



## Woody Brock: How to Achieve Growth without “Bad” Deficits

By Robert Huebscher

August 3, 2010



Of all the challenges facing our nation, none is as daunting as trying to achieve economic growth and reduce unemployment without adding layers of debt to our already bloated deficit. Legislators and economists have debated the merits of stimulus measures, changes in tax rates, and monetary policies, but they are no closer to a consensus than they were at the onset of the financial crisis.

One person, however, says a genuine solution is possible.

He is H. “Woody” Brock, the founder and president of [Strategic Economic Decisions](#), a consulting firm focused on economic forecasting and market analysis. His clients include the world’s largest hedge funds, private equity firms, and corporations. I spoke with him on July 27.

Brock is virtually unique among leading economic thinkers. He focuses on the big problems – like healthcare and the nationalization of commodity resources – for which, he says, only a higher level of deductive logic can yield solutions. He scoffs at pundits who support their views by crunching data and building models, instead relying on high-powered and deep theories from which he can sometimes deduce an optimal solution to a problem.

Among his qualifications are four graduate degrees, two apiece from Harvard and Princeton. He studied under the Nobel laureate Kenneth Arrow, who he considers perhaps the most important theoretical economist of 20<sup>th</sup> century, and he relies extensively on the works of the late Nobel laureate James Tobin and Stanford economist Mordecai Kurz.

Brock believes 2010 is a watershed year for the US, and the reasons why will help explain the origins of his “growth without deficits” proposals.

### Lesser and later

“There are many different kinds of revolutions or tipping points,” Brock told me, “and the one the US confronts this year will not be a newsy event, like the fall of the Berlin Wall in 1989.” Instead, it will be a sea change the way people think about their lives – their retirement prospects, in particular. Moreover, he said this will be a global phenomenon impacting citizens from Greece to California.



Brock offered a specific timetable – before Christmas – for this conceptual revolution to unfold, as Americans recognize the insufficiency of their pensions and other assets to fund their retirements. He did not go as far to say that pension plans would default, but he predicted that Americans (and others) would acknowledge the reality that their retirement benefits would be less than they expected, and in many cases would kick in later than they had expected.

"The social contract underlying the welfare state is unwinding," he said, and we will all recognize that our entitlement programs will not provide cradle-to-grave protection. "Switches in the beliefs of people about such momentous issues as the social contract represent the real news today, and are far more important than short-term market developments," Brock said. "Yet the media are the last to grasp this point." Driving the recognition that retirement assets will be "later and lesser" will be extensive media coverage of pension fund defaults, along with today's climate of slow economic growth and high unemployment.

The US faces a fiscal drag from deficit reduction unlike any previously encountered. Historically, Brock said, economic recoveries have occurred when deficits were reduced from about 4.5% to a sustainable level of 2.5% of GDP. Now, we must reduce the deficit from 10% or 11% to the same sustainable level – a task the US has not faced in the past five decades. This reduction constitutes fiscal drag on GDP growth.

The pain from this adjustment will be most evident in the unemployment numbers. "We need approximately 3.5% GDP growth to employ graduates newly entering the workforce," Brock said; but there are another eight million currently unemployed (some say twelve million) to be hired along with new workforce entrants. Yet GDP growth is only 2.8% at present, a quarter of the rate that is needed.

GDP growth shy of 3% may sound good to some, he said, but it is a "disaster" for the job market and will be insufficient to reduce the ranks of those now without jobs. "These are the headwinds giving us the worst recovery in half a century," Brock said.

### **Redefining the deficit**

In the context of those challenges, invigorating growth without incurring needless deficits might seem an impossible task. Brock, however, contends that the solution has been around for nearly 40 years. It was set forth by the Stanford University economists Arrow and Kurz in their 1970 book, *Public Investment, the Rate of Return and Optimal Fiscal Policy*.

In today's setting, the logic of their analysis would be to continue to incur a large deficit for the next decade, or even longer, according to Brock, but to redefine what we mean by "deficit" in the first place.



Our government must continue to spend, but it must focus that spending on projects with high long-term payoffs and not on transfer payments or needless public works projects. Some of the areas where Brock would like to see higher investment include bullet trains, nuclear power plants, rebuilding the electrical grid, new oil refineries, and the development of shale gas as an energy source. Additionally, there will be the obvious bridge and tunnel infrastructure.

The price paid for excess consumer consumption and leverage over the last 45 years has been underinvestment in those types of projects. As a result, those projects are much more "needed" than before, so that their rate-of-return on capital invested should be very high, Brock said.

Moreover, spending should be structured so that the government will profit from it. Brock cited the Australian investment bank Macquarie, which has developed a successful model of privatizing public projects, and managing those projects so as to avoid boondoggles and to be economically viable from start-to-finish. The US should adopt a similar model, Brock urged.

It is not simply a matter of spending money on traditional public works infrastructure, Brock said. What's needed is a new Marshall Plan, which rebuilt and created a strong economic foundation for Europe following World War II.

Of the \$787 billion in the 2009 stimulus package, only \$32 billion (4%) was classified as infrastructure spending. Moreover, some of that was for projects (e.g., repairing and improving facilities at public parks and constructing cemeteries) that don't meet Brock's high rate-of-return criteria.

The bond market will welcome Brock's approach if it is implemented properly. Bond market vigilantes react to deficits stemming from unproductive low-rate-of-return spending by raising interest rates. But when federal money is spent with an eye toward high long-term returns, the bond market will recognize that the resulting deficit should be amortized over many decades, as it represents investments with rates-of-return above the cost-of-capital. Vigilantes like these kinds of deficits, and will not drive interest rates higher.

Success along these lines will require very strong leadership, such as what John F. Kennedy offered in the space program. That is where many of Brock's most serious concerns lie. Although he liked Obama initially, he now says the president lacks the leadership qualities now required. "I hear calming words, like 'hope' and 'change,'" Brock said, "but I don't hear calls for serious long-term investments such as bullet trains, nor for the willingness to live with the resulting large deficits required."

One of the most outspoken proponents of Keynesian deficit spending has been the economist Paul Krugman, who won the Nobel Prize for economics in 2008. I asked Brock whether his views were really that different from those of Krugman. Brock said Krugman



would agree with him, but that Krugman has had two years to make these points, but never did. Instead, Brock said Krugman has turned matters into an ideological debate, arguing that it's good now to sustain today's huge deficit. Krugman, however, does not introduce the critical Arrow-Kurz distinction between "good" and "bad" deficits as measured by the rate-of-return on the underlying government spending. More generally, Brock said, this crucial point is never mentioned by anyone in today's debate on the deficit.

Keynes advocated that "animal spirits" – the psychological drive to propel private sector spending – was necessary for economic growth. That view has been recently popularized in a book by Yale economist Robert Shiller and the Nobel laureate George Akerlof. I asked Brock whether Obama could provide the charisma and leadership to foster animal spirits. "Had he been a pro-growth, pro-small business president from the start, which he should have been, the answer could have been yes," Brock said.

That, unfortunately, has not been the case, according to Brock, who said that Obama was the first president ever to be cited by the Chamber of Commerce as being anti-business.

"Even with presidential leadership, it would have been hard after a 35-year binge to get animal spirits in private spending and investment up to the level needed," he said. "But with this kind of administration, it is dead-on-arrival. An adequate level of private investment spending is probably a dead duck for the next few years."

### **Reforming healthcare**

No plan for economic growth is complete without a solution for rising health care costs – currently 17% of GDP. Brock said that he supports the idea of insuring 31 million additional Americans, but he calls "Obamacare" one of the worst pieces of legislation in recent history.

Obamacare increased the demand for healthcare, by imposing penalties for those who might choose to be uninsured. Demographics will further increase demand as baby boomers enter retirement.

Yet the recent legislation did nothing to increase the supply of medical services, he said. As in any economic system, increased demand in the absence of increased supply will force prices higher, and precipitate rationing of health care services. If this is not addressed, "we will be bankrupted," Brock said, by which he meant that medical costs will rise to 30% or 35% of GDP by mid-century.

The supply of medical services is broadly restricted in a number of ways, particularly with respect to the number of doctors and specialists, Brock said. The medical industry has long operated like a cartel to constrain the number of medical schools and the number of would-be doctors admitted to them.



Supply should be dramatically increased by expanding the population of doctors and "para-medicals", according to Brock, but other improvements are necessary as well. Productivity enhancing expert systems (automated doctors) should be developed to perform the tasks associated with examination and diagnosis in routine cases.

Additionally, Brock said there is no reason why a patient should have to be examined by a nurse and then also seen by a doctor when there are no signs that the diagnosis is anything other than routine. Para-medicals should step in and provide a basic level of care in many such cases.

"The fundamental theory cannot be debated," Brock said. "If you increase demand, then supply must increase at a still *faster* rate in order for *total* health care costs to diminish as a share of GDP. And this is precisely the outcome that the President and I and most others want."

### **The consequences of failure**

The obvious consequence of failing to heed the logic just discussed will be a protracted period of slow growth, large unproductive deficits, and painfully high unemployment, according to Brock. And burgeoning medical costs will force reductions in other budget areas. Military spending would be a principal victim if healthcare spending continues to spiral out of control, Brock said, and the Pentagon could become a "museum" by mid-century. America's fate would far transcend Japan's lost decade.

Is another, more sinister outcome – high inflation or even hyperinflation – a possibility?

Brock identified two ways inflation might occur, but he said neither is likely, at least for the next few years. "Monetary inflation" would indeed be possible if the government continues to monetize its debt (by purchasing securities, through primary dealers, on the open market, thereby crediting bank reserves in return). But inflation need not result from this strategy; in order for lots of new money to flow into the system as a result of monetization, there has to be a strong demand for new bank loans in the first place. If there is not, then the huge new bank reserves generated by monetization remain "inert" as they do not get transformed into new demand deposits in customers' accounts. No new money *per se* is thus created, and inflation can remain low.

Today, there is virtually no net new demand for loans, at least by households. Indeed, households have been paying down their stock of debt – for a variety of reasons – for the last two years. Brock said this deleveraging has never happened under similar conditions, and makes the likelihood of monetary inflation small.

Of course, inflation could indeed take off if the government adopted the very different strategy of radically printing money and distributing it to citizens via a "helicopter drop," to use Fed Chairman Bernanke's descriptor. Brock considers this strategy to be very



unlikely. Bond market vigilantes would immediately react to such actions on the part of the government, forcing real bond yields higher, thereby stifling economic growth.

Brock noted that the past infrequency of such severe inflation suggests inflation receives more concern than it warrants. The more common scenario historically is deflation, and that, along with slow growth, is the danger we face unless we adopt the type of high-growth spending initiatives he advocates.

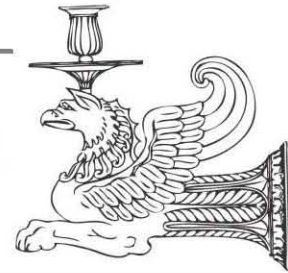
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**– A Clarification of What this Really Means –**



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## “The Rise of the East, and the Decline of the West”

### –A Clarification of What this Really Means–

Long ago, we were told by the French historians of the *Annales School* that spectacular events — the storming of the Bastille, and the decisions of individuals, be they Roosevelt or Hitler — were but spume on the crest of history’s waves; that what really shaped the shoreline was the invisible pull of deep tides and currents beneath both the surface. Long-term influences are what change the world.

Simon Schama

*Financial Times* Op-Editorial page, December 29, 2009

The emerging consensus is that that we are witnessing the inexorable rise of the East and decline of the West. Are we? What does this really mean? Is this a good or a bad development — and if so, for whom? Finally, what is the causality underlying this development? Exactly why is the East rising, and why is the West declining? If faster GDP growth in the East is the main reason, then what are the true determinants of economic growth? If this East/West role reversal is inevitable, then when will the East overtake the West, or more specifically, when will China outflank the US in economic might? By the year 2025, or 2050, or 2080?

This short essay attempts to clarify several of these issues, and to put them in better perspective. Sections 1 – 3 clarify a number of concepts without which any forecast of the date when China overtakes the US economically is suspect. These include the correct meaning of the term “power” and the *true* sources of economic growth. It is surprising that most pundits who predict the rise of China evince little, if any, understanding of growth theory — the appropriate branch of economics for studying this problem. Section 4 then sets forth an analytical forecast of the probability of the *date* when China’s economy becomes bigger than that of the US. Finally, Section 5 discusses four challenges confronting China that imply a takeover date several decades later than that predicted by today’s consensus.

## 1. An Emerging Consensus

Perhaps no one has put this prognosis better than the Harvard historian-turned-economist Niall Ferguson. In ruminating about the decade that just passed, he recently wrote:

*I am trying to remember now where it was, and when it was, that it hit me. Was it my first walk along the Bund in Shanghai in 2005?...Or was it at Carnegie Hall only last month as I sat mesmerized by the music of Angel Lam, the dazzlingly gifted young Chinese composer who personifies the Orientalisation of classical music? I think it was maybe only then when I really got the point about the past decade, just as it was drawing to a close: that we are living through the end of 500 years of western ascendancy.*

*Put differently, are we living through the end of the domination of the world by the civilization that arose in western Europe in the wake of the Renaissance and Reformation — the civilization that, propelled by the scientific revolution and the Enlightenment, spread across the Atlantic and as far as the Antipodes, finally reaching its apogee in the age of industry and empire?"*

*Financial Times, Op-Editorial Page, December 28, 2009*

Ferguson goes on to comment on the “three fatal deficits” that are a dagger at the heart of the American economy, on the perilous Chinese-US trade and capital flow imbalances, on the awesome growth rate of China (China’s tenfold growth of GDP in 26 years 1978–2004 versus England’s fourfold growth during the seventy year period 1830–1900), on the imperial overreach of the US, and on the way in which the products and practices of the Best and Brightest in finance nearly brought down the world economy during the recent crisis. Ferguson cites the usual caveats about whether China can continue to have capitalism without democracy, but his overall message could not be more clear. The future is China.

The most immediate response to the emerging consensus view would be: “How could it be otherwise?” Having deregulated their economies and shucked off communism (in the case of China) and state socialism (in the case of India), having a population vastly larger than that of the West, and starting off from very low levels of per capital income permitting a rapid rate of “catch-up,” it is only natural that the East should grow much faster than the West, and soon overtake it. One of the notable protagonists of this view is James (“Jim”) O’Neill, the chief economist of Goldman Sachs who predicts that China is destined to overtake the US by 2028. There are naysayers, of course, such as hedge fund manager James Chanos who believes that the Chinese economy and its speculation-driven property market is a gigantic bubble waiting to burst. But such views constitute a distinct minority.

A problem with the consensus view is that it fails to make certain distinctions, without which its claims about the forthcoming hegemony of the East are problematic. It will be helpful to introduce these distinctions right up front.

## 2. Three Fundamental Distinctions Needed to Clarify the Consensus

**The Players:** To begin with, the consensus view conflates two somewhat different “rises,” namely **(i)** that of Asia relative to the US and Europe, and **(ii)** that of China relative to the US. The degree by which one rises and eclipses the other will differ between these two cases. In what follows, we will largely restrict our discussion to the case of China versus America for purposes of simplifying and shortening the analysis.

**Economic Power versus Overall Power:** Second, the consensus blurs whether “rise” refers to a rise in the relative *economic* power between the parties involved, or a rise in the relative *overall* power. We shall restrict ourselves to the more familiar case of economic power. However, this is much too important a distinction to sweep under the rug, and since overall power is ultimately what matters most, it is worth reviewing the exact meaning of overall power. Please recall from our September 2007 *PROFILE*, “Res Politica versus Res Economica,” that there are *four* distinct sources of overall power in the context of multilateral bargaining, an observation first set forth and mathematized by the Nobel laureates John Nash, Jr. and John C. Harsanyi:

*First*, there is economic power, or “resource endowment.” The greater the economic power of a player, the greater its overall power, other things being equal.

*Second*, there is relative risk tolerance. The greater the risk tolerance of one player relative to that of others, the greater his power during bargaining.<sup>1</sup>

*Third*, there is the relative threat power of an individual nation or coalition thereof. The greater a given player’s threat power, the greater his power. Recall that threat power is a function of two subsidiary variables: **(i)** the degree to which one player can inflict more damage on another player than the latter can inflict on him when optimal threats are carried out by both, and **(ii)** the degree to which one player hurts himself more than the other hurts himself when implementing the threats.

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<sup>1</sup> This is because the *process* of reaching a compromise via bargaining requires each party to demonstrate how far it is willing to risk ending up with the “no agreement” payoff (the payoffs resulting when threats are actually carried out) in exchange for a bigger slice of the pie if, and when, a final agreement is reached. In sum, the process of bargaining is intrinsically all about relative risk averseness.

*Fourth*, there is the relative coalitional power of any given player (e.g., the ability of China to gain support from other powers to back it up in a conflict situation relative to the ability of the US to do the same).<sup>2</sup>

As expressed in our earlier “*Res Politica*” essay, we believe that the overall power of the US relative to China will shrink even more than its resource (economic) power — the latter being the only dimension of power discussed below. This is because of the US’s decreasing risk tolerance, and, in particular, the US State Department’s demonstrated unwillingness to make credible threats that it could and should make according to the Nash-Harsanyi theory of rational bargaining. Additionally, the coalitional power of the US will probably weaken because its traditional Western allies are risk-averse, deficit-burdened, and declining-welfare states. Conversely, coalition building by China will probably strengthen if only because it currently has few, if any, allies.

The failure of President Obama’s policy of “engagement” to achieve any bargaining concessions by Russia, by China, or by Iran is fully consistent with this analysis of declining US power. Finally, as the US evolves over the next two decades into yet another ageing welfare state where fiscal expenditures shift from defense to social welfare expenditures, its loss in overall power will increase still further. If the US’s looming “fiscal red hole” evolves as predicted over coming decades, the nation is likely to disarm while China arms.

**Fundamental Problems with the Consensus View:** The consensus view of the inevitable rise of China’s *economic* might rests upon an implicit model of strong economic growth (one based upon an increasing utilization of markets, a powerful “command-and-control” central government, and an entrepreneurial workforce). Nonetheless, the explanatory power of this model is surprisingly limited. For example, it fails to explain why certain communist economies were able to grow fast during certain time intervals, but then to fall back. This was the case of Russia during the Sputnik era when Premier Nikita Khrushchev famously and credibly threatened in a UN speech “to outgrow and eventually bury the US economically.” The model also fails to explain how a communist-controlled China has performed as well as it has, achieving a sustained growth rate *far greater* than is consistent with the underlying growth model. Nor does it accommodate the reasons why a growing number of intelligent observers such as Ken Rogoff of Harvard University expect the Chinese economic miracle to end badly in the not-so-distant future.

Because of such deficiencies with the consensus view, in Section 3 we shall draw upon the formal theory of economic growth to better understand the *true* sources of and impediments to fast growth — and its sustainability. This will permit a much better assessment of the date at which the economy of China will eclipse that of the US, and why, as explored in Section 4.

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<sup>2</sup> The concept of a “multilateral bargaining equilibrium” in game theory integrates these differing dimensions of power into an overall “power index” as was first shown by John Harsanyi.

## B. The True Determinants of Economic Growth

At the most superficial level, the rate of growth of an economy is by definition the sum of productivity growth and workforce growth. If a nation like China alters its policies, as it did in the late 1970s, so as to expand the workforce dramatically, and/or it increases productivity growth significantly, then its growth rate should rise significantly. China's remarkable rise during the past three decades did indeed reflect increases in both workforce and productivity growth. And other things being equal, the story should continue well into the future, although for well-known reasons its *rate* of growth will slow, as was the case with the Asian Tigers. The specific reasons *why* Chinese growth will inevitably slow are summarized in the footnote below.<sup>3</sup> Despite the prospect of a falling growth rate during the next two decades, China will certainly overtake the US as the world's largest economy at some future date. The only question is when, and this centers on the differential growth rates of the US and Chinese economy.

Note that this elementary growth theory perspective is extremely restrictive. While it tautologically defines economic growth as the sum of workforce growth and productivity growth, it says nothing about the conditions under which either will be fast or slow, why they change over time, etc. In short, this elementary model is not very useful for forecasting *when* China will overtake the US. Thus, we must go deeper and investigate the true sources of growth.

**The Primitive Production Function:** Beginning nearly two centuries ago, the output of an economy began to be interpreted via a simple theory in which existing technology transformed the three basic factors of production into output. These three "input" factors were land, workforce, and capital.<sup>4</sup> In compact form, we can write

$$(1) \quad Y = F(L, W, C) + e$$

Where  $Y$  denotes output,  $F$  is the "production function" or technology that transforms inputs into outputs,  $L$  is land,  $W$  is workforce,  $C$  is capital, and  $e$  is white noise due to missing factors.

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<sup>3</sup> China's workforce growth will necessarily fall for three reasons according to classical theory. *First*, the entry of "One Child Only" generation youngsters into the workforce will dampen growth, as will the adverse overall demography of the nation. *Second*, hours worked per worker will probably fall as the Chinese people become richer and value leisure time more over time. *Third*, its total factor productivity growth will also fall as its capital stock increases at a slower rate, and the marginal productivity from investment declines. The intuitive idea here is that the growth dividend is very large when a nation installs its first highways, first fiber optical systems, first steel factories, and first computers. But as time goes on, its *rate* of capital accumulation will fall since the nation's capital stock base is getting ever larger; thus total factor productivity growth will fall with it.

<sup>4</sup> It would later be realized that the transformation of these inputs into outputs via a "technology" could be represented by a simple input-output matrix model, or by a set of "activity analysis" vectors in more advanced growth theory models.

Properly interpreted, the rate of growth of output  $dY/dt$  in this simple economy will be steady-state growth given by the total derivative  $dF(\mathbf{o})/dt$  of the production function. Output changes solely due to changes in the quantity of factor inputs  $L$ ,  $W$ , and  $C$ . Changes in technology play no role.

In particular, this model tell us that the more land or workers a nation has, then the greater will be its growth rate and economic power. This theory correctly explains that if a nation conquers another and seizes its land and labor, or puts a larger percentage of its population to work, then its economy will become larger. If land and people are annexed in a war, then the model explains a *one-time jump* in output. For sure, such one-time jumps can be a very important source of increased economic might. This is one reason why the USSR now wishes to reclaim its former satellite economies, and it was a principal reason why the European powers competed to garner ever-larger colonial empires in the later 19<sup>th</sup> century.

A principal problem with this classical production function was that it could not explain the source of productivity growth, or its dynamics, over time. More specifically, it was silent upon innovation.

**A More Sophisticated Production Function:** In his pioneering work in the theory of “endogenous growth,” Paul Romer of Stanford University extended the classical work of Robert Solow of MIT to incorporate innovation into the formal theory of economic growth. There is considerable debate as to how far his model has succeeded in endogenizing growth, but it certainly did bring concerns of innovation and R&D to the fore. Previously, these factors were incorporated in a most unsatisfactory manner in the “residual” term of the Solow model. We can write:

$$(2) \quad Y = F_t(L, W, C, I) + e$$

where the new independent variable  $I$  denotes innovation, and where the subscript  $t$  in  $F_t$  indicates that the technology function  $F$  that maps inputs into outputs *changes* over time  $t$  due to the dynamics of innovation and technological change. The rate of growth  $dY/dt$  in such a model will be the total derivative  $dF_t(\mathbf{o})/dt$ . This, in turn, will be a complex function showing how changes in the four variables  $L, W, C$ , and  $I$  translate into a change in output  $Y$  over time.

*For all of its importance, the Romer model still falls short of what is needed, namely a model that explains how two different economies possessing the same values of the independent variables  $L$ ,  $W$ ,  $C$ , and  $I$  can have completely different growth rates  $dY/dt$ . That is, there must be additional variables missing from (2) that cause the four independent variables to be transformed differently into different growth rates of output.*

**A Very Sophisticated Production Function:** Traditional growth theory along the lines sketched above has remained a branch of economics proper. Political, legal, and sociological factors are

usually not included in the models of economists who work in this field. This situation must change, for recent research has indicated that the true determinants of economic output and growth include not only the four independent variables appearing in (2), but a host of other quite different variables. These include the quality of the legal system (e.g., the sanctity of contract and the extent of the rule of law), the size and intrusiveness of government and government regulation, the quality of the educational system, the average and marginal rates of taxation, the extent of leverage that is allowed, the extent of private and public sector corruption, the degree of compliance with the tax code, the incentives to retire early versus late, the penalties for excess pollution, the incentives to have few or many children, the regulation of immigration, the level of public safety, and the protection of property rights. In our next report, we shall publish new cross-sectional data sampled from over a dozen nations that suggest how extensive this list of non-economic growth-drivers really is — drivers that play no role in models like (1) or (2) above.

Most all of these non-economic factors share two things in common:

**1. Incentive Structure Effects on Growth:** Taken together, these variables define the *incentive structure* within which economic activity is carried out in an economy. Think of the incentive structure of a society as the collection of *all* “sticks and carrots” (penalties and rewards) that influence the decisions of *all* agents as to what they do when they wake up in the morning. If tax rates are 90%, agents probably call in sick or stay in bed. If tax rates are 20%, they probably work harder. As a result of the role of incentive structures, citizens in two *classically identical* economies (i.e., economies possessing identical values of the land, workforce, capital, and innovation variables in (2)) will experience widely *divergent* rates in growth in output and living standards due to differences in the incentive effects of tax rates, regulatory burdens, sanctity of contract, property rights, etc. Because of this, we introduce a still more general growth model

$$(3) \quad Y = F_t(L, W, C, I, IS) + e$$

where *IS* denotes the incentive structure of the economy. In equation (3), we finally have a fully general framework that can, in principle, explain growth rates in economies ranging from those that conform perfectly to classical textbook assumptions and that grow in accord with equation (2), to those that experience the zigzagging growth of China between 1950 and 2010, a period which saw the modest growth during 1950–1963 swing to negative growth during the Cultural Revolution only to swing back to an astonishing 10% growth rate thereafter. Classical theory cannot explain such phenomena at all, whereas fluctuations in the incentive structure can. This is the advantage of model (3) over (2).

An important observation here is that, once we know how a particular *IS* variable impacts growth, and why, we also tend to know which particular *values* of the *IS* variables are most consistent with strong growth. Thus, once we know that taxes on consumption are much more efficient than taxes on labor because of their relative incentive effects, we should adopt a tax

code tilted towards consumption on the basis that it is “incentive structure compatible with optimal growth,” whereas taxes on payrolls are not.<sup>5</sup>

**2. Growth Rates that Are Chosen:** There is a second property that incentive structure variables have in common: IS variables are almost always *policy* variables *chosen* by governments, in contrast to classical land and labor variables that are usually exogenous and “taken as given.” Importantly, since IS variables are *chosen*, IS variables can be *changed* as a matter of policy, just as they were so spectacularly in China when the Chinese people were famously told in 1978, “It’s OK to go get rich!” Therefore, a nation cannot be said to be “stuck” with a pathological incentive structure, and, by extension, with low growth. This realization permits us to conclude that the diverse growth rates that have been observed in history have themselves been chosen to a certain extent via their governments’ choice of incentive structures. It also frees us from relying on fuzzy concepts like “culture” in explaining divergent growth rates. Incentive structures not only cut across most cultures, but at a deeper level partially define many cultural attributes of a nation.

Analogously, growth rates in the future will be chosen. Since rapid economic growth is that rising tide that lifts all ships and keeps citizens happy, it is very important for future peace and prosperity that growth-compatible incentive structures be chosen by as many nations as possible in the years to come.

*This observation sheds light on the question of the date when China will overtake the US in economic might. For this date will be very dependent upon the growth rates that will be chosen by both the US and by China. Feasible swings in the two nations’ growth rates could cause that overtake-date to occur 15 years in the future (very rapid Chinese growth and stagnant US growth) versus 200 years in the future (the converse case).*

**The Blame Game:** There is, however, one important difference between what happened to growth rates in the past versus what will happen to them in the future. Back in the 16<sup>th</sup> century when Chinese growth began to decline and European growth began to rise, virtually nothing was known about the determinants and importance of optimal economic growth. Thus, while it is fair to say that poor policies were often “chosen” in China between 1600 and 1978, whereas better policies were chosen in the West, it is not fair to *blame* the ministers involved. For they had little if any knowledge of the growth-consequences of their policy choices. That is not the case today when, both at a theoretical and empirical level, we understand which policies are growth compatible, and which policies are not. Thus policy makers who chose low-growth policies today will have much to answer for in the future.

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<sup>5</sup> The concept of incentive structure compatibility with some societal goal (e.g., with strong growth) was first introduced by the late Nobelist Leonid Hurwicz, and is widely considered one of the most important concepts in modern analytical social science. Hurwicz was a teacher of the author at Harvard, and his work had a profound impact on him.



## 4. Relevance to the Rate of Chinese Ascendancy

We can now make better sense of our central question: At what date *will* China overtake the US as the world’s leading economy? Figure 1.A makes clear what these dates will be under varying assumptions about the two nations’ long-run average rates of growth. This figure utilizes nominal Chinese data whereby China’s GDP at yearend 2009 was \$4.9 trillion, about a third the size of US GDP of \$14.3 trillion. Figure 1.B utilizes Purchasing Power Parity (PPP) data whereby China’s GDP was \$8.8 trillion, or more than half that of the US.<sup>6</sup>

The growth rate scenarios chosen for each country have been carefully chosen so that each has a probability of at least 15% in our view. Figure 2 exhibits our probabilities of the various growth scenarios for China and the US separately over the period of 2010–2040. The justification for our Chinese growth probabilities is given just below. The *justification* for our below-par US growth probabilities was set forth in our January 2010 *PROFILE*, and will not be discussed further.

**FIGURE 1: WHEN WILL CHINA SURPASS THE US?**

**A. Comparing GDP Growth Rates Under Nominal Conditions**

		US Growth Rate		
		1.5%	2.5%	3.5%
China Growth Rate	4.0%	2053	2083	2230
	6.0%	2034	2041	2054
	8.0%	2027	2030	2034

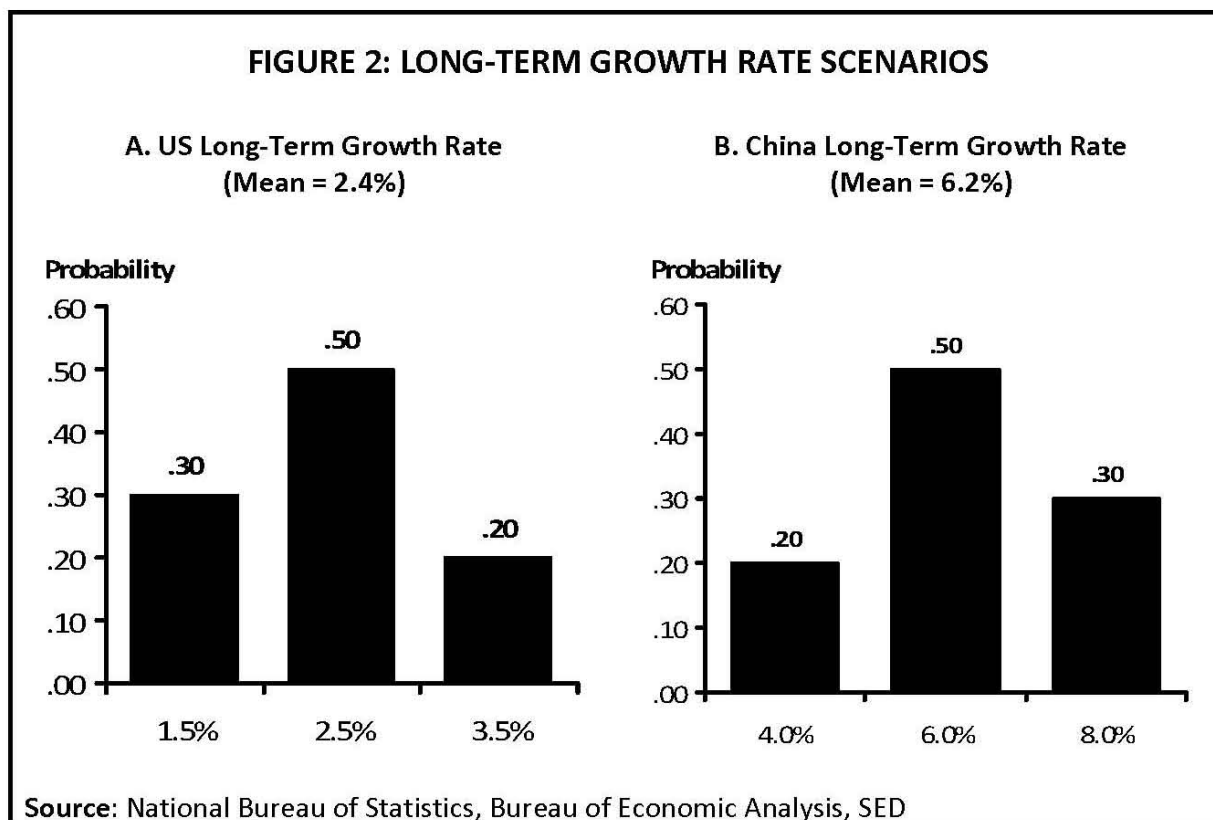
**B. Comparing GDP Growth Rates Under PPP Conditions**

		US Growth Rate		
		1.5%	2.5%	3.5%
China Growth Rate	4.0%	2029	2042	2109
	6.0%	2020	2024	2030
	8.0%	2017	2019	2021

**Note:** To arrive at the respective years in Figures 1.A and 1.B above, we grew the China and US economies (in the case of China, using nominal GDP and PPP GDP) at the corresponding annual rate in the table. The year plotted in the table represents the date when the size of China’s economy surpasses that of the US.

**Sources:** World Bank, SED

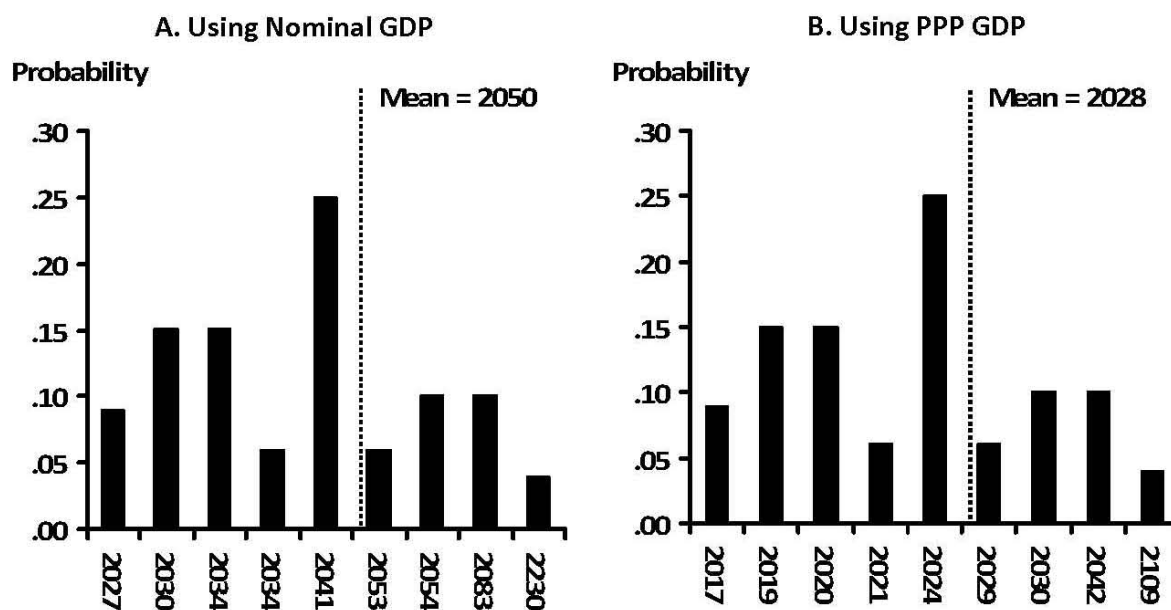
<sup>6</sup> Many analysts claim that problematic Chinese data *overstate* the size of the Chinese economy (both in nominal and PPP terms). We have no credible information about this possibility so we do not discuss it.



Finally, Figure 3 couples the probabilities of the growth scenarios to the nine overtake-dates for each pair of growth rates shown in Figure 1. The result is a simplified histogram showing the probability of the date when the economic size of China first equals that of the US. The mean of this distribution in the case of nominal exchange rates is the year 2050, whereas it is 2028 in the case of PPP data. What stands out, however, is the *tremendous degree of uncertainty* surrounding this date. Point forecasts such as “means” have little decision-making value in such contexts.<sup>7</sup> What are the sources of this uncertainty? More specifically, what justifies the probabilities of the two nations’ long-term average growth rates appearing in Figure 2?

<sup>7</sup> We have assumed that the long-run growth rates of the two nations are stochastically independent of one another, an approximation that simplifies the probabilistic analysis, but that we believe to be reasonable. For three sources of stochastic dependence that we did consider proved mutually offsetting.

**FIGURE 3: FORECAST OF CHINESE CATCH-UP DATES**



**Note:** In Figures 3.A and 3.B above, we calculated the joint probability of each catch-up date (from Figure 1) by using SED’s predicted probability of long-term growth rates in China and the US.

**Source:** National Bureau of Statistics, Bureau of Economic Analysis, SED

**Justification for our Chinese Growth Rate Probabilities:** Most analysts intuitively invoke the logic of equation (3) to extrapolate the trajectory of past Chinese growth rates into the future — allowing of course for a gradual slowdown in growth for the “classical” reasons explained in depth in footnote 3 above. Under such an extrapolatory assumption, it is easy to arrive at the date of 2028 that Goldman Sach’s Jim O’Neill projects.

The probabilities we ascribe to Chinese growth in Figure 2 imply a long-run compound average growth rate of 6.2%, considerably lower than O’Neill’s 8.8%. Why is our forecast so much lower? The answer can be found on the right-hand side of equation (3) in the role of *incentive structure variables* (denoted by IS) impacting long-term growth rates. Briefly, we expect serious problems stemming from the role of IS variables to cause several economic and political crises within China *before* such time as China is as large as the US. These crises will in turn cause periodic short-term reductions in China’s long-term growth rate. **Note:** The reasons for these crises are discussed in Section 5 below.

Mathematically, growth-dips of this kind cause the famous Curse of Sisyphus to enter into the arithmetic of compound growth over the long run: The long-run compound growth rate of the nation will be *much* lower if there are one or two crises every decade, just as periodic bear stock markets dramatically lower the long-term compound return on equities — and by more than seems intuitively reasonable. The culprit here, of course, is the length of time typically required to regain previous highs once a downturn has occurred, namely, the Curse of Sisyphus.

It is because of such mathematics that our mean forecast for Chinese growth during the next two decades is a lower-than-consensus 6.2%. It is also why we ascribe significant probability to a surprisingly low compound growth rate in the range of 4% as shown in the histogram of Figure 2. Note from Figure 1 that if China *were* to grow at 4% over the long run, and the US were to grow at our mean rate of 2.4%, then China would not match the US economic might until much later than our mean overtake dates of 2050 (nominal data) and 2028 (PPP data). And if the US were to growth at 3.5% versus 4% in China, then the catch-up date would be the year 2230 — two centuries from now!

*Now we come to the heart of the matter: What exactly will cause China to have significant lapses in its economic performances, thus lowering its long term growth rate? And how does the answer to this question involve the role of incentive structure variables? To see this, we must identify four distinct vulnerabilities of China's economy.*

## 5. Four Vulnerabilities of the Chinese Economy

**1. The Regulatory Structure, and the Rule of Law:** As is well-known, many of the IS variables cited above are incentive structure *incompatible* with strong long-run growth. Consider for example the absence of transparent property rights, the embryonic legal system, the high and rising amount of corruption, the capricious monopoly of power held by the Communist party, the lack of penalties for pollution, the lack of intellectual freedom, and the large size and role of the state in the economy. From both a theoretical and an empirical standpoint, these problems augur poorly for future Chinese growth in the longer run.

*More specifically, if we look at the quality ranking of a country's legal system and its scope of government activities (as measured by total government outlays as a percentage of GDP), there is a clear pattern: A high-quality legal system combined with a low level of government activity explains more than 50% of the variance of growth rates and standards of living of in economies that become rich. We shall present new data on this and related results in our next **PROFILE**.*

Optimists about China’s future will rebut these points by pointing to the astonishing past success of China over a much longer period of time than naysayers ever expected. They argue that China’s command-and-control central government has been a primary source of its remarkable growth rate during the past two decades. They also point to the surprising stability of the Chinese economy during the global panic of 2008–2009. In brief: “Who needs democracy after all?” But these rebuttals are easy to rebut. Regarding the latter point, *New York Times* columnist Paul Krugman recently pointed out that China was only able to avoid the fate of other Asian nations during the recent bust by (i), letting its currency *depreciate* (via its artificial peg to the dollar), and by (ii), implementing a state-mandated increase in the investment share of GDP to a whopping 47% of GDP, a form of government stimulus virtually unprecedented in modern world history — and a stimulus whose true price tag may well depress growth in the future.

With regard to the former point about the long-run success of China *without* democracy, the reality is that China to a disturbing extent *cheated* its way to the extremely high growth rate it claims to have had during the past quarter century. Moreover, it did so via mercantilist strategies that — while boosting growth during that period — may well hobble growth in the years beyond 2012. Let us discuss these strategies and then understand why they may well backfire in the longer-run.

**2. A Strategy of Hyper-Mercantilism:** Nine years ago, we strongly opposed China’s 2001 entry into the World Trade Organization (WTO) unless it were to fulfill its promises to open its current account, and to terminate a host of other highly restrictive trade policies. China never complied, and today’s status quo has been very aptly summarized by Krugman in his December 31, 2009 piece:

*China has become a major financial and trade power. But it doesn’t act like other big economies. Instead, it follows a mercantilist policy, keeping its trade deficit artificially high. And in today’s depressed world, that policy is, to put it bluntly, predatory...Meanwhile, that trade surplus drains much-needed demand away from a depressed world economy. My back-of-the-envelope calculations suggest that for the next couple of years, Chinese mercantilist policies may end up reducing US employment by around 1.4 million jobs...The Chinese refuse to acknowledge the problem.*

Is anyone outraged by this? In effect, China has partly cheated its way to its huge export machine and its \$2.4 trillion of foreign exchange reserves, as well as to its artificially high growth rates in GDP and workforce growth. Another way of stating this is to note that, had China played by the rules of the game as defined in WTO charter amendments, and had China let its currency appreciate by 200%–400% over the past quarter-century as economic theory says it should have, then the unemployment rate of the West would have been lower, and China’s growth rate would have been probably 3% lower than it was. Indeed, a recent study by

Dr. Dani Rodrik of Harvard University estimates the undervaluation of China's currency *alone* has boosted its long-term growth rate by over 2%.

When Krugman's assessment of 1.4 million job losses in the US alone during the past two years is extrapolated back a quarter of a century, then it is likely that Western world has lost nearly 40 million "good jobs" to China due to mercantilist policies that are fundamentally illegitimate. Is anyone outraged that the pusillanimous governments of the West "let" this happen, all so that China would be spared "instability" at home? The governments of the West really do rate a D- in Bargaining Theory 101, whereas China rates an A+! Yet there is more to this sorry story than Chinese mercantilism.

**3. A Strategy of Extraordinary Investment Spending and Excess Leverage:** It is well known that building bridges to nowhere is as *good* for short-term GDP and employment growth as it is *bad* for long-run productivity and wealth growth. In the case of China, bridges to nowhere can represent the construction of entire cities filled with half-empty buildings, or a glut of new steel and cement plants that are economically unjustified and that will worsen the current problem of excess capacity in the future. Analysts of modern-day China claim that there is no way to reckon the extent to which the Chinese government has artificially boosted GDP growth over the past two decades by a strategy of mandating China's "banks" to support extremely high levels of investment spending with little economic justification. This is partly because the books of the relevant lending institutions are either non-transparent or else non-available.

Many observers wonder why China has preferred a strategy of investment-driven growth rather than consumption-driven growth. The answer is partly that investment spending possesses Hicksian "accelerator and multiplier effects" that boost growth much more than consumption spending does, and partly because the Chinese people have a very high savings rate, or equivalently a low consumption rate. This high savings rate partly reflects widespread skepticism that the Chinese government will introduce the kind of social safety net that the people want.

Investment spending has thus represented the only realistic way to stimulate the economy and keep the peace during the crisis of 2008–2009. Note that there was nothing wrong with this *strategy*, assuming that the vast investments being undertaken prove economically justified. But many doubt that they will be.

**4. Centripetal versus Centrifugal Forces:** Finally, there is growing concern about the tensions between the central and local governments within China. From topics ranging from the degree of corruption to the extent of fiscal policy and "hidden" red ink, certain forces are tending to pull China apart (recall Brazil in the 1970s and 1980s), whereas other developments are binding it together into a more cohesive whole. The author, frankly, does not understand these developments well enough to comment on them. Nonetheless, thoughtful observers are concerned about the impact of these tensions on the future growth rate of the economy.

## A Parable about Dams that Burst – Bad News for China?

The four vulnerabilities we have discussed can be likened to dams that get built over time, and that clog the *natural* arteries of economic growth. As the waters behind the dam keep rising, the time gets closer to when the dam will burst. In the case of China, irrational incentive structures are causing imbalances that will get worse over time (for example, increasing volumes of bad loans and levels of corruption that can end up causing riots and civil disorder) hardly a prescription for strong growth.

Chinese mercantilism, for its part, will almost certainly end in protectionism — a protectionism that is long overdue as a rational response to the hyper-protectionism China herself has embraced in recent decades. For example, Paul Krugman of Princeton University came out on January 13, 2010 in support of immediate tariffs on all Chinese goods. Many others worldwide are reaching the same conclusion including Martin Wolf of the *Financial Times*. In this regard, the degree to which export-oriented economies cratered during the 2008–2009 recession should serve notice upon the Chinese government as to how damaging an outburst of protectionism could be to China’s growth rate. Finally, we know from myriad examples worldwide that strategies of excessive state-mandated investments and the debt required to finance them almost always end in tears, with busts that disrupt the economy and its growth rate.

**Conclusion:** This concludes our discussion of how we arrived at a forecast of future Chinese growth that is considerably lower than most such forecasts. The incentives and strategies adopted by the Chinese government to bolster growth-at-any-cost in the shorter-run will end up generating dips in growth in the future — if not outright crises — that will lower the long run compound rate of growth of the economy to about 6%, as suggested in Figure 2. Furthermore, there is a significant probability that growth could be much lower still if the adjustment crises prove worse than we expect. China will learn the hard way that, while Command Economies can work very well in the shorter-term (recall the USSR in the 1950s), a day of reckoning usually arrives. In a *true* competitive market environment, none of this can happen for reasons explained in the interesting footnote below.<sup>8</sup>

Notwithstanding all these caveats, the Chinese economy *will* emerge as the largest economy on earth. It will, and it should.

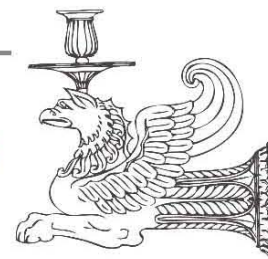
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<sup>8</sup> In the case of idealized textbook economies, there never is a day of reckoning. *For dams never get built so they subsequently cannot burst.* This is because, in an idealized Invisible Hand world, every agent and every company is “spanked” every minute and every day in the marketplace. Ongoing micro-adjustments of this kind continuously *cleanse* the system and flush out any short-term toxins so long-run toxins never build up. Mathematical economists sometimes speak of this phenomenon in terms of the “Debreu Smoothness Theorem.” [The price-quantity manifold is uniformly smooth.] This is, of course, a very idealized model, but it is a very *useful* model for understanding what goes wrong in the real world when its provisos are violated (e.g., when political judgments are substituted for microeconomic judgments when investment decisions are made).

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## STRATEGIC ECONOMIC DECISIONS

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*PROFILE*

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NUMBER 92

### THE END GAME DRAWS NIGH

– The Future Evolution of the Debt-to-GDP Ratio –

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STRATEGIC ECONOMIC DECISIONS, INC.

TEL: +1 480.883.3200 ■ FAX: +1 480.883.3201 ■ EMAIL: [SED@SEDinc.com](mailto:SED@SEDinc.com)

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## THE END GAME DRAWS NIGH

### – The Future Evolution of the Debt-to-GDP Ratio –

*Preface:* In this new report, we link together three quite different concepts that have been discussed in these publications during recent years. First, the problems posed for classical fiscal and monetary policy when extremely large deficits must be financed; second, the critical importance of the rate of economic growth as *primus inter pares* of all economic variables; and third, the all-important concept of “incentive-structure-compatibility” introduced by Leonid Hurwicz in the 1960s, and recognized in the award to him in 2007 of the Nobel Memorial Prize.

We weave these three concepts together so as to make possible an extension and generalization of “macroeconomic policy” as normally understood. Central to this extension is the need for policies that drive down the nation’s Debt-to-GDP Ratio over time. Accordingly, we identify 15 policies that jointly reduce the growth of federal debt *and* increase the growth of GDP over time.

Doing so not only points to a new set of policies for exiting today’s quagmire, but also permits an appraisal of the Obama administration’s current policy proposals. Regrettably these proposals do not fare well. Furthermore, the extension of macroeconomics we propose applies not only to the US economy, but to most all others as well. It should thus be of interest to readers everywhere.

## A. Introduction and Overview

In our 2008 research programme, we focused on three issues. *First*, what exactly caused the worst credit crunch the nation has arguably experienced since the depression of the 1930s? *Second*, how did the downturn in the US morph into a collapse in Planet Earth’s GDP rate from nearly 5% in June 2008 to -0.5% in winter 2009? *Third*, can traditional macroeconomic policy suffice to turn around the economy? More specifically, will a killer application of classical fiscal and monetary policy truly restore the economy to a stable growth trajectory? Or is there an internal contradiction within macroeconomic policy that could prevent it from succeeding this time around?

To explain the “perfect storm” in the credit market, we drew extensively on the new Stanford theory of endogenous risk to demonstrate that there are three jointly necessary and sufficient conditions to predict and explain the perfect storm we have experienced: **(i)** A mistaken market forecast of some exogenous event that impacts security prices (in this case, a vastly higher than expected default rate on mortgages); **(ii)** A high level of Pricing Model Uncertainty bedeviling bank assets (the true cause of the “toxicity” of those complex securities that have clogged the

arteries of the banking sector); and **(iii)** An unprecedentedly high degree of leverage in the financial sector (money center banks had off-and-on balance sheet leverage of about 40:1 in contrast to the socially optimal leverage of 10:1). The reader can tack “greed” and “incompetence” onto this triad, although doing so diverts attention from the real causes of today’s crisis.

To explain the collapse of economic growth worldwide in an astonishingly short period, we utilized a game theory model that explained how the cessation of inter-bank lending amongst the principal money center banks of the world precipitated the first known case of *global credit market emphysema*: The availability of credit dried up almost everywhere in the course of six months, from Auckland to Iceland. We stressed that this credit contraction had little to do with “globalization” as properly understood, and had no counter-part in history.

To explain the potential failure of fiscal and monetary policy in restoring growth, we demonstrated how the financing of exceptionally large government deficits usually causes a sharp rise in longer-term *real* interest rates—a rise that bites back and offsets the GDP impact of the fiscal stimulus being applied. The logic leading to this conclusion is reviewed just below in the context of Figure 2.

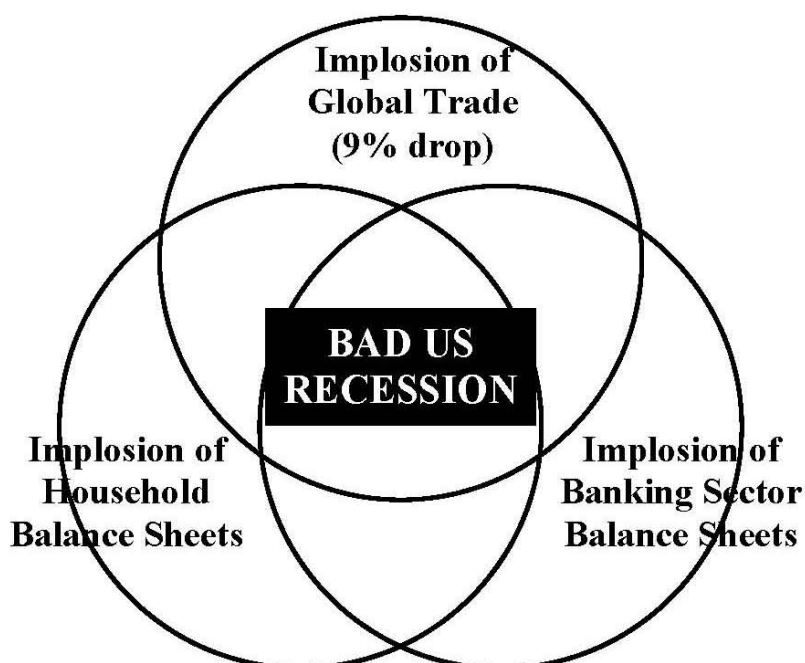
## B. The Good News — A World of Greatly Reduced Uncertainty

A year ago, even six months ago, the great debate centered on whether the credit market crisis would precipitate either a US or global recession. A majority predicted a manageable recession in the US, but nowhere else with the possible exception of the UK. Uncertainty was great, and kept increasing until recently—but no longer. The good news today is that this uncertainty has disappeared. For we now know with probability 1 that everything sucks everywhere. Welcome to a risk free world!

To wit, the G-7 economies are all in recession, and more astonishingly the economy of the planet earth is growing at about -1% or even less. Earnings are crumbling, global trade has decreased by nearly 10%, rising global unemployment foretokes social unrest in many quarters, industrial production has dropped more than ever before, and excess capacity is rising in almost all manufacturing sectors globally. Stephen Roach of Morgan Stanley believes that the “world output gap” could reach a mind boggling 8%–10% by year end. All in all, we have witnessed problems that originated within the US give rise to global scenarios that were virtually *unthinkable* as recently as the summer of 2008, and do so with blinding speed.

Within the US, there are two parallel problems. First, the nation faces a hitherto unprecedented growth of Federal debt, over both the short and long run. Second, there is the severity of the recession itself. Figure 1 offers a simple way of understanding what killed growth in the US economy. The variables shown remind us of the old adage that “History rhymes, but does not repeat.”

**FIGURE 1: ESSENCE OF THE US ECONOMIC CRISIS**



Source: SED

**History Rhymes:** More specifically, the contents of the figure will disturb those seeking to identify today’s US recession with earlier ones in 2001 or 1991 or 1981 or 1973 or even 1931. No such identification is possible since the three developments highlighted in the chart *and their improbable synergies* are different from anything we have seen before. This *sui generis* nature of today’s crisis explains why traditional theories of recessions and “debt super-cycles” possess little explanatory and predictive power.

For example, according to standard business cycle theory, “pent-up demand” on the part of consumers is a principal driver of recovery—but it will not be this time around. The shift towards less consumption and more savings due to the implosion of household balance sheets and to demographics is most probably permanent. If so, this bodes poorly for hopes of a pent-up-demand-driven recovery.

**History Repeats:** While the context of today’s crisis differs from those in the past, history repeats itself in that the common denominator of this and all other debt crises has been excess leverage—our mantra in these pages for three years. Our greatest fear was that the all-important role of leverage would be sidestepped in the rush to assign blame and reform the financial system. In this regard, it is dismaying that, whereas we have now vented our anger at bankers and capped bonuses, we have not capped leverage. To be sure, there are calls for “improved bank

capitalization” and related reforms, but the crucial role of excess leverage in bringing down the global financial system has not been properly recognized. Instead, excess “greed” has been the principal focus.

Then again, from a game theoretic viewpoint, it may not be surprising that the role of leverage has been underplayed. For leverage is precisely what is required for financiers to reap those huge incomes needed to fund both political parties in Washington, not to mention those “blockbuster” exhibitions we all love so much at the Metropolitan Museum of Art in New York. Stay tuned for Loophole Analysis 101.

### C. The Bad News — Two New Uncertainties

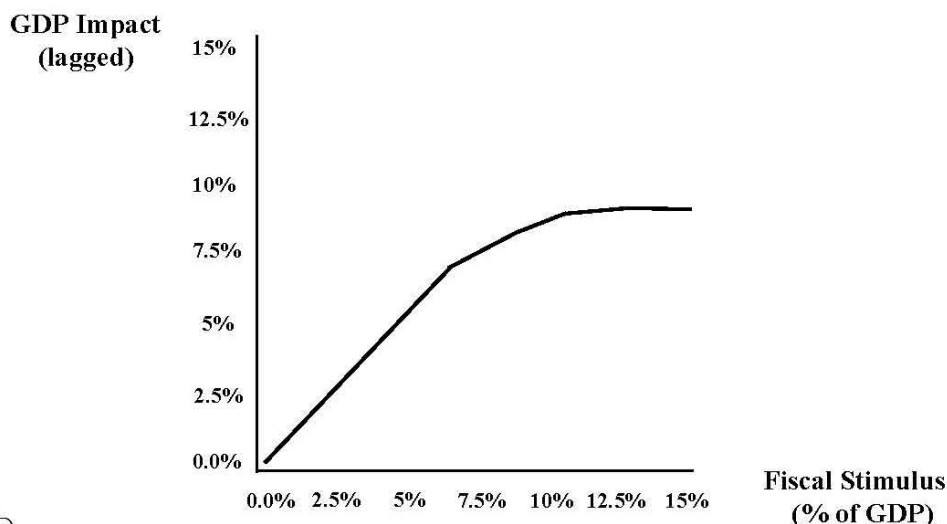
Two new uncertainties are now rising to the fore. First, will traditional fiscal and monetary policy suffice to restore economic growth—and in the process restore the viability of the financial sector? Without the latter, there is little hope of revived growth. Our concerns about the *inadequacy* of traditional macroeconomic policy were discussed at length in our February 2009 *PROFILE*, and are summarized in Figure 2 taken from that analysis. The flattening out of the stimulus curve in the figure reflects that, when fiscal stimulus exceeds a certain level (e.g., 7% on the horizontal axis), the financing of deficits is likely to cause a sharp increase in *real* longer-term interest rates. *Importantly, this holds true regardless of whether the huge deficits are monetized for reasons we carefully articulated.* Higher real yields in turn neutralize the original fiscal stimulus, thus causing the curve to flatten out.<sup>1</sup>

We concluded that the risks of policy failure in today’s context are disturbing. Moreover, even if traditional policies do prove successful in the shorter run, there is a genuine risk that the huge amount of debt that accrues and *must be serviced in the future* could transform the US into a “banana republic” in the much longer run. This risk is heightened by the need to fund soaring Social Security and Medicare “entitlements,” as record numbers of baby-boomers retire during the next two decades. Moreover, as time goes on, it is precisely these longer-term risks that will matter most to the market, and will increasingly be discounted. Investors of every stripe will be impacted.

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<sup>1</sup> We stressed that this hike in real rates does *not* occur in the case of normal-sized fiscal deficits caused by normal G-7 recessions. It only occurs when the deficits are exceptionally large, as they are turning out to be this time around. Accordingly, our analysis cannot be supported by the data of G-7 recessions during the past half century for the simple reason that we have rarely before experienced deficits of the magnitude confronting the US today. Nonetheless, our analysis *can* be supported by the experience of many emerging market economies that became overly indebted.

**FIGURE 2: DECREASING IMPACT OF FISCAL STIMULUS**



Source: SED

The second new uncertainty focuses on whether new and different fiscal and monetary policies can help salvage matters, and guarantee a happier ending.

*If the effectiveness of traditional macroeconomic remedies is in doubt, can its arsenal of policies be expanded so as to restore strong longer-term equilibrium growth? The answer is yes, and it is the purpose of this new essay to sketch such an extension of classical macroeconomics.*

### D. The Critical Dynamics of the Debt-to-GDP Ratio

There is nothing new about a nation running into trouble and running up large amounts of debt in bailing itself out. There is also nothing new about attempting to monetize (via “quantitative easing”) the resulting accumulation of debt. The good news for the US is that its total federal debt of some \$10T at the outset of the crisis in 2008 was a manageable 70% of current GDP of \$14T.<sup>2</sup> Suppose debt rises \$3T by the end of 2011 as the Congressional Budget Office now predicts, and then rises \$7T more by 2020. The result will have been a doubling of federal debt between 2008 and 2020, rising from \$10T to \$20T.<sup>3</sup> While this increase is shocking, some forecasts are much worse.

<sup>2</sup> US federal debt is often stated to be \$5.5T. This is because some \$4.5T of debt is held by the Social Security Administration trust funds and other entities. But what matters for the purposes of our analysis is the *total* debt of some \$10T.

<sup>3</sup> This forecast growth of debt excludes the growth of liabilities of the balance sheet of the Federal Reserve Bank, as well as some off-balance sheet operations by the Treasury. But much of the costs of bailing out the financial system should properly be viewed as *asset exchanges*, and not as increases in the fiscal deficit per se. The story is highly complicated, and mistaken interpretations are commonplace.

Suppose, moreover, that GDP rises conservatively to \$17 trillion in 2020 from today's \$14T as a result of a modest 2% GDP growth recovery between 2011 and 2020. Then the federal Debt-to-GDP ratio would rise from today's 0.7 to 1.18. Interestingly, this does *not* represent the disaster many observers assume. To begin with, there are nations where a disturbingly high Debt-to-GDP ratio proceeded to fall way back down over time. Thus, the US Debt-to-GDP ratio was 1.25 at the end of World War II, yet it fell to 0.25 by 1980. Britain's Debt ratio upon defeating Napoleon in 1815 was over 2.7, and it fell back to 0.2 by the end of the 19<sup>th</sup> century.

In other cases, the Debt-to-GDP ratio has stayed persistently high, neither increasing nor decreasing dramatically over time. Thus Japan has had a very high ratio of 1.5 to 1.8 for the past decade. Italy and Belgium, too, have sustained high ratios in the range of 1 to 1.25. Finally, there are the countries where the Debt ratio *continues* to rise after some initial shock with either hyperinflation or outright default being the end result. Such has been the fate of myriad banana republics including some large players such as Brazil, Argentina and Russia. What exactly determines which nations dig their way out, or else go under? This will be our primary focus in the pages ahead.

**Rebounders versus “Banana Republics”:** To begin with, note that what matters is not a one-time rise in the Debt-to-GDP ratio due to a particular shock (e.g., today's US housing and credit crises), but rather the dynamic *trajectory* of the ratio in the years subsequent to the initial rise. It is the *direction* of this trajectory that is all-important. If the Debt ratio continues to rise, then it tends to *accelerate* due to the ever-rising cost of servicing this ever-rising “primary” deficit. Not only does the increasing debt-load itself cause ever-higher servicing costs, but the rising real rates that typically result from ever-greater debt make the spiral ever worse. The result can be economic and social collapse.

If, on the other hand, the Debt-to-GDP ratio stagnates, it tends to be associated with very low real growth, political paralysis, and a degree of social disenchantment. If the ratio falls, it is usually because of a combination of two developments: higher real growth *and* vigorous fiscal discipline. Rising living standards, dreams of a better future, and a sustained belief in democracy are associated with this happiest of trajectories.

**Three Sets of Scenarios:** Figures 3.A – 3.C illustrate the stunning range of outcomes that can result from sustained differences in the growth rates of debt versus of GDP. We have adapted the analysis here to the case of the US. We assume an initial federal debt burden of \$12T for 2011, and an initial GDP value of \$14T. We then grow these forward at the stipulated growth rates.

*At the one extreme of very low economic growth and very high debt growth, the Debt ratio rises to an arresting 18—a half-way house to Zimbabwe. At the opposite extreme, the ratio falls to a paltry 0.4, half of today's level. These two extreme outcomes are circled in the table.*

The data in the tables represent *real* growth rates of both debt and GDP.

**FIGURE 3A: 2% FEDERAL DEBT GROWTH SCENARIO**

		Debt Growing @ 2% and GDP @				
		-1%	1%	2%	3%	4%
<b>2010</b>	Debt (trillions)	\$12	\$12	\$12	\$12	\$12
	GDP (trillions)	\$14	\$14	\$14	\$14	\$14
	Debt ÷ GDP	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>
<b>2015</b>	Debt (trillions)	\$13	\$13	\$13	\$13	\$13
	GDP (trillions)	\$13	\$15	\$15	\$16	\$17
	Debt ÷ GDP	<b>1.0</b>	<b>0.9</b>	<b>0.9</b>	<b>0.8</b>	<b>0.8</b>
<b>2025</b>	Debt (trillions)	\$16	\$16	\$16	\$16	\$16
	GDP (trillions)	\$12	\$16	\$19	\$22	\$25
	Debt ÷ GDP	<b>1.3</b>	<b>1.0</b>	<b>0.9</b>	<b>0.7</b>	<b>0.6</b>
<b>2035</b>	Debt (trillions)	\$20	\$20	\$20	\$20	\$20
	GDP (trillions)	\$11	\$18	\$23	\$29	\$37
	Debt ÷ GDP	<b>1.8</b>	<b>1.1</b>	<b>0.9</b>	<b>0.7</b>	<b>0.5</b>
<b>2045</b>	Debt (trillions)	\$24	\$24	\$24	\$24	\$24
	GDP (trillions)	\$10	\$20	\$28	\$39	\$55
	Debt ÷ GDP	<b>2.4</b>	<b>1.2</b>	<b>0.9</b>	<b>0.6</b>	<b>0.4</b>

Source: SED

**FIGURE 3B: 5% FEDERAL DEBT GROWTH SCENARIO**

		Debt Growing @ 5% and GDP @				
		-1%	1%	2%	3%	4%
<b>2010</b>	Debt (trillions)	\$12	\$12	\$12	\$12	\$12
	GDP (trillions)	\$14	\$14	\$14	\$14	\$14
	Debt ÷ GDP	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>
<b>2015</b>	Debt (trillions)	\$15	\$15	\$15	\$15	\$15
	GDP (trillions)	\$13	\$15	\$15	\$16	\$17
	Debt ÷ GDP	<b>1.2</b>	<b>1.0</b>	<b>1.0</b>	<b>0.9</b>	<b>0.9</b>
<b>2025</b>	Debt (trillions)	\$25	\$25	\$25	\$25	\$25
	GDP (trillions)	\$12	\$16	\$19	\$22	\$25
	Debt ÷ GDP	<b>2.1</b>	<b>1.5</b>	<b>1.3</b>	<b>1.1</b>	<b>1.0</b>
<b>2035</b>	Debt (trillions)	\$41	\$41	\$41	\$41	\$41
	GDP (trillions)	\$11	\$18	\$23	\$29	\$37
	Debt ÷ GDP	<b>3.7</b>	<b>2.3</b>	<b>1.8</b>	<b>1.4</b>	<b>1.1</b>
<b>2045</b>	Debt (trillions)	\$66	\$66	\$66	\$66	\$66
	GDP (trillions)	\$10	\$20	\$28	\$39	\$55
	Debt ÷ GDP	<b>6.7</b>	<b>3.3</b>	<b>2.4</b>	<b>1.7</b>	<b>1.2</b>



**FIGURE 3C: 8% FEDERAL DEBT GROWTH SCENARIO**

		Debt Growing @ 8% and GDP @				
		-1%	1%	2%	3%	4%
<b>2010</b>	Debt (trillions)	\$12	\$12	\$12	\$12	\$12
	GDP (trillions)	\$14	\$14	\$14	\$14	\$14
	Debt ÷ GDP	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>	<b>0.9</b>
<b>2015</b>	Debt (trillions)	\$18	\$18	\$18	\$18	\$18
	GDP (trillions)	\$13	\$15	\$15	\$16	\$17
	Debt ÷ GDP	<b>1.3</b>	<b>1.2</b>	<b>1.1</b>	<b>1.1</b>	<b>1.0</b>
<b>2025</b>	Debt (trillions)	\$38	\$38	\$38	\$38	\$38
	GDP (trillions)	\$12	\$16	\$19	\$22	\$25
	Debt ÷ GDP	<b>3.2</b>	<b>2.3</b>	<b>2.0</b>	<b>1.7</b>	<b>1.5</b>
<b>2035</b>	Debt (trillions)	\$82	\$82	\$82	\$82	\$82
	GDP (trillions)	\$11	\$18	\$23	\$29	\$37
	Debt ÷ GDP	<b>7.5</b>	<b>4.6</b>	<b>3.6</b>	<b>2.8</b>	<b>2.2</b>
<b>2045</b>	Debt (trillions)	\$177	\$177	\$177	\$177	\$177
	GDP (trillions)	\$10	\$20	\$28	\$39	\$55
	Debt ÷ GDP	<b>18.0</b>	<b>8.9</b>	<b>6.3</b>	<b>4.5</b>	<b>3.2</b>

### E. The Case for Driving Down the Debt-to-GDP Ratio – “It’s the Growth Rate, Stupid!” –

We can deduce from the foregoing analysis that sustainable long run economic recovery from a debt overload requires *two sets of policies*: One set must be dedicated to curtailing the growth of government spending and hence, the growth of the deficit. The other set must be dedicated to maximizing real economic growth. In this way, both the numerator *and* the denominator of the killer Debt-to-GDP ratio will be managed so as to maximize future social welfare.

*Policies aimed at augmenting real growth are arguably the more important here. This is because more rapid growth not only reduces the Debt ratio, but also causes swelling tax revenues which can help to reduce the deficit each year. That is, stronger growth drives both the numerator and the denominator in the right directions.*

*This reality underscores why “It’s the real growth rate” must become the mantra of recoveries not only in the US, but almost everywhere else as well. Note that this “strong growth” mantra is a far cry from the Obama administration’s counsel to the world at the recent G-7 conference: “Stimulate everywhere by running higher deficits!”*

**The True Payoffs from Strong Growth:** Looking at matters from a game theoretical “Who wins?” standpoint, strong economic growth is the rising tide that lifts all ships. Within a given nation, it alone offers win-win strategies whereby most all interest groups can come out ahead. Externally across nations, strong growth generates expanding trade. Happily, the game of trade between nations is that all-important positive-sum game that encourages peace and discourages war. It creates “the ties that bind.” For example, the recent globalization of the supply chain is a principal reason why the business community has been so strangely silent in demanding protectionist policies during the present crisis. When a significant portion of your own manufacturing inputs come from “abroad,” do you really want trade barriers?

Finally, and perhaps most importantly, productivity-driven strong growth alone increases living standards that boost the hopes and dreams of people everywhere for a better tomorrow for their children. When citizens have realistic hopes of a better tomorrow, social unrest is minimized. Conversely, when prospects for the long run are grim, voters are easily swayed by demagogues to vote for the Hitler of their day.

**Three Important Books:** Are these points obvious? They should be, but they frankly are not. Moreover, they are never sufficiently emphasized, and virtually no orientation towards rapid future growth is evident in the policies and “reforms” proposed by the Obama administration, as we see in Section G below. The arguments set forth in three books support the view we are taking as regards the critical role of growth.

*First*, a widespread lack of understanding and appreciation of growth led Professor Ben Friedman of Harvard University to write his superb book, *The Moral Consequences of Economic Growth* (A. Knopf, 2005). This is the best work we know of that makes the case for growth and (more implicitly) for globalization at an appropriate economic and moral level of analysis.

*Second*, and at a more practical level, Alan Beattie’s brand new book *False Economy: A Surprising Economic History of the World* (Riverhead Press, 2009) provides myriad case studies of how nations chose between success or survival or ruin by the specific policies they adopt. His case studies make very clear indeed how policies that depress the Debt-to-GDP ratio of Figure 3 correlate strongly with success, whereas policies that inflate the ratio correlate with ruin.

*Third*, at an even deeper and more theoretical level, there is the late Mancur Olson’s magisterial *The Rise and Decline of Nations: Economic Growth, Stagflation, and Social Rigidities* (Yale University Press, 1982). Olson explains from first principles how special interest groups become entrenched and, in defending their turf, usually cause nations to go bust. [Our “entitlements lobby” anybody?]

*Olson's logic is game theoretical: He shows that special interest groups become the principal players in a generalized Prisoner's Dilemma game whereby individually group-rational strategies lead to the collectively irrational outcomes of declining growth, diminishing dreams, increasing social unrest, and ultimately ruin.*

This book should be required reading by anyone serving in government. It is one of the best books the present author has ever read in the field of political economy.

## F. Four Debt-Minimizing Strategies

Before turning to those all-important strategies for maximizing the growth in the denominator of the Debt-to-GDP ratio, consider several different strategies for minimizing the growth of the numerator.

*First*, counter-cyclical policies should consist of *temporary* increases in spending—spending that automatically expires with no Congressional vote when good times return. The Obama administration policies largely amount to *permanent* spending increases, and have been widely criticized as such.

*Second*, a new set of government accounts must be introduced that clearly distinguish government *investment* expenditures from non-investment expenditures. The former should not be included as part of “the deficit.” Only an appropriately amortized portion should be included. Moreover, for reasons stressed below, infrastructure investments should take priority when discretionary government spending decisions are made. The current administration has not proposed the required accounting changes. This is, of course, consistent with its failure to propose serious investment spending in the first place (see below).

*Third*, true leadership—not to be confused with *fine rhetoric*—is needed to alert citizens to the true disaster we face if the growth of long-term federal debt is not curtailed. This is particularly true given the demographic realities that now lie around the corner. Nobody has made this point better than Stephen Roach in a recent commentary in Morgan Stanley's “Debating the Future of Capitalism” series, March 26, 2009:

*I believe that Congress and the White House should collectively declare a formal “fiscal emergency” and empower a bi-partisan task force to develop new guidelines for federal budgetary control.*

*Washington did this once before in an effort to contain the runaway budget deficits of the Reagan era—deficits that now look like child's play when compared with what lies ahead. The automatic spending caps and sequestration mechanisms prescribed by the Gramm-Rudman-Hollings Balanced Budget and Emergency Deficit Control Acts of 1985 succeeded in taking some of the optionality out of the fiscal debate.*

*This problem is too big—and the long-term stakes are too high—for fiscal sustainability to be entrusted to the oft-politicized whims of the year-by-year discretionary budgeting process.*

Slam Dunk! Given the reality that today’s deficit crisis far exceeds that of the Reagan era, it is all the more irresponsible that the President has not already proposed the “fiscal emergency task force” that Roach correctly calls for. Paul Volcker: Where are you when we need you the most? The reforms that such a task force would propose are all pretty obvious, including “sunset provisions” for all manner of government mandates, entitlement reforms, an end of ear-marking, etc.

*Fourth*, as noted in Section E above, policies must be adopted that maximize economic growth since faster growth is the best way to generate those higher revenues needed to reduce a given deficit. We identify specific growth policies just below.

**Lingering Doubts:** Even longstanding Democratic Party liberals are now expressing shock at the staggering growth of long-term government debt the US now confronts. Nonetheless, the President’s cheerful rhetoric suggests little concern with the growth of the numerator. To be sure, his administration’s OMB budget projections blithely assume that *very* high growth rates will magically return after the next three years, and nothing solves fiscal problems as well as rapid growth. Yet everyone acknowledges that these projections are smoke-and-mirrors, constituting a leadership default of the first magnitude.

Yet could all of this be deliberate? Could the administration’s choice to tax and spend *ad infinitum* have been politically strategic in nature? After all, haven’t both President Obama and his chief of staff Rahm Emanuel openly admitted that “the new budget is a means to altering the very architecture of American life, with government playing a much larger role than before”? The likelihood that their new architecture would drive the growth of numerator of the Debt-to-GDP ratio ever-higher *and* the growth of the denominator lower was never mentioned.

Do financial commentators even understand this risk? While the press has expressed appropriate “concern” about the sea of red ink to come, there is little sense of the true End Game at stake: Which of our Figure 3 scenarios will occur, and what will it imply?

*The answer may well determine whether we face a future of peace and prosperity, or of war and privation. As a personal aside, this author has never been more concerned than he is now about the economic state of the nation.*

## G. Growth-Maximizing Strategies

We now identify a plethora of growth-maximizing policies. Before doing so, however, we must recall the true *origins* of economic growth itself. Only by understanding these origins can we identify meaningful pro-growth policies.

## G. 1. The Two Principal Sources of Real Economic Growth

At the most basic level, trend growth is the sum of workforce growth plus productivity growth. Intuitively, this rate of growth equals the rate of growth of the number of workers producing the pie, plus the rate of increase of pie production per person hour. In the latter case, we distinguish between productivity increases that result solely from “working smarter” *versus* increases that result from increased investment per worker, or “factor stuffing” in economics jargon. The former is called pure labor productivity growth (e.g., take a weekend off and invent the differential calculus), whereas the latter is referred to as total factor productivity growth.

The very rapid growth of emerging economies is usually due to a very high rate of increase in total factor productivity growth as workers gain access to roads, computers, medicines, and other productivity-improving (but not free!) endowments for the first time. Developed economies cannot replicate this strategy, so their growth rate is much lower than the “catch-up” rates in newer economies.

Thus, policies that augment growth must operate through two channels: Increasing productivity growth (via enhanced skills *and* investment), and/or increasing workforce growth.

**Incentive-Structure-Compatibility:** In proposing pro-growth policies of both kinds, we shall keep in mind the requirement that such policies be “incentive-structure-compatible” with growth, a concept first articulated by the economist and philosopher Leonid Hurwicz in the late 1950s. Everyone acknowledges the importance of incentives in a given situation, e.g., the appropriate carrots and sticks needed to raise children, to motivate workers, etc.

*What Hurwicz first articulated was the way in which the totality of incentives throughout society—its “incentive structure”—could be conducive to achieving a particular societal goal, such as maximal growth. The great importance of Hurwicz’s concept is that it provides the correct analytical bridge between the micro and macro domains of social life. This was a stunning achievement, and earned him the 2007 Nobel Memorial Prize.<sup>4</sup>*

Most “policies” and “goals” promulgated by politicians turn out *not* to be incentive-structure-compatible with growth, or with any other defensible objective. That is to say, most policy proposals are hot air.

Figure 3 summarizes the structure of our argument up to this point.

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<sup>4</sup> In one of the grandest achievements in the history of social thought, Hurwicz demonstrated mathematically that the incentive structure of “true capitalism” alone is compatible with the societal goals of efficiency, privacy, freedom, equity, and stability. In our view, this result gave a more compelling and concrete interpretation of Aristotle’s concept of “The Good Life” than any theory before or since has done.

## FIGURE 4: REQUISITE POLICIES

**GOAL:** To adopt policies that cause a decline in the Debt ratio over time, i.e.:

$$\left[ \frac{\text{Total Debt}}{\text{GDP}} \right]_t > \left[ \frac{\text{Total Debt}}{\text{GDP}} \right]_{t+i} \quad \text{all } i > 0$$

**But since, on an annual basis**

$$\frac{\Delta \text{ Total Debt}}{\Delta \text{ GDP}} = \frac{\text{Annual Deficit}}{\text{Workforce Growth} + \text{Productivity Growth}}$$

**We thus need 3 sets of targeted policies:**

1. Those that *reduce* the growth of the deficit
2. Those that *increase* productivity growth
3. Those that *increase* workforce growth

**SOLUTION:** Having already identified 4 strategies for reducing the growth of debt, we now propose 11 strategies for boosting the growth of GDP.

Source: SED

### G.2. Productivity-Enhancing Growth Strategies

During the past three decades, a great deal of research has been done to understand the true sources of productivity growth. In particular, Paul Romer of Stanford University developed his theory of “endogenous growth” in which the rate of productivity growth is determined *within* the economic system, as opposed to being modeled as an external “residual” as it previously had been. In what follows, we draw on this and related research in an informal manner.

**1. Infrastructure-Orientated Fiscal Stimulus:** Economists increasingly believe that consumption will fall by 7% from its 72% share of US GDP in 2007 to around 65% over the next three years. Moreover, they believe it will remain at a significantly lower level. Pessimists conclude that “without a recovery of household spending to previous levels, the economy will suffer for a long time.” Yet this is not the case.

Should investment spending (both in the corporate sector and in government infrastructure spending) rise by an offsetting 7% of GDP, the growth rate of GDP will not only match, but in fact *exceed* its old rate of growth. This is due to the role of classical macroeconomic “accelerator/multiplier” theory: A dollar invested will generate much greater future output than a dollar of transfer payments or consumption-stimulating tax cuts.

*As regards today’s humongous fiscal deficits, this reality implies that, the more the deficit is dedicated to infrastructure investment each year, then (i) the greater productivity will be (recall that investment raises productivity), and (ii) the greater both job growth and output will be over time via the Keynesian multiplier theory. Since virtually everyone recognizes that US infrastructure spending has been woefully inadequate for decades, and that consumption has been excessive, the current recession has, in fact, presented the government with a golden opportunity to “rebalance” the composition of GDP in a highly desirable manner.*

Yet there are two additional reasons why the increased deficit should be infrastructure-investment-orientated. First, government expenditure on productivity-raising investment is *not*, in fact, “an expenditure” that raises the deficit and frightens bond market vigilantes. For as explained above, government investment spending of this ilk should be amortized over time. Thus, the larger the investment share of a given stimulus package, the smaller the resulting deficit. Second, to the extent that today’s deficit explosion burdens the young with much more debt to be serviced, then it is our *moral* obligation to dedicate the extra spending to investments that raise the productivity growth and thus the size the future GDP. Doing so clearly reduces the real burden on future tax payers of servicing the debt being accumulated today.

Given this rare opportunity—and moral obligation—to tilt the economy towards long overdue investment spending, how can the Obama stimulus package have fallen so short of the mark? It is frankly embarrassing to witness Chinese policy advisors like Professor Yu Qiao of Tsinghua University scolding the US about something as basic as this:

*Most of Mr. Obama’s stimulus spending is devoted to social programmes rather than growth promotion, which may exacerbate America’s over-consumption problem and delay sustainable recovery.*

Financial Times, Editorial page, April 1, 2009

Qiao’s point parallels a principal point we are making in this essay. Why are we not reading this from Christina Romer or Larry Summers in Washington? Have the Best and the Brightest once again lost their moral integrity as they did during the Vietnam War era? Can they seriously believe that more transfer payments to Democratic Party special interest groups is what the nation needs in this hour of its distress? The author considers the composition of the proposed \$3 trillion of discretionary stimulus over the next five years a moral travesty.

**Case Study of Energy:** As a case study in how poor the administration’s policies are in this regard, consider its energy policies. Is anyone in the new administration reading about the disastrous 9% annual decrease in the output of “old” oil (yes, “peak oil” turned out to be true), in

conjunction with a collapse of previously scheduled investments in exploration and development, and in refining capacity? Are they blind to the supply-crisis that is unfolding, one that calls not only for “renewable energy,” but also for a major expansion of traditional oil and gas production?

By now, has it not become crystal clear that the increased production of traditional fuels should come from *within* the US, given the devolution of both the political leadership and the infrastructure of those thugocracies upon whom the US increasingly depends for 40% of its consumption? Is no thought being given to the rising probability of \$500 oil prices—or perhaps outright rationing—when global energy demand recovers? [Recall how jointly price-inelastic demand *and* supply curves cause huge changes in price both upward and downward, as we demonstrated mathematically five years ago.]

Elementary arithmetic is all that is needed to ascertain that the administration’s BTU gains from increased renewable energy production and conservation from increased “weather-stripping” will not yield even 10% of the BTU shortfall that the nation will confront. The reality, therefore, is that the country needs a vast expenditure of funds on novel *and* traditional sources of energy, as well as on our deteriorating energy infrastructure. Expenditures of *this* kind would create several million jobs of precisely the kind that are needed during the next decade. And they would leave the next generation with an improved infrastructure, in addition to lessening our extraordinary dependence on imports from rogue states.

But what do we get from the Obama team? A present value tax hike of up to \$400 billion on “big oil” in one form or another, along with weather-stripping tax credits and expenditures on renewable energy alone. And who is the newly appointed spokesman for national energy policy? A highly credentialed academic who strikes virtually everyone as indecisive and ineffectual. Does even one reader of this essay know his name? [Steven Chu] Of course, his Nobel Prize supposedly substitutes for his lack of political skills. By extension, are we about to witness the “quant” financial theorist Myron Scholes appointed as Treasury Secretary after Tim Geithner steps down? After all, Scholes too, is a Nobel laureate, even if his notorious “pricing models” helped to bring down Long Term Capital Management and then the world economy a decade later. The Lord save us from “The best and the brightest!”

**2. Stimulation of Innovation and Venture Capital:** While increased infrastructure investment is one channel to higher productivity growth (and hence higher GDP growth), innovation is another. As someone who lived in Menlo Park, California for two decades between 1980 and 2000, the author was privileged to witness first hand the stunning comeback of the US from its “rust bowl” status of the 1970s.

The comeback was almost entirely due to a broad array of venture capital sponsored innovations, starting with the micro-processor. In a Memo he wrote for Mssrs. Clinton and Rubin in 1996, the author demonstrated that the US had an “Innovation Quotient” 17 times higher than that of our next competitor. [Finland. Think Nokia!] As a result, US productivity growth doubled from its depressed level of 1.4% in the 1970s to 3% by the late 1990s and early 2000s. No other nation came close to this achievement.



Yet now, when we need renewed innovation and enhanced productivity growth as much as we did in the 1970s, we read that the Obama Treasury Secretary Geithner has proposed to regulate the venture capital industry. Specifically, he has called for mandatory SEC registration of large firms, lest the sector become a “systemic risk” like hedge funds and proprietary trading desks. As Jack Biddle of the VC firm Novak Biddle Venture Partners has pointed out in a *Wall Street Journal* interview (April 9, 2009):

*I cannot imagine any venture capital firm being of a size to pose ‘systemic risk,’ so they (the administration) either do not understand the nature of the business, or... What Washington needs to understand is that bank-style regulation could destroy the culture that created the micro-processor.*

**3. Education and Elitism:** In contemplating the sources of productivity growth, we would all do well to recall Isaac Newton’s celebrated confession that, in developing his theory of mechanics and the differential calculus, “I stood on the shoulders of giants.” Politically incorrect as it is to admit, we need policies that identify and reward *elite* young people and entrepreneurs from a very early age, and do so regardless of where they come from. Indeed, we should be seeking young scientific talent worldwide and paying for immigrants to come to the US and study.

Instead, the stimulus package dedicates significant funds to lowest common denominator educational expenditures. In particular, virtually nothing is being proposed to end the monopoly of teachers’ unions that discourages qualified teachers from attempting to teach. The consequences for productivity growth of the longstanding decline of our public schools is by now well known, and has been articulated by public figures ranging from Bill Clinton to Bill Gates and Steve Jobs.

**4. Taxation that Rewards Innovation and Success:** Both the president and his chief of staff Rahm Emanuel have been completely candid about their redistributionist agenda—an agenda that has even alarmed European liberals. Were they at all concerned with innovation, productivity, and growth, the administration would not publicly espouse taxation policies that punish success and reward failure. In particular, they would not have declared war on small business, since small businesses typically generate the bulk of new jobs and innovations that determine the rate of economic growth.

To be sure, disparities in the current tax code *do* permit Warren Buffet to incur a much lower tax rate than his receptionist, as he quipped. Such inequities must be remedied. But the fact remains that the top decile and quartile of income earners in the US pay a larger share of government tax revenues than in *any* other G-7 nation. If so, why does the president assume it is “fair” to hike the tax rates on top income earners, and only on this group? From an employment standpoint, the new tax rates may well send talented young Americans to live elsewhere. Starting in 2011, a New York City wage earner will pay a marginal tax rate (federal, state, and local) of over 60% on “high” incomes of \$200,000. This rate is higher than comparable rates in Germany and France where taxes paid secure decent schooling and medical care, which they do not in the US. Yet even so, France has witnessed a veritable *diaspora* of young talent to London, the US, and Switzerland during the past two decades.

**5. Incentives for Investment in the Private Sector:** Productivity growth comes not only from government-sponsored infrastructure of the kind discussed above, but also from investment by private businesses of all sizes in new capital stock. It is not clear what the new tax policy will be towards investment tax credits, but such credits have not yet been identified as important. They are important, especially at a time when the search for higher productivity and hence higher economic growth must become the nation's number one priority.

**6. Less Regulation, Not More:** "Re-regulation" is back in vogue. But increased regulation where it's not needed chokes off innovation and growth. While the financial sector clearly needs re-regulation, it is not clear that other sectors do. Should the new administration become growth-oriented, then it must be very careful not to choke off the all-important forces of "creative destruction."

Even in the financial sector, overkill is likely. In our own view, two general forms of regulation are needed. First, incentives must be properly aligned (e.g., banks issuing securitized products must hold a certain proportion of such products in-house.) Second, leverage must be radically curtailed, a point we have stressed for three years. As for "excess pay," the limitation of leverage and proper alignment of incentives will *automatically* remedy most excesses of recent years. In brief, the less regulation the better.

### G.3. Workforce-Enhancing Growth Strategies

**1. Strong GDP Growth:** The six growth-maximizing strategies above will do more to boost workforce growth than anything else. The strong correlation of workforce growth and GDP growth is well understood at both an empirical and theoretical level. Most important, perhaps, is the need to stimulate innovation so that new industries can rise and replace old industries via the unfettered forces of creative destruction. Indeed, new industries have contributed over 75% of job growth in the US during recent decades. Numerous studies have shown how policies preventing creative destruction within most of Europe depressed *private* sector job creation during recent decades. Most job creation occurred in the public sector. Regrettably, none of these employment realities have been discussed by the new administration.

**2. Deficit Composition:** Utilization of today's huge deficits for boosting investment expenditures triggers those accelerator/multiplier effects cited above that boost employment far more than transfer payments or tax cuts do. Yet the administration's stimulus package is very infrastructure-lite, as was discussed above.

**3. Deregulation of the Labor Market:** Labor unions have long wanted to return to the practices of card-check balloting (or majority sign-up) without secret balloting. Yet such practices are definitionally anticompetitive, and retard employment growth. The administration initially supported card-check legislation or the so-called Employee Free Choice Act, but does not have enough votes to impose it. As to the tricky issue of immigration, the Obama team is doing a good job to date supporting rights for undocumented workers who have played such an important role in the nation's economic history, and must continue to do so in the future.

**4. Managing Demographic Change within the Labor Market:** There will be new and important tensions within the US labor market, given the likely influx of millions of post-65 year old boomers. It is becoming clear that the retirement planning of this generation was woeful, with up to half of boomers expecting they could afford a retirement financed by the ever-rising values of stocks and houses. Such expectations have been shattered, and many boomers will have to work until age 75 to afford the lives they expect.

In many ways, this is a good development. However, it presupposes that the requisite jobs exist. Yet they will not exist unless labor markets are *deregulated*, not re-regulated. In particular, minimum wages and guaranteed hours of work must go by the boards. Maximum flexibility will be needed to equate supply and demand in the labor market, thereby reducing tensions between older and younger job-seekers. Such tensions have already begun to appear in today's scramble for jobs.

A welcome dividend of elderly workers joining the workforce will be the reduction of the Social Security Trust Fund deficit. If the average retirement age *de facto* (not *de jure*) rises from 64 to 70, trillions of dollars of unfunded liabilities will evaporate as people draw upon their Social Security entitlements later, and contribute longer. The present value of the resulting fiscal savings is truly huge, making it all the more important that the US labor market become as flexible and efficient as possible. The administration has never touched upon this issue.

**5. Tax Policy:** Any student of public finance will recall that the best kind of tax is the tax that least distorts the efficiency of the economy. The Value Added Tax (VAT) is well known to be optimal in this regard. Conversely, taxes on labor (e.g., income taxes) distort workforce growth and thus, economic efficiency the most. But the administration is wedded to higher taxes on labor, and has never proposed a VAT.

This concludes our identification of over a dozen policies that can drive the Debt-to GDP ratio down. Please note that each of the pro-growth strategies is incentive-structure-compatible with growth, as desired and as promised up front.

## H. Conclusion: When Being “Smart” Is Not Enough

This essay began with a demonstration of the all-important role of the *evolution* of a nation's Debt-to-GDP ratio. The direction of this evolution is a good proxy for the future success or failure of the nation. We argued that a one-time shock (like today's US recession) that drives the initial Debt ratio way up does *not* pose the problem most people assume. *Long run recovery is possible, but only if policies are adopted that drive the growth rate of the numerator down, that of the denominator up, and thus that of the ratio down.*

We then identified over a dozen policies that can achieve the goal of driving down the Debt-to-GDP ratio in the longer term. The End Game that is now being played is whether policies of this kind are adopted, or whether they are not. In our view, the Obama administration has adopted

both a philosophical perspective and a set of policies that will drive the ratio up. If this is indeed the price of a “new American social architecture,” then it is a price that is too high.

We also proposed that these “ratio management policies” should be viewed as a refinement, and indeed an extension of classical monetary and fiscal policy. They add a new dimension to the concept of “macroeconomic policy,” and to its objectives.

Why do so few administration spokesmen or economic commentators seem to share our views? Is “politics” the problem? We do not think so, at least to the extent that growth-maximizing policies are win-win policies that any good politician should be able to sell. No, the problem is rather one of the mind-set of a generation that has never before needed to confront the problems lying ahead, and that is tone deaf to philosophical issues, as opposed to “policy wonk” issues.

**Today’s True Challenge — Governance:** In this vein, we proposed at the end of our February 2009 *PROFILE* that the root problems of today are not macroeconomic as much as they are political philosophical: How can democracy save itself from itself? How can people be made to realize that a reform of *governance* is what is now most needed—more so even than a reform of Wall Street? And even in the financial sector, it is increasingly clear that regulatory lapses in Washington were more responsible than “greed” for what has happened. Messrs. Rubin, Summers, and Greenspan actively encouraged the most pernicious of the deregulatory policies that brought down the system.

By now, it is clear that we need bold new constitutional amendments that mandate **(i)** sterilization of excess money creation during cyclical recoveries, **(ii)** fiscal surpluses during recoveries to pay down past fiscal deficits, and **(iii)** deficits during recessions tilted towards growth-enhancing infrastructure spending, not towards goodies for special interest groups.

In this regard, economists Martin Wolf and Stephen Roach have both correctly identified financial market “credibility” as the key to future growth, inflation, and interest rates. Can today’s administration end up with any credibility when it blithely ignores the very existence of the End Game we have identified, much less those policies needed to solve it correctly? Will there be any credibility if the three proposed amendments just cited are not adopted?

In his magisterial *The Rise and Decline of Nations*, Mancur Olson understands that these are the topics that matter—not greed management 101. Yet barely a word is being said about these issues by the Best and the Brightest now staffing the Obama White House. Why? The explanation partly lies in *a crisis of intellectual competence*. Scholars trained in “macroeconomics” are as poor in discussing Olson’s dilemmas of collective action as oncologists are in discussing dentistry. The fact that the macroeconomists in question are “brilliant” is irrelevant. Being smart is not enough.

*The abject moral failure of the new team to identify much less to propose a solution to the End Game is extremely disturbing to the present author. Despite his initial support of President Obama, he increasingly wonders whether we have the right team in place. And he is alarmed that time to rebuild credibility is running out.*