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U.S. Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound

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The nature of macroeconomics has changed dramatically in the last seven years. Now, instead of being concerned with minor adjustments to stabilize about a given trend, concern is focused on avoiding secular stagnation. Much of this concern arises from the long-run effects of short-run developments and the inability of monetary policy to accomplish much more when interest rates have already reached their lower bound. This address analyzes contemporary macroeconomic problems and proposes solutions to put the U.S. economy back on a path toward healthy growth.
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I would like to thank Michael Peterson[1] very much for his generous words of introduction and for his thoughtful observations about the long-run economic challenges that our country faces. You do not, however, get to the long run except through the short run, and what happens in the short run has a profound impact on the long run. To reverse Keynes a bit, if you die in the short run, there is no long run. So my preoccupation this morning will be with a set of temporary but, I believe, ultimately long-term concerns.

Before I turn to those concerns, however, let me just say how grateful I am to be back with the National Association for Business Economics. It seems to me that the members of this organization make an enormous, ongoing contribution to evaluating, understanding, and responding to the flow of economic events. I have been coming to these meetings on and off now for more than 30 years, and I have always been struck by the sophistication and relevance of the analyses that are provided herein.

Indeed, I think it is fair to say that some of the themes that are today central to discussions of academic macroeconomists, but that had receded from the debate for many years, were always kept alive at the National Association for Business Economics. I think, for example, of the importance of the financial sector and the flow of credit. I also think of the issues surrounding confidence and uncertainty. These topics have long been staples of the discussions at NABE meetings.

Macroeconomics, just six or seven years ago, was a very different subject than it is today. Leaving aside the set of concerns associated with long-run growth, I think it is fair to say that six years ago, macroeconomics was primarily about the use of monetary policy to reduce the already small amplitude of fluctuations about a given trend, while maintaining price stability. That was the preoccupation. It was supported by historical analysis emphasizing that we were in a great moderation, by policy and theoretical analysis suggesting the importance of feedback rules, and by a vast empirical program directed at optimizing those feedback rules.

Today, we *wish* for the problem of minimizing fluctuations around a satisfactory trend. Indeed, I think it is fair to say that today, the amplitude of fluctuations appears large, not small. As I shall discuss, there is room for doubt about whether the cycle actually cycles.

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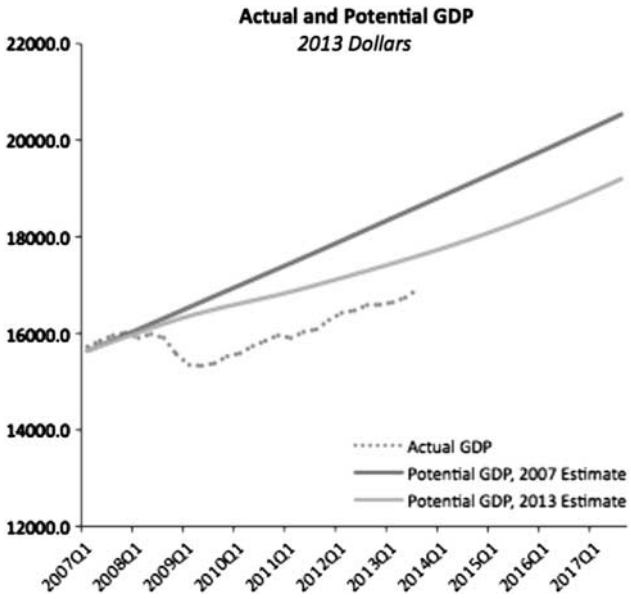
Today, it is increasingly clear that the trend in growth can be adversely affected over the longer term by what happens in the business cycle. And today, there are real questions about the efficacy of monetary policy, given the zero lower bound on interest rates.

In my remarks today, I want to take up these issues—secular stagnation, the idea that the economy re-equilibrates; hysteresis, the shadow cast forward on economic activity by adverse cyclical developments; and the significance of the zero lower bound for the relative efficacy of monetary and fiscal policies.

I shall argue three propositions. First, as the United States and other industrial economies are currently configured, simultaneous achievement of adequate growth, capacity utilization, and financial stability appears increasingly difficult. Second, this is likely to be related to a substantial decline in the equilibrium or natural real rate of interest. Third, addressing these challenges requires different policy approaches than are represented by the current conventional wisdom.

Figure 1. Downward Revision in Potential GDP, U.S.A.



Source: CBO.

1. The Difficulty of Achieving Multiple Objectives

Let me turn, then, to the first of these propositions. It has now been nearly five years since the trough of the recession in the early summer of 2009. It is no small achievement of policy that the economy has grown consistently since then and that employment has increased on a sustained basis. Yet, it must be acknowledged that essentially all of the convergence between the economy's level of output and its potential has been achieved not through the economy's growth, but through downward revisions in its potential.

In round numbers, Figure 1 shows that the economy is now 10 percent below what in 2007 we thought its potential would be in 2014. Of that 10 percent gap, 5 percent has already been accommodated into a reduction in the estimate of its potential, and 5 percent remains as an estimate of its GDP gap. In other words, through this recovery, we have made no progress in restoring GDP to its potential.

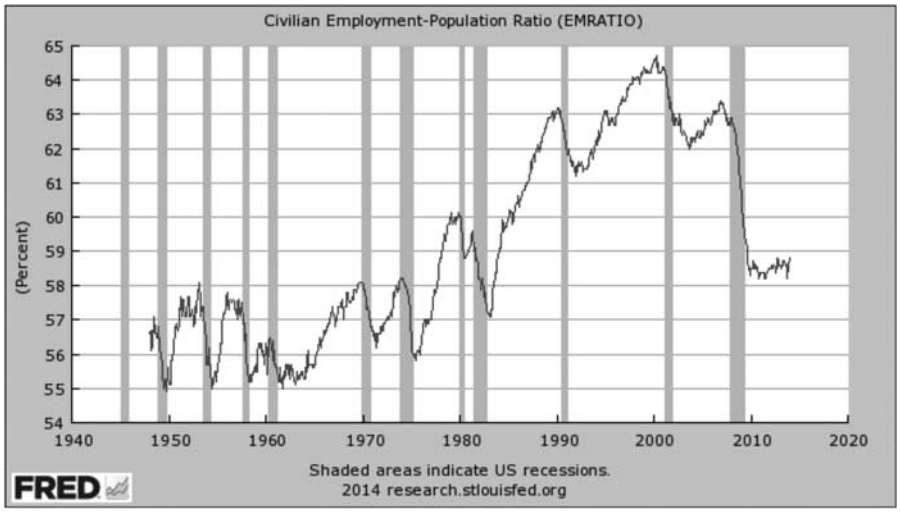
Information on employment is similarly sobering. Figure 2 depicts the employment/population ratio in aggregate. Using this relatively crude measure, one observes almost no progress. It has been pointed out repeatedly and correctly that this chart is somewhat misleading because it neglects the impact of a range of demographic changes on the employment ratio that would have been expected to carry on even in the absence of a cyclical downturn.

But that is not the largest part of the story. Even if one looks at 25-to-54 year-old men, a group where there is perhaps the least ambiguity because there is the greatest societal expectation of work, Figure 3 shows that the employment/population ratio declined sharply during the downturn, and only a small portion of that decrease has been recovered since that time.

The recovery has not represented a return to potential; and, according to the best estimates we have, the downturn has cast a substantial shadow on the economy's future potential. Making the best calculations one can from the CBO's estimates of potential (and I believe quite similar results would come from other estimates of potential), one can see from Figure 4 that this is not about technological change. Slower total factor productivity than we would have expected in 2007 accounts for the smallest part of the downward trend in potential. The largest part is associated with reduced capital investment, followed closely by reduced labor input. Let me emphasize that this is not a calculation about why we have less output today. It is a calculation about why it is estimated that the potential of the economy has declined by 5 percent as a consequence of the downturn that we have suffered.

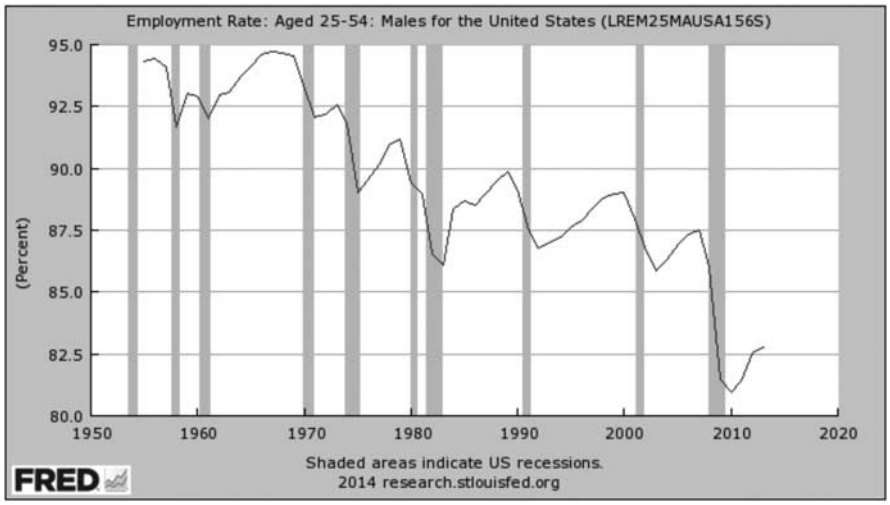
The record of growth for the last five years is disturbing, but I think that is not the whole of what should concern us. It is true that prior to the downturn in 2007, through the period from, say, 2002 until 2007, the economy grew at a satisfactory rate. Note that, there is no clear evidence of overheating. Inflation did not accelerate in any substantial way. But the economy did grow at a satisfactory rate, and did certainly

Figure 2. Employment/Population Ratio, Aggregate



Source: U.S. Department of Labor: Bureau of Labor Statistics.

Figure 3. Employment/Population Ratio, Men 25–54



Source: Organization for Economic Co-operation and Development.

achieve satisfactory levels of capacity utilization and employment.

Did it do so in a sustainable way? I would suggest not. It is now clear that the increase in house prices shown in Figure 5 (that can retrospectively be convincingly labeled a bubble) was associated with an unsustainable upward movement in the share of GDP devoted to residential investment, as shown in Figure 6. And this made possible a substantial increase in the debt-to-income ratio for households, which has been reversed only to a limited extent, as shown in Figure 7.

It is fair to say that critiques of macroeconomic policy during this period, almost without exception, suggest that prudential policy was insufficiently prudent, that fiscal policy was excessively expansive, and that monetary policy was excessively loose. One is left to wonder how satisfactory would the recovery have been in terms of growth and in terms of achievement of the economy's potential with a different policy environment, in the absence of a housing bubble, and with the maintenance of strong credit standards.

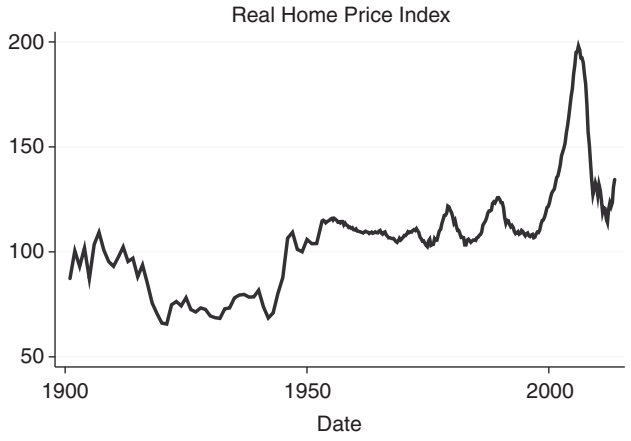
Figure 4. Why did Potential GDP Fall?

- Potential GDP in 2014
  – 2013 estimate vs 2007 estimate: 10% decline
- Why did the estimate decline?

Component of Pot. GDP	Contribution to Decline in Estimate
Potential TFP	~10% (11%)
Capital	~50% (48%)
Potential Hours Worked	~40% (41%)

Source: CBO data. Author calculations.

Figure 5. Home Prices



Source: Robert Shiller's website.

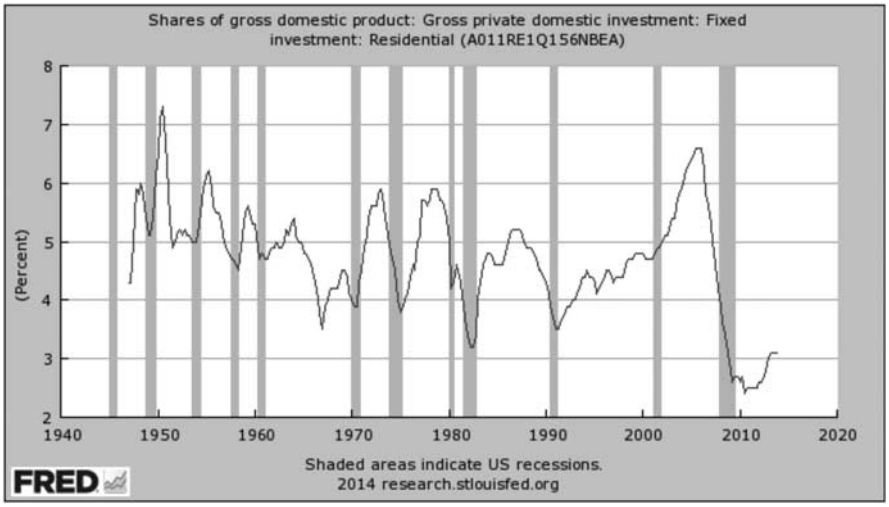
As a reminder, prior to this period, the economy suffered the relatively small, but somewhat prolonged, downturn of 2001. Before that, there was very strong economic performance that in retrospect we now know was associated with the substantial stock market bubble of the late 1990s. The question arises, then, in the last 15 years: can we identify any sustained stretch during which the economy grew satisfactorily with conditions that were financially sustainable? Perhaps one can find some such period, but it is very much the minority, rather than the majority, of the historical experience.

What about the rest of the industrialized world? I remember well when the Clinton administration came into office in 1993. We carried out a careful review of the situation in the global economy. We consulted with all the relevant forecasting agencies about the long-term view for global economic growth.

At that time, there was some controversy as to whether a reasonable estimate of potential growth for Japan going forward was 3 percent or 4 percent. Since then, Japanese growth has been barely 1 percent. So, it is hard to make the case that over the last 20 years, Japan represents a substantial counterexample to the proposition that industrial countries are having difficulty achieving what we traditionally would have regarded as satisfactory growth with sustainable financial conditions.

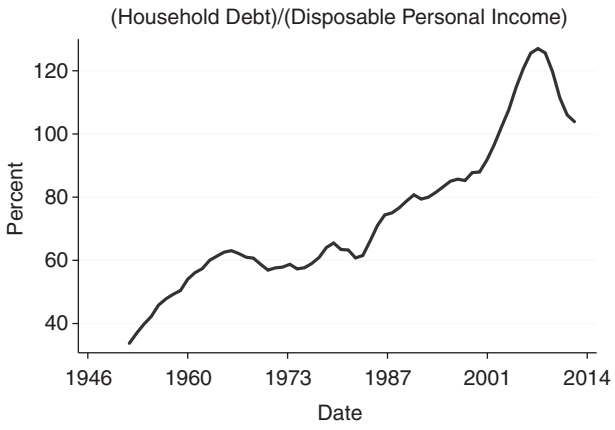
What about Europe? Certainly, for some years after the introduction of the euro in 1999, Europe's economic performance appeared substantially stronger than many on this side of the Atlantic expected. Growth appeared satisfactory and impressive. Fears that were expressed about the potential risks associated with a

Figure 6. Housing Share of GDP



Source: U.S. Department of Commerce: Bureau of Economic Analysis.

Figure 7. Debt/Income Ratio for Households



Source: Federal Reserve (FRED).

common currency without common governance appeared to have been overblown.

In retrospect, matters look different. It is now clear that the strong performance of the euro in the first decade of this century was unsustainable and reliant on financial flows to the European periphery that in retrospect appear to have had the character of a bubble. For the last few years, and in prospect, European economic growth appears, if anything, less satisfactory than American economic growth.

In sum, I would suggest to you that the record of industrial countries over the last 15 years is profoundly discouraging as to the prospect of maintaining substantial growth with financial stability. Why is this the case? I would suggest that in understanding this phenomenon, it is useful at the outset to consider the possibility that changes in the structure of the economy have led to a significant shift in the natural balance between savings and investment, causing a decline in the equilibrium or normal real rate of interest that is associated with full employment.

2. The Decline in the Equilibrium Real Rate of Interest

Let us imagine, as a hypothesis, that this decline in the equilibrium real rate of interest has taken place. What would one expect to see? One would expect increasing difficulty, particularly in the down phase of the cycle, in achieving full employment and strong growth because of the constraints associated with the zero lower bound on interest rates. One would expect that, as a normal matter, real interest rates would be lower. With very low real interest rates and with low inflation, this also means very low nominal interest rates, so one would expect increasing risk-seeking by investors. As such, one would expect greater reliance on Ponzi finance and increased financial instability.

So, I think it is reasonable to suggest that if there had been a significant decline in equilibrium real interest rates, one might observe the kinds of disturbing signs that we have observed. Is it reasonable to suggest that equilibrium real interest rates have declined? I would suggest it is a reasonable hypothesis for at least six reasons, whose impact differs from moment to moment and probably is not readily amenable to precise quantification.

First, reductions in demand for debt-financed investment. In part, this is a reflection of the legacy of a period of excessive leverage. In part, it is a consequence of greater restriction on financial intermediation as a result of the experiences of recent years. Yet, probably to a greater extent, it is a reflection of the changing character of productive economic activity.

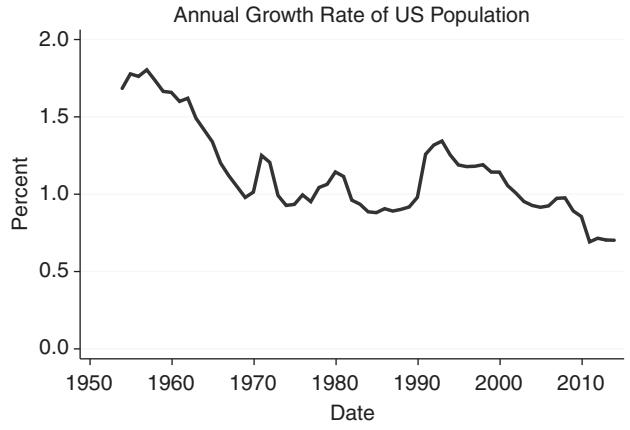
Ponder that the leading technological companies of this age—I think, for example, of Apple and Google—find themselves swimming in cash and facing the challenge of what to do with a very large cash hoard. Ponder the fact that WhatsApp has a greater market value than Sony, with next to no capital investment required to achieve it. Ponder the fact that it used to require tens of millions of dollars to start a significant new venture, and significant new ventures today are seeded with hundreds of thousands of dollars. All of this means reduced demand for investment, with consequences for equilibrium levels of interest rates.

Second, it is a well known, going back to Alvin Hansen and way before, that a declining rate of population growth, as shown in Figure 8, means a declining natural rate of interest. The U.S. labor force will grow at a substantially lower rate over the next two decades than it has over the last two decades, a point that is reinforced if one uses the quality-adjusted labor force for education as one's measure. There is the possibility, on which I take no stand, that the rate of technological progress has slowed as well, functioning in a similar direction.

Third, changes in the distribution of income, both between labor income and capital income and between those with more wealth and those with less, have operated to raise the propensity to save, as have increases in corporate-retained earnings. These phenomena are shown in Figures 9 and 10. An increase in inequality and the capital income share operate to increase the level of savings. Reduced investment demand and increased propensity to save operate in the direction of a lower equilibrium real interest rate.

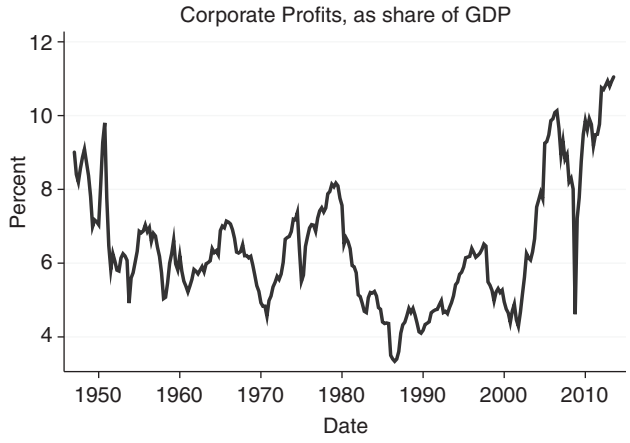
Related to the changes I described before, but I think separate, is a substantial shift in the relative price

Figure 8. Population Growth Rate



Source: Federal Reserve (FRED).

Figure 9. Corporate Profits



Source: Federal Reserve (FRED).

Figure 10. Top 1 Percent

Source: World Top Incomes Databases.

of capital goods. Figure 11 shows the evolution of the relative price of business equipment. Something similar, but less dramatic, is present in the data on consumer durables. To take just one example, during a period in which median wages have been stagnant over the last 30 years, median wages in terms of automobiles have almost doubled according to BLS data.

Cheaper capital goods mean that investment goods can be achieved with less borrowing and spending, reducing the propensity for investment.

Fifth, and I will not dwell on this point, there is a reasonable argument to be made that what matters in the economy is after-tax, rather than pre-tax, real interest rates, and the consequence of disinflation is that for any given after-tax real interest rate, the pretax real interest rate now needs to be lower than it was before. Figure 12 demonstrates this relationship.

Finally, Figure 13 shows that there have been substantial global moves to accumulate central bank reserves, disproportionately in safe assets in general, and in U.S. Treasuries in particular. Each of these

Figure 11. Price of capital equipment

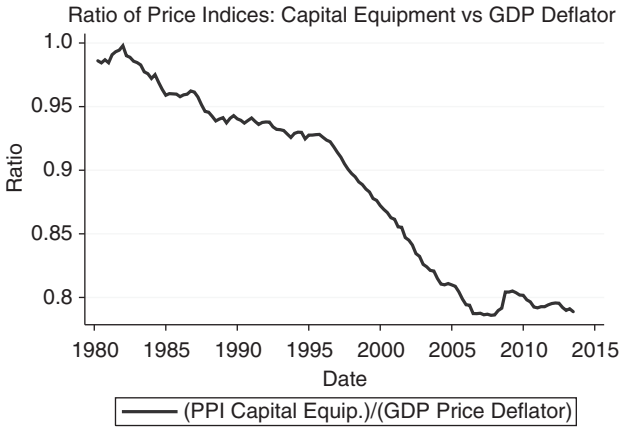
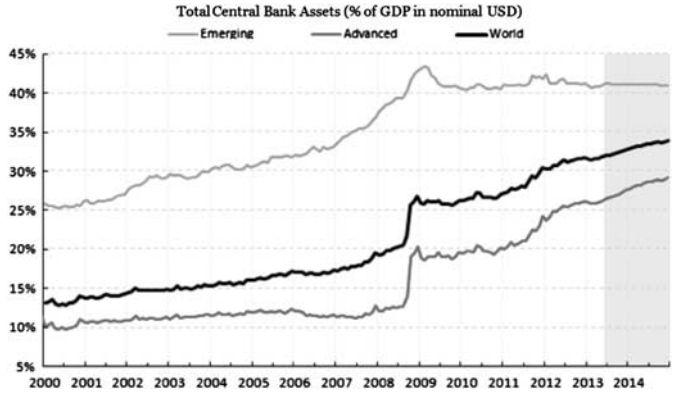


Figure 12. Inflation, taxes, real interest rates

- Consider investor in 40% tax bracket
- Pre-Tax Real Rate = $i - \pi$
- Post-Tax Real Rate = $(i)(1 - \tau) - \pi$

	Case 1 (inflation = 3%)	Case 2 (inflation = 1%)
Nominal Rate	5%	1.67%
Pre-Tax Real Rate	2%	0.67%
Post-Tax Real Rate	0%	0%

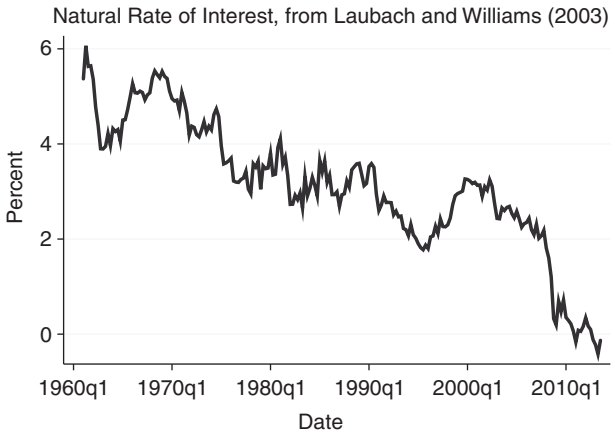
Figure 13. Central Bank Reserves



Notes: Total assets in USD, ratio to nominal GDP in USD. Advanced economies: Australia, Canada, Denmark, the Euro Area, Japan, New Zealand, Norway, Sweden, Switzerland, the United Kingdom, and the United States. Emerging economies: Argentina, Brazil, Chile, China, Chinese Taipei, Colombia, the Czech Republic, Hong Kong SAR, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, Saudi Arabia, Singapore, South Africa, Thailand and Turkey. Sources: IMF, National Data, Haver Analytics & Fulerum Asset Management.

Source: Financial Times.

Figure 14. Natural Rate of Interest



Source: Updated estimates from www.frbsf.org/economic-research/economists/john-williams/.

factors has operated to reduce natural or equilibrium real interest rates.

What has the consequence been? Laubach and Williams [2003] from the Federal Reserve established a methodology for estimating the natural rate of interest. Essentially, they looked at the size of the output gap, and they looked at where the real interest rate was, and they calculated the real interest rate that went with no output gap over time. Their methodology has been extended to this point, as shown in Figure 14, and it demonstrates a very substantial and continuing decline in the real rate of interest.

One looks at a graph of the 10-year TIP and sees the same picture. Mervyn King, the former governor of the Bank of England, has recently constructed a time series on the long-term real interest rate on a global basis, which shows a similar broad pattern of continuing decline.

I would argue first that there is a continuing challenge of how to achieve growth with financial stability. Second, this might be what you would expect if there had been a substantial decline in natural real rates of interest. And third, addressing these challenges requires thoughtful consideration about what policy approaches should be followed.

3. Addressing Today's Macroeconomic Challenges

So, what is to be done if this view is accepted? As a matter of logic, there are three possible responses.

Stay patient

The first possible response is patience. These things happen. Policy has limited impact. Perhaps one is confusing the long aftermath of an excessive debt buildup with a new era. So, there are limits to what can feasibly be done.

I would suggest that this is the strategy that Japan pursued for many years, and it has been the strategy that the U.S. fiscal authorities have been pursuing for the last three or four years. We are seeing very powerfully a kind of inverse Say's Law. Say's Law was the proposition that supply creates its own demand. Here, we are observing that lack of demand creates its own lack of supply.

To restate, the potential of the U.S. economy has been revised downwards by 5 percent, largely due to reduced capital and labor inputs. This is not, according to those who make these estimates, a temporary decline, but is a sustained, long-term decline.

Reduce the actual real rate of interest

A second response as a matter of logic is, if the natural real rate of interest has declined, then it is appropriate to reduce the actual real rate of interest, so as to permit adequate economic growth. This is one interpretation of the Federal Reserve's policy in the last three to four years. Not in the immediate aftermath of the panic, when the policy was best thought of as responding to panic, but in recent years.

This is surely, in my judgment, better than no response. It does, however, raise a number of questions. Just how much extra economic activity can be stimulated by further actions once the federal funds rate is zero? What are the risks when interest rates are at zero, promised to remain at zero for a substantial interval, and then further interventions are undertaken to reduce risk premiums? Is there a possibility of creating financial bubbles?

At some point, however, growth in the balance sheet of the Federal Reserve raises profound questions of sustainability, and there are distributional concerns associated with policies that have their proximate impact on increasing the level of asset prices.

There's also the concern pointed out by Japanese observers that in a period of zero interest rates or very low interest rates, it is very easy to roll over loans; and therefore there is very little pressure to restructure inefficient or even zombie enterprises. So, the strategy of taking as a given lower equilibrium real rates and relying on monetary and financial policies to bring down rates is, as a broad strategy, preferable to doing nothing, but comes with significant costs.

Raise demand

The preferable strategy, I would argue, is to raise the level of demand at any given rate of interest—raising the level of output consistent with an increased level of equilibrium rates and mitigating the various risks associated with low interest rates that I have described.

How might that be done? It seems to me there are a variety of plausible approaches, and economists will differ on their relative efficacy. Anything that stimulates demand will operate in a positive direction from this perspective. Fiscal austerity, from this perspective, is counterproductive unless it generates so much confidence that it is a net increaser of demand.

There is surely scope in today's United States for regulatory and tax reforms that would promote private investment. Although it should be clear from what I am saying that I do not regard a prompt reduction in the federal budget deficit as a high order priority for the nation, I would be the first to agree with Michael Peterson and his colleagues at the Peter G. Peterson Foundation that credible long-term commitments would be a contributor to confidence.

Second, policies that are successful in promoting exports, whether through trade agreements, relaxation of export controls, promotion of U.S. exports, or resistance to the mercantilist practices of other nations when they are pursued, offer the prospect of increasing demand and are responses to the dilemmas that I have put forward.

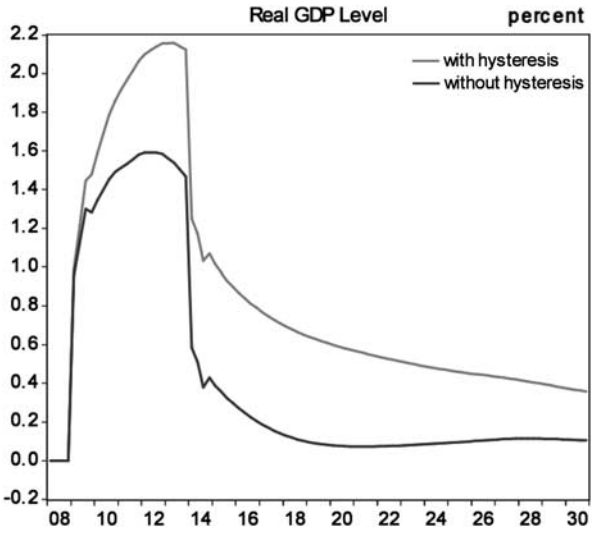
Third, as I've emphasized in the past, public investments have a potentially substantial role to play. The colloquial way to put the point is to ask if anyone is proud of Kennedy Airport, and then to ask how it is possible that a moment when the long-term interest rate in a currency we print is below 3 percent and the construction unemployment rate approaches double digits is not the right moment to increase public investment in general—and perhaps to repair Kennedy Airport in particular.

But there is a more analytic case to make, as well. This will be my final set of observations. With the help of David Reifschneider, who bears responsibility for anything good you like in what I am about to say, but nothing that you do not like, we performed several simulations of the standard Federal Reserve macroeconometric model—including the version that he, Wascher, and Wilcox have studied—to address issues associated with hysteresis coming from the labor market. To be clear, this is the Federal Reserve model as it stands, not modified in any way to reflect any views that I have.

The simulations performed addressed a 1 percent increase in the budget deficit directed at government spending maintained for five years, tracking carefully the adverse effects on the impacts on investment and labor force withdrawal, which in turn affect the economy's subsequent potential. The simulations also recognize that until the economy approaches full employment, it is reasonable to expect that the zero interest rate will be maintained, and the standard Fed reaction function is used after that point.

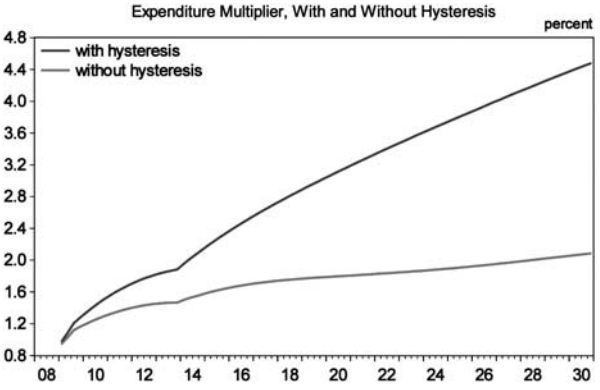
The results of the simulations are shown in Figures 15 and 16 and reveal what you might expect them to show: that while the fiscal stimulus is in place, there is a substantial response, which is greater when allowance is made for labor force withdrawal effects

Figure 15. Simulation Output: Real GDP



Source: Summers and Reifschneider (2014), ongoing analysis.

Figure 16. Simulation Output: Expenditure Multiplier

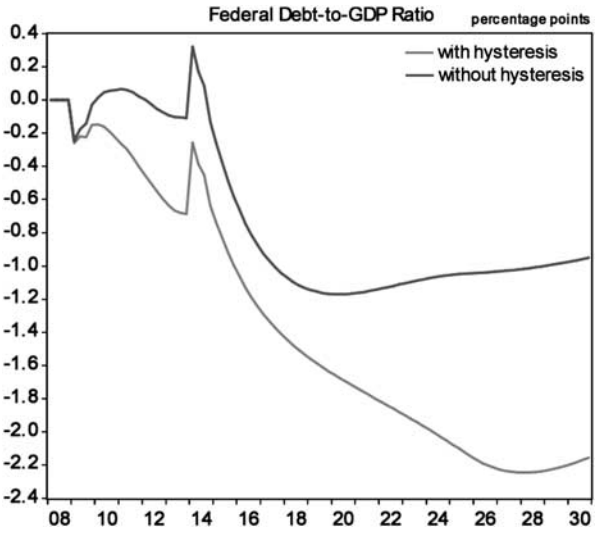


Source: Summers and Reifschneider (2014), ongoing analysis .

than when no such allowance is made. What is perhaps more interesting is that you see some long-run impact of the stimulus on GDP after it has been withdrawn. That is why the potential multiplier can be quite large.

And my final point concerns the impact of this fiscal stimulus on the debt-to-GDP ratio, shown in Figure 17. You will note that with or without taking into account labor force withdrawal, this standard macroeconometric model indicates that a temporary

Figure 17. Simulation Output: Debt/GDP Ratio



Source: Summers and Reifschneider (2014), ongoing analysis.

increase in fiscal stimulus reduces, rather than increases, the long-run debt-to-GDP ratio.

Now, there are plenty of political economy issues about whether it is possible to achieve a temporary increase in government spending, and so forth. But I believe that the demonstration that, with a standard model, increases in demand actually reduce the long-run debt-to-GDP ratio should contribute to a reassessment of the policy issues facing the United States and push us toward placing substantial emphasis on increasing demand as a means of achieving adequate economic growth. This should serve as a prelude to the day when we can return to the concerns that I think almost all of us would prefer to have as dominant: the achievement of adequate supply potential for the U.S. economy.

Thank you very much.

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