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ECONOMICS

DEEP IMPACT:
CHINA AND THE WORLD ECONOMY

by

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DISCUSSION PAPER 11.01

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Much of the debate about the impact of China on the international political economy arises from the many dimensions of the potential impact and the lack of historical precedent for such a large change. This paper provides some context for thinking about these issues by contrasting China's recent expansion with the USA at the end of the last great wave of globalization, and reviewing recent quantitative modelling of China's growth on other countries. It argues that China's growth is good for the world economy with significant terms-of-trade gains being experienced in its trading partners, reductions in poverty and increases in living standards. Nevertheless it also suggests we should be cautious in predicting China's future role in the world economy. It still commands only a fraction of the spending power of the USA and further growth will require China to embrace good institutions and continue the move to a more market-based economy.

1. Introduction

For the average person in a rich country like the USA, the bundle of goods consumed is around thirty times larger than the bundle of goods consumed in the world's poorest countries. This enormous gap arose after the 1870's where a select group of countries successfully industrialized and experienced 100 years of historically unprecedented high growth rates.

The remarkable transformation that we see occurring in China is the latest example of one country, out of only a few, being able to bridge the gap between these two groups. Other notable post WWII examples of catch-up were Japan, South Korea and several other east Asian economies. However many countries' attempts at industrializing since WWII failed, and China was nearly among them. But thirty years of relative political stability and market reforms have given China a fair chance of bridging the chasm.

As China undertakes this catch-up growth it is becoming economically and politically much more important to the rest of the world. This chapter aims to give some context to China's economic emergence by considering other major economic changes in the world economy. First I review the way the world economy has grown over time and hence how the current gap in real incomes has come into being. I also look at how the USA industrialized and draw out some important parallels with China's current experience. Third, in order to begin thinking about China's impact in quantitative terms we need some understanding how large it is economically, which is not as straightforward as it might appear. So in Section 4 of this chapter I consider alternative measures of its size and also trace the growth of China through time and consider how China now, compares with other large countries at various stages of their economic development.

Thought size is important, this chapter also aims to show that size alone is not a sufficient condition for a countries growth to have a big impact on the world economy. That depends also on how different that country is from the rest of the world. It is possible to be big, but remain unimportant in an economic sense. Section 5 of this chapter therefore considers how different China is in an economic sense, from the rest of the world economy, and shows why China's growth therefore matters for some regions more than others.

2. China's Place in the Word Economy

For most of human history a large fraction of all returns to labour was spent on food, particularly carbohydrates. Thus historical records on rice and bread consumption tell us a great deal about the average level of real incomes through the ages, where "real income" means a bundle of goods - shelter, clothing, food - that the average person could afford to buy. Based on these types of records it is possible to reconstruct estimates of GDP per capita back until the earliest human records. As shown in Figure 1, Maddison (2010) estimates suggest that there was very little growth in average real incomes per person from 1 AD to 1800. Clarke (2007) provides even more detailed estimates from 1000 BC to now, which shows periods of fluctuations, but no net growth until 1820. The data thus suggest that one would be indifferent between living as an Elizabethan era peasant, or a peasant under Roman occupation.

This highlights the significance of the Industrial revolution. In the early 1800's incomes finally began rising. In 1820, a growth rate which we now take for granted, say 2-3 percent per year, was historically unprecedented. Before 1820s, the average long run in income per person in England, and everywhere else, was close to zero.

At first glance this might seem surprising given the enormous technological advances that have occurred. Rather, as noted by Malthus (1798), the benefits of technological advances such as bronze, coal power, iron, steel, and literacy were diluted by higher fertility rates. Even now in the poorest countries, population growth rates tend to outstrip growth. The "great divergence" shown, after the industrial revolution, was caused when a number of countries managed to escape the Malthusian trap, through particularly fast economic growth. Technological change was so fast that fertility rates could not keep up. Eventually rising wages and falling mortality rates would cause fertility rates to fall.

Thus, the current gap in incomes across countries is a consequence of the industrial revolution which represents an enormous break in history. Some countries, by chance or design, inherited the institutions that supported the industrial revolution - such as legal systems that protect property rights, effective laws governing individual freedom, and low taxation and escaped the Malthusian trap. Thanks to the Malthusian trap, Clarke (2007) estimates average incomes in the world's poorest countries today to be lower than average incomes in Europe in 1000 BC.

3. Deep Impact

A brief list of China's current economic challenges would include: over population; mass migration; sustaining high rates of investment, and; the difficulties in coping with infrastructure necessary to maintain its growth. Politically there is also a growing sense of nationalism and national identity, disquiet about the distribution of the economic gains and about global responsibilities. These symptoms, however, not only describe China, but, equally describe the USA during the 19th century. In looking for a point of reference to understand China's impact, the USA is perhaps the only other example of an economy that came from behind to lead the world growth tables and was so large as to bring about fundamental change in the world economy.

Unlike China, the USA was not overpopulated at the time of its industrialization - but Europe was. As shown in Figure 2, during and after the Industrial revolution Western economies experienced rapid population growth and China's share of world population fell steadily after 1820. Despite the over-population growth in Europe that trans-Atlantic immigration flows were trivial at first. In the two centuries after the initial European settlements, the number of immigrants was estimated to be approximately 400,000, most of whom were slaves (O'Rourke 2002).

As shipping costs fell, the flows accelerated and between 1820 and 1860 five million migrants crossed the Atlantic. By the 1840s, the free inflow had increased to 179,000 per annum and between 1820 and 1914 sixty million Europeans emigrated to the New World (Hatton and Williamson 1998, O'Rourke 2002, Chiswick and Hatton 2002). This flow represented approximately 4% of the world's population in 1900. The largest fraction was free migrants and the peak flow was in 1907 when one million immigrants arrived in a single year.

In addition to this was the forced migration of slaves from Africa, at a rate of around 60 000 per year in the 1820s and migrants from other countries. Thus in 1820 the population was 10 million, and 1920 the USA accounted for 106 million people. (O'Rourke 2002, Chiswick and Hatton 2002). Maddison's data, in Figure 3, show that this episode of mass migration took the USA from being an insignificant fraction of the world population in 1800 to being 5% of the world population by 1900.

To get a sense of this economic achievement, and compare it with China today, we need to compare real incomes across countries using a "real basket of goods" concept. Maddison (2010)

does this using Purchasing Power Parity (PPP) dollars to convert the nominal GDP per capita of one country into an equivalent bundle of goods n a second country.[1]

Figure 4 thus shows GDP per person in $PPP for the UK, China and the USA. It shows that the USA caught up very rapidly and had passed the UK by 1900. The graph also emphasizes the higher growth rate of China compared to earlier industrial revolutions and also the suddenness of the change compared to the UK and the USA. In terms of this real output measure, China's per capita wealth today as is about as high today as the USA was in 1940. It passed the USA's 1900 wealth level in 2001, so that it has achieved in a decade, the same increase in living standards that the USA achieved in four decades.

To gain a sense of China's presence in the world economy we might consider looking at total GDP, rather than GDP per capita. Figure 5 shows that, according to Madison's data, in terms of the total quantity of goods and services produced, China is now the *equal* of the USA. There is reason to believe that this comparison is incorrect for many purposes and I shall return to this point below. But taking these numbers at face value, it is interesting to observe that the current parity is, in fact, a return of the situation that existed in 1900 when the USA caught up with China in terms of its real GDP!

Note also that, by the outbreak of WWII, when the USA was regarded by many as only a potential industrial giant, its capacity was three times larger than that of China. By 1950 WWII industrial efforts had doubled this advantage to six times that of China, a position which was held until the end of the Cultural Revolution. The graph therefore highlights the remarkable long run performance of the USA economy in terms of sustained economic growth. The USA's enormous impact on world political economy must be seen as a consequence of its huge economic size, which was achieved in part through population growth, but mostly through long run sustained increases in living standards.

Historians debate over the significance of these events and the reasons for the USA's success. Nevertheless the USA was not a fountain of technological knowledge, at least until the end of the 19th century. Even then, for example though USA steel manufacturing was more efficient than in

[1] Specifically, the numbers should be thought of as an index of a representative bundle of goods and services (e.g. goods, haircuts food, legal services clothing, etc) that can be purchased by all residents of each country. If two countries have the same $PPP value of GDP it means that total volume of goods produced by these economies is the same. If they have the same GDP per person then, roughly speaking, living standards are the same.

Britain, most of the key discoveries and inventions relating to steel came from Britain (Nelson 1989). Far more important was the abundance of land, as evidenced by the rapidly rising land prices (see Williamson 1997), and relative economic freedom. Another fact that stands out about the USA's growth experience is the total lack of planning. Arguably the key to the USA's success was the opportunity for private investment and intuitions to maintain and protect these investments.

China also owes its growth to these factors since its growth acceleration commenced after the end of the Cultural Revolution. What has been important for China's emergence is not technological sophistication or planning but the increased economic opportunities. For example labour migrated to the USA initially because there was nobody there already with the power to stop it. But mass migration eventually caused a 70% fall in wages relative to farm incomes, which in turn lead to growing resistance to further migration and eventually to the anti-immigration legislation in the early 1900's (Timmer and Williamson 1998).

For China, economic growth also sparked mass migration. But barriers to migration to the cities, such as household registration system, were erected and became a source of enormous inequality. The household registration system is an example of the force of entrenched interest groups in driving economic policy. As China develops we should expect increasing economic frictions spillover into policy making. Consider, for example, the impact of rising wages in China. Currently China's comparative advantage in manufactured exports is due to its low wages. China's ongoing economic success will increase labour costs and means that China will increasingly have to compete on the basis of productivity rather than low wages. This is a good thing for China as it means increasing living standards. But it will also mean a huge sorting out between efficient and inefficient firms. Exporters will seek subsidies. Domestic firms will lobby for protection. If market forces do not adjust quickly, rising unemployment and dissatisfaction will emerge.

So, like the USA, China's emergence on the world stage has been associated with new economic freedom and opportunity. World history and China's history itself suggest that the sources of growth lie in economic freedom of opportunity combined with good intuitions for protecting property rights. China has done very well with only a modest endowment of these ingredients. China's future will depend in large part in how it deals with these types of growing pains.

4. How Big is China Now?

The data presented in Figure 5 suggested that, in economic terms, today China's GDP today is approximately the same size of the USA. These Purchasing Power Parity (PPP) numbers are notoriously unreliable however. The 2005 PPP data produced by the World Bank International Comparison Project (ICP) show China's GDP being 5.3B $PPP and the USA economy being 12.3B $PPP, so that China is only half the size of the USA by their measure.[2]

But, arguably, what matters from an economic perspective is not the total volume of goods produced in China, but China's capacity to supply on the world market and its capacity to demand goods produced in the world market. A great deal of effort has been made by economists to undertake PPP benchmarking exercises because it was long realized that exchange rate comparisons made developing countries look much poorer than they were. The corollary is that PPP comparisons rates make China look much bigger in the world economy than what it would be if we simply compared the value of GDP produced by China, converted to USA dollars using the exchange rate.

To see why, consider the example of a non-traded service, say haircuts. Someone who has $1 in China could convert it to, say, 6 RMB, and buy a can of cola. Or they could perhaps buy a haircut. The same person with $1 in the USA could also buy a cola, but a haircut might cost $30-$60. So the same dollar buys much less in the USA. PPP comparisons would recognize that the person in China with $1 is much wealthier in a real sense than the person in the USA, because she can purchase more goods and services. Thus PPP measures of GDP are used by economists and groups like the World Bank and the OECD to look at comparisons of welfare on a per capita basis.

But is this the right metric to measure the impact of the Chinese economy of the world economy? Is it a measure of China's total capacity to demand goods or supply goods on the world economy? The answer is no. PPP comparisons tell us about the capacity to produce both traded and non-traded goods. But they do not tell us the value of goods that can be purchased in a foreign country for a given number of Yuan. That depends simply on the exchange rate which gives a very different measure of China's size. Using exchange rates, the Chinese GDP is only 2.4 billion US dollars. By this measure USA GDP is five and a half times larger than China's in 2005. In 2009 the figure had fallen substantially with the USA being approximately 3 times larger than China. But, to put it

[2] Data are from http://databank.worldbank.org/ddp

more dramatically, this nevertheless means that the USA's annual product can currently buy out China's annual product three times over.

The reason for the large difference between these valuations of China's relative economic power is that, though China produces a large volume of goods and services, many of these are non-traded goods that have very little value on world markets. For example, is the international value of a Chinese haircut that costs 6 RMB really $30? Thus in an economic sense, China's clout on the world stage is much better measured by its relative GDP measured on an exchange rate basis, than by the PPP comparison.

An alternative measure of China's impact on the world economy is simply the value of its supply on the world market through its export share, relative to other countries exports. Alternatively one could measure China's influence on world markets by looking at its total buying power, i.e. its total import share of world trade. In terms of its supply impact on the world economy, China is currently nearly as large as the USA with export values currently about 84% of the USA's export value. In terms of its demand impact of the world economy, however, China is 56% of the USA's value.

So, due to China's large trade surplus, China's impact on world supply would appear to be much larger than its impact on world demand. But export values are likely to overstate the true supply impact of China on the world economy since they contain a very high fraction of imported components. The actual contribution of Chinese production to world supply is only the value added by the Chinese production, for example, at the assembly stage if all components are imported. A recent study suggests that around 50% of the value of Chinese exports are re-exported components imports (Koopman *et al* 2008). Because the value of Chinese exports includes these high value imports, its actual contribution to world trade is much less than the gross trade to GDP figures.

So China's economy is growing rapidly and it is large by any measure. Nevertheless the data suggest that's its economic impact is still considerably smaller than that of the USA.

5. China's Impact on World Prices

So far we have considered China's size but we have not discussed how China's growth is affecting other countries. This will depend on China's impact on world prices. Being large is a necessary condition to have an impact on world prices, but it is not a sufficient condition. It is possible to be large but remain unimportant in the world economy because a country's impact on world prices also depends on the bias of its growth. That is, an economy's impact on the world economy,

through changing commodity prices, depends on how it is changing relative world supplies of commodities. Though China's growth is always good for the Chinese, its impact on incomes in other countries primarily depends upon its ability to change the world relative demand and world relative supply and hence to change the world terms-of trade.

By this measure China can be expected to have a large impact on some regions because it has dramatically increased the world supply of certain specific commodities - firstly textiles, and in the last decade, consumer durables. Thus, whether a country gains or not from China's expansion depends on the extent to which that country imports the goods that China is producing more cheaply, and the extent to which they export goods which China is not producing.

It is these terms-of-trade effects that are the focus of much of the international computable general equilibrium modeling literature. Recent results from studies by Harris, Robertson and Xu (2010) and Robertson and Xu (2010) suggest that China has had a strong positive impact on growth in the world economy, but particularly in Asia. Figure 6 shows the results for three regions, the USA, Japan plus the NICs (that is Japan plus the Newly Industrialized Countries of, South Korea, Taiwan, Singapore and Hong Kong) and the ASEAN-4 region (Malaysia, Indonesia, Thailand and Philippines).

The values reported in Figure 6 show the percentage increase in GDP, and other indicators such as wages and consumption, arising in these regions purely as a result of China's growth. Specifically they shows the estimated impact of a decade of Chinese growth in which China's economy increased by approximately 100% and its trade share increased even faster, by about 150%. It shows that growth improves the USA's terms of trade and raises GDP in the USA by about 3% over the decade. But the gains to Japan and the NICs are much larger at 13% of GDP.

This reinforces the previous points about China's size. China is a large country and its growth has had positive terms of trade effects for countries like the USA. But China is much more important as a regional economic power and has had an enormous impact on the Asian economies, particularly the more developed Asian economies that are more integrated with China. Second it shows that China's growth has been positive for all of these regions, even the ASEAN region which is often thought to be suffering from Chinse competition (for examples see Lall and Albaladejo, 2004, Eichengreen, Rhee and Tong 2007). Though competitive forces exist, the results emphasise the substantial gains that are to be had in this region through increased trade with China.

Conclusion

China thus stands on the brink of economic development in much the same way as the USA did at the start of the 20th century. In the USA there was disquiet about its role in the world and its global responsibilities. WWII, the decline of the British Empire, and the cold war thrust the USA unwillingly onto the international stage. But who, in the late 1800's, could foresee all of these events. Presumably China will find its own path to responsible leadership in the world economy. But just as it would have been difficult to predict how the USA's world leadership would emerge at the start of the 20th century, we should be cautious in prescribing any particular role in the world economy for China.

A key insight that emerges from the preceding comparison of alternative measures of "economic impact" is that the Chinese economy, despite its enormous population advantage over the USA, still commands only a fraction of the spending power of the USA economy today. In particular, China's buying power on the world economy is much smaller than the USA - and this matters a great deal for the political influence it can exert and the extent to which it can be held responsible for international economic trends. In particular, China has some way to go yet in order match the USA in terms of sheer economic magnitude, and much further still in terms of per capital incomes. The evidence from both China and the USA points to relatively free markets with good institutions as being the main sources of growth. But the lack of economic freedom and lack of democratic institutions compared to the USA warrants a healthy degree of concern over the size of the development task that lies before it. If China does not continue to embrace market systems there is good reason to expect its growth to stall.

What is more certain is that Chinese economic growth has been good for the Chinese, with massive reductions in poverty and rising living standards. Moreover, China is now a very large regional power and the preceding discussion has provided evidence that it is having a very large growth effect on its neighboring trade partners. If China continues its path of stable growth there is every reason to expect continued and expanded benefits for its trade partners.

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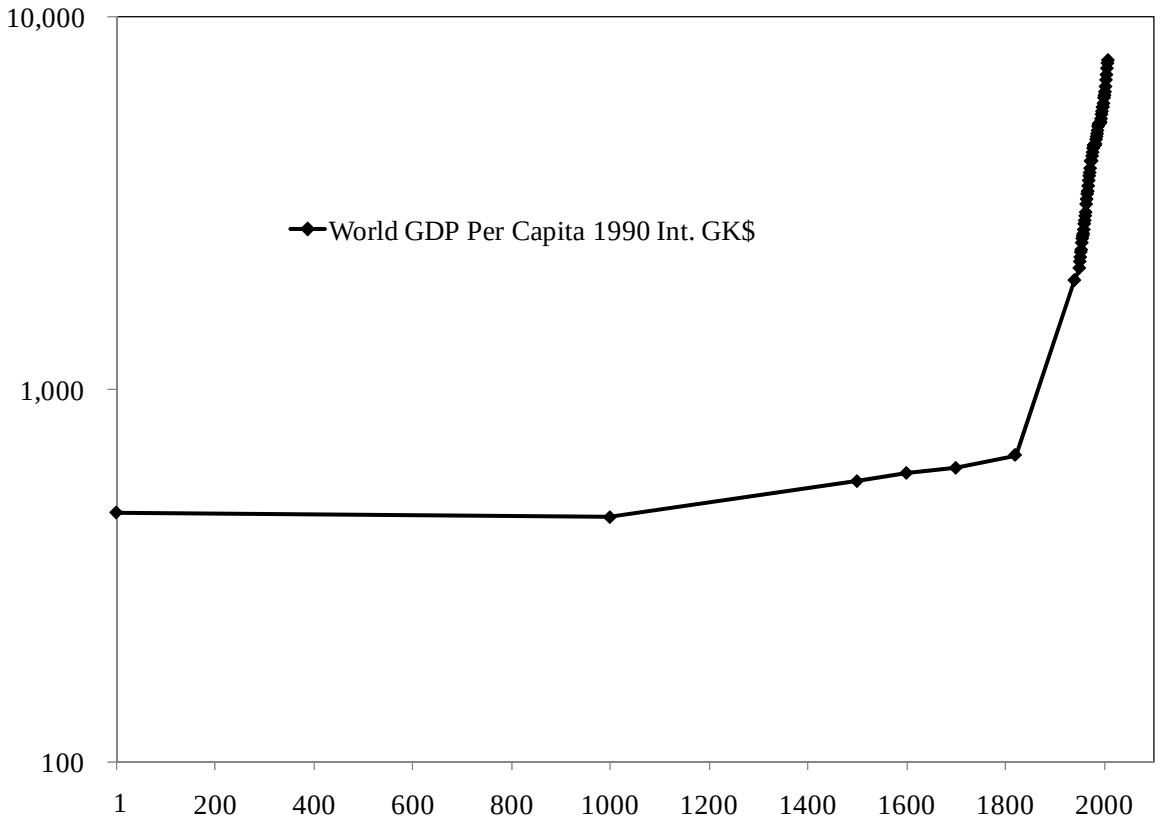
Figure 1: World Real GDP per Capita

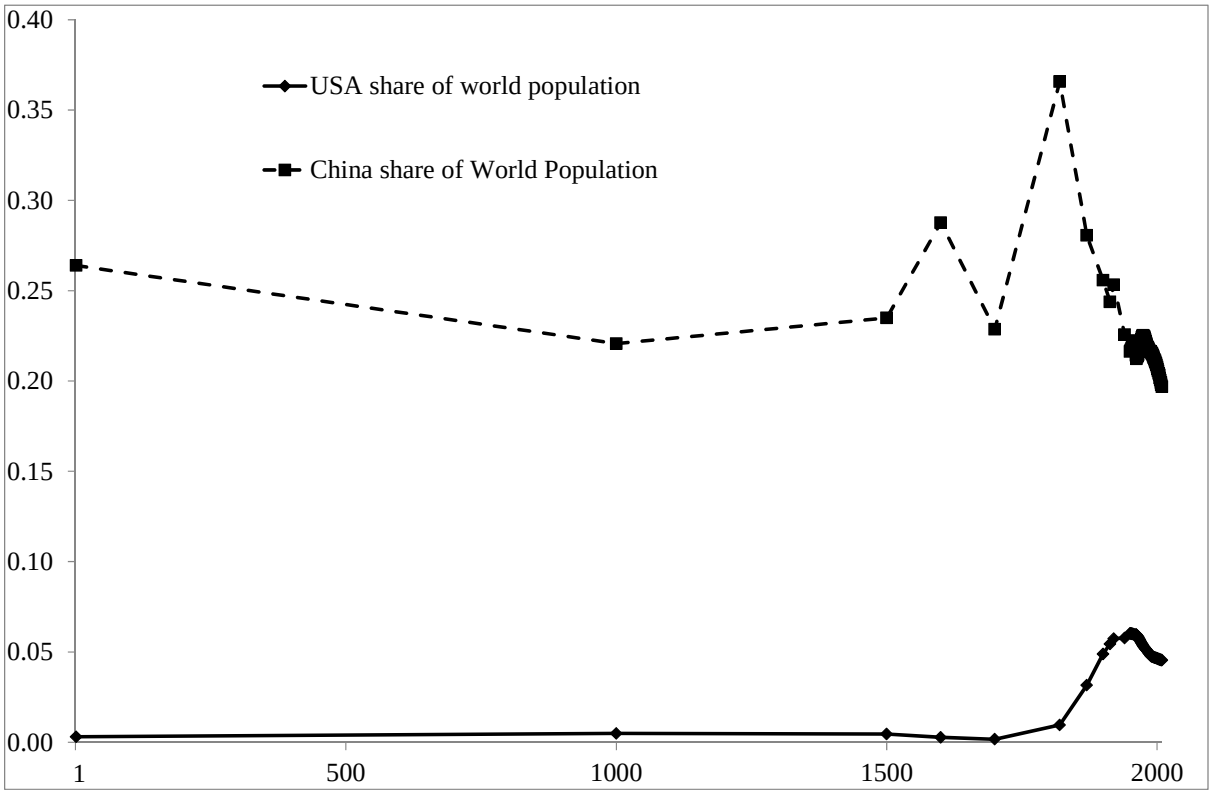


Source Maddison (2010)

Figure 2: World Population Growth Rate (% per year)

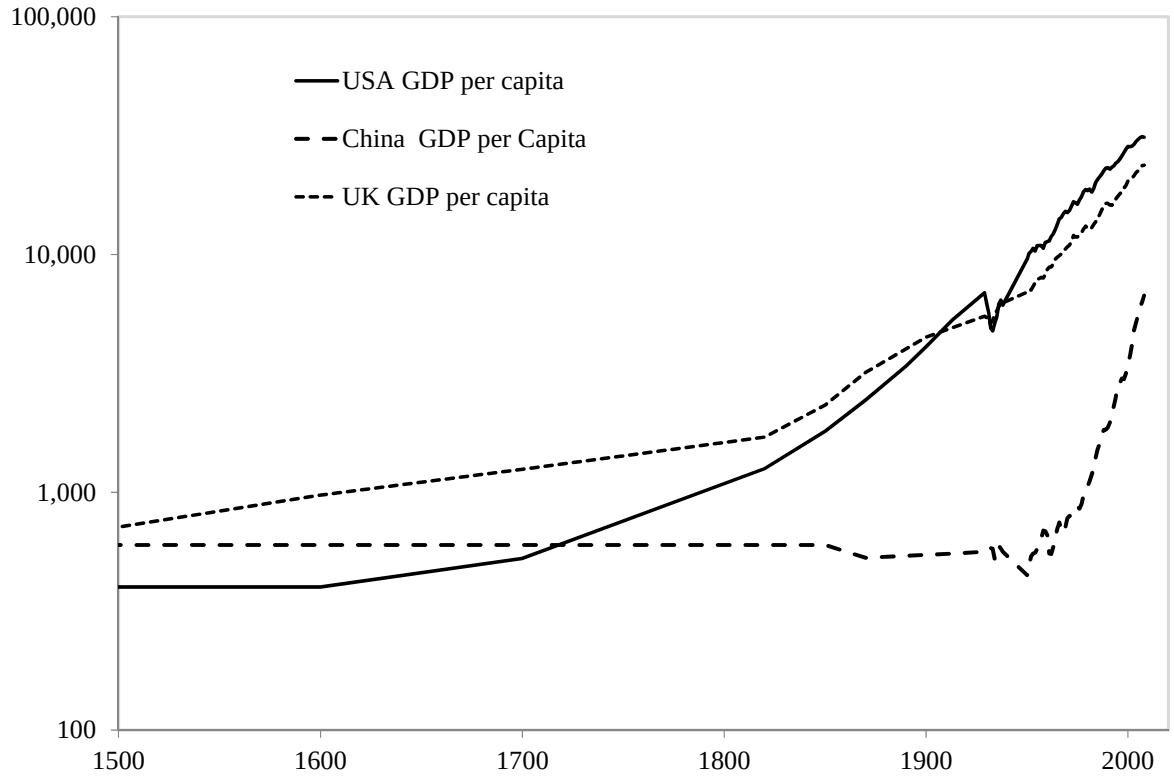
Source: Maddison (2010)

Figure 3: Share of World Population.



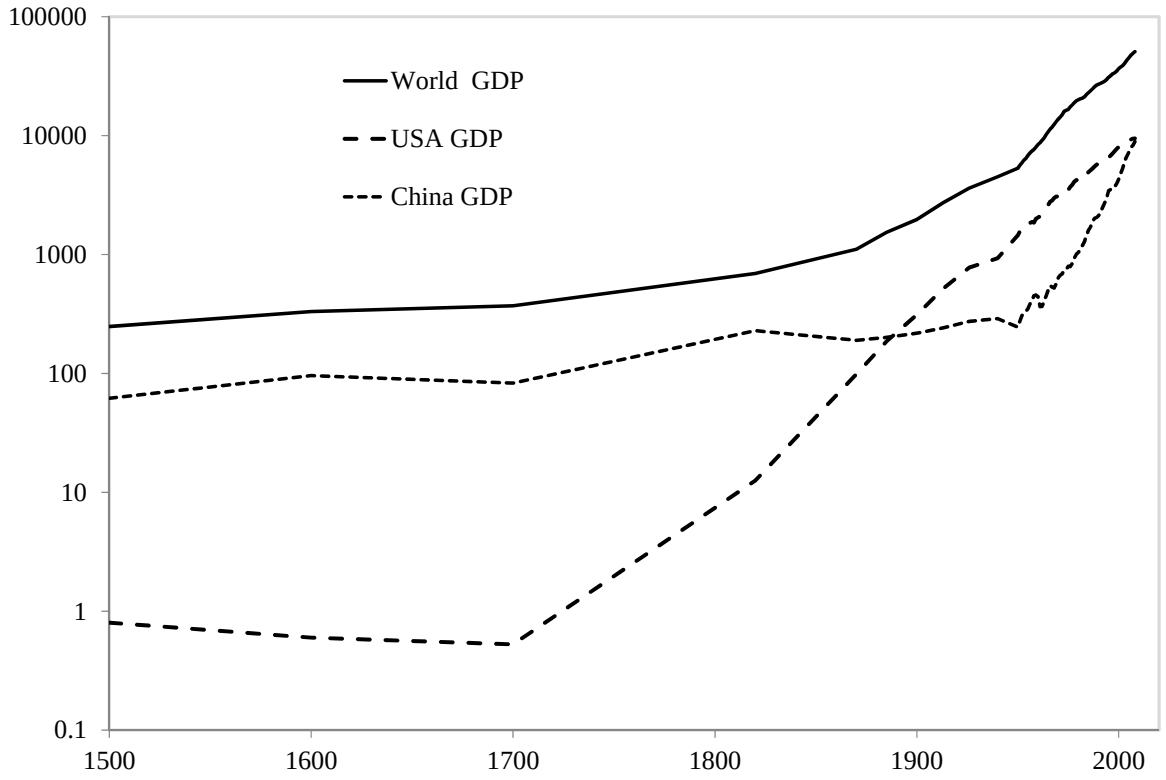
Source: Maddison (2010)

Figure 4: GDP per Person ($PPP)



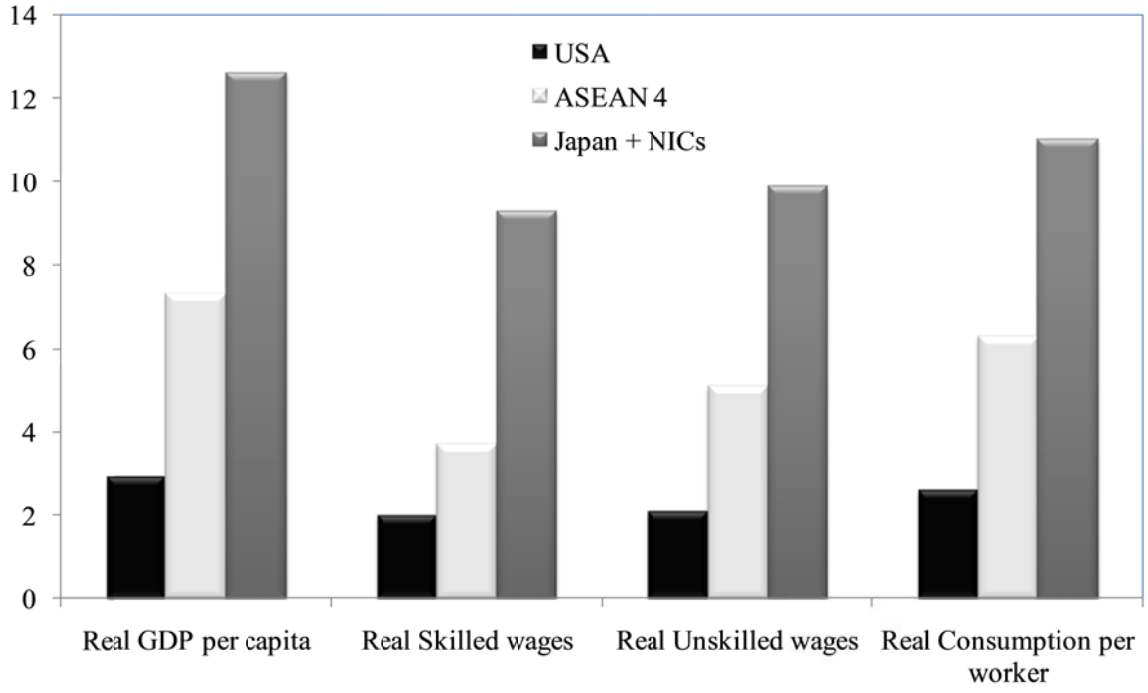
Source: Maddison (2010)

Figure 5: GDP ($PPP)



Source: Maddison (2010)

Figure 6: Simulated Impact of Chinese Growth on Selected Regions (% change)



Source Robertson and Xu (2010) and Harris, Robertson and Xu (2010)

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