



The China-US Trade War and Future Economic Relations

by

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The China-US Trade War and Future Economic Relations[§]

Lawrence J. Lau¹

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Abstract: The immediate and the real impacts of the China-US trade war on the Chinese and US economies are assessed. It is shown that while the impacts are negative and significant, they are smaller in both absolute terms and relative to GDP for the US than for China but manageable by both economies. However, the economic and technological competition between the two economies is likely to continue even after the tariff war is settled. The Chinese economy will continue to grow at a faster real rate than the US economy and will likely surpass the US economy in terms of aggregate real GDP in the early 2030s. It will take longer for the overall Chinese technological level to catch up to that of the US. In terms of real GDP per capita, it will likely be the end of the 21st century before China catches up with the US.

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¹ Lawrence J. Lau is Ralph and Claire Landau Professor of Economics, Lau Chor Tak Institute of Global Economics and Finance, The Chinese University of Hong Kong, and Kwoh-Ting Li Professor in Economic Development, Emeritus, Stanford University. This article is a written version of the Inaugural John C. H. Wong Distinguished Public Lecture, presented by the author on 8 March 2019 in Singapore. It is based on the author's recent book in both English and Chinese: The China-U.S. Trade War and Future Economic Relations and Tian Ta Buxialai: Zhongmei Maoyizhan ji Weilai Jingji Guanxi (The Sky is Not Falling: The China-U.S. Trade War and Future Economic Relations), Hong Kong: The Chinese University of Hong Kong Press, 2019. It will be published as an article in China and the World: Ancient and Modern Silk Road, 2019. The author wishes to thank Terence Chong, Ayesha Macpherson Lau, Junjie Tang and Yanyan Xiong for their helpful comments and suggestions but retains sole responsibility for all remaining errors. The opinions expressed herein are those of the authors and do not necessarily reflect the views of the Institute.

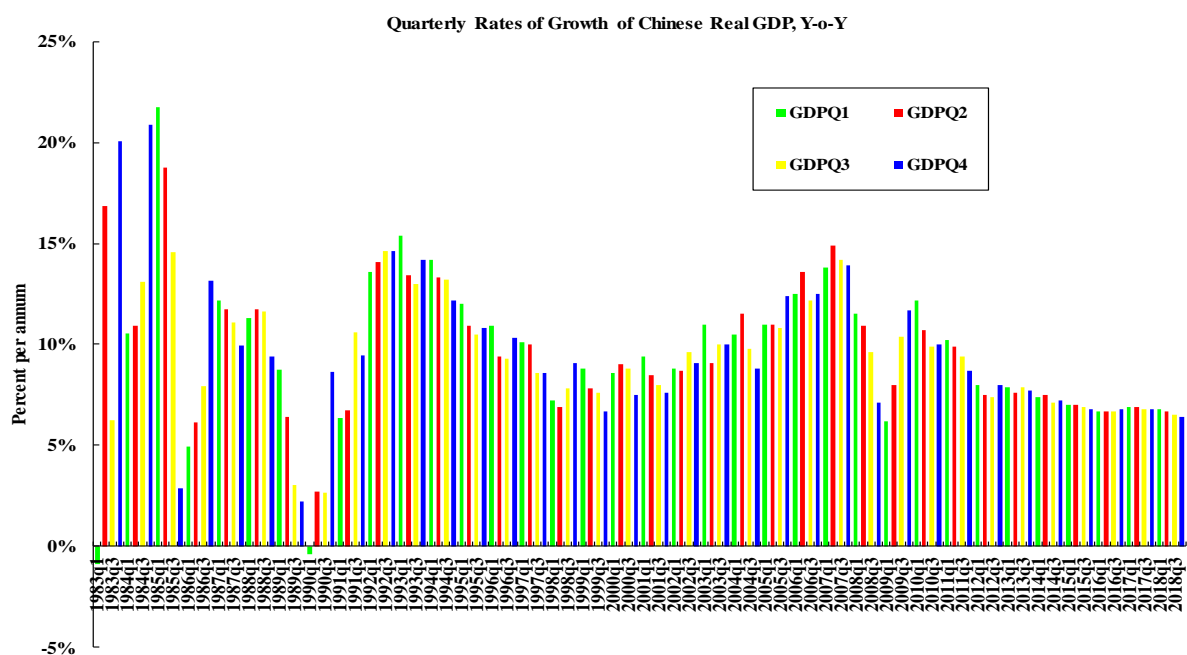
1. Introduction

The National Bureau of Statistics of China has recently reported the whole-year result for the Chinese economy. For 2018 as a whole, the rate of growth of real GDP was 6.6%, exceeding the target of 6.5%. The result also reflects the impacts of the expectation of a trade war since January 2018 and half-a-year of US tariffs on Chinese exports to the US, as well as the rise of rates of interest globally. The four quarterly Chinese year-on-year real rates of growth were, from 2018Q1 through 2018Q4, respectively, 6.8%, 6.7%, 6.5% and 6.4%.

Thus far, the trade war does not seem to have done too much noticeable damage to the Chinese economy. The rate of growth of Chinese real GDP declined by only 0.4 percentage point from 2017Q4 to 2018Q4. However, the 6.4% rate of growth in 2018Q4 was the lowest rate of growth of the Chinese real GDP since the first quarter of 2009, in the aftermath of the outbreak of the global financial crisis, when it grew 6.2 percent.

In Chart 1, the quarterly rates of growth of Chinese real GDP, year-on-year, are presented in colour-coded columns (light green for first quarters, red for second quarters, yellow for third quarters and blue for fourth quarters). It is clear from Chart 1 that the rate of growth of Chinese real GDP has stabilised, in the form of a soft L-shaped landing.

Chart 1: Quarterly Rates of Growth of Chinese Real GDP, Year-on-Year



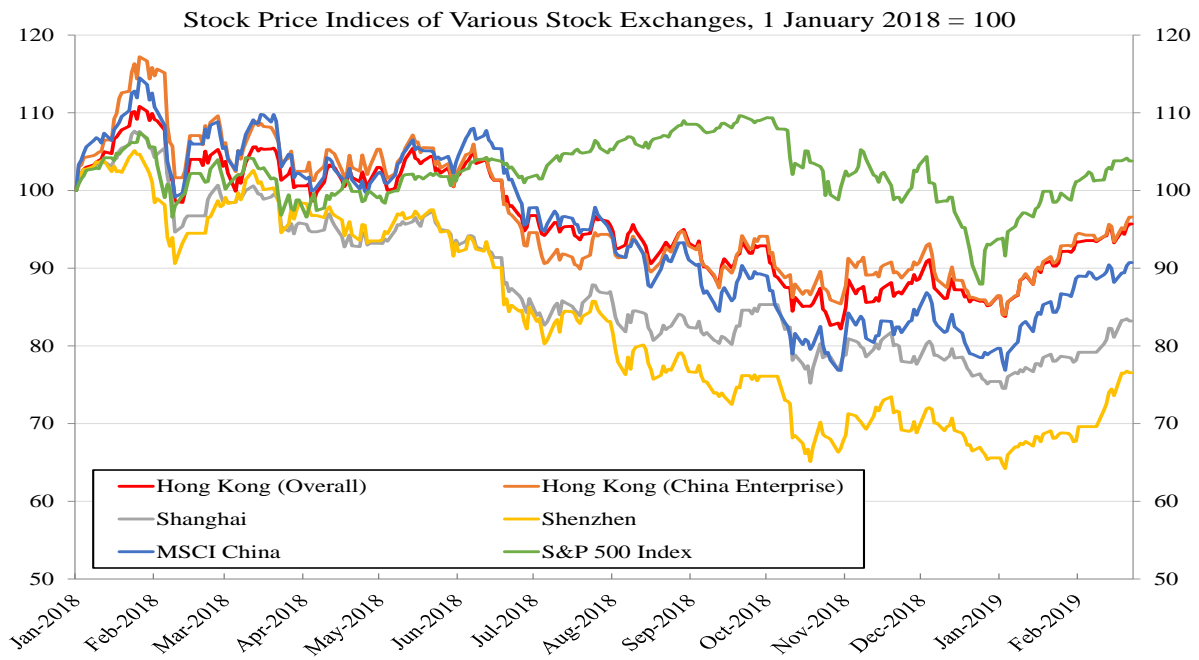
While the immediate direct impacts on the Chinese economy of the China-US trade war have certainly been negative, they are relatively small in real terms and quite manageable for China. There is no need to panic. The sky is not falling! But even though the trade war, at least the mutual tariffs, might hopefully end soon, the economic and technological competition between China and the US is likely to continue for a long time. Moreover, the trade war itself may do damage to the longer-term relations between the two countries. It is also a reflection of the rise of populism, isolationism, nationalism and protectionism almost everywhere in the world, including in the US.

2. Immediate Impacts

The Chinese stock markets have already taken a hit from the trade war (see Chart 2). This is an area where the psychological factor dominates. As of the end of 2018, the shares on the Shenzhen Stock Exchange had on average lost 30%, Shanghai 20%, and Hong Kong 10%. In contrast, the Standard and Poor's 500 Index did not suffer any loss on a whole-year (2018) basis. At the beginning of 2019, the Chinese stock market continued to fall, until more recently. The Standard and Poor's 500 Index also fell but has also begun to recover. However, the Chinese stock markets are not a good barometer of the state of the Chinese real economy. The majority of Mainland investors are individual retail investors. They are typically short-term traders who tend to leave the market at the first sign of potential trouble. The average holding period of individual Chinese investors is less than 20 trading days. Institutional Chinese investors have a slightly longer average holding period of between 30 and 40 trading days.² It should also be borne in mind that the increase in the rates of interest in the US and elsewhere would also have affected asset prices around the world negatively, so it was not the sole effect of the China-US trade war.

² See Institute for Market Research, The Shanghai Stock Exchange (2017).

Chart 2: The Chinese, Hong Kong and US Stock Market Indexes since January 2018



The Renminbi exchange rate has also been affected by the trade war. Relative to the US\$, the Renminbi has devalued by approximately 8% since the end of January 2018 (at one time almost 10%). However, the deviation of the Renminbi central parity rate from the CFETS (China Foreign Exchange Trade System) Index, the exchange rate of a Chinese trade-weighted basket of currencies, has remained within the 3% range. Our focus should be on the central parity rate (onshore rate) rather than the offshore rate and on its relation to the CFETS Index.

The Renminbi does not follow the US\$ because the US accounts for only slightly more than 20% of Chinese international trade. For the Renminbi to follow the US\$ when the US\$ rises with respect to other currencies implies that China will raise its price of exports to all its other customers that account for almost 80% of Chinese exports, which makes very little sense. Similarly, when the US\$ falls with respect to other currencies, if the Renminbi follows the US\$, it will imply that China lowers its price of exports to all its other customers, which also makes little sense.

**Chart 3: The Renminbi Central Parity Exchange Rate and the CFETS Index
(31 Dec. 2014 = 100)**

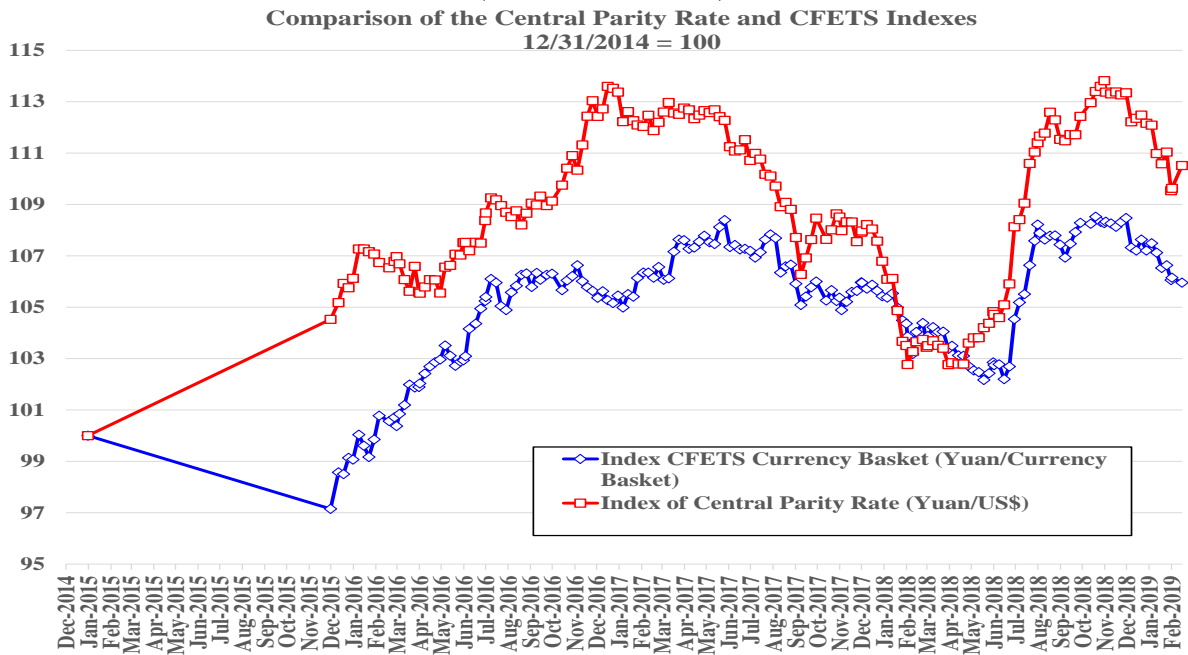
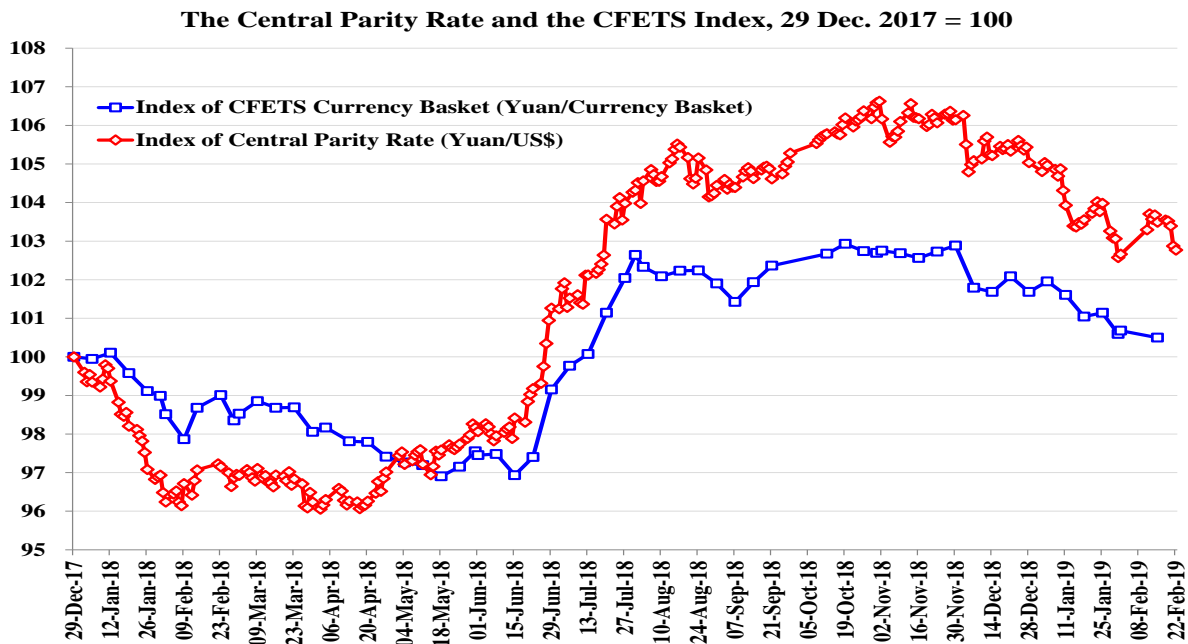


Chart 4: The Renminbi Central Parity Exchange Rate and the CFETS Index



Maintaining the relative stability of the Renminbi exchange rate with respect to the CFETS Index, the exchange rate of a Chinese trade-weighted basket of currencies, implies that the Renminbi exchange rate vis-a-vis the currency of an average trading partner country of China will be relatively stable and that the international purchasing power of the Renminbi will also be relatively stable. It is in China's interests to maintain a relatively stable Renminbi

exchange rate. It is the only way for the internationalisation of the Renminbi to become a reality.

3. Real Impacts

China, as a large continental economy with a huge domestic market, has a relatively low degree of export dependence and has always been relatively immune to external disturbances. During the past several decades, while the rates of growth of Chinese exports and imports of goods fluctuate like those of all other economies, the rate of growth of Chinese real GDP has remained relatively stable and in fact has always stayed positive (see Charts 5–7, which display the quarterly rates of growth of exports, imports and real GDP of selected Asian economies from 1997 to the present).

Chart 5: Quarterly Rates of Growth of Exports of Goods: Selected Asian Economies since 1997

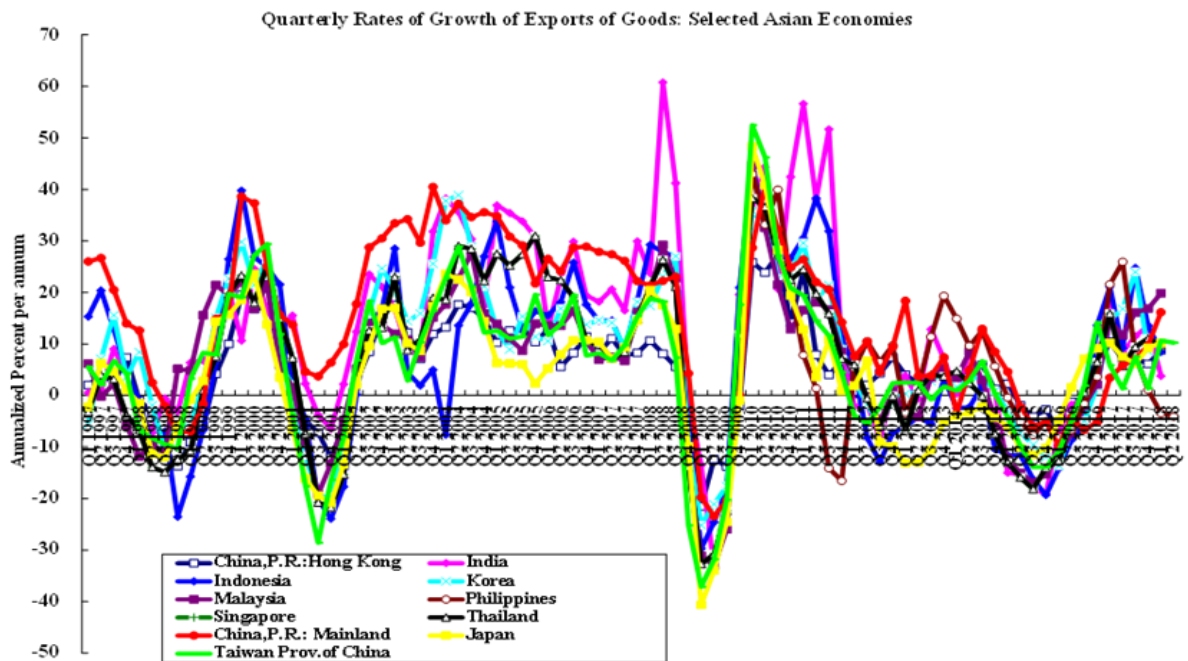


Chart 6: Quarterly Rates of Growth of Imports of Goods: Selected Asian Economies since 1997

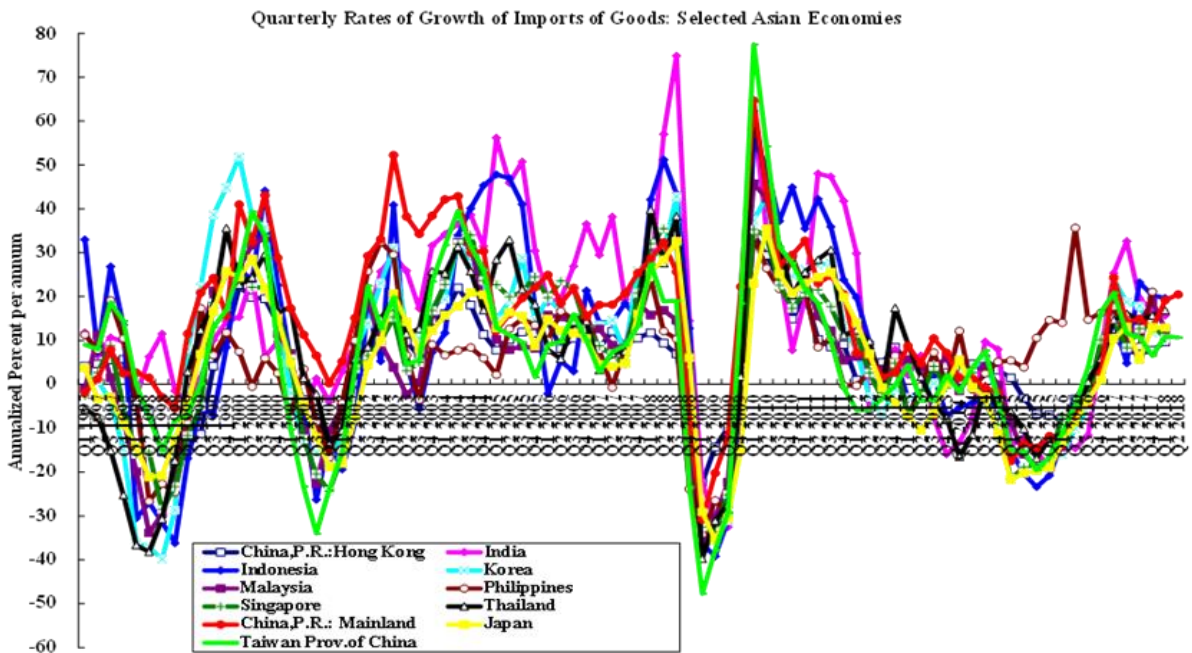
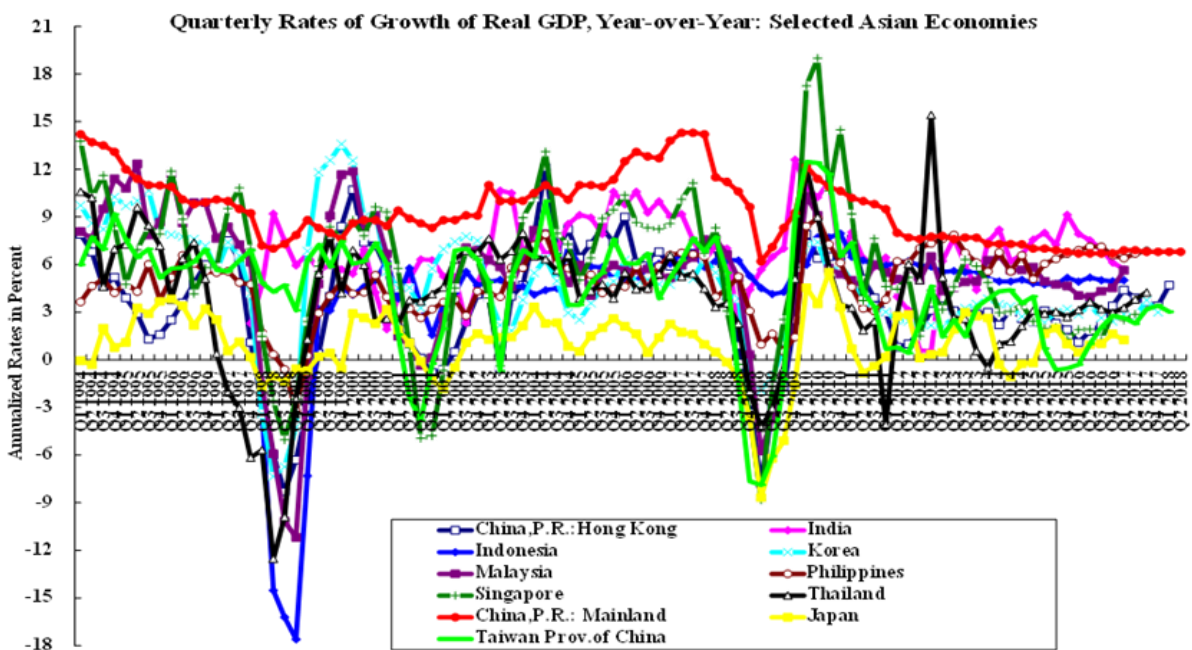


Chart 7: Quarterly Rates of Growth of Real GDP, Y-o-Y: Selected Asian Economies since 1994



Moreover, over the past ten years, the dependence of the Chinese economy on exports has been declining. The share of exports of goods in Chinese GDP has fallen from a peak of 35.3% in 2006 to 19.8% in 2017. The share of exports of goods to the US in Chinese GDP has also fallen by more than half, from a peak of 7.2% in 2006 to 3.4% in 2017. (See Charts 8 and 9.)

Chart 8: Chinese Exports of Goods and Services and Goods Only as a Percent of Chinese GDP

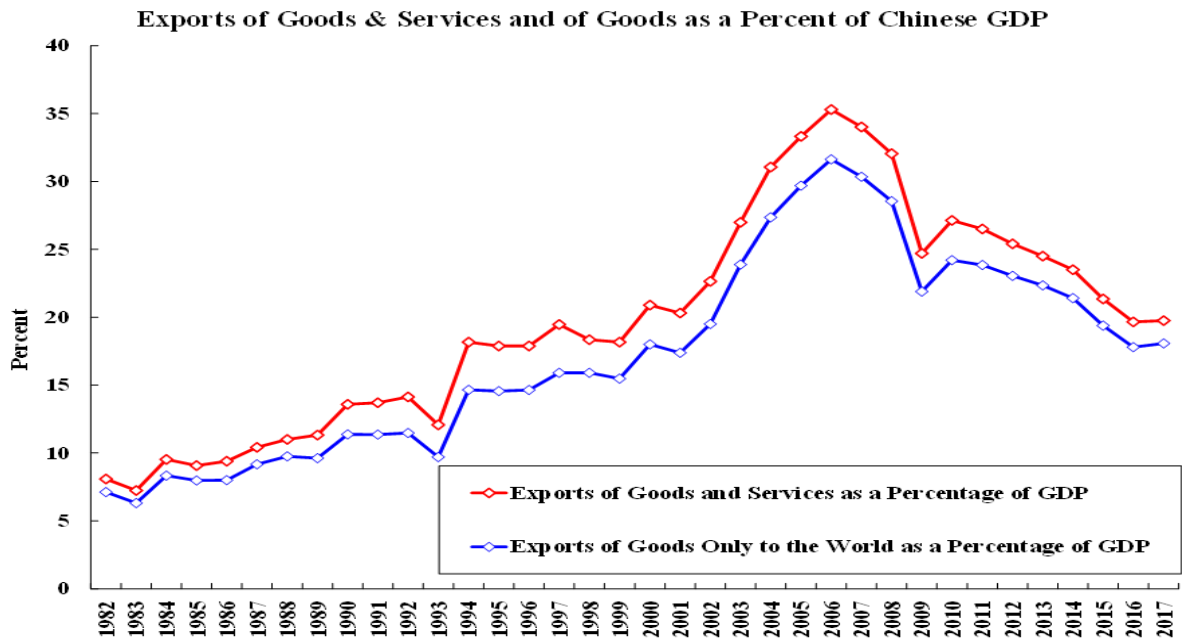


Chart 9: Chinese Exports of Goods and Services to the US as a Percent of Chinese GDP



During this same period, the growth of Chinese exports to the world and to the US has also slowed significantly. Chinese exports to the world grew at an average annual rate of 22.6% in the decade 1998–2007 but slowed to only 7.9% in the following decade, 2008–2017. Similarly, exports to the US grew at 22% per annum in the decade 1998–2007 but slowed to

less than 7% per annum in the most recent decade. Exports are no longer the engine of Chinese economic growth.

US tariffs have been imposed on US\$250 billion of US imports of goods from China (arrival value, approximately equal to US\$227 (250 x 10/11) billion of Chinese exports of goods to the US, f.o.b. or departure value), equal to approximately half of Chinese exports of goods to the US in 2017. Thus, a maximum of Chinese exports of goods amounting to approximately 1.7% (3.4%/2) of Chinese GDP will be affected. The US tariff rates range from 10% to 25% on the value of the imports from China. These rates will be prohibitive for most of the goods imported from China, especially if the 10% tariff rate is raised to 25%, as neither Chinese exporters nor US importers have the kind of profit margins that can afford these tariffs.

Real Impacts on the Chinese Economy

But the direct domestic value-added content of Chinese exports to the US is less than 25%.³ Thus, the maximum loss in Chinese GDP, assuming that half of the exports to the US are completely halted, in the first instance, may be estimated at 0.43% (1.7% x 0.25), a tolerable level, especially for an economy growing at an average annual real rate of 6.5 percent and with a per capita GDP of US\$9,137 in 2017.

However, the reduction of exports leads to a reduction in the demand for domestic inputs used in their production, which in turn leads to a second-round reduction in the demand for domestic inputs used in the production of the domestic inputs. With the indirect, that is, second-, third-, fourth- and higher-round effects of the reduction of Chinese exports kicking in, the total domestic value-added content affected will eventually increase to 66 percent cumulatively.⁴ This implies ultimately a maximum total loss in Chinese GDP of 1.12% (1.7% x 0.66). In absolute terms, this amounts to US\$137 billion in 2017 prices.

A reduction of 1.1% from an expected annual growth rate of 6.5% leaves 5.4%, still a very respectable rate compared to the average of 3.7% for the world in 2018 projected by the

³ See Chen and Wang (2016).

⁴ See Chen and Wang (2016).

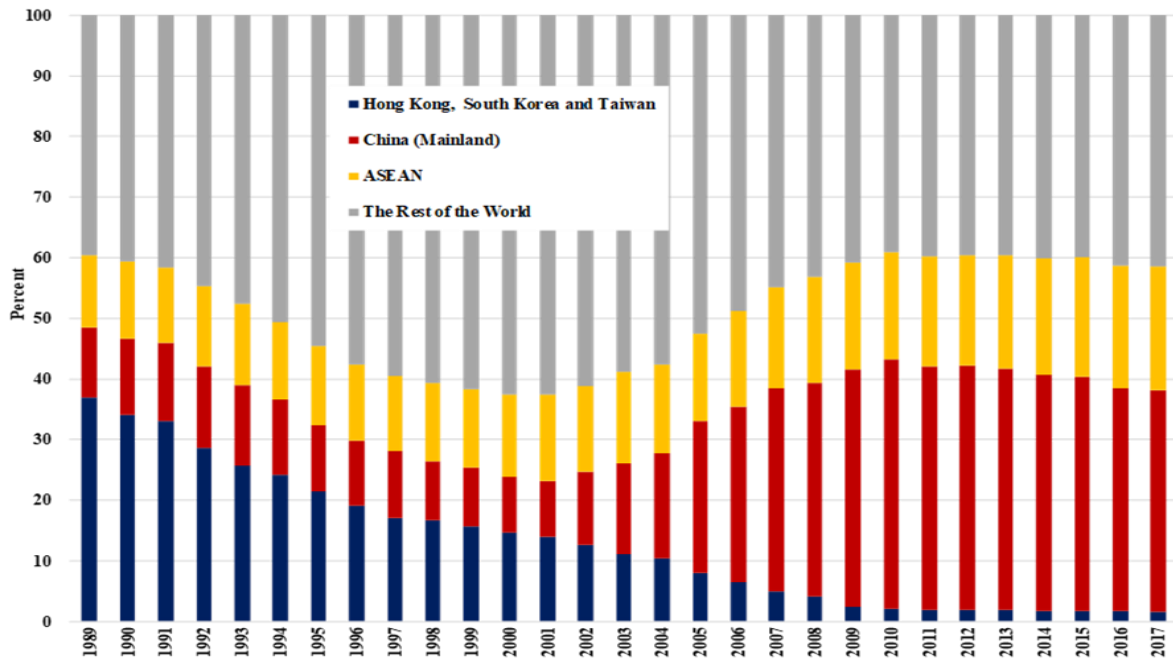
International Monetary Fund (IMF). The IMF has recently lowered its projected rates of growth of world GDP for 2019 and 2020 to 3.5% and 3.6% respectively.

There is also the threat of a 25% tariff on the remaining US\$267 billion Chinese exports of goods to the US. Since a 25% tariff is basically prohibitive, if implemented, it will mean the total cessation of Chinese exports of goods to the US. The maximum damage that can be done is 2.24% ($3.4\% \times 0.66$) of GDP, which is significant but not intolerable.

However, it seems unlikely that the tariffs on this last batch of Chinese exports to the US will be implemented in full because they consist of products such as Apple's iPhones, garments and shoes and packaged re-exports of semi-conductors. The incidence of the tariffs will be mostly borne by US consumers and producers including Apple Inc. (One incidental beneficiary will be Samsung of South Korea, whose Galaxy cell phones compete with iPhones.) In the longer run, if tariffs continue on both sides, US importers will begin to replace Chinese imports by imports from other Asian countries such as Vietnam, Cambodia and Bangladesh, and eventually perhaps even North Korea.

But the shift in the sourcing of imports away from China has already been occurring since 2010, because of the rise in labour costs in China and because of the appreciation of the Renminbi. This is similar to the earlier shift of the sources of US imports of apparel from Hong Kong, South Korea and Taiwan to Mainland China (see Chart 10). The new US tariffs will accelerate this process. The ASEAN and South Asian countries may stand to benefit from the China-US trade war, but it is really hard to predict by how much because the supply chains today are so internationalised. However, it is unlikely, in most cases, that the tariffs will stimulate new domestic production in the US.

Chart 10: The Distribution of US Apparel Imports by Countries of Origin



Source: Lawrence J. Lau and Junjie Tang (2018).

Even though the real impacts on the Chinese economy in the aggregate are relatively small, they can be more significant for individual specific municipalities and provinces, especially those oriented towards exports. The Province of Guangdong, which includes the Municipality of Shenzhen, is the largest exporting region in China, followed by Shanghai and Zhejiang in second and third places. Even then, Guangdong exports as a percent of its GDP, which at one time had exceeded 90%, was just below 50% in 2017, and exports to the US had fallen to only 8.7%. Assuming the direct domestic value-added content of Guangdong exports to the US is the same as that of Chinese exports as a whole, that is, 25%, the maximum loss in Guangdong GDP, assuming that half of the exports to the US are completely halted, in the first instance, may be estimated at 1.09% ($8.7\%/2 \times 0.25$). Such a decline in GDP is perfectly manageable by Guangdong, as the real rate of growth of its GDP was 7.5% and its GDP per capita was US\$12,909 in 2017.⁵ If the total cumulative, direct and indirect, effects are included, the loss in Guangdong GDP will rise to 2.87% ($8.7\%/2 \times 0.66$). This will represent a significant slowdown in the real rate of growth of the Guangdong economy. Even then, the Guangdong economy will still be growing at more than 4.5% per annum. The real GDP of

⁵ Guangdong Statistical Bureau (http://www.gdstats.gov.cn/tjzl/tjgb/201803/t20180302_381919.html, retrieved 10/2/2019).

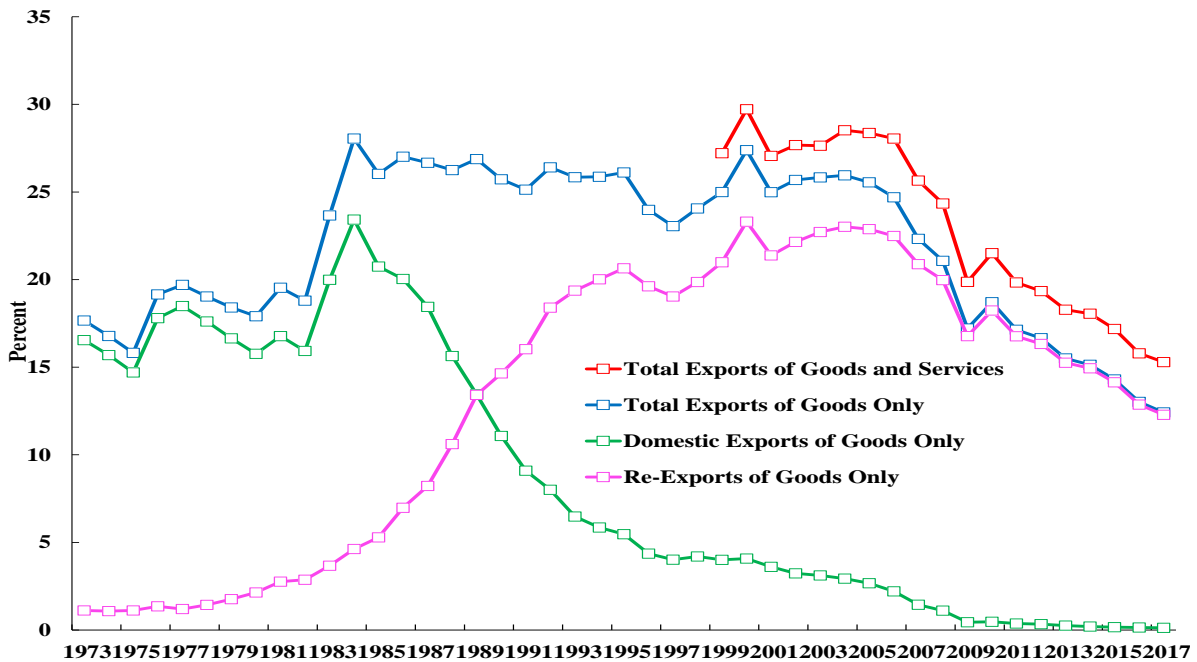
Guangdong Province grew 6.8% in 2018,⁶ a decline of only 0.7 percent from 2017, showing that the real impacts of the trade war were so far quite small, even for the most export-oriented province. However, there might have been some accelerated shipping of exports in anticipation of the tariffs and their possible increases in 2018, so the real impact on Guangdong GDP may be higher in 2019 if the US tariffs continue.

Real Impacts on the Hong Kong Economy

Hong Kong domestic exports of goods to the US are not subject to any of the new US tariffs against China, whereas Hong Kong re-exports of Chinese goods to the US will be subject to the new US tariffs and will be affected. Hong Kong re-exports to the US grew rapidly from 1.1 percent of Hong Kong GDP in 1973 to a peak of 23.3 percent in 2000 but have since fallen to 12.3 percent of Hong Kong GDP in 2017. However, the domestic Hong Kong value-added on Hong Kong re-exports of Chinese goods to the US is very low, so that the real impacts on the GDP of Hong Kong will be quite negligible. Hong Kong domestic exports to the US were a highly significant 23.4 percent of the Hong Kong GDP back in 1984 but have since fallen to an insignificant 0.1 percent in 2017. Hong Kong exports of services to the US amounted to 2.9 percent of Hong Kong GDP in 2017. (See Chart 11.) In any case, neither Hong Kong domestic exports nor exports of services to the US are subject to the new US tariffs.

⁶ Guangdong Statistical Bureau (http://www.gdstats.gov.cn/tjzl/tjcx/201901/t20190129_421942.html, retrieved 10/2/2019).

Chart 11: Exports to the US as a Percent of GDP: Hong Kong



The principal real impacts of the China-US trade war on the Hong Kong economy are indirect. Actually, the Hong Kong economy has also been affected by the rise in the rates of interest globally, especially in its stock and residential housing markets, and not just by the trade war. The sector that will be first affected is domestic consumption. The slowdown in the Mainland economy also affects the willingness of Mainland investors to invest in Hong Kong, and also the number of Mainland tourists visiting Hong Kong as well as their level of spending. Mainland tourists to Hong Kong constitute almost 80% of the total number of tourists of 65 million per year. Of these Mainland visitors, approximately two-thirds are from the Province of Guangdong. The reduction of tourists to Hong Kong would also affect the tour and travel, retail, lodging and food and beverage sectors in Hong Kong.

Real Impacts on the US Economy

The degree of dependence of the US, a large continental economy, on exports is even lower than that of China. US exports of goods and services combined as a share of GDP were 12.12% in 2017. The exports of goods alone as a share of GDP were only 8.01%. (See Chart 12.) The shares of US exports of goods and services and goods alone to China in GDP were 0.97% and 0.67% (US\$130 billion) respectively in 2017, much lower than those of Chinese exports to the US. (See Chart 13.) However, the shares of US exports of both goods and

services and goods only to China have been rising over time. At the present time, Chinese tariffs have been imposed on US\$110 billion of US exports of goods, with the first US\$50 billion at rates up to 25% and the subsequent US\$60 billion at rates ranging between 5% and 10%.

Chart 12: US Exports of Goods and Services and Goods Only as a Percent of US GDP

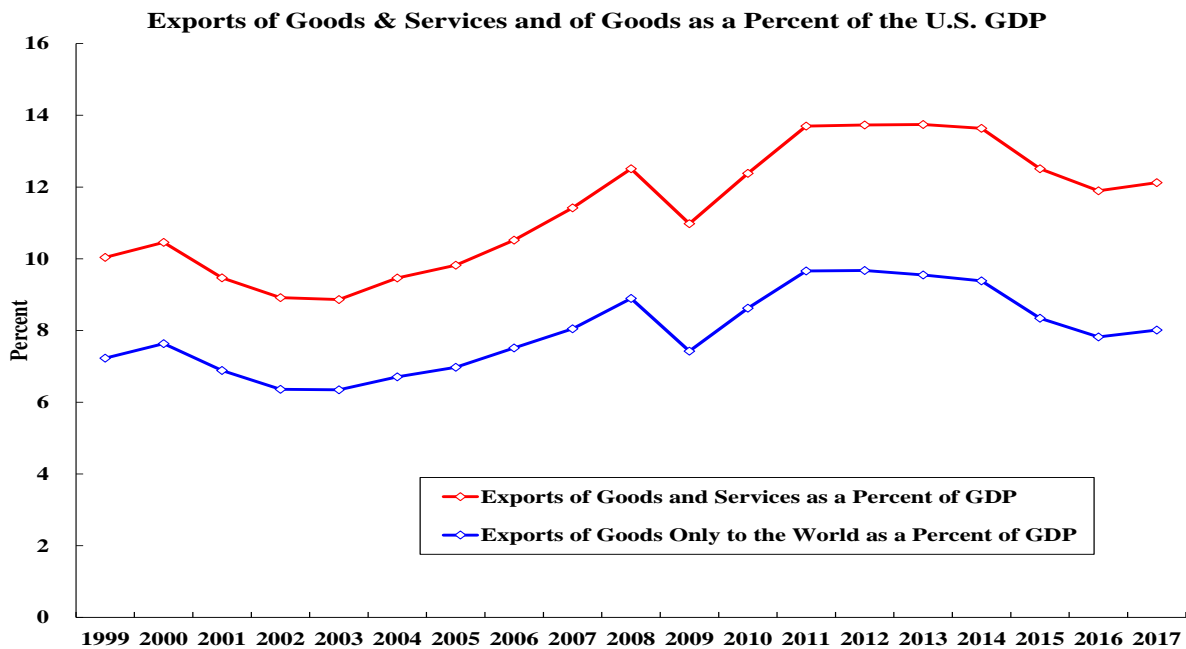
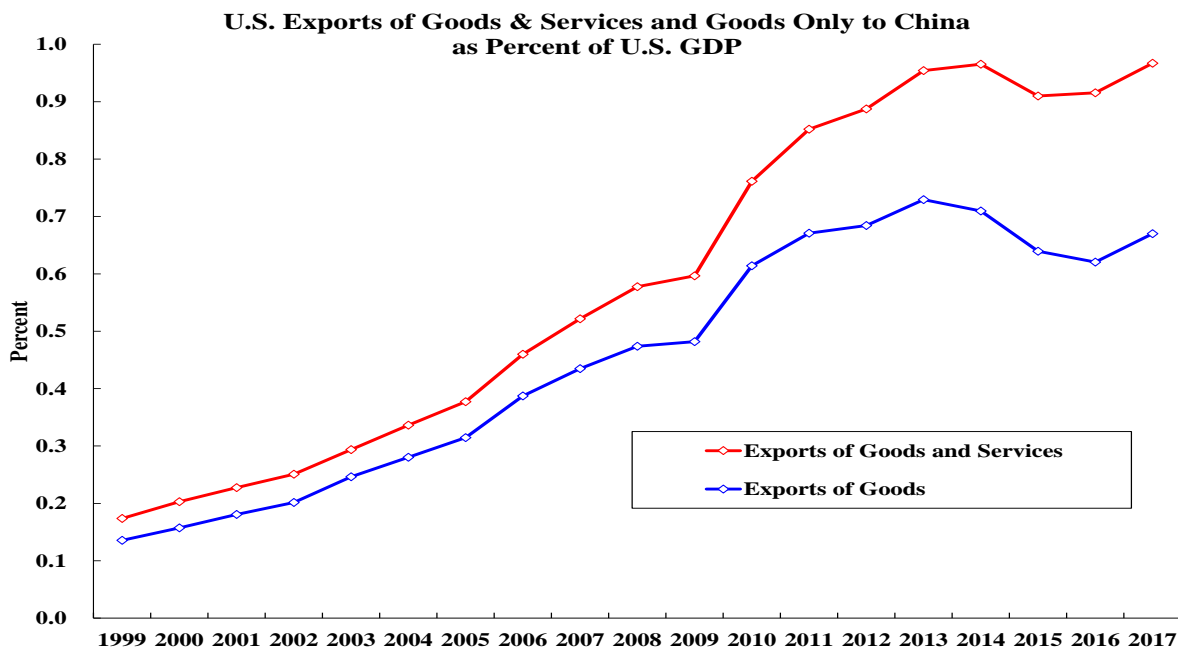


Chart 13: US Exports of Goods and Services and Goods Only to China as a Percent of US GDP



The direct domestic value-added content of US exports of goods to China may be estimated to be 50.8%.⁷ Thus, the maximum loss in the US, assuming that all of the exports to China are completely halted by the tariffs, may be estimated in the first instance at 0.34% ($0.67\% \times 0.508$), less than the initial impact on Chinese GDP of 0.43%. Moreover, it is unlikely that all of the US exports of goods will be halted; for example, computer chips will continue to be imported by China in large quantities in the medium term. (The price elasticity is low.) Suppose only half of US exports of goods to China are halted, it would amount to a loss of US GDP of 0.17%. This is not significant for the US economy, which grew 2.9% in 2018 (2.6% in 2018Q4), as a whole. US GDP per capita is approximately US\$60,000. The US economy can easily weather a reduction of 0.17% in its rate of growth.

With the indirect, that is, second-, third-, fourth- and higher-round effects of the reduction of US exports of goods kicking in, the total domestic value-added affected increases to 88.7% cumulatively.⁸ This implies ultimately a total loss in US GDP of 0.30% ($0.67\%/2 \times 0.887$), assuming that half of US exports to China will be halted. In absolute terms, this amounts to US\$58 billion (0.30×19.4 trillion) in 2017 prices, much less than the estimated Chinese loss in terms of GDP of US\$137 billion.

However, the US has a significant trade surplus in services with China, estimated to be US\$40 billion by the US Government but US\$54 billion by the Chinese Government for 2017. This surplus may be in jeopardy if China-US relations deteriorate further.

4. Reconstructed China-US Bilateral Trade Balances Based on Gross Value of Exports

The official US estimate of the US-China trade deficit in goods only in 2017 is US\$376 billion (US\$419 billion in 2018). The official Chinese estimate is US\$278 billion. However, these numbers suffer from a number of imperfections. First, exports of goods are measured by the exporting country as either f.o.b. (free on board) or f.a.s. (free alongside ship), and imports of goods as c.i.f. (cost, insurance and freight) or customs basis, so that the measured imports of the importing country are always larger than the measured exports of the exporting country. There is a built-in bias for a bilateral deficit. Second, they do not necessarily include re-exports

⁷ See Chen and Wang (2016).

⁸ See Chen and Wang (2016).

via third countries/customs territories such as Hong Kong. This includes both re-exports of Chinese goods to the US and re-exports of US goods to China through Hong Kong. Third, they do not include trade in services, in which the US has a large surplus estimated to be US\$40 billion by the US and US\$54 billion by China for 2017. If all these adjustments are made appropriately, the US-China overall trade deficit in goods and services combined in 2017 may be estimated as US\$ 254 billion. This is still a very large number but smaller than the often-mentioned US-China trade deficit in goods only of US\$376 billion by one-third.

However, as mentioned above, the gross value of exports does not reflect the real benefit of exports to the exporting country. What really matters is the GDP created by the exports, that is, the domestic value-added of the exports. As an example, consider an Apple's iPhone, an export of China since it is finally assembled by Foxconn (Hon Hai Precision Industry Co., Ltd. of Taiwan) in China. The value of an iPhone is at least US\$600, whereas the Chinese domestic value-added is less than US\$20, with a value-added content of at most 3.3%.

The average direct domestic value-added content of Chinese exports of goods to the US is less than 25%. Including all the indirect, that is, second-, third-, fourth- and higher-round effects of the reduction of Chinese exports, the total domestic value-added content affected will increase eventually to 66 percent cumulatively. The direct domestic value-added content of US exports of goods to China may be estimated to be 50.8%. Including all the indirect, that is, second-, third-, fourth- and higher-round effects of the reduction of US exports of goods, the total domestic value-added affected increases to 88.7% cumulatively.

Using these estimates of the domestic value-added contents of Chinese and US exports of goods to each other, the US-China trade deficit in goods and services combined in terms of total value-added may be estimated as US\$111 billion in 2017, less than a third of the often-mentioned US-China trade deficit in goods only of US\$376 billion. Closing a value-added trade gap of this magnitude within a few years appears quite feasible.

5. Longer-Term Developments

One of the principal causes of the current trade war between China and the United States is actually not trade itself but the potential competition between China and the US for economic and technological dominance in the world. This competition, whether explicit or implicit, and whether intentional or not, will not go away soon. It did not begin with President Donald Trump. Both the “pivot to Asia” and the “Trans-Pacific Partnership” were initiated by President Barack Obama as initiatives aimed in part at containing China. It will not go away even after President Trump leaves office.

However, competition can potentially lead to constructive and positive as well as destructive and negative outcomes. For example, the competition on creating the fastest super-computer has already resulted in both countries producing better and faster super-computers. The champion in 2018 is the IBM Summit, a US super-computer, which beat the Sunway TaihuLight, the champion in 2016 and 2017, a Chinese super-computer that was built entirely with indigenously designed chips.

In terms of aggregate GDP, China went from only one-fifth of US GDP in 2000 to two-thirds in 2017, taking only 17 years. It is only a matter of time that the Chinese GDP will catch up with the US GDP, probably in the early 2030s. However, in terms of GDP per capita, China is still way behind, with US\$9,137 compared to almost US\$60,000 for the US in 2017. My own projections suggest that it will probably take until the end of the 21st century before Chinese GDP per capita approaches the US level.

In terms of the number of nuclear-armed warheads, according to the New York Times, the US is estimated to have more than 6,000 such warheads, compared to less than 300 for China. The difference is even more striking in per capita terms. This is not a competition that China should wish to join. However, a race to find an effective cure for cancer or Alzheimer’s disease would be worthwhile for both countries and in fact for the entire mankind.

US grievances against China include insufficient intellectual property rights protection, forced transfer of technology and cyber-theft. (Note that none of these grievances have much to do with trade per se.) Intellectual property rights protection in China has actually been vastly improved since special intellectual property courts were set up in Beijing, Shanghai and

Guangzhou in 2014. Economically meaningful fines have begun to be levied on violators of intellectual property rights in China.

Both Japan and Taiwan in their early stages of economic development did not do much to protect intellectual property rights either. But as they changed from being a user and imitator to a creator of intellectual property, they began to enforce intellectual property rights vigorously. Intellectual property rights protection in China should get even better over time. Today, China grants the largest number of patents in the world, over 300,000 a year, mostly to Chinese nationals. And Chinese inventors and discoverers, just like their foreign counterparts, will want their intellectual property rights protected.

Forced technology transfer has to do with the Chinese requirement for foreign direct investors in certain industries to take Chinese enterprises as equal (50-50) joint venture partners. However, the sharing of technology in a joint venture is a voluntary one. The foreign direct investor will have to weigh the benefits of having a local joint venture partner versus the costs, including the sharing of the technology. In any case, the technology used in the current manufacturing process is probably already on the way to becoming obsolete. What is more valuable is the next-generation technology that has yet to be implemented. This is what the foreign direct investor can still maintain as its own in its home factories and laboratories.

Forced transfer of technology is fast becoming a moot issue because of recent Chinese liberalisation measures, including the abolition of the joint venture requirement. For example, in the automobile manufacturing industry, Tesla of the US has been able to establish a wholly-owned subsidiary in Shanghai to manufacture electric cars; Germany's BMW has been able to increase its ownership stake in its China automobile manufacturing joint venture to 75 percent; and even though it is now possible for the US's General Motors to buy out its Chinese joint venture partner, it has indicated that it does not intend to do so. Allianz of Germany and Chubb of the US (based in Switzerland) have been allowed to wholly-own insurance companies in China. If a foreign direct investor is not required to take an equal domestic joint venture partner, there is no transfer of technology, and certainly no forced transfer of technology.

The expectation is that China will continue to open its economy to trade in goods and services and to both inbound and outbound direct investment. These latest liberalisation moves, including a new foreign investment law on the part of China, and the new, much

shortened negative list on foreign direct investment, should go a long way towards eliminating the issue of forced technology transfer and market access. The best approach is for China to grant national treatment to all foreign direct investors on a reciprocal basis (with national security consideration being the only possible exception).

Commercial cyber-thefts, just like any other kinds of thefts, should be vigorously prosecuted, with the collaboration and cooperation of both governments. However, it is important to have the accusations and allegations backed up with facts. If Huawei is perceived as a national security risk by the US, evidence should be presented. Otherwise, will Apple's iPhones be considered a national security risk by China eventually?

The rise of populist, isolationist, nationalist and protectionist sentiments in the US and elsewhere in the world will also have significant impacts on international trade and investment (and migration). Even though these sentiments were not created by President Donald Trump, he has been able to tap into and exploited them very effectively. Economic globalisation and innovation benefit every country in the aggregate. However, they also create winners and losers in every country. The free market cannot compensate the losers. It is up to the government of each country to take care of its domestic losers, who instinctively and naturally oppose economic globalisation and free trade.

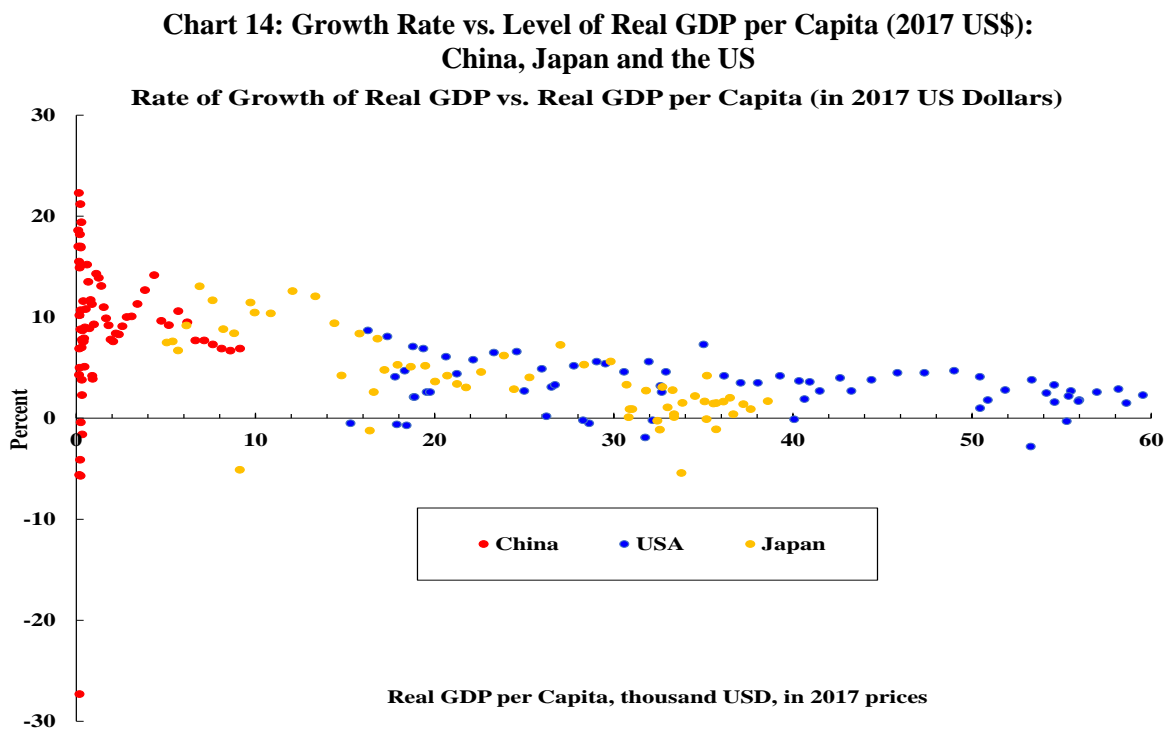
In addition, it is also instinctive and natural for any individual to entertain the feeling of "us" versus "them". And most people believe that all transactions are zero-sum, that is, "more for them is less for us, and vice versa". It is therefore a revelation to many that voluntary trade between two countries benefits both, that it is in fact win-win.

Another issue is that of "state-owned enterprises (SOEs)". I believe Chinese SOEs are here to stay. One should therefore be specific as to why one objects to SOEs. It can be either behaviour, for example, anti-competitive behavior such as predatory pricing, or attempting to monopolise the market, etc.; or it can be government subsidies; or it can be something else. It is much more effective and productive to focus on the behaviour of the enterprises and discriminatory treatment by the government rather than the ownership of the enterprises per se. If all firms, domestic (state-owned or private), joint venture and foreign firms, are granted national treatment, it will mean a level playing field for all. (National security considerations will be the only acceptable exception.) However, basic research will continue to be financed

and supported by the government and non-profit organisations as is done in all countries including the US.

6. Projections of the Future: Long-Term Forecasts of the Chinese and the US Economies

It is assumed that the Chinese economy will continue to grow above 6% per annum for a few more years, declining gradually to between 5% and 6%, and that the US economy will grow at an average rate of 3% per annum between now and 2050. It may be thought that the Chinese economy will be unable to sustain an average annual rate of growth of between 5% and 6% for such a long time. Actual experience shows that the real rate of growth of an economy declines as its real GDP per capita rises. But given the still relatively low level of real GDP per capita in China, and the low level of its capital per unit labour, such a rate of growth should still be possible for at least several decades (see Chart 14, in which the experiences of China, Japan and the US are compared.)



The Chinese national savings rate is very high, which enables a very high investment rate (see Chart 15). The capital-labour ratio of the Chinese economy is still very low compared to the US and Japan (see Chart 16). There is still a great deal of room for it, and hence for productivity, to grow. In addition, there is still significant surplus labour in the Chinese

economy. The share of employment in the primary sector is around 30% whereas the share of GDP originating from the primary sector is below 10% (see Chart 17), signifying the continued existence of surplus agricultural labour that can be more productivity employed in the non-agricultural sectors. All of these considerations support the assumption of a real rate of growth for the Chinese economy of between 5 and 6 percent per annum over the next couple of decades.

Chart 15: Comparison of National Savings Rates: China, Japan and the US

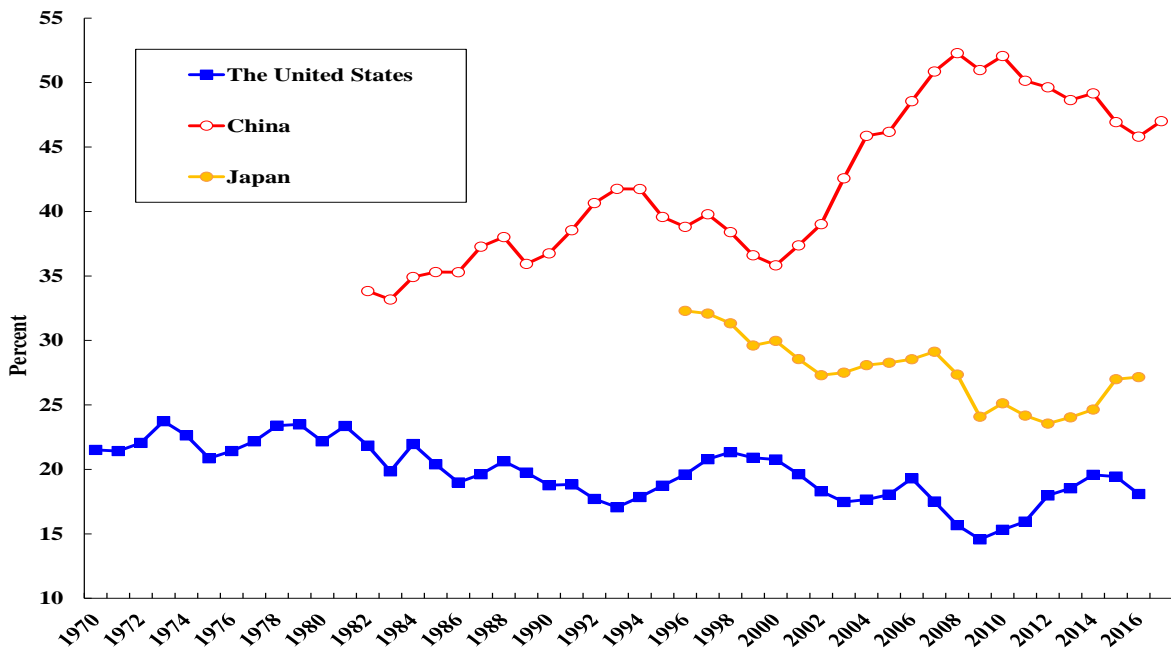


Chart 16: Comparison of Capital-Labour Ratios: China, Japan and the US

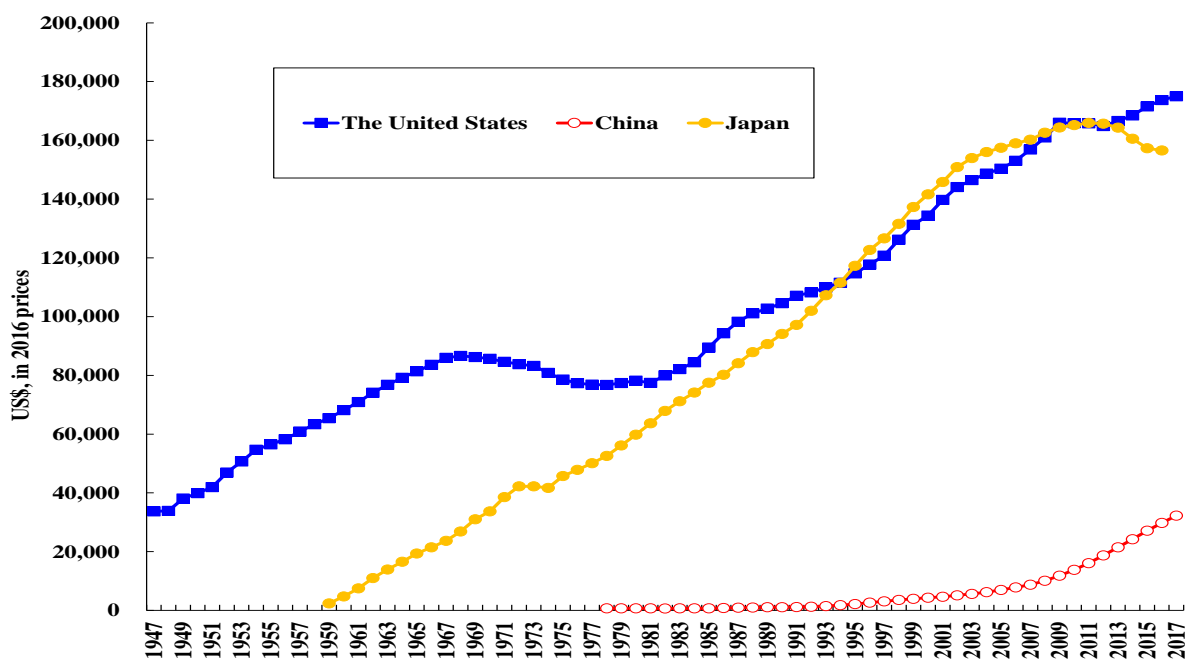
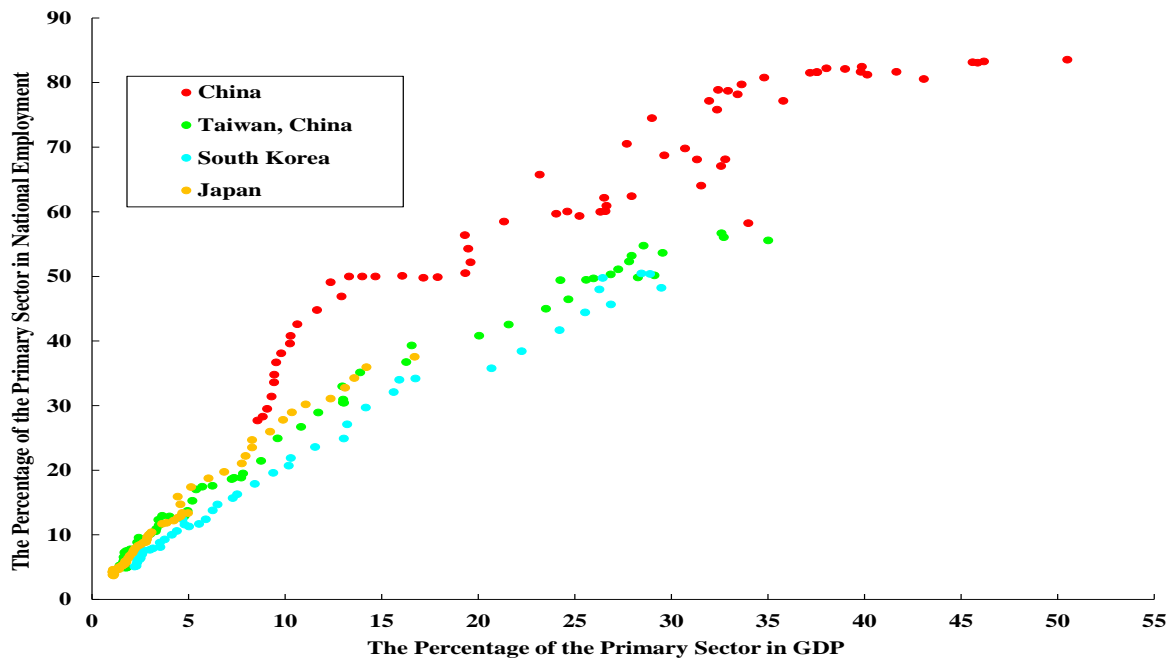
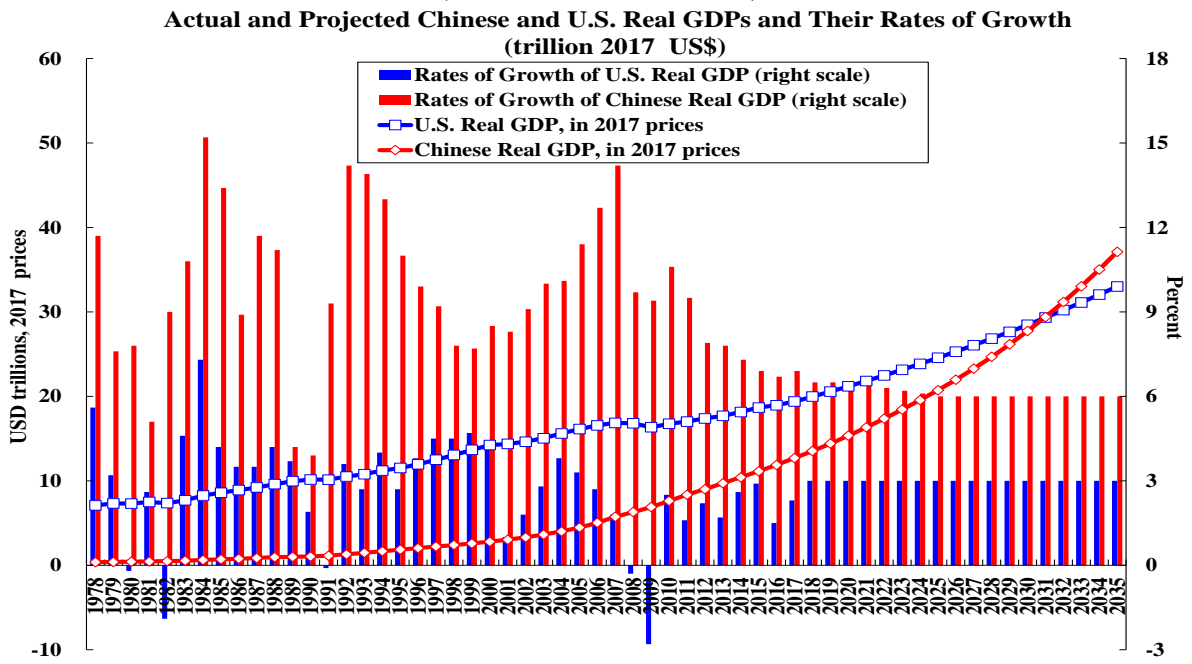


Chart 17: Scatter Diagram between the Share of Employment and GDP of the Primary Sector

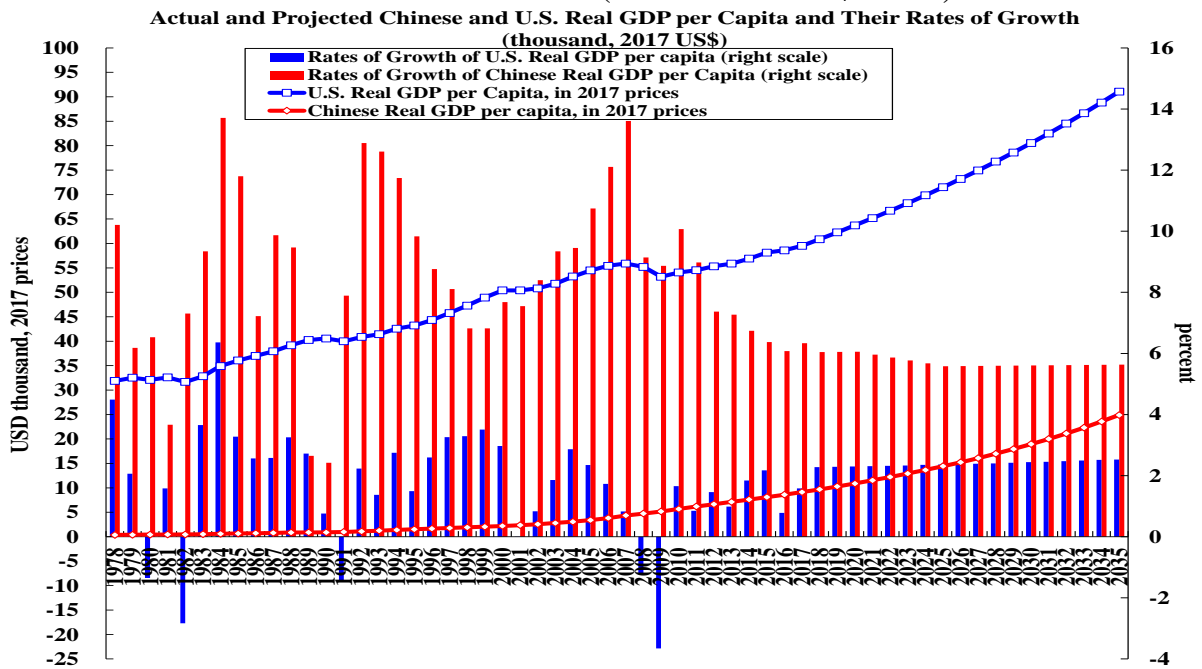


Our projections show that by 2020, Chinese real GDP per capita (in 2017 prices) will exceed US\$10,898 (compared to US\$63,703 for the US). It will become a moderately well-off society. (See Chart 18.) By 2031 or so, Chinese real GDP will surpass US real GDP (US\$29.4 trillion versus US\$29.3 trillion), making China the largest economy in the world. However, in terms of real GDP per capita, China will still lag behind significantly, with US\$20,009 compared to US\$82,502 for the US. (See Chart 19.) It will not be until the end of the 21st century that the Chinese real GDP per capita can catch up with that of the US.

**Chart 18: Actual and Projected Levels and Growth Rates of Chinese and US Real GDP
(trillion 2017 US\$ and %)**



**Chart 19: Actual and Projected Chinese and US Real GDP per Capita
and Their Rates of Growth (thousand 2017 US\$ and %)**

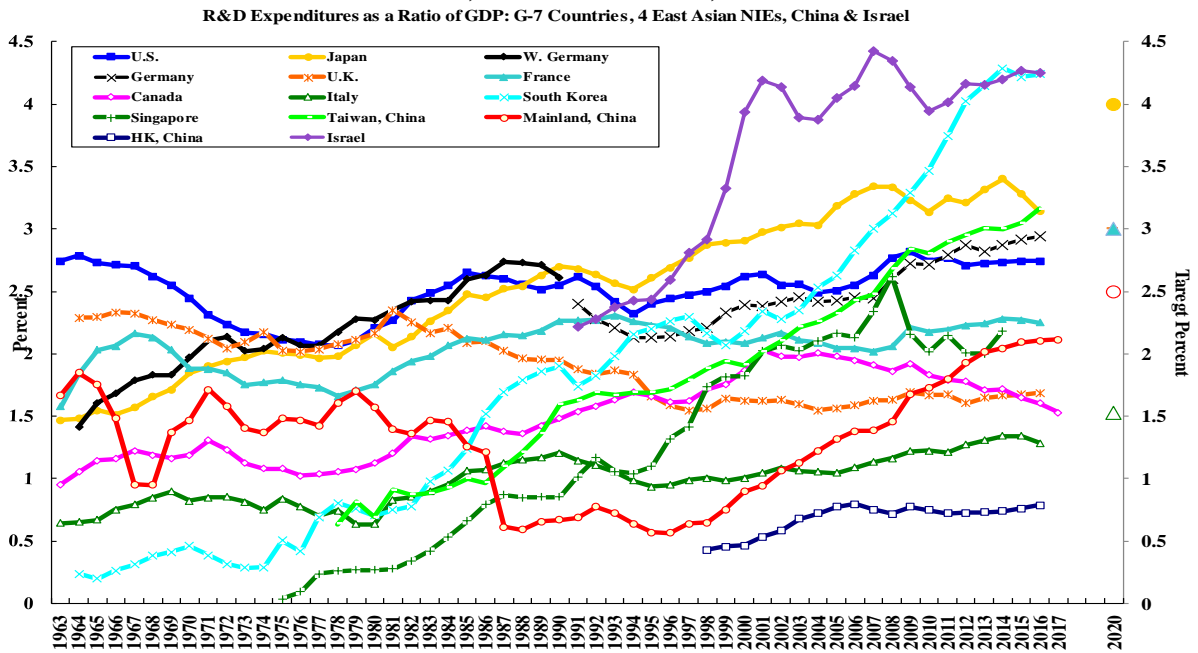


7. Technological Competition

Technological competition is motivated by national security considerations as well as commercial considerations. No individual or firm will want to give away or sell its core competence. In old China, masters typically do not teach their apprentices everything, unless they are male lineal descendants. It should therefore not be surprising that nations will protect their core competences. In the case of the atomic bomb—the former Soviet Union developed it independently of the US; China developed it independently of both the US and the Soviet Union, without any foreign assistance; the UK, France, India, Pakistan and even North Korea developed their nuclear bombs independently. China will have to continue to develop its own advanced semiconductor, artificial intelligence, and aircraft industries as it may not be able to import the best available from other countries.

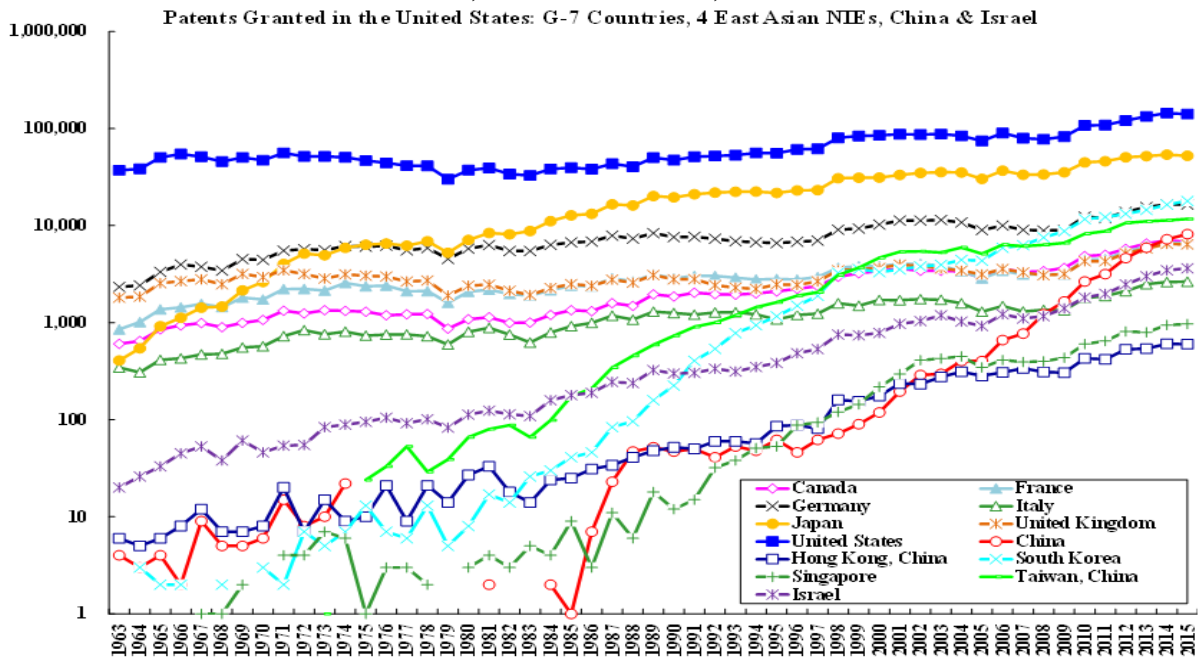
Investment in intangible capital (human capital and research and development (R&D) capital) is indispensable for innovation. The annual expenditure on R&D as a percentage of GDP is presented for selected economies in Chart 20. Chart 20 shows that the US has consistently invested a relatively high percentage of its GDP in R&D, averaging 2.5% since 1963. The East Asian economies, including Mainland China, has been catching up fast, with the exception of Hong Kong. China is expected to reach its target of 2.5% of GDP in 2020, approximately the same as the average US share over the past more than half a century. However, it will still be below the expected or targeted levels of the European countries (France, Germany and the UK), Japan and South Korea.

**Chart 20: R&D Expenditures as a Share of GDP and Their Target Levels at 2020:
G-7 Countries, 4 East Asian NIEs, China & Israel**



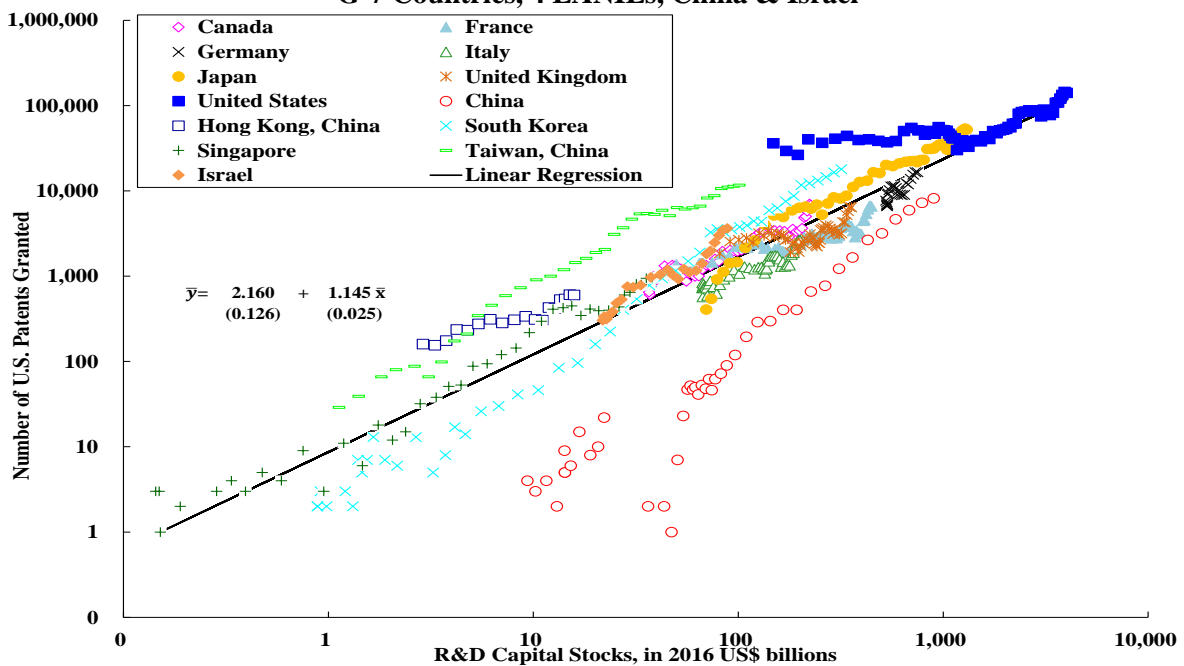
One indicator of the potential for technical progress is the number of patents created each year. In Chart 21, the number of patents granted in the United States each year to nationals of different countries, including the US itself, over time is presented. The US is the undisputed champion over the past forty years, with 140,969 patents granted in 2015, followed by Japan, with 52,409. (Since these are patents granted in the US, the US may have a home advantage; however, for all the other countries and regions, the comparison across them should be fair.) The number of patents granted to Mainland Chinese applicants each year has increased from the single-digit levels prior to the mid-1980s to 8,166 in 2015. The economies of South Korea and Taiwan, granted 17,924 and 11,690 US patents respectively in 2015, were far ahead of Mainland China.

**Chart 21: Patents Granted in the United States:
G-7 Countries, 4 East Asian NIEs, China & Israel**



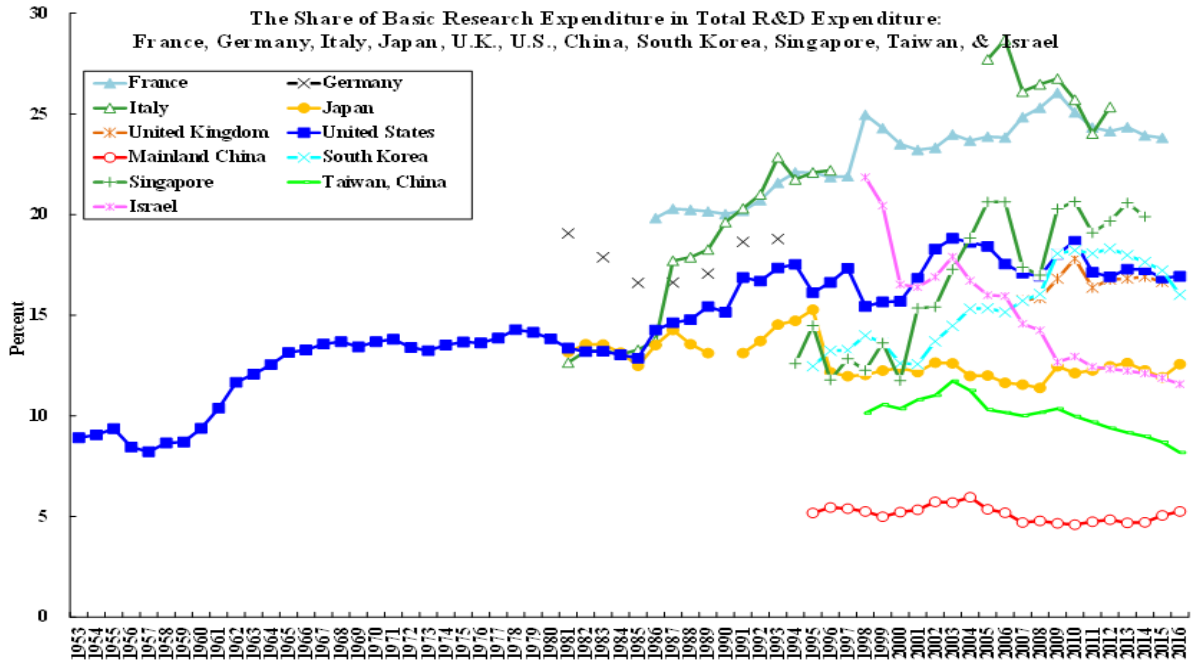
The R&D capital stock, defined as the cumulative past real expenditure on R&D less depreciation of 10% per year, is a useful indicator of innovative capacity. R&D expenditure should quite properly be treated as investment, since R&D efforts generally take years to yield any results. The R&D capital stock can be shown to have a direct causal relationship to the number of patents granted (see Chart 22, in which the annual number of US patents granted is plotted against the R&D capital stock of that year for each economy.) Chart 22 shows clearly that the higher the stock of R&D capital of an economy, the higher is the number of patents granted to it by the US.

**Chart 22: US Patents Granted and R&D Capital Stocks:
G-7 Countries, 4 EANIEs, China & Israel**



In order for breakthrough discovery or invention to be made, there must be significant investment in basic research. Basic research is by definition patient and long-term research. The rate of return, at any reasonable discount rate, will be low. It must therefore be financed by the government or non-profit institutions and not by for-profit firms. The atomic and hydrogen bombs, the nuclear reactors, the internet, the packet transmission technology and the browser are all outcomes of basic research done many years ago. However, Chinese investment in basic research has remained low relative to the other major countries (see Chart 23). China devoted only 5 percent of its R&D expenditures to basic research, compared to the more than 15 percent of the US. China must step up its investment in basic research if it wishes to remain competitive in technological innovation.

Chart 23: Basic Research Expenditure as a Share of Total R&D Expenditure: Selected Countries



8. Promoting Mutual Economic Interdependence

The problem with a trade war is that there are no real winners—both countries lose because the feasible choices open to each of them are reduced. Exporters in both countries will be hurt because of the reduction in their exports, and importers in both countries will see their businesses decline. And the consumers and producers who rely on imported goods and inputs in both countries will have to pay higher prices or settle for inferior products.

A better way to narrow the US trade deficit with China is for the US to increase its exports of goods and services to China, especially newly created goods and services, for example, by exporting newly developed liquefied natural gas from Alaska and shale oil and shale gas from the continental US and producing and exporting meat (beef, pork and poultry) instead of feed grains (corn and soybeans) to China. Another fast-growing component of US exports of services to China that has huge potential for expansion is education and tourism. The expenditures of Chinese students (currently totalling 350,000) and tourists in the US have been rising rapidly. Moreover, their presence in the US can enhance the understanding between the Chinese and American people and improve long-term ties. US students and tourists in China can also play the same role.

A further area of significant potential win-win collaboration is the deployment of the excess Chinese savings in the US for the financing of the renovation and upgrading of US basic infrastructure as well as the augmentation of the equity capital of US corporations through a secondary listing of their shares on the Chinese stock market.

It is difficult to assess which country has benefitted more from their economic relations. China has been able to lift 740 million of its citizens out of poverty, initially through the vast expansion of export-oriented jobs in China that result from China's opening up to international trade and direct investment and accession to the World Trade Organization (WTO). However, US consumers have benefitted from two decades of low prices for their consumer goods. Had US imports from China stayed at 1994 levels, the US Consumer Price Index would have been 27 percent higher in 2017, or approximately 1 percentage point higher annually.

Additional benefits for the US include the profits of US corporations earned by their operations within China, such as General Motors, Walmart and Starbucks, as well as the sales of Apple's iPhones, which since they are finally assembled within China, are not considered US exports to China. This does not include royalty and license fee payments to subsidiaries of US corporations based in low-tax jurisdictions such as Ireland or the Netherlands. This also does not include the benefits that the US has derived from seigneurage, that is, from being the provider of the international medium of exchange.

9. Concluding Remarks

What is the outlook for the Chinese economy in the near term? Even though the direct real impacts of the China-US trade war are relatively small and manageable for the Chinese economy, the uncertainty that it has created, and the negative influence it has on public confidence and expectations, have also affected the real economy. Whether the forthcoming Trump-Xi meeting results in an agreement, it will at least eliminate the uncertainty, one way or the other. And firms and households can make their investment and consumption decisions accordingly.

The Chinese Government is expected to implement cuts in its tax rates, including the value-added tax, corporate and individual income tax, social insurance contribution rates, and continue investing in basic infrastructure projects such as high-speed railroads and urban mass-

transit systems. Additional investments in public goods are also possible, especially if an agreement on lifting the tariffs fails to materialise as expected.

The competition between China and the US, whether friendly or unfriendly, can be assumed to be an ongoing and long-term one. It is the “new normal”. The trade dispute is only a symptom of the potential possible conflicts between the two countries. Professor Graham Allison (2015) at the Kennedy School of Harvard University has written about the inevitability of a China-US war. As a rising power challenges the dominance of an established power, the established power is likely to respond with force. He refers to this “inevitability” as the “Thucydides Trap”, drawing on the book by Thucydides, History of the Peloponnesian War.

To reduce the probability of an armed conflict between China and the US down the road, China-US relations must be carefully managed going forward. Both countries should promote greater mutual economic interdependence, to make their relations win-win, so that a war between them would be unthinkable, just as another war between France and Germany, which fought three wars between them, in 1870, 1914 and 1939, is not possible today.

China and the rest of the world, except possibly the US, will continue to uphold the current multilateral trading system under the World Trade Organization (WTO). After all, they have all benefitted and will continue to benefit from it. China should avoid turning inward or becoming isolated. It should continue to open its economy to international trade and both inbound and outbound direct investment, by lowering tariffs, reducing non-tariff barriers and offering national treatment to inbound foreign direct investors on a reciprocal basis. Maintaining good economic relations with the rest of the world, in particular, with the European Union, ASEAN, Japan and Russia is a must for China going forward.

If China and the US cooperate and work together, many global problems, such as the prevention of climate change and denuclearisation, can be solved. The US can invite China to participate in the exploration of Mars and share in the cost, which has been estimated to be hundreds of billions of US dollars. If the two countries compete in a friendly way, much innovation is possible, as in the competition to build the fastest super-computer. The two countries should aim to become competitive partners!

References

- Graham T. Allison (2015), “The Thucydides Trap: Are the U.S. and China Headed for War?” The Atlantic, 24 September.
- Xikang Chen, Leonard K. Cheng, Kwok-Chiu Fung and Lawrence J. Lau (2009), “The Estimation of Domestic Value-Added and Employment Induced by Exports: An Application to Chinese Exports to the United States,” in Yin-Wong Cheung and Kar-Yiu Wong, eds., China and Asia: Economic and Financial Interactions, Oxon: Routledge, pp. 64–82.
- Xikang Chen, Leonard K. Cheng, Kwok-Chiu Fung, Yun-Wing Sung, Kunfu Zhu, Cuihong Yang, Jiansuo Pei and Yuwan Duan (2012), “Domestic value added and employment generated by Chinese exports: A quantitative estimation,” China Economic Review, Vol. 23, No. 4, December, pp. 850–864.
- Xikang Chen and Huijuan Wang (2016), Touru Zhanyong Chanchu Jishu (Input-Output-Occupancy Techniques), Beijing: Science Press.
- Institute for Market Research, The Shanghai Stock Exchange (2017), “Lixing Touzi Xuxian Zhiji (To Invest Rationally, One Must First Know Oneself),” Shanghai Zhengquanbao (Shanghai Securities News), 11 April, 11.
- Kwok-Chiu Fung and Lawrence J. Lau (1998), “The China-United States Bilateral Trade Balance: How Big Is It Really?” Pacific Economic Review, Vol. 3, No. 1, February, pp. 33–47.
- Kwok-Chiu Fung and Lawrence J. Lau (2001), “New Estimates of the United States-China Bilateral Trade Balances,” Journal of the Japanese and International Economies, Vol. 15, No. 1, March, pp. 102–130.
- Kwok-Chiu Fung, Lawrence J. Lau and Yanyan Xiong (2006), “Adjusted Estimates of United States-China Bilateral Trade Balances: An Update,” Pacific Economic Review, Vol. 11, No. 3, October, pp. 299–314.
- Lawrence, J. Lau (2018), “A Better Alternative to a Trade War.” China and the World: Ancient and Modern Silk Road, Vol. 1, No. 2, pp. 1850014-1–1850014-13.
- Lawrence J. Lau (2019a), The China-U.S. Trade War and Future Economic Relations, Hong Kong: The Chinese University of Hong Kong Press.
- Lawrence J. Lau, translated by Yu Jiang (2019b), Tian Ta Buxialai: Zhongmei Maoyizhan ji Weilai Jingji Guanxi (天塌不下來：中美貿易戰及未來經濟關係 (The Sky is Not

Falling: The China-U.S. Trade War and Future Economic Relations)), Hong Kong: The Chinese University of Hong Kong Press.

Lawrence J. Lau, Xikang Chen and Yanyan Xiong (2017), “Adjusted China-U.S. Trade Balance,” Working Paper No. 54, Lau Chor Tak Institute of Global Economics and Finance, The Chinese University of Hong Kong, March.

Lawrence J. Lau and Junjie Tang (2018), “The Impact of U.S. Imports from China on U.S. Consumer Prices and Expenditures,” Working Paper No. 66, Lau Chor Tak Institute of Global Economics and Finance, The Chinese University of Hong Kong, May.