中国经济增长的长期展望
The Long-Term Prospects for Chinese Economic Growth

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Outline

- Introduction
- Review of the Historical Record
- Recent Economic Trends
- Chinese Economic Fundamentals
- The Long-Term Challenges and Potential Policy Responses
- Projections of the Future
- Concluding Remarks

Introduction

- In order to assess and predict the future prospects of the Chinese economy, we must examine the past and analyse the present, and fully understand the environment that China currently faces, as well as her own strengths and weaknesses.
- The Chinese economy is extremely complex and diverse; and faces many challenges as well as opportunities. We hope to provide a "big-picture" view.
- We begin by putting the Chinese economy in the historical context, going back to the year 1820, in the 19th Century.
- Then we review the Chinese economic record since the establishment of the People's Republic of China in 1949, and discuss the principal Chinese economic development strategies adopted since.

Introduction

- This will be followed by an assessment of the economic fundamentals of China.
- We also identify the differing long-term challenges the Chinese economy faces and the potential policy responses.
- Finally, we make some projections of the future.
- We end with brief concluding remarks.

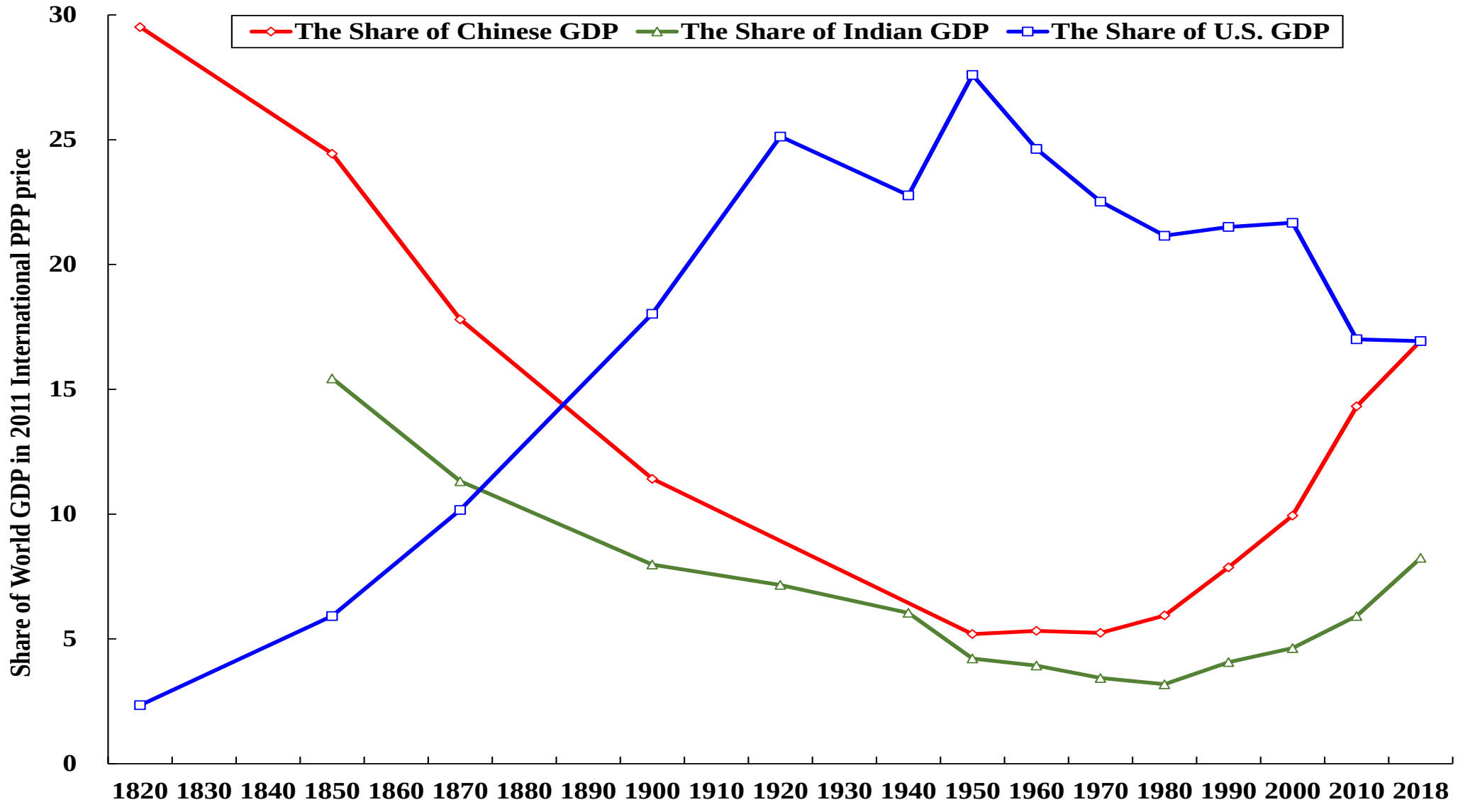
Review of the Historical Record

- The Chinese Economy from 1820 to the Present
- Economic Development since 1949
- Chinese Economic Development Strategies

Review of the Historical Record: The Chinese Economy from 1820 to the Present

- We start with a chart showing the shares of China, India and the U.S. of world GDP since 1820, using data from the (Angus) Maddison Project Database. The data rely on "Purchasing Power Parity (PPP)" international prices, and hence generate slightly different results from those studies that use market prices at official exchange rates.
- 1820 was the last year of the reign of Emperor Jiaqing (嘉慶, 1796-1820) of the Qing Dynasty. Emperor Jiaqing was the son and successor of Emperor Qianlong (乾隆, 1735-1796), under whom China achieved the zenith of its power and wealth. At the time, China supposedly accounted for more than 30 percent of the then world GDP, India between 15 and 20 percent, and the U.S. less than 3 percent.

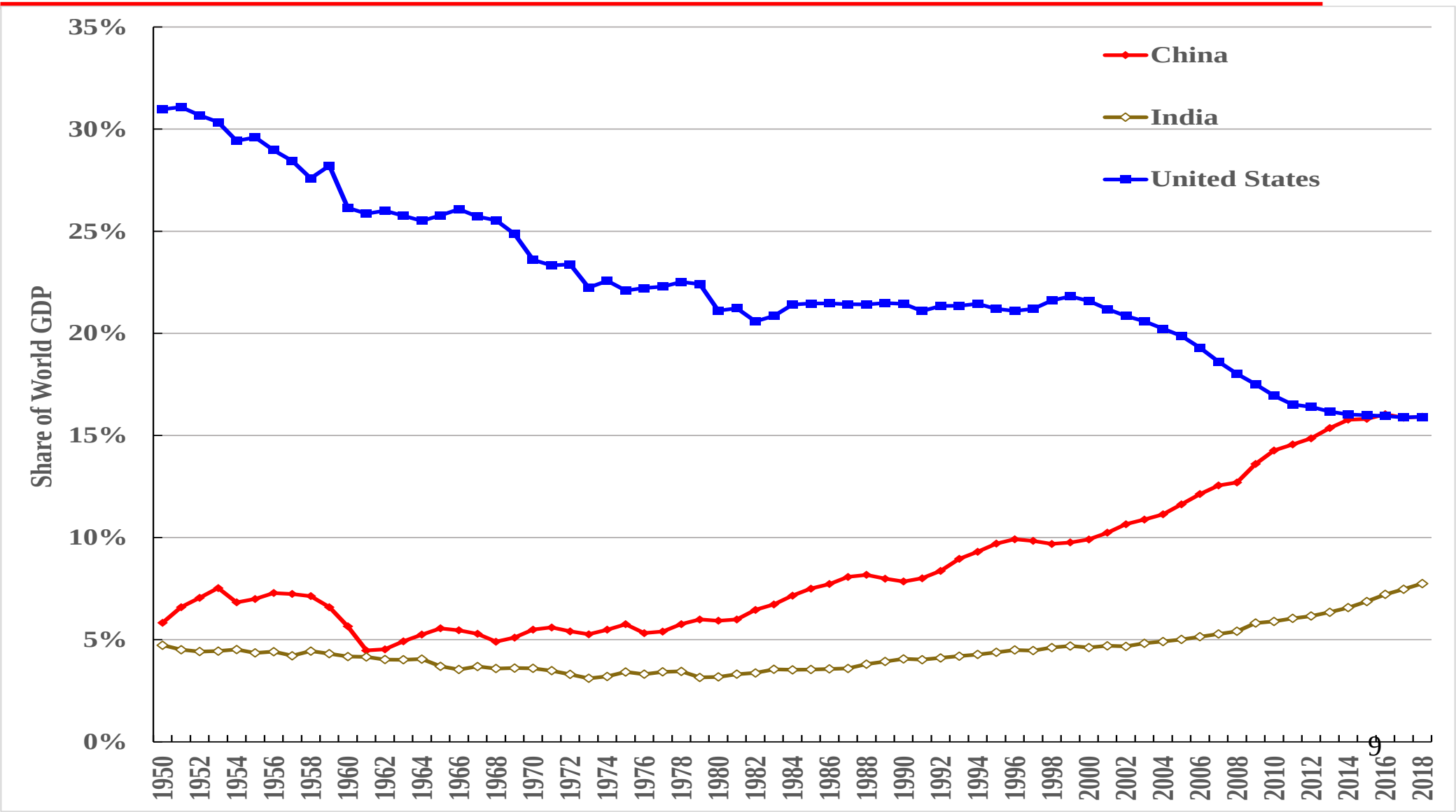
The Shares of World GDP of China, India and the U.S. since 1820 (Maddison Project Database) PPP



Review of the Historical Record: The Chinese Economy from 1820 to the Present

- The U.S. share of world GDP rose steadily to reach a peak of over 30 percent in the aftermath of World War II. By 1960, both the Chinese and Indian shares had fallen below 5 percent. Then they began to recover. The Maddison database shows that, in "Purchasing Power Parity" terms, the Chinese real GDP caught up with U.S. real GDP in 2015. This is also supported by the International Monetary Fund and the World Bank.
- Around 1800, Chinese population may be estimated at 330 million (compared to 1.41 billion today), or approximately 37 percent of the then world population. The Chinese share of world population has since fallen to a little more than 17 percent.
- For various reasons, the Chinese real GDP per capita started to fall continuously until the middle of the 20th Century, to less than US$100 in today's prices, in 1949.

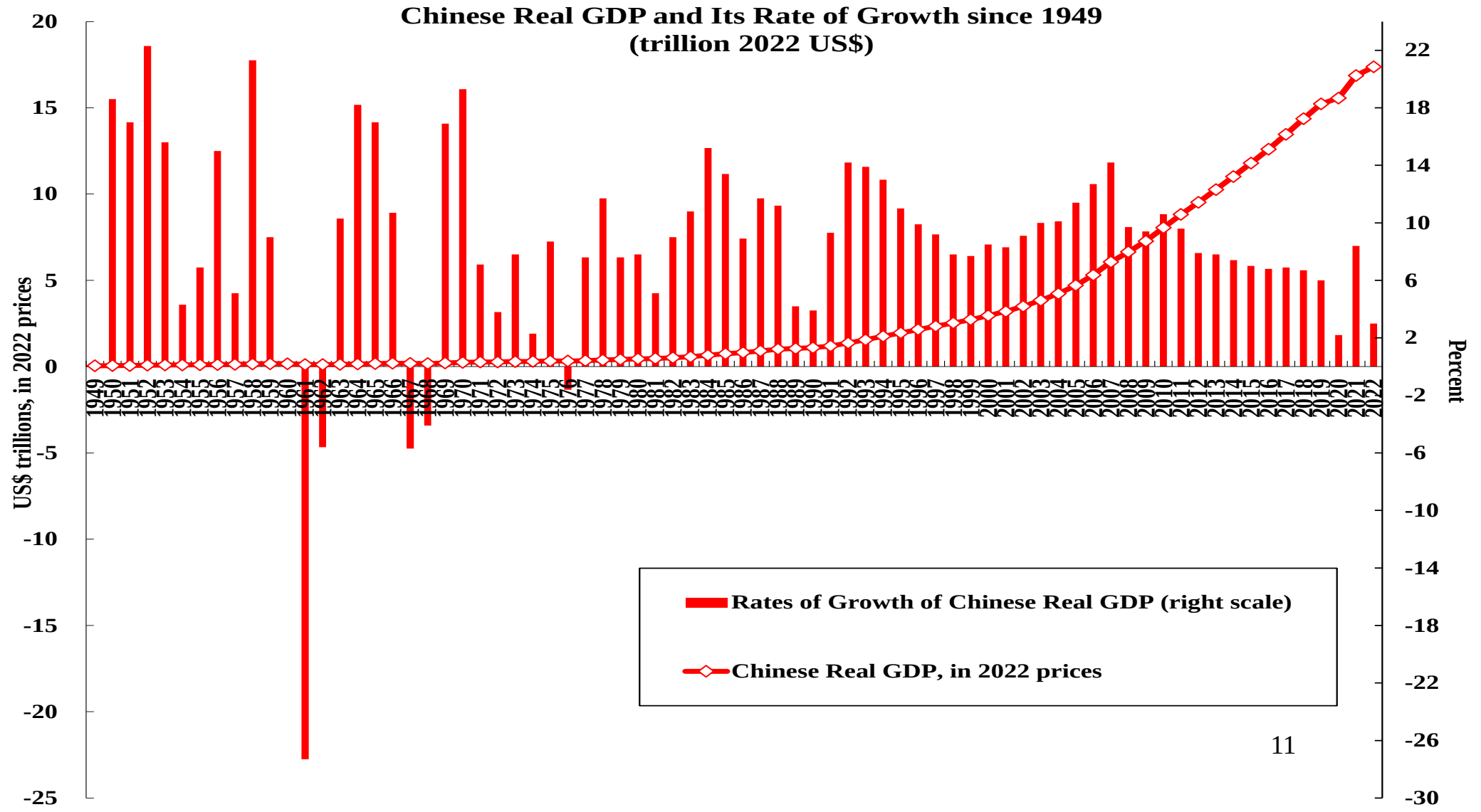
The Shares of World GDP of China, India and the U.S. since 1950 (Maddison Project Database) PPP



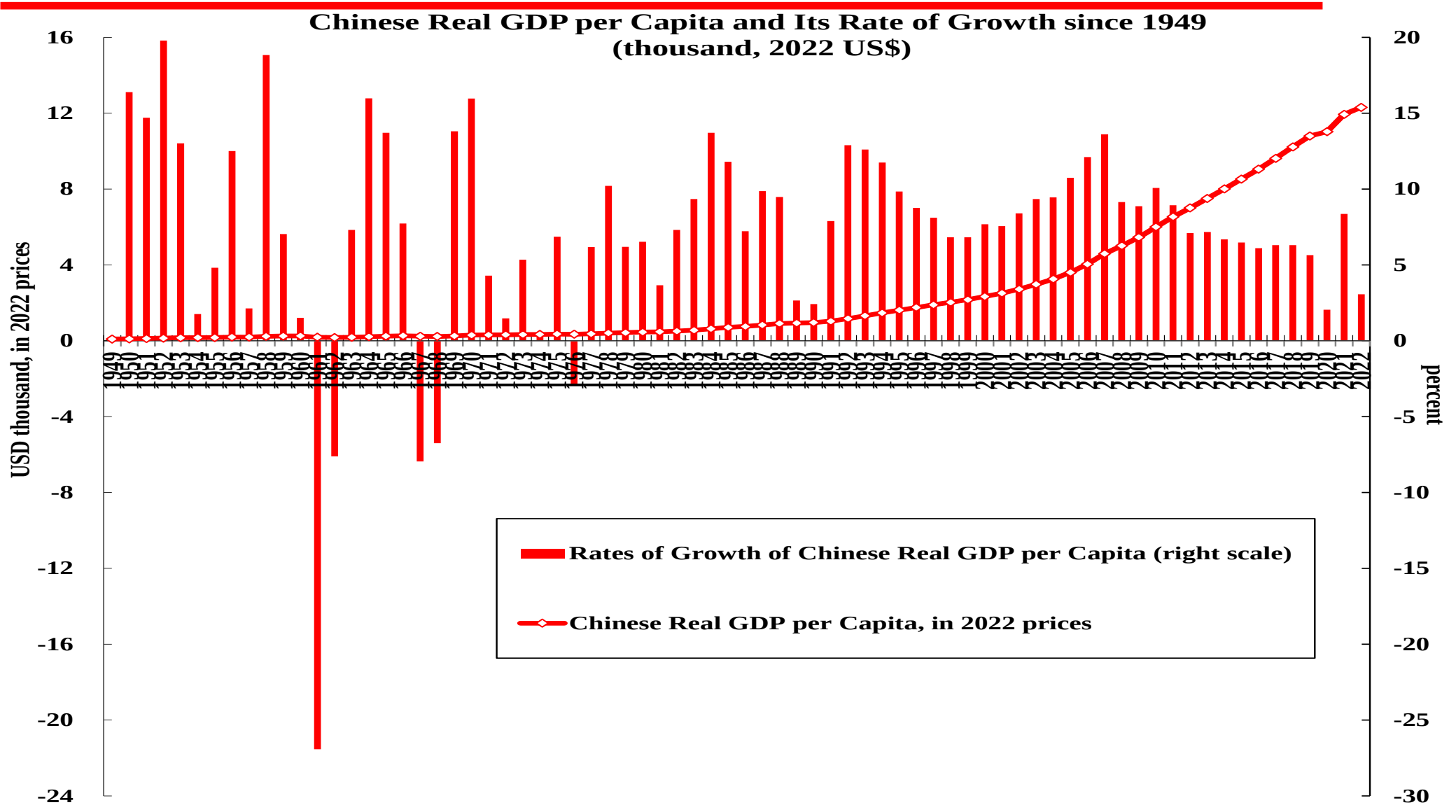
Review of the Historical Record: Economic Development since 1949

- Between 1949 and 2022, Chinese real GDP has grown from 336.7 billion Yuan to 121.0 trillion Yuan (in 2022 prices) (and from US$48.35 billion to US$17.37 trillion, converted at the Yuan/US$ exchange rate at year-end 2022), an almost 360-fold increase (see Chart).
- During the same period, Chinese real GDP per capita has grown more than 130-fold, from 622 Yuan to 85,724 Yuan in 2022 prices (and from US$89.3 to US$12,309) (see Chart). Even then, the Chinese GDP per capita was only one-sixth of that of the U.S., and ranked approximately 74th among all economies in the world.
- Despite the significant fluctuations and volatility of the rates of growth during the 20 years from the late 1950s to the late 1970s, the average annual rates of growth of real GDP and real GDP per capita for the entire period of 73 years from 1949 to 2022 were respectively 8.39% and 6.98%, a truly remarkable achievement over such a long period of time. It is historically unprecedented.

Chinese Real GDP and Its Annual Rate of Growth: 1949-2022



Chinese Real GDP per Capita and Its Annual Rate of Growth: 1949-2022



The Growth of Chinese Real GDP and Real GDP per Capita, 1949-2022

- We can attribute this success largely to the economic reform and opening undertaken in 1978, as well as to the long time horizon of the Chinese economic policy makers and their single-minded focus on economic growth. With a long enough planning horizon, one can afford to undertake investment in development-leading infrastructure, that is, infrastructure the demand for which has not yet materialised but can be created by the supply itself, infrastructure that may take a long time to pay off, or pays off only through externalities. But very often "supply creates its own demand"! Such investment can stimulate demand and further development, but because of its typically long payback periods and inability to internalise the benefits, is unlikely to be undertaken privately.
- Chinese accession to the World Trade Organization (WTO) in 2000 was also pivotal because it enabled the export promotion strategy.
- The Chinese GDP of US$17.37 trillion in 2022 was 68.2 percent of the U.S. GDP of US$25.46 trillion, but Chinese GDP per capita of US$12,309 remained far behind, at only 16.1 percent of the U.S. GDP per capita of US$76,414.

The Growth of Real GDP and Real GDP per Capita, in the Pre-Reform Period, 1949-1978

- If we consider the thirty-year period, 1949-1978, before the beginning of Chinese economic reform and opening to the world, the average annual rates of growth of real GDP and real GDP per capita were respectively 7.46% and 5.35%.
- This economic performance, due in part to the rapid recovery in the rehabilitation period of 1949-1952, was really quite respectable. The Chinese First Five-Year (1953-1957) Plan was also a great success.
- The years of significant negative economic growth in the pre-reform period occurred during the Great Famine of 1959-1961 (in the aftermath of the Great Leap Forward of 1958), and the Great Proletarian Cultural Revolution of 1966-1967.

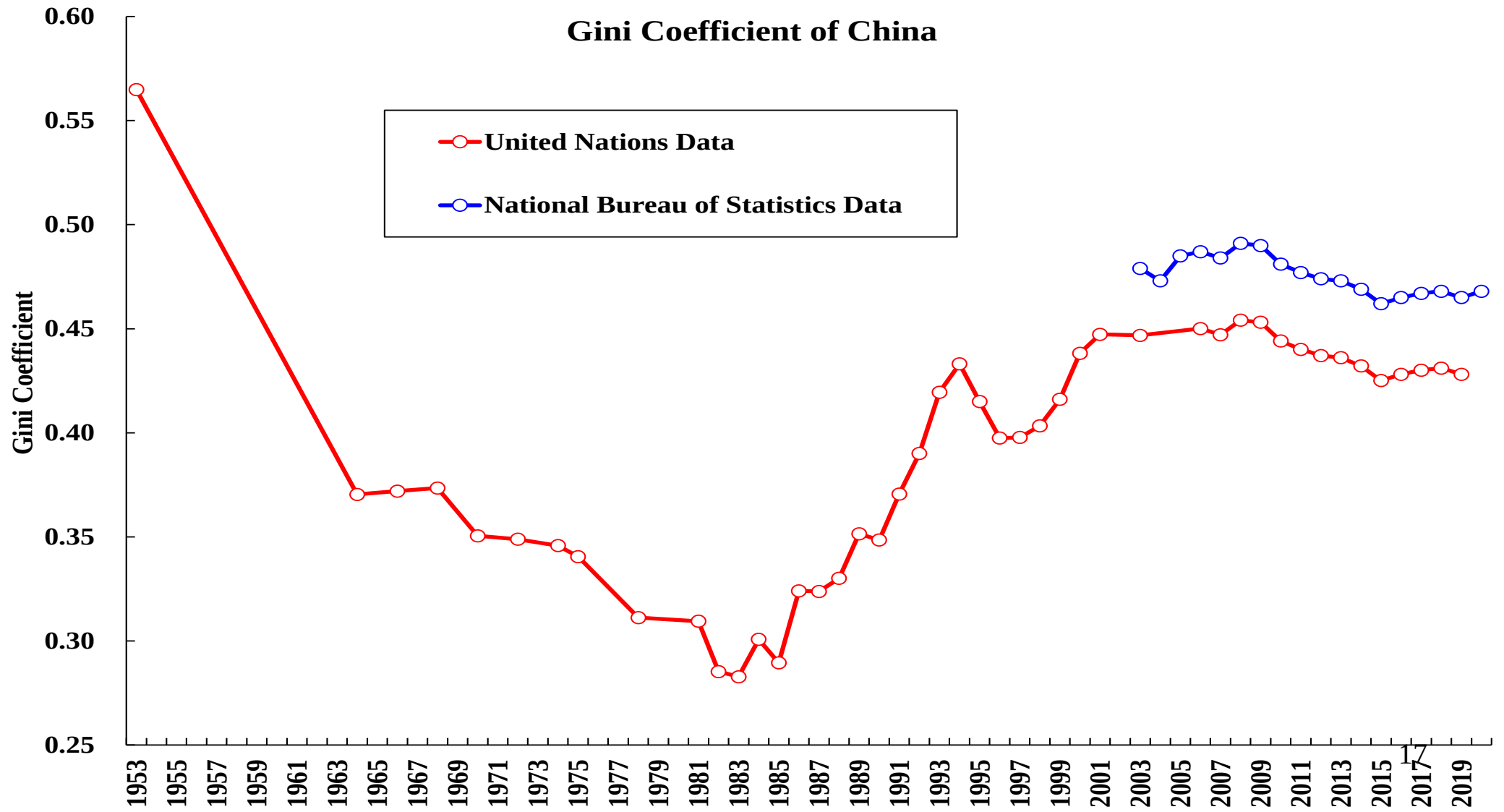
The Growth of Real GDP and Real GDP per Capita in the Post-Reform Period, 1978-2022

- Between 1978, the beginning of the Chinese economic reform and opening to the world, and 2022, real GDP has grown more than 40-fold, from 2.71 trillion Yuan to 121.0 trillion Yuan (in 2022 prices) (and from US$389 billion to US$17.37 trillion). During the same period, real GDP per capita has grown almost 30-fold, from 2,817 Yuan to 85,724 Yuan (and from US$404.4 to US$12,309).
- During this period of more than four decades, there was not one single year in which the rate of growth of real GDP or real GDP per capita turned negative.
- The average annual rates of growth of real GDP and real GDP per capita for the post-reform period from 1978 to 2022 were respectively 9.02% and 8.07%, even higher than the average annual rates of growth achieved since 1949.

Review of the Historical Record: The Rise in the Degree of Income Inequality

- The Gini coefficient is a measure of the degree of income inequality in an economy. Its value ranges from 0 to 1. 0 means perfect equality—all individuals receive the same identical income. 1 means perfect inequality—one individual receives all the income and everyone else receives nothing. The higher the value of the Gini coefficient, the more unequal is the income distribution.
- Historically, the Chinese Gini coefficient fell from 0.56 in 1953 to 0.28 in 1983, its lowest point, a tremendous improvement, according to data compiled by the United Nations. It then turned around and rose to a peak of 0.45 (0.49 according to the National Bureau of Statistics of China (NBSC)) in 2008. It has since declined slightly to 0.43 (0.47 according to NBSC) in 2020, compared to 0.49 for the U.S.
- This is a very high level of income inequality, but consistent with Mr. DENG Xiaoping's policy of letting some people get rich first. It is now time to let the other people get rich too. This is the reason for the "Common Prosperity" policy. (But it is important to distinguish between "common prosperity (共富)" and "equalised prosperity (均富)".)

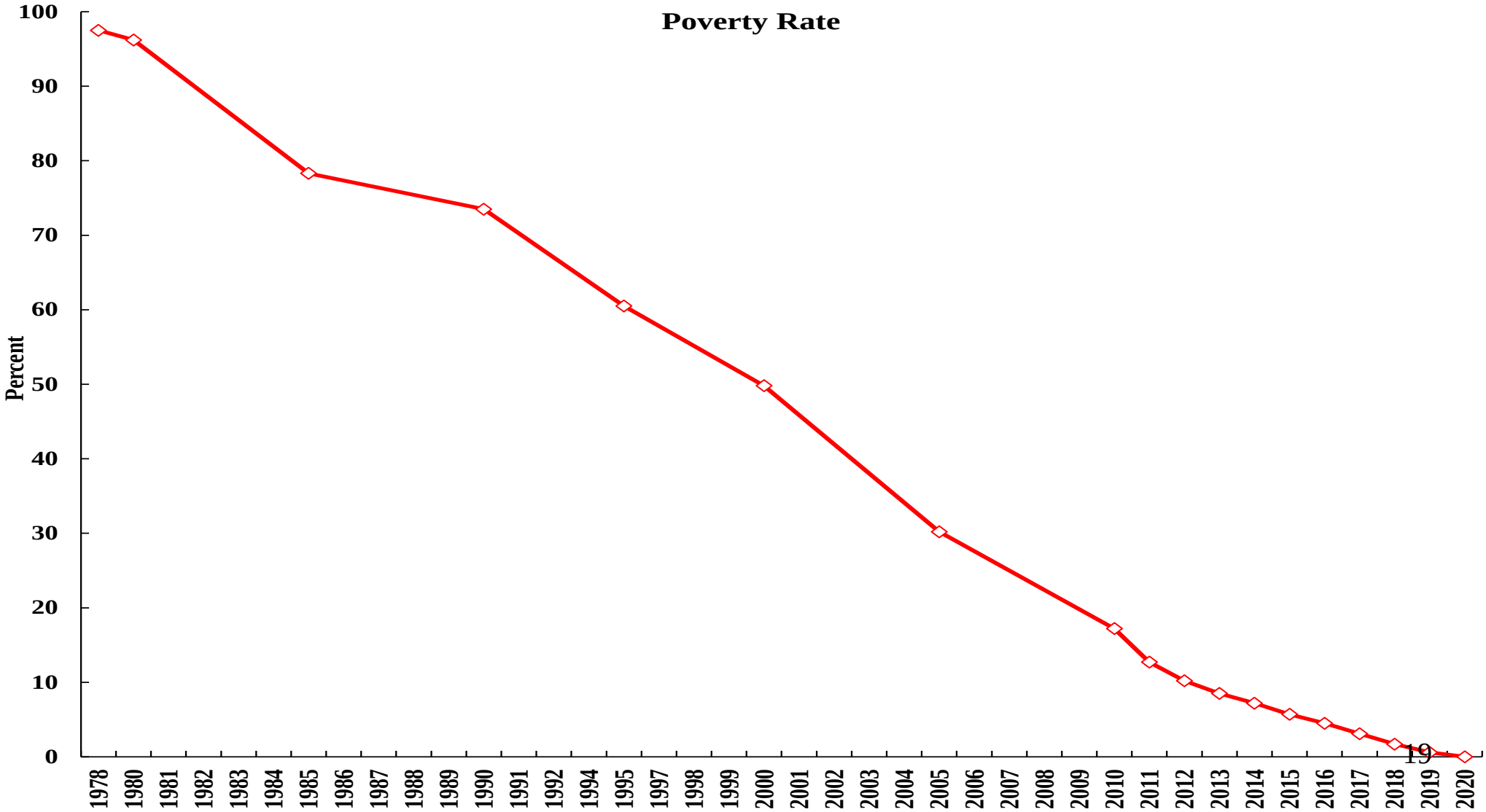
The Distribution of Income: The Evolution of the Chinese Gini Coefficient over Time



Review of the Historical Record: The Eradication of Extreme Poverty

- China has been the most successful in the eradication of chronic extreme poverty.
- The Chinese poverty standard of 2010 defines a family to be in poverty if its annual per capita income is below 2,300 Yuan in 2010 prices. This is equivalent to approximately 3,031 Yuan (**US$435**) in 2022 prices.
- In 1978, before the beginning of the economic reform and opening, the poverty rate according to this standard was a whopping 97.5%! By the end of 2020, it reached zero. Granted that this is still a rather low level of annual income per capita, but at approximately US$1.30 per person per day, it is slightly higher than the United Nations standard of one U.S. Dollar a day.
- We should emphasise that this is a permanent eradication of extreme poverty, rather than a one-off relief. The formerly extremely poor are now able to provide a decent living for themselves in a sustainable manner because of improvements of education or infrastructure.

The Eradication of Extreme Poverty: The Share of Population under the 2010 Poverty Line (%)



Chinese Economic Development Strategies since 1978: Economic Reform

- Under central economic planning, the Chinese economy operated in the interior of its set of production possibilities rather than on the frontier, that is, it was not efficient. The introduction of the free market with producer autonomy facilitated the movement of the economy from the interior to the frontier of its set of production possibilities, thus increasing output without an increase in inputs (with the possible exception of labour, which arguably had a marginal product close to zero at the time). Another implication of marketisation was the re-introduction of private enterprises and its co-existence with state-owned enterprises in the Chinese economy.
- China successfully navigated the transition from a centrally planned economy to a market economy and avoided the use of the "big bang reform" or "shock therapy". One important idea was "new rules for mew people, and old rules for old people (新人新辦法，舊人舊辦法)", which protected the existing vested interests. It enabled the economic reform to be Pareto-improving. China was able to achieve "reform without losers".

Chinese Economic Development Strategies since 1978: Opening to the World

- Opening to the world meant that exports and imports, as well as foreign direct investment, would be allowed. Initially, these activities were conducted only in special "export-processing zones" (Shenzhen, Shantou, Xiamen and Zhuhai, with Hainan added later) to prevent their interruption of the central economic plan.
- In 1994, there was the unification of the multiple exchange rates, coupled with a significant devaluation of the Renminbi, and the adoption of full current-account convertibility for the Renminbi.
- In 2000, China acceded to the World Trade Organization (WTO).

Chinese Economic Development Strategies since 1978: Increasing Capital Accumulation

- In 1949, China had abundant surplus labour. In order to increase the rate of growth of real GDP, it must increase the capital intensity, that is, the capital-labour ratio. It must therefore increase the rate of capital accumulation. It did this mostly by increasing the national savings rate through controlling consumption.
- One instrument used was the setting of the wage rate. Since the Chinese Government was, from the 1960s until the beginning of economic reform in 1978, the sole employer in the urban area, it was able to adopt a low-wage (and essentially no income tax) policy, and this resulted in a low share of labour and a rising national savings rate.
- The low-wage policy was continued after the launch of the economic reform and opening in 1978. As a result, the Chinese share of labour in GDP has remained relatively low compared to other economies.

The Low-Wage Policy: The Share of Labour in GDP

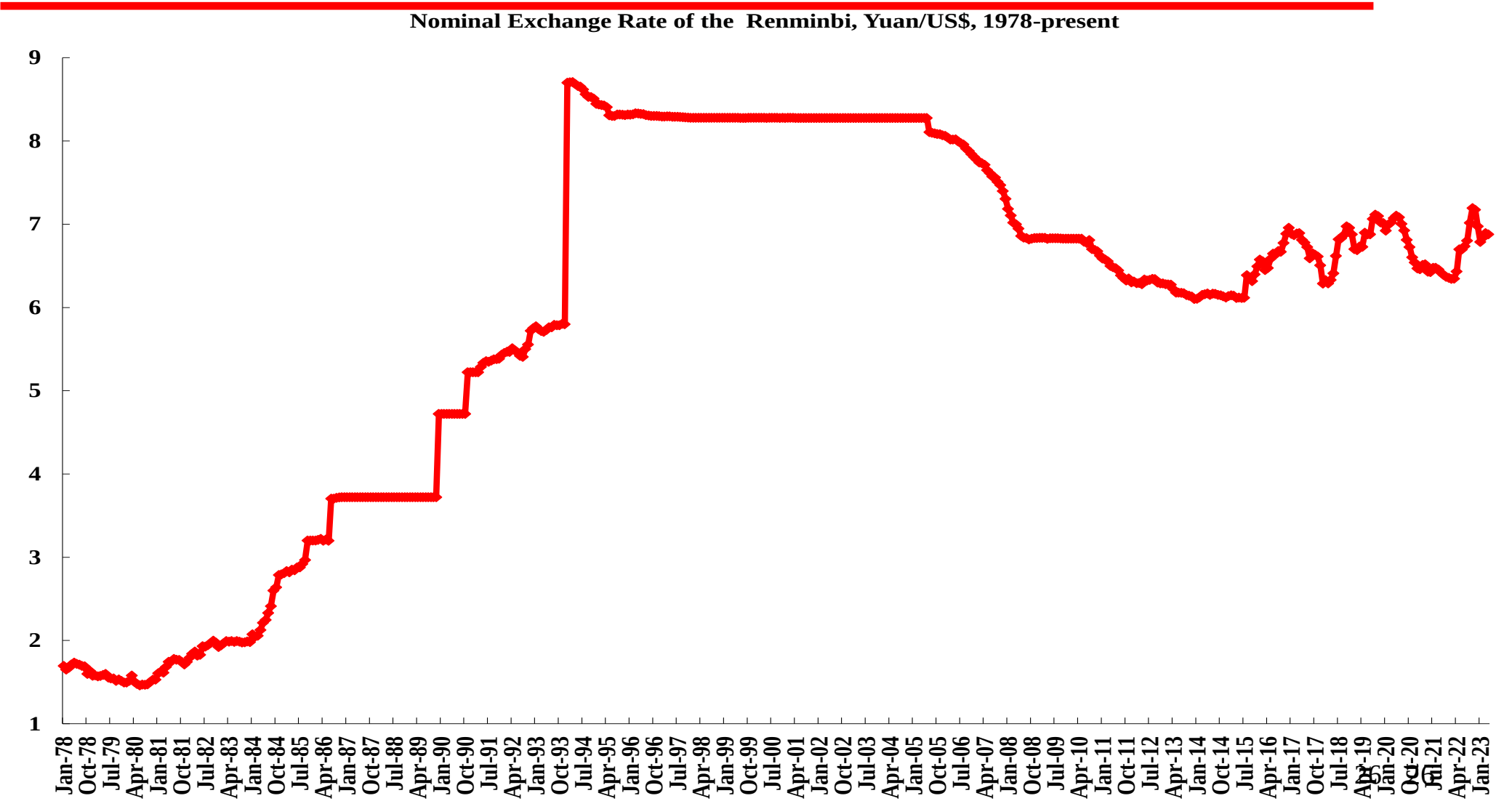
Chinese Economic Development Strategies since 1978: Increasing Capital Accumulation

- In 1980, the "one-child policy" was introduced, based on an analysis by State Counsellor Professor SONG Jian. This policy also had the effect of supressing consumption at the household level and hence increasing the national savings rate, which eventually rose to above 45%, keeping up the rate of growth of the real capital stock of China and the continued increase in capital intensity. The one-child policy was finally terminated in 2015. In addition, by controlling the growth of its population, China also made sure that it would always have a sufficient domestic food supply to feed its people.
- The increased savings enabled the Central Government to expand its investment in development-leading infrastructure, including communication, transportation, and power. These "development-leading" infrastructural investments helped to stimulate additional investment and demand and facilitated further economic development and growth.

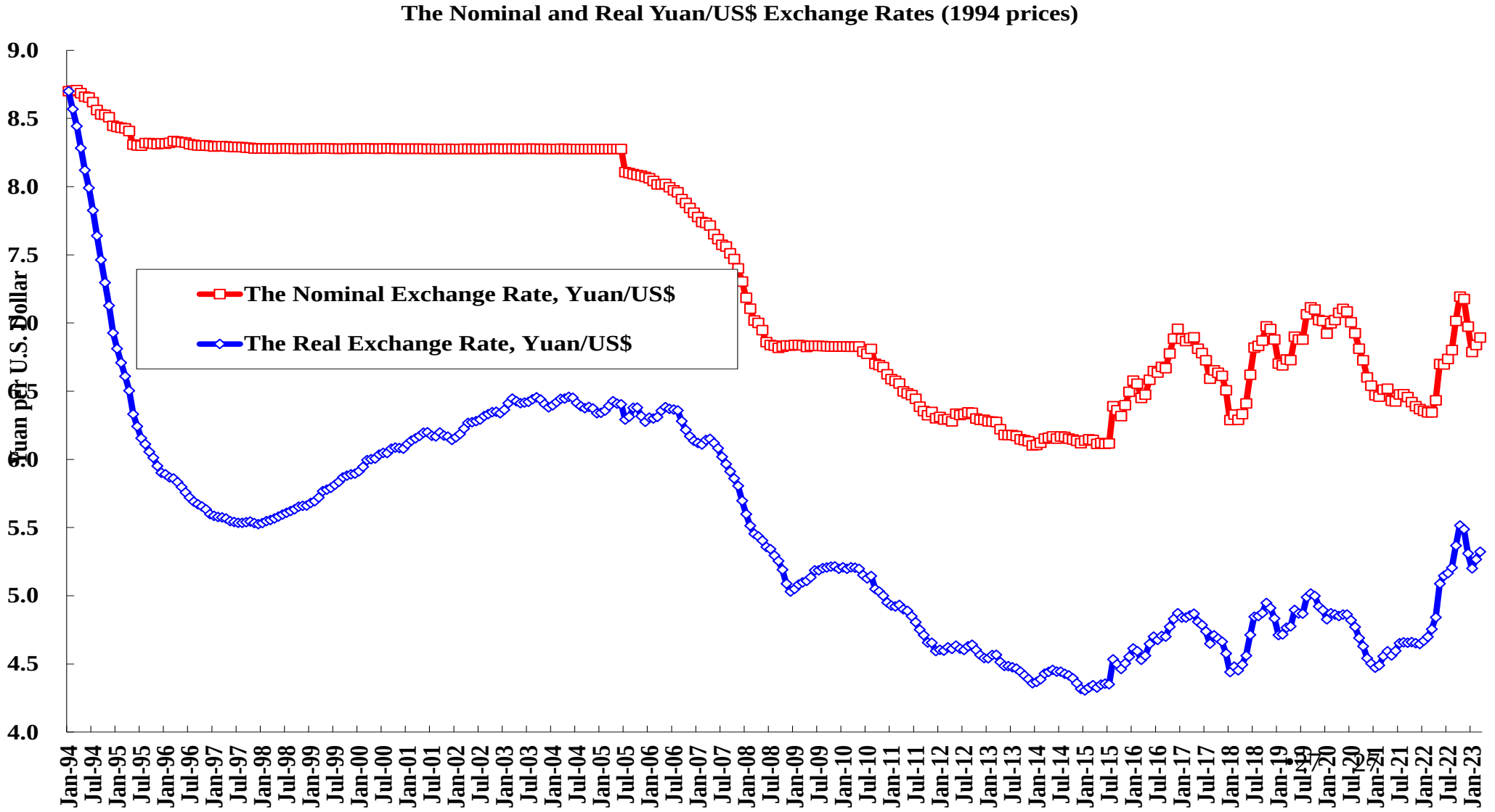
Chinese Economic Development Strategies since 1978: Promotion of Exports

- Almost all East Asian economies, beginning with Japan, and followed by Hong Kong, Singapore, the Province of Taiwan, South Korea, Thailand, Malaysia, Vietnam and others, have adopted the export promotion strategy at the beginning of their economic development. The Mainland China is no exception.
- With the opening of the economy to the world, China also adopted the export promotion strategy. This was supported by a series of devaluations of the Renminbi vis-à-vis the U.S. Dollar, including a significant one at the beginning of 1994, and the adoption of current-account convertibility, and coupled with the establishment of export-processing zones.
- The result was a substantial growth of Chinese exports and imports (to provide the equipment and inputs for the exports) beginning in 1980. The growth further accelerated after Chinese accession to the World Trade Organization in 2000.

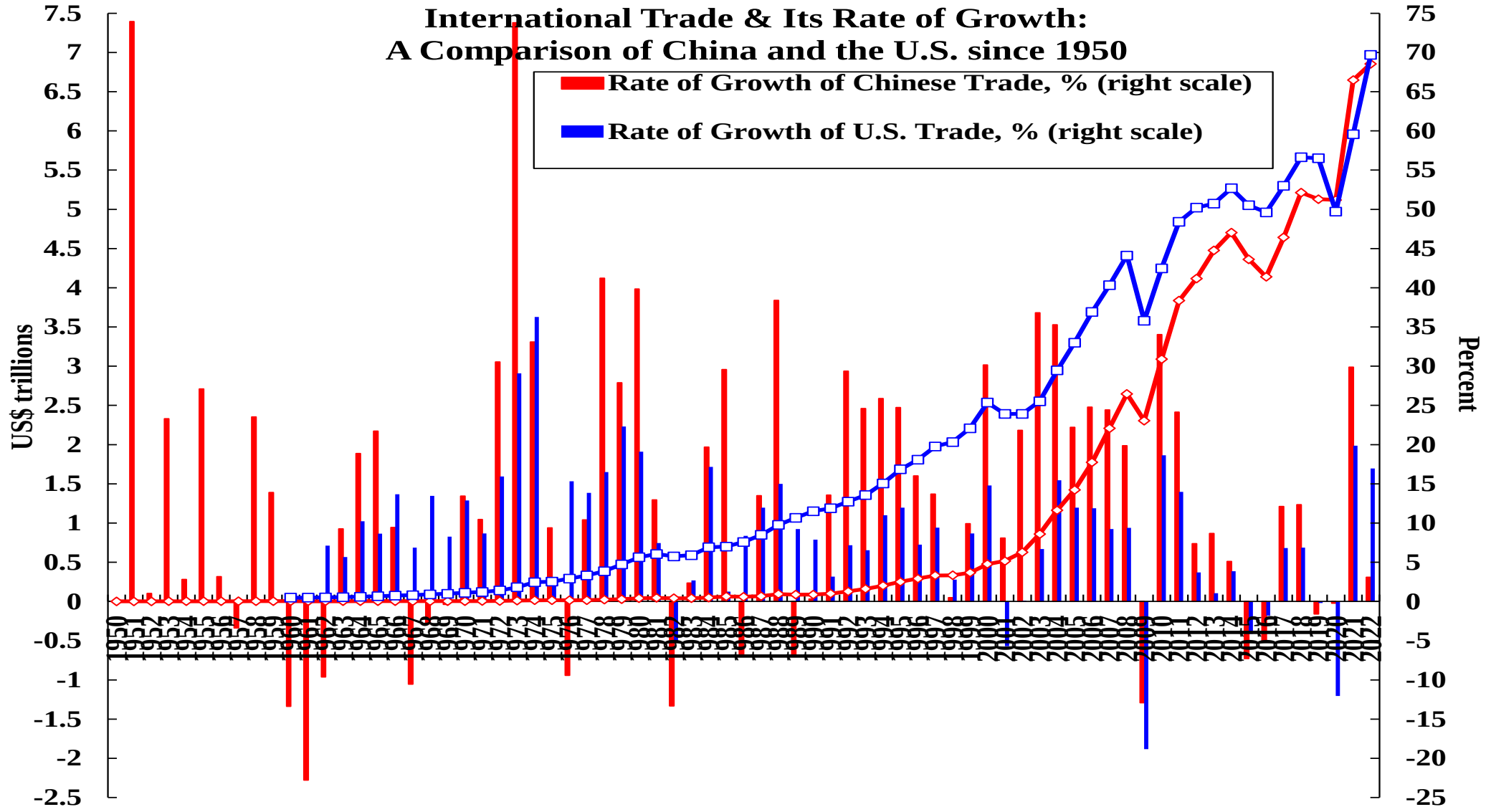
Nominal Exchange Rate of the Renminbi, Yuan/US$, 1978-the Present



The Nominal and Real Yuan/US$ Exchange Rates, 1994-the Present



The Growth of Mainland Chinese and U.S. International Trade in Goods and Services



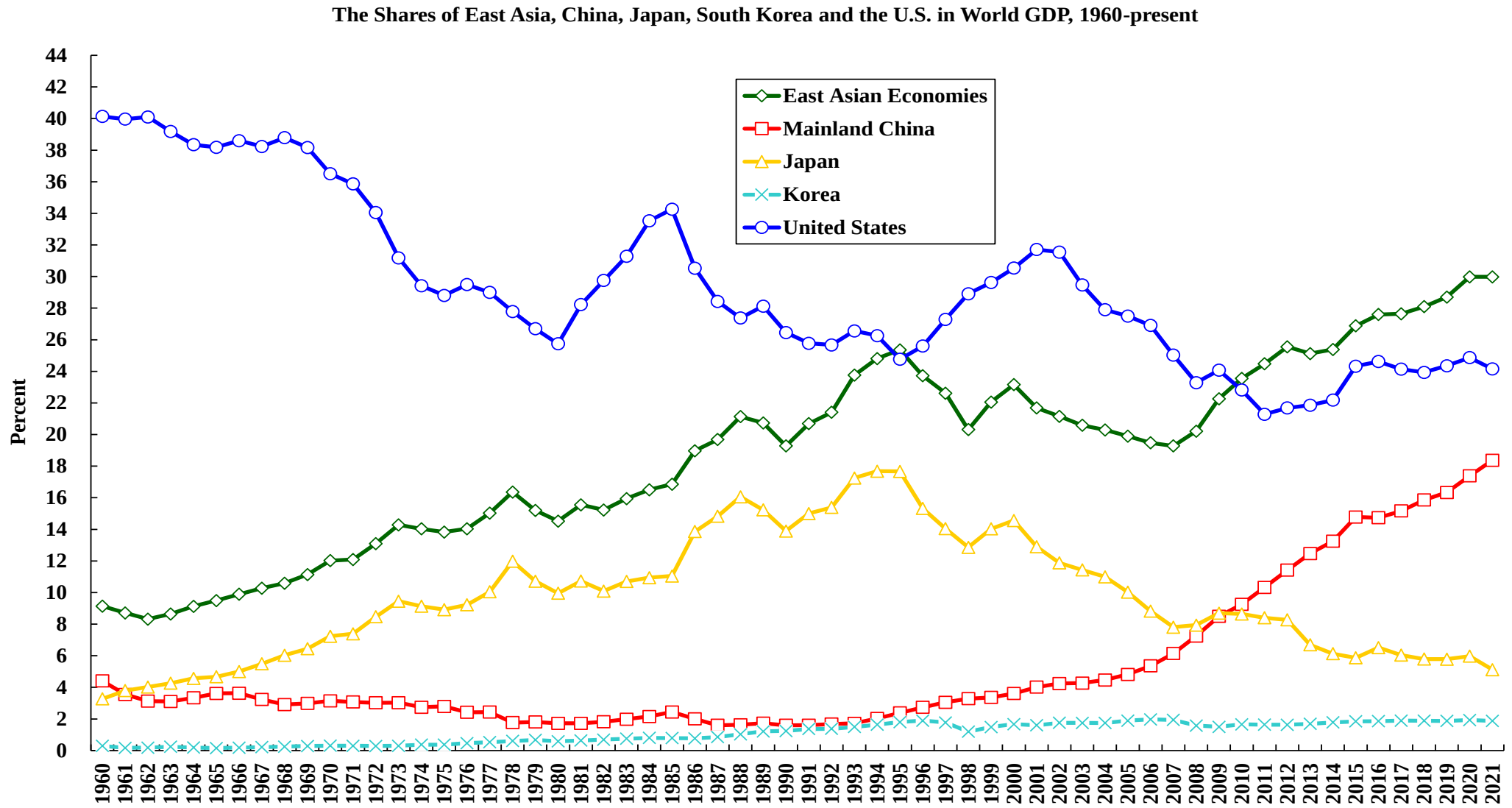
Recent Economic Trends: The Shifting Centres of Gravity of the World Economy

- Since 1960, the centre of gravity of the world economy has been shifting from North America and Europe to East Asia. And within East Asia, it has been shifting from Japan to China since the mid-1990s .
- This shift can be seen in real GDP, international trade, manufacturing value-added, wealth, innovation and currency settlement.

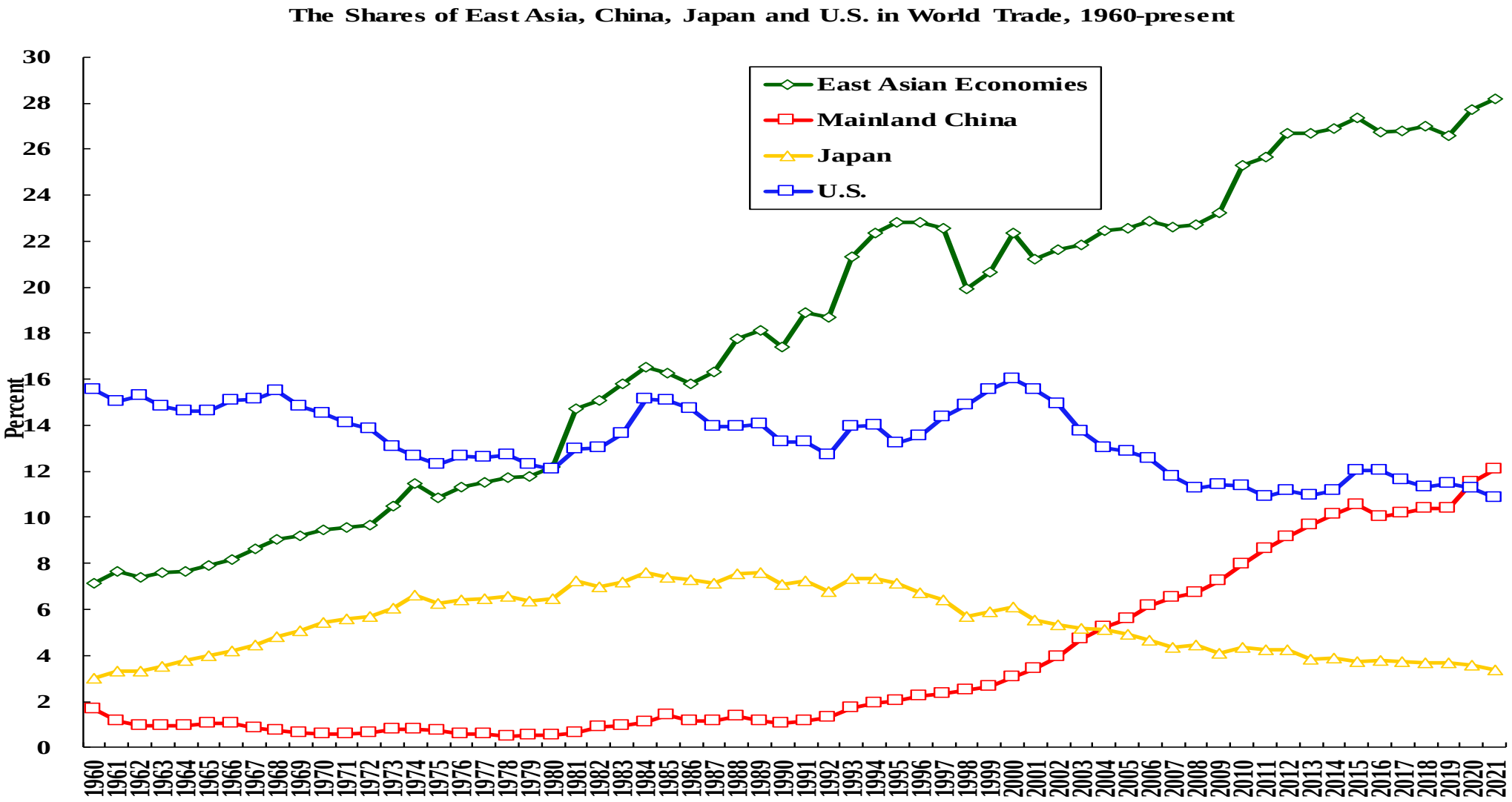
The Shifting Centres of Gravity of the World Economy: Real GDP, Trade, & Manufacturing

- In world GDP at market prices, between 1960 and 2021, the share of the U.S. declined from 40% to just above 20%; and the share of Mainland China rose from less than 5% to 18%. The share of East Asia as a whole rose from less than 10% to almost 30%.
- In international trade at market prices, between 1960 and 2021, the share of the U.S. declined from 16% to just above 10%; and the share of Mainland China rose from 2% to over 10%. The share of East Asia as a whole rose from less than 7% to 28%.
- In manufacturing value-added, in 2020, the share of East Asia was over 40%; the share of Mainland China was over 25%, and the shares of both the European Union and the U.S. had declined to 18%.
- Given that the East Asian economies have been growing at higher rates than both North America and Europe, it is inevitable that the East Asian share of world GDP will eventually surpass that of the Euro Zone and the U.S. combined.

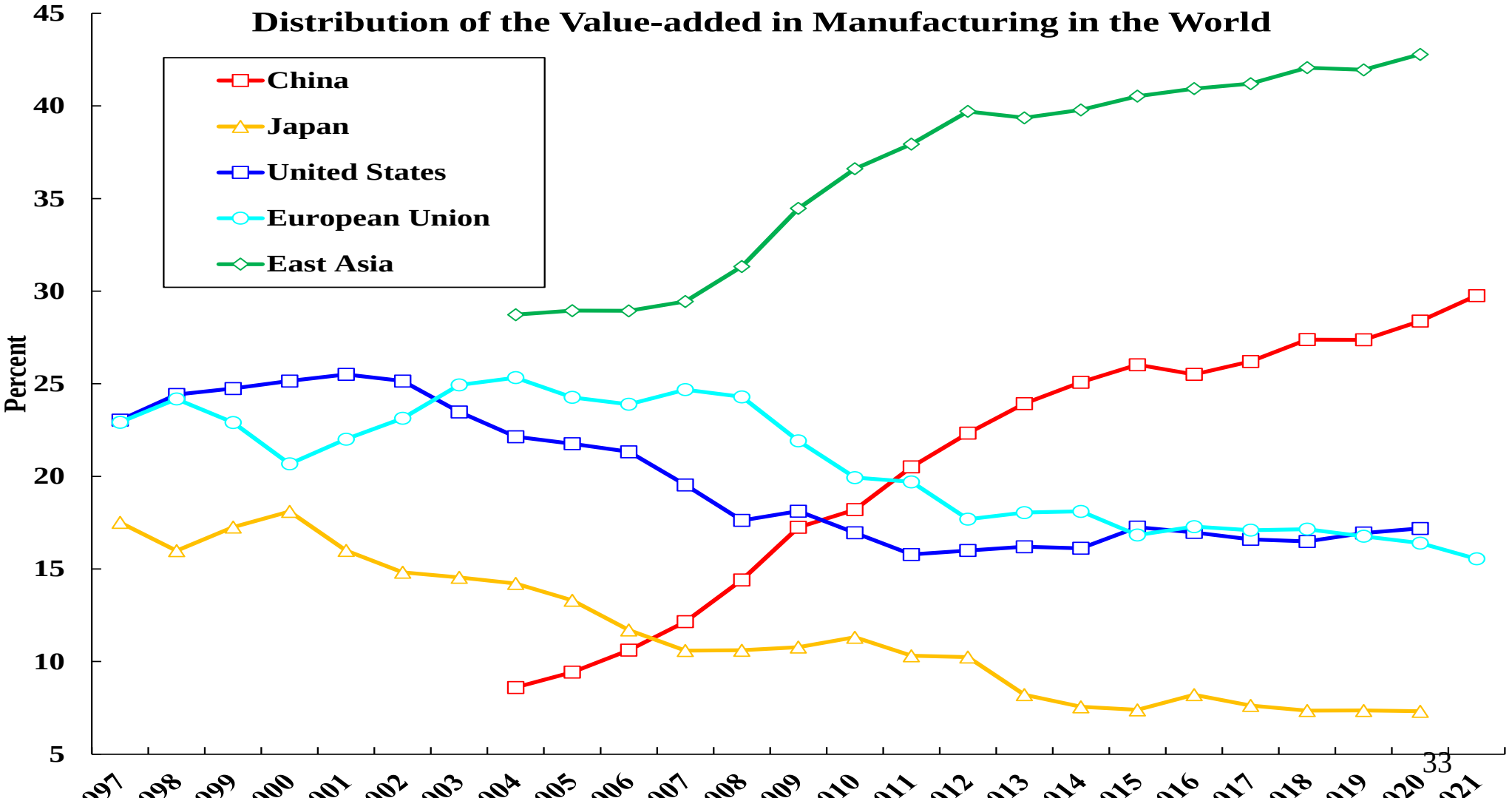
The Shares of East Asia, China, Japan, South Korea and the U.S. in World GDP, 1960-2021



The Shares of East Asia, China, Japan and the U.S. in World Trade, 1960-2021



The Shares of the Value-Added of East Asia, China, EU, Japan & the U.S. in World Manufacturing



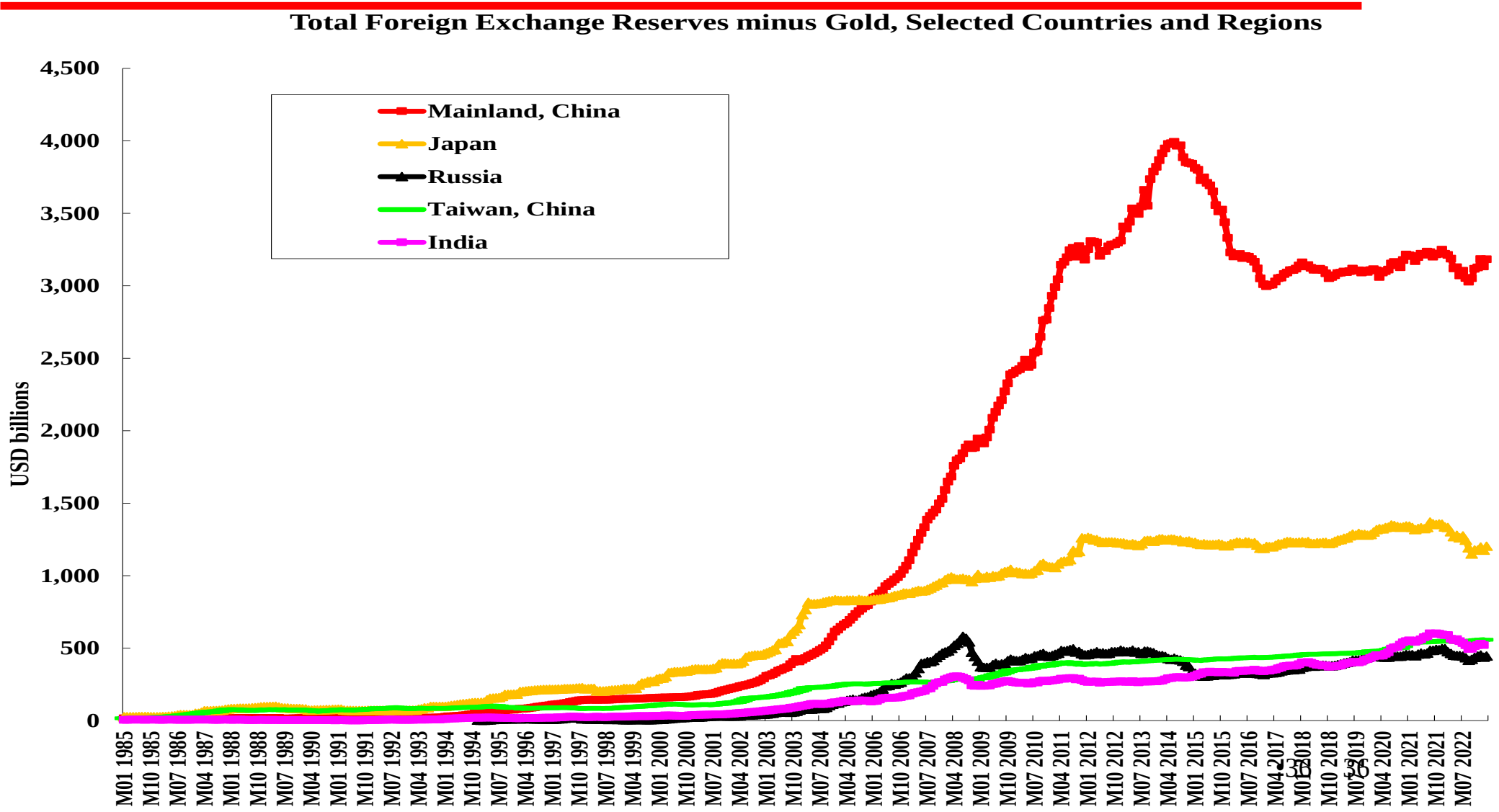
The Shifting Centres of Gravity of Individual, Corporate and Sovereign Wealth in the World

- According to the 2023 survey done by the Forbes magazine, there were a total of 2,640 US$ billionaires in the world, amongst whom U.S. citizens accounted for 735 and Chinese (including Hong Kong and Macau) citizens accounted for 562. A similar survey by Hurun concluded that there were a total of 3,112 US$ billionaires in the world, amongst whom U.S. citizens accounted for 691 and Chinese citizens accounted for 969. Even though the exact numbers and rankings differ, it is unmistakable that Chinese household wealth is at least of the same order of magnitude as U.S. household wealth. Of course, there may well be even many more unknown US$ billionaires in China. The aggregate Chinese household wealth has also been increasing rapidly with the emergence of a sizeable middle class.

The Shifting Centres of Gravity of Individual, Corporate and Sovereign Wealth in the World

- During the past four decades, many successful enterprises, both state-owned and private, have emerged in China. The 2022 Fortune Top 500 list included 145 Chinese firms and 124 U.S. firms. The aggregate revenue of the Chinese firms on the list has exceeded that of the U.S. firms on the list for the first time in 2022.
- China today has the world's largest foreign exchange reserves, at more than US$3 trillion, followed by Japan with approximately US$1 trillion. The central banks of Japan and China are also the largest and second largest holders of U.S. Treasury and Agency securities.

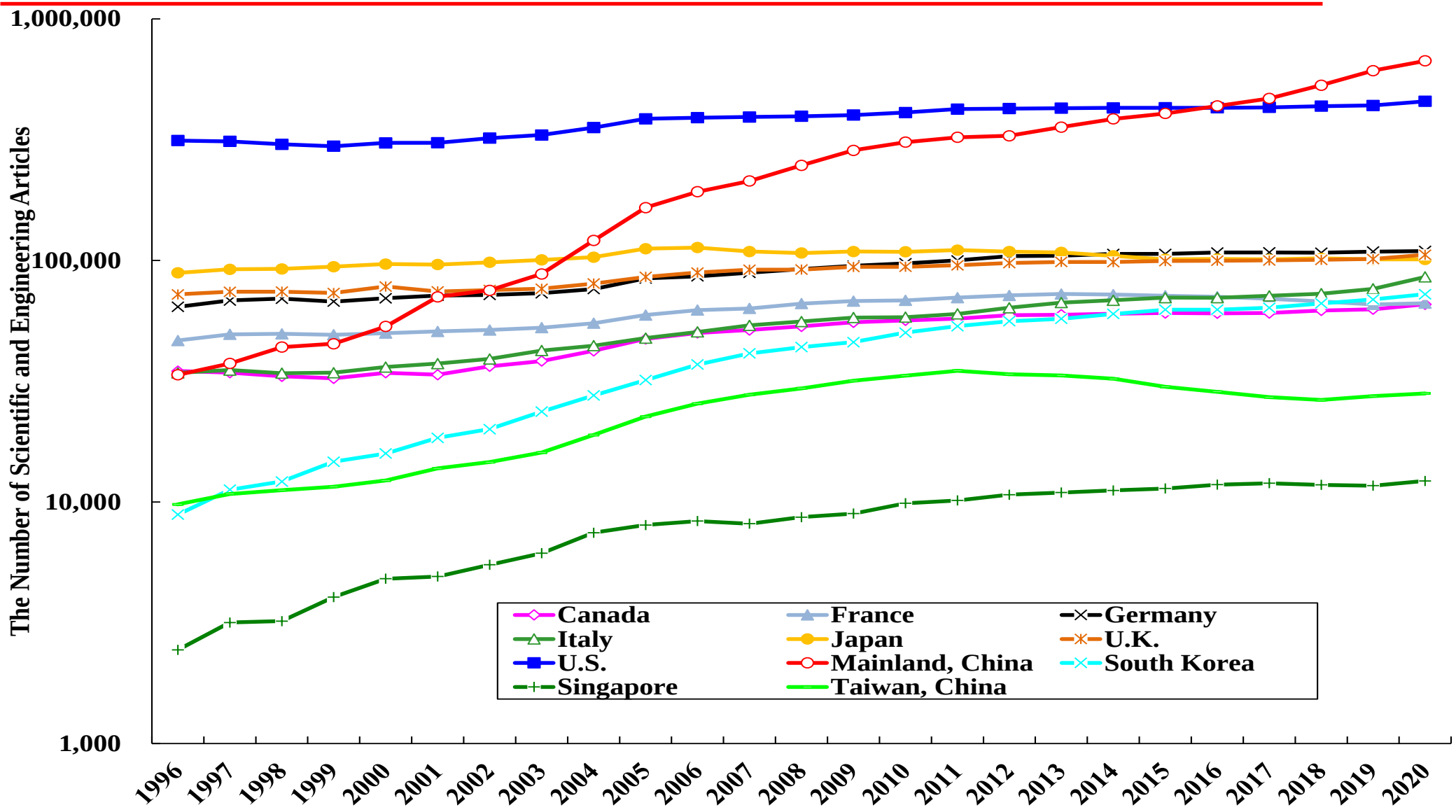
Total Foreign Exchange Reserves minus Gold, Selected Countries and Regions



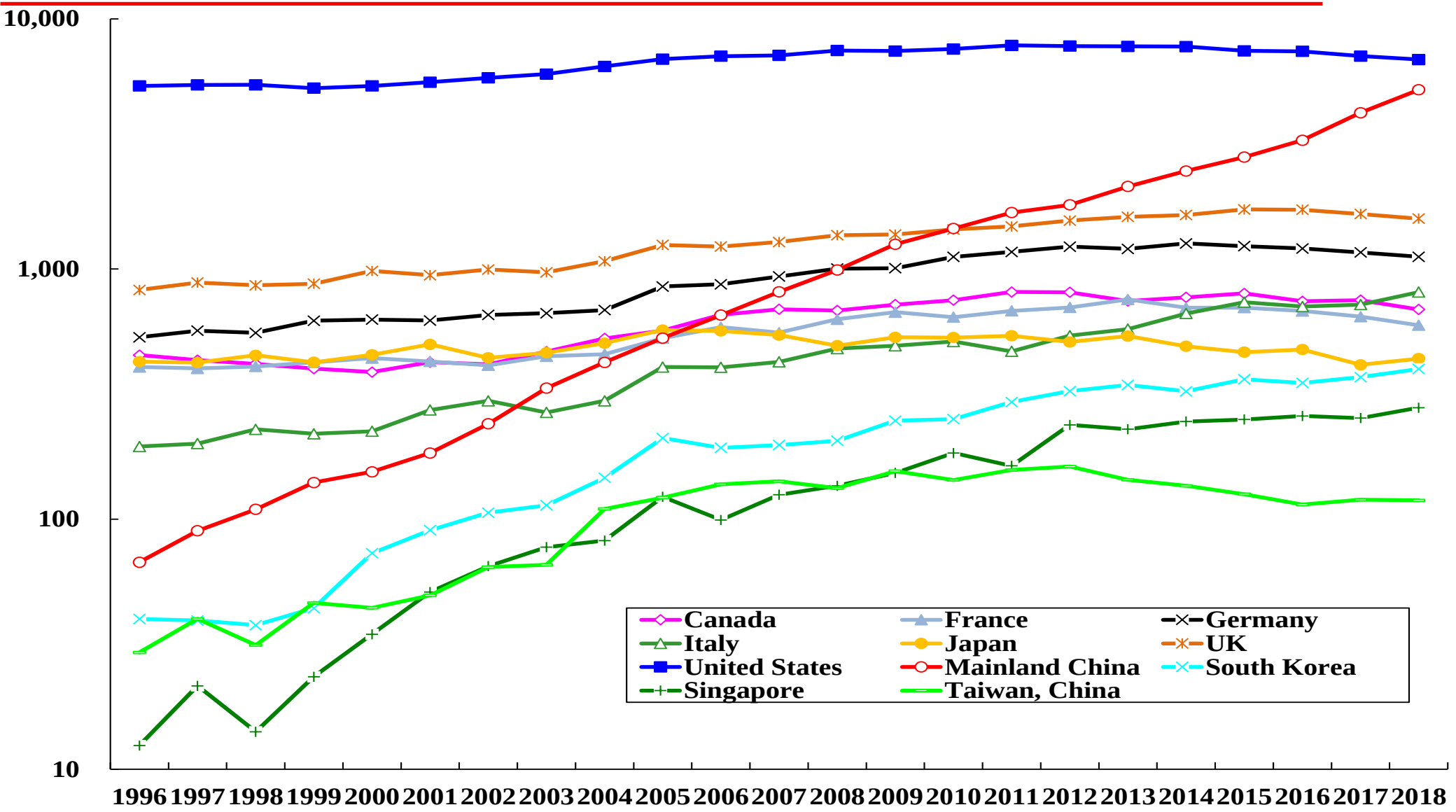
The Centre of Gravity of World Innovation: Scientific and Engineering Articles Published

- Since 2014, China has also strengthened intellectual property right protection significantly by establishing special intellectual property courts with sole nationwide jurisdiction over such matters.
- The total number of science and engineering scholarly articles published in international professional journals by Chinese authors exceeded that by U.S. authors in 2016. Chinese authors now collectively publish the largest number of such articles in the world.
- A recent study published in the journal Scientometrics shows that Chinese and U.S. authors were neck and neck in the number of top 1% most cited scientific articles in 2019. China had trailed the U.S. and the European Union countries for many years.

The Centre of Gravity of World Innovation: Scientific and Engineering Articles Published

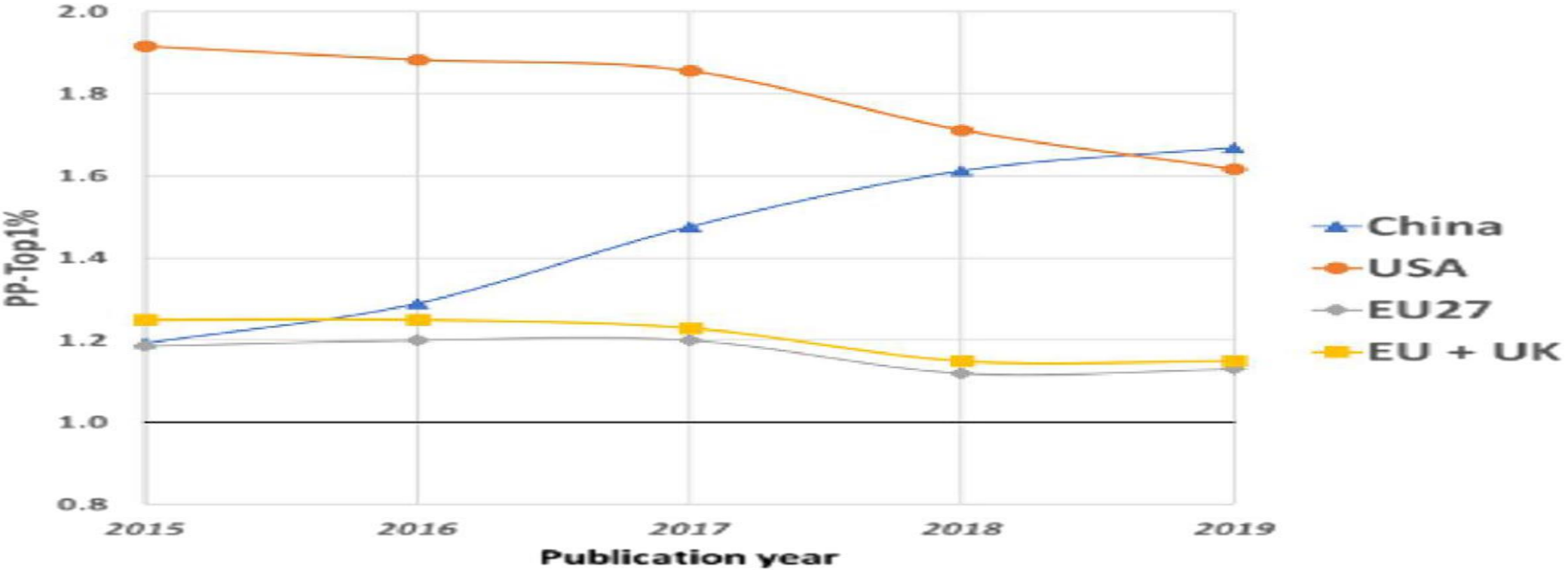


The Centre of Gravity of World Innovation: The Number of Top 1% Most Cited Articles



The Centre of Gravity of World Innovation: The Number of Top 1% Most Cited Articles

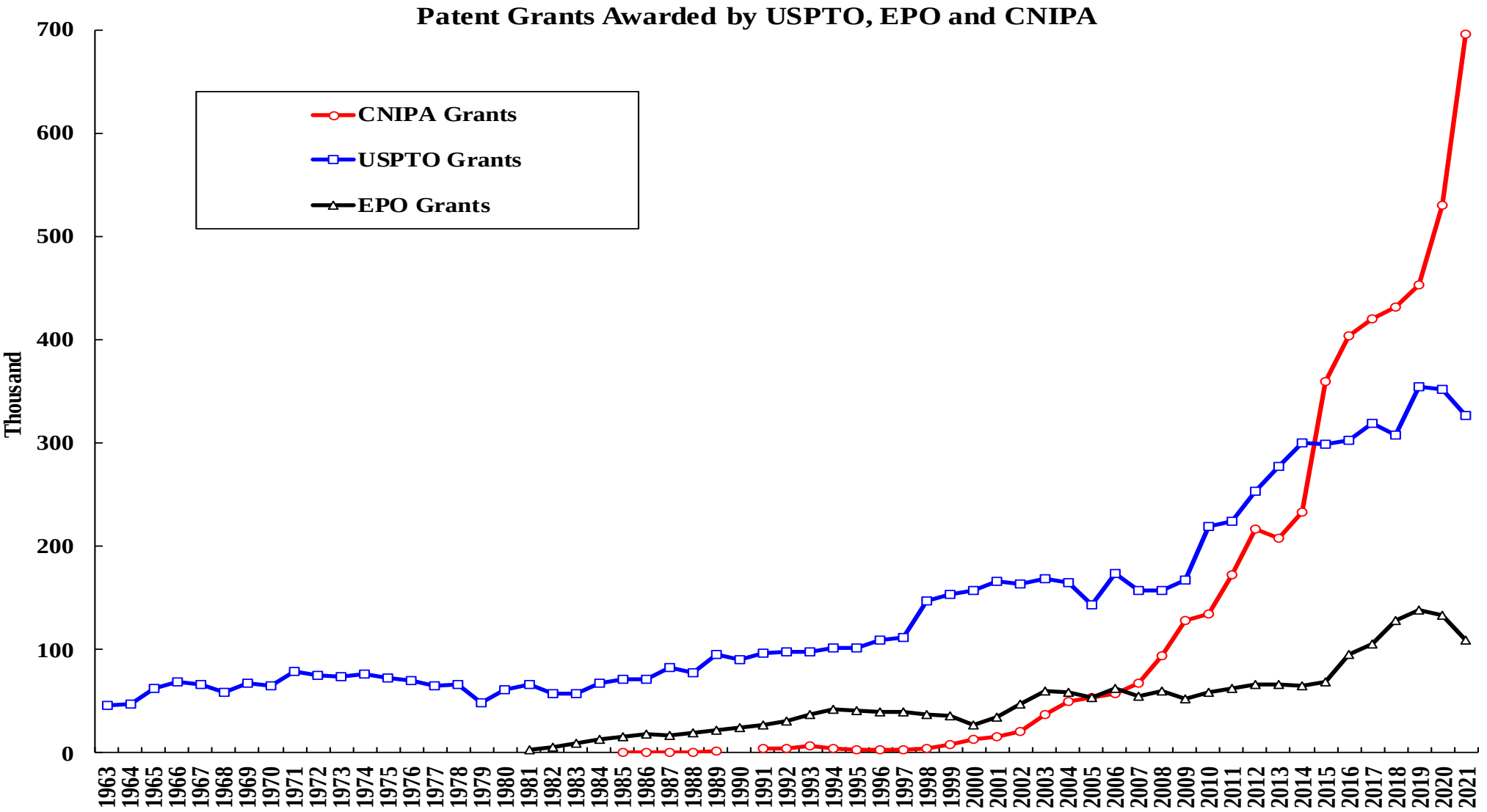
- Caroline S. Wagner,· Lin Zhang and · Loet Leydesdorff, "A discussion of measuring the top-1% most-highly cited publications: quality and impact of Chinese papers," *Scientometrics*, March 2022, Fig. 2.



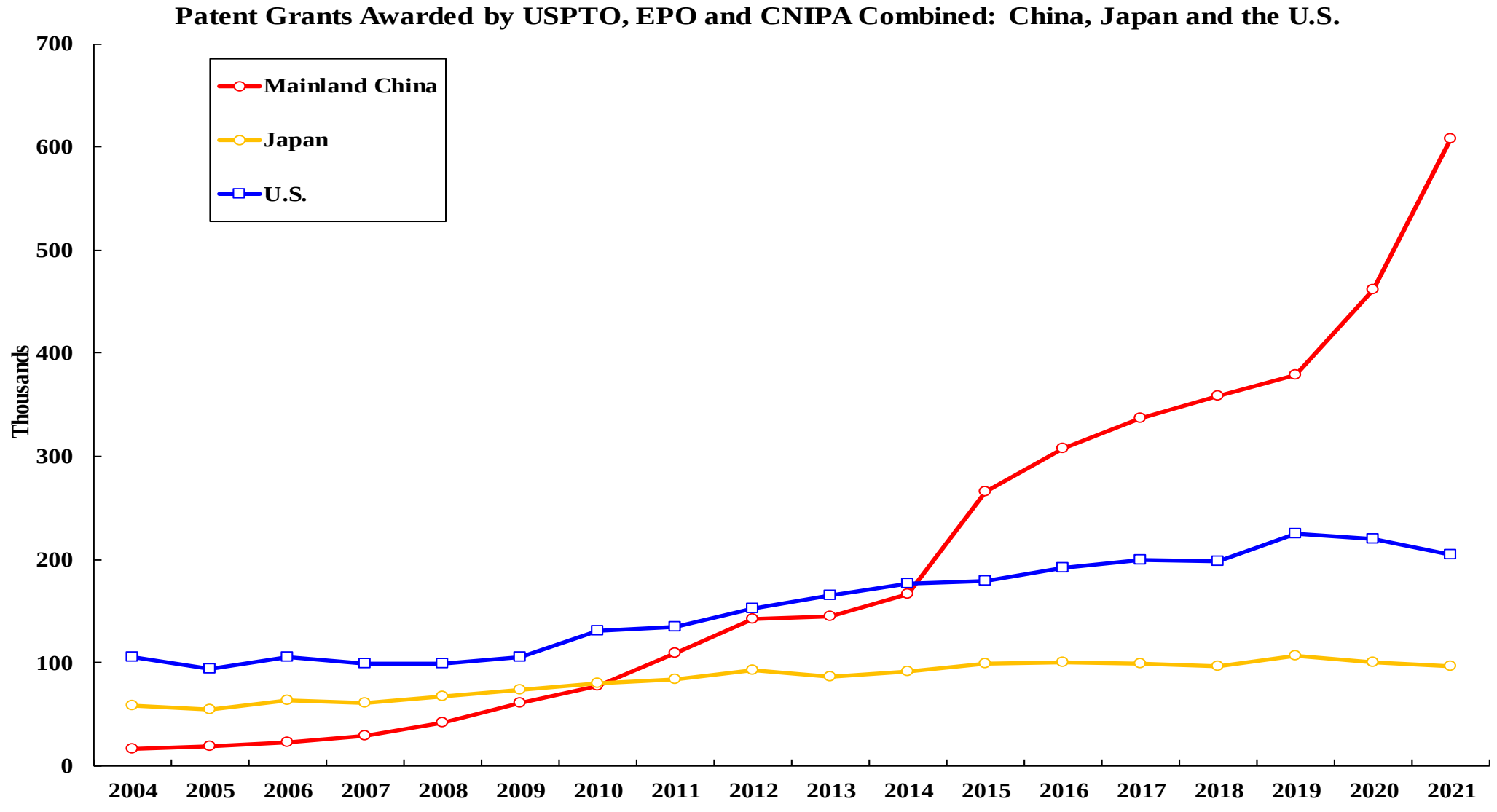
The Shifting Centre of Gravity of World Innovation: Patents Awarded

- The total numbers of patents awarded to discoverers and inventors worldwide by respectively the United States Patent and Trademark Office (USPTO) (blue line), the European Patent Office (EPO) (black line), and the China National Intellectual Property Administration (CNIPA) (red line), have all been increasing by leaps and bounds in recent years, but especially for CNIPA.
- China is now also the recipient of the largest number of patent grants in the world from these three patent offices combined (red line), followed by the U.S. (blue line) and Japan (yellow line).

Total Number of Patent Grants Awarded Worldwide by USPTO, EPO and CNIPA



Total Patent Grants Awarded by USPTO, EPO and CNIPA: Mainland China, Japan & the U.S.



The Shifting Centres of Gravity of World Innovation: Super-Computers

- In a list of the "Top 500" fastest super-computers in the world, ranked by their computational speeds, published in June 2023, 150 were in the U.S., 134 were in China, and 33 in Japan. The currently fastest super-computer is supposed to be the "Frontier" in Oak Ridge, Tennessee, U.S.A.
- However, there are a number of supercomputers in China that did not participate in the ranking contest of 2023. Moreover, some of the Chinese supercomputers were reportedly built entirely with domestically produced components and parts.

The Shifting Centre of Gravity of the World Economy: The Internationalisation of the RMB

- One notable development is the gradual internationalisation of the Renminbi. The Renminbi has been a current-account convertible currency since 1994. Its value comes from the Renminbi's purchasing power over Chinese goods, services and assets. In fact, offshore Renminbi is fully convertible in Hong Kong. China's capital controls only apply to certain capital flows into and out of Mainland China.
- If bilateral transactions between two countries can be settled in their own national currencies rather than in a third-country currency like the U.S. Dollar, the transaction costs and the exchange rate risks are both reduced, because only one currency exchange is required and hence only one exchange rate risk exists. Thus, both countries can benefit with own-currency settlement. If the settlement is made in a third-country currency, two currency conversions are required, transaction costs are doubled, and two exchange rate risks are incurred. Own-currency settlement benefits both the exporting and the importing country.

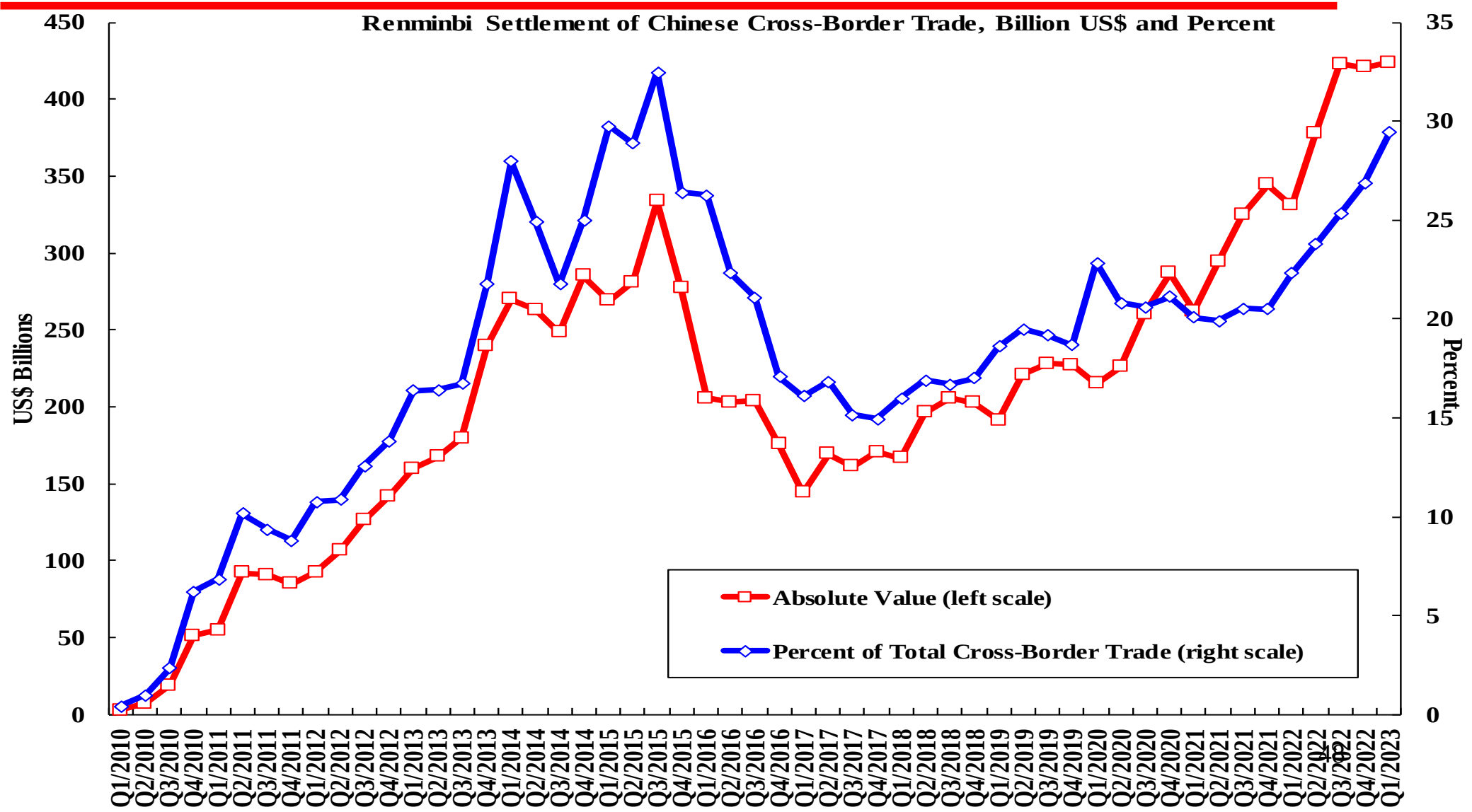
The Shifting Centre of Gravity of the World Economy: The Internationalisation of the RMB

- More and more countries have signed own-currency settlement agreements with China. For example, in trade with China, both Indonesia and Russia use their own respective national currencies, the rupee or the ruble, together with the Chinese yuan, to settle. More recently, countries such as Argentina, Brazil and Saudi Arabia have also agreed with China to settle their bilateral trade with China in their own respective currencies and the Yuan.
- The Society for Worldwide Interbank Financial Telecommunication (SWIFT) international payment system for the U.S. Dollar is increasingly weaponised under U.S. pressure, forcing many countries to look for alternatives. The use of the United States dollar as an international medium of exchange or store of value by third countries is likely to decrease gradually over time.

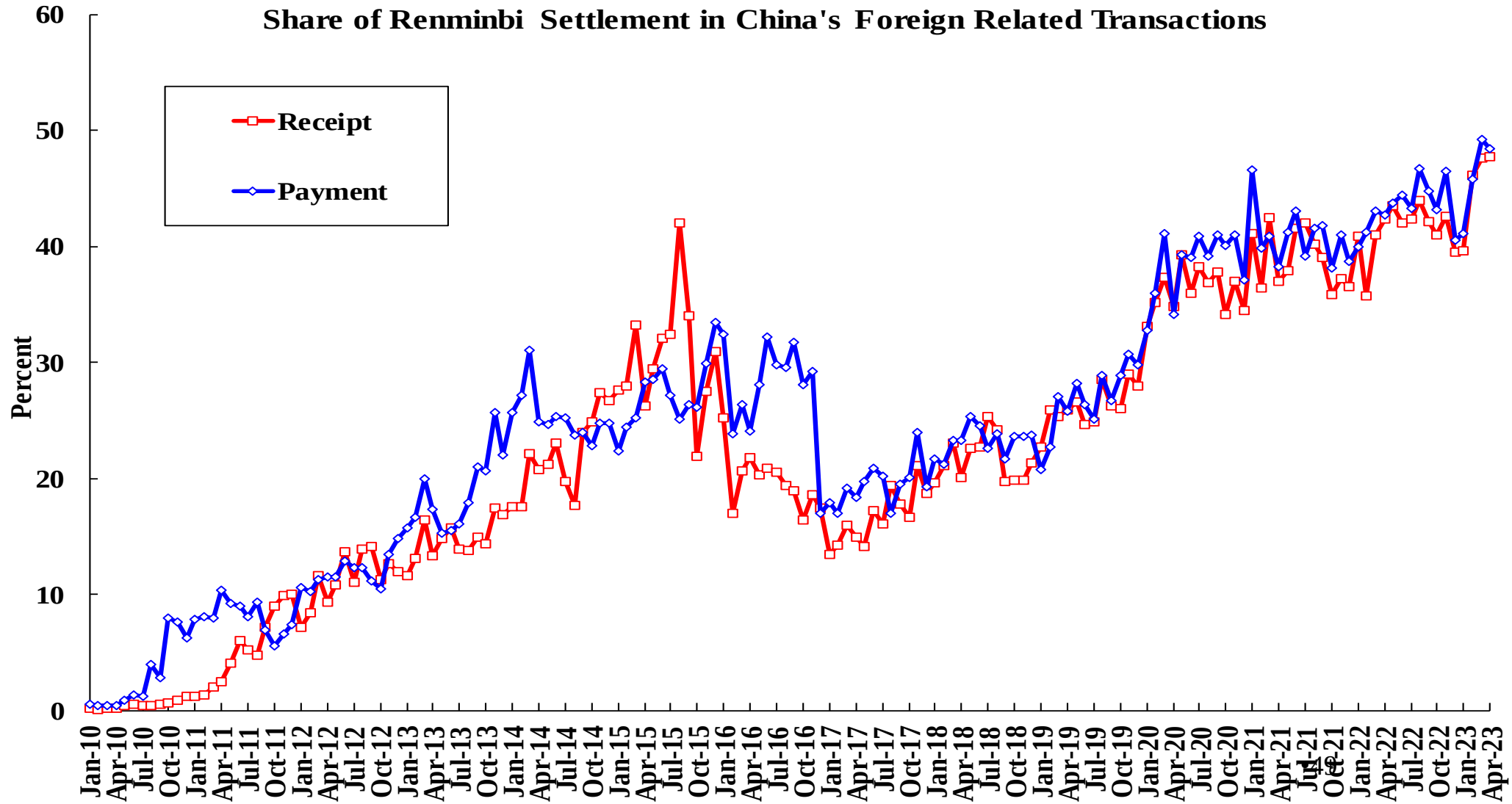
The Internationalisation of the RMB: The Settlement of Chinese Cross-Border Trade

- Before 2010, almost all Chinese cross-border trade was settled in U.S. Dollar. The percentage of Chinese cross-border trade settled in Renminbi was zero in 2010. It rose to over 30% in mid-2015, only to fall to below 20% in 2017. It recovered gradually to reach 30% again in 2023.
- In terms of foreign-related transactions, which include foreign direct investment and portfolio investment flows, the percentage of settlement in Renminbi also started at zero in 2010. It followed the same temporal pattern as Chinese cross-border trade, and recently rose to approximately 45%.

Renminbi Settlement of Chinese Cross-Border Trade, Billion US$ and Percent



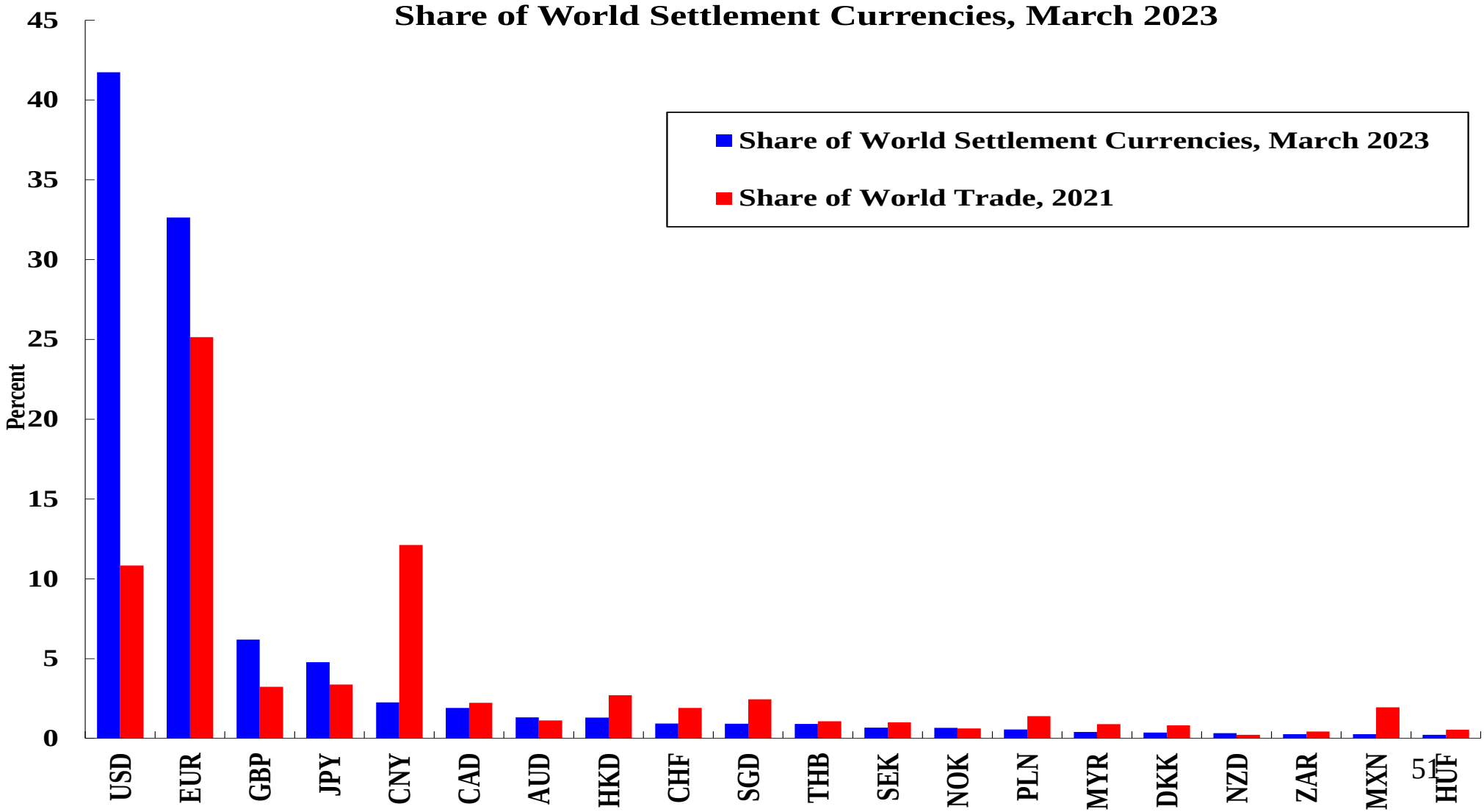
The Internationalisation of the RMB: Share of Settlement in Foreign-Related Transactions



The Internationalisation of the RMB: Share of World Settlement versus Share of World Trade

- The main impetus for the internationalisation of the Renminbi comes from the fact that international trade between China and many of its trading partners is increasingly settled in each other's own national currencies.
- In the following chart, we compare the share of world settlement of the currency of a country or region (blue column), with the share of world trade of that country or region (red column). The U.S. Dollar accounted for the largest share of world settlement, over 40%, as of March 2023, whereas the Euro Area accounted for the largest share of world trade, 25%, followed by Mainland China, approximately 12% in 2021. The U.S. has a share of world trade that was slightly below that of China, of approximately 11%.

The Internationalisation of the RMB: Share of World Settlement versus Share of World Trade



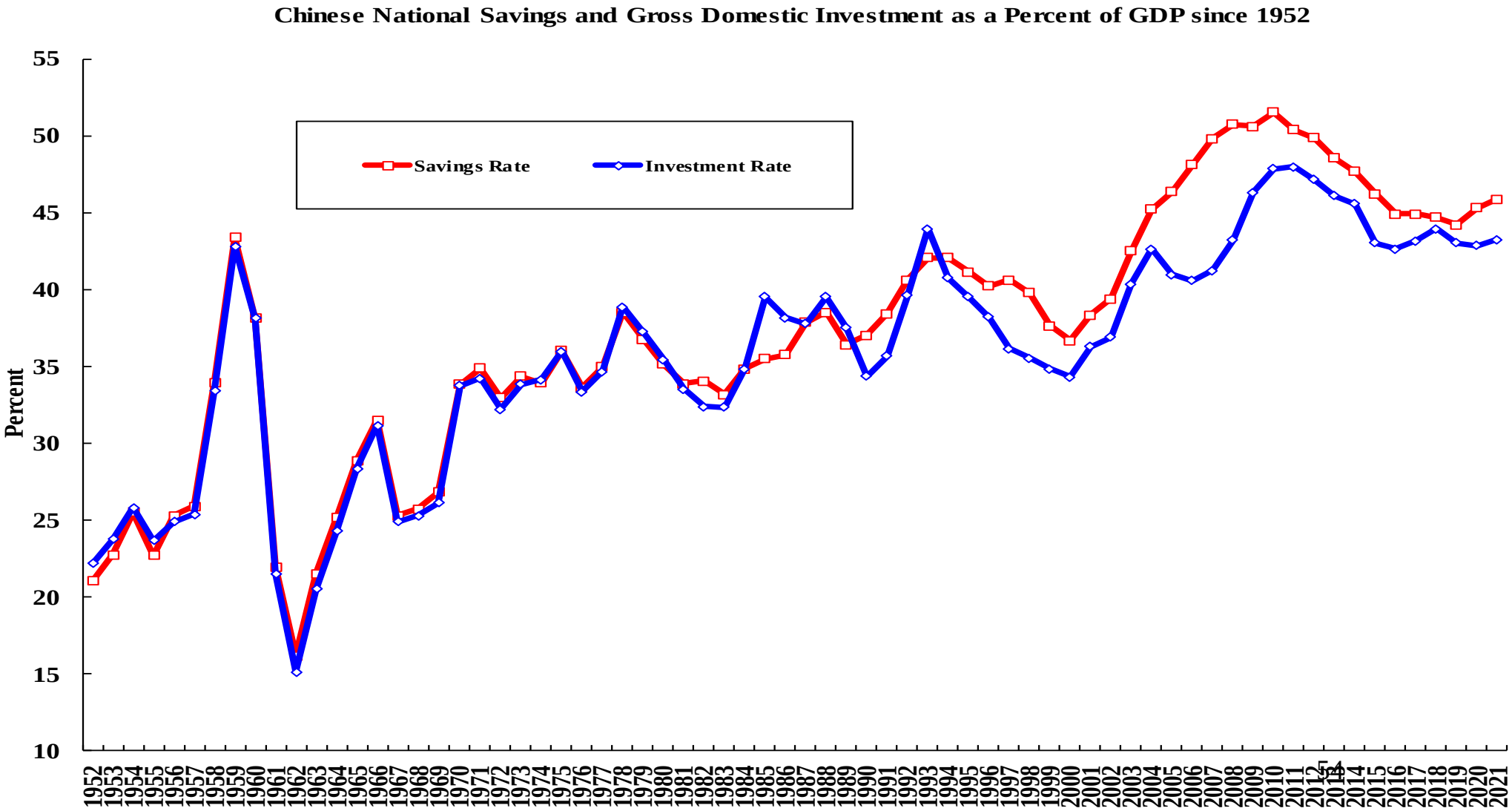
The Internationalisation of the RMB: Share of World Settlement versus Share of World Trade

- In world settlement, the Japanese Yen's share was 4.78%, which was higher than Japan's share in world trade of 3.37%, while the Renminbi share in world settlement was only 2.26% even though China's share in world trade was 12.12%. If the share of Renminbi settlement could reach half of China's share of world trade, its share would become 6.06%, surpassing the Yen and almost catching up with the pound sterling (6.19%).
- If the share of Renminbi settlement can reach the same ratio of the Japanese yen in world settlement (4.78%) to Japan's share of world trade (3.37%), the share of Renminbi in world settlement would rise from 2.26% to 17.19%, significantly surpassing the pound sterling and becoming the world's third largest settlement currency. But even so, the Renminbi's share will still be far below the U.S. Dollar's share, which currently stands at more than 40%.
- However, replacing the US dollar with the Renminbi as a medium of international exchange between other countries may not be in China's own best national interests. Instead, China should promote the own-currency settlement between bilateral trading-partner countries, as they did under the Bretton Woods system before 1971.

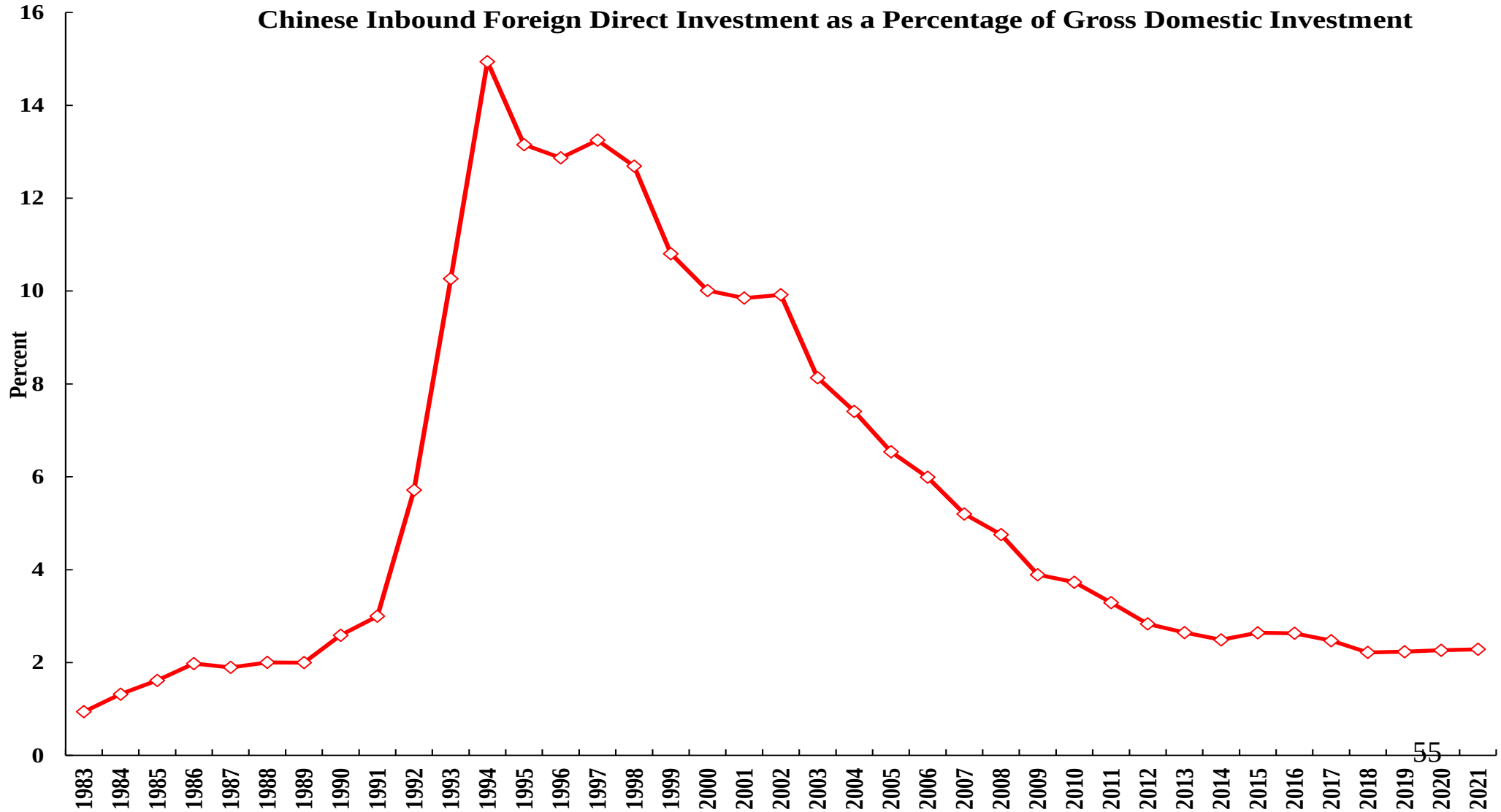
The Economic Fundamentals: The Supplies of Capital, Labour, and Technical Progress

- Are there adequate primary inputs of production--capital and labour--to support the continuing economic growth of China?
- The Chinese national savings rate has risen from 21.1% in 1952, to 36.8% in 1979, and over 46% in 2022, certainly the highest in the world amongst major economies. This means that the investment rate can also remain high, even in the absence of inflows of foreign direct investment or loans.
- It will remain high and provide the necessary resources for additional fixed-assets investment, including investment in infrastructure, human capital, research and development (R&D), and the provision of public goods such as education, healthcare, environmental preservation, protection and restoration, and elderly care.

The Supply & Demand of Capital: National Savings & Gross Domestic Investment as Percents of GDP



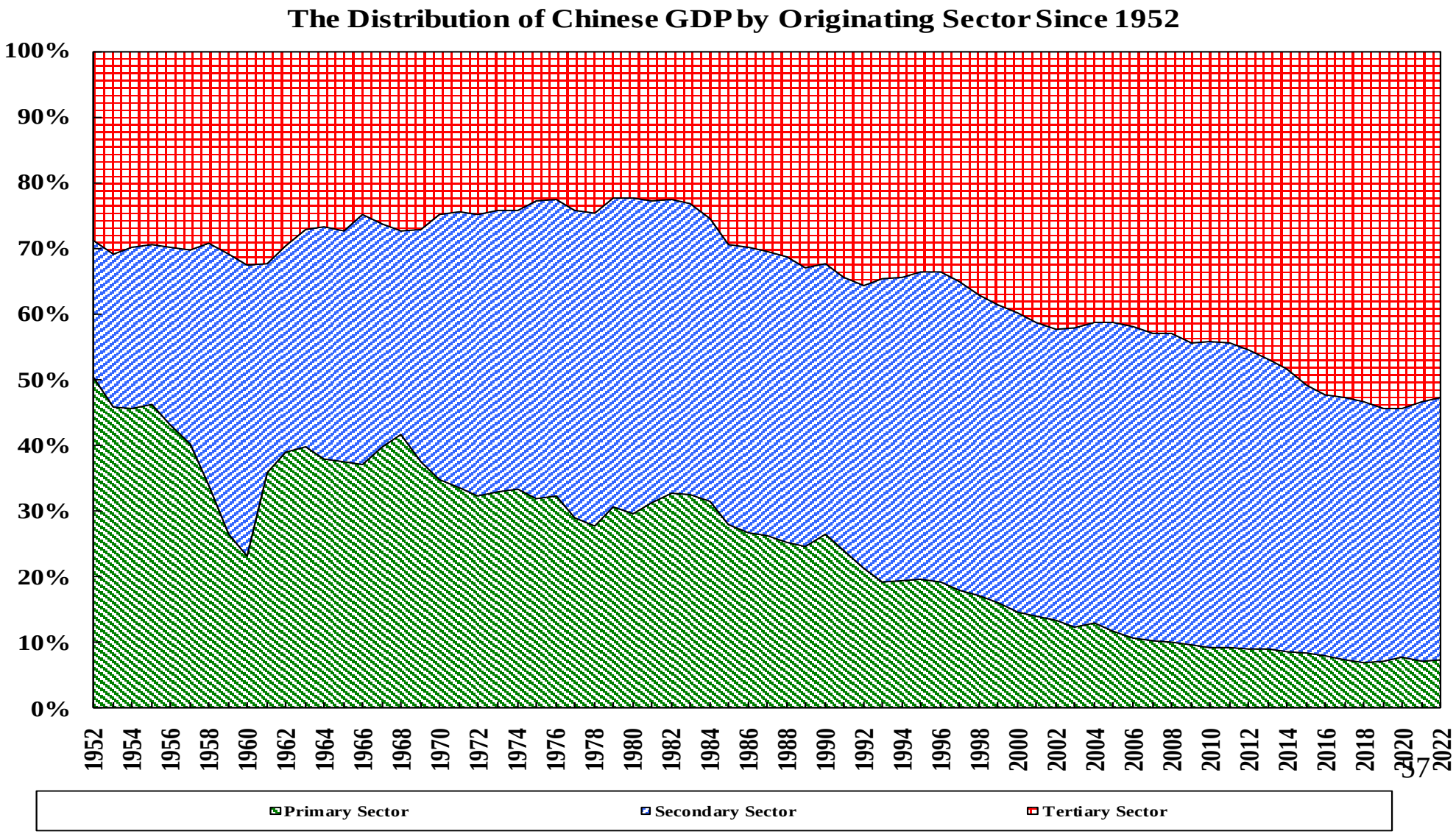
Inbound Foreign Direct Investment as a Percent of Gross Domestic Investment



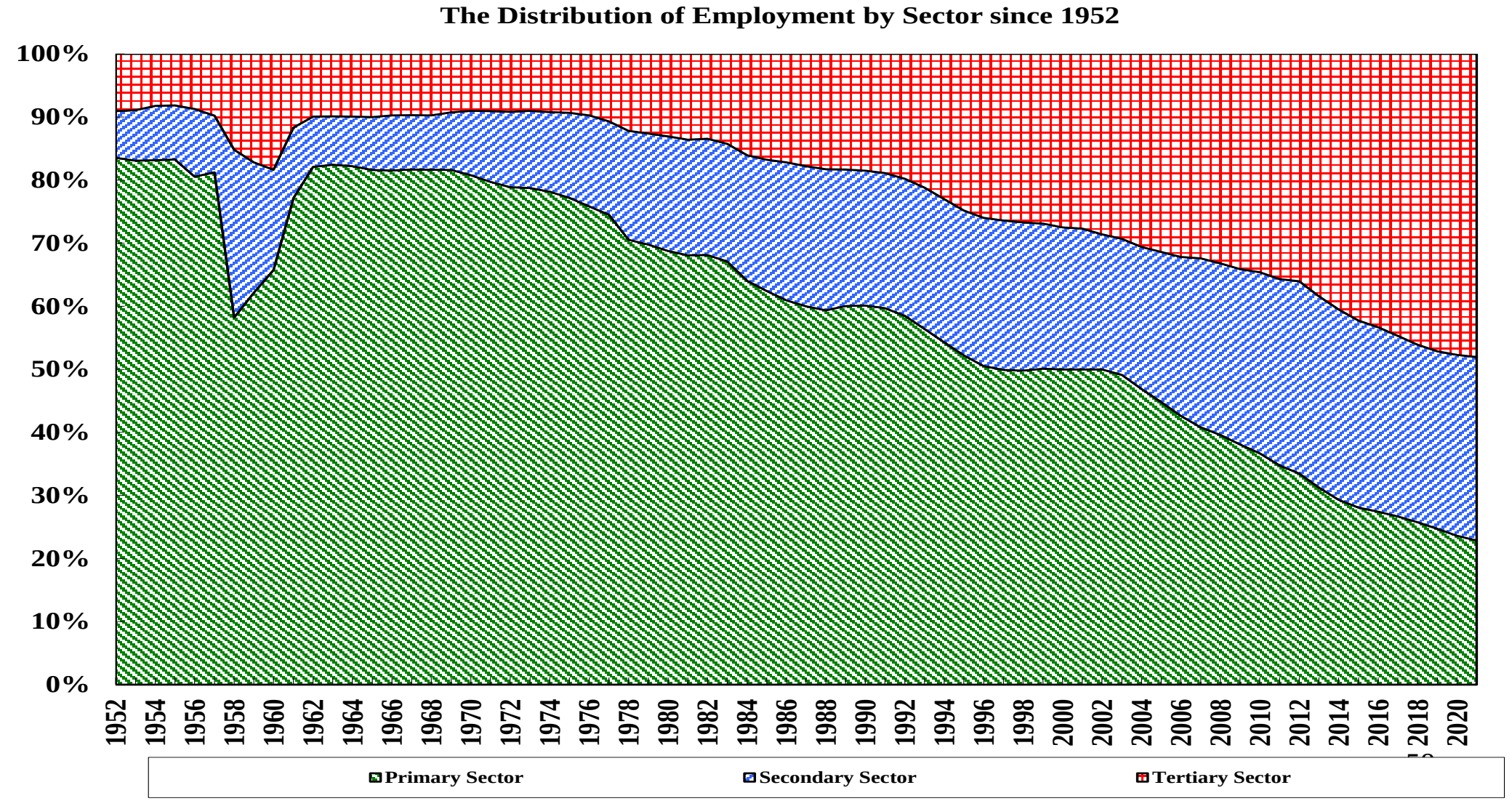
The Economic Fundamentals: The Supply of Labour

- Chinese demographic developments appear unfavourable at the present time—its population is ageing rapidly, and the growth of the total population has slowed, and even turned negative in 2022 (this is, in part, the legacy of the one-child policy). However, the labour supply problem is basically manageable. There is unlikely to be a serious shortage of labour in China.
- The demand for labour can be satisfied by continued urbanisation, that is, by the movement of surplus labour from the rural to the urban areas. Despite the claim that the "Lewis Turning Point" has arrived, there still exists substantial surplus labour—in 2021, the primary (agricultural) sector generated only **7.3%** of GDP but accounted for **22.9%** of total employment (see the following charts).
- Thus, there is still surplus labour that can be transferred from the primary sector to the secondary (manufacturing, mining and construction) and tertiary (services) sectors without affecting its own output.
- In addition, raising the current mandatory retirement ages should also help (see the discussion below under a declining and ageing population).

The Supply of Labour: The Distribution of Chinese GDP by Sector Since 1952



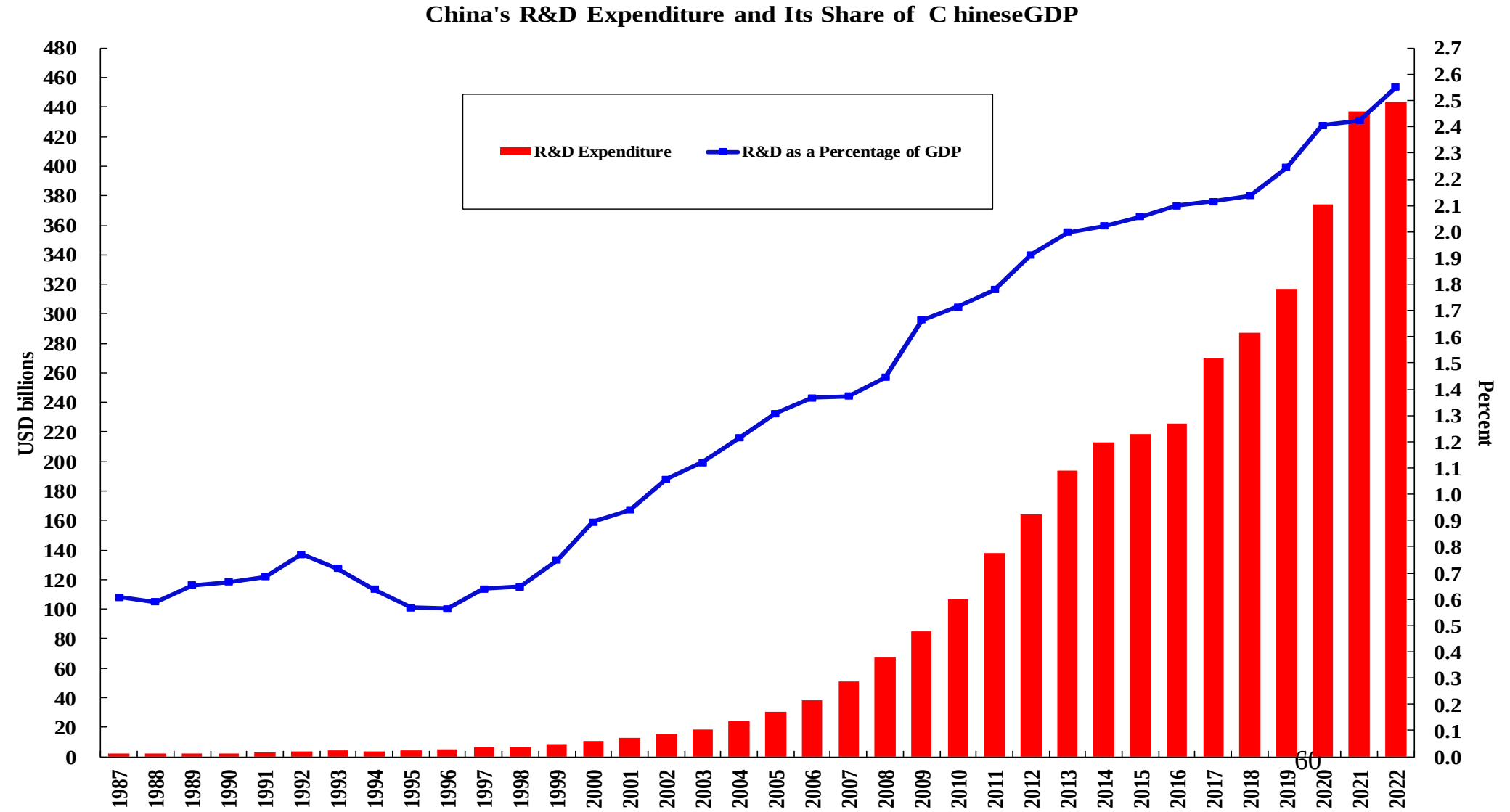
The Supply of Labour: The Distribution of Chinese Employment by Sector Since 1952



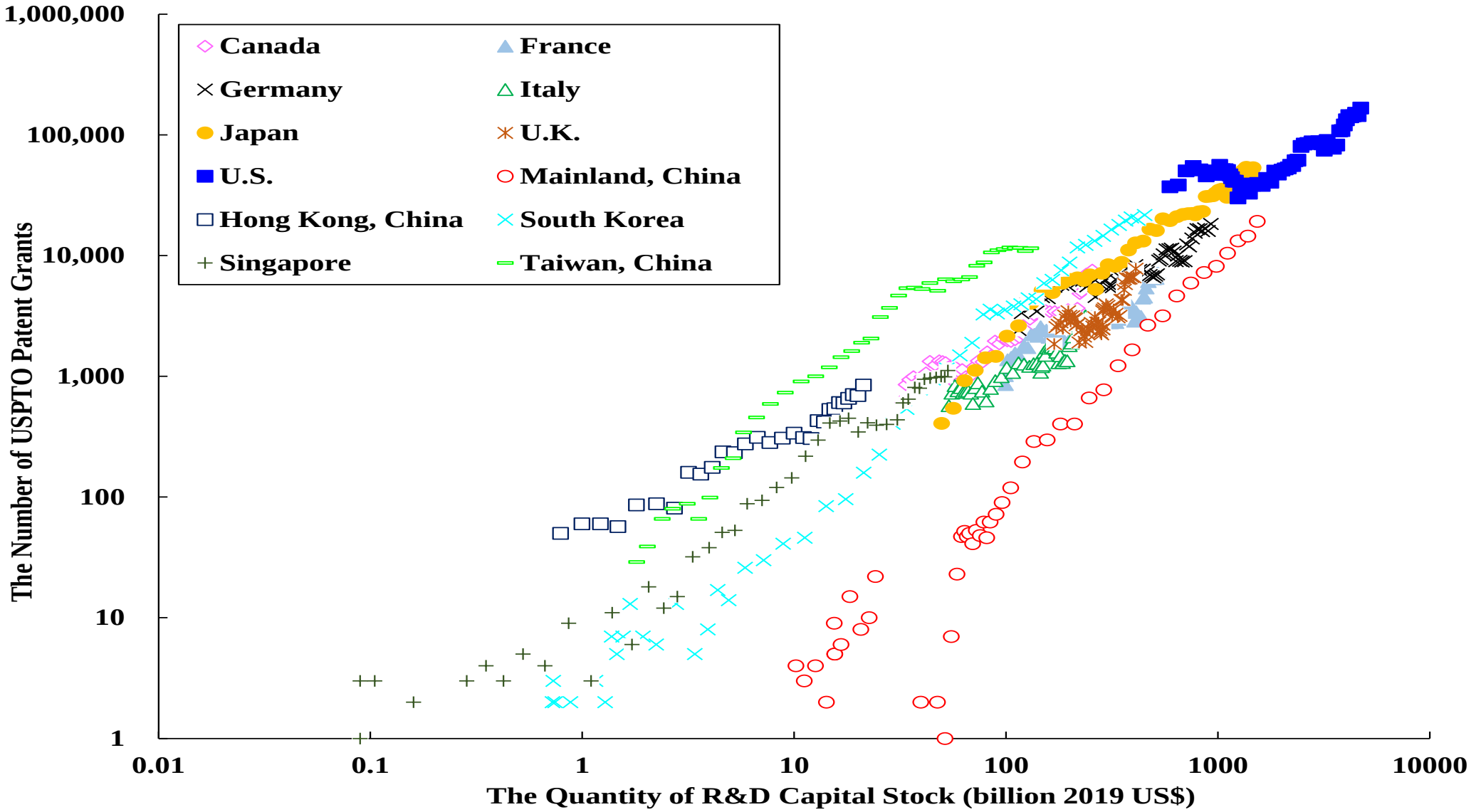
The Economic Fundamentals: The Supplies of Capital, Labour, and Technical Progress

- China has been increasing its investment in research and development (R&D), which reached 2.55% of GDP in 2022.
- Lawrence J. Lau and Yanyan Xiong have established a positive relationship between the number of patents granted by the U.S. Patent and Trademark Office (USPTO) and the quantity of real R&D capital stock for a selection of developed and developing countries and regions in their book, Are There Laws of Innovation?, Singapore: World Scientific Publishing Company, 2022 (see Chart).
- Indigenous innovation has been occurring in many areas in China, for example: 5G and 6G communication, the BeiDou Navigation Satellite System, high-speed trains, quantum communication, super-computers, and the ultra-high-voltage transmission of electricity.

China's Research and Development (R&D) Expenditure and Its Share of Chinese GDP



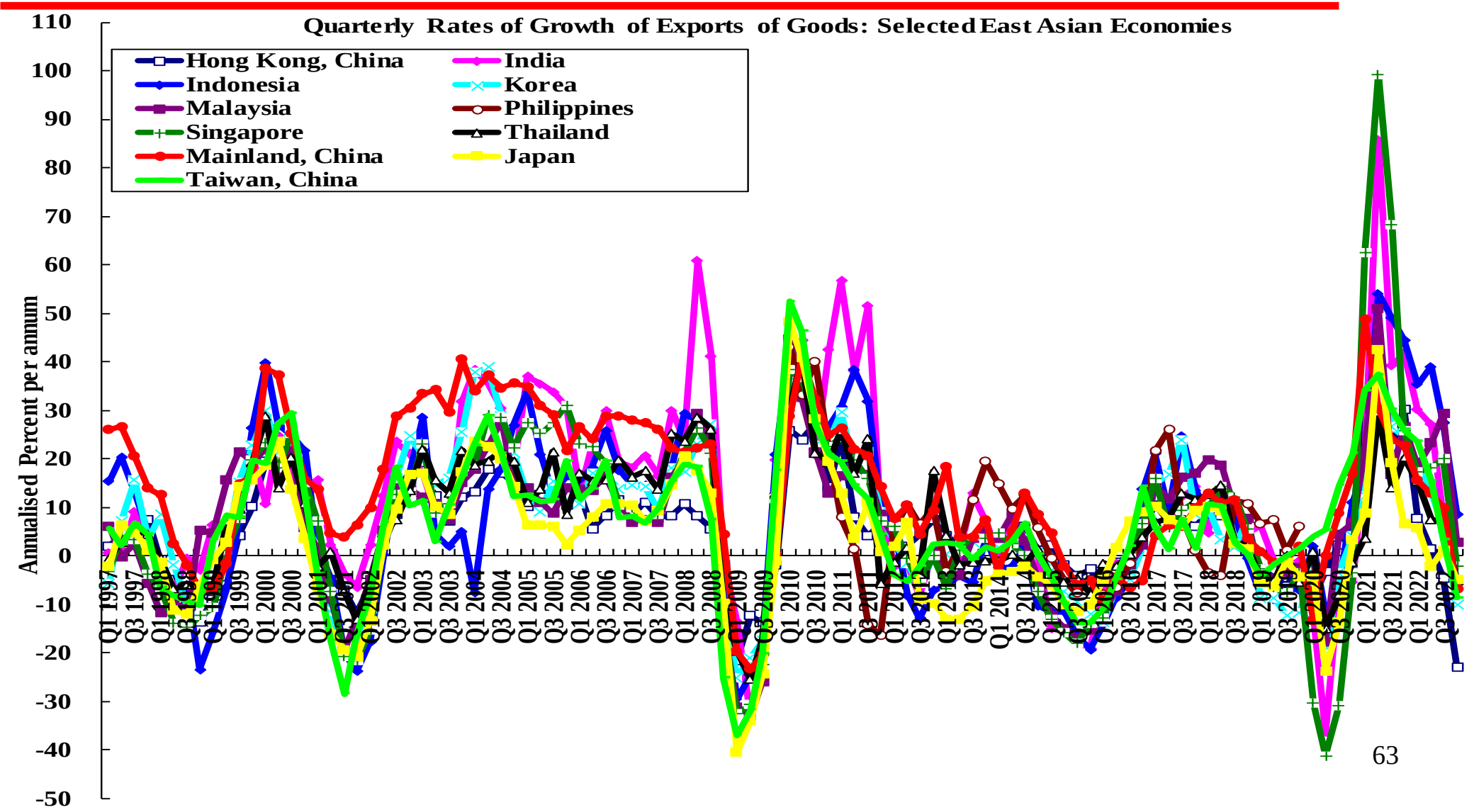
The Number of USPTO Patents Grants Received versus the Real R&D Capital Stock



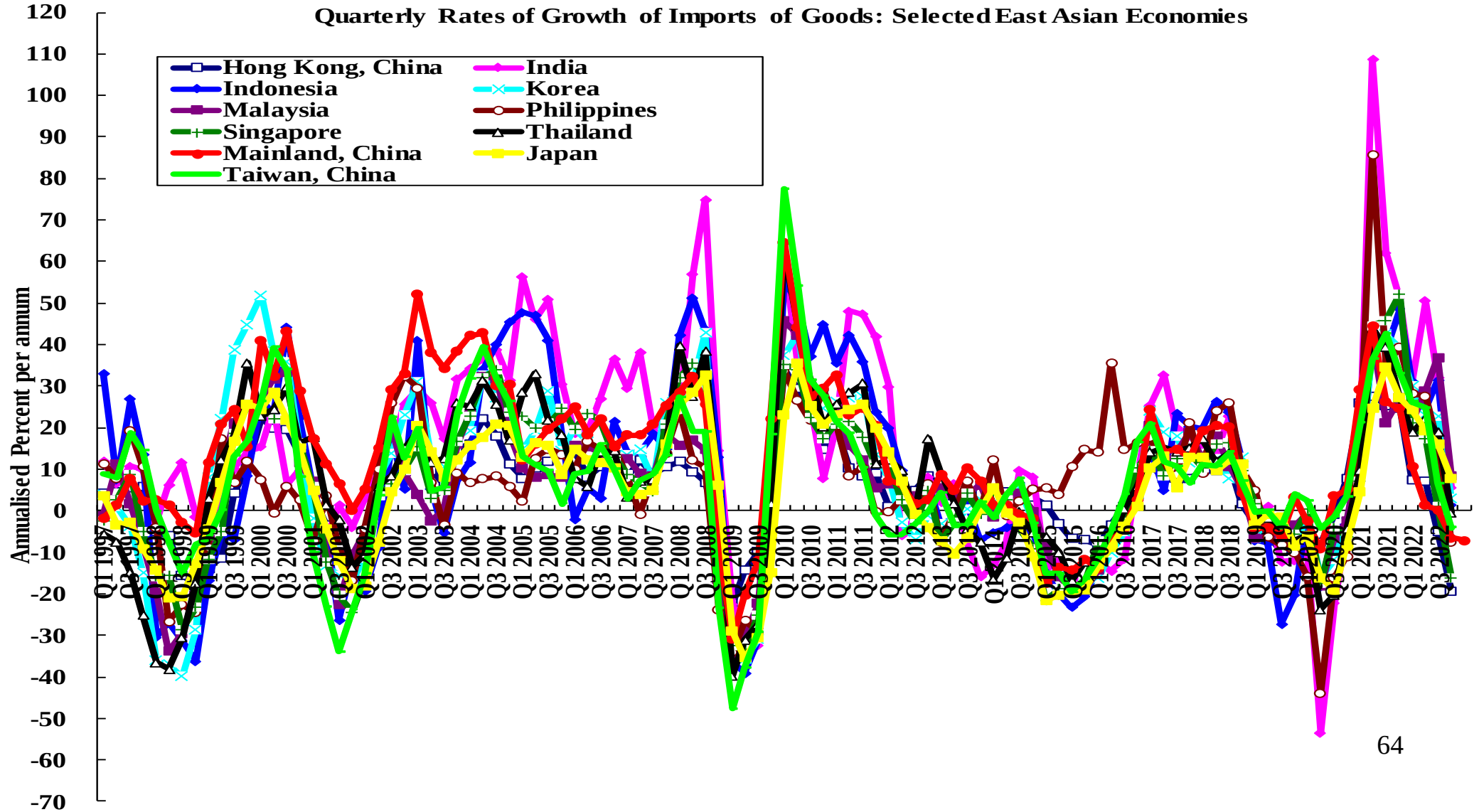
The Economic Fundamentals: Economies of Scale, Learning-by-Doing & Long Upper Tails

- China also enjoys economies of scale, learning-by-doing (that is, efficiency improvement resulting from repetitive production of the same good, such as high-speed trains), and the advantage of longer upper tails in the ability distribution of the population because of its size.
- There is also the advantage of relative backwardness—there can be creation without destruction—for example, the introduction of the mobile telephone did not destroy the fixed-line telephone business because most households did not have a fixed-line telephone; Taobao, a Chinese e-commerce platform, unlike Amazon in the U.S., did not have many small bookstores to destroy.
- Moreover, as a large continental economy like the U.S., the domestic Chinese economy is largely unaffected by external disturbances. Thus, while the Chinese rates of growth of exports and imports fluctuate like other East Asian economies, the rate of growth of its real GDP has remained relatively stable (see the red lines in the following Charts).

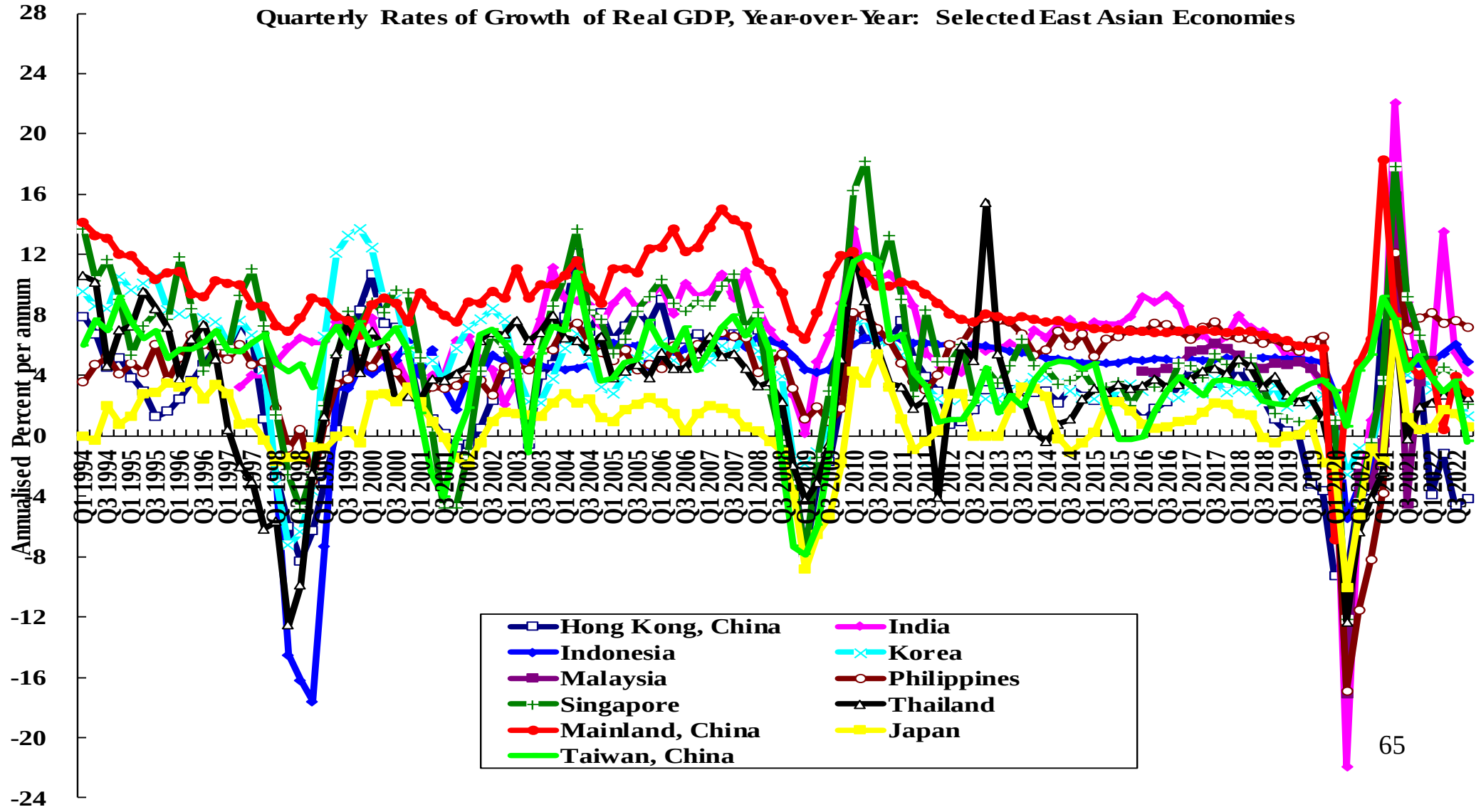
Quarterly Rates of Growth of Exports of Goods: Selected Asian Economies



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



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



The Long-Term Challenges and Potential Policy Responses

- Maintenance of Sufficient Aggregate Demand
- The Financing of Government Expenditures
- Economic De-Globalisation, De-Coupling and De-Risking
- A Declining and Ageing Population
- Maintenance of Long-Term Technological Self-Reliance
- The Avoidance of the Emergence of a Plutocracy
- China-U.S. Strategic Competition

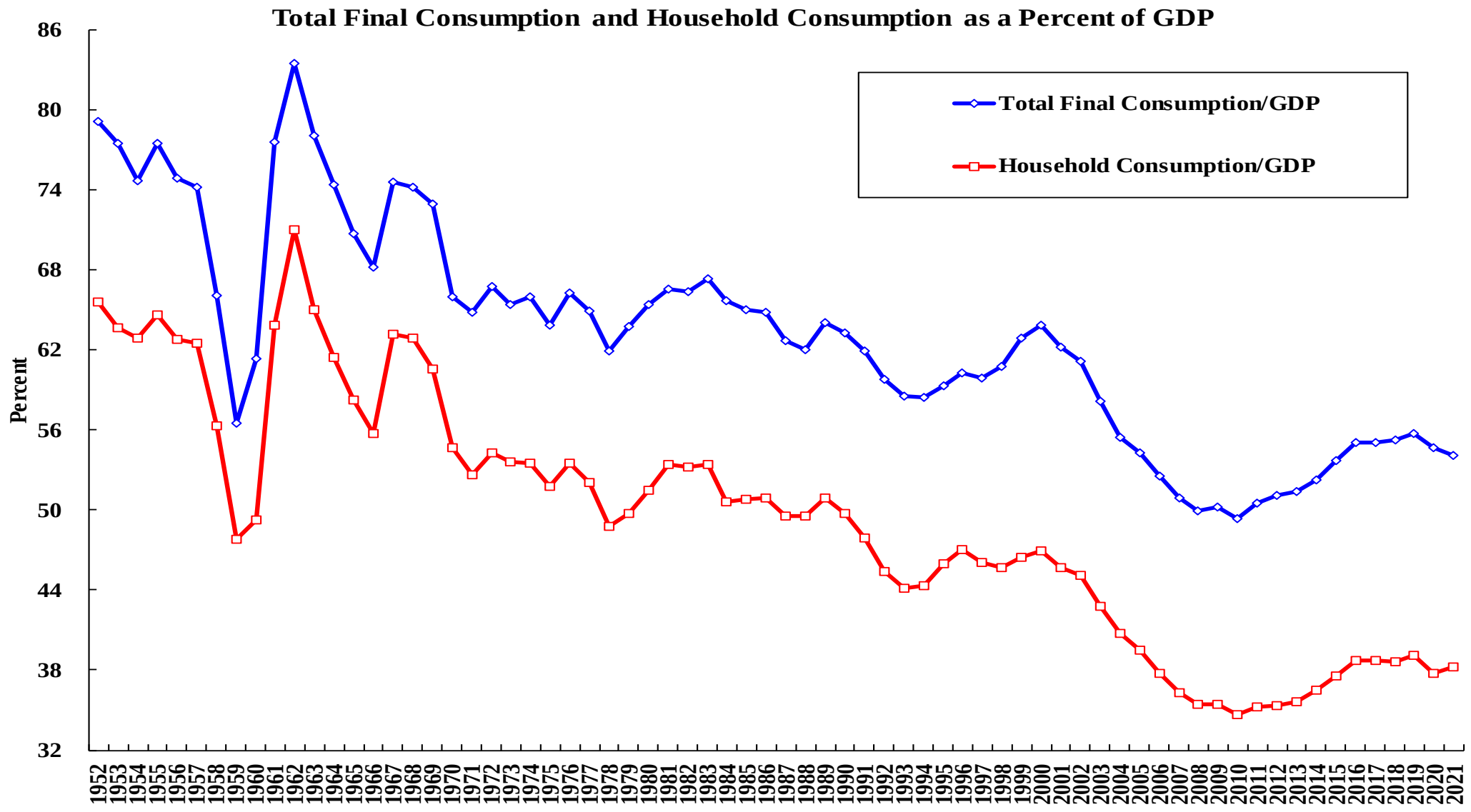
The Long-Term Challenges: Maintenance of Sufficient Aggregate Demand

- The Chinese economy is a surplus economy. There is surplus labour; there is surplus capital; and there is surplus productive capacity. If there is demand, there will be supply. So, to a first approximation, the real GDP is determined by the quantity of aggregate demand.
- The sources of Chinese aggregate demand are household consumption, government consumption (including public goods consumption), gross domestic investment (gross fixed investment and change in stocks) and net exports. Gross fixed investment includes both infrastructural investment such as that in communication, transportation and power, and non-infrastructural investment, as that in buildings and equipment.
- Net exports have been declining in importance. Thus, maintaining an adequate growth of domestic aggregate demand is essential for continued Chinese economic growth and prosperity.

Maintenance of Sufficient Aggregate Demand: Household and Government Consumption

- While household consumption will continue to increase with household income, which will increase with GDP, and with the increasing number of households joining the middle class, the share of household consumption in aggregate demand (GDP) has been declining over time, from a peak of almost 71 percent in 1962 to 38.3 percent in 2021.
- Government consumption, which includes most public goods consumption, has been increasing slowly and gradually from 13.5 percent in 1952 to 15.8 percent in 2021.
- Total consumption, which includes both household consumption and government consumption, as a share of GDP has been declining continuously during the past sixty years. It accounts for 54.1%% of GDP in 2021. Total consumption alone is insufficient to supply the aggregate demand required for continued economic growth and full employment.

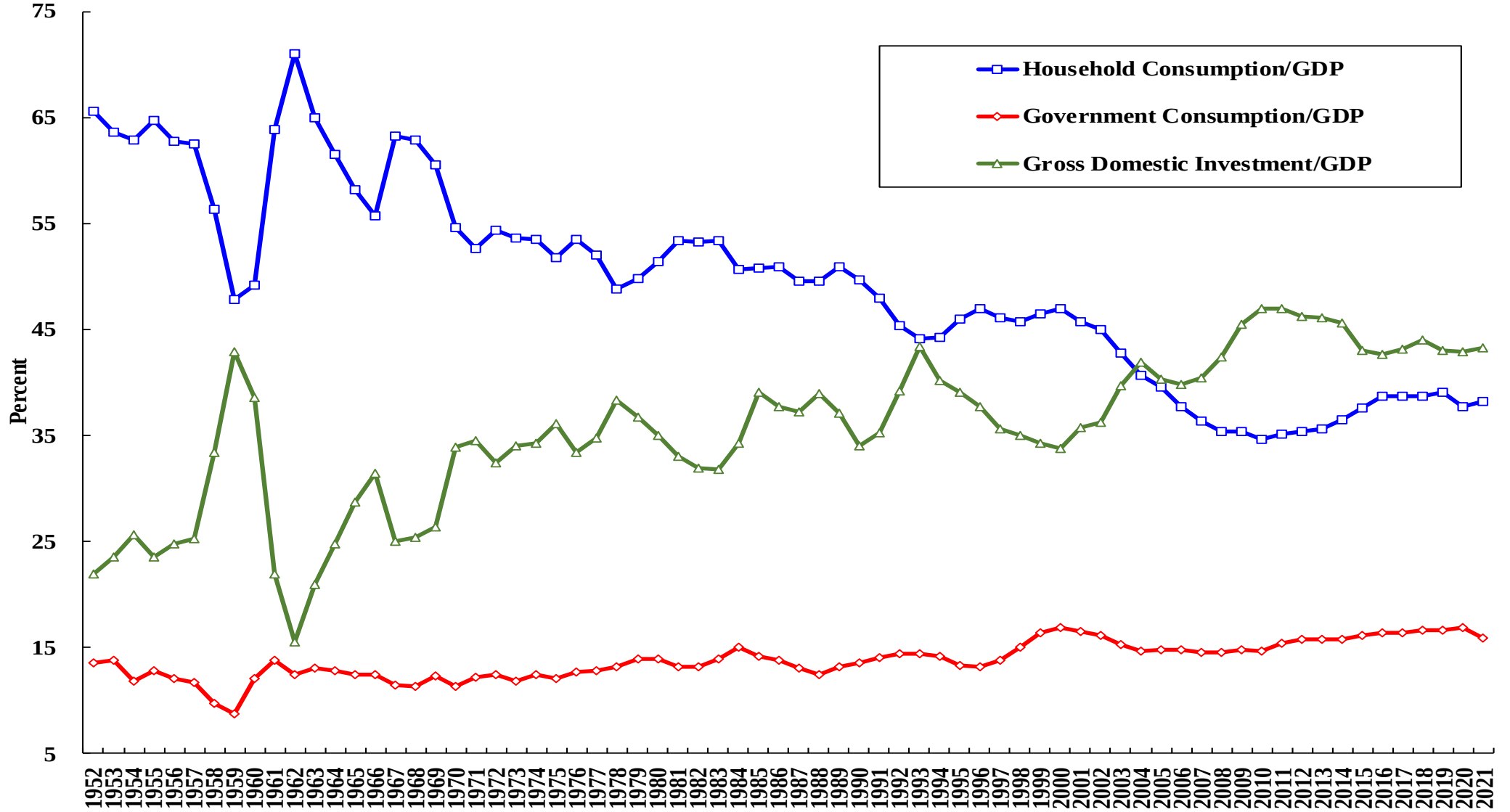
Chinese Total and Household Consumption as a Percent of Its GDP



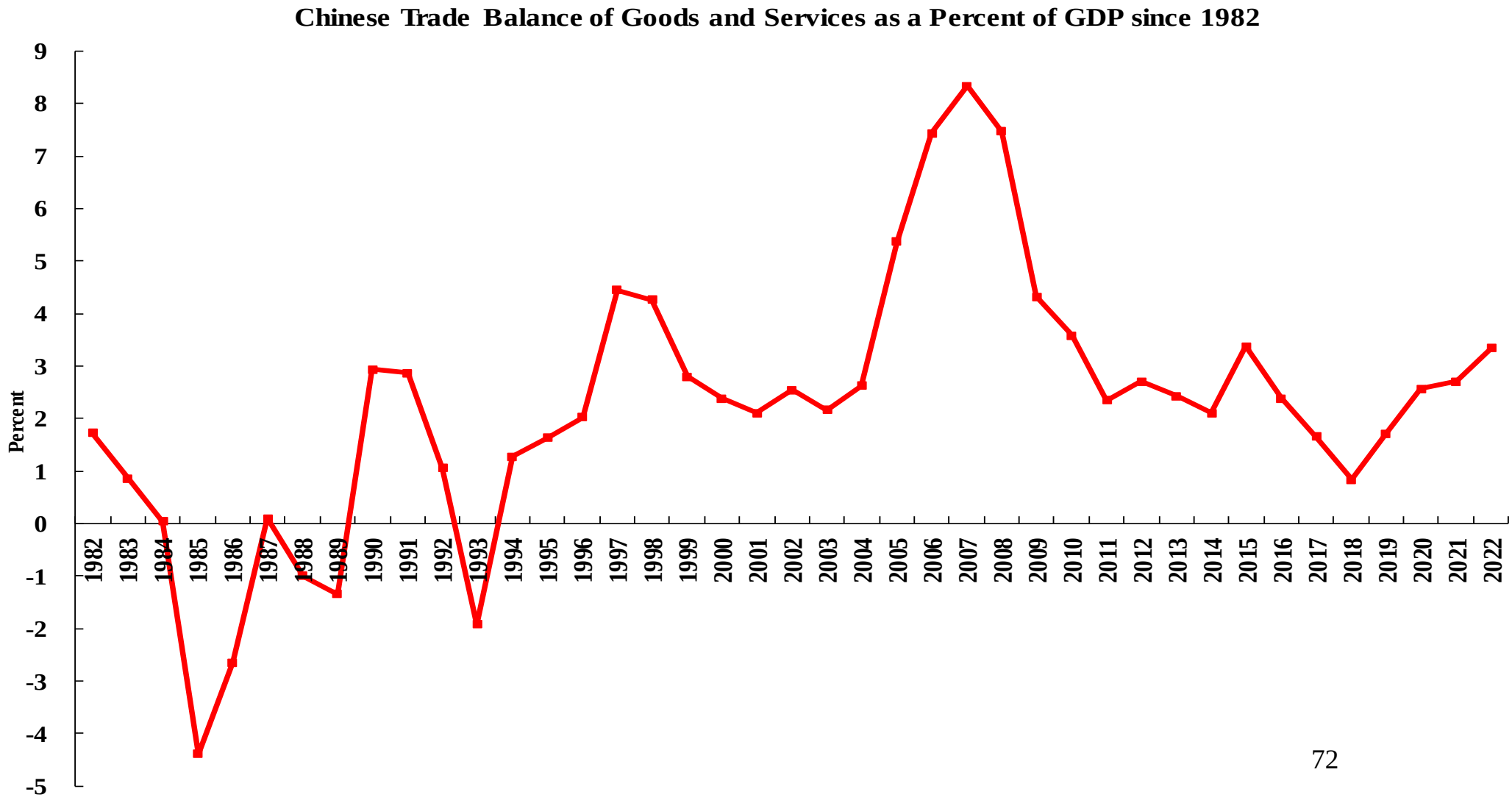
Maintenance of Sufficient Aggregate Demand: Gross Domestic Investment and Net Exports

- Gross domestic investment, which includes real fixed-assets investment and change in stocks, has become the most important source of aggregate demand since 2004. It was approximately 43 percent in 2021.
- There is a great deal of room for both government investment and government consumption to grow through increased public goods provision.
- Net exports will continue to decline in relative importance as a component of Chinese aggregate demand, given the Chinese objective of balanced international trade. In recent years, it accounted for approximately 3 percent of GDP, down from a peak of 9 percent in 2008.

Maintenance of Sufficient Aggregate Demand: The Sources of Aggregate Demand (Percent)



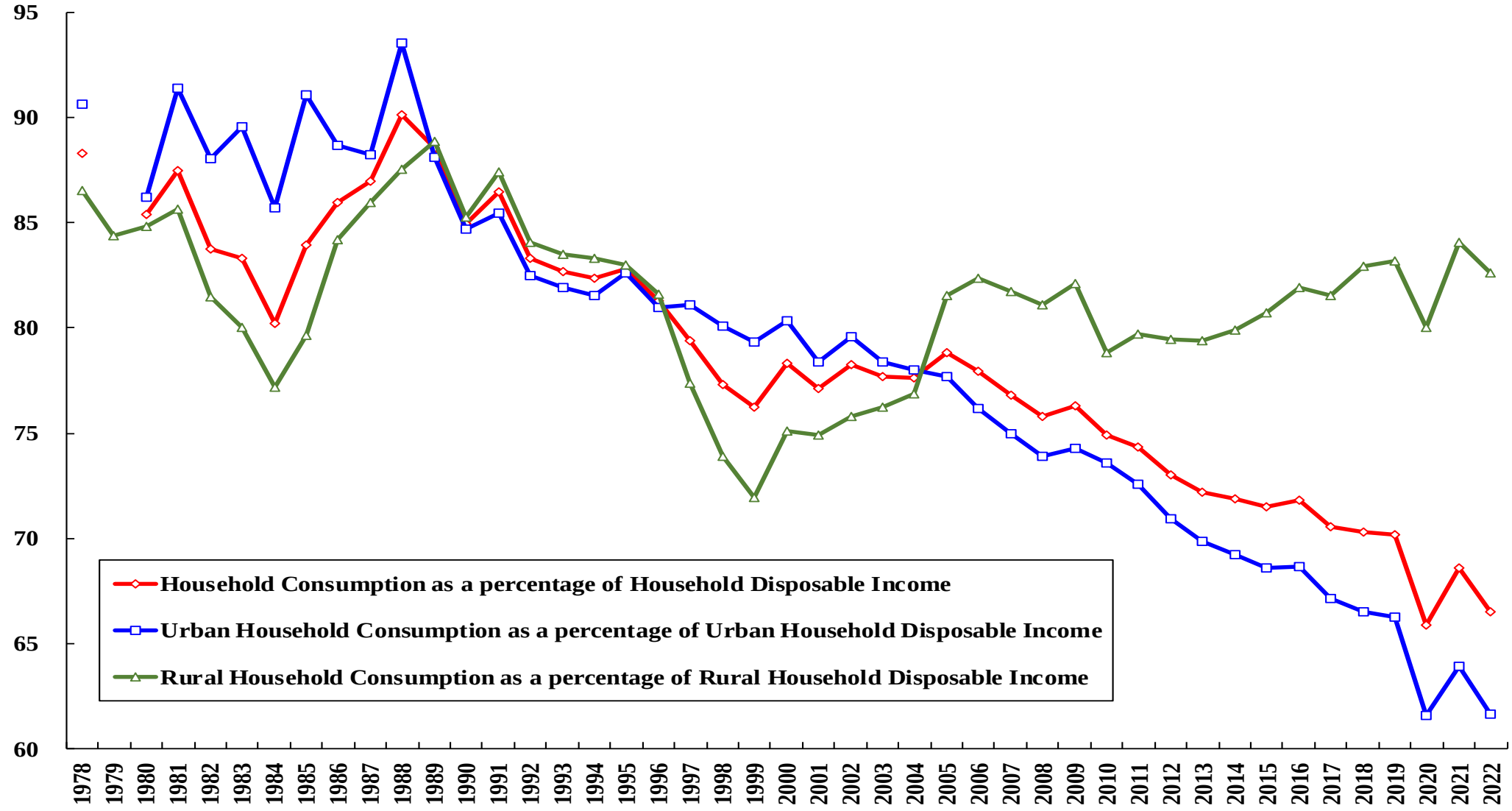
Maintenance of Sufficient Aggregate Demand: Net Exports of Goods & Services as % of GDP



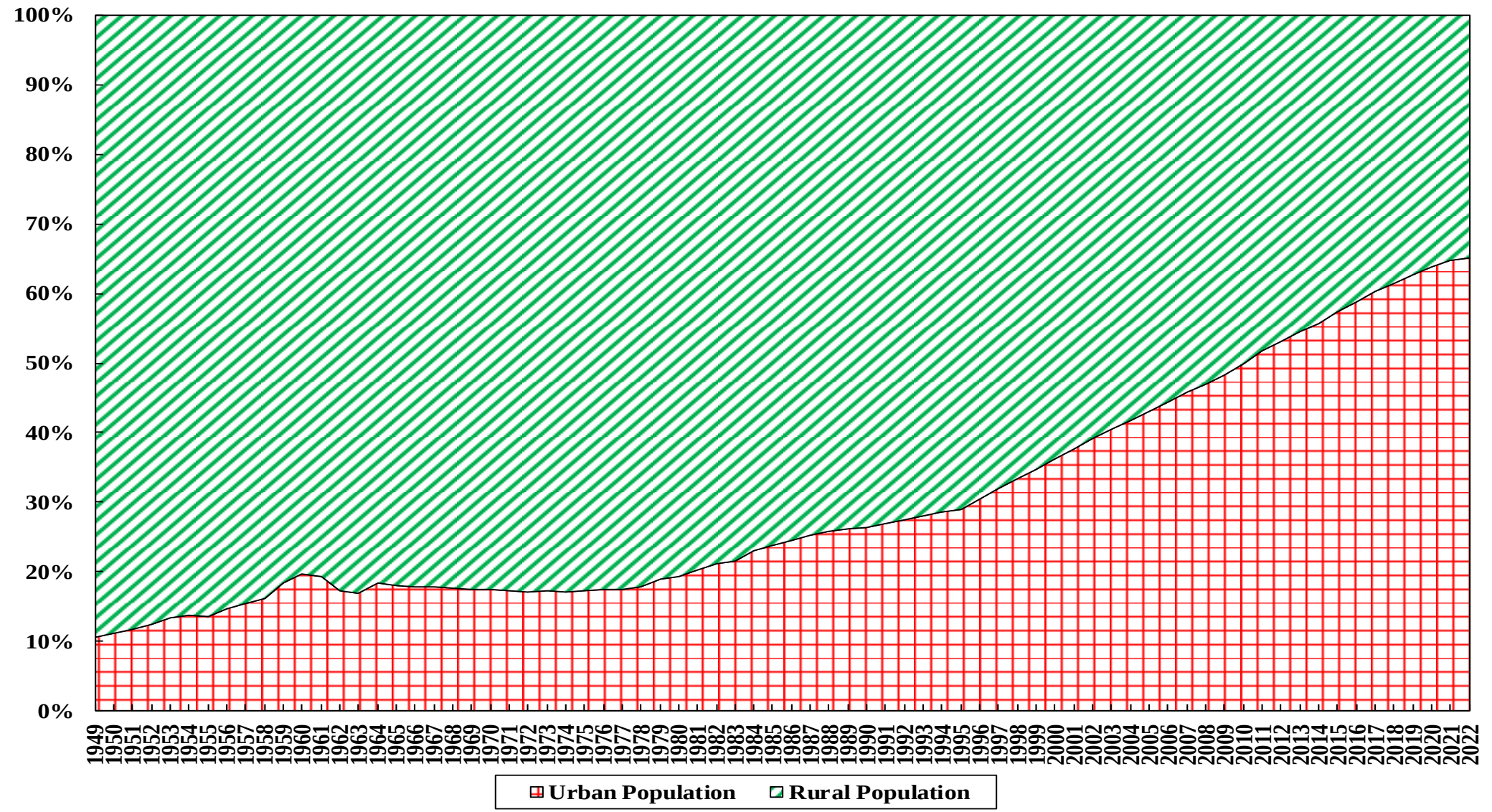
Household Consumption is a Declining Share of Household Disposable Income

- The share of household consumption in household disposable income has also been declining over time, from over 90 percent in 1988 to 66.5 percent in 2022.
- Moreover, since urban households have a higher propensity to save than rural households, as China becomes increasingly urbanised, the share of household consumption in household disposable income is likely to decline further,.
- In 2022, the shares of household consumption in disposal income were respectively 82.6 percent for rural households and 61.7 percent for urban households.
- Between 1949 and 2022, the share of rural population fell from almost 90 percent to slightly less than 35 percent (34.8 percent).
- Thus, increases in household disposable income alone are not sufficient to increase household consumption significantly as a component of aggregate demand. Increases in fixed-assets investments and government consumption are needed. This is where public goods provision comes in.

Household Consumption as a Share of Household Disposable Income



The Distribution of Chinese Population between Rural and Urban



Increasing Current Household Consumption by Increasing Current Household Wealth

- It is possible to increase current household consumption without increasing current household income by increasing current household wealth. This is known as the "wealth effect".
- Current household wealth can be increased without increasing current wages and salaries by accelerating the rate of wage progression (scheduled increases) with respect to seniority (year of service) over time.
- By increasing the rate of increase of wages with respect to seniority in the future, even keeping the terminal wage level constant, the discounted present value of future wage earnings and hence the current household wealth will be increased. The increase in current household wealth will lead to an increase in current household consumption.
- Moreover, the accelerated increases in wages will occur during the child-rearing years of young couples, potentially helping those who choose to have more children.
- Current household wealth can also be increased through the lengthening of the progressive income tax rate brackets, effectively reducing the marginal tax rates on labour income in China. The value of current household wealth will increase through the increase in the discounted present value of future after-tax labour earnings.

Increasing Current Household Wealth without Increasing Current Household Income

- Thus, current household consumption can be increased by the adoption of a plan to accelerate the wage and salary adjustments of workers in, say, five years' time, relative to the current expectations.
- For example, if, under the current wage structure, a worker starting to work at age 25 at a monthly salary of 10,000 Yuan will receive raises of 2,500 Yuan a month on the basis of promotions and seniority every five years, he will end up with a salary of 25,000 Yuan a month before the worker's retirement at age 60. The proposed change is to accelerate the wage progression but keeping the starting and terminal salaries the same by making each raise, say, 5,000 Yuan instead of 2,500 Yuan, so that by age 40, the worker will be receiving the top terminal salary of 25,000 Yuan, which will remain constant until retirement at 60.
- It is clear that the value of the worker's human capital, reflected in the discounted present value of future labour earnings, and hence in the worker's wealth, will increase immediately upon adoption of this proposal, but the worker's current income will remain the same for the first five years.
- Such an accelerated wage progression will also provide young families with additional resources during their child-raising years, and may on the margin encourage having more than one child.

Increasing Current Household Wealth by Accelerating Wage and Salary Progression

- The accelerated wage progression can be justified on the grounds that the current cohorts of workers are much better educated and hence more productive. Note also that this proposal does not change the levels of either the starting wage or the terminal wage. It only changes the time it takes to go from the starting wage to the terminal wage.
- A question may arise as to how these wage and salary increases can be financed. It is important to note that under the proposal there is no immediate raise, only a promise of a bigger raise in five years' time. However, the increase in household wealth resulting from the proposed change of the wage structure should increase household consumption and hence GDP immediately, and the government will be the net beneficiary of the increases in tax revenues during the first five years. In other words, the proposal can be largely self-financing for the government.
- Since the Government itself is a major employer, both directly, and indirectly through its administrative units (事业单位) and state-owned enterprises, its adoption of such a proposal can affect the compensation practices of the private sector through competition on the labour market.

Maintenance of Sufficient Aggregate Demand: Increasing Public Goods Provision

- Increasing the provision of public goods can also be a significant source of growth of the domestic aggregate demand for both consumption and investment, over and above what increases in household consumption alone is able to provide.
- The provision of public goods can improve the general quality of life for almost all citizens and thus also constitutes a form of re-distribution in kind. For example, blue skies, green hills and clear water (蓝天、青山、绿水), can be enjoyed by everyone, and hence also directly advances the goal of "common prosperity".
- However, the provision of public goods frequently results in negative value-added at market prices and will therefore reduce rather than enhance the rate of growth of measured GDP. This is one reason why the target rates of growth of the Chinese economy in 2022 and 2023 were set at relatively modest levels of 5.5 percent and 5 percent respectively, the lowest in more than four decades.

Increasing Public Goods Provision: Introducing Mandatory 12-Year Education

- Education is a public good. China adopted mandatory 9-year education for all in 1986. Now maybe the right time to extend mandatory education for all to 12 years. Doing so has many short-term and long-term benefits.
- First, today, approximately 20% of the junior high school graduates do not have the opportunity to go on to senior high school. The establishment of new senior high schools around the country to accommodate these students will create demand for a large number of new teachers and administrators, thus providing new employment opportunities for new college graduates and alleviating the youth unemployment problem.
- Second, a mandatory 12-year education will postpone the entrance of young people into the labour force by up to seven years, as most graduates of senior high schools will want to continue their education at the tertiary level. In addition, young people can also be encouraged to pursue advanced studies even after graduation from college.

Increasing Public Goods Provision: Introducing Mandatory 12-Year Education

- Third, new schools, colleges, universities and student dormitories will have to be constructed, reviving the demands in the construction sector and the building materials sector and offsetting the reduced demands of the residential real estate sector.
- Fourth, at the present time, attendance of senior high school is elective, and the parents have to bear the not insubstantial costs. By making 12-year education mandatory, it will relieve many families from the financial burden.
- Finally, in the long run, having a labour force with a minimum of 12 years of education should be an advantage for China. Mandatory 12-year education should be viewed as a long-term investment in the future.

Maintenance of Sufficient Aggregate Demand: Infrastructural Investment

- In the short run, all increases in government expenditures have the same macroeconomic effects on both GDP and employment. However, in the long run, increases in real fixed-assets investments augment the real capital stock and increase the real GDP, whereas increases in consumption due to increases in disposable income through, for example, transfer payments, generate no direct lasting benefits.
- Infrastructural investment, which is also often needed for the provision of public goods, can generate benefits that can be widely shared in the economy even though they cannot be fully captured or internalised by the projects themselves.
- Historically, in China, the Great Wall, built in the Qin Dynasty, was an infrastructure for national defense, and the Grand Canal, constructed in the Sui Dynasty, was an infrastructure for the transportation of grains. Over the past few millennia, there were numerous water conservancy projects for irrigation and flood control. These were all government-financed and often depended on conscripted labour.

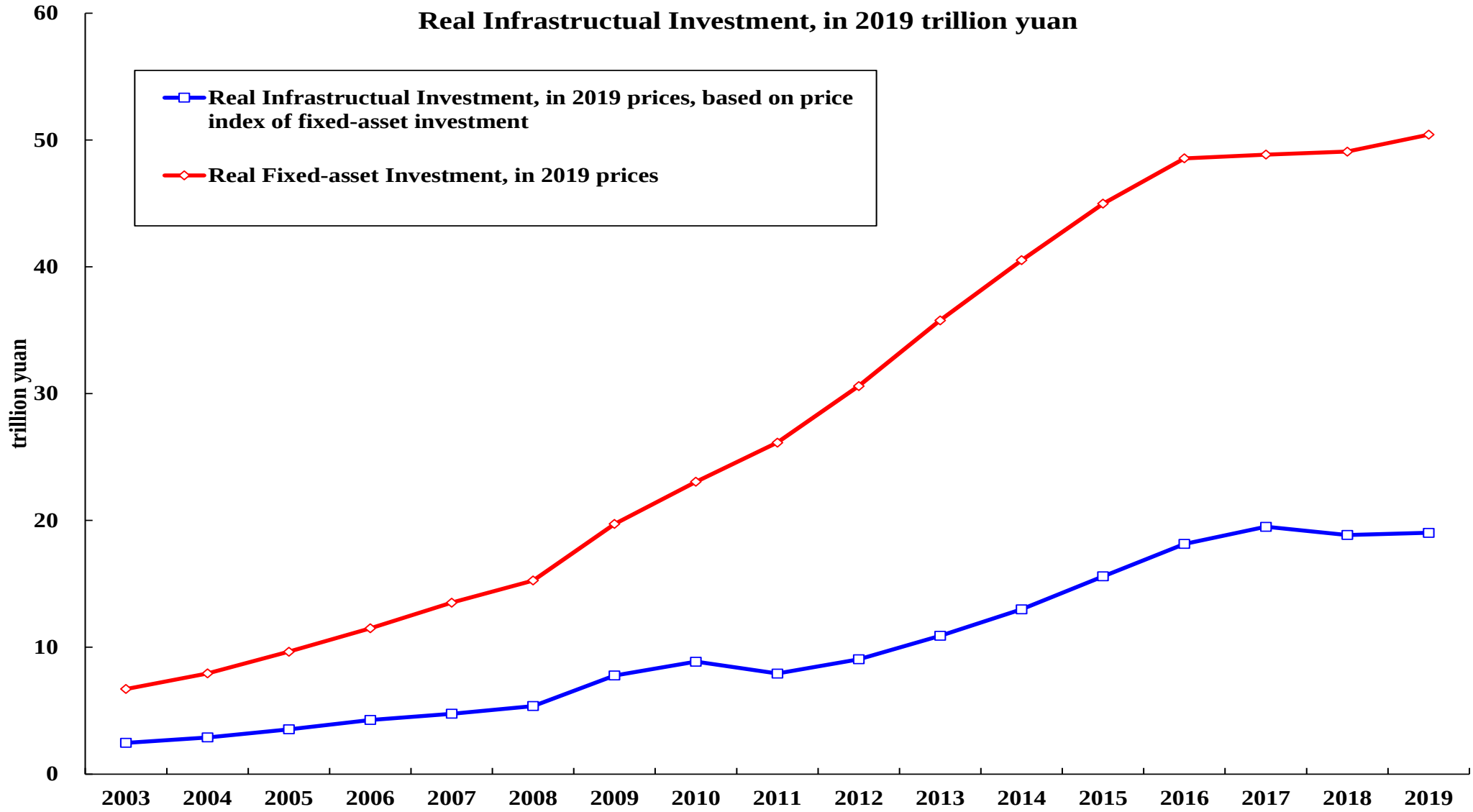
Maintenance of Sufficient Aggregate Demand: Infrastructural Investment

- Infrastructural investment includes investment in communication, transportation, and power. Infrastructural investment is complementary to non-infrastructural fixed-assets investment because it can enhance the latter's rate of return. (Think of how a new highway can enhance and facilitate the expansion of trade among the enterprises located en route.)
- The existence of appropriate infrastructure can make the markets even more efficient (the "visible hand" working with the "invisible hand") and help the Chinese economy realise the benefits of a large and unified domestic market..
- In addition, many infrastructural investments are "development-leading" investments, with their supplies creating their own demands, as opposed to "developing-lagging" investments, that is, investments that are undertaken only when the demands already exist. "Development-leading" infrastructural investments can generate significant externalities and enhance the returns of other fixed-assets investments both public and private.

Maintenance of Sufficient Aggregate Demand: Real Fixed-Assets Investment

- Real fixed-assets investment, including real infrastructural investment, grew rapidly in China between 2008 and 2017, partly as a response to the Global Financial Crisis of 2008. Since 2017, their rates of growth have considerably moderated.
- Infrastructural investment is a major component of fixed-assets investment. The share of infrastructural investment in total fixed-assets investment ranged between a low of 30 percent and a high of 40 percent between 2003 and 2021, with an average of 35.8 percent.
- Infrastructural investment in communication and transportation has also helped to make the Chinese economy a single unified market, realising the huge benefits of its economies of scale.
- However, infrastructural investment frequently generates benefits known as externalities that cannot be captured by the investment itself and hence must be financed or subsidised by the government.
- On 26 April 2022, in a meeting of the Central Committee for Financial and Economic Affairs, President Xi Jinping called for "all-out efforts to strengthen infrastructure construction" in the country.

Real Fixed-Assets Investment and Real Infrastructural Investment, 2019 prices



Maintenance of Sufficient Aggregate Demand: Changing Expectations and Enhancing Confidence

- However, in order to increase the consumption of households and the investment of private enterprises, it is necessary to try to transform their expectations and enhance their confidence. After all, they have all gone through three years of hardship caused by the COVID-19 epidemic and are discouraged by the uncertainties they see and face. Only the government can turn around the expectations credibly.
- In the past, there have been three instances in which the government managed to turn around negative expectations and resume growth. The first instance is the Southern tour of Mr. DENG Xiaoping in early 1992. The second instance is during the East Asian currency crisis of 1997, when China decided not to devalue the Renminbi. The third instance is the launch of the 4 trillion Yuan economic stimulus programme in 2008. In all three instances, public confidence recovered and the Chinee economy grew quickly. Now is the time for the Central Government to take leadership again.

The Long-Term Challenges: The Financing of Government Expenditures

- The financing of the expenditures of the central as well as the provincial and local governments faces challenges because of the decline in the rate of economic growth and hence in the tax revenues, as well as the increase in COVID-19 epidemic-related expenditures, over the past three years. Many of the provincial and local governments have accumulated substantial deficits and debts over this period. The local governments, in particular, have not been able to sell their land to raise revenue as before.
- One potential source of government revenue that can be tapped by China is the accumulated undistributed earnings of state-owned enterprises (SOEs) and their parents. Publicly listed SOEs should be required to pay annual cash dividends to their shareholders, including their state-owned parent companies. These funds will eventually end up in the State Treasury to help finance the budget deficits, if any.
- General revenue can also be increased through enhanced tax compliance and enforcement and through a reform of both individual and enterprise taxation.

The Financing of Government Expenditures: Enhanced Tax Collection and Tax Reform

- For example, for Chinese citizens and permanent residents, income taxation is supposed to be "worldwide", just like that for the U.S., but the income of Chinese citizens and permanent residents from sources outside of Mainland China is currently effectively not taxed. This loophole should be closed gradually. In fact, if this loophole is closed, it would help to discourage capital flight, because income earned outside will be taxed just like income earned inside.
- One possible reform that should be undertaken is the integration of all items of individual incomes, such as wages and salaries, bank interest, corporate dividends and capital gains into one comprehensive income tax under a single progressive income tax structure. This should increase total revenue, because then dividend income for the very rich will be taxed at much higher marginal rates than the current flat rate of 20%. It will also be fairer because the marginal tax rates for those who rely exclusively or predominantly on labour earnings will be lowered.

The Financing of Government Expenditures: Enhanced Tax Collection and Tax Reform

- Another possible reform is to make cash dividends deductible for the corporations against their income in the same way as interest on loans. This should help to shift the preference for debt-financing towards equity-financing (that is, issuing new shares). While both interest and dividends are tax-deductible, dividends do not have to be paid when business is not good, but interest must continue to be paid. Moreover, the principal of the debt must eventually be repaid whereas the corporations have no obligation to buy back the shares.
- The result is therefore a general lowering of the degree of leverage of corporations, that is, their debt-to-equity ratios, especially the private ones. While this may not increase government revenue in the short run, it will reduce the eventual loan-loss ratios of the commercial banks, most of which are government-owned, and hence reduce any bail-out or subsidy.

The Financing of Government Expenditures: Enhanced Tax Collection and Tax Reform

- Still another possible reform is to change the headquarters system of corporate taxation. Currently, a Chinese corporation pays taxes to both the central government and the provincial-level government where its headquarters is located, regardless of where the revenue is generated. Thus, Beijing, Shanghai, and Guangdong receive the bulk of the taxes paid to provincial-level governments.
- A more equitable approach is for the corporations to pay taxes to the provincial-level governments in accordance with where the revenue is actually generated.
- It is somewhat more complicated as each corporation may have to pay taxes to 31 provincial-level jurisdictions. However, this should be completely feasible as the underlying data should be readily available. The adoption of such a plan is should result in a more equitable sharing of the tax revenue across different provinces, municipalities and autonomous regions and has the potential of reducing the burden of the central government for providing transfer payments to the provinces, municipalities and autonomous regions.

The Financing of Government Expenditures: Provision of Public Goods

- One problem of public goods provision is that most of the activities do not generate positive value-added at market prices. For example: cleaning up air pollution is costly but does not generate any positive net revenue and hence does not create any net positive GDP; providing mass transit improves the environment, reduces traffic congestion, and enhances welfare, but often cannot break even on its own.
- Thus, increasing public goods provision is likely to result in a reduction of the rate of growth of measured real GDP even as it enhances social welfare (unless and until we adopt a "green GDP").
- How can public goods provision be financed? In general, it has to be subsidised. Public goods can be financed through general revenue, project bonds, user fees, or specific taxes such as a carbon tax, or a property tax.

The Financing of Government Expenditures: The Financing of Central Government Projects

- Central government projects can be financed through central government project bonds. If it were decided to implement mandatory 12-year education for all, large on-going current expenditures as well as capital expenditures will be needed. How can these expenditures be financed?
- One possibility is for the central government to issue perpetual bonds for the specific purpose of financing the capital expenditures for introducing 12-year mandatory education for all. These are bonds that never have to be repaid and last forever (but can be re-purchased by the government and cancelled at its option). In each period, only the interest has to be paid by the government to the then bond-holder. These bonds can be freely bought and sold on the market, so that there is always sufficient liquidity. Moreover, if the interest rate is variable, and set equal to the one-year government bond rate of that period, the price of the bond will be virtually constant and very stable.

The Financing of Government Expenditures: The Financing of Central Government Projects

- Perpetual bonds issued by the Bank of England to finance the war against Napoleon is the early 19th Century are still outstanding and traded in London.
- Perpetual bonds is a way of cost-sharing between current and all future generations. 12-year mandatory education will benefit both the current and all future generation and it makes sense for the costs of introducing 12-year mandatory education to be shared. Each generation will pay only the interest on the perpetual bond.

The Financing of Government Expenditures: The Financing of Local Governments

- The local governments of China, at the city and county (xian) levels, need a tax base. They are responsible for the provision of mandatory 9-year education, public health, public safety (fire and police), elderly care, local transportation and the environment. But they do not have a tax base to generate the needed revenue. Thus far, they have mostly relied on the proceeds from selling the land under their control to real estate developers.
- They should be given a regular and sustainable tax base. The introduction of a property tax, levied on all properties in a locality in proportion to their market values, appears to be the most feasible and equitable approach. The tax rate does not have to be high—1% or less should suffice. The objections from the real estate developers have to be overcome because the sustained and sustainable financing of the local governments is a long-term issue.

The Long-Term Challenges: Economic De-Globalisation, De-Coupling and De-Risking

- Economic globalisation can improve the welfare of all countries in the world, while economic de-globalisation will reduce the overall welfare of all countries. Economic de-globalisation, de-coupling and de-risking mean that every economy faces fewer choices than before, leading to lower overall welfare for all economies. As a result, global economic growth will slow.
- The de-coupling of economies could lead to temporary disruptions in existing supply chains, affecting production activities around the world. Multiple parallel independent trade blocs as well as supply chains will emerge. Globally, protectionism will rise, reflected in import barriers and tariffs as well as export controls.
- De-globalisation, just like globalisation, will create winners and losers in every economy. However, the market will only reward the winners but not compensate the losers. It is up to the governments to provide transitional assistance to the losers.

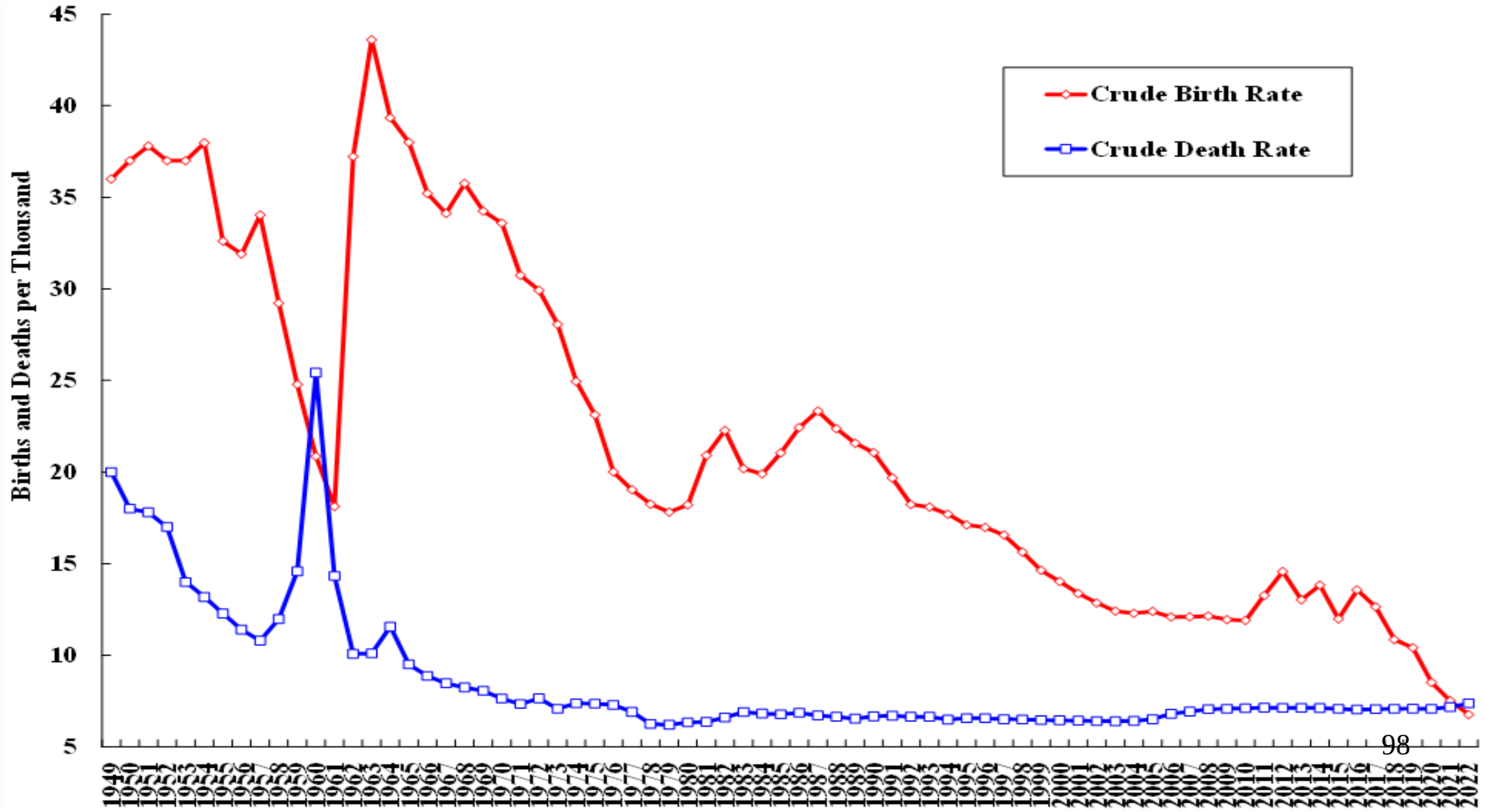
The Long-Term Challenges: Economic De-Globalisation, De-Coupling and De-Risking

- A partial de-coupling of the Chinese and U.S. economies seems inevitable, not only because of the COVID-19 pandemic and other possible viruses that may emerge in the future, but also because of the increasingly intense strategic competition between the two countries.
- However, the Chinese economy is no longer dependent on net exports, it is mainly driven by domestic demand. The negative impact of economic de-coupling can be mitigated through diversification of supply sources, second-sourcing, and indigenous innovation. However, it is important not to equate self-reliance to self-sufficiency.
- It is actually good for the world to have two or more sources for each product or service eventually. It will generate competition among suppliers, eventually decreasing prices and increasing quality, and ultimately benefitting all consumers and users. It will also protect the global economy from natural disasters such as earthquakes and tsunamis and wars.

The Long-Term Challenges: A Declining and Ageing Population

- China's crude birth rate fell from 3.60% in 1949 to 0.677% in 2022, below the crude death rate of 0.737%. Much improvement has occurred in healthcare and public hygiene in China. The crude death rate has declined by more than half from 2.0% in 1949 to 0.677% in 2022. This was the first decline in total population since 1960 (see chart). The total population decreased by 850,000 to 1,411.75 million.
- China's crude birth rate is unlikely to rise significantly in the short term. However, due to the COVID-19 pandemic, crude birth and death rates from 2020 to 2022 are likely to be respectively abnormally low and abnormally high, and they should return to normal within a year or two. The low marriage rate caused by the COVID-19 pandemic also indirectly affected the crude birth rate.
- China's total population is aging rapidly and has begun to decline (in part, this is a legacy of the one-child policy implemented between 1980 and 2015). But the recent lifting of restrictions on the number of children per couple, and the possible lowering of the marriage-eligible ages should also help gradually raise China's birth rate, but it will take more than two decades for it to have a noticeable impact on increasing the labour force. While the decline in the overall population is a warning signal, China is still far from having a severe labor shortage.

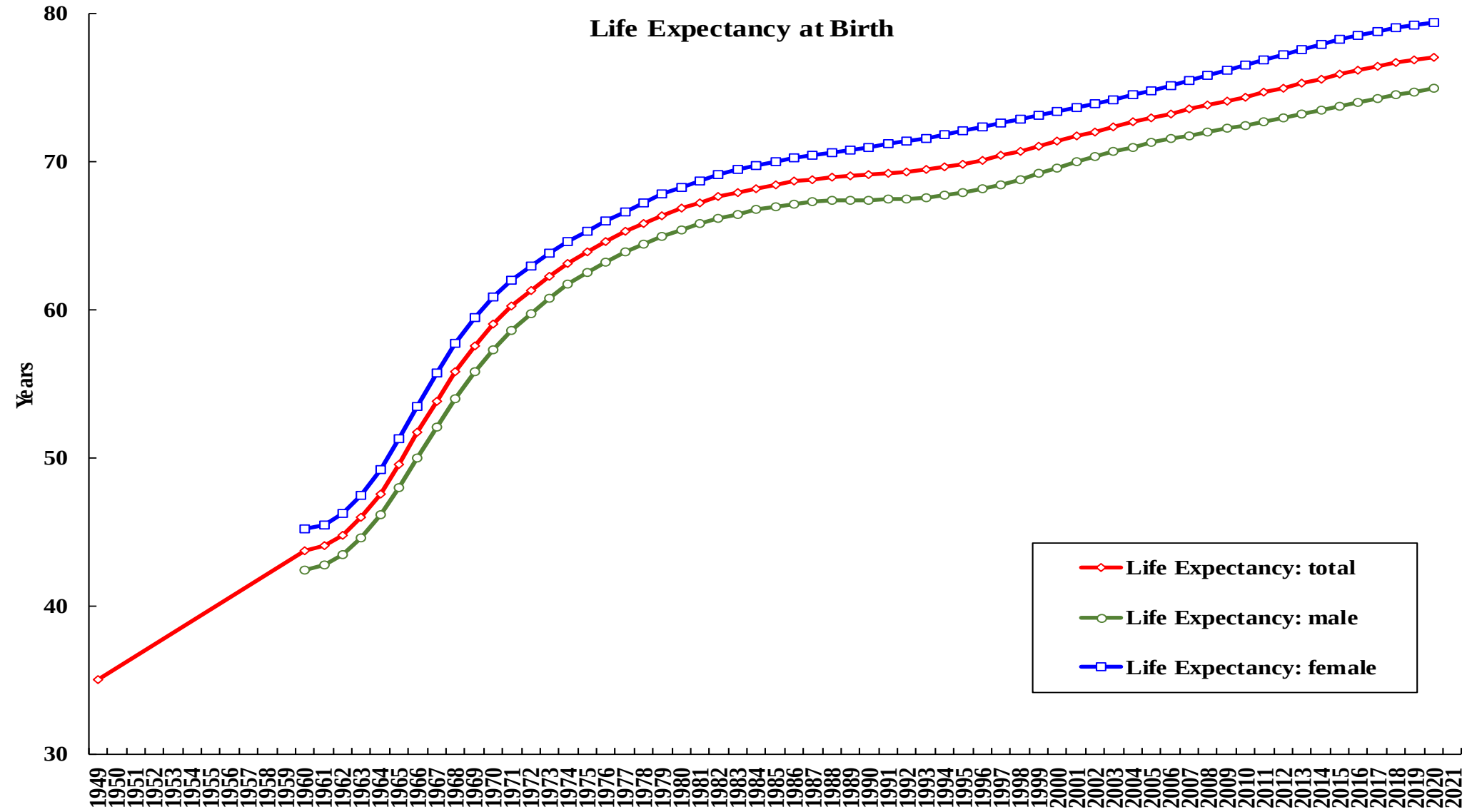
A Declining and Ageing Population: The Crude Birth and Death Rates



A Declining and Ageing Population: Raising the Mandatory Retirement Ages

- In addition, China's current mandatory retirement ages, 50 for women (a female cadre is allowed to work until 55) and 60 for men, was a policy inherited from the early 1950s, when life expectancy was in the low sixties. But with the development of the economy, life expectancy at birth in China increased from 35 years in 1949 to 67.8 years in 1981 and 77.9 years in 2020 (compared to 72.3 years for the world as a whole).
- In 2020, the 60-year-old Chinese has a life expectancy of 20.21 years and can live beyond 80 years. The gradual raising of the mandatory retirement ages should help increase China's working-age population, as would the adoption of automation and robotics through the application of artificial intelligence.

A Declining and Ageing Population: Life Expectancy at Birth



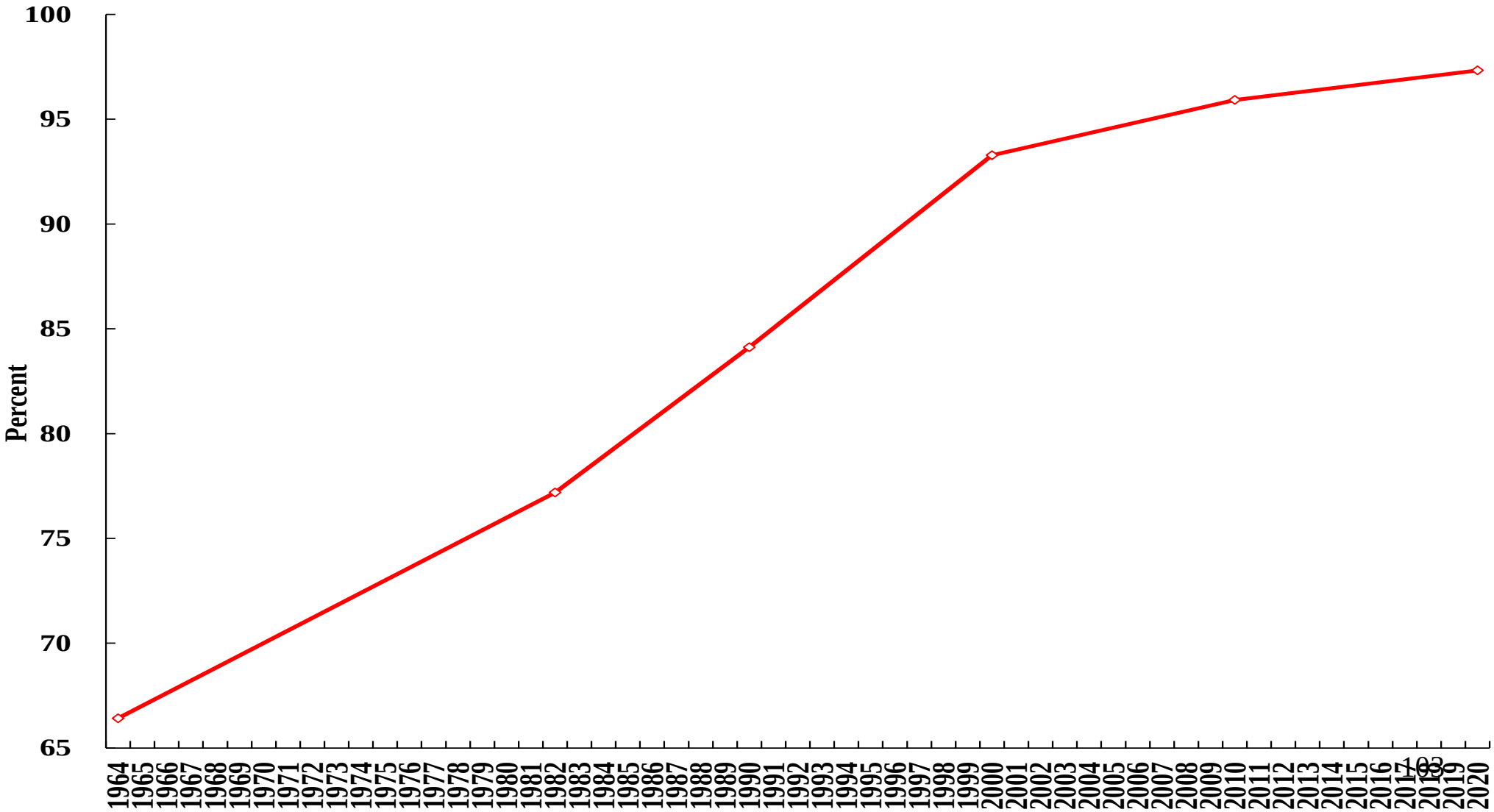
A Declining and Ageing Population: Raising the Mandatory Retirement Ages

- In 2022, there were approximately 70 million people aged between 60 and 65 in China, not to mention another tens of millions of women aged between 50 and 60, who could join or rejoin the labour force if the mandatory retirement age is gradually extended to 65.
- In the report of the Central Economic Work Conference held at the end of 2022, the feasibility of extending the mandatory retirement age was also mentioned.
- Moreover, through various investments in education and public health, the quality of China's labour force has improved significantly (see charts below). The "efficiency-equivalent" quantity of the labour force continues to grow, even though it is no longer growing from a strictly numerical headcount perspective.

A Declining and Ageing Population: Enhanced Quality of Labour—Literacy

- Traditionally, for at least a couple of millennia, the Chinese people have always valued education highly, in large part because it was one of the very few channels for upward social mobility. In the social hierarchy of old China, scholars are on the very top, followed by farmers, and then by labourers, with the merchants at the very bottom. Being wealthy alone does not improve social status or earn respect.
- More generally, literacy (and the promotion of Putonghua) are clearly public goods because they enable all Chinese people to communicate with one another in both speech and writing.
- The literacy rate, which must have been way below 50% in 1949, increased from 66.4% in 1964 to 97.3% in 2020, thanks in part to the simplification of the Chinese characters undertaken in the 1950s and codified in 1964.
- The simplification has been subject to much criticism, some quite justifiable, but it did reduce the number of years of schooling required for an average person to be able to read a newspaper from eight to four years, a major accomplishment.

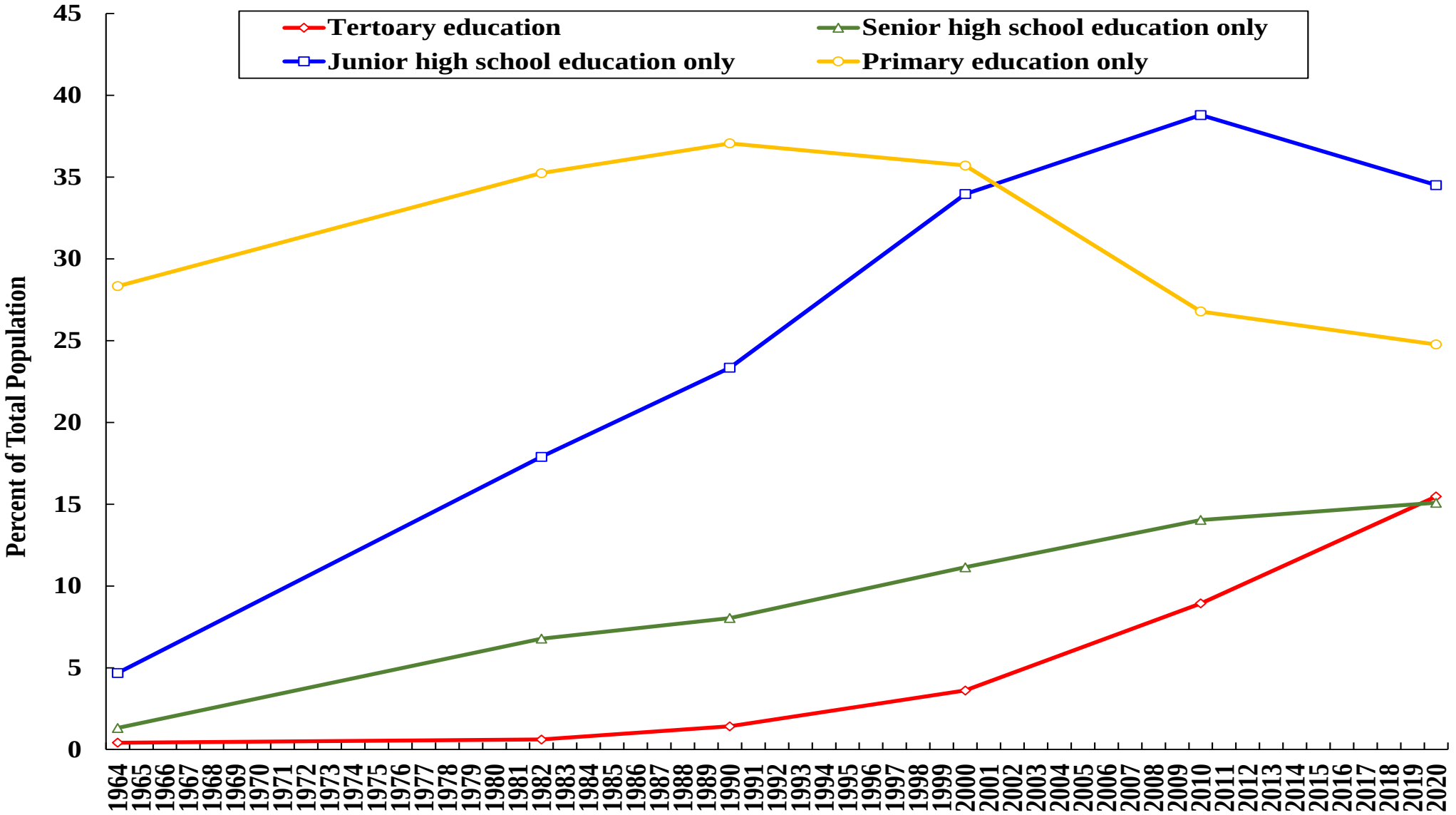
Enhanced Quality of Labour: The Literacy Rate (Percent)



Enhanced Quality of Labour: Educational Attainment Rates

- Mandatory 9-year education for all was introduced in China in 1986. Today, most young people have had at least 12 years of education, even though senior secondary education is still not yet mandatory at this time.
- The proportions of people with only primary education (the yellow line) or junior secondary education (the blue line) have already peaked and begun to decline.
- The proportion of the total population with tertiary education (the red line), which was only 0.42% in 1964, 0.6% in 1982 to 18.9% in 2021, a huge improvement. and is expected to increase further with time.
- The tertiary enrolment rates of graduates of secondary schools was 24.6% in 1989 and rose to 94.5% in 2016. This means almost everyone who wishes to attend a tertiary educational institution is now able to do so. (However, the proportion of the population aged 18-22 that were enrolled in tertiary education institutions in 2021 was only 57.6%, because not everyone in this age cohort had completed senior high school.)

Enhanced Quality of Labour: Educational Attainment Rates (Percent)



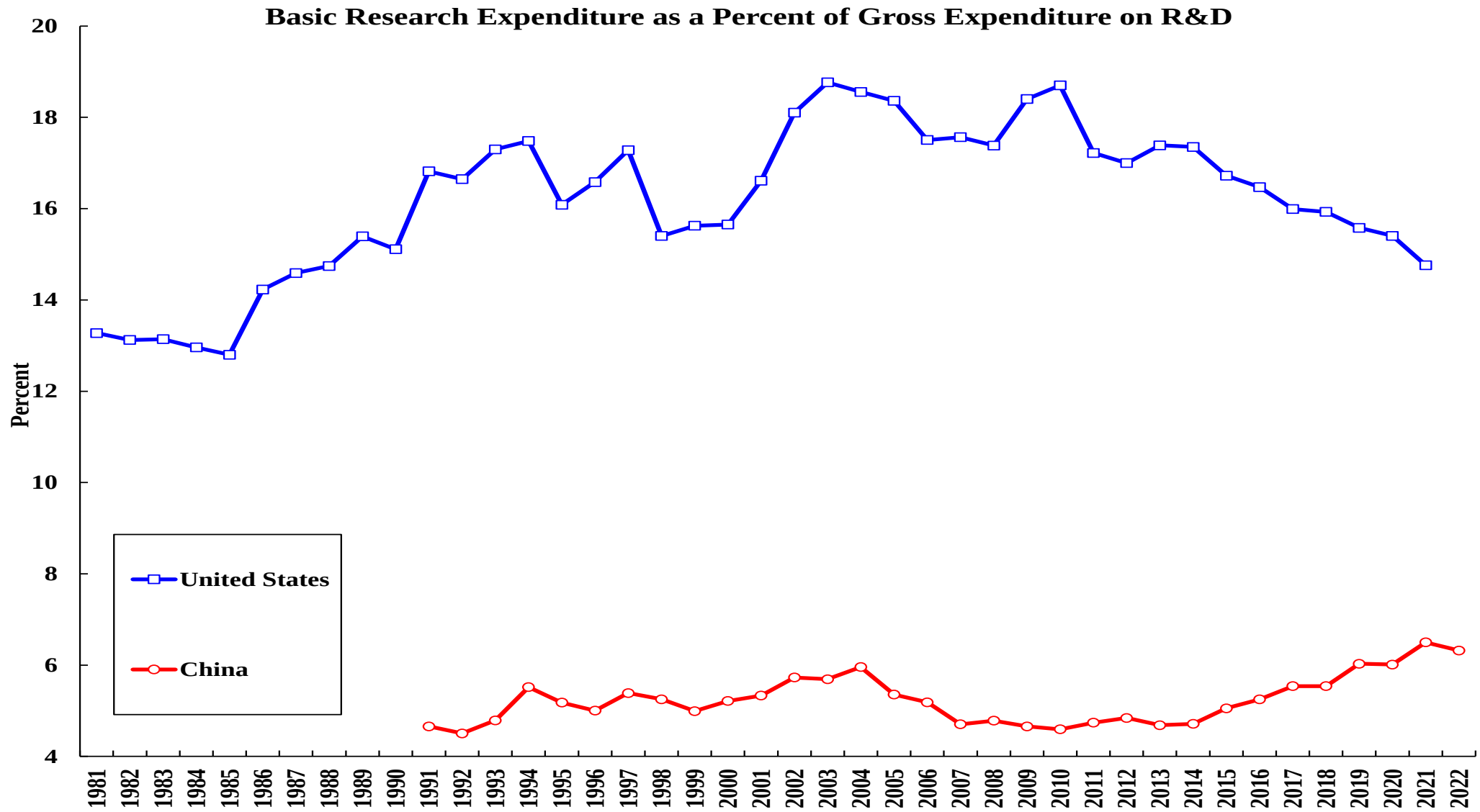
A Declining and Ageing Population: The Supply of Labour

- As analysed above, the problem of labor shortage can be alleviated in the short and medium term in a variety of ways, both quantitatively and qualitatively.
- In the long run, however, it is in China's national interest to strive to achieve a net population reproduction rate of one, that is, to maintain a basically stable population. This would require raising the crude birth rate to more than 7 per 1,000 persons. I believe this is possible, but it is impossible to predict when it will happen.

The Long-Term Challenges: Maintenance of Long-Term Technological Self-Reliance

- China is now subject to export controls imposed by the U.S. on high-technology hardware and software on not only the U.S. but also countries such as Japan and the Netherlands, especially those pertaining to the manufacturing of advanced semiconductors. This is likely to slow down Chinese economic growth to a certain extent but not stop it completely.
- China will be making significant new investments in these areas in order to produce the critically needed components and parts indigenously. It is the experience of innovation that alternate paths to the same outcome will be discovered once it is proven to be possible. It is only a matter of time.
- However, breakthrough discoveries and inventions depend on sustained long-term investment in basic research. In 2021, China devoted 6.5% of its R&D expenditures to basic research, compared to the U.S.'s almost 15%. China should increase its investment in long-term basic research significantly .
- It is important to realise that self-reliance should not be equated to self-sufficiency.

Basic Research Expenditure as a Percent of Gross Expenditure on R&D



The Long-Term Challenges: The Avoidance of the Emergence of a Plutocracy

- The purpose of the continuing anti-corruption drive in China is to prevent China from becoming a “plutocracy (金權政治)”, like the U.S. is today, or a country governed by a “nomenklatura” elite class, as in the former Soviet Union.
- Even after ten years of anti-corruption campaign, we still see a senior official of vice-ministerial rank or above charged with accepting bribes almost every day. This shows that a “plutocracy” is not impossible.
- The real choice in today’s world is not so much autocracy versus democracy, but meritocracy versus plutocracy. China has had more than two millennia's experience as a meritocracy.

The Long-Term Challenges: China-U.S. Strategic Competition

- The China-U.S. strategic competition is likely to be the new normal for the next decade, with continuing "wars" on trade, investment, technology, finance and geo-politics. A partial de-coupling of the Chinese and US. economies is probably inevitable, but the impacts on the economies of the two countries will be relatively small.
- U.S. export controls on high-technology hardware and software can indeed slow growth in some sectors of the Chinese economy to some extent, but the cost of really essential Chinese projects, such as the manufacture of supercomputers, is not an important consideration in itself. Today, Chinese supercomputers can be made entirely from domestic components and parts. China will eventually be able to overcome the restrictions on technology through diversification, second-sourcing and indigenous innovation.

The Long-Term Challenges: China-U.S. Strategic Competition

- It is unlikely that the China-U.S. strategic competition will lead to a hot war between the two countries—the so-called "Thucydides's Trap" (of Graham Allison)-- because the resulting casualties and losses will be unimaginably huge for both sides. There will be no winners, only losers. Just as the former Soviet Union and the United States managed to avoid a hot war in the last century, despite fierce competition, a hot war between China and the U.S. is unlikely. As in the last Century, "Mutually Assured Destruction (MAD)" is the foundation of this "peace".
- However, MAD requires that both sides upgrade their weapon systems continuously so as not to let the other side have a decisive edge. An "arms race" is therefore also inevitable. And since such a race can be economically costly to both sides, eventually there will be incentives for both sides to enter into various arms limitation agreements similar in purpose to those between the former Soviet Union and the U.S. in the last Century.

Projections of the Future

- The Principal Uncertainties
- Forecasts of the Real Rate of Growth for 2023
- Long-Term Forecasts

Projections of the Future: The Principal Uncertainties

- However, even as the COVID-19 epidemic has become "normalised", the Chinese economy still faces significant uncertainties. The first uncertainty is the possibility of a global recession, affecting Europe and North America. Fortunately, the Mainland economy is no longer dependent on net exports, and the main driver of its growth is domestic demand. In addition, as a large continental economy like the United States, the Chinese domestic economy is basically insensitive to external interferences.
- A second potential uncertainty is the extent as well as the outcome of the China-U.S. strategic competition, with its continuing "wars" on trade, investment, technology, finance and geopolitics. Whether it is a partial de-coupling of the Chinese and US. economies, or a total de-coupling as during the old Cold War in the last Century, will make a significant difference. And what kind of an international order will emerge afterwards—a multi-polar but open global economy, or a bifurcated global economy?

Projections of the Future: The Principal Uncertainties

- A third uncertainty has to do with current and potential proxy wars. The Russia-Ukraine conflict may have additional spillover effects. A potential war between the two sides of the Taiwan Straits is also possible, especially with so many U.S. politicians trying to provoke the Mainland into firing the first shot, which could then be used as the pretext for organising international sanctions against China. A war over the Taiwan Straits will not benefit anyone but will result in huge loss of lives and destruction. We hope that reason will prevail at the end and peace can be maintained.

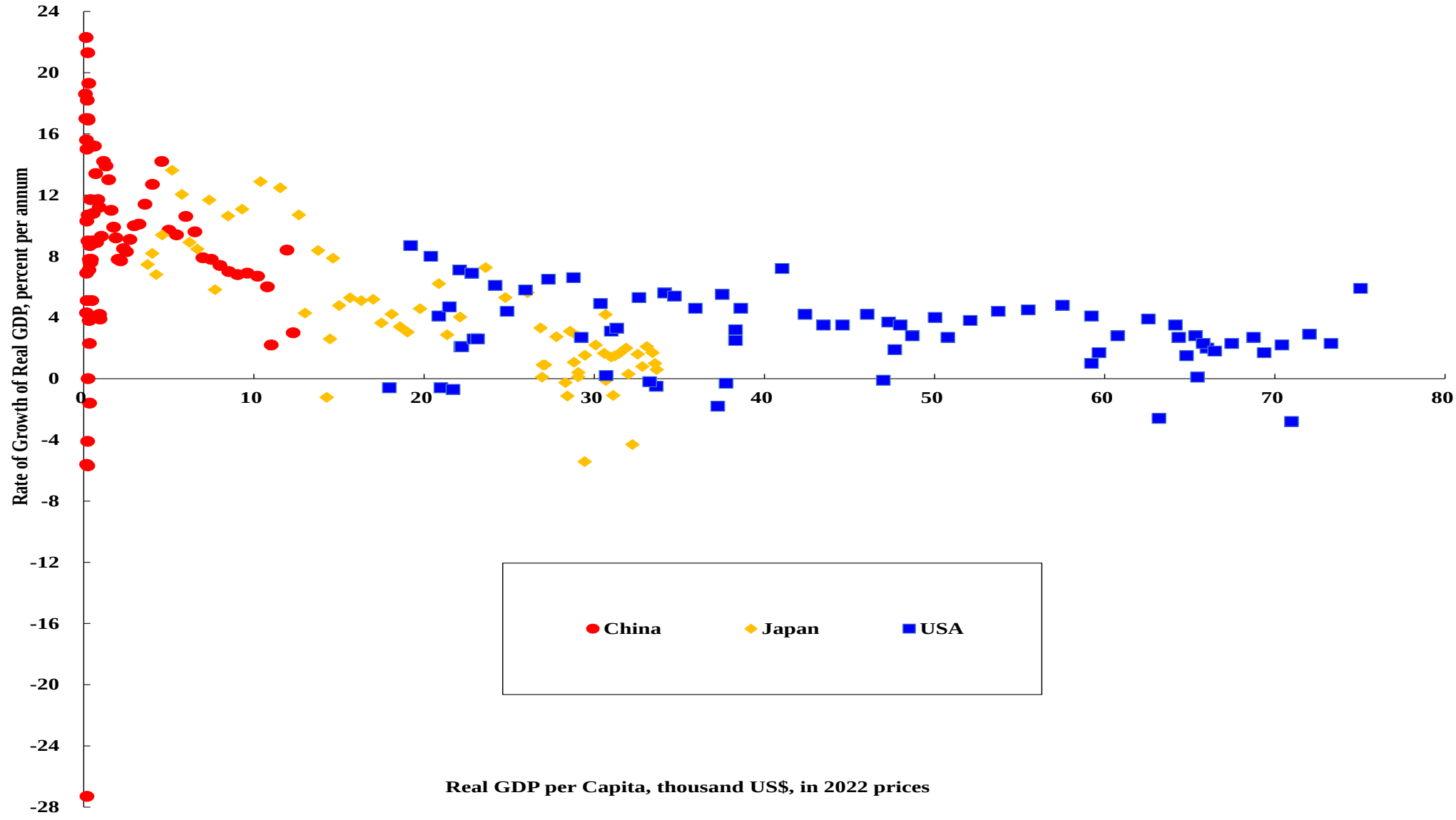
Projections of the Future: Forecasts of the Real Rate of Growth for 2023

- For 2023, the Chinese Academy of Social Sciences made a forecast of 5.1% real growth. The Chinese Academy of Sciences issued a forecast of growth of around 6%. Both the International Monetary Fund and the European Union forecast 5.2%. The World Bank projected 5.1%. My personal forecast, issued in January, is a 6% growth. All of these forecasts were made before the announcement of a target rate of growth of 5% by the Chinese Government in March. More recently, the United Nations updated its forecast to 5.3%.
- Another source of information consists of the announced 2023 target growth rates of the 31 provinces, municipalities and autonomous regions of Mainland China, also before the announcement of the 5% national target growth rate. The median provincial target growth rate is around 6%. A provincial GDP-weighted average of the target growth rates yields 5.64%. All of this suggests that the national rate of growth is most likely to be above 5%, and probably close to 6%, considering that nine of the provinces and municipalities have committed to try to exceed their respective target growth rates.
- In 2023Q1, the rate of growth of the Chinese economy was 4.5% year-over-year; in 2023Q2, the rate of growth was 6.3%. The rate of growth of 2023H1 was 5.5%. The rate of growth of 2023 as a whole is likely to be above 5.5% and may even reach 6%.

Projections of the Future: Long-Term Forecasts

- It is true that the Chinese economy cannot continue to grow at an average annual rate of close to 10% indefinitely, as it did between 1978 and 2018. In fact, it is an empirical regularity that as the real GDP per capita of an economy grows, the real rate of growth of the economy will decline. This is demonstrated in the following chart in which the real rates of economic growth of China (red), Japan (yellow) and the U.S. (blue) are plotted against their respective real GDPs per capita. As expected, there is a negative relationship between the rate of growth of real GDP and the level of real GDP per capita.
- However, we note that China, with a GDP per capita of US$12,309 in 2022, is currently still in the range that permitted average annual rates of growth much higher than 6% for both Japan and the U.S. in earlier periods. The real GDP per capita of the U.S. was US$76,414 in 2022, with its economy operating within a range around 3% average annual rate of growth.
- Perhaps when Chinese real GDP per capita reaches US$30,000 in 2022 prices, projected to occur a decade or so beyond 2035, the Chinese average annual real rate of economic growth will decline to 5% or below.

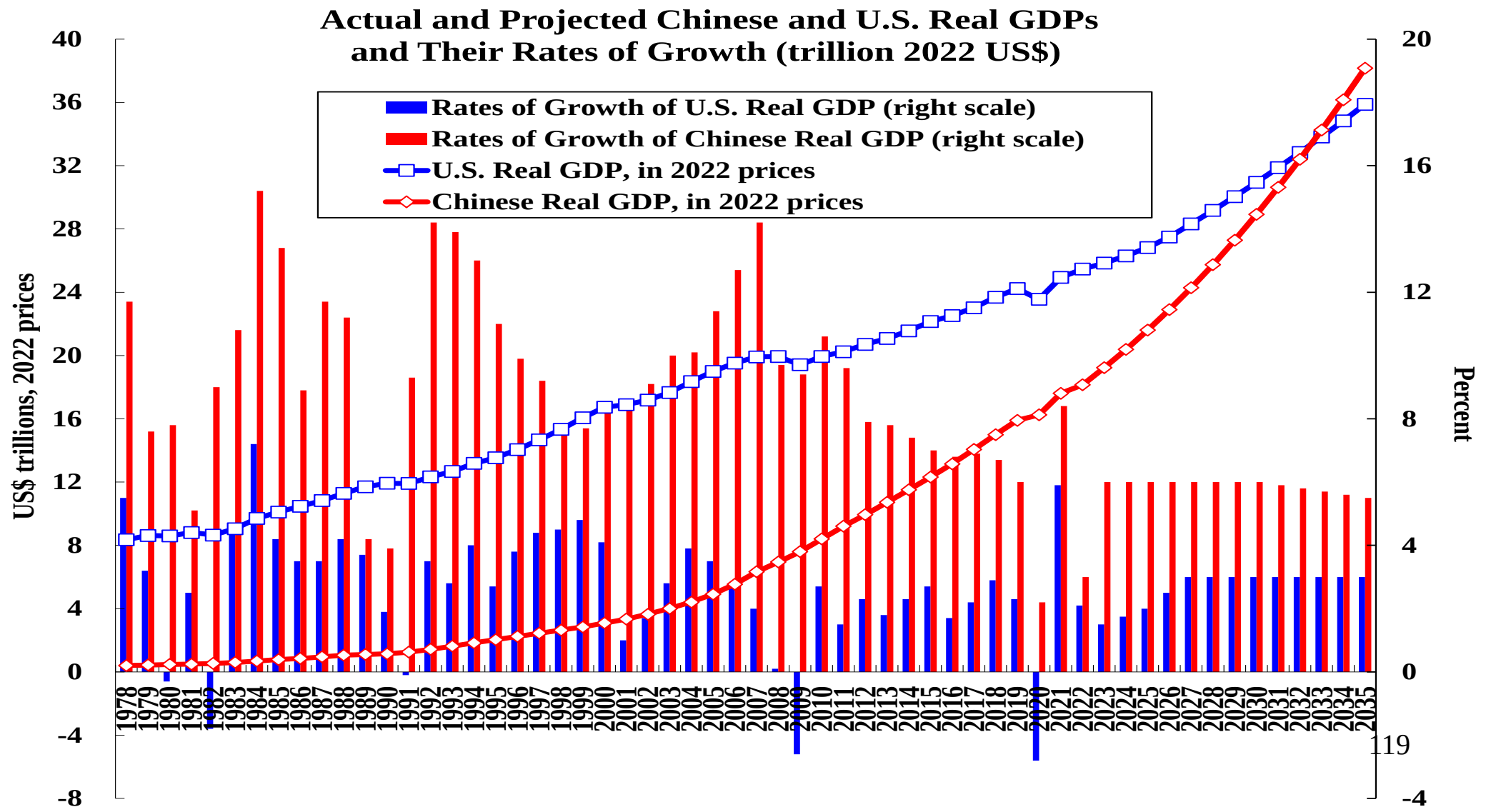
Rate of Growth of Real GDP vs Real GDP per Capita: Mainland China, Japan and the U.S.



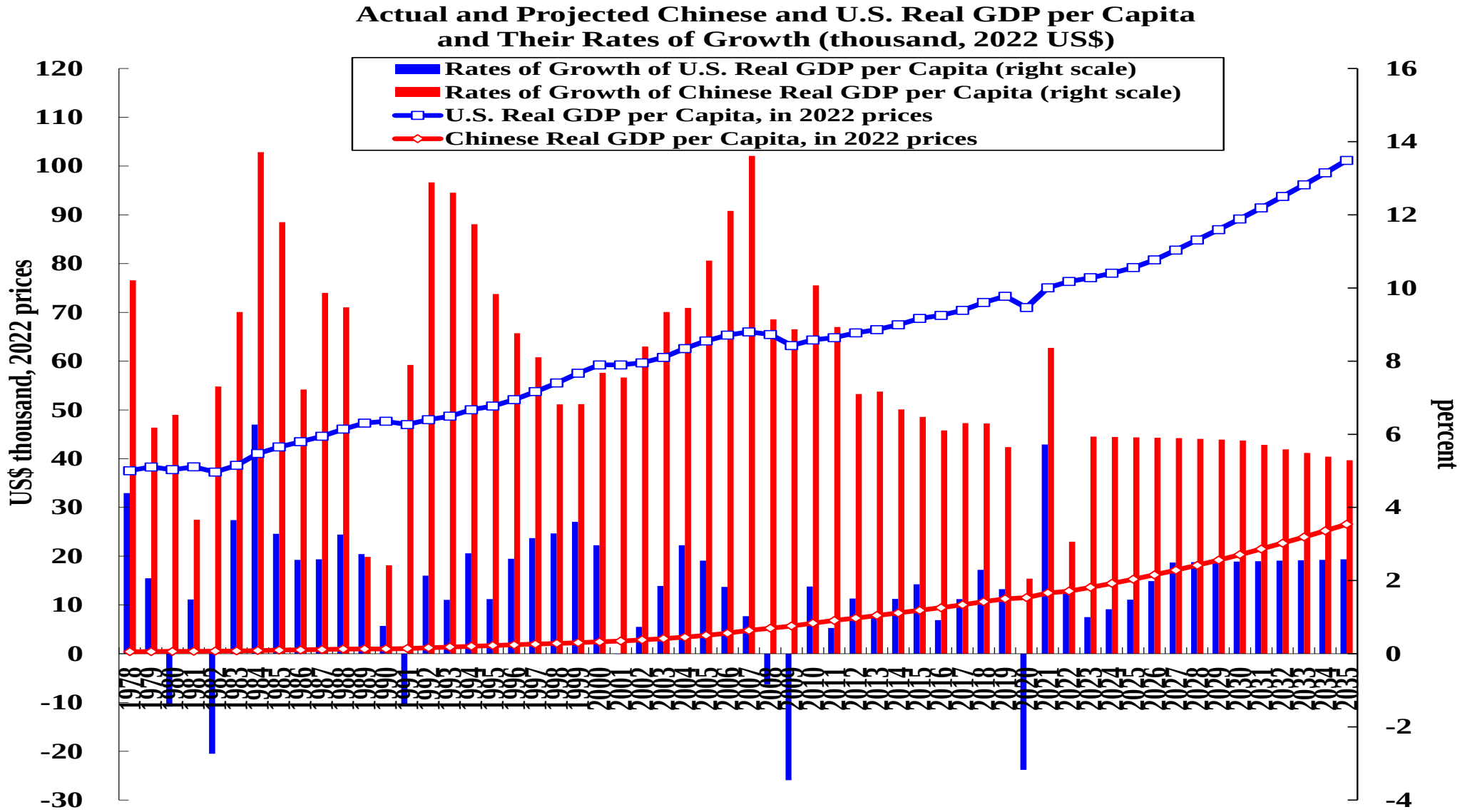
Projections of the Future: Long-Term Forecasts

- Over the next decade, China's economy will continue to grow faster than North America and Europe, although growth will slow in all three. My personal forecast is that by 2033, real GDP on the Chinese Mainland will reach US$34.2 trillion at 2022 prices, slightly higher than the US$33.8 trillion of the United States. Even so, Chinese real GDP per capita would still be less than one quarter of the real GDP per capita of the United States at that time.
- In fact, in which year Chinese real GDP will catch up with the U.S. real GDP is very much related to the exchange rate of the Renminbi against the US$. At the end of 2021, the exchange rate of the Renminbi against the US$ was 6.38 Yuan per US$, compared to 6.96 at the end of 2022, a difference of 9%. Therefore, at 2021 prices, Chinese GDP will catch up with U.S. GDP in 2030. The above forecast in 2022 prices is based on the average of the RMB/US$ exchange rate at year-end 2021 and year-end 2022.

Actual and Projected Chinese and U.S. Real GDPs and Their Rates of Growth (2022 US$)



Actual and Projected Chinese and U.S. Real GDPs per Capita and Rates of Growth



Concluding Remarks

- The Chinese economy has come a long way since 1949. In market prices and at official exchange rates, China is the second largest economy in the world, after the United States. However, in terms of GDP per capita, China probably ranks around number 74 in the world, with less than one-sixth of the GDP per capita of the U.S.
- Since the beginning of the economic reform and opening in 1978, the income distribution of China has also become more unequal, with a significant rise of the Gini coefficient from a low of 0.28 in 1983 to a peak of 0.45 (0.49 according to the National Bureau of Statistics of China (NBSC)) in 2008. It has since declined slightly to 0.43 (0.47 according to NBSC) in 2020, compared to 0.49 for the U.S.
- However, despite the significant rise in the value of the Gini coefficient, the welfare of all Chinese people has improved significantly since 1978.

Concluding Remarks

- Moreover, the economic development of China during the past seven decades is characterised by not only quantitative growth, but also significant improvements in the "quality" of growth. Most of the improvements in quality have been brought about through the provision of more and better public goods .
- Provision of public goods such as education, public health, elderly care, environmental preservation, protection and restoration, basic research, infrastructure, social safety net, and alleviation of poverty has been vastly expanded over the past seventy years, with significant positive results.
- Public goods provision is also a form of income redistribution because everyone can benefit from the public goods equally, regardless of income levels.
- The provision of public goods has also raised the potential GDP of the Chinese economy through its effects on increasing the aggregate demand for investment and consumption, the productivity of the labour force, and the rate of return on other fixed-assets investment. For example, the productivity of the Chinese labour force has been greatly enhanced because of the improvements in its quality.

Concluding Remarks

- However, the provision of public goods frequently results in negative value-added at market prices, and will therefore reduce rather than enhance the rate of growth of measured GDP. For this reason as well as the current geo-political uncertainties, The Chinese Government has set a relatively modest goal for its economy in 2023: a rate of growth of 5%, the lowest in more than four decades. On the basis of China's economic fundamentals, this should be quite feasible. My own personal forecast remains at 6%.

Concluding Remarks

- The long-term prospects of the Chinese economy are on the whole excellent. While it is true that as the real GDP per capita of an economy rises, its real rate of growth will fall, China's per capita real GDP of US$12,309 in 2022 is still within the range of GDP per capita at which Japanese and U.S. rates of growth were higher than 6% on average. China should be able to achieve an average annual rate of growth of close to 6% over the next five years. However, because of its shift of emphasis to the quality of growth, its measured rate of growth of real GDP may be less than 6%.
- If current trends continue, China is likely to catch up to the U.S. in terms of aggregate GDP by 2033. Even then, the Chinese GDP per capita will only be approximately one quarter of the then U.S. GDP capita.
- However, given that the population of China is four times that of the U.S., and its relative scarcity of natural resources, arable land and accessible water, Chinese real GDP per capita may not be able to catch up to that of the U.S. until at least the end of this Century, if at all.

Concluding Remarks

- Going forward, the Chinese economy will be domestic demand-driven rather than export-driven. The Chinese economy is not capacity- or supply-constrained. Technical progress, or growth in total factor productivity, will also become an important source of Chinese economic growth, especially since the huge size of the Chinese market enhances the returns to investment in R&D.
- It is essential for the Chinese economy to maintain openness. Without economic globalisation and accession to the World Trade Organisation in 2000, the Chinese economy would not be where it is today. Self-reliance should not be equated to total self-sufficiency. We should always remember that it is a dual-circulation and not a mono-circulation development strategy.

Concluding Remarks

- Educational exchange between China and the U.S. and the rest of the world should also be maintained and continued as much as possible. China has benefitted greatly from scientists who had studied and/or worked abroad, such as DENG Jiaxian (鄧稼先), QIAN Sanqiang (錢三强), QIAN Xuesen (錢學森) and ZHU Guangya (朱光亞). Without them, the "two bombs and one satellite" might not have been possible so soon.
- The economic progress of the past forty plus years is the combined and joint effect of both economic reform and opening to the world. It would not have succeeded without one or the other. With only economic reform, or only opening to the world, the Chinese economy would have been far less successful. That is why China must continue its economic reform as well as its opening to the world.