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"THE RISE OF THE EAST, AND THE DECLINE OF THE WEST"

– A Clarification of What this Really Means –

STRATEGIC ECONOMIC DECISIONS, INC.

TEL: +1 480.883.3200 ■ FAX: +1 480.883.3201 ■ EMAIL: SED@SEDinc.com

WEBSITE: www.SEDinc.com

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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.[1]

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.

[1] 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).[2]

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.

[2] 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.[3] 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.[4] In compact form, we can write

(1) $$\mathbf{Y = F\,(L,W,C) + e}$$

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.

[3] 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.

[4] 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(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 19th 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) $$\mathbf{Y = F_t\,(L,W,C,\,I) + e}$$

where the new independent variable **I** denotes innovation, and where the subscript **t** in $\mathbf{F_t}$ 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 $\mathbf{dF_t(o)/dt.}$ 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 <u>same</u> values of the independent variables **L, W, C,** and **I** can have completely <u>different</u> 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 safely, 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) $$\mathbf{Y = F_t\,(L, W, C, I, IS) + e}$$

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.[5]

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 inventive 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 <u>date</u> 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 16th 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.

[5] 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.[6]

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

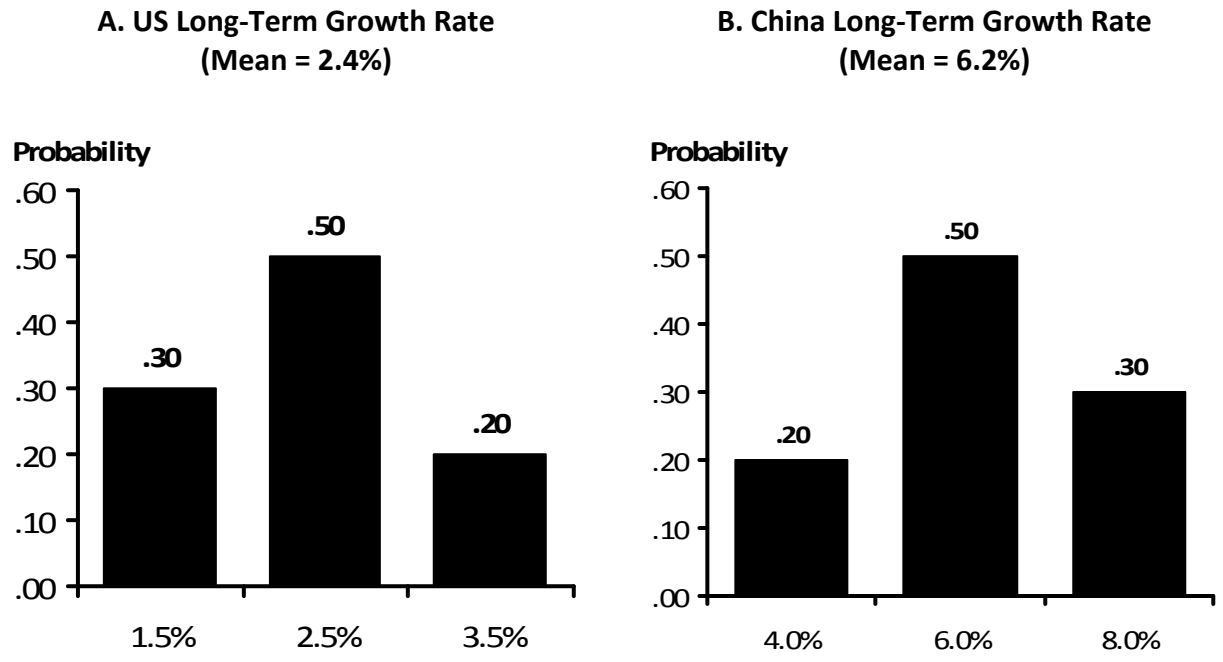
		US Growth Rate		
		1.5%	**2.5%**	**3.5%**
China Growth Rate	**4.0%**	2029	2042	2109
	6.0%	2020	2024	2030
	8.0%	2017	2019	2021

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

[6] 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.

FIGURE 2: LONG-TERM GROWTH RATE SCENARIOS

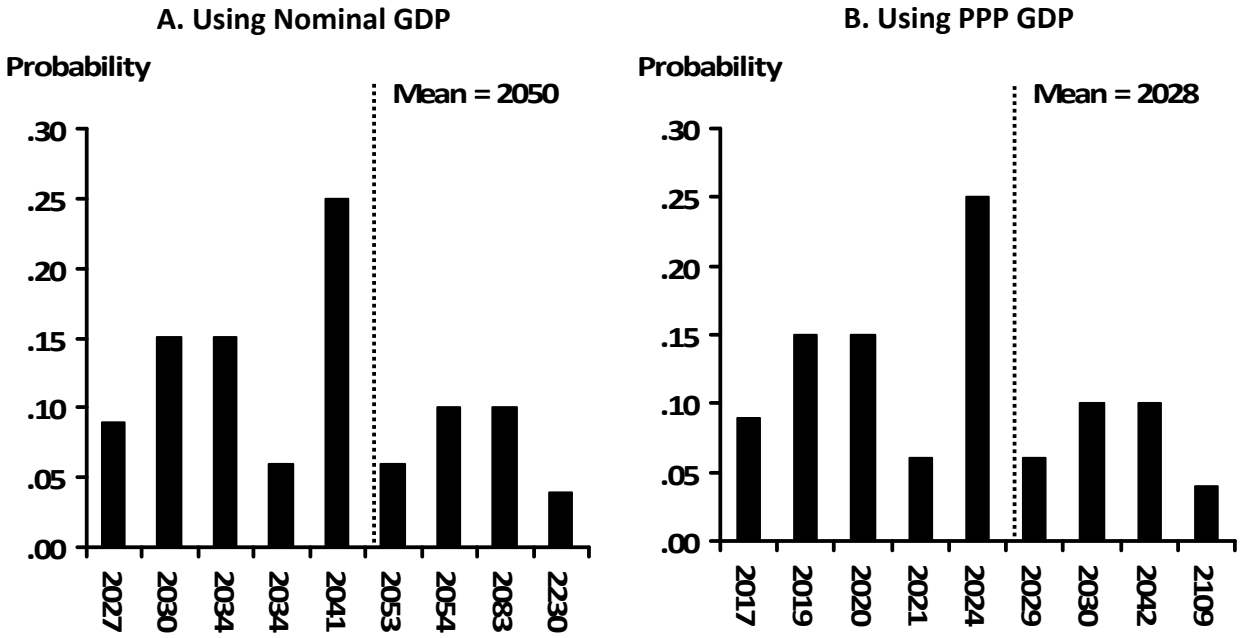


Source: National Bureau of Statistics, Bureau of Economic Analysis, SED

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 uncerta*inty surrounding this date. Point forecasts such as "means" have little decision-making value in such contexts.[7] 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?

[7] 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.[8]

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

[8] 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).

