

Stagnation and Growth in China over the Millennium: A Comment on Angus Maddison's "China in the World Economy, 1300-2030"

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ABSTRACT

China was very likely well ahead of the rest of the world in income and technology during the Song dynasty and its income fell during the early Ming dynasty and rose only slowly back to the earlier levels centuries later. It is unlikely that the closing of the economy after the Zheng Ho voyages is the main cause of the stagnation or fall in per capita or in the stagnation of technology in China. International trade would not have given China access to new technologies, because, for the most part, these technologies did not exist in the parts of the world with which China traded or in Europe prior to the nineteenth century. Explaining why China did not develop in the nineteenth and early twentieth century requires a different explanation based on political turmoil, weak government financial resources, and the missed opportunity of the Tongzhi Restoration in the nineteenth century. Poor performance after 1949 and before 1978 can be attributed largely to the policies of Mao Zedong. Rapid growth after 1978 came from reversal of the policies of Mao including the opening of the economy and the introduction of market forces and market supporting institutions.

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Few scholars are willing to take the risk involved in looking at a thousand years of history in a country as large and complex as China. The fact that Angus Maddison is willing to take that risk is a challenge to others to address China from his broad perspective on world history. What follows, therefore, is not so much a criticism of Maddison's overview of Chinese history or of his particular estimates of gross domestic product in various periods. It is rather a somewhat different, although not necessarily contradictory, perspective on why China appeared at an earlier time to be so far ahead and then fell so far behind at least in economic terms. This comment, following Maddison, will end with a few brief remarks on what changed in the second half of the twentieth century and especially after 1978 that appears to have created the conditions for China to "catch up" with the high income nations of the world.

I. WAS CHINA WAY AHEAD AND WHY DIDN'T IT STAY THERE?

The case for believing that China was ahead of the rest of the world both in terms of size and possibly even in terms of per capita income is probably better for the Song Dynasty (960-1279) than it is for the Ming (1368-1644). Until recently there has been very little quantitative work on the level of income in either dynasty, but a major work now completed does provide quantitative evidence that the level of income in the Song may have been double that of the early Ming.¹ There is also reason to believe that the level of urbanization was much higher in Song than in Ming and that the size of commerce, especially commerce that went beyond the local market town, was also higher. If the data on which these conclusions are based is reasonably accurate, then the issue is not just why did China stagnate after 1200 or 1400 but why did it appear to first retrogress after the thirteenth century and then recover but still prove unable to go beyond the levels achieved in the eleventh century until well into the twentieth century?

One obvious explanation for the downturn in the early stages of the second millennium is that the Mongols brought enormous destruction to China and it took a long time to recover from that destruction. The population of northern China was largely wiped out and the population of southern China was subjugated to a militarily powerful but otherwise technologically backward population of former nomads, the Mongols. When the Ming threw out the Mongols, the dynasty ruled largely through mechanisms that relied little on the market. Large scale death, of course, can lead to increases in wages as apparently occurred during the great plagues of Europe. The reason is that much of the infrastructure for agriculture, handicrafts, and commerce is in place, but labor is in short supply. In China in the Ming there does not appear to have been any comparable impact on wages, quite the opposite. The reason presumably is that the Mongols not only killed the people of the north, they also destroyed most of the infrastructure. In the south, the infrastructure was more or less in place but the killing was also much less. Wages and incomes may well have recovered fully to Song levels by the end of Ming, but we don't really know because there is so little relevant and reliable quantitative data for the late Ming. After 1400 or so, the first reasonably reliable data relevant to economic development such as the size of the population and the cultivated acreage is for the early 18th century under the Qing Dynasty. Whatever the precise level of per capita income in various pre-modern periods in Chinese history,

there is little doubt that at no time prior to the twentieth century was there a sustained rise in per capita income in China comparable to what occurred in parts of the Europe in the late eighteenth and early nineteenth centuries. There are various hypotheses put forth about why this was the case. Recently Kenneth Pomeranz has hypothesized that the difference in this regard between Europe and China can best be explained by the fact that Europe had a way of obtaining relatively inexpensive resources that derived from the land (cotton, sugar, tobacco) and at the same time relieved the population pressure that existed at home (Pomeranz, 2000). The mechanism was the migration of large amounts of European labor to the Americas. China had no such outlet for its surplus population or outside source of land intensive products and thus had to feed and clothe its population by steadily intensifying the cultivation of its existing arable land.

Even if the Pomeranz's hypothesis is valid, it applies mainly to the nineteenth century as Pomeranz himself states (Pomeranz, p. 283). In 1700, for example, there were only 250,000 people in what is now the United States, a tiny fraction of the total population of the British Isles not to mention continental Europe. The total population of the major countries of Latin America as late as 1820 was roughly 16 million and a large portion of those were either native to the region or had been brought as slaves from Africa, not Europe. China's total population in 1770 was 270 million and that of Europe in 1820 was well over 100 million (excluding Russia).² Even if the higher population of China on a roughly comparable amount of arable land explains the nineteenth century divergence, what was happening before then? If China was so advanced in the Song, particularly the northern Song when China was in control in the north as well as the south, what kept it from progressing from that time until the 1800's, a period of seven centuries? China's population probably did not reach 200 million until at least 1600 if not later.³

I am not persuaded by Maddison's argument that China's decision in the early Ming Dynasty to close itself off from the outside world and abandon seafaring exploration had much to do with China's pre-modern stagnation. The Zheng Ho voyages were not only very expensive; they also brought back to China little that was of much value. The areas of Southeast and Northeast Asia that had goods of interest to China had been trading with China for a long time and they were never really completely cut off. What they had to offer were mainly raw materials (copper from Japan, spices and faster growing plant varieties from Champa⁴ and elsewhere in the south). The fast growing rice seeds of Champa did make a measurable difference in China, but none of these imports fundamentally changed the Chinese economy. If Zheng Ho had somehow made it all the way to Europe, would he have found anything there that would have fundamentally changed China as the European explorations in the opposite direction changed Europe? It does not seem likely. When trade with Europe did expand to significant levels in the eighteenth century, the main commodity that Europe could offer China in exchange for China's tea and silk was silver.

Any attempt to explain China's long sideways development, in this writer's opinion, must come to grips with what happened to industrial and agricultural technology in China and Europe. Scholars know a great deal about technological developments in Europe and, while there are fewer people working on the subject for China, quite a bit is known about technology there through the centuries as well. The

Chinese themselves, as early as the sixth century, were publishing handbooks dealing with agricultural technology and writers such as the famous Song philosopher, Zhu Xi (Chu Hsi) wrote extensively about science.

There is one simple point that can be made about China's pre-modern technology in a short essay such as this. China had developed most of the industrial and agricultural technologies known in Europe in the eighteenth century and had done so sometimes as early as the Song Dynasty (steel manufacturing processes for example (Hartwell, 1962)). Agricultural technologies for dry land crops in China used technologies much like those in Europe more than a millennium later. Joseph Needham's multi-volume opus makes much the same point among others, and much of Pomeranz's recent study is devoted to showing that this was the case.

If one makes the distinction that David Landes makes between technologies arrived at by tinkering and those that only arose after the systematic application of modern science (electricity, the chemical industry—mainly around the 1870s in Europe) (Landes, 1969), then China had developed most of the technologies that could be reached by tinkering, but none of the technologies that required the systematic use of modern science which China did not have. In England much of the early technological tinkering was concentrated in a relatively brief period and hence led to a significant increase in per capita income. In China these innovations happened much earlier and over a longer period and so there probably was no comparable rise in per capita income. In some cases the large size of China's population and labor force may have reduced the incentive to continue using particular technologies when the main contribution of that technology was to conserve labor use. In any case, tinkering eventually was going to run out of steam and this might have led to stagnation in Europe as well if the newer technologies based on science had not come to the rescue. David Ricardo's pessimism about the prospects for sustained growth was probably quite realistic at the time that he was writing (1821).

II. THE CHINESE REPOSE TO THE WESTERN CHALLENGE

Whatever the explanations for why China did not develop before it came into close and regular contact with Europe and North America, those explanations cannot explain why China failed to develop in the late nineteenth and early twentieth centuries. The lack of the necessary technology can no longer explain what happened because the technology developed in Europe was there for the taking. A lack of economic contact through trade with the outside world cannot be an explanation either because China had extensive trade relations with Europe all be it on an involuntary basis as Maddison points out. Furthermore, in Japan the level of income per capita was no higher than China, the technology in use in pre-modern Japan was to a large degree derived from China or Korea, and the nature of the agricultural and commercial economy was very similar to that of China (labor intensive rice cultivation, etc.). Japan's per capita income probably did not begin to rise until around 1900, but long before that Japan had begun to fundamentally restructure its economy and society so that economic growth could become possible. The first beneficiary, however, was the Japanese military that was

able to defeat not only China (1895) but also a major European power (Russia in 1905). Why couldn't China accomplish what Japan did?

The answer to that basic question, in this writer's opinion, involves three main points. To begin with, China, as Maddison points out in his essay, experienced long periods of major turmoil beginning with defeat by the European imperial powers, mainly the British, in the first and second "opium wars" (1839-1842, 1856-1860), civil wars (the Taiping Rebellion 1851-1864; the Kuomintang-Communists civil war 1928-1949), the warlord period (1916-1928 and beyond), invasion by Japan (1895, 1931 with the loss of the Northeast, 1937-1945), and invasion by all of the major foreign powers during the Boxer Rebellion (1901). Between 1839 and 1949, there was only one substantial period when China had a reasonable degree of peace and unity in most of the country, the Tongzhi Restoration period named for the reign of the Tongzhi emperor of 1862-1874 although some of the policies and the period of peace lasted beyond his reign through the 1880s. .

The Tongzhi Restoration period was probably China's last chance until after 1949 to put together a sustained reform and development program that would have enabled China to compete with Japan and keep the European powers at bay. There were two primary reasons why that effort failed to place China on a track similar to the one being followed by Japan (and would eventually be followed by China many decades later). The first and probably the most important reason is that most Chinese leaders did not understand the full scope of the problem they faced. The belief among most educated Chinese at that time was that it was the weapons of the West that gave European and American nations their military superiority. There was no conception of the industrial might that lay behind the ability to produce these armaments in great quantity or to train and support large armies with modern discipline, motivation, and training. In the eyes of the court in Beijing and among many others, the traditional Chinese system of government was superior to that of the west when it was run by individuals with integrity and ability. In effect the challenge was to bring the "Confucian" imperial bureaucratic system back to its former glory and add a few modern weapons to the mix.

The second reason for the weakness of the Chinese response to the challenge it faced was that the financial resources of the Chinese government were extremely limited. Total tax revenue came to only a little over 2 percent of GDP in the late nineteenth century (Yeh-chien Wang, 1973), and most of this limited revenue had to be devoted to routine government administration and to support of the military forces needed to suppress the rebellions and try to fend off the imperial powers. While the government in Beijing was conservative and stifled efforts at modernizing reform such as when it snuffed out the hundred days of reform instituted by the Guangxu emperor in 1898, there were governors general in the provinces such as Li Hongzhang and Zhang Zhidong who tried to institute economic reforms. They did succeed in building a few factories and arsenals, but the financial resources they had at their disposal were miniscule. This situation did not change dramatically even after the fall of the Qing Dynasty in 1910 although the warlords did find ways to extract more money to fund their mostly unproductive activities.

The private sector eventually did step into the breach in a modest way and industrial development did take place in China in the first decades of the twentieth century. The modern cotton textile industry (owned in part by Chinese investors and in part by foreign direct investors from Japan) did grow and had largely replaced European and Japanese textile imports by the 1930s. The overall level of investment, however, given the political chaos of the times was only able to generate a GDP growth rate between 1914-18 and 1931-36 of 1.4 to 1.9 percent per year according to the best estimate available (Rawski, p. 280). There was also the growth in Manchuria described by Maddison that came from Japan and was driven by Japanese imperial objectives.

Most of the physical industrial capital built up prior to 1949 was obsolete, had been destroyed by war, or had been carted off to the Soviet Union by the victorious Soviet Army when it invaded Manchuria. As we learned from the experience of Europe and Japan after World War II, however, it is human capital and institutions that matter more than physical capital. China thus had a start on industrialization prior to 1949 that contributed to industrial recovery and growth after 1949.

By today's standards, China's human capital on the eve of the Communist takeover of the government in 1949 was not impressive. But China did have nearly 200,000 university graduates and perhaps 20,000 of those were in engineering with a smaller number in the natural sciences (Orleans, pp. 126-128). At the other end of the education spectrum, perhaps 50 percent of the males in China and a much smaller percentage of females were literate. This education base was sufficient to enable the government after 1949 to initiate a massive expansion in education without a major decline in the quality of that education.

The skills of the Chinese population in fields such as commerce and finance were also not negligible. Foreigners never played a significant role in the operation of China's domestic commerce, unlike many of the countries of Southeast Asia and Africa. By the twentieth century, foreigners were also playing a smaller and smaller role in China's international commerce. Some of the merchants who carried out this trade left for Hong Kong or Taiwan in 1949, but most did not. For a few years they played an important role in helping China's economy get back on its feet after 1949 but then the government stepped in and took over most of these activities and purged them of many of these pre-1949 experienced personnel. Some were still around in 1978, and they and many others and their descendants in Hong Kong played an important role in the early efforts of China to turn its economy outward.

What was missing in China prior to 1949, therefore, was not so much the human capital as it was the lack of an environment where that human capital could be put to good use. China spent a century figuring out how to create a unified government that could provide that environment. This essay is not the place to review the rise of the nationalism and the nation state in China. The main point of relevance here is that China had some of the key foundations needed for a modern unified state. Culturally China had been unified for two thousand years and, during much of that time, the territory where most Chinese live today was governed by a single government. Modern nationalism which formally dates from the May 4th Movement of 1919 was also well developed by 1949. Ethnic minorities in the territory governed by China might not have shared in this nationalism or in the sense of cultural unity, but, unlike many developing

and developed countries elsewhere, these minorities constituted only 9.4 percent of the total population in the 1953 census and 8.4 percent in the year 2000 census.

III. WHAT CHANGED AFTER 1949?

China in 1949 had a foundation on which one could build a modern economy, but that foundation had been obscured for a century mostly by political turmoil and the inability of the Chinese government to end the turmoil and provide the support that a modern economy requires. That situation appeared to change in 1949 when the Communist side won the war and unified all of China except for Taiwan and Hong Kong. The government revamped the tax system and enforced the new taxes and revenue soared. Investment, now done mostly by the government, also rose sharply. China did fight a war with the United States but it was in Korea and did not materially slow China's efforts to convert its economic system to a centrally planned command economy patterned on the system of the Soviet Union. Unlike in the Soviet Union, China's collectivization of agriculture and state takeover of industry and commerce was accomplished without much disruption of either the economic or political system. Soviet advisers were imported in the thousands to teach the Chinese how to set up and run this system. Recovery from wartime destruction was rapid and the growth rate during the first five-year plan (1953-1957) period was officially 9 percent per year (6 percent per year if relative price distortions in the GDP data for that period are removed).

This stability and accelerated growth, however, was short lived. For the next 19 years (1958-1976) China was plunged back into periods of turmoil largely because of the messianic goals and the enormous political power of Mao Zedong. The problem was not so much the Soviet command system per se. No doubt that system would over time have become a drag on China's ability to sustain high economic growth, but it is far from obvious that that would have been the case in the 1960s and 1970s. In the 1950s and 1960s, in fact, the Soviet model was seen as a success since it was generating significant growth in economic and military power in the Soviet Union. Economic stagnation in the Soviet Union and Eastern Europe, largely the result of the shortcomings of this model, was to come later mainly in the 1980s. Nor was the problem that China did not have the skilled manpower to operate a centrally planned command system. China was able to make the system work, something that would probably not be possible in many other developing countries. China, however, had the necessary human capital and experience with running complex organizations.

The problem lay with Mao Zedong himself. Revolutionary leaders often make poor managers of modern economic growth. The skills required to inspire and lead a revolution or fight for independence are fundamentally different from those required to run a modern economy. In Mao's case, in addition, he started with or acquired a set of economic beliefs that were also held by some respected economists, but which proved not to work in the Chinese context. Specifically he felt that China could accelerate growth first by mobilizing the large pool of "surplus" labor in the countryside. The formation of the agricultural producers' cooperatives and then the rural peoples' communes were the organizational mechanism that would make mobilization of that

labor possible. Labor mobilization for rural development infrastructure was an idea that had been applied in China with some success for two thousand years. Mao just decided to implement it on an unprecedented scale and, in terms of moving rocks and dirt, it was a great success. In terms of its impact on the economy, however, it was a disaster and led to the famine of 1959-1961 that took perhaps 30 million lives⁵

At the same time that Mao was pushing labor mobilization, he also through the Great Leap Forward (1958-1960) attempted to use his political mobilization talents to achieve unprecedented increases in industrial output. That effort proved equally disastrous. What made some sense done carefully on a smaller scale, rural small scale industries including small iron and steel plants for example, was disruptive when carried out on a grand scale. Notions about how China could rely entirely on its own efforts and could ignore the experience and much of the technology of the industrialized world including the Soviet Union were an echo of nineteenth century beliefs that China's unique approach was superior. The result in industry, according to official Chinese statistics published today, was a drop in industrial value added in 1961 to only 54 percent of the level attained in 1957 (National Bureau of Statistics (1999) p. 5).

Mao retreated from direct involvement in economic decision making after 1960, but that did not end his disruptive impact on the economy. In 1966 he launched the Great Proletarian Cultural Revolution that was going to transform the values of the people of China, particularly the youth. The result in the late 1960s (particularly 1967 and 1968) were strikes, political conflict, and much else that led to a downturn in the economy. The army was eventually brought in to restore order, but certain attitudes harmful to economic growth persisted among the top leadership. Foreign technology, in particular, was something to be looked down upon.

The remarkable thing about this whole period is that China did manage to achieve some economic growth despite all of this disruption. Investment, for example, remained at high levels above 30 percent of GDP even if much of the investment was poorly allocated. The growth rate of GDP from 1958 through 1976 averaged 3.5 percent a year or 1.6 percent per capita. Given the rate of investment, this GDP growth rate was unimpressive but at least it was positive.⁶

IV. THE 1978 REFORMS AND AFTER

Given this historical background, it is not difficult to understand why China has grown so rapidly since it began to transform the country's economic policies and economic institutions in 1978. Unlike much of the period between 1840 and 1949 and between 1958 and 1976, China managed after 1978 to maintain a high degree of stability for investors, both public and increasingly private. Unlike during the Qing Dynasty and the Republican Period (1911-1949), the Chinese government was also able to generate large amounts of revenue and a high rate of investment. Public sector investment declined over time, but private or quasi-private investment took up the slack.

The other major achievement of the post 1978 period was that China looked to the outside world and especially its rapidly growing immediate neighbors and picked an economic model that had a proven track record for generating growth. It did not make

the required changes all at once, but instead experimented with changes and then followed up if they worked. Collectivization of agriculture, that had never worked well anywhere as a generator of growth, was among the first to go. The limitations on foreign trade and the import of foreign technology were jettisoned even earlier. The momentum generated by the success of these reforms laid the ground work for the beginning of reforms in industry in 1984. By the mid-1980s the problems with the Soviet command system were becoming increasingly apparent in their original home and in Eastern Europe which further reinforced the trend in China away from that system. China thus moved toward a market system in industry steadily but cautiously. It was not until the middle of the 1990s, however, that China acknowledged to itself as well as the rest of the world that the objective was to establish a full market economy, a “socialist market economy” to be more precise but socialism in this case seemed to have less and less to do with state ownership of the economy.

Angus Maddison in his essay in this volume discusses many of the specific economic reforms that remain incomplete in China and need to be dealt with if growth at a high rate is to continue. The fundamental problem for the future, however, does not in this writer’s opinion lie with these specific reforms. The lesson for economic growth from the past is that the failure of China to begin modern economic growth in the nineteenth and early twentieth centuries was the result of a combination of two primary influences. The first was a failure to recognize the broad nature of the changes required to achieve sustained economic development. The second was the inability to maintain a stable environment for growth oriented investment largely because of the political upheavals that accompanied the imperialist challenge, the difficulty China had in finding a replacement for the Confucian system of governance, and the personality and vision of Mao Zedong. Today China has clearly recognized the across the board nature of the reforms needed to achieve sustained development and it has provided the stability that investment in development requires. The future is not likely to bring a reversion back to the discarded economic policies and institutions of the past or forward to new experiments in untried utopian ideas. The specific measures with respect to the financial system and trade discussed by Maddison will be dealt with as well.

The main future challenge for China instead will be to maintain a stable environment for investment and economic growth while the political system evolves to one more suitable for an educated increasingly high income country.

ENDNOTES

1. The data on which this conclusion is drawn are mainly wage data collected from various historical publications such as the *Song hui yao*. See Guanglin Liu (2005).
2. The European population figure was obtained by adding up the individual European country figures in Maddison, pp. 148-152.
3. Because there are no reliable population census data for the late Ming, this statement is based on an extrapolation of population from the relatively reliable census of 1393 at a rate of 0.5% per year. That rate of growth is similar to the pre-modern population growth rate in China (and in Korea and Japan) during long periods of relative peace and stability.

4. Champa is now part of central Vietnam.
5. The estimates of the famine on deaths are based on the crude birth and death rate figures that show a rise in the overall death rate and a decline in the birth rate, the latter due not to family planning but increased spontaneous abortions and the like.
6. This GDP growth rate is not the official rate which is higher. The rate here uses the official series for value added in the various sectors of GDP but corrects for relative price distortions that lead to an exaggerated rate of growth. Specifically it corrects for the high state set prices for industrial products and the low prices paid to agriculture and for many natural resources.

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