

CHINA

GDP growth doesn't mean what you think it means

Special points to highlight in this issue:

- Over the next few years either reported GDP growth in China will drop very sharply, probably to well below 2-3 percent, or it must surge to levels that will rival or surpass reported GDP growth in the 1990s and 2000s, probably to well above 10 percent. No other possibility is consistent with the data.
- We usually treat a country's reported GDP as an economic-system output, variations in which can be analyzed to get an understanding of the performance of the underlying economy and its future prospects.
- In China, however, GDP growth is not an output. It is an input, set by the government in the form of a GDP growth target. Government entities are expected to generate enough economic activity, whether productive or not, to achieve the growth target. The financial system is expected to allow debt to grow by whatever amount is necessary to accommodate the required expansion in economic activity.
- This means that GDP growth does not distinguish between productive activity and non-productive activity. This is true in all economies, but most economies have two mechanisms, hard budget constraints and a mark-to-market process, that prevent non-productive activity from becoming a substantial share of all economic activity included in the GDP calculations. These mechanisms ensure that reported GDP growth is almost always a system output, not a system input, and that it reflects the real performance of the underlying economy in a way that we find meaningful.
- Because these two mechanisms do not function normally in China, variations in its reported GDP growth tell us almost nothing about the performance of the underlying economy and its future prospects. In fact, in the case of China the most meaningful output generated by the system is the amount by which debt has to increase in order to generate a unit of additional GDP activity. Variations in this amount tell us more about the performance of the underlying economy and its future prospects than variations in reported GDP growth.
- On a comparable basis, growth in China has already dropped substantially, probably to below 3 percent, but this will not be reflected in reported Chinese GDP until credit growth is reined in.

I have made references before to some of the problems with the way GDP is calculated and reported, and because these problems are reflected more in China's data than anywhere else, I thought I would focus this issue of the newsletter on digging through the concept of GDP and explaining why, contrary to what many suppose, China's growth miracle is not hanging on by the skin of its teeth. It is well and truly over and ended many years ago.

The timing of this issue of the newsletter isn't accidental. We have just completed the 19th Party Congress, and the changes announced during the congress dominate the news and most discussions about Chinese and global economies, but rather than parse through them, I prefer to discuss something else altogether. This isn't because I believe the congress isn't important. On the contrary, it was extremely important and will determine China's growth trajectory for decades.

The reason for ignoring the congress in this issue of the newsletter is that there isn't really much I or anyone else can say beyond repeating and noting the specific announcements about who has been promoted and who hasn't. We already know what reforms Beijing must implement, and that this congress will determine whether or not the leadership has the power to implement these reforms.

This power, however, is not a matter of who takes what position in which entity. There is only one way by which to judge how successful the leadership has been in acquiring the necessary power, and that is by watching the Xi administration exercise that power in the implementation of these reforms. Once we begin to see a substantial process in which local governments liquidate or transfer assets, directly or indirectly, either to increase household wealth or to extinguish debt, then we can start to believe that the administration is able to implement the reforms. Until then, there is very little that we can meaningfully say about the political transition.

GDP as input rather than output

Meanwhile we are still discussing the 6.8 percent GDP growth rate for the third quarter of 2017, and what it means for Chinese growth going forward, as if there were the same kinds of informational content in the GDP data for China as there is for other countries. This makes little sense. There is almost no such content. In most economies we analyze the GDP growth number for insights into the health of the underlying economy because GDP growth is an *output*. It is the sum of the changes in certain types of economic activity, and this activity is supposed to represent, or serve as an unbiased proxy for, the wealth-generating capacity of the economy.

Because we are interested in understanding the performance of the underlying economy – i.e. its ability to generate higher living standards, greater productive capacity, more debt-servicing capacity, and other similar measures – the amount of GDP growth in every period is presumed to have informational value. If GDP growth is higher than expected, it probably means that the economy is performing better than we thought, and this might imply continued good performance into the future. If it is lower, of course, we rightfully worry that the economy will find it difficult to generate similar growth in the future.

But in China, the GDP growth number is not an *output*. It is an *input*. The economy is expected to generate enough of the activity that is measured in the GDP calculations to reach the GDP growth target, and it is the responsibility of local governments to ensure that this is the case. Local governments are encouraged – in fact required – to generate GDP-related activity to meet the country’s GDP growth target and keep employment stable, and the failure to do so of local government officials sharply affects their prospects for promotion.

In order to achieve the target local governments have one very powerful tool. They can force government-controlled entities to invest in projects that generate GDP-related activity, whether or not this activity creates real economic value. Because local governments control the credit creation and allocation process, to fund investment in these projects local governments must force the banking system to create enough debt to fund whatever amount of investment is needed to achieve the growth target.

Here is the great puzzle: Every economist understands that GDP growth is not the same as growth in an economy’s underlying capacity to generate wealth, and yet few of them seem to consider the implications when it comes to analyzing the Chinese GDP growth data. Rather than treat GDP growth as an *output* presented by the system and which is subject to analysis, they should consider it as an *input* that can be set at any level the government chooses. The meaningful *output*, in that case, would be the amount of debt required to raise the GDP growth number from whatever organic growth occurred in the underlying economy (the real growth in wealth-generating capacity) to the reported GDP growth.

How does reported GDP conform to real GDP?

In the case of the difference between economic activity that creates value and economic activity that merely creates a demand for resources, including labor, consider two factories that cost the same to build and to operate. If the first factory produces goods that the market wants, and the second factory produces unwanted goods that pile up as inventory, only the first one represents a real improvement in the underlying economy. This is what we want to measure when we measure GDP. Both factories, however, will boost reported GDP in exactly the same way.

This doesn’t mean that GDP is always a useless number. In most economies, there are two mechanisms that force the reported GDP data to conform to underlying economic performance that we really want to measure. This is the part that most economists seem to forget. Because the economic activity measured in the GDP calculations is not necessarily productive activity that enhances wealth, and because we are nonetheless interested mainly in productive economic activity when we try to analyze the underlying performance of an economy, GDP is useful as a measure only to the extent that these two mechanisms ensure that what we want GDP to measure – which we will call “productive” GDP – is actually what it measures, at least within a reasonable margin of error.¹

¹ I am going to follow [the lead of the blog Deep Throat](#) and refer to as “productive” GDP that which *Deep Throat* defines as “as GDP excluding all of the over-building, non-productive excess capacity and accounting games created simply to hit the arbitrary...CCP mandated GDP growth target.”

First, most economic entities are subject to *hard budget constraints* that limit their ability to purchase the resources they need to operate. Hard budget constraints drive entities that systematically waste investment, like the second factory, out of business before they can substantially distort overall economic activity. In most market economies, in other words, the process of bankruptcy ensures that there is a limit to the amount of wasteful investment in which any economy can engage. It is important to recognize that if the hard budget constraint is eliminated, there is no mechanism that prevents any entity that might benefit from non-productive investment from pushing it to infinite levels.

Second, there is a *mark-to-market* process implicit in GDP accounting by which, as soon as they are recognized, the losses associated with wasted investment are charged against the value-added component of the GDP calculation, often in the form of debt write-downs. These write-downs reduce reported GDP growth. The second factory, in our example, will generate losses either for the shareholders or for the banks that made the loans to the company, and so must write these loans down to zero.

As it does so, it reduces the total profitability of the country's business sector and so reduces the value-added component when that country's GDP is being compiled. When economists calculate GDP, in other words, one of the components that comprise GDP is the profitability of the business sector, and the losses generated by the second company or by the bank that is forced to write down the loans appears in the GDP calculation as a reduction of total GDP. This is how the mark-to-market mechanism forces the GDP data to conform to underlying economic reality.

Notice the implication. In an economy that functions without these two mechanisms, there is nothing to prevent reported GDP from departing substantially from the "productive" GDP that we assume and want the GDP exercise to represent. In that case it is absurd to analyze reported GDP as if the two mechanisms were in place and ensured that reported GDP conformed to what we want it to measure.

Without these two mechanisms, in other words, there must be a gap between what we want GDP to measure and what it actually measures, and every year we can approximate this gap by estimating the amount of bad debt that should be written down that year. As this amount increases over time, the gap between reported GDP and our "productive" GDP widens.

What if these mechanisms are faulty?

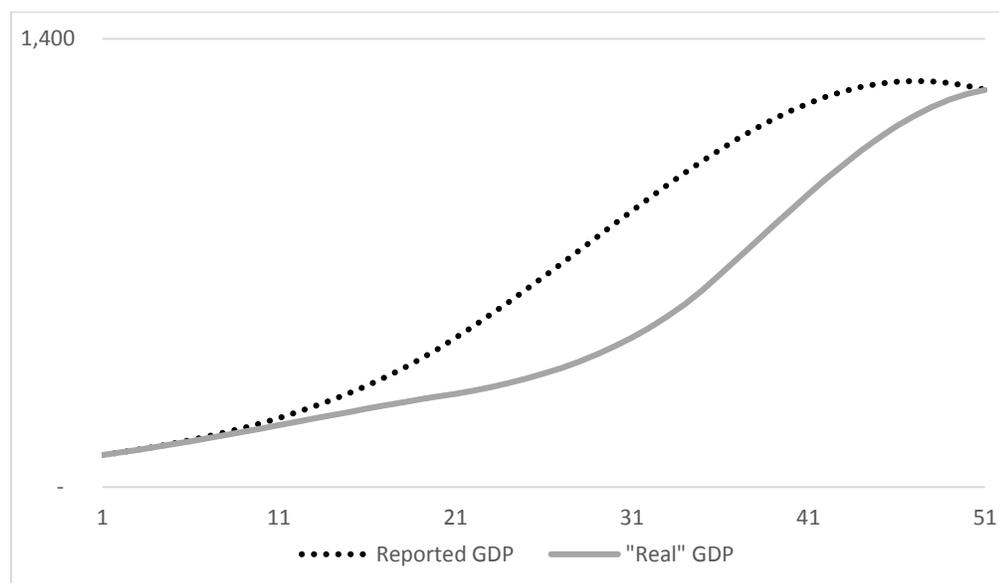
In China it is widely known that neither mechanism works correctly. The Chinese private sector is subject to hard budget constraints, but state-owned enterprises and local governments are not, and for that reason, perhaps inevitably, they have become the source of much of the investment misallocation that characterizes recent Chinese growth. For many years, the private sector had become an increasingly important share of total investment in China, but this process has been reversed in the past few years, which is exactly what we would expect if an increasing share of total investment had to occur in entities not subject to hard budget constraints.

But while there is growing acknowledgement of the problem of investment misallocation, you would never guess this from looking at the bad debt figures in China. There have been far too few bankruptcies and debt write-offs in the banking system to allow the market-to-market mechanism to reconcile the GDP data with China's production of goods and services. This is

because banks are allowed to treat the debt as if it were explicitly or implicitly guaranteed by the state, and as a consequence a very large share of loans in the banking system – nearly a third according to consensus estimates – consist of loans whose principle and coupon payments must be refinanced by rolling over the obligations as they come due.

The implications are obvious here too, or should be, even if most economists have been surprisingly reluctant to acknowledge them. If we were to correct for the impact of economic activity that does not represent real economic value-creation, making GDP growth in China broadly consistent with GDP growth elsewhere, the adjustment would reduce reported GDP growth substantially, with the gap directly proportional to the extent of wasted investment and rising debt. “Productive” GDP would become an increasingly smaller share of reported GDP, in other words, and it would take an increasing amount of debt to generate the activity needed to bridge the gap, which is exactly what seems to be happening.

By the way this overstatement of GDP isn’t permanent. Once credit growth is brought under control, the excess GDP reported in previous periods will automatically begin to amortize, in the form of lower returns on invested capital, and the two will slowly converge. Overstatement of GDP growth today will be matched by understatement tomorrow, so that over a long period of time, probably two or three decades, reported GDP will match “productive” GDP. The accompanying graph shows how this might occur.



Historical precedents

There is simply no denying the mathematics. Anyone who believes that there has been a significant amount of wasted investment in China either must identify the corresponding debt write-downs that reconcile reported GDP growth with real growth in the economy or must accept that reported GDP has been boosted by the failure to write down bad debt, and so overstates what he expects GDP to mean (and what it means in most other major economies) by the net amount of wasted investment. After adjusting China’s GDP growth to be consistent with what he expects GDP to mean, he would have a much lower GDP growth rate. There is no way of calculating directly what this adjusted “productive” GDP growth would be, but I find it very hard to believe that it is not below 3 percent.

But while there is no way to calculate accurately the amount of the GDP overstatement, there are [historical precedents](#) that allow us to estimate the potential magnitude of the overstatement. Japan is a country that in the 1980s had lower but similar distortions to those of China today, i.e. a very low consumption share of GDP and an over-reliance on investment that by the 1980s had veered into substantial misallocation. By the 1990s Japan's reported GDP comprised 17 percent of global GDP, and it was widely expected to overtake the US before or shortly after the turn of the century. Two decades later, however, its share of global GDP had fallen shockingly, to 7 percent, so that Japan's share of the global economy was slashed by nearly 60 percent.

The same thing happened to the USSR, one of the countries that originated the development model followed by China, Japan, and at least two dozen other investment-driven "growth-miracle" countries. It had been growing so quickly in the 1950s and 1960s that it was widely assumed it would become the world's largest economy within two to three decades, growing from the devastation of the 1940s eventually to comprise an astonishing 14% of global GDP by the late 1960s. Two decades later, when the Soviet Union broke apart, its share had fallen to a mere 4%. Then Soviet Union saw its share of global GDP, in other words, collapse by over 70 percent.

These are extraordinary events, and economists are not nearly as curious as they should be by these (and several other similar) cases in modern history. If during this time the reported GDP of these countries truly represented their underlying capacities to generate wealth, the subsequent two decades represent catastrophic declines in their relative productive capacity that would be shocking even for countries that had been devastated by war, which neither was. If the reported GDP data is meaningful, we must believe that in two decades, these huge and powerful economies saw the relative amount of goods and services they were capable of producing collapse by two-thirds during periods of peace and economic stability (most of the decline in the USSR's relative share had already occurred before it underwent its last 2-3 years of political instability and dis-union).

But if we consider that like China today, Japan in the 1980s and the USSR in the 1960s lacked the mechanisms that prevented massive amounts of wasted investment from causing a significant but temporary overstatement of the country's reported GDP, their experiences are not nearly as shocking and are far easier to understand. In that case at their peaks the reported GDP of each country seriously overstated productive capacity, perhaps by as much as one-third to one-half, because of the failure to write down massive accumulations of bad investments, and understated it once debt levels stabilized.

And if that is the case, we should be sensitive to the implications for China. If China is misallocating substantial amounts of investment, until bad debt is written down or eventually amortizes to manageable amounts over 2-3 decades, China's GDP growth data should not be analyzed the same way as GDP growth in economies with such different institutional characteristics. It simply does not mean the same thing.

This may be why Xi Jinping's administration has been trying to de-emphasize the GDP growth target in favor of something more meaningful, for example household income growth. Whatever the reason, any serious analyst should jettison the reported GDP growth data as an indicator of China's underlying economic performance. Piling up unsold and unsellable goods or building empty airports may boost GDP, but it does not measure wealth creation.

Implications for China's GDP today

In order to give a sense of how this overstatement of GDP might distort the data, I thought it might be useful to go through an exercise in which we compare China's "productive" GDP with its reported GDP under some fairly plausible assumptions. China's reported GDP has grown on average by 9.4 percent since 2000, so that if GDP at the beginning of the year 2000 had been indexed to 100, by the end of 2016, reported GDP would be 462, as this table shows:

Year	Reported GDP growth	GDP index	Year	Reported GDP growth	GDP index
2000	8.5%	109	2009	9.4%	268
2001	8.3%	118	2010	10.6%	296
2002	9.1%	128	2011	9.5%	324
2003	10.3%	141	2012	7.9%	350
2004	10.1%	156	2013	7.8%	377
2005	11.4%	173	2014	7.3%	405
2006	12.7%	195	2015	6.9%	433
2007	14.2%	223	2016	6.7%	462
2008	9.7%	245			

We will assume that in the year 2000, China had not yet begun seriously to misallocate capital and that its "productive" GDP, as we define it, was equal to 100 percent of its reported GDP. Thereafter we will assume that China began to see small but growing amounts of misallocation so that "productive" GDP represented a straight-line declining share of reported GDP until, by 2016, the growth in China's "productive" GDP had declined to 3.0 percent.²

Once again, indexing the beginning of the year 2000 at 100, this is how China's "productive" GDP would compare to its reported GDP:

Year	Reported GDP growth	Reported GDP index	"Productive" GDP growth	"Productive" GDP index
2000	8.5%	109	8.5%	109
2001	8.3%	118	8.0%	117
2002	9.1%	128	8.5%	127
2003	10.3%	141	9.2%	139
2004	10.1%	156	8.7%	151
2005	11.4%	173	9.4%	165
2006	12.7%	195	10.1%	182
2007	14.2%	223	10.8%	201
2008	9.7%	245	7.0%	216
2009	9.4%	268	6.5%	230
2010	10.6%	296	6.9%	245
2011	9.5%	324	5.9%	260

² So that in 2001 "productive" GDP growth was 96.6 percent of reported GDP growth, in 2002 it was 93.1 percent of reported GDP growth, in 2003 it was 89.7 percent of reported GDP growth, and so on.

Year	Reported GDP growth	Reported GDP index	“Productive” GDP growth	“Productive” GDP index
2012	7.9%	350	4.6%	272
2013	7.8%	377	4.3%	284
2014	7.3%	405	3.8%	294
2015	6.9%	433	3.3%	304
2016	6.7%	462	3.0%	313

Under these assumptions, China’s “productive” GDP, if investment misallocation had been constrained and bad debt correctly accounted, would be 68 percent of its currently reported GDP.

This is a very rough and ready way of estimating the relative numbers, and to get an idea of its sensitivity to our assumptions, we can easily vary the assumptions to imply a greater misallocation process and a lesser misallocation process. If we assume a worse-case scenario in which “productive” GDP growth had declined to 3 percent by 2012, and a better-case scenario in which it reached 3 percent only in 2020, China’s “productive” GDP would be 56 percent and 74 percent of its currently reported GDP.

This adjustment has important implications, of course, for any analysis of China’s economy. Among other things this affects the country’s debt ratios. Assuming, with the BIS, that debt is currently equal to 304 percent of reported GDP, if “productive” GDP is just 68 percent of reported GDP, we would have to adjust our numbers to show that debt is in fact currently a whopping 447 percent of GDP. In our more optimistic scenario, in which China’s “productive” GDP is 74 percent of its currently reported GDP, the comparable debt ratio is a still-frightening 410 percent.

China’s two possible paths

I have chosen what I think are plausible assumptions, but readers of my newsletter should not get fixated by any sense of precision. These are rough estimates, but they show how large the variations can be, and anyone who believes that there is a substantial amount of investment misallocation in the Chinese economy should work through whatever he believes are reasonable estimates of the extent of investment misallocation and see how this changes his analysis of the Chinese economy. As I am trying to show, even fairly small adjustments can have fairly worrying implications.

Unfortunately this exercise requires that we give up any pretense of precision in our GDP data in order to improve accuracy by getting a closer approximation to the underlying economic reality. Among academic economists, however, precision has always mattered far more than accuracy, so it is very unlikely that most economists will accept the need to adjust the GDP data, even though very few of them, if any, will disagree with any of the assumptions I have listed that require an adjustment of the GDP data.

Nonetheless if we were to adjust China's GDP data to make it consistent with GDP data elsewhere, we would clearly see that it is probably growing by less than 3%. The only way we can accept the reported data as representing the performance of China's underlying economy in the same way that reported GDP data represents the performance of the underlying economy in other countries is if we assume the following:

- a) The amount of non-productive investment occurring in China is negligible, and in line with that in most other economies.
- b) The amount of bad debt on bank balance sheets that has not been written down is negligible as a share of GDP, and in line with that in most other economies.

Finally, we must also have some explanation for the extraordinary divergence over so many years of the growth in debt and the growth in GDP. We must assume, in other words, that the growth in real productivity in China is extraordinarily high – more than twice the reported growth in GDP – and is not showing up yet in the current GDP data because of distortions in the way productivity increases are recorded. In that case not only should we not expect reported GDP growth to drop sharply, as I have argued it must, but in fact we should expect it to surge at some point as economic activity catches up to the unrecorded surge in productivity.

Logically, it seems to me, we can only take one of two positions. One the one hand China's GDP is in fact growing much more slowly than its recorded GDP, probably by less than 3 percent a year. The acceleration in debt is what keeps economic activity growing more quickly, and it is only by allowing debt to continue to grow at an accelerating pace that we can postpone the sharp drop in GDP growth.

On the other hand China's GDP is indeed growing by between 6.5 percent and 7 percent a year, and very soon its GDP growth must surge to 10 percent or more because that is the only way in which to account for the fact that debt has grown much more quickly than GDP for so many years. Remember that to be sustainable, debt cannot grow faster than debt-servicing capacity, so the fact that debt has grown much faster than reported GDP means that debt-servicing capacity must also have grown much faster than reported GDP, and because debt-servicing capacity is the same as productive capacity, this means that the growth in China's productive capacity has not yet shown up in reported GDP, but eventually it must.

I don't think there is a simpler way of explaining the divergence in views on the Chinese economy. Logically there can only be two predictions consistent with the relationship between the growth in debt and the growth in reported GDP. In either case reported GDP turns out to have been a terrible proxy for the real performance of the underlying economy. Over the next few years either reported GDP growth must drop very sharply, or it must surge to levels that will rival or surpass reported GDP growth in the 1990s and 2000s. No other possibility is consistent with the data. Take your pick.

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