

The China-U.S. Trade War and Future Economic Relations 天塌不下來： 中美貿易戰及未來經濟關係

Lawrence J. Lau

Ralph and Claire Landau Professor of Economics, The Chinese Univ. of Hong Kong
and

Kwoh-Ting Li Professor in Economic Development, Emeritus, Stanford University

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Tel: +852 3943 1611; Fax: +852 2603 5230

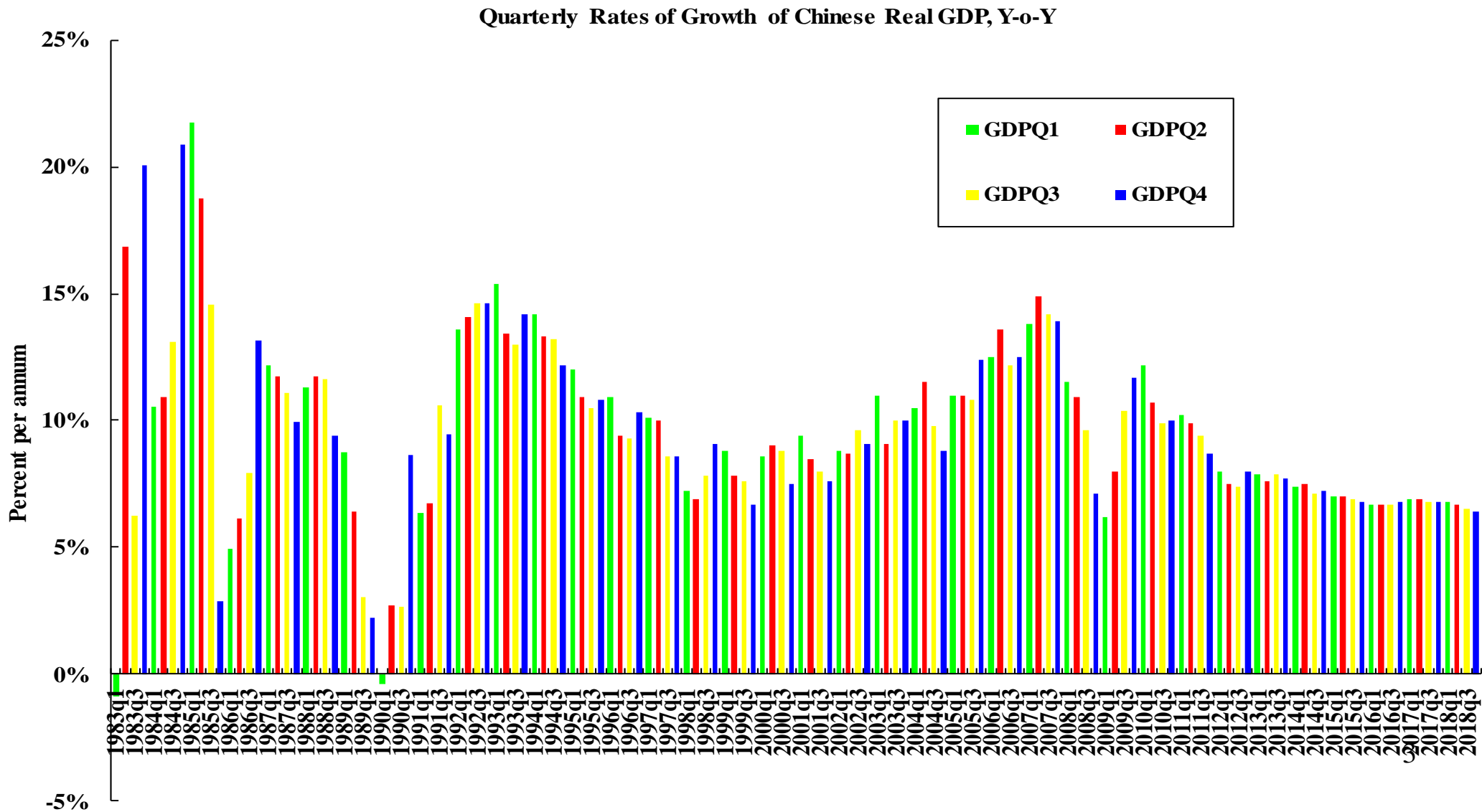
Email: lawrence@lawrencejlau.hk; WebPages: www.igef.cuhk.edu.hk/ljl

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Introduction

- ◆ The National Bureau of Statistics has just reported the whole-year result for the Chinese economy. For 2018 as a whole, the rate of growth of real GDP was 6.6%, more than meeting the target rate of growth.
- ◆ The four quarterly year-on-year rates of growth were from Q1 through Q4, 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 6.4% rate of growth in 2018Q4 was the lowest rate of growth of the Chinese real GDP since the first quarter of 2009, when it grew 6.2 percent. In the following chart the quarterly rates of growth of Chinese real GDP, year-on-year, are presented in colour-coded columns (light green for first quarter, red for second quarter, yellow for third quarter and blue for fourth quarter). It is clear from the charts that the rate of growth of Chinese real GDP has stabilized, a very soft landing.

Quarterly Rates of Growth of Chinese Real GDP, Year-on-Year



Introduction

- ◆ On an whole-year basis, the reduction in the growth rate was approximately 0.4% (from 2017Q4 to 2018Q4). This magnitude is well within the expected range of the potential negative impact caused by the new U.S. tariffs on Chinese exports of goods to the U.S. I had predicted that the maximum negative impact to the Chinese economy, assuming that half of Chinese exports to the U.S. are halted, would be 0.4% in the first round, and cumulatively 1.12% if all rounds are included. However, up to now, the 25% tariff rate applies to only US\$50 billion of Chinese exports of goods to the U.S. A 10% tariff rate applies to US\$200 billion of Chinese exports.
- ◆ In 2019, if the trade war continues, the negative impact is likely to be higher than 0.4%. However, the Chinese economy is sufficiently flexible and resilient that it will be able to survive the negative impact with significant positive economic growth. **The sky is not falling!**

Introduction

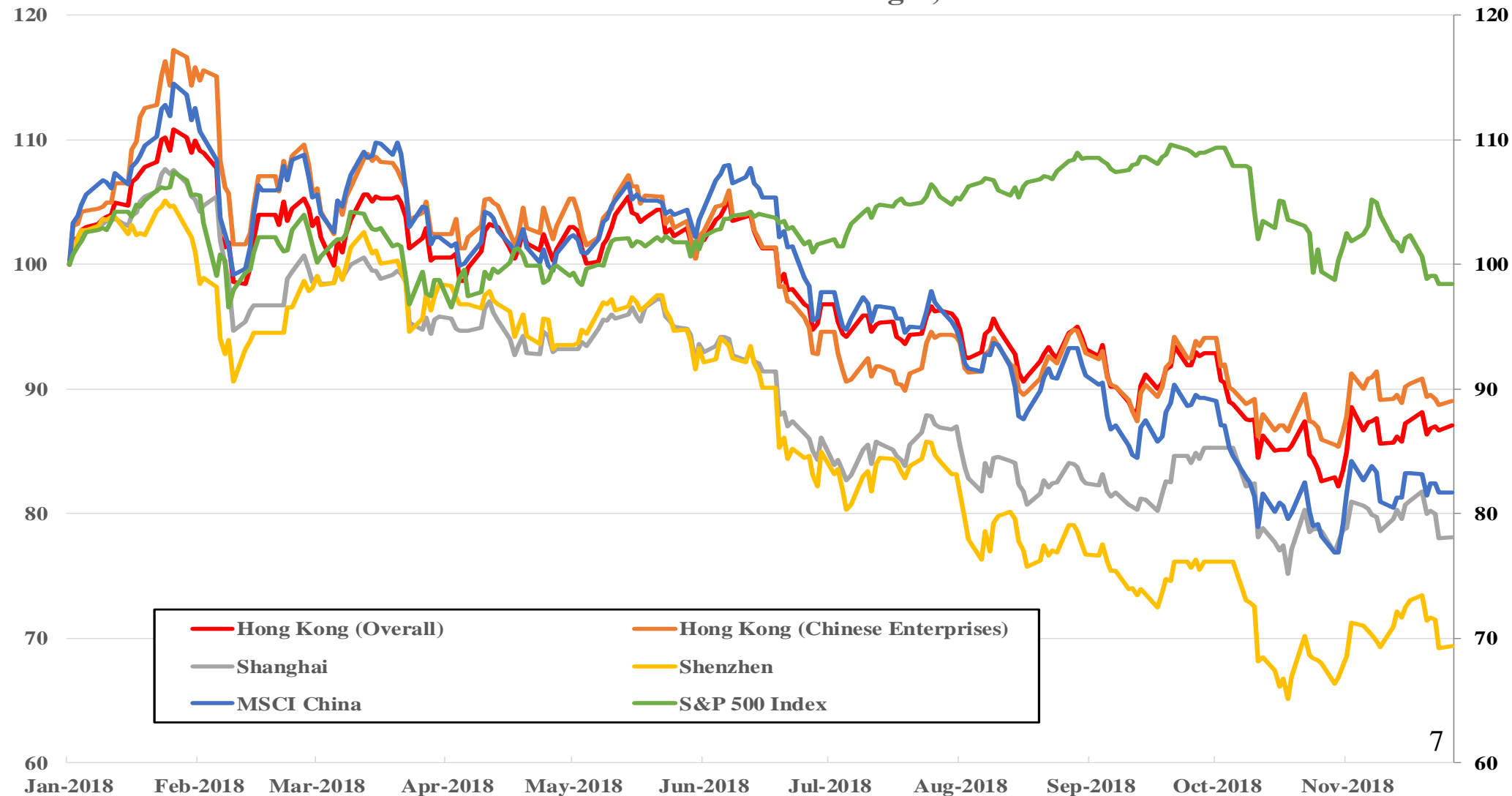
- ◆ While the immediate direct impacts on the Chinese economy of the China-U.S. trade war have certainly been negative, they are still small in real terms, affecting at a maximum 1.12 percent of Chinese GDP, and quite manageable for China. There is no need to panic.
- ◆ But while the trade war might hopefully end soon, say by March, economic and technological competition between the two countries is likely to continue for a long time. Moreover, the trade war itself may do damage to the longer-term relations between China and the U.S.
- ◆ It is also a reflection of the rise of populism, isolationism, nationalism and protectionism almost everywhere in the world, including in the U.S.

Immediate Impacts

- ◆ The stock markets have taken a hit. This is an area where the psychological factor dominates. Most Mainland investors, especially individual investors, are short-term traders.
- ◆ The Renminbi exchange rate has also been affected. However, the deviation of the central parity rate from the CFETS (China Foreign Exchange Trade System) index has not widened very much. Our focus should be on the central parity rate (onshore rate) rather than the offshore rate.
- ◆ 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.

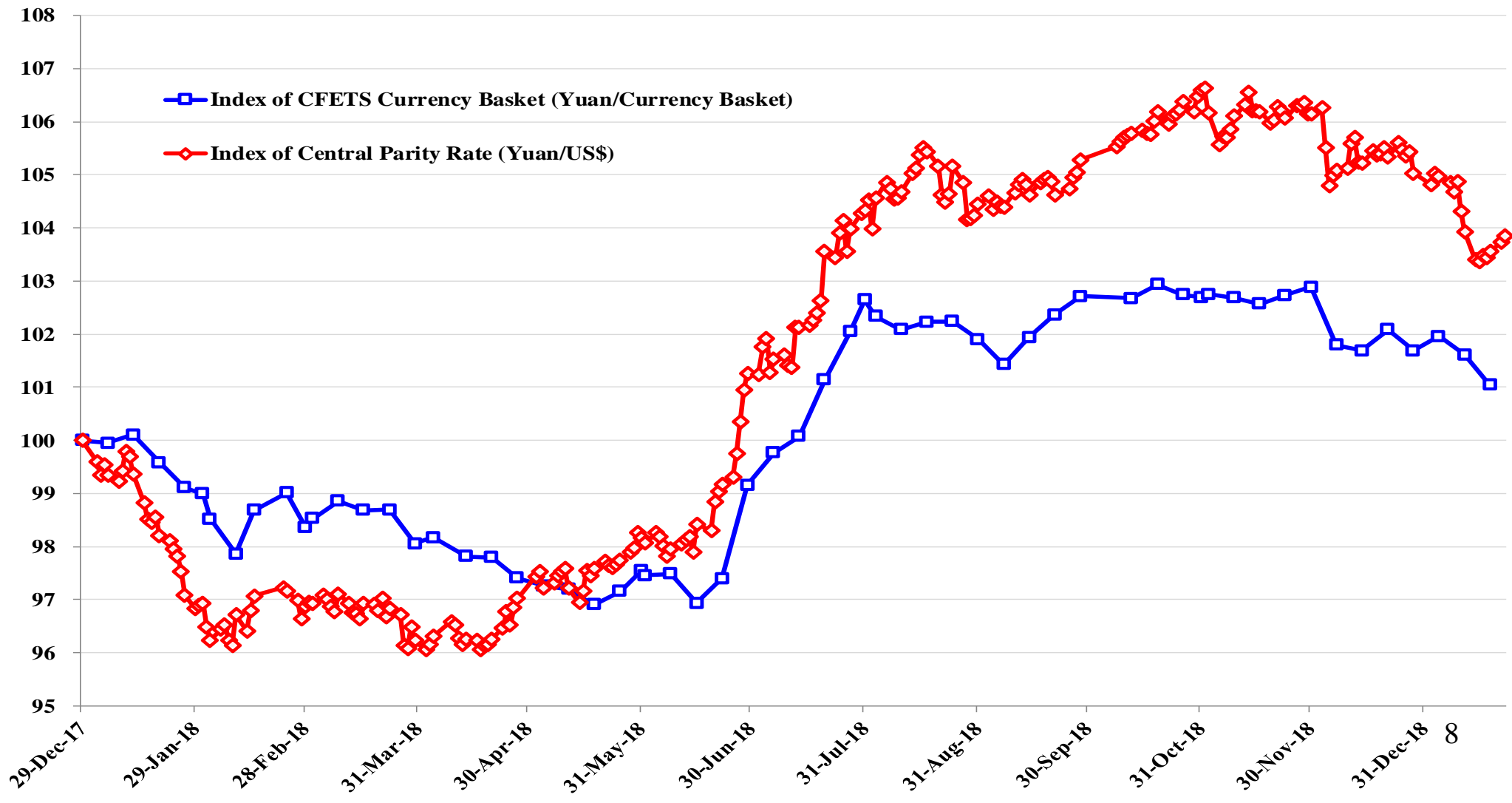
The Chinese, Hong Kong and U.S. Stock Market Indexes, Year to Date

Stock Price Indices of Various Stock Exchanges, 1 Jan. 2018=100



The Renminbi Central Parity Exchange Rate and the CFETS Index

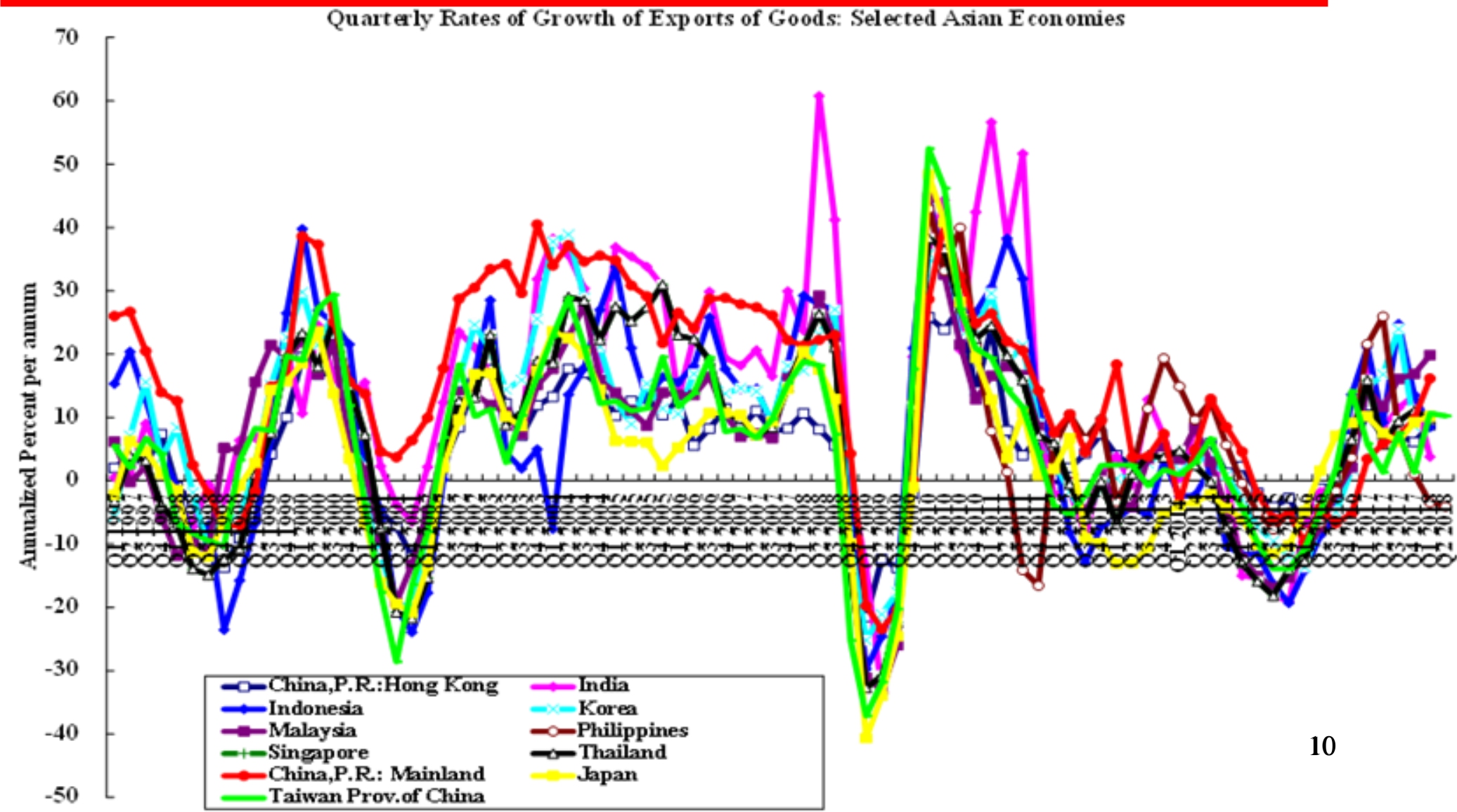
The Central Parity Rate and the CFETS Index, 29 Dec. 2017 = 100



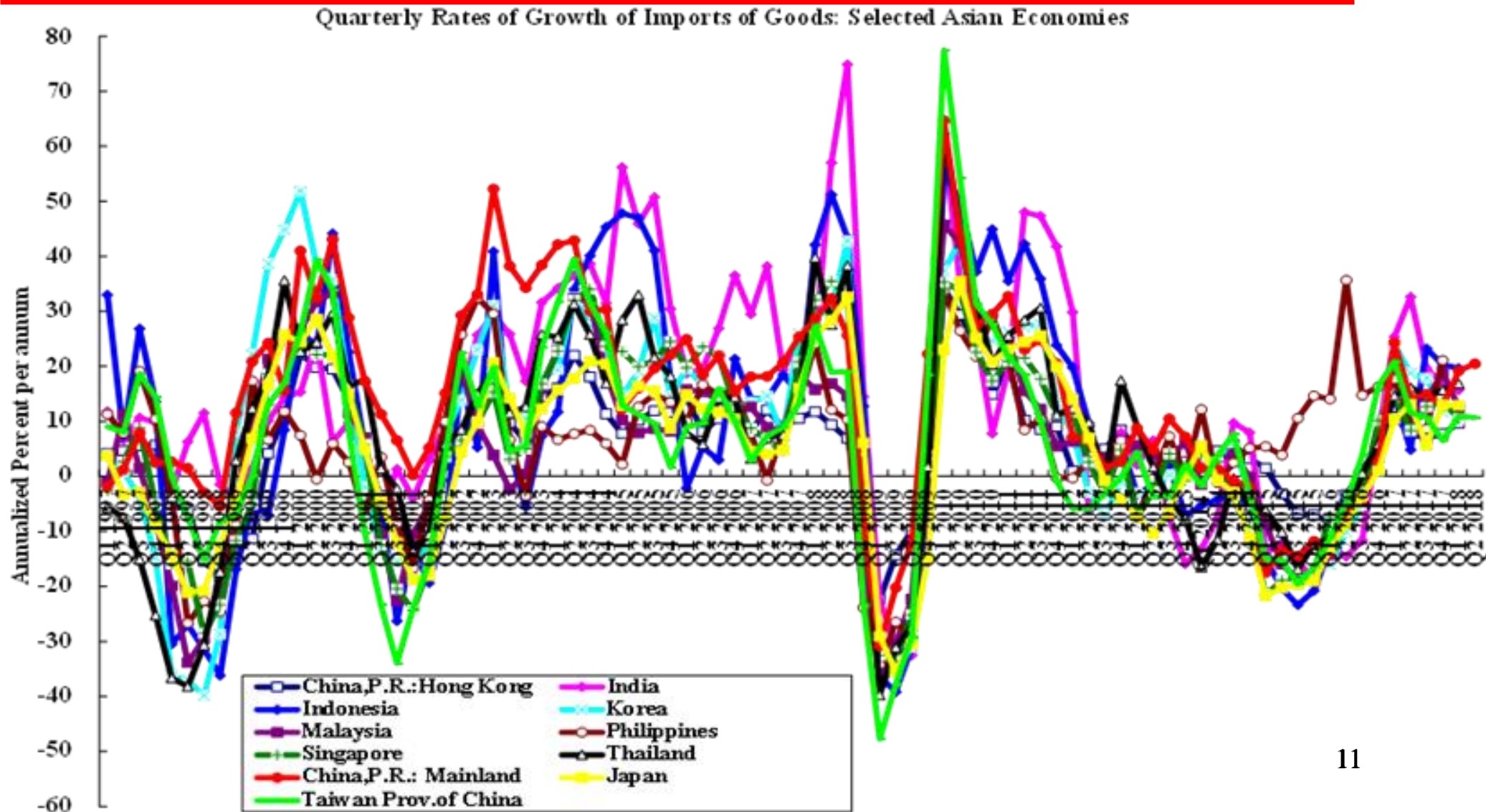
Real Impacts

- ◆ China, as a large continental economy with a huge domestic market, has a relatively low export dependence, and has always been relatively immune to external disturbances. During the past four decades, while the rates of growth of Chinese exports and imports 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 the following charts).

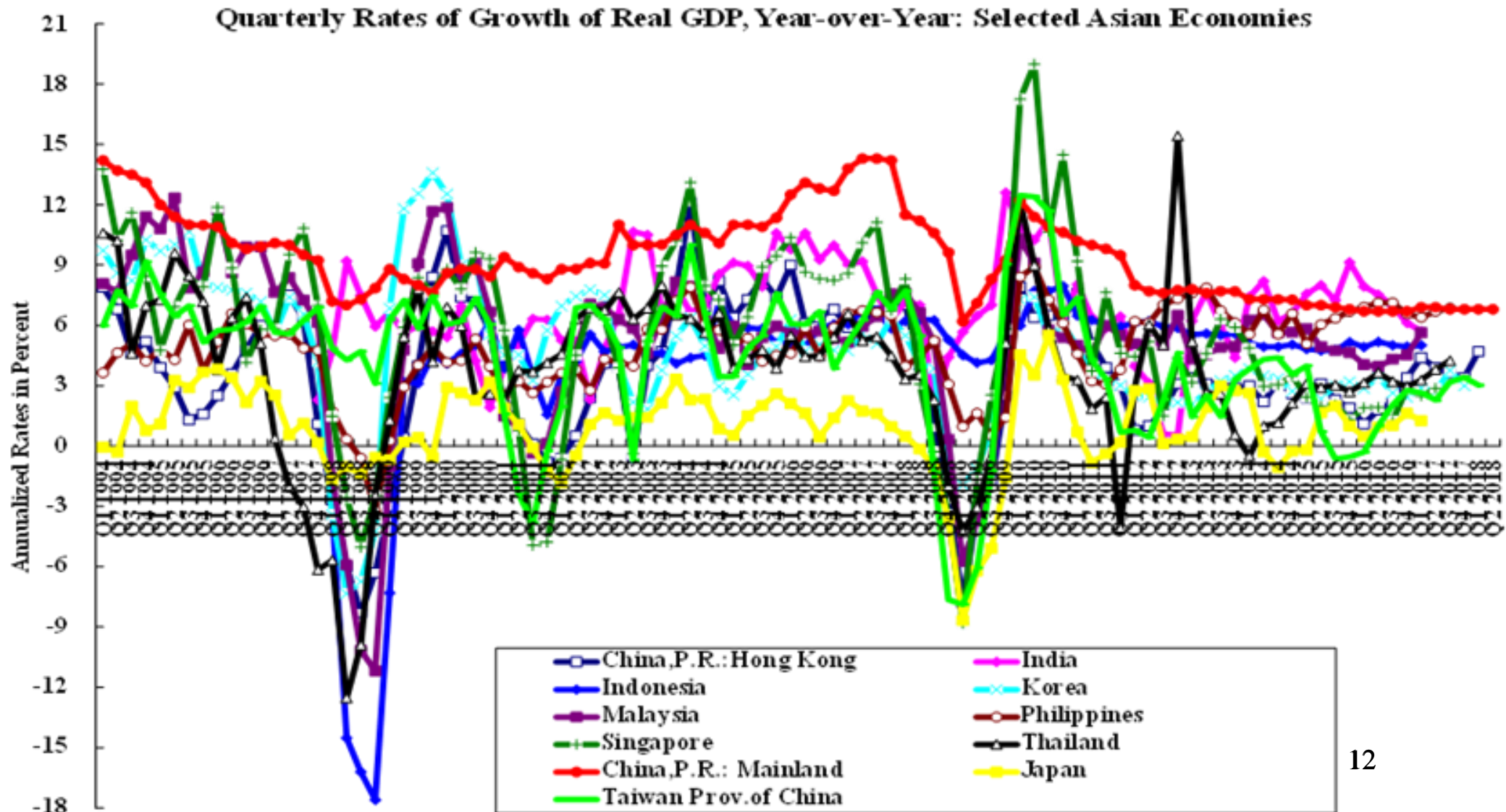
Quarterly Rates of Growth of Exports of Goods: Selected Asian Economies



Quarterly Rates of Growth of Imports of Goods: Selected Asian Economies



Quarterly Rates of Growth of Real GDP, Y-o-Y: Selected Asian Economies

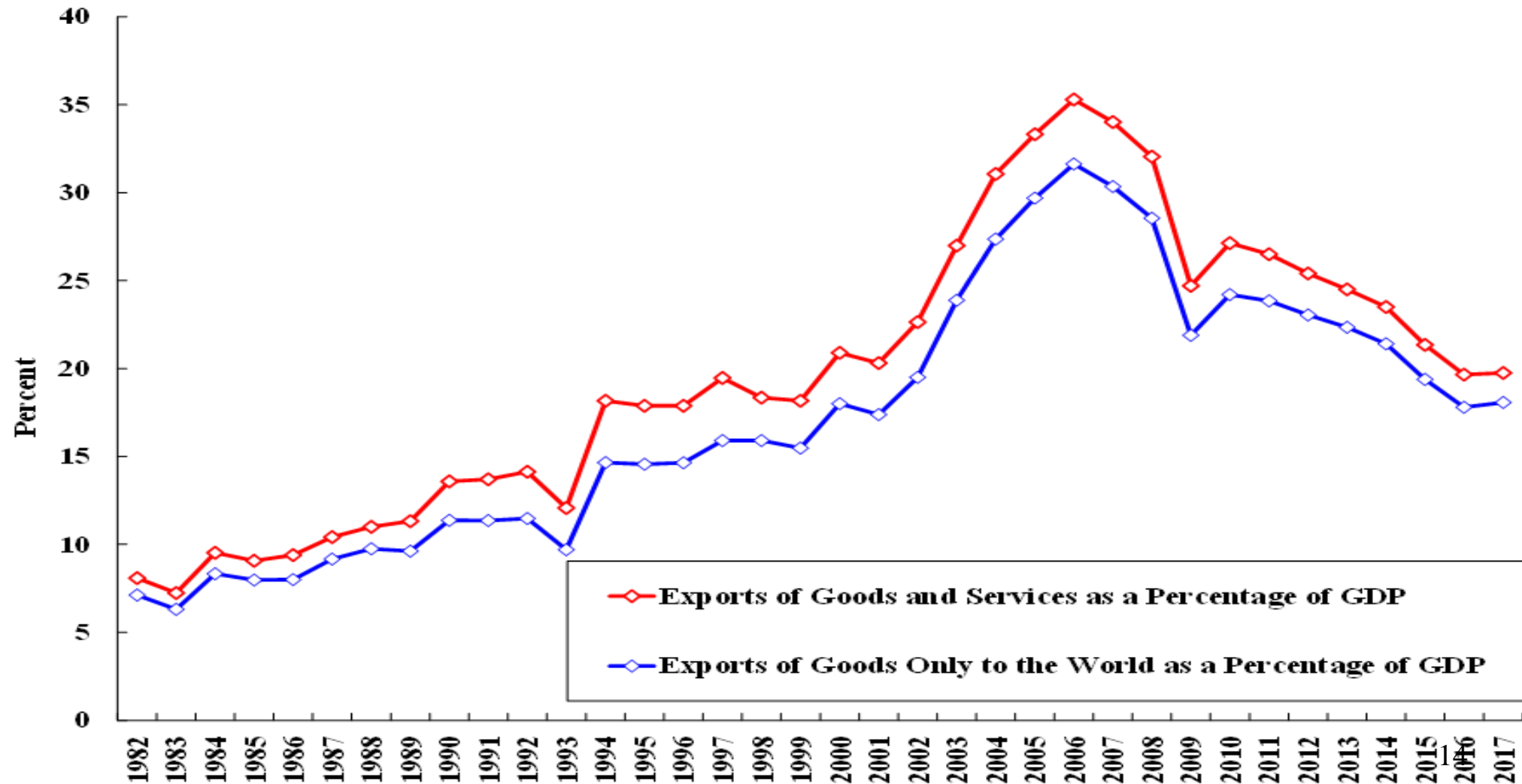


Real Impacts

- ◆ Moreover, Chinese dependence on exports has been declining over the past decade. 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 U.S. in Chinese GDP has also fallen by more than half, from a peak of 7.2% in 2006 to 3.4% in 2017.
- ◆ During this same period, the growth of Chinese exports to the world and to the U.S. has also slowed significantly (see the following charts). 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 U.S. grew at 22% per annum in the decade 1998-2007, but slowed to less than 7% per annum in the most recent decade. Exports is no longer the engine of Chinese economic growth.

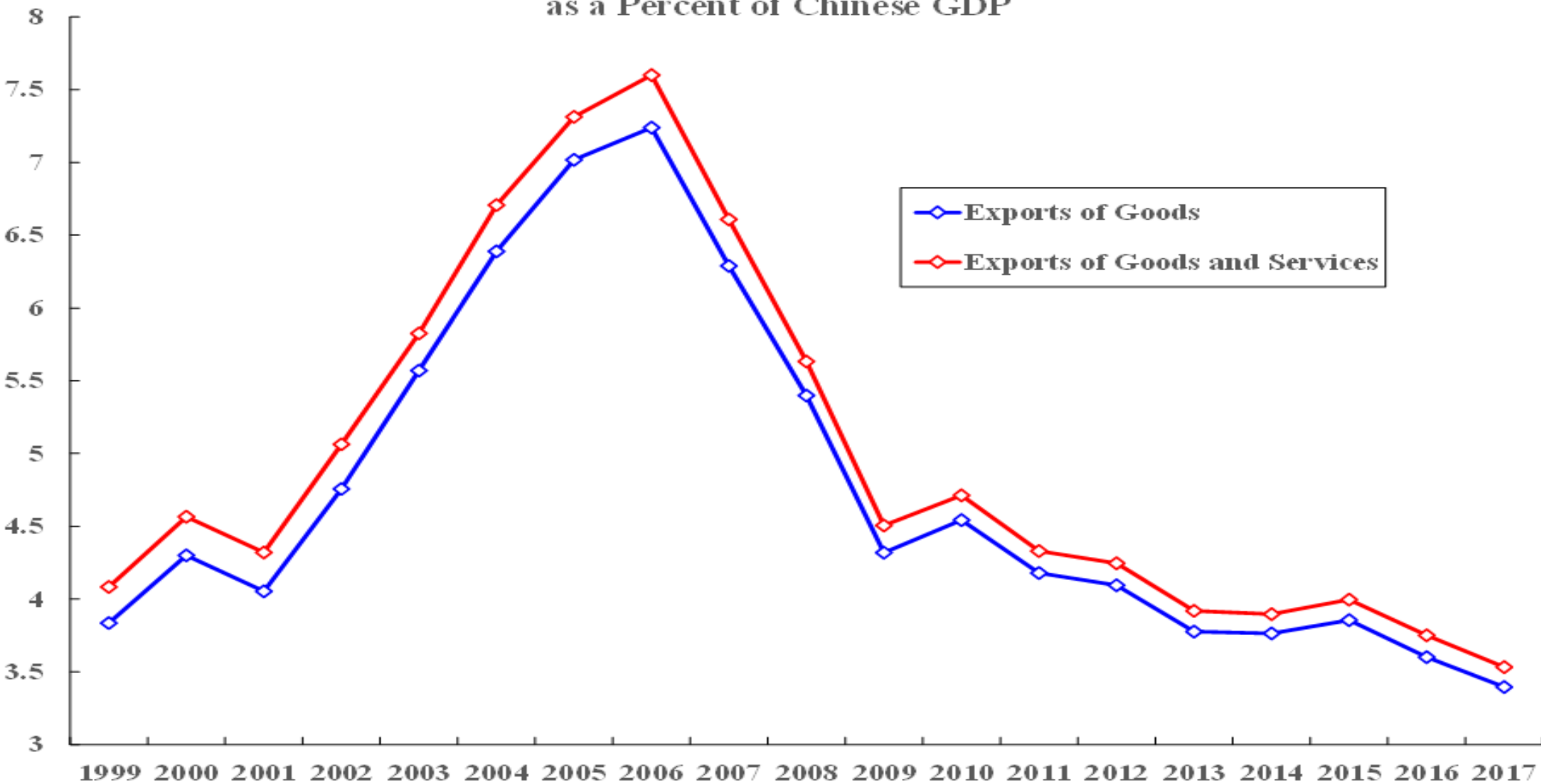
Chinese Exports of Goods and Services and Goods Only as a Percent of Chinese GDP

Exports of Goods & Services and of Goods as a Percent of Chinese GDP



Chinese Exports of Goods and Services to the U.S. as a Percent of Chinese GDP

Chinese Exports of Goods and Services and Goods Only to the U.S.
as a Percent of Chinese GDP



Real Impacts

- ◆ New U.S. tariffs on US\$250 billion of U.S. imports of goods from China (approximately equal to US\$227 ($250 \times 10/11$) billion of Chinese exports of goods to the U.S., f.o.b.) or half of Chinese exports of goods to the U.S.
- ◆ Thus, a maximum of Chinese exports of goods amounting to approximately 1.7% ($3.4\%/2$) of Chinese GDP will be affected.
- ◆ The U.S. tariff rates will 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 the Chinese exporters nor the U.S. importers have the kind of profit margins that can afford these tariffs.

Real Impacts on the Chinese Economy

- ◆ However, the direct domestic value-added content of Chinese exports to the U.S. is less than 25%. Thus, the maximum loss in Chinese GDP, assuming that half of the exports to the U.S. is completely halted, in the first instance, may be estimated at 0.43% ($1.7\% \times 0.25$), 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, which is way over the subsistence level. (We note that the reduction in the rate of growth of Chinese real GDP in 2018 was approximately 0.4%, equal to our estimated first-round impact.)
- ◆ However, the reduction of exports leads to a reduction in the demand for domestic inputs used in their production, which in turns 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 increase eventually to 66 percent. This implies ultimately a maximum total loss in Chinese GDP of 1.12% ($1.7\% \times 0.66$). In absolute terms, this amounts to US\$137 billion in 2017 prices.

Real Impacts on the Chinese Economy

- ◆ 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 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 U.S. Since a 25% tariff is basically prohibitive, if implemented, it will mean the total cessation of Chinese exports of goods to the U.S. The maximum damage that can be done is 2.24% ($3.4\% \times 0.66$) of GDP which is still tolerable.
- ◆ However, it seems unlikely that the tariffs on this last batch of Chinese exports to the U.S. will be implemented because they consist of products such as iPhones, garments and shoes and packaged semi-conductors. The incidence of the tariffs will be mostly borne by U.S. consumers and producers. (One incidental beneficiary will be Samsung of South Korea whose Galaxy cellphones compete with Apple.)

Real Impacts on the Chinese Economy

- ◆ Moreover, even with a reduction of Chinese exports of goods amounting to 1.7% of GDP, the Chinese trade in goods and services, which had a surplus of 1.71% of GDP in 2017, will still remain in balance, without taking into account any potential reduction of Chinese imports from the U.S. Thus, there should be little pressure for the Renminbi to devalue.
- ◆ In fact, it is probably in the best interests of the Chinese economy to maintain a relatively stable Renminbi exchange rate. By following the CFETS Index, an index of a trade-weighted basket of currencies, the Renminbi exchange rate will have a lower volatility than the U.S. Dollar exchange rate because it will move, in general, in the same direction as the U.S. Dollar but by a smaller amount. This means when the U.S. Dollar appreciates with respect to other currencies, the Renminbi will devalue relative to the U.S. Dollar, and when the U.S. Dollar devalues with respect to other currencies, the Renminbi will appreciate relative to the U.S. Dollar. The Renminbi exchange rate, will be less volatile than the U.S. Dollar exchange rate.

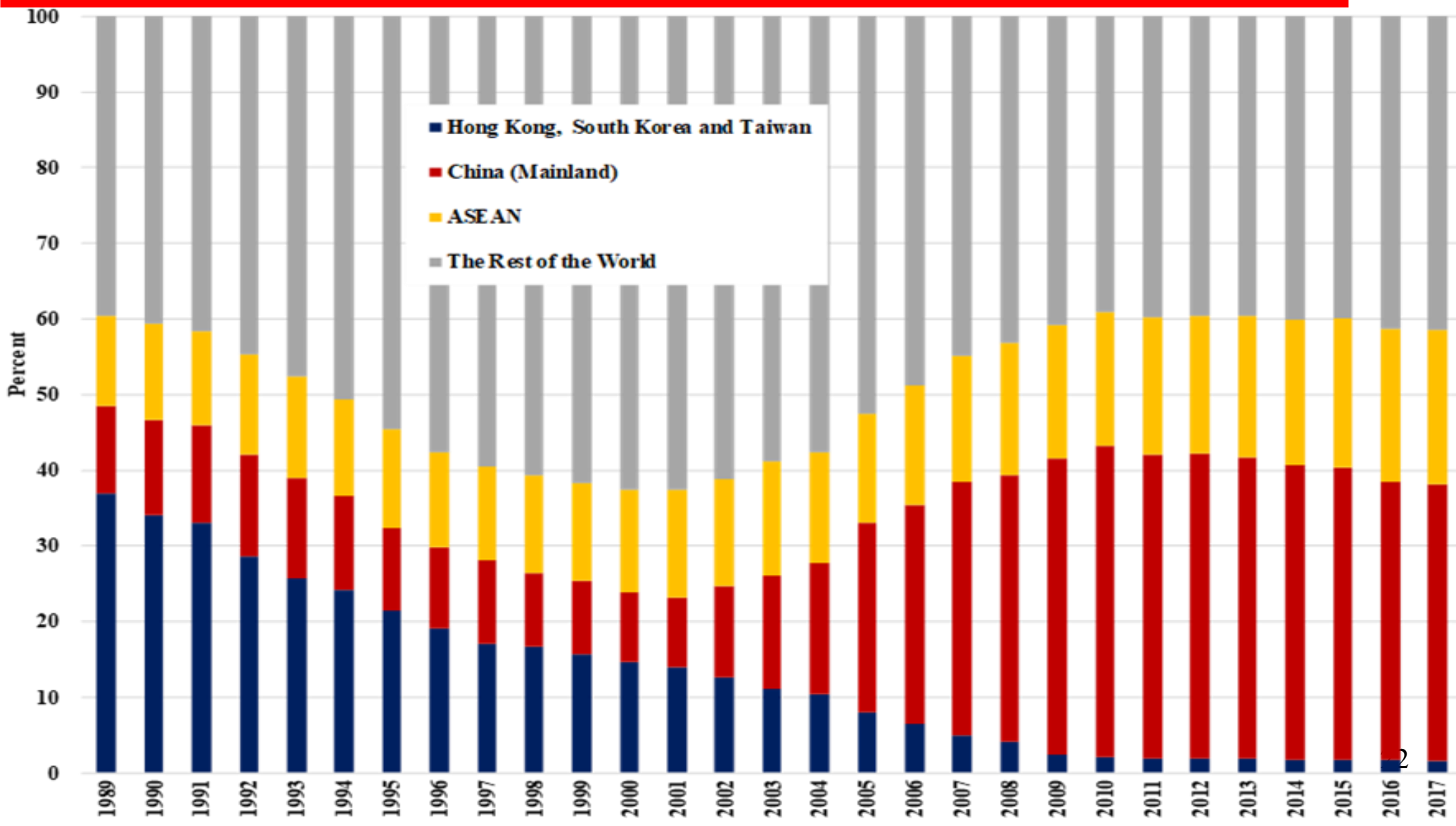
Chinese Trade Surplus in Goods and Services with the World and the U.S. as a % of GDP



Real Impacts on the Chinese Economy

- ◆ In the longer run, assuming that the tariffs continue on both sides, the U.S. 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 U.S. imports of apparel from Hong Kong, South Korea and Taiwan to Mainland China (see the following chart). The new U.S. tariffs will accelerate this process.
- ◆ The ASEAN and South Asian countries may benefit, 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 U.S.

The Distribution of U.S. Apparel Imports by Countries of Origin



Real Impacts on the Chinese Economy:

Specific Regional Impacts

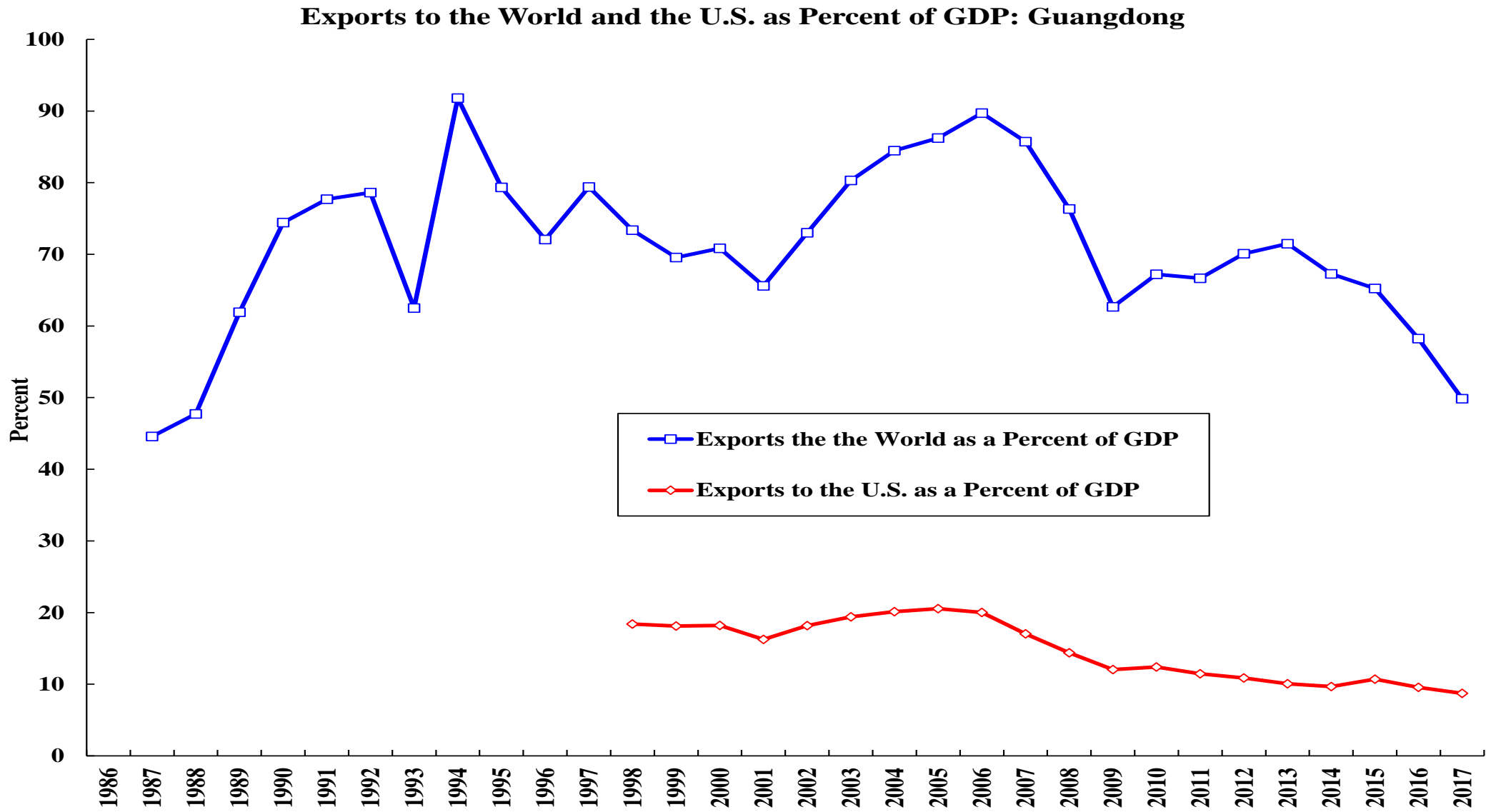
- ◆ Even though the real impacts on the Chinese economy in the aggregate are relatively small, they can be more significant for individual specific municipalities and provinces, especially those oriented towards exports.
- ◆ Guangdong, including Shenzhen, is the largest exporting region in China, followed by Shanghai and then Zhejiang. Even then, exports as a percent of its GDP was just below 50% in 2017, and exports to the U.S. was 8.7%.

Real Impacts on the Chinese Economy:

Specific Regional Impacts

- ◆ Assuming the direct domestic value-added content of Guangdong exports to the U.S. 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 U.S. is completely halted, in the first instance may be estimated at 1.09% ($4.35\% \times 0.25$). Such a decline in GDP is perfectly manageable by Guangdong as the real rate of growth of its GDP was 10.2% and its GDP per capita was US\$12,909 in 2017.
- ◆ Taking into account the indirect, that is, second-, third-, fourth- and higher-round effects of the reduction of exports from Guangdong, the total domestic value-added content affected increases to 66 percent. This implies ultimately a total loss in Guangdong GDP of 2.87% ($4.35\% \times 0.66$). 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 7% per annum.

Exports to the World and the U.S. as Percent of GDP: Guangdong

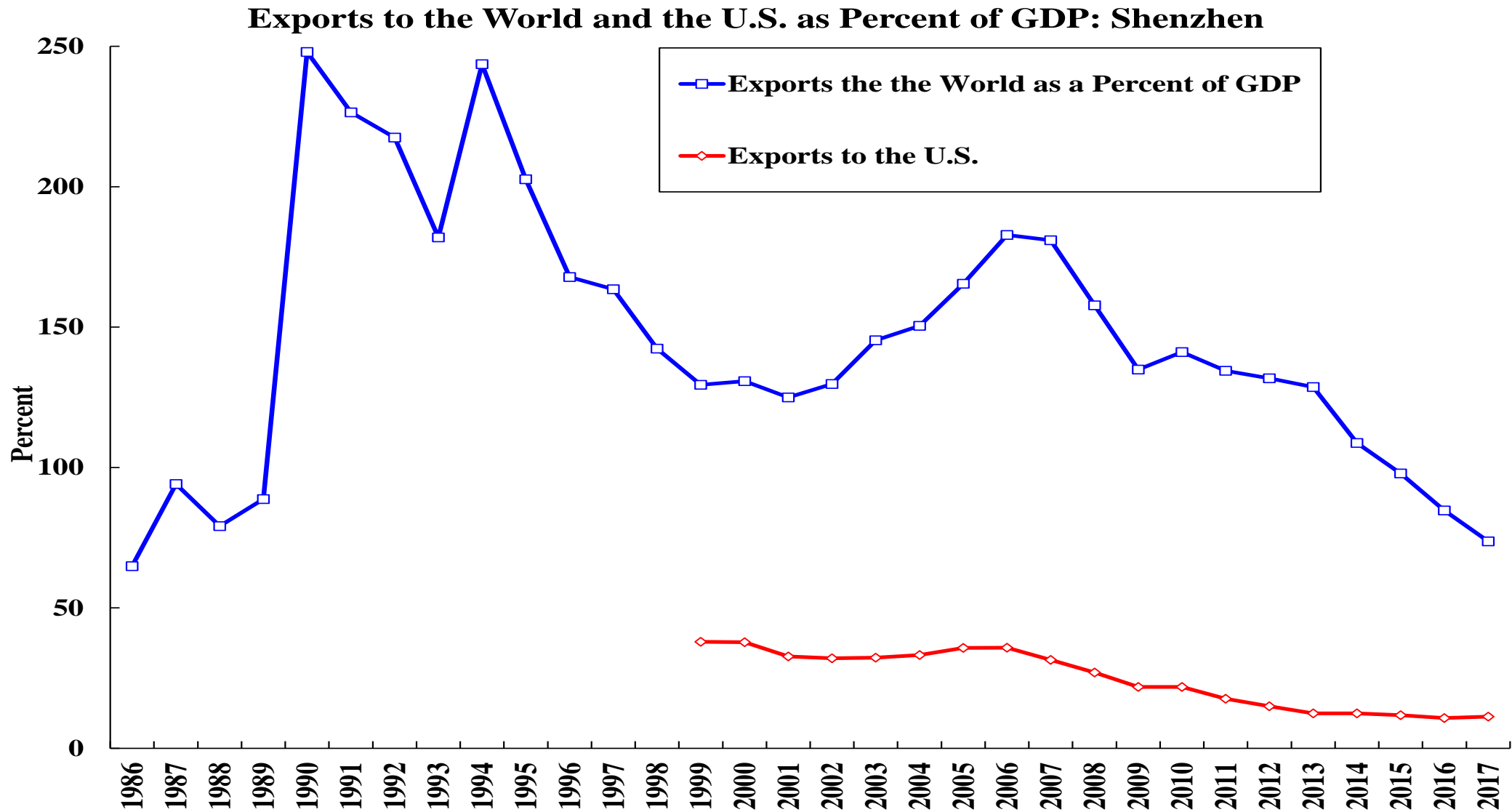


Real Impacts on the Chinese Economy:

Specific Regional Impacts

- ◆ Exports as a percent of GDP in Shenzhen was 73.7% in 2017, and exports to the U.S. was 11.3%.
- ◆ Assuming the direct domestic value-added content of Shenzhen exports to the U.S. is the same as that of China as a whole, that is, 25%, the maximum loss in Shenzhen GDP, assuming that half of the exports to the U.S. is completely halted, in the first instance may be estimated at 1.41% ($5.65\% \times 0.25$). However, for the Shenzhen economy, which grew at 8.8% in 2017, a decline of this magnitude would still be manageable.
- ◆ Taking into account the indirect, that is, second-, third-, fourth- and higher-round effects of the reduction of exports, the total domestic value-added content affected increases to 66 percent. This implies ultimately a total loss in Shenzhen GDP of 3.7% ($5.65\% \times 0.66$), still leaving Shenzhen with a rate of growth of 5.1%, significantly higher than the average rate of growth of the world economy of 3.7% and that of neighbouring Hong Kong in 2018.

Exports to the World and the U.S. as Percent of GDP: Shenzhen



Real Impacts on the Chinese Economy:

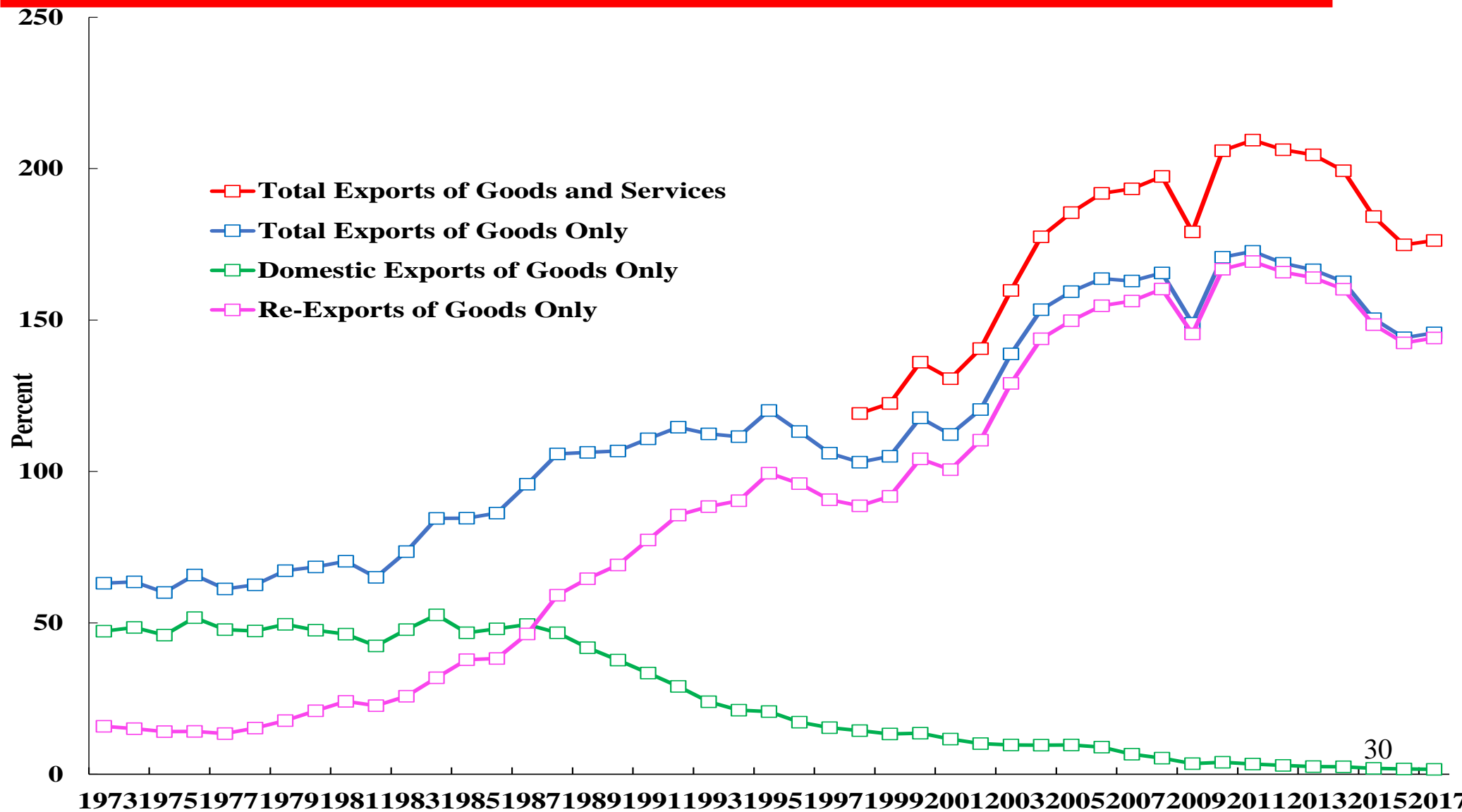
Regional Impacts

- ◆ At the regional level, the real GDP of Guangdong Province grew by 6.9 percent during the first three quarters of 2018, better than the 6.7 percent for the same period in 2017. The real GDP of Shenzhen grew at 8.1 percent in the first three quarters, compared to 8.8 percent in 2017. Thus, the real impacts of the trade war were so far quite small, even for the export-oriented provinces and regions.

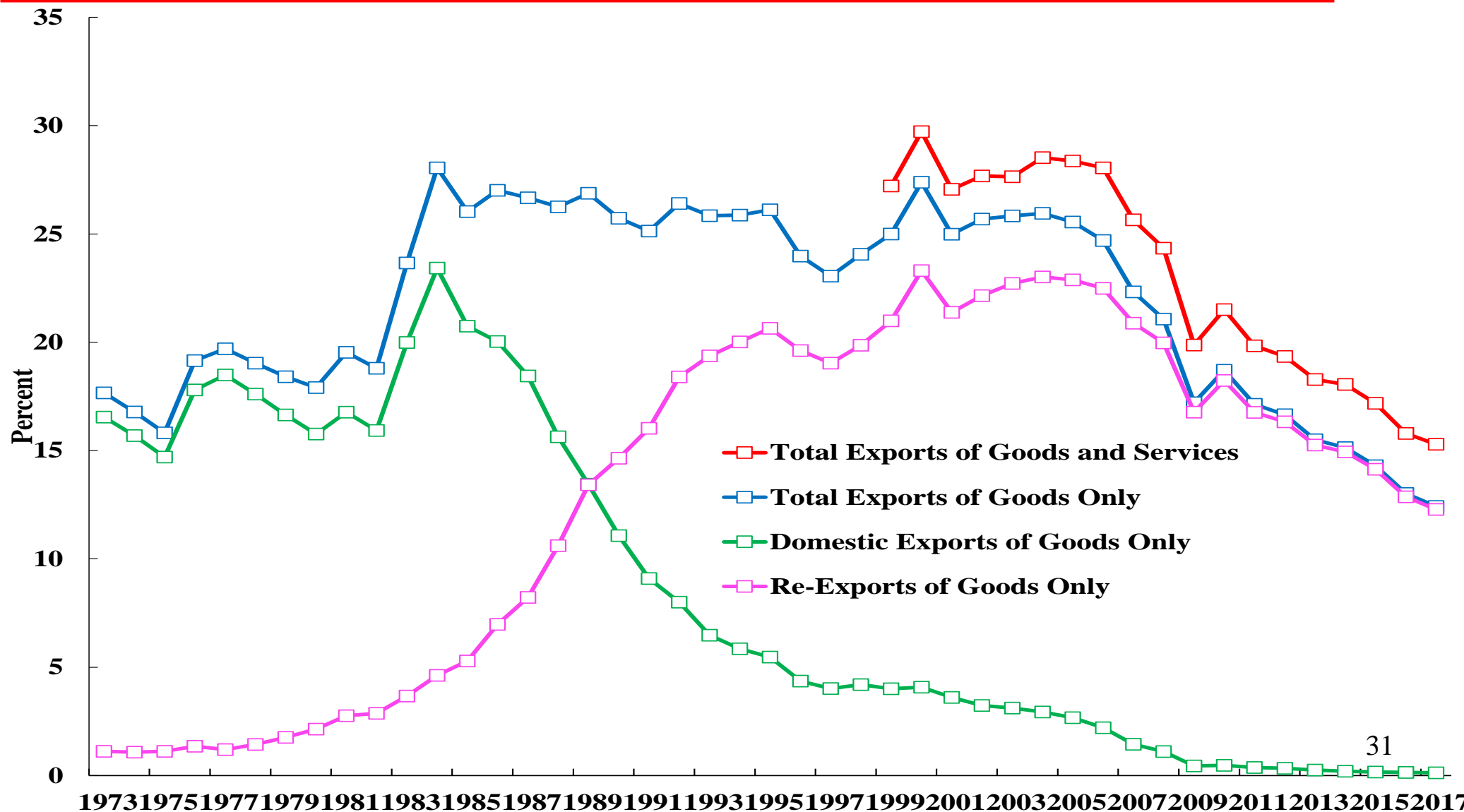
Real Impacts on the Hong Kong Economy

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

Exports to the World as a Percent of GDP: Hong Kong



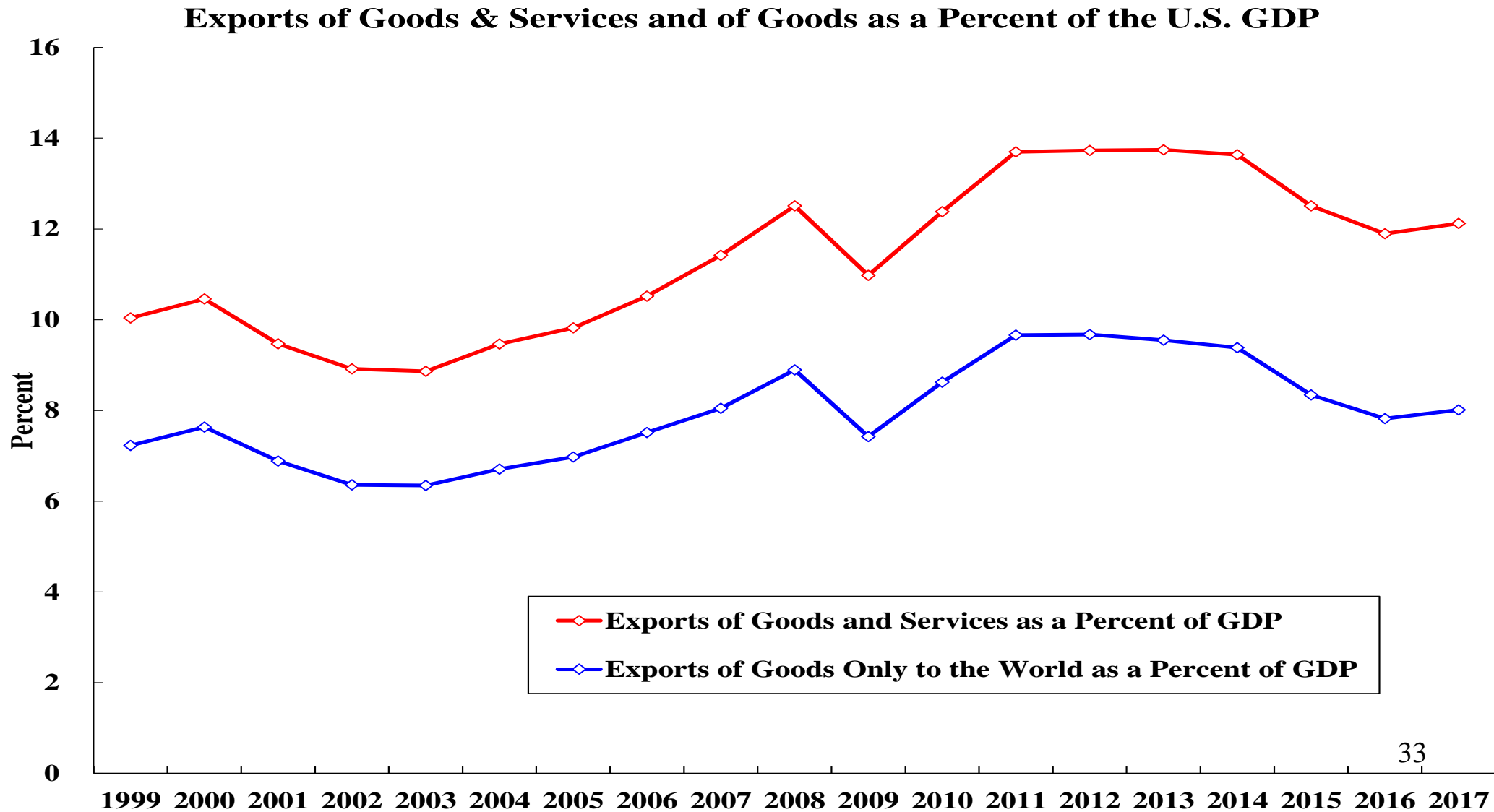
Exports to the U.S. as a Percent of GDP: Hong Kong



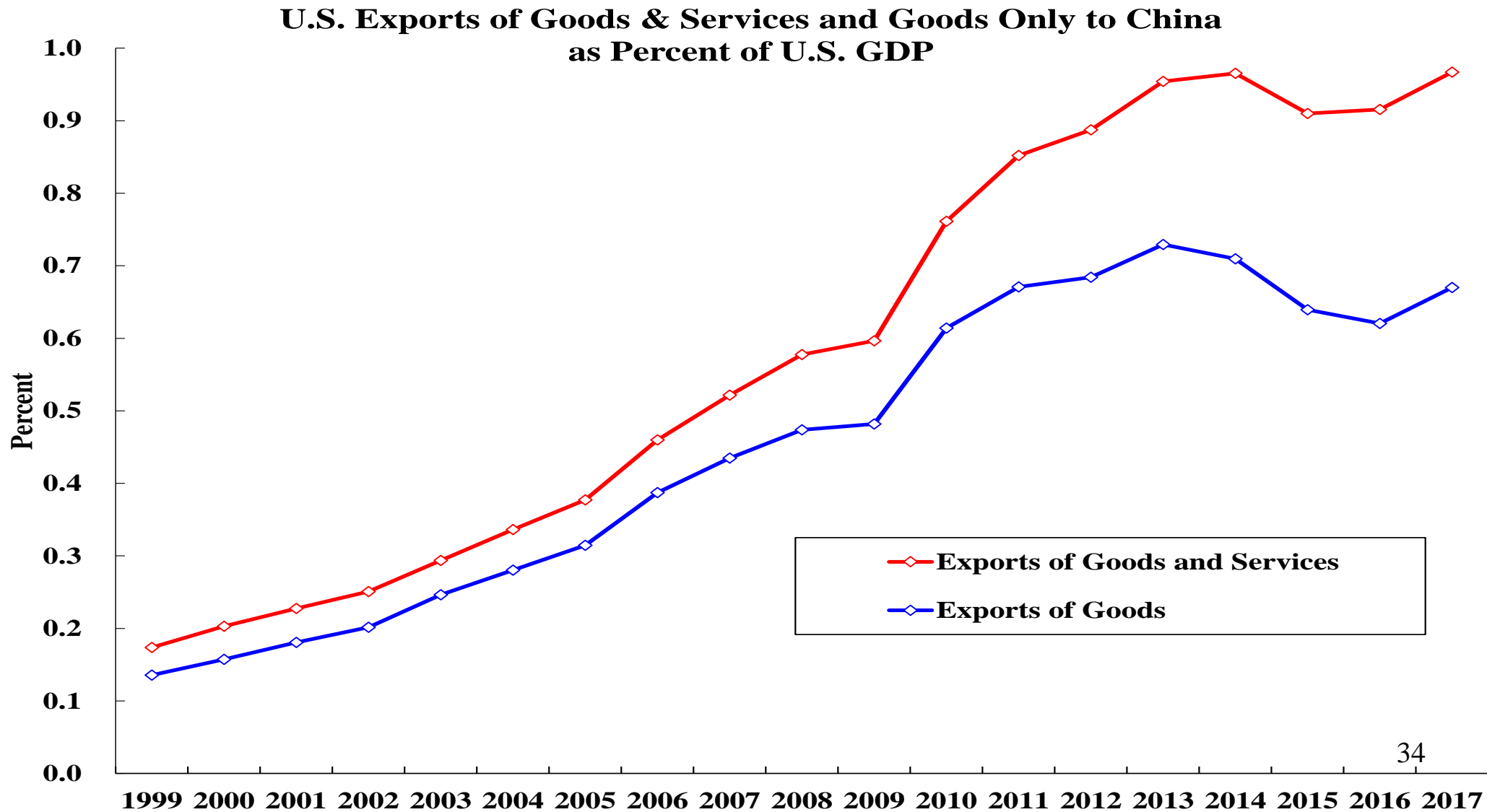
Real Impacts on the U. S. Economy

- ◆ The dependence of the U.S., a large continental economy, on exports is even lower than that of China's. U.S. exports of goods and services combined as a share of GDP was 12.12% in 2017. The exports of goods alone as a share of GDP was only 8.01%.
- ◆ The shares of U.S. exports of goods and services and goods alone to China in GDP was 0.97% and 0.67% respectively in 2017, much lower than those of Chinese exports to the U.S.

U.S. Exports of Goods and Services and Goods Only as Percent of U.S. GDP



U.S. Exports of Goods and Services and Goods Only to China as Percent of U.S. GDP



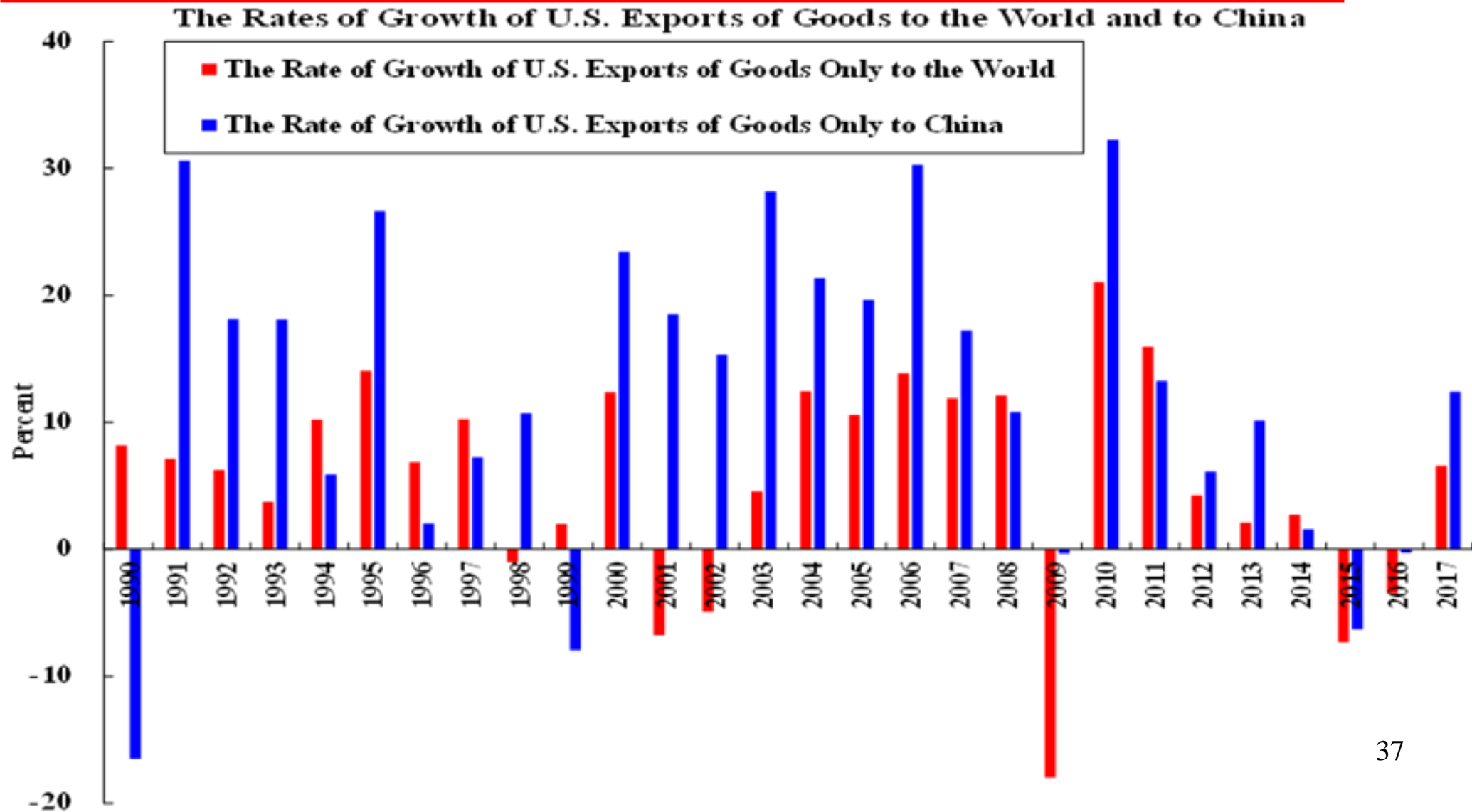
Real Impacts on the U. S. Economy

- ◆ The direct domestic value-added content of U.S. exports of goods to China may be estimated to be 50.8%. Thus, the maximum loss in U.S., assuming that all of the exports to China is completely halted, in the first instance may be estimated at 0.34% ($0.67\% \times 0.508$), less than the impact on Chinese GDP of 0.43%.
- ◆ Moreover, it is unlikely that all of the exports of goods will be halted; for example, computer chips will continue to be imported in large quantities. Suppose only half of U.S. exports of goods to China is halted, it would amount to a loss of U.S. GDP of 0.17%. This is not significant for the U.S. economy as a whole, especially with the recent recovery of the quarterly rate of growth of GDP to 4.1%. U.S. GDP per capita is approximately US\$60,000. The U.S. economy can easily weather a reduction of 0.17% in its rate of growth.

Real Impacts on the U. S. Economy

- ◆ With the indirect, that is, second-, third-, fourth- and higher-round effects of the reduction of U.S. exports of goods kicking in, the total domestic value-added content affected increases to 88.7%. This implies ultimately a total loss in U.S. GDP of 0.30% ($0.67\% \times 0.887/2$), assuming that half of U.S. 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 U.S. has a significant trade surplus in services with China, estimated to be US\$40 billion by the U.S. Government but US\$54 billion by the Chinese Government. This surplus may be in jeopardy if China-U.S. relations deteriorate further.

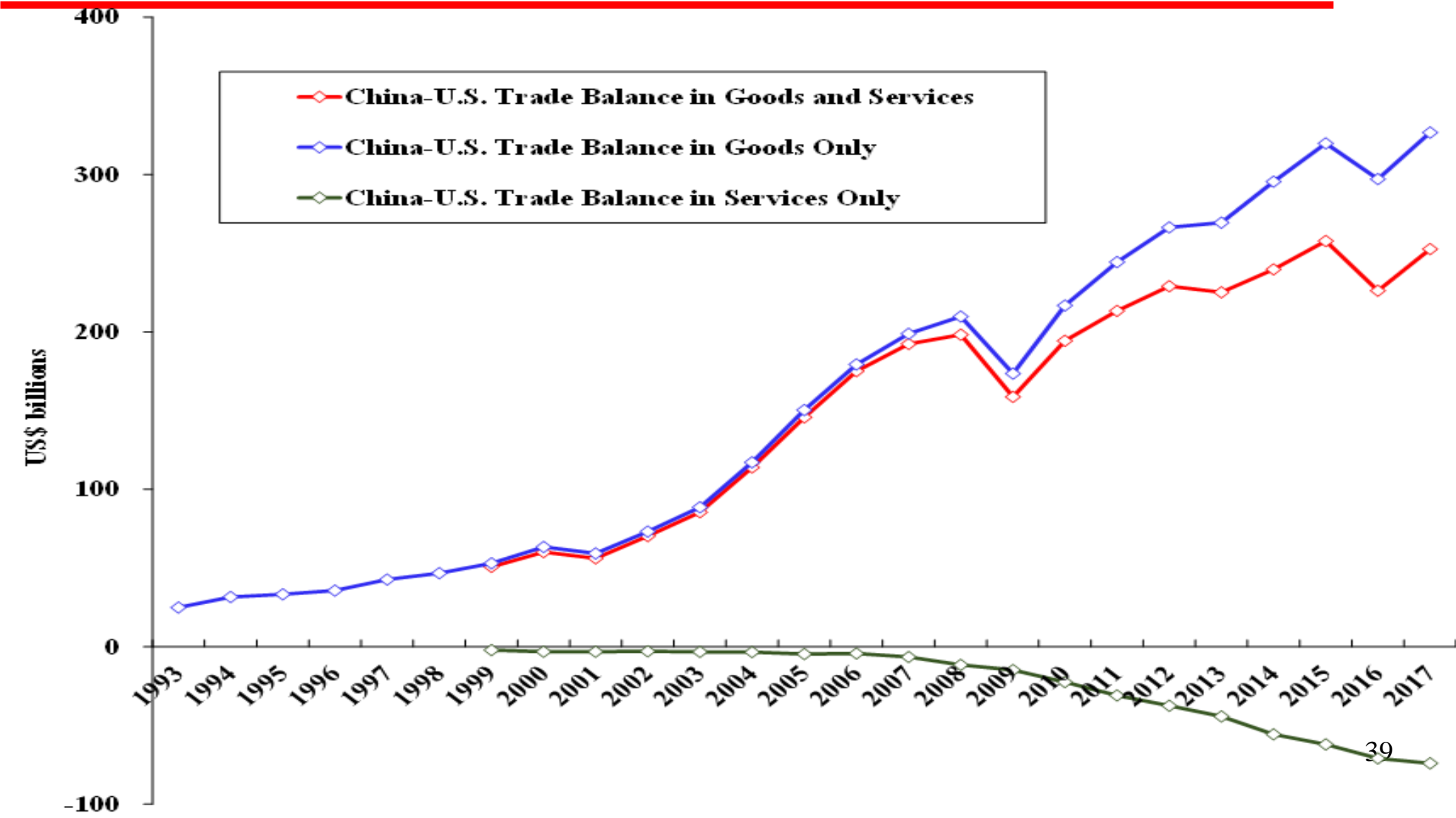
The Annual Rates of Growth of U.S. Exports of Goods to the World and to China



Reconstructed China-U.S. Bilateral Trade Balances Based on Gross Value of Exports

- ◆ The U.S.-China overall trade deficit in goods and services combined in 2017, taking into account all the appropriate adjustments (for example, the re-exports to and from the U.S.), may be estimated as US\$ 254 billion.
- ◆ This is a considerably smaller number than the often-mentioned U.S.-China trade deficit in goods only of US\$376 billion.

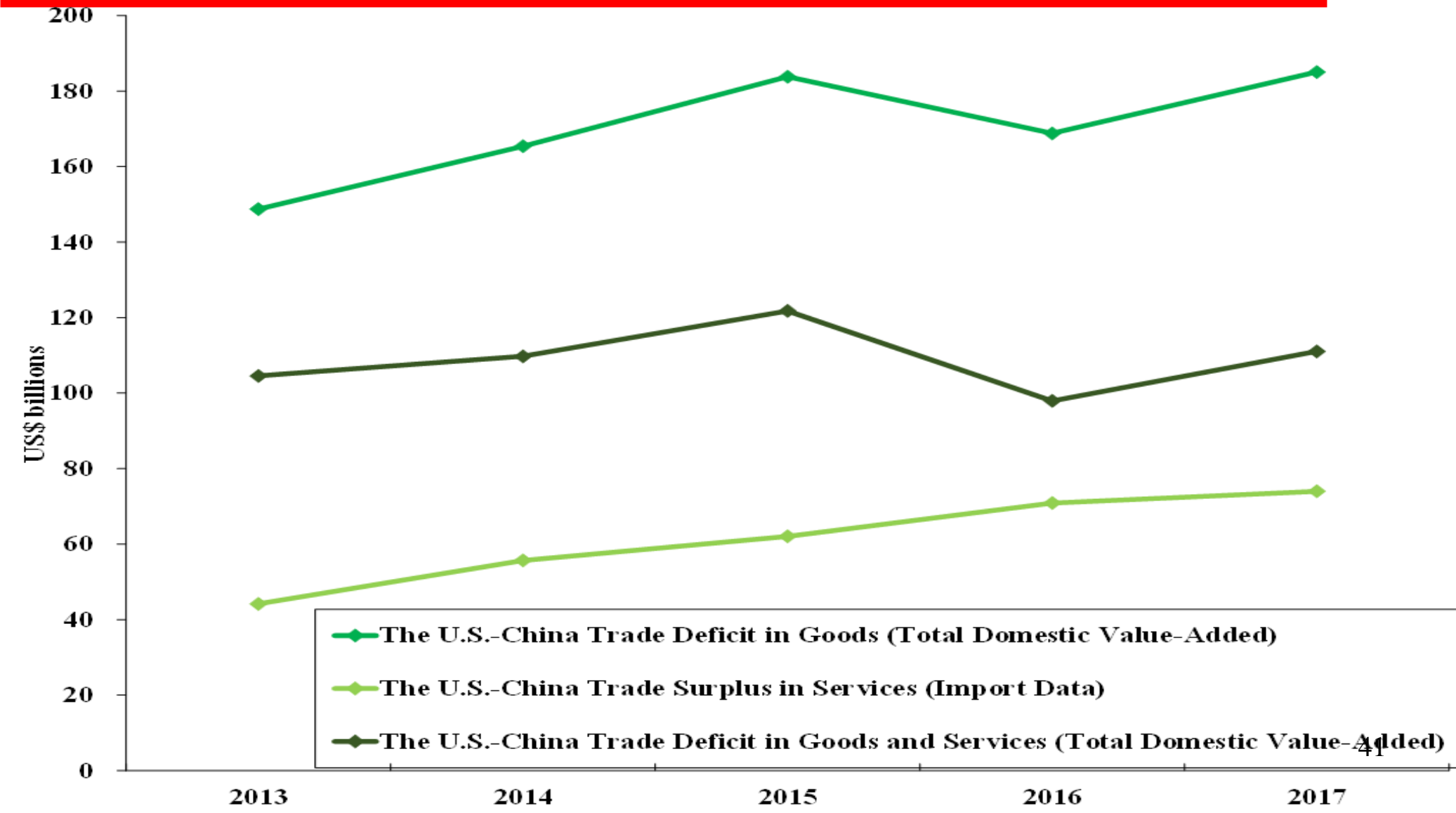
Reconstructed China-U.S. Bilateral Trade Balances Based on Gross Value of Exports



U.S.-China Bilateral Trade Deficit Based on Value-Added of Exports

- ◆ However, the gross value of exports does not reflect the 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 the Apple iPhone, an export of China since it is finally assembled 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%.
- ◆ U.S.-China trade deficit in goods and services combined in terms of total value-added may be estimated as US\$111 billion in 2017.
- ◆ This estimated U.S.-China trade deficit in goods and services combined in terms of gross value is US\$254 billion for 2017. These compare favourably with the often-mentioned U.S.-China trade deficit in goods only of US\$376 billion.

U.S.-China Bilateral Trade Deficit Based on Value-Added of Exports



Longer-Term Developments

- ◆ President Donald Trump's primary objective is to run and win re-election in 2020. He will use China as a villain in the presidential election, as he did in the mid-term election. It is easy enough to bash China and he did promise that he would be tough on China during his presidential campaign in 2016. Bashing China will appeal to his base constituency of rural, non-college-educated, white males.
- ◆ Moreover, Representative Nancy Pelosi, a Democrat who has been elected the Speaker of the U.S. House of Representatives, is also unfriendly to China. So, one cannot expect a let-up of the anti-China rhetoric in the U.S. In fact, there may be a China-bashing competition between the two parties.

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 U.S. 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 U.S. 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.

Longer-Term Developments

- ◆ In terms of aggregate GDP, China went from only 20 percent of the U.S. GDP in 2000 to two-thirds in 2017. It is only a matter of time that the Chinese GDP will catch up with the U.S. 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 U.S. 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 U.S. level.
- ◆ In terms of the number of nuclear-armed warheads, I believe the U.S. is way ahead by at least an order of magnitude in total and even more 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.

Longer-Term Developments

- ◆ U.S. grievances against China include 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 right 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 right protection in China should get even better over time. Today, China grants the largest number of patents in the world. And Chinese inventors and discoverers will want their intellectual property rights protected.

Longer-Term Developments

- ◆ Forced technology transfer has to do with the Chinese requirements for foreign direct investors in certain industries to take Chinese enterprises as equal 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. 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. For example, in the automobile manufacturing industry, Tesla has been able to establish a wholly-owned subsidiary in Shanghai to manufacture electric cars; 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 General Motors to buy out its Chinese joint-venture partner, it has indicated that it does not intend to do so. Allianz of Germany has been allowed to establish a wholly-owned insurance holding company in China.
- ◆ 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.

Longer-Term Developments

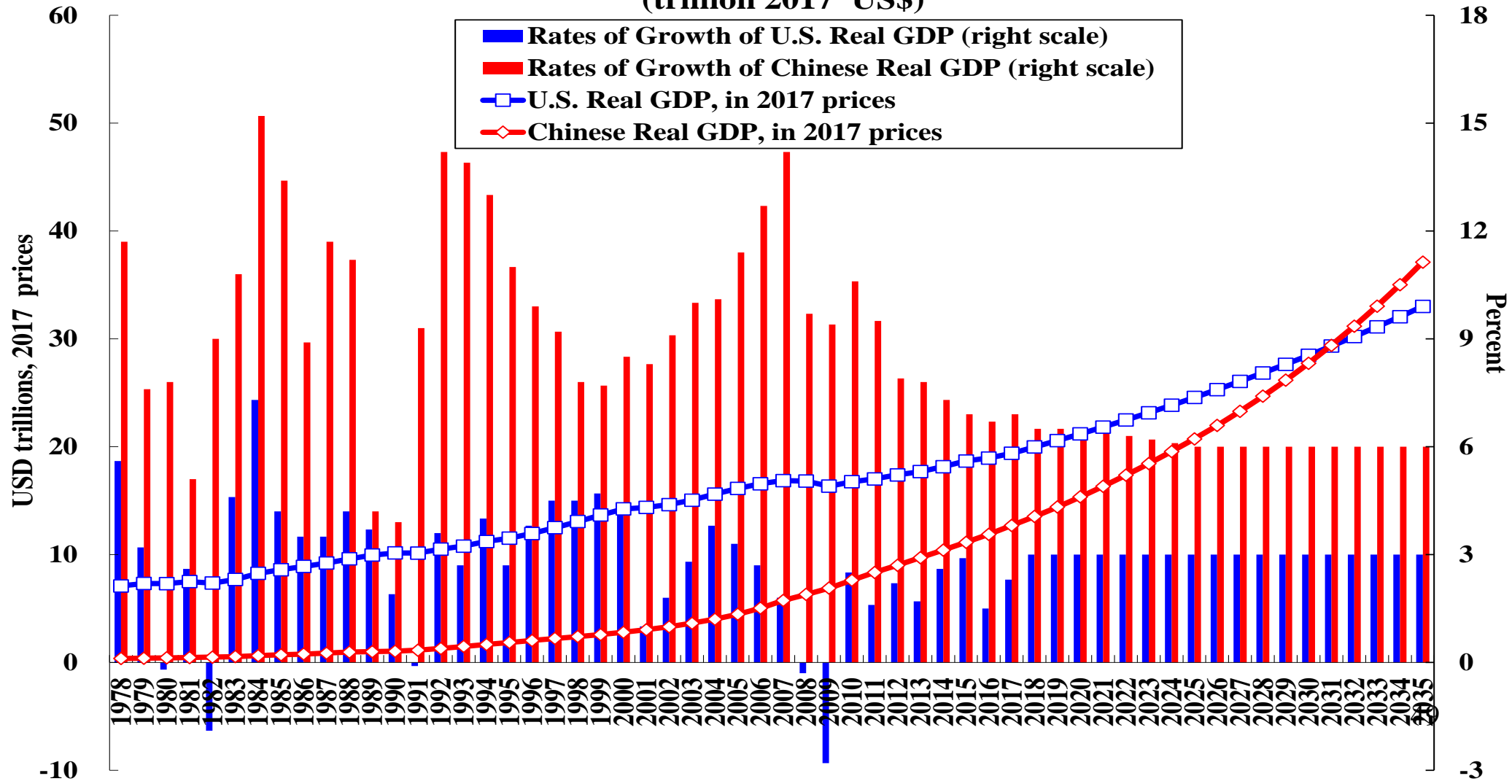
- ◆ These latest moves on the part of China and the new, much shortened negative list on foreign direct investment should go a long way towards eliminating the issue of forced technology transfer.
- ◆ The best solution is to grant national treatment to all foreign direct investors on a reciprocal basis (with national security consideration being the only exception).
- ◆ Commercial cyber-thefts should be vigourously prosecuted, with the collaboration of both governments.
- ◆ If Huawei is perceived as a national security risk by the U.S., will the Apple iPhone be considered a national security risk by China eventually?

Longer-Term Developments

- ◆ The rise of populist, isolationist, nationalist and protectionist sentiments in the U.S. 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 them 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 naturally oppose economic globalisation and free trade.
- ◆ In addition, it is also natural and instinctive for any individual to entertain the feeling of “us” versus “them”. And most people believe that all deals 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 is, it is in fact win-win.

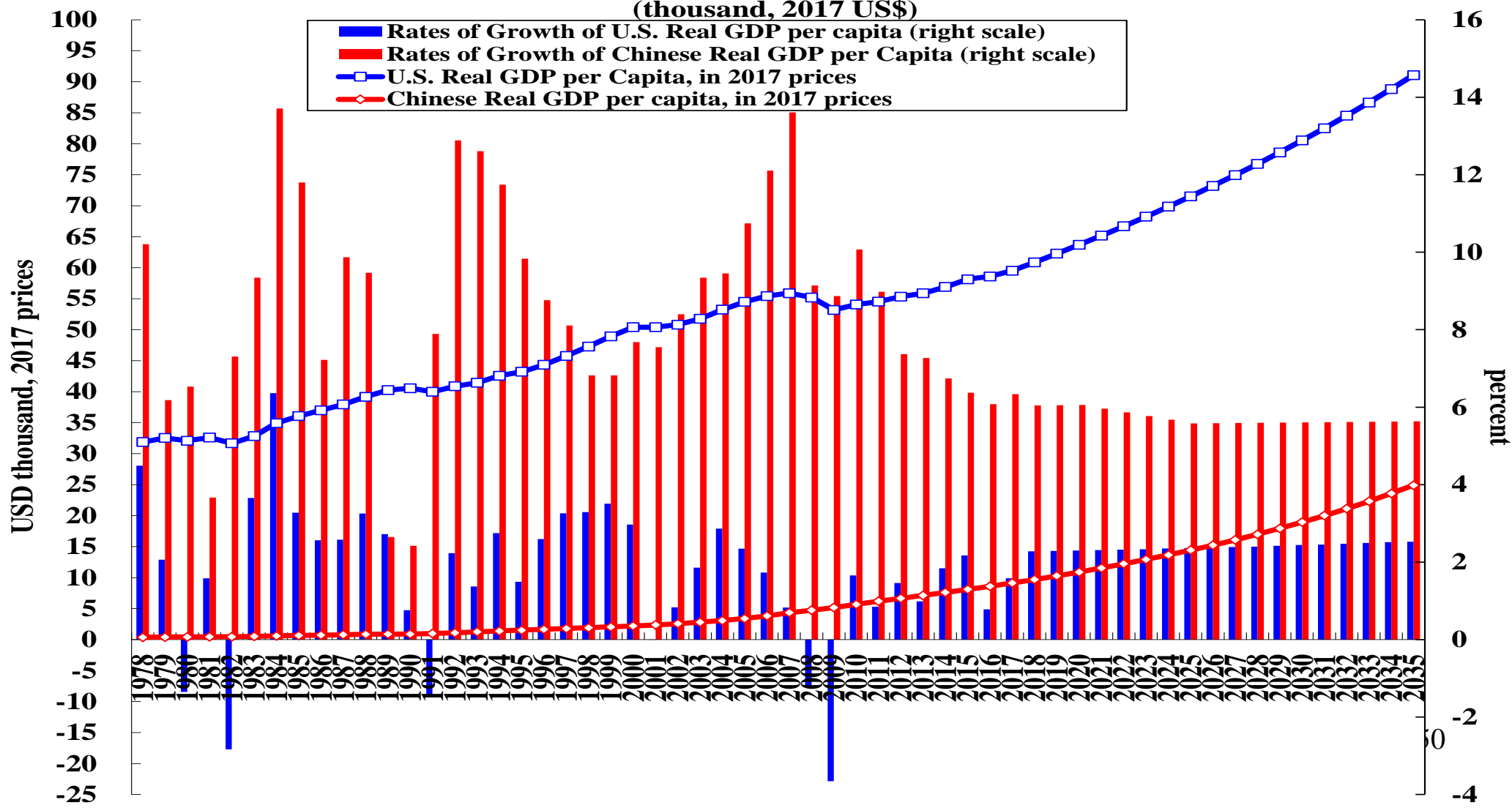
Actual and Projected Levels and Growth Rates of Chinese and U.S. Real GDP (2017 tril. US\$)

**Actual and Projected Chinese and U.S. Real GDPs and Their Rates of Growth
(trillion 2017 US\$)**



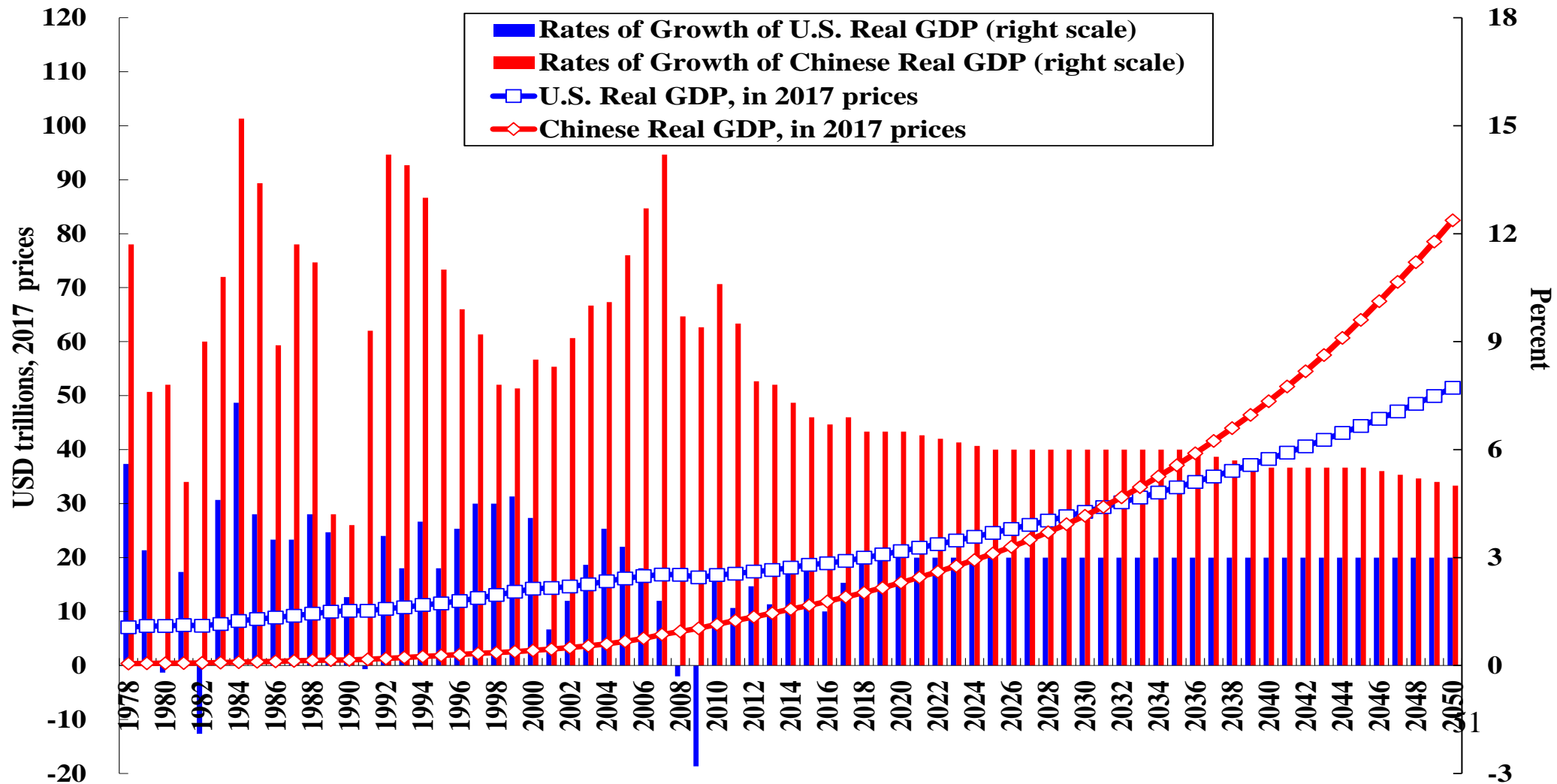
Actual and Projected Chinese and U.S. Real GDP/ Capita and Their Rates of Growth (1,000 2017 US\$)

Actual and Projected Chinese and U.S. Real GDP per Capita and Their Rates of Growth
(thousand, 2017 US\$)



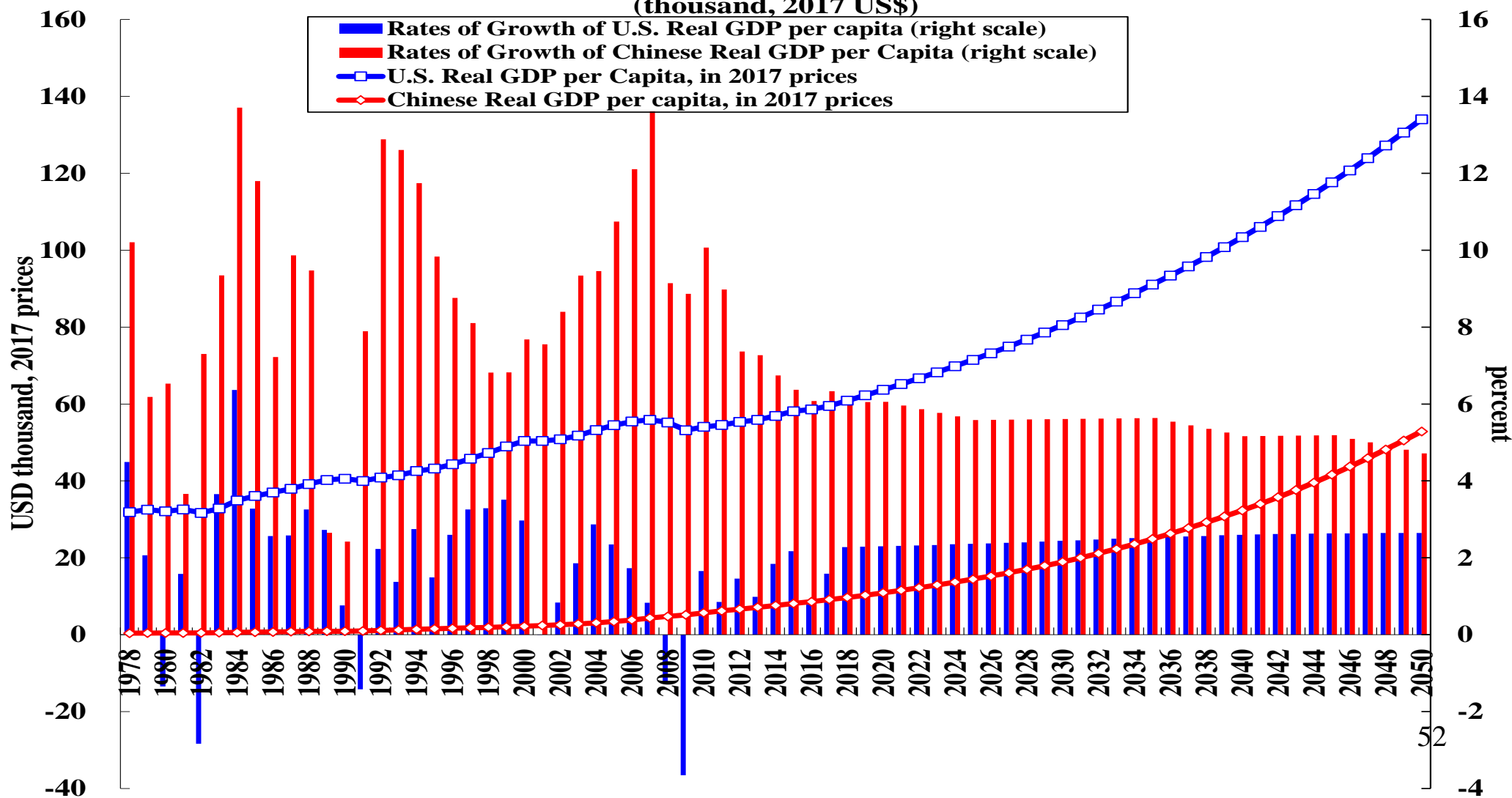
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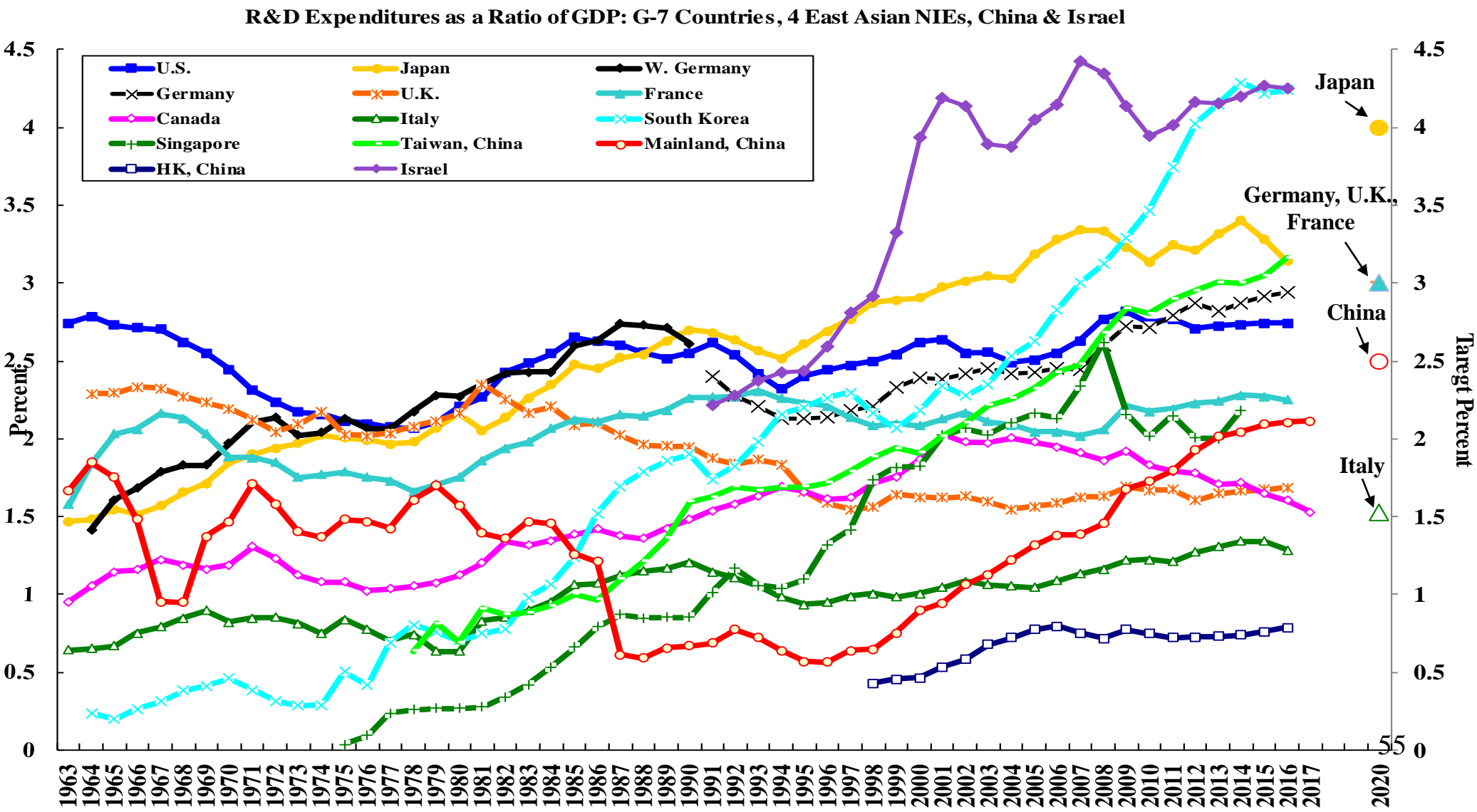
Technological Competition

- ◆ 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; China developed it independently, without any foreign assistance; India, Pakistan and even North Korea developed their nuclear bombs independently.
- ◆ China will have 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 and R&D Capital)

- ◆ Investment in intangible capital (human capital and Research and Development (R&D) capital) is indispensable for innovation.
- ◆ The annual expenditure on R&D as percentages of GDP are presented for selected economies in the following chart.
- ◆ The chart shows that the U.S. 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 U.S. share. However, it will still be below the expected or targeted levels of the European countries, Japan and South Korea.

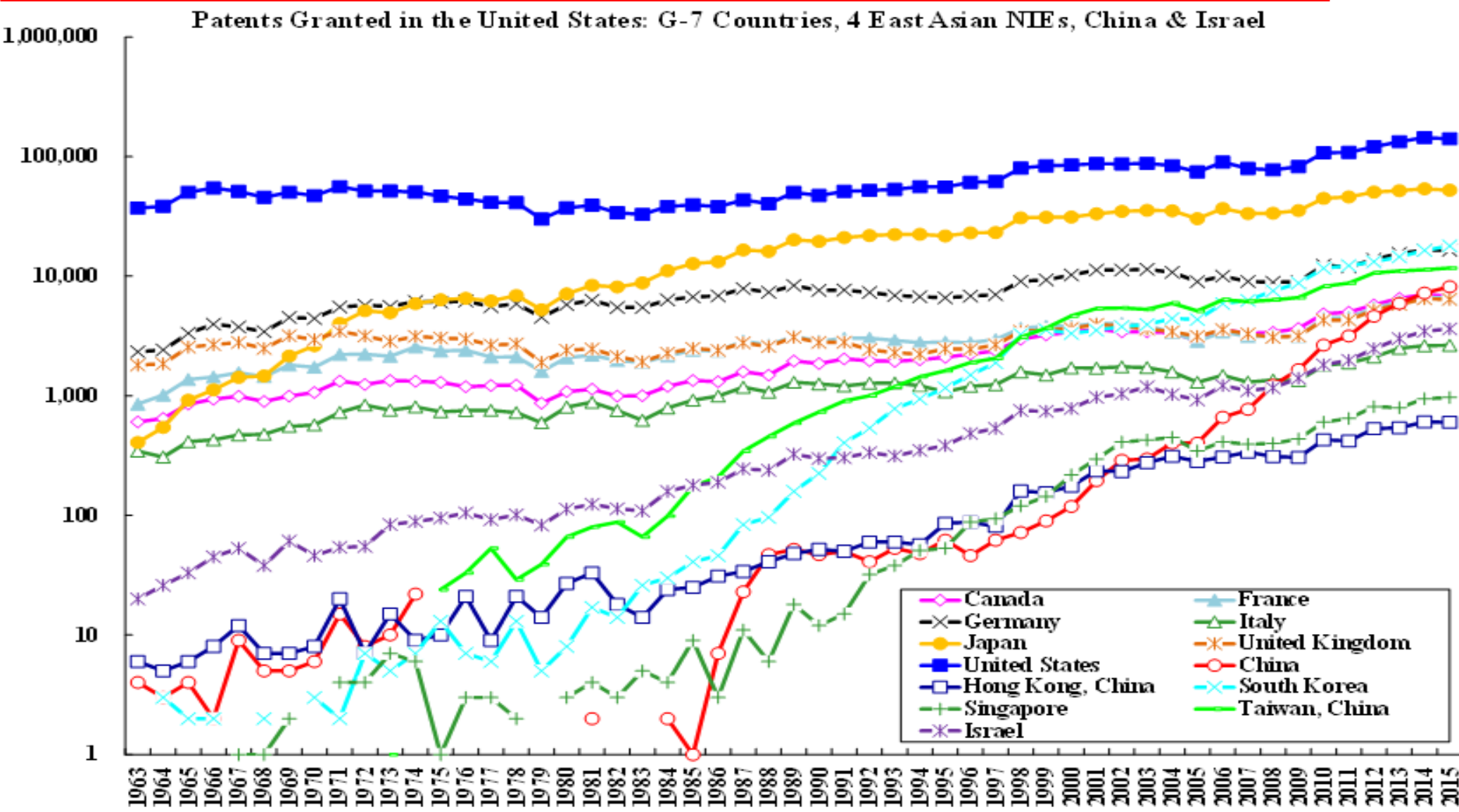
R&D Expenditures as a Share of GDP and Their Target Levels at 2020: G-7 Countries, 4 East Asian NIEs, China & Israel



Investment in Intangible Capital (R&D Capital)

- ◆ One indicator of the potential for technical progress is the number of patents created each year. In the following chart, the number of patents granted in the United States each year to the nationals of different countries, including the U.S. itself, over time is presented.
- ◆ The U.S. 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 U.S., the U.S. 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 U.S. patents respectively in 2015, were far ahead of Mainland China. In contrast, the number of U.S. patents granted to Hong Kong nationals was only 601 in 2015.

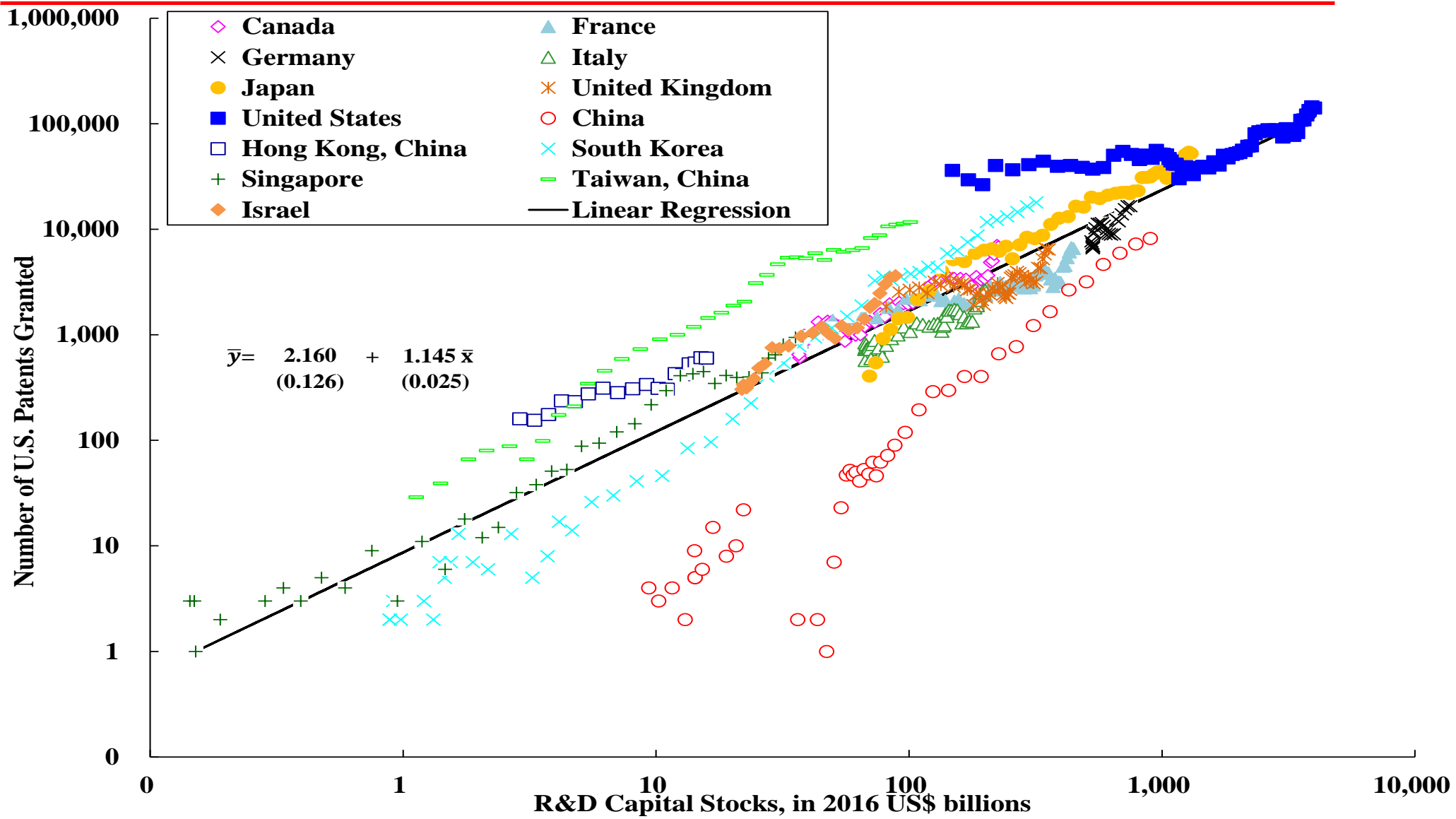
Patents Granted in the United States: G-7 Countries, 4 East Asian NIEs, China & Israel



Investment in Intangible Capital (R&D Capital)

- ◆ The R&D capital stock, defined as the cumulative past real expenditure on R&D less depreciation of 10% per year, is an 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 the following chart, in which the annual number of U.S. patents granted is plotted against the R&D capital stock of that year for each economy).
- ◆ The chart 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 U.S.

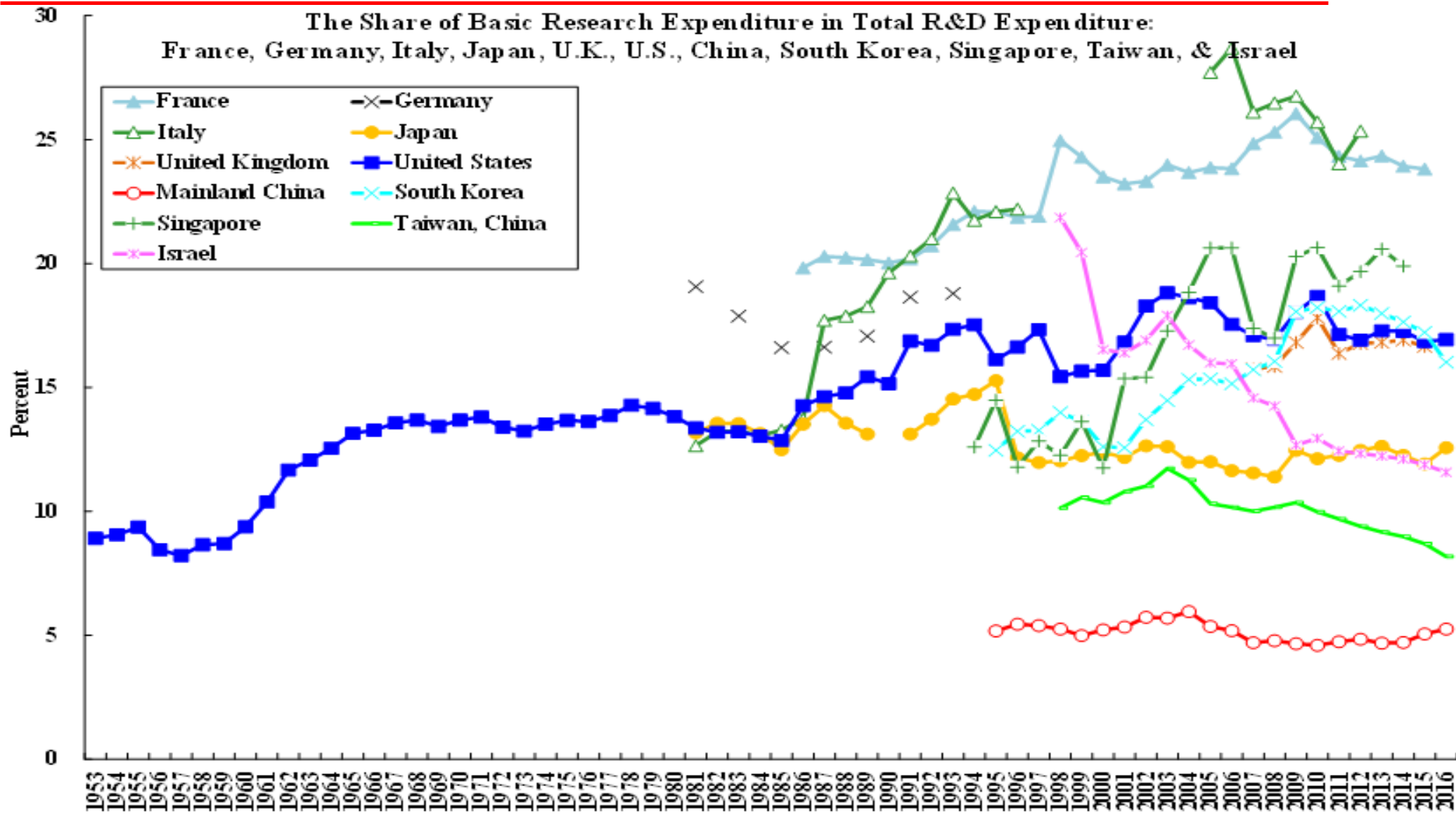
U.S. Patents Granted and R&D Capital Stocks: G-7 Countries, 4 EANIEs, China & Israel



Investment in Intangible Capital (R&D Capital)

- ◆ In order for break-through 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 packets 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 the following chart). China devoted only 5 percent of its R&D expenditures to basic research, compared to the more than 15 percent of the U.S.

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



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.
- ◆ A better way to narrow the U.S. trade deficit with China is for the U.S. to increase its exports of goods and services to China, especially newly created goods and services, for example, by producing and exporting meat (beef, pork and poultry) instead of feed grains (corn and soybeans) to China, and exporting the newly developed liquefied natural gas from Alaska and shale oil from the continental U.S.

Promoting Mutual Economic Interdependence

- ◆ Another fast-growing component of U.S. 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 U.S. have been rising rapidly. Moreover, their presence in the U.S. can enhance the understanding between the Chinese and American people and improve long-term ties. U.S. 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 U.S. for the financing of the renovation and upgrading of U.S. basic infrastructure as well as the augmentation of the equity capital of U.S. corporations.

Promoting Mutual Economic Interdependence

- ◆ 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 and accession to the World Trade Organisation (WTO).
- ◆ However, the U.S. consumers have benefitted from two decades of low prices for their consumer goods. Had U.S. imports from China stayed at 1994 levels, the U.S. Consumer Price Index would have been 27 percent higher in 2017, or approximately 1 percentage point higher annually.
- ◆ Additional benefits for the U.S. include the profits of U.S. corporations earned by their operations within China, such as General Motors and Walmart, as well as the sales of Apple i-phones, which since they are finally assembled within China, are not considered U.S. exports to China.
- ◆ This also does not include the benefits that the U.S. has derived from seigneurage, that is, from being the provider of the international medium of exchange.

Concluding Remarks

- ◆ The competition between China and the U.S., whether friendly or unfriendly, can be assumed to be an ongoing and long-term one. The trade dispute is only a symptom of the potential possible conflicts between the two countries.
- ◆ Graham Allison, a professor at the Kennedy School of Harvard University, has written about the inevitability of a China-U.S. 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 U.S. down the road, China-U.S. 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.

Concluding Remarks

- ◆ China and the rest of the world, except possibly the U.S., will continue to uphold the current multilateral trading system under the World Trade Organisation (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 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.