic by upgrading from physics-like linear regression forecasting models to game-theoretic models.

⁶ The New York Times, November 6, 2015. Online.

⁷ Cited in Lloyd S. Etheredge, “A Rapid Learning System for G-20 Macroeconomics: From Greenspan to Shiller and Big Data.” Unpublished, online at www.policyscience.net at I. A., p. 29.

Today, smarter people, with growing asymmetries of brainpower and funds for lobbying, can outsmart many national governments. The force of his argument is backed by IMF data (not widely known to the public) that the world, from the late 1970s to 2003, had 117 banking crises in 93 countries in which much or all of the banking capital was exhausted. Many financial institutions developed strategies for privatizing the gains (during the upside of the bubbles) then secured government bailouts during the crisis phase. In 27 of the cases, they dumped onto governments and taxpayers added national debt equal to 10% of GDP, often much more.⁸ This is not Tulipmania anymore. The problems are not “irrational exuberance” of mass investors but brilliant strategies by alpha predators who can penetrate political systems and shape policy, a phenomenon hidden by missing variables and averaged-coefficient equations.

The better prediction equations of the new domestic and global reality may be the Lotka-Volterra predator-prey equations.

D.) The Ayn Rand novel model of life and the economy has valuable insights.

Former Federal Reserve Chairman Alan Greenspan has challenged the academic members of his profession to improve their forecasting by including a priority list of psychological and cultural variables.⁹ Specifically: although Greenspan has mastered the data and ideas in economic forecasting models he also believes that all of us (and the economy) live inside an Ayn Rand novel, a drama in rela-

⁸ Etheredge, *Op. cit.*, p. 25. Drawn from a discussion by Martin Wolf.

⁹ The Map and the Territory (NY: Penguin Press, 2013).

tionship to government and other institutions. The list of variables should recognize basic psychological truths about life, taking responsibility, the work ethic, relations to government (and all authority) and the goal of healthy self-starting, motivated individuals. His views are similar to Governor Romney's psychological diagnosis of 47% of Americans and to the psychological counseling of Reaganomics and Margaret Thatcher, and to the defining economic/psychological truths believed by Paul Ryan, the new Republican Speaker of the House of Representatives. [These views – the “Ayn Rand novel” model – have been acknowledged as a coherent and serious model, held by intellectual leaders of Republicans in Congress, by Paul Krugman (although he thinks that they are dangerous fools).]

It is sometimes alleged that people like Greenspan or Paul Ryan are ideologues who “ignore data.” Although the Krugman’s of the world may eventually prove them wrong, this is partly unfair. Sometimes, their data comes from personal experience and truths that shape their identity. And, while it may have been an historical artifact, econometric modeling evolved from a conventional national accounting system of variables that excluded their ideas from the databases and any Honest Broker estimates from the forecasting models.^{10 11}

¹⁰ Lloyd S. Etheredge, “President Reagan’s Counseling,” Political Psychology (1984), online at www.policyscience.net.

¹¹ Civic optimism also might be possible. Rapid learning about these Republican-model missing variables, with Honest Broker testing, might shift votes, at the margin, to produce creative legislative compromise and improve agreement in Washington. The simple step of including a consumer “mandate” for individual responsibility to buy health insurance – a provision derived from Governor Romney’s compromise health plan In Massachusetts – preserved an essential element of moral and civic health (in the Republican model) and achieved passage of Obamacare.

E.) Breakdowns of Moral Credibility and Trust in Major Institutions

I also derive optimism because there are new theories (that I have suggested) to explain why policies derived from conventional equations (e.g., low interest rates and fiscal stimulus) misdiagnosed the current breakdowns and do not restore confidence reliably. The current crisis was a sudden and frightening breakdown of trustworthiness and moral credibility by major institutions - governments, political systems, and financial institutions. Confidence in the future cannot be restored by traditional remedies alone because these major institutions have not restored confidence in themselves.¹² If true, science-based learning can help to invent better options.

III.) New Rapid Learning Technology

A third perspective also gives optimism about the possibility of a rapid learning system for economics, which might swiftly benefit economic recovery and the future well-being of billions of people.

Specifically: We have new supercomputer-assisted learning technologies that can be applied to Everything Included databases and produce unexpected discoveries quickly. NIH has shown the new rapid learning systems to be stunningly successful and that they can be routinely applied even to 100,000+ variables/case

¹² Lloyd Etheredge, "Animal Spirits' and Economic Recovery: Reading the Lessons Correctly," online at www.policyscience.net at I. A. See also Robert Shiller: "I suspect that there is a real, if still unsubstantiated, link between widespread anxieties and the strange dynamics of the economic world we live in today" in his "Anxiety and Interest Rates: How Uncertainty is Weighing on Us," The New York Times, February 7, 2015. Online.

and tens of millions of cases: for many centuries cancers were classified by the site of occurrence – now we know, from genetic markers, that there might be ten types of cancer that occur in the breast, each with its own causal pathway and possibility of new, precision treatment. The cost of genetic analysis has dropped more than a million-fold.¹³ Last week, similar initial discoveries of three types of Type II diabetes were announced.¹⁴ And we are just at the beginning of the new rapid learning system.’

The new NIH computer and Big Data strategy also has invented a faster global discovery system. For example, initial discovery thresholds can be set at 0.70 confidence (rather than 0.95) and the results “published” to computer memory for fast further analysis with new samples and without delays for academic publication. Supercomputing analysis for discovery can operate 24x7 at almost the speed of thought, rather than the speed of an NIH or NSF grant process.

The Nobelist Robert Shiller (although without invoking supercomputers, machine-assisted discovery, and Big Data) has recommended this kind of strategy: an inclusive conceptual and data framework that builds economic theory and reliable economic policy on a foundation of how people actually behave. (I am in Shiller’s

¹³ ‘David Reshef et al, “Detecting Novel Associations in Large Sets of Data,” *Science*, 334, (December 16, 2011), pp. 1518-1524; Vogelstein et al., “Cancer Genome Landscapes,” *Science*, 339, (March 29, 2013), pp. 1546-1558.

¹⁴ Francis Collins, “Big Data Study Reveals Possible Subtypes of Type II Diabetes” NIH Director’s blog, posted online November 10, 2015.

camp)¹⁵ . . . There are no guarantees, but the possibility of rapid learning economics is more optimistic than if these technologies did not exist.

Attachments

- Larry Summers, "The Global Economy is in Serious Danger," Washington Post, October 7, 2015.

- Paul Krugman, "Austerity's Grim Legacy," The New York Times, November 6, 2015.

- Lloyd S. Etheredge, "President Reagan's Counseling," Political Psychology, 5:4 (1984), pp. 737-740.

- Francis Collins, "Big Data Study Reveals Possible Subtypes of Type II Diabetes" NIH Director's blog, posted online November 10, 2015.

¹⁵ Etheredge, "A Rapid Learning System . . ." *op. cit.*; NIH's Everything Included /machine-assisted learning strategy also allows an empirical redefining of all variables and classifications.

The global economy is in serious danger

By Lawrence Summers October 7, 2015. The Washington Post.

As the world's financial policymakers convene for their annual meeting [Friday](#) in Peru, the dangers facing the global economy are more severe than at any time since the Lehman Brothers bankruptcy in 2008. The problem of secular stagnation — the inability of the industrial world to grow at satisfactory rates even with very loose monetary policies — is growing worse in the wake of problems in most big emerging markets, starting with China.

This raises the specter of a global vicious cycle in which slow growth in industrial countries hurts emerging markets, thereby slowing Western growth further. Industrialized economies that are barely running above stall speed can ill afford a negative global shock.

Policymakers badly underestimate the risks of both a return to recession in the West and of a period where global growth is unacceptably slow, a global growth recession. If a recession were to occur, monetary policymakers would lack the tools to respond. There is essentially no room left for easing in the industrial world. Interest rates are expected to remain very low almost permanently in Japan and Europe and to rise only very slowly in the United States. Today's challenges call for a clear global commitment to the acceleration of growth as the main goal of macroeconomic policy. Action cannot be confined to monetary policy.

There is an old proverb: “You do not want to know the things you can get used to.” It is all too applicable to the global economy in recent years. While the talk has been of recovery and putting the economic crisis behind us, gross domestic product

forecasts have been revised sharply downward almost everywhere. Relative to its 2012 forecasts, the International Monetary Fund has reduced its forecasts for U.S. GDP in 2020 by 6 percent, for Europe by 3 percent, for China by 14 percent, for emerging markets by 10 percent and for the world as a whole by 6 percent. These dismal figures assume there will be no recessions in the industrial world and an absence of systemic crises in the developing world. Neither can be taken for granted.

We are in a new macroeconomic epoch where the risk of deflation is higher than that of inflation, and we cannot rely on the self-restoring features of market economies. The effects of hysteresis — where recessions are not just costly but also stunt the growth of future output — appear far stronger than anyone imagined a few years ago. Western bond markets are sending a strong signal that there is too little, rather than too much, outstanding government debt. As always when things go badly, there is a great debate between those who believe in staying the course and those who urge a serious correction. I am convinced of the urgent need for substantial changes in the world's economic strategy.

History tells us that markets are inefficient and often wrong in their judgments about economic fundamentals. It also teaches us that policymakers who ignore adverse market signals because they are inconsistent with their preconceptions risk serious error. This is one of the most important lessons of the onset of the financial crisis in 2008. Had policymakers heeded the pricing signal on the U.S. housing market from mortgage securities, or on the health of the financial system from bank stock prices, they would have reacted far more quickly to the gathering storm. There is also a lesson from Europe. Policymakers who dismissed market signals that Greek debt would not be repaid in full delayed necessary adjustments — at great cost.

Lessons from the bond market

It is instructive to consider what government bond markets in the industrialized world are implying today. These are the most liquid financial markets in the world and reflect the judgments of a large group of highly informed traders. Two conclusions stand out.

First, the risks tilt heavily toward inflation rates below official targets. Nowhere in the industrial world is there an expectation that central banks will hit their 2 percent targets in the foreseeable future. [Inflation expectations](#) are highest in the United States — and even here the market expects inflation of barely 1.5 percent for the five-year period starting in 2020. This is despite the fact that the market believes that monetary policy will remain much looser than the Fed expects, as [the Fed funds futures market predicts a rate](#) around 1 percent at the end of 2017 compared with the Fed's most recent median forecast of 2.6 percent. If the market believed the Fed on monetary policy, it would expect even less inflation and a real risk of deflation.

Second, the prevailing expectation is of extraordinarily low real interest rates, which is the difference between interest rates and inflation. Real rates have been on a downward trend for nearly a quarter-century, and the average real rate in the industrialized world over the next 10 years is expected to be zero. Even this presumably reflects some probability that it will be artificially increased by nominal rates at a zero bound — the fact that central banks cannot reduce short-term interest rates below zero — and deflation. In the presence of such low real rates, there can be little chance that economies would overheat.

Many will argue that bond yields are artificially depressed by quantitative easing (QE) and so it is wrong to use them to draw inferences about future inflation and real rates. This possibility cannot be ruled out. But it is noteworthy that bond yields are now lower in the United States than their average during the period of quantitative easing and that forecasters have been confidently — but wrongly — expecting them to rise for years.

The strongest explanation for this combination of slow growth, expected low inflation and zero real rates is the secular stagnation hypothesis. It holds that a combination of higher saving propensities, lower investment propensities and increased risk aversion have operated to depress the real interest rates that go with full employment to the point where the zero lower bound on nominal rates is constraining.

There are four contributing factors that lead to much lower normal real rates:

- **First, increases in inequality — the share of income going to capital and corporate retained earnings — raise the propensity to save.**
- **Second, an expectation that growth will slow due to a smaller labor force growth and slower productivity growth reduces investment and boosts the incentives to save.**
- **Third, increased friction in financial intermediation caused by more extensive regulation and increased uncertainty discourages investment.**
- **Fourth, reductions in the price of capital goods and in the quantity of physical capital needed to operate a business — think of Facebook having more than five times the market value of General Motors.**

Emerging markets

Until recently, a major bright spot has been the strength of emerging markets. They have been substantial recipients of capital from developed countries that could not be invested productively at home. The result has been higher interest rates than would otherwise obtain, greater export demand for industrial countries' products and more competitive exchange rates for developed economies. [Gross flows](#) of capital from industrial countries to developing countries rose from \$240 billion in 2002 to \$1.1 trillion in 2014. Of particular relevance for the discussion of interest rates is that foreign currency borrowing by the nonfinancial sector of developing countries rose from \$1.7 trillion in 2008 to \$4.3 trillion in 2015.

has now gone into reverse. According to [the Institute of International Finance](#), developing country [capital flows](#) fell sharply this year — marking the first such decline in almost 30 years, as the amount of private capital leaving developing countries eclipsed \$1 trillion.

What does this mean for the world's policymakers gathering in Lima? This is no time for complacency. The idea that slow growth is only a temporary consequence of the 2008 financial crisis is absurd. The latest data suggest growth is slowing in the United States, and it is already slow in Europe and Japan. A global economy near stall speed is one where the primary danger is recession. The most successful macroeconomic policy action of the past few years was European Central Bank President Mario Draghi's famous vow that the ECB would do "[whatever it takes](#)" to preserve the euro, uttered at a moment when the single currency appeared to be on the brink. By making an unconditional commitment to providing liquidity and supporting growth, Draghi prevented an incipient panic and helped lift European growth rates — albeit not by enough.

Any discussion has to start with China, which [poured more concrete](#) between 2010 and 2013 than the United States did in the entire 20th century. A reading of the recent history of investment-driven economies — whether in Japan before the oil shock of the 1970s and 1980s or the Asian Tigers in the late 1990s — tells us that growth does not fall off gently.

China faces many other challenges, ranging from the most rapid population aging in the history of the planet to a slowdown in rural-to-urban migration. It also faces issues of political legitimacy and how to cope with hangovers of unproductive investment. Even taking an optimistic view — where China shifts smoothly to a consumption-led growth model led by services — its production mix will be much lighter. The days when it could sustain global commodity markets are over.

The problems are hardly confined to China. Russia struggles with low oil prices, a breakdown in the rule of law and harsh sanctions. Brazil has been hit by the decline in commodity prices but even more by political dysfunction. India is a rare exception. But from Central Europe to Mexico to Turkey to Southeast Asia, the combination of industrial growth declines and dysfunctional politics is slowing growth, discouraging capital inflows and encouraging capital outflows.

No time for complacency

What is needed now is something equivalent but on a global scale — a signal that the authorities recognize that secular stagnation, and its spread to the world, is the dominant risk we face. After last Friday's dismal [U.S. jobs report](#), the Fed must recognize what should already have been clear: that the risks to the U.S. economy are two-sided. Rates will be increased only if there are clear and direct signs of inflation or of financial euphoria breaking out. The Fed must also state its

readiness to help prevent global financial fragility from leading to a global recession.

The central banks of Europe and Japan need to be clear that their biggest risk is a further slowdown. They must indicate a willingness to be creative in the use of the tools at their disposal. With bond yields well below 1 percent, it is doubtful that traditional quantitative easing will have much stimulative effect. They must be prepared to consider support for assets such as corporate securities that carry risk premiums that can be meaningfully reduced and even to recognize that by absorbing bonds used to finance fiscal expansion they can achieve more.

Long-term low interest rates radically alter how we should think about fiscal policy. Just as homeowners can afford larger mortgages when rates are low, government can also sustain higher deficits. If a debt-to-GDP ratio of 60 percent was appropriate when governments faced real borrowing costs of 5 percent, then a far higher figure is surely appropriate today when real borrowing costs are negative.

The case for more expansionary fiscal policy is especially strong when it is spent on investment or maintenance. Wherever countries print their own currency and interest rates are constrained by the zero bound, there is a compelling case for fiscal expansion until demand accelerates to the point where interest rates can be raised. While the problem before 2008 was too much lending, many more of today's problems have to do with too little lending for productive investment.

Inevitably, there will be discussion of the need for structural reform at the Lima meetings — there always is. But to emphasize this now would be to embrace the macroeconomic status quo. The world's largest markets are telling us with ever-

increasing force that we are in a different world than we have been accustomed to. Traditional approaches of focusing on sound government finance, increased supply potential and avoidance of inflation court disaster. Moreover, the world's principal tool for dealing with contraction — monetary policy — is largely played out and will be less effective if contraction comes. It follows that policies aimed at lifting global demand are imperative.

If I am wrong about expansionary fiscal policy and such measures are pursued, the risks are that inflation will accelerate too rapidly, economies will overheat and too much capital will flow to developing countries. These outcomes seem remote. But if they materialize, standard approaches can be used to combat them.

If I am right and policy proceeds along the current path, the risk is that the global economy will fall into a trap not unlike the one Japan has been in for 25 years, where growth stagnates but little can be done to fix it. It is an irony of today's secular stagnation that what is conventionally regarded as imprudent offers the only prudent way forward.

Austerity's Grim Legacy

NOV. 6, 2015. by Paul Krugman, The New York Times

When economic crisis struck in 2008, policy makers by and large did the right thing. The Federal Reserve and other central banks realized that supporting the financial system took priority over conventional notions of monetary prudence. The Obama administration and its counterparts realized that in a slumping economy budget deficits were helpful, not harmful. And the money-printing and borrowing worked: A repeat of the Great Depression, which seemed all too possible at the time, was avoided.

Then it all went wrong. And the consequences of the wrong turn we took look worse now than the harshest critics of conventional wisdom ever imagined.

For those who don't remember (it's hard to believe how long this has gone on): In 2010, more or less suddenly, the policy elite on both sides of the Atlantic decided to stop worrying about unemployment and start worrying about budget deficits instead.

This shift wasn't driven by evidence or careful analysis. In fact, it was very much at odds with basic economics. Yet ominous talk about the dangers of deficits became something everyone said because everyone else was saying it, and dissenters were no longer considered respectable — which is why I began describing those parroting the orthodoxy of the moment as Very Serious People.

Some of us [tried in vain](#) to point out that deficit fetishism was both wrongheaded and destructive, that there was no good evidence that government debt was a problem for major economies, while there was plenty of evidence that cutting spending in a depressed economy would deepen the depression.

And we were vindicated by events. More than four and a half years have passed since Alan [Simpson and Erskine Bowles warned](#) of a fiscal crisis within two years; U.S. borrowing costs remain at historic lows. Meanwhile, the austerity policies that were put into place in 2010 and after had exactly the [depressing effects](#) textbook economics predicted; the confidence fairy never did put in an appearance.

Yet there's growing evidence that we critics actually underestimated just how destructive the turn to austerity would be. Specifically, it now looks as if austerity policies didn't just impose short-term losses of jobs and output, but they also crippled long-run growth.

The idea that policies that depress the economy in the short run also inflict lasting damage is generally referred to as "hysteresis." It's an idea with an impressive pedigree: The case for hysteresis was made in a well-known [1986 paper](#) by Olivier Blanchard, who later became the chief economist at the International Monetary Fund, and Lawrence Summers, who served as a top official in both the Clinton and the Obama administrations. But I think everyone was hesitant to apply the idea to the Great Recession, for fear of seeming excessively alarmist.

At this point, however, the evidence practically screams hysteresis. Even countries that seem to have largely recovered from the crisis, like the United States, are far poorer than precrisis projections suggested they would be at this point. And a [new paper](#) by Mr. Summers and Antonio Fatás, in addition to supporting [other economists' conclusion](#) that the crisis seems to have done enormous long-run damage, shows that the downgrading of nations' long-run prospects is strongly correlated with the amount of austerity they imposed.

What this suggests is that the turn to austerity had truly catastrophic effects, going far beyond the jobs and income lost in the first few years. In fact, the long-run damage suggested by the Fatás-Summers estimates is easily big enough to make austerity a self-defeating policy even in purely fiscal terms: Governments that slashed spending in the face of depression hurt their economies, and hence their future tax receipts, so much that even their debt will end up higher than it would have been without the cuts.

And the bitter irony of the story is that this catastrophic policy was undertaken in the name of long-run

responsibility, that those who protested against the wrong turn were dismissed as feckless.

There are a few obvious lessons from this debacle. "All the important people say so" is not, it turns out, a good way to decide on policy; groupthink is no substitute for clear analysis. Also, calling for sacrifice (by other people, of course) doesn't mean you're tough-minded.

But will these lessons sink in? Past economic troubles, like the stagflation of the 1970s, led to widespread reconsideration of economic orthodoxy. But one striking aspect of the past few years has been how few people are willing to admit having been wrong about anything. It seems all too possible that the Very Serious People who cheered on disastrous policies will learn nothing from the experience. And that is, in its own way, as scary as the economic outlook.

The Forum

President Reagan's Counseling

Lloyd S. Etheredge'

President Reagan's psychological model of economic behavior is a very different idea of how society operates than the individual rational choice models used by economists. It would be a major contribution to American public policy to develop direct measures of imagination and determine whether people do relate to government, as a higher presence, from within a larger-than-life drama.

KEY WORDS: political economy; mass psychology; leadership; imagination therapy.

For decades, economic policy has been the territory of economists, governed by their idea that we are a nation of rational choices. President Reagan has changed the assumptions. He is using ideas familiar to psychoanalysts and clinical psychologists to diagnose the problems of the American economy and design a course of treatment. He has posed a set of problems which political psychologists can solve with great benefit to the intelligence of national policy.

The president's idea is simple. He says our economy's lack of vitality is produced because government has become a powerful, substantial presence "above" us here in America. Over the past 30 years as, in our national imagination government became "bigger," we grew subjectively smaller to develop a national dependence. There was a "zero-sum" effect on each person's mind: As "it" (government) assumed more responsibility in national life, "we" (the people) took less. The work ethic disintegrated; productivity increases stopped; the economy stalled.

The president's economic policy follows logically. It is intellectually serious and urgent: He must provide national psychotherapy for a depressed, passive nation that expects its therapist to have a prompt and magical solution.

To effect the change he desires, our president-psychiatrist has designed a national psychodrama to inspire us, to create open space, and to reduce our idealized illusions. He is warm and supportive. He is cutting taxes and expenditures to make government above us "smaller." It may not be a cure we like, and there will be painful withdrawal symptoms, but we must again take responsibility for our own lives.

From personal experience, Dr. Reagan knows he is right. The dire predictions of his theory, made 30 years ago, appear correct to him. And in his autobiography, *Where's the Rest of Me?*, he sketches how he, too, was once dependent, in his case on the Hollywood studio system. He was well paid but unhappy, reading scripts written by others, never getting the leading dramatic roles he wanted to play. But then he became more assertive, struck out on his own. Once he became his own man, life started to work for him. He made a successful second marriage. Speaking his own ideas, he was elected Governor of California. Now he has the leading role in the country.

Other aspects of the president's life and experience confirm the same intuitive truth. He enjoys exhilaration, and a sense of freedom, when he rides the open range on horseback, the experience of the open range for free entrepreneurship he has told us we will regain in our national psychology by cutting back that "big government" in the sky. When he escapes to California from Washington and clears brush on his ranch, he feels recharged. He knows we will feel that way too, as the American Congress "stays the course" to effect the psychological transformation he wants.

To be sure, this is a closed system of beliefs. Evidence is always interpreted in the light of what the president calls his "basic principles." If the economic recovery is slow, it only means problems of dependency and addiction to big government are deep in our national psyche. So he is under an even greater obligation to persevere until we regain our independence and self-confidence and restart the economy. He has no choice.

From the president's perspective there is likely a second cause of a slow recovery, a cause psychoanalysts and clinical psychologists often cite: We are resisting. To an unprecedented degree, American news media refuse to discuss a national problem in the language a president uses. He has been stonewalled. *CBS News* has run nightly stories about the sufferings imposed by Reaganomics but has not yet discussed the real national problem, our psychology of dependency. It is as though the Eastern liberal news media are so addicted to the drama of an activist government, so psychologically dependent, so accustomed to demand that the president do something, that they will never admit even the possibility he could be profoundly right.

If Reagan is right, these skeptics slow the cure. The president can cut taxes and expenditures; these are actions in physical reality. But the stakes

are *psychological* reality. For the therapy to work we must agree — that the diagnosis of dependency is right, that big government is receding, that the therapist knows what he is doing.

It is also possible our actor-president is wrong. A powerful bond to government may be true of only 2% of the population: actors, intellectuals, reporters, the people who give money to political causes or end up in Washington. How can we tell?

The president has profoundly challenged the discipline of economics. His idea about how the economy works does not come from the hundreds of complex equations of their mathematical models. The basic problem, in his view, is simple: The economy is deeply *political*; we orient ourselves dependently toward government in a larger-than-life drama.

Lacking objective evidence, we now are adrift and debates about economic policy are decoupled, without intellectual integrity. Administration economists have given no evidence to support the intuitive psychological ideas about the economy the president uses to set policy. They have developed no national indicators for the substantiality of images of a "big" government in the sky, for changes in achievement motivation, for the alleged zero-sum allocations of responsibility.

Now, as we "stay the course," we navigate blind, on faith alone. Congress has applied no rules of evidence. The *Report* of the U.S. government's Council of Economic Advisers is intellectually irrelevant; it would be rejected as a test of the president's theories by any psychology department.

If the president is right, good national psychological indicators will tell us. And, refining our understanding, they might improve the president's policy. John F. Kennedy cut taxes and the economy leaped ahead — but Kennedy also talked about achievement — a New Frontier, a man on the moon by 1970. If psychodrama is needed, perhaps these are the themes to emphasize.

The president is not speaking in metaphors. He believes he is talking about our reality: solid, strong constituents of a national imagination, constituents so powerful in their effects as to destroy the health of a multitrillion dollar economy and our national spirit. His theories reflect ideas many psychologists have voiced seriously in the past: Psychoanalysts have told us that, via transference, many people relate to government authority, in our "mass psychology," the way as children they regarded their magically powerful parents; David McClelland of Harvard explained the economic rise and fall of civilizations by changes in the imaginations of citizens.

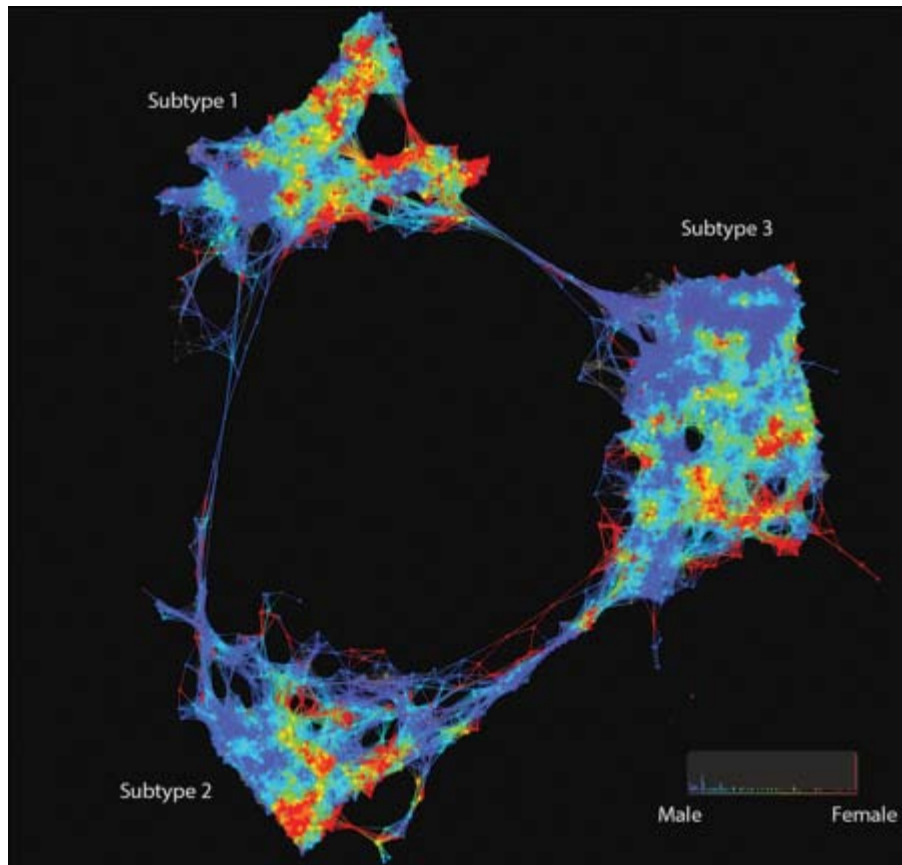
Currently, empirical evidence bearing upon the president's fundamental assumption is indirect and inconsistent. Self-report attitude measures seem to deny his model: Americans say they blame *themselves* for economic hardship. Yet macrolevel studies of election results, and individual-difference measures of self-interested and "socio-tropic" voting, suggest Reagan is cor-

rect and responsibility for management of the economy is assigned to the party in power.

Such measures of attitudes and voting are open to different interpretations as reflecting either rational and secular or psychodramatic processes. Alone, they cannot dispel the fog. The deeper question is the psychological nature of American government, and what is needed is that our public debates begin to be informed by evidence, from appropriate, clinically derived measures, of the location and substantiality of citizens' experience of government and the nature of the emotional bonds to it.

Big Data Study Reveals Possible Subtypes of Type 2 Diabetes

Posted on November 10, 2015 by [Dr. Francis Collins](#)



Caption: Computational model showing study participants with type 2 diabetes grouped into three subtypes, based on similarities in data contained in their electronic health records. Such information included age, gender (red/orange/yellow indicates females; blue/green, males), health history, and a range of routine laboratory and medical tests.

Credit: Dudley Lab, Icahn School of Medicine at Mount Sinai, New York

In recent years, there's been a lot of talk about how "Big Data" stands to revolutionize biomedical research. Indeed, we've already gained many new insights into health and disease thanks to the power of new technologies to generate astonishing amounts of molecular data—DNA sequences, epigenetic marks, and metabolic signatures, to name a few. But what's often overlooked is the value of combining all that with a more mundane type of Big Data: the vast trove of clinical information contained in electronic health records (EHRs).

In a recent study in *Science Translational Medicine* [1], NIH-funded researchers demonstrated the tremendous potential of using EHRs, combined with genome-wide analysis, to learn more about a common, chronic disease—type 2 diabetes. Sifting through the EHR and genomic data of more than 11,000 volunteers, the researchers uncovered what appear to be three distinct subtypes of type 2 diabetes. Not only does this work have implications for efforts to reduce this leading cause of death and disability, it provides a sneak peek at the kind of discoveries that will be made possible by the new [Precision Medicine Initiative's national research cohort](#), which will enroll 1 million or more volunteers who agree to share their EHRs and genomic information.

In the latest study, a research team, led by Li Li and Joel Dudley of the Icahn School of Medicine at Mount Sinai, New York, started with EHR data from a racially and socioeconomically diverse cohort of 11,210 hospital outpatients. Of these volunteers, 2,551 had been diagnosed with type 2 diabetes, which is the most common form of diabetes.

Without focusing on any particular disease or condition, the researchers first sought to identify similarities among all participants, based on their lab results, blood pressure readings, height, weight, and other routine clinical information in their EHRs. The approach was similar to building a social network with connections forged, not on friendships, but medical information. When the resulting network was color-coded to reveal participants with type 2 diabetes, an interesting pattern emerged. Instead of being located in one, large clump on this “map,” the points indicating people with type 2 diabetes were actually grouped into several smaller, distinct clusters, suggesting the disease may have subtypes.

To take a closer look, the researchers rebuilt the network to include only participants with type 2 diabetes. They then reanalyzed the EHRs based on 73 clinical characteristics, including gender, glucose levels, and white blood cell counts. That work confirmed that there were three distinct subtypes of type 2 diabetes among study participants.

Type 2 diabetes is associated with potentially serious complications, including nerve damage, vision problems, kidney disease, and an increased risk for cardiovascular disease. The study found differences in the distribution of such complications among the three subtypes of type 2 diabetes. People with subtype 1 were more likely to be diagnosed with microvascular complications, including blindness/vision defects. This group of participants was also the youngest and most likely to be obese. People with subtype 2 showed the greatest risk for tuberculosis and cancer. As for subtype 3, such people were more likely than others to be HIV positive, have high blood pressure, and develop arterial blood clots. Both subtypes 2 and 3 displayed a greater risk for heart disease than subtype 1.

Next, the researchers performed a genomic analysis, identifying hundreds of genetic variants that were enriched non-randomly in each of the three groups. Interestingly, some of the genetic variants linked to each subgroup were associated with genetic pathways that appeared relevant to the distinguishing clinical features of those subgroups.

These findings suggest that some of the clinical differences observed between the different type 2 diabetes subtypes are rooted in lifestyle or environment, and others may be influenced by inherited factors. Still, more research needs to be done to replicate and expand upon these findings. The hope is that by gaining a more nuanced understanding of type 2 diabetes, we may be able to identify more precise ways of helping to detect, manage, and, ultimately, prevent this serious, chronic disease that currently affects about 1 out of every 11 Americans [2].

References:

[1] [Identification of type 2 diabetes subgroups through topological analysis of patient similarity](#). Li L, Cheng WY, Glicksberg BS, Gottesman O, Tamler R, Chen R, Bottinger EP, Dudley JT. *Sci Transl Med*. 2015 Oct 28;7(311):311ra174.

[2] [Diabetes Latest Fact Sheet](#). 2014 June 17. (Centers for Disease Control and Prevention)