

The Future of the Chinese Economy

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Outline

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- ◆ China in the Global Economy
- ◆ Global Economic Trends
- ◆ The Chinese Economic Fundamentals
- ◆ Projections of the Future
- ◆ Concluding Remarks

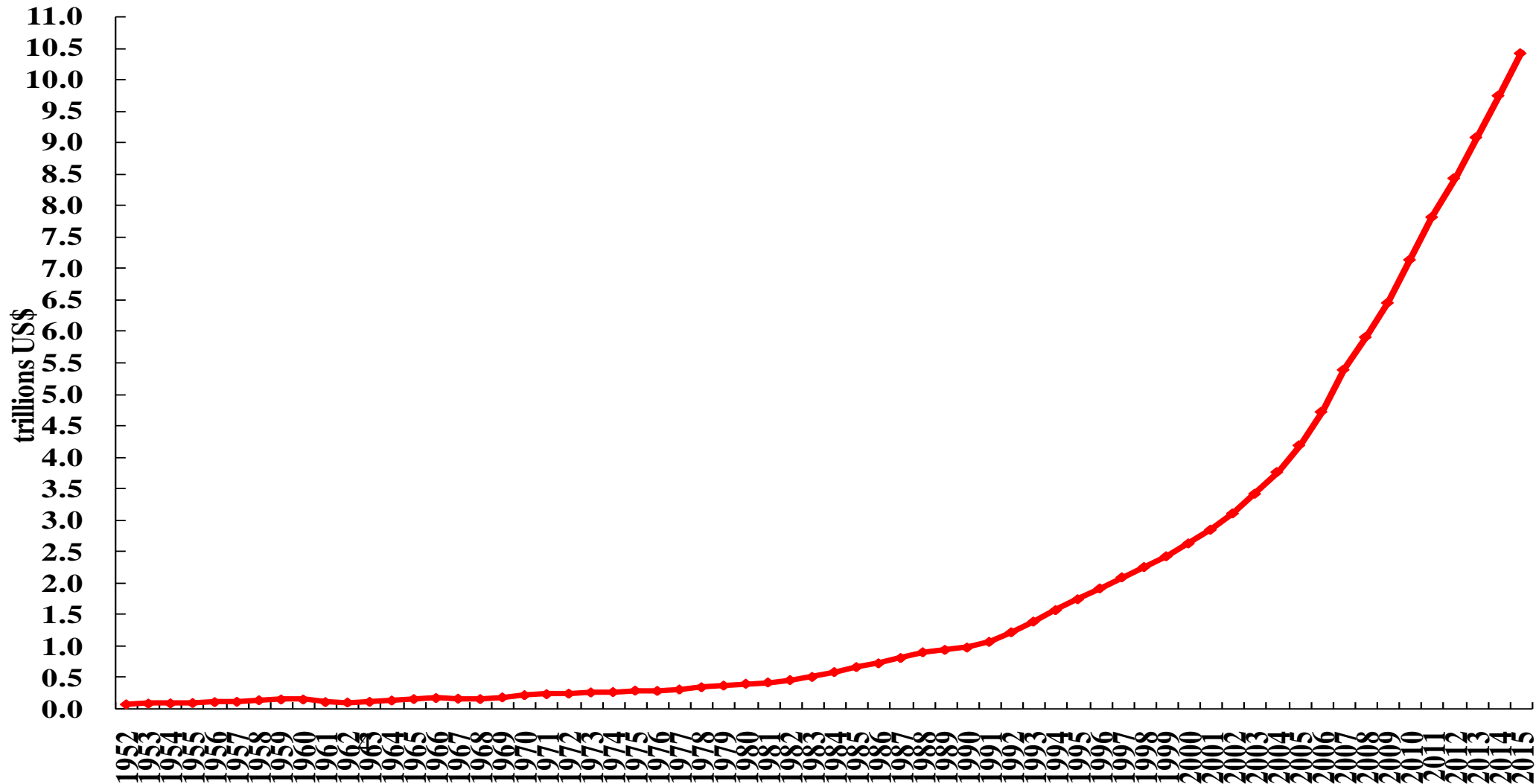
Introduction—The State of the Chinese

Economy

- ◆ China has made tremendous progress in its economic development since it began its economic reform and opened to the world in 1978. It is currently the fastest growing economy in the world—averaging over 9.6% per annum compounded over the past 37 years. It is historically unprecedented for an economy to grow at such a high rate over such a long period of time. However, the Chinese economy has begun to slow down, to an average annual rate of growth of around 6.5%, in a process of transition to a “New Normal”. In 2016, the Chinese economy grew 6.7% in real terms.
- ◆ But even 6.5% per annum is still a very high rate of growth relative to many other economies.

Chinese Real GDP in US\$ Since 1952 (2015 Prices)

Chinese Real GDP since 1952, in 2015 prices



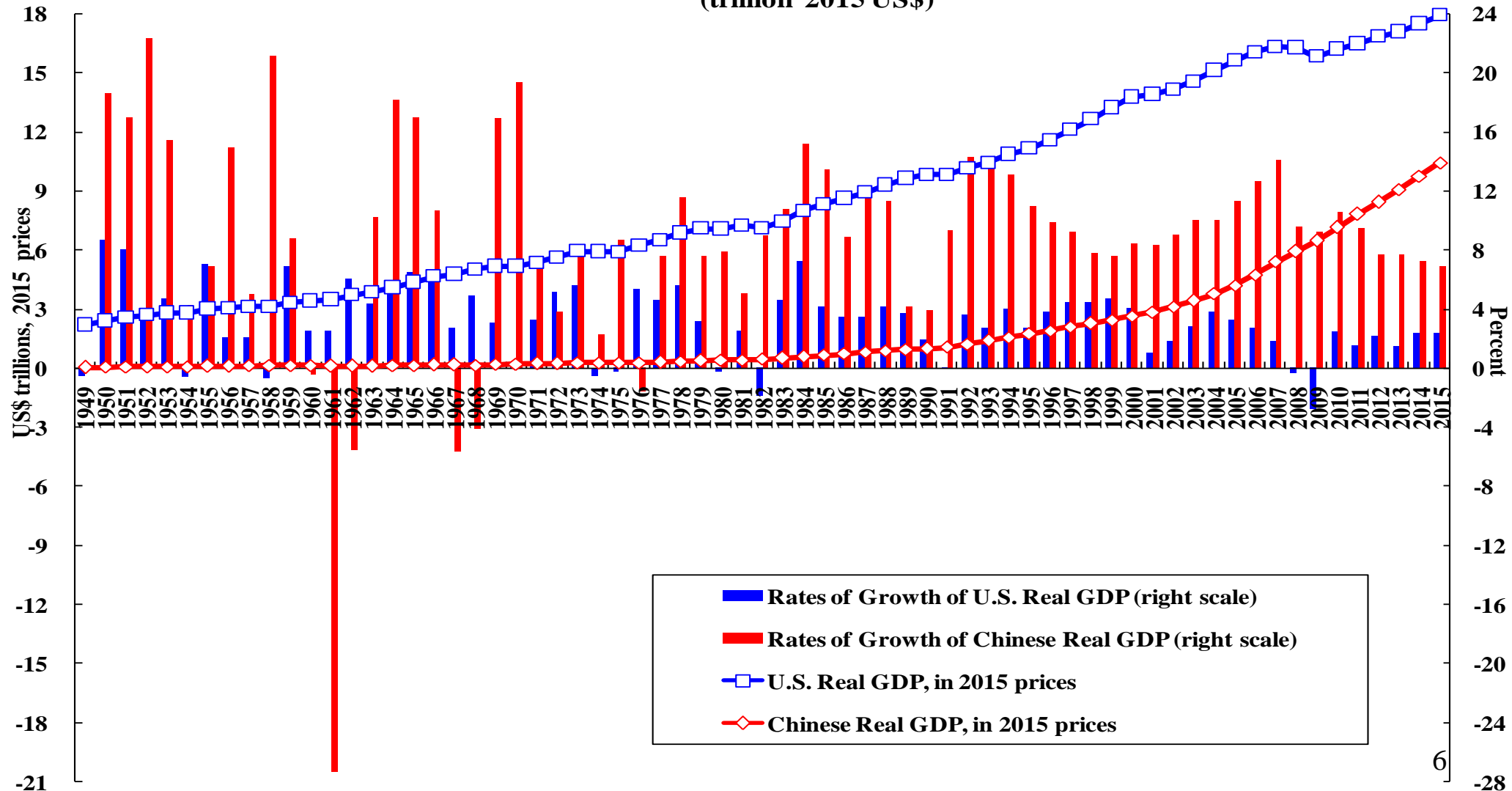
Introduction—the State of the Chinese

Economy

- ◆ It is useful to compare the growth of Chinese and U.S. real GDP in both aggregate and per capita terms (see the following charts). The red and blue lines represent the levels of real GDP and real GDP per capita of China and the U.S. respectively. The red and blue columns represent the annual rates of growth of China and the U.S. respectively.
- ◆ Between 1978 and 2015, Chinese real GDP grew from US\$346 billion to US\$10.4 trillion (in 2015 prices), to become the second largest economy in the world, after the U.S. In 2015, Chinese GDP was less than 60% of the U.S. GDP of US\$17.9 trillion.

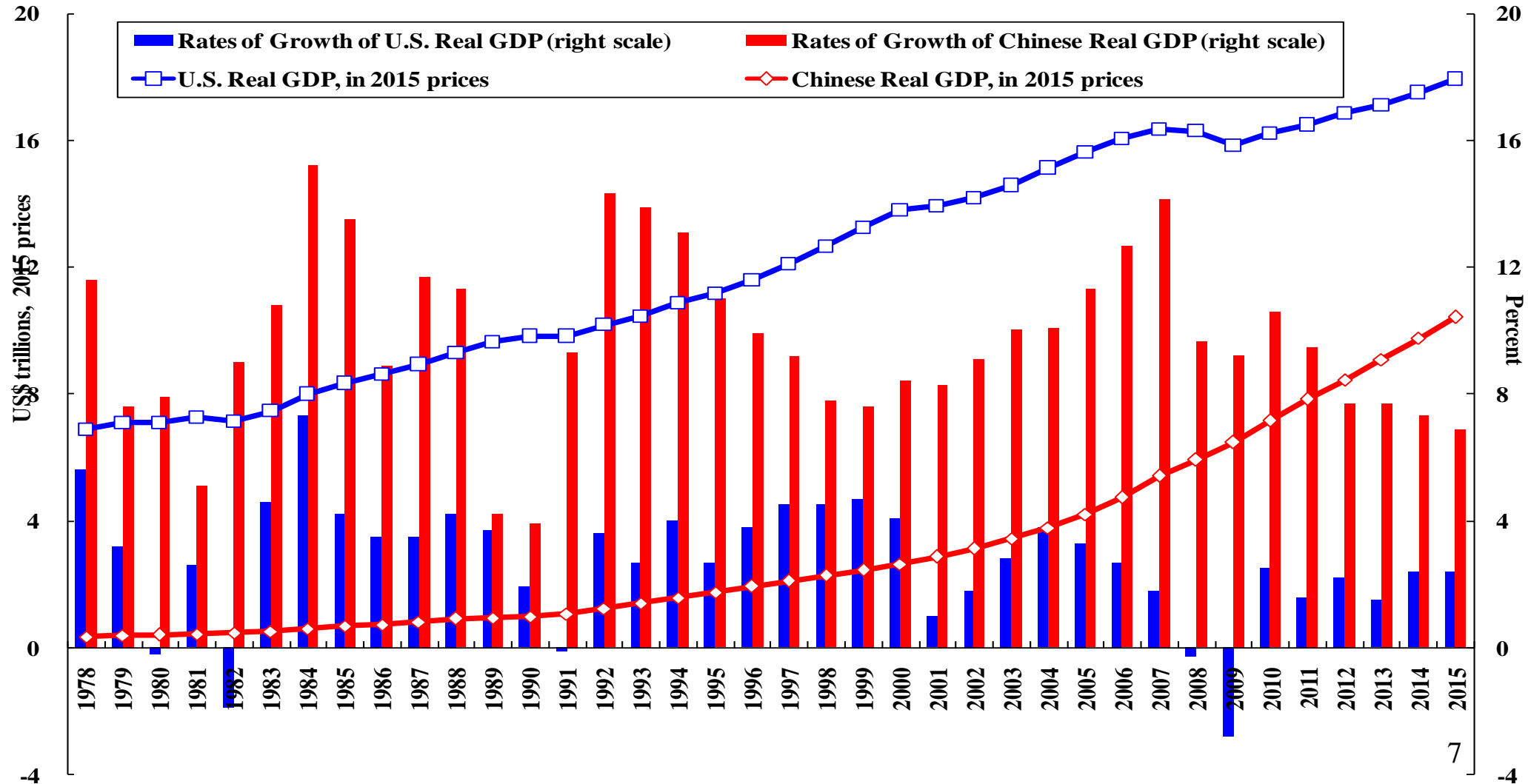
Real GDPs and Their Annual Rates of Growth: China & the U.S. (2015 US\$): 1949-present

Real GDPs and Their Annual Rates of Growth since 1949
(trillion 2015 US\$)



Real GDPs and Their Annual Rates of Growth: China & the U.S. (2015 US\$): 1978-present

Real GDPs and Their Annual Rates of Growth: China and the U.S. since 1978
(trillion 2015 US\$)



Introduction—the State of the Chinese

Economy

- ◆ Researchers at the International Monetary Fund (IMF), have found, on the basis of “purchasing-power-parity (PPP)” calculations, that the Chinese economy overtook the U.S. economy in 2014. In 2016, the IMF estimated the Chinese PPP GDP to be US\$21.269 trillion compared to US\$18.562 trillion for the U.S. (In 2015, Chinese PPP GDP was estimated by the World Bank to be US\$19.524 trillion compared to US\$17.947 trillion for the U.S.)
- ◆ However, PPP comparisons of GDPs between economies are not reliable because they are highly sensitive to the set of so-called “international prices” chosen to evaluate the goods and services produced in the different economies. The choice of prices can vary the resulting estimates of PPP GDPs greatly, especially because of the valuation of the non-tradable goods and services, the actual prices of which can differ significantly internationally due to differences in natural resource endowments such as land and minerals and in consumer preferences.

Key Performance Indicators Before and After Chinese Economic Reform

	Growth Rates	
	percent per annum	
	Pre-Reform Period	Post-Reform Period
	1952-1978	1978-2015
Real GDP	6.13	9.59
Real GDP per Capita	4.04	8.54
Real Consumption	4.98	9.25
Real Consumption per Capita	2.92	8.20
Exports	9.99	15.88
Imports	9.14	14.59
Inflation Rates (GDP deflator)	0.55	5.06

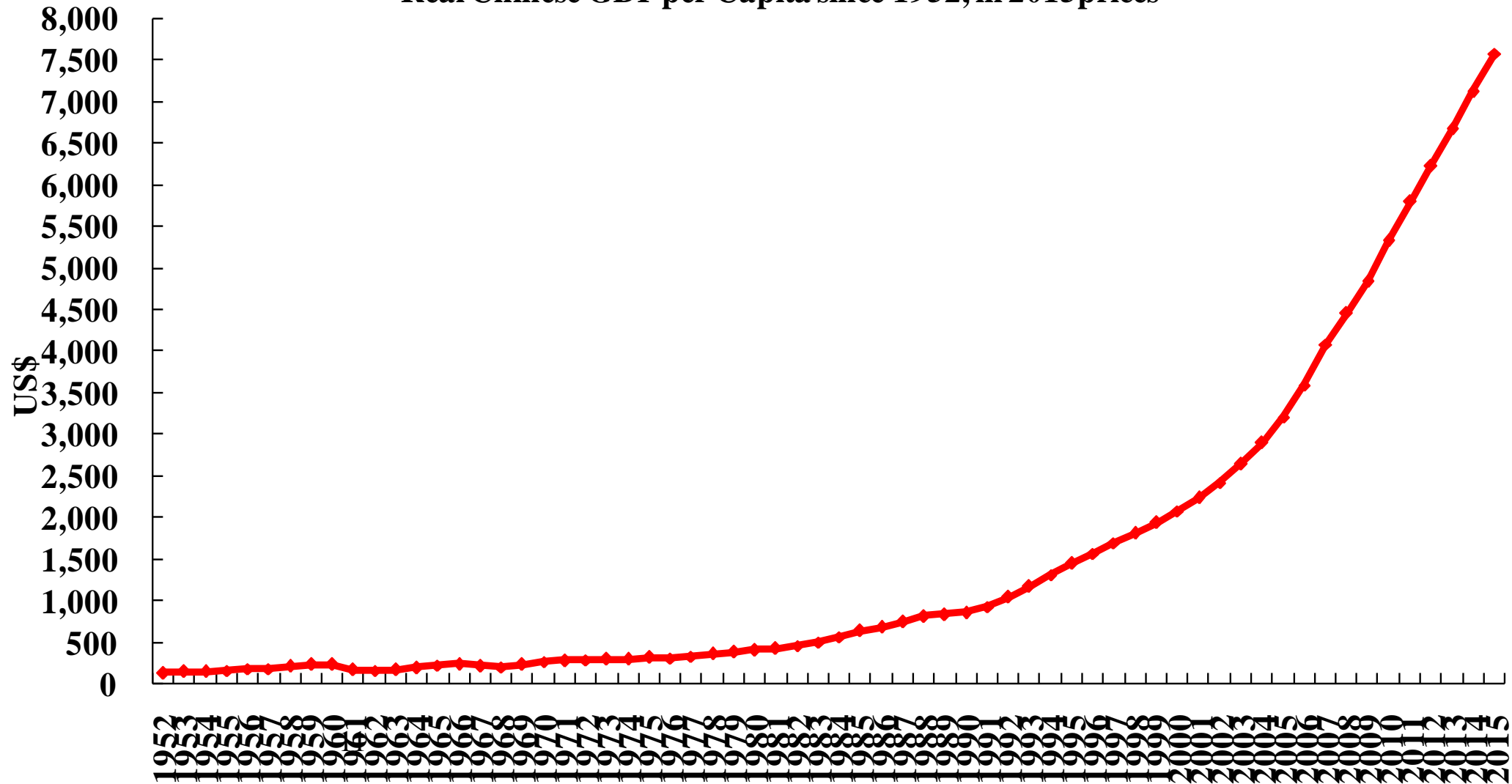
Introduction—the State of the Chinese

Economy

- ◆ However, despite its rapid economic growth in the aggregate, in terms of its real GDP per capita, China is still very much a developing economy because of its large population. China is the most populous country in the world.
- ◆ In 1978, the Chinese real GDP per capita was US\$360 (in 2015 prices) compared to the then US\$30,886 of the U.S. By 2015, the Chinese real GDP per capita had grown to US\$7,584, still only more than 13.6% of the U.S. GDP per capita of US\$55,759 (or less than one-seventh of U.S. GDP per capita).

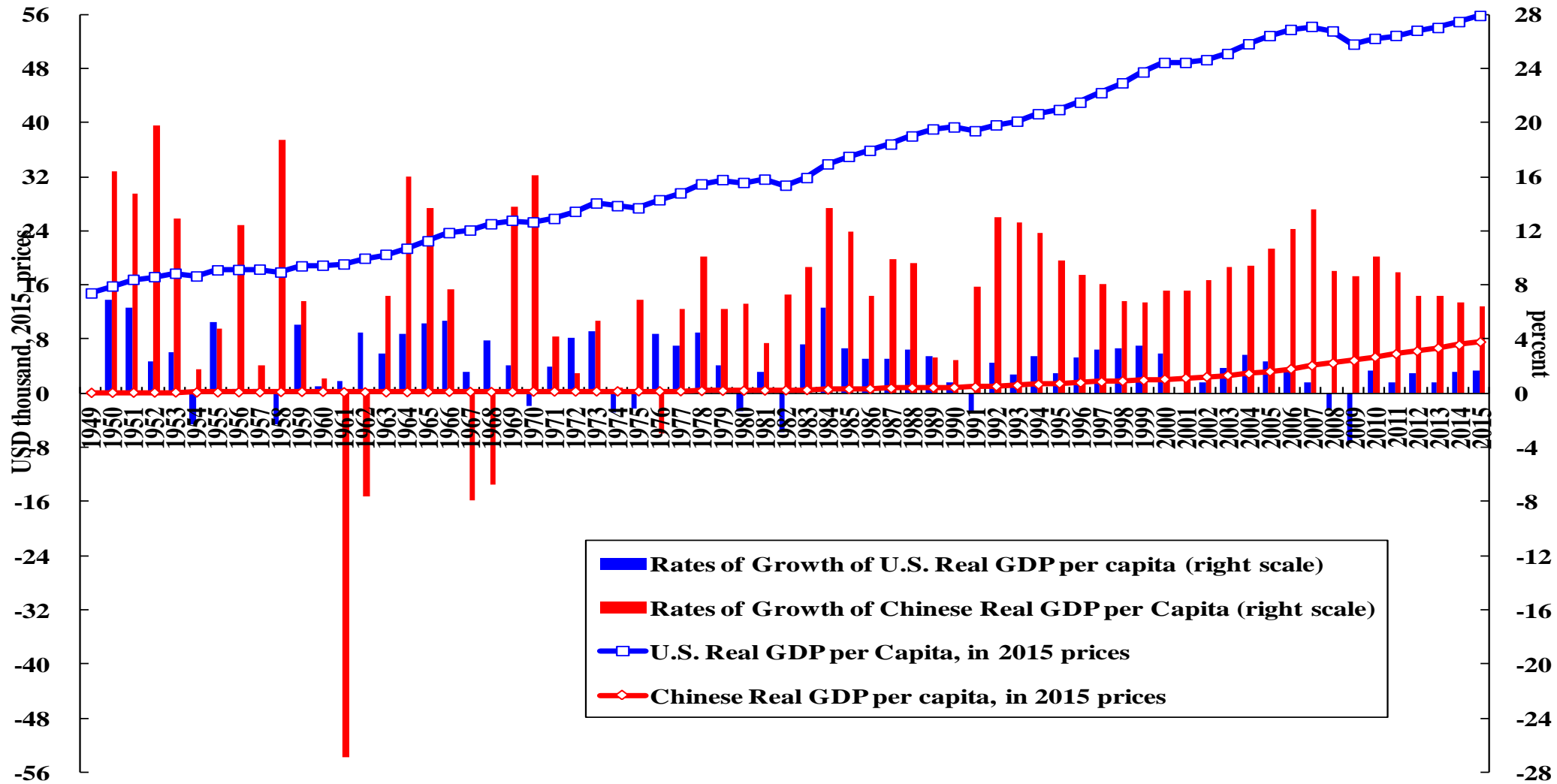
Real Chinese GDP per Capita in US\$ Since 1952 (2015 Prices)

Real Chinese GDP per Capita since 1952, in 2015 prices



Chinese and U.S. Real GDPs per Capita and Their Rates of Growth since 1949 (2015 US\$)

Chinese and U.S. Real GDP per Capita and Their Rates of Growth since 1949
(thousand, 2015 US\$)



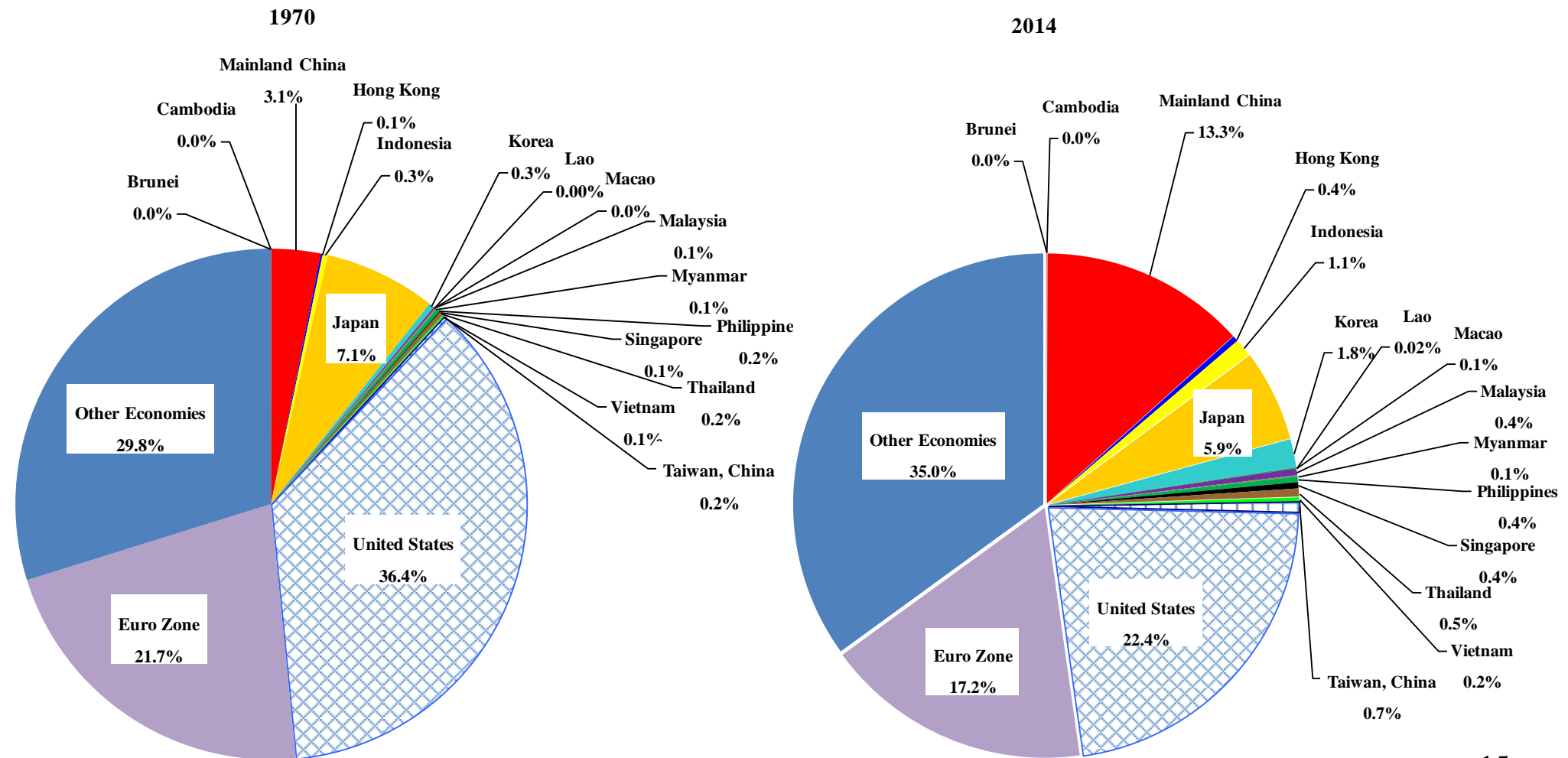
Global Economic Trends

- ◆ The Shifting of the Center of Gravity of the World Economy
- ◆ The Slowdown in Growth of GDP and International Trade
- ◆ The Partial De-Coupling Hypothesis
- ◆ The Limits of Monetary Policy
- ◆ The Price of Oil
- ◆ The Normalization of Interest Rates
- ◆ Demographics
- ◆ The Internet

Global Economic Trends: The Shifting Center of Gravity of the World Economy

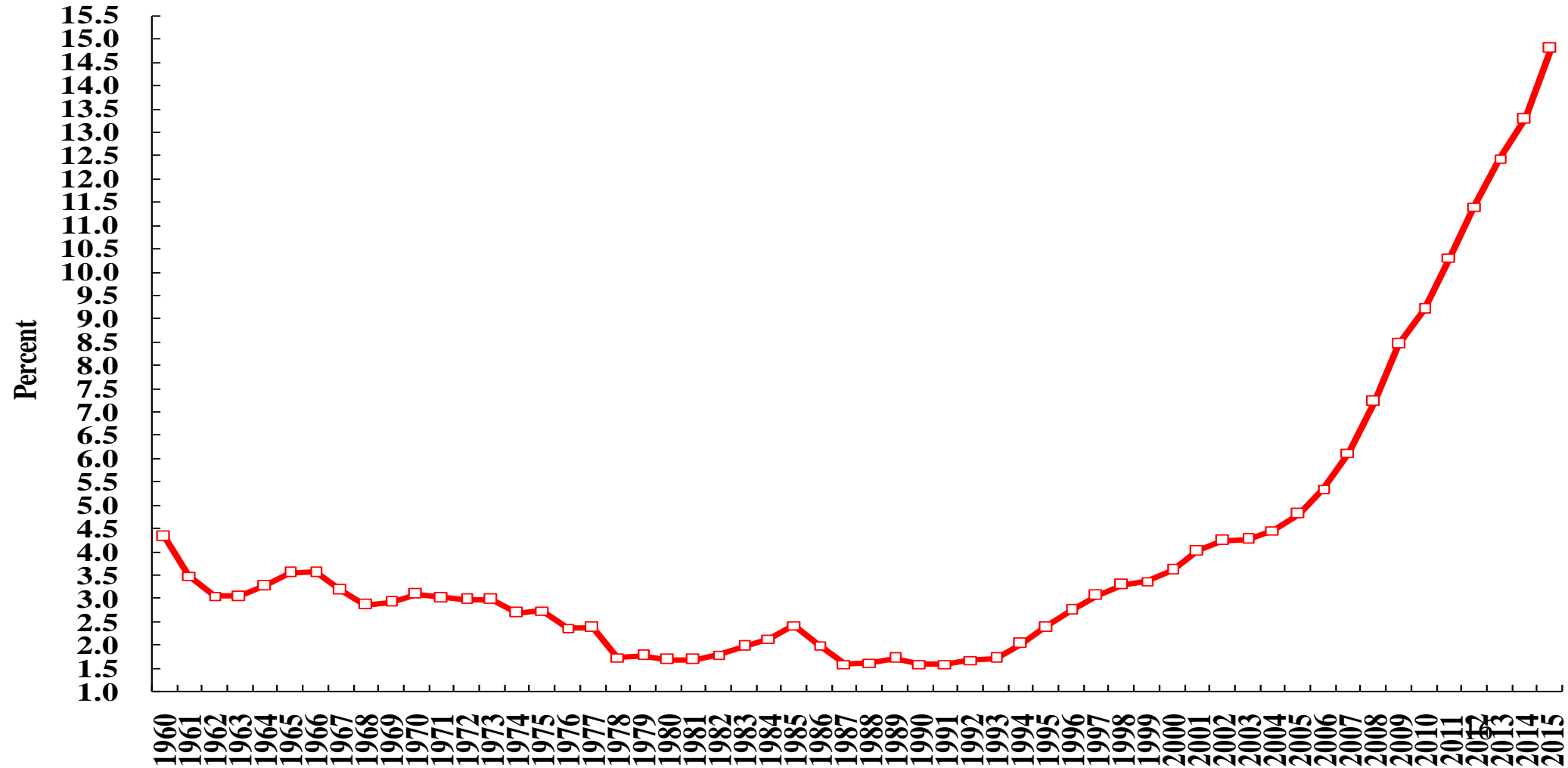
- ◆ The most important development in the global economy during the past four decades is the reform and opening of the Chinese economy and its participation in the world.
- ◆ As a result, the center of gravity of the global economy, in terms of both GDP and international trade, has been gradually shifting from North America and Western Europe to East Asia, and within East Asia from Japan to China.

The Distribution of World GDP, 1970 and 2014, US\$



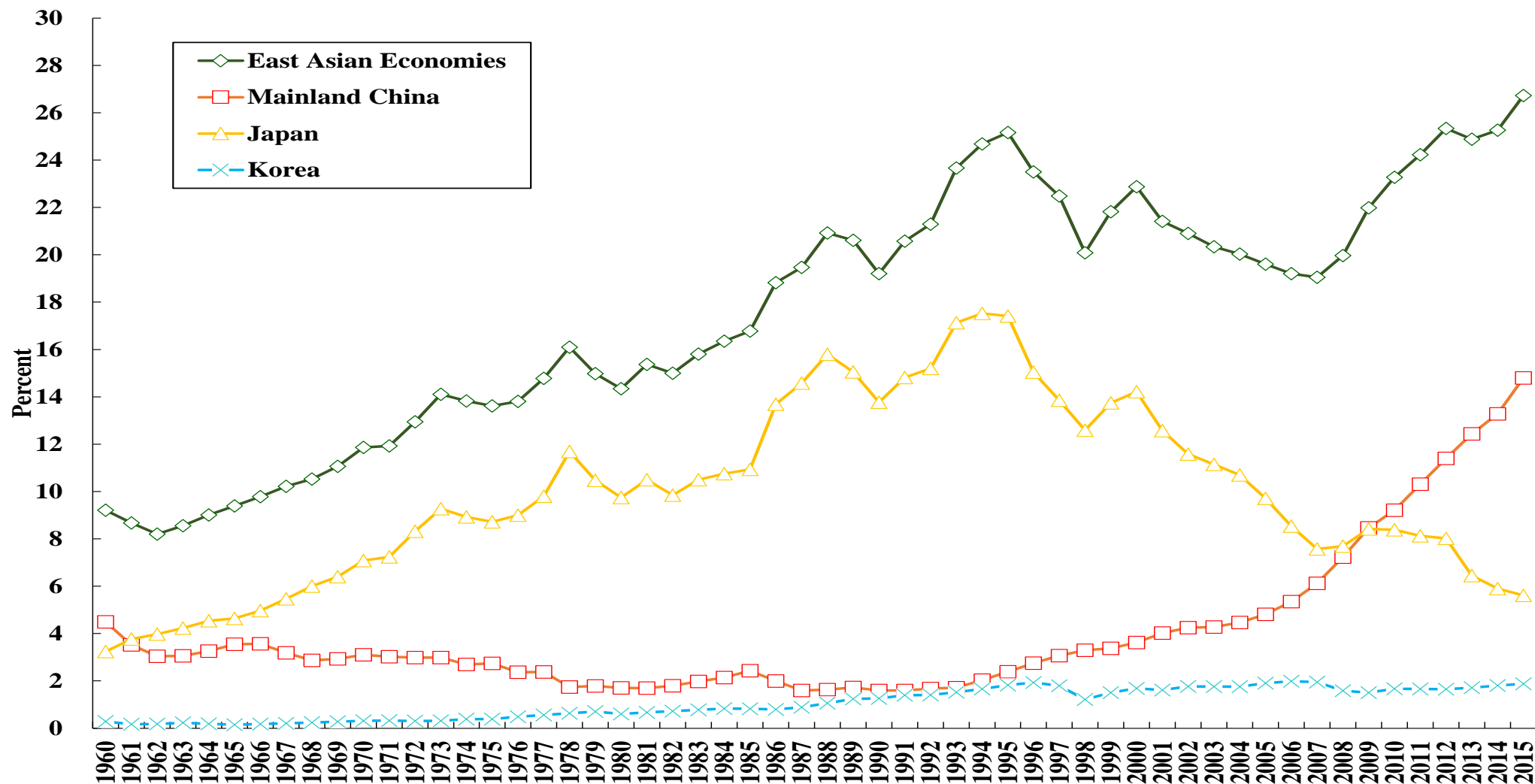
China's Share of World GDP (Current Prices), 1960-present

China's Share of World GDP, 1960-present



The Shares of East Asia, China, Japan and South Korea in World GDP, 1960-present

The Shares of East Asia, China, Japan and South Korea in World GDP, 1960-present



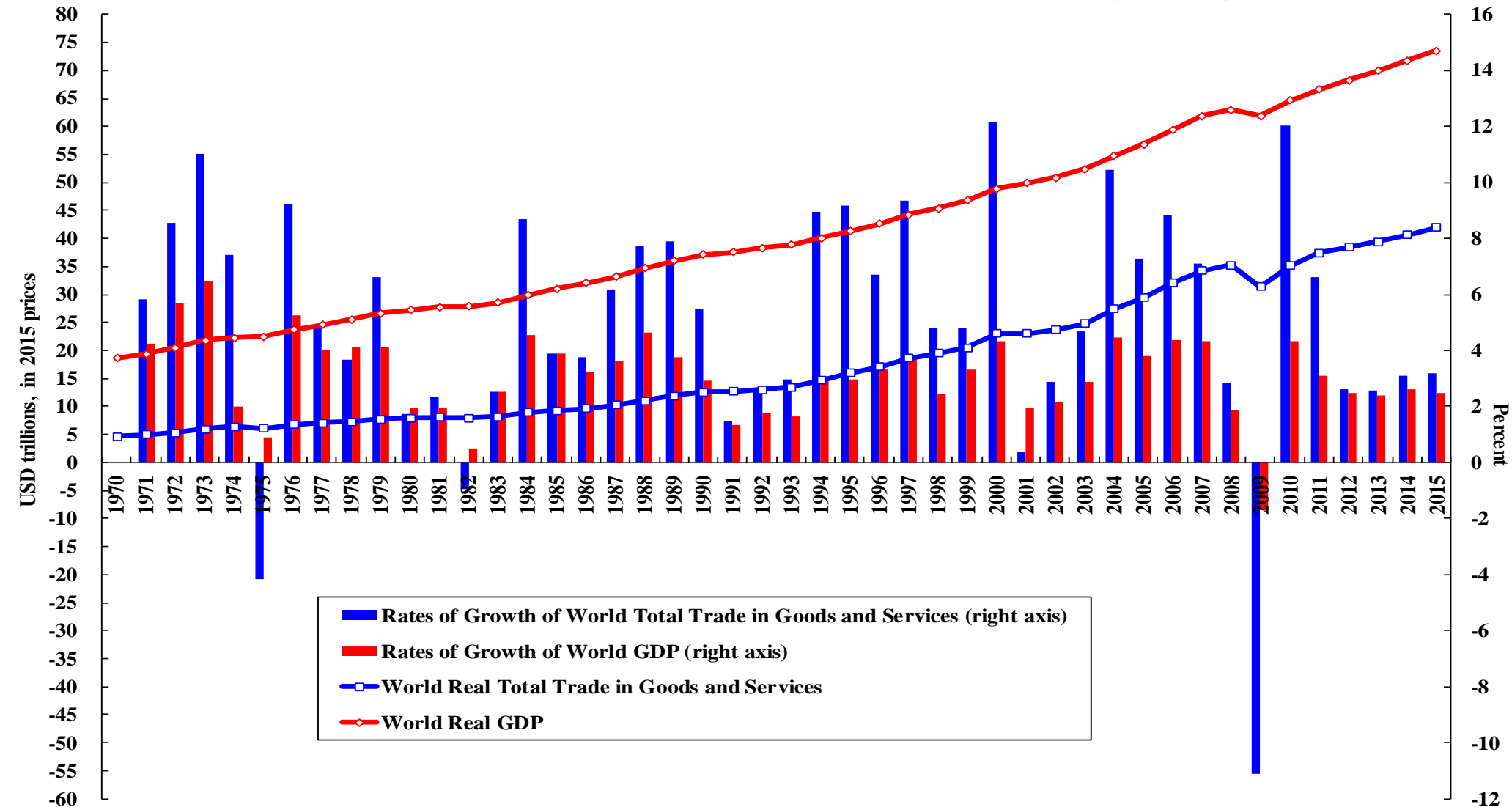
Global Economic Trends:

The Slowdown in GDP and Trade Growth

- ◆ Since the global financial crisis that began with the U.S. sub-prime loan crisis in 2007, the growth of world trade has slowed significantly and has even turned negative more recently. (For the value of world trade in nominal terms, the recent fall in the world price of oil is an important factor.)
- ◆ Similarly, the growth of world GDP has also slowed. Recently the International Monetary Fund has had to lower its projections of world GDP growth. World GDP was projected to grow at 3.1% in 2016 and 3.4% in 2017.
- ◆ The projected growth rate for the U.S. has been raised to around 3% but those for Europe and Japan have remained at between 1% and 2%. There is also a great deal of uncertainty in 2017. The outlook for the developing economies is slightly better, with China projected to grow at 6.5% and India projected to grow at 7% or higher.

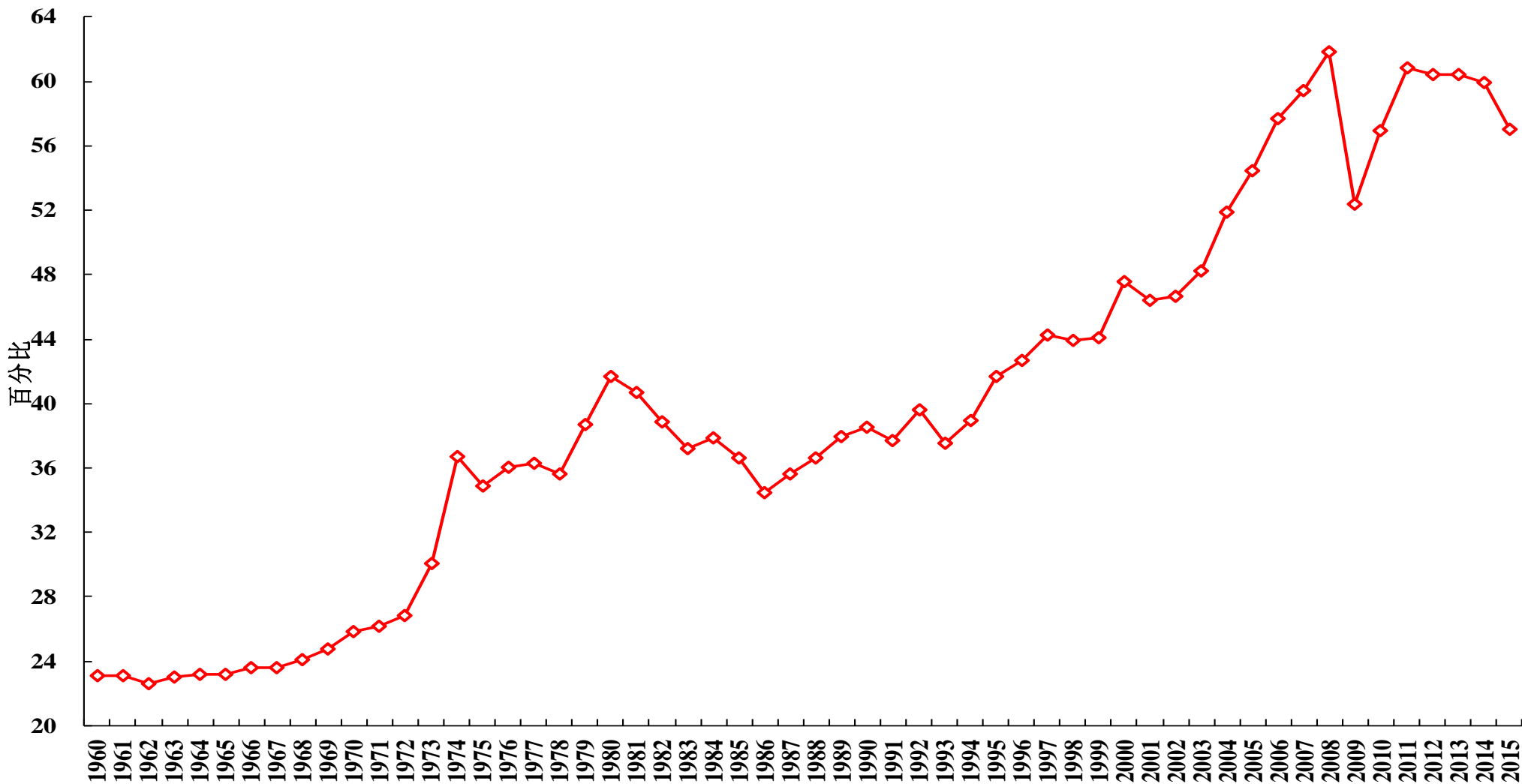
Real World GDP and Trade in Goods and Services and Their Growth Rates (2015 US\$)

Real World GDP and Trade in Goods and Services and Their Growth Rates (2015 US\$)



Total World Trade in Goods and Services as a Percentage of World GDP since 1960

1960年以来全球商品和服务贸易总额占世界GDP的比重



Global Economic Trends:

The Partial De-Coupling Hypothesis

- ◆ Throughout the 2007-2009 global financial crisis, as well as the subsequent European sovereign debt crisis, the East Asian economies continued to do reasonably well. China, in particular, has been able to maintain its real rate of growth above 6.5% since 2007, lending credence to the “Partial De-Coupling Hypothesis”, that is, the Chinese and East Asian economies can continue to grow, albeit at lower rates, even as the U.S. and European economies go into economic recession.
- ◆ This partial de-coupling can occur because of the gradual shift of the economic center of gravity of the world from the United States and Western Europe to Asia (including both East Asia and South Asia) over the past four decades.

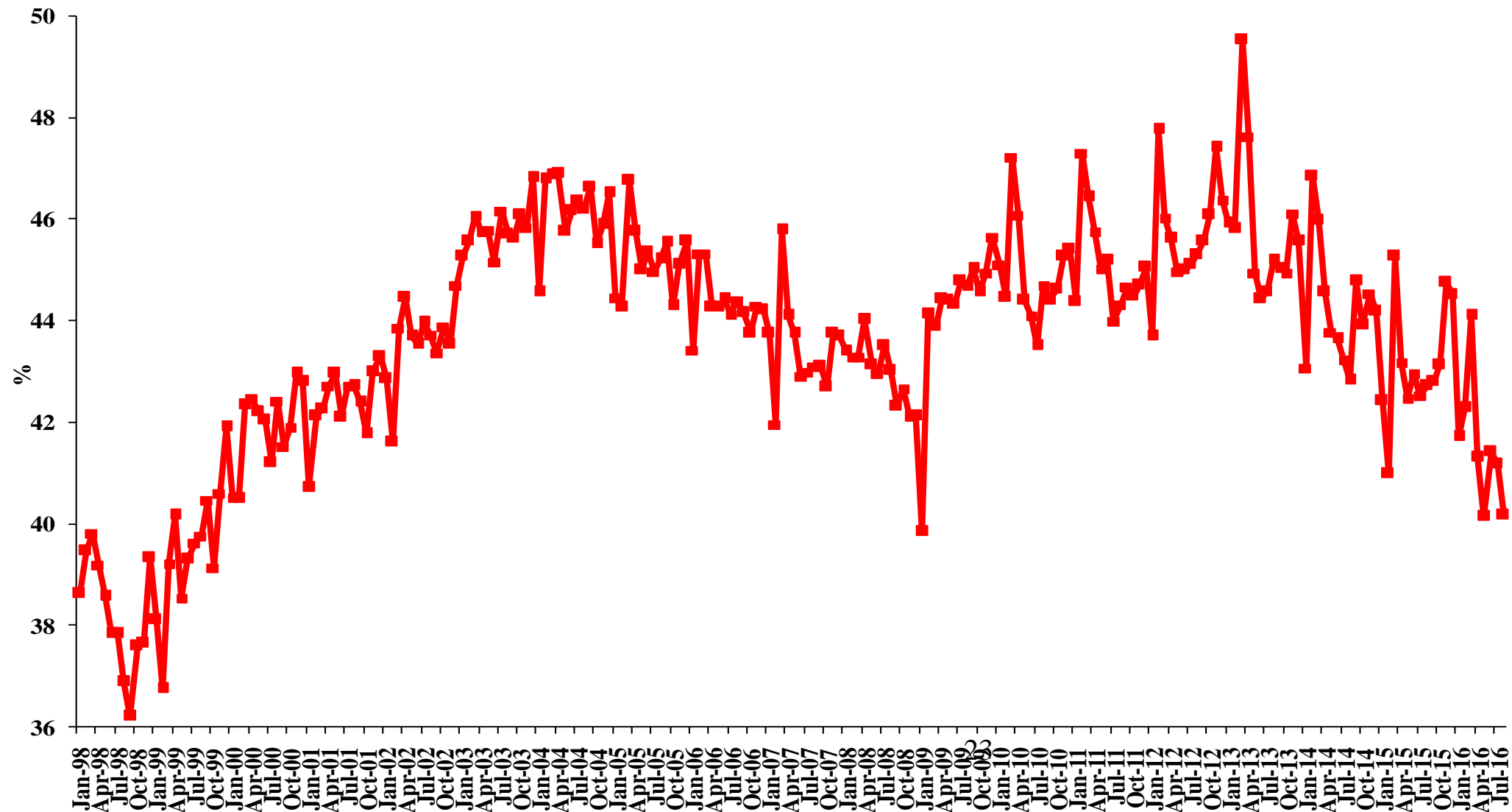
Global Economic Trends:

The Partial De-Coupling Hypothesis

- ◆ A particularly interesting development is the rise in intra-East Asian international trade. The share of East Asian trade destined for East Asia has risen to almost 50%. This is a sea-change compared to 30 years ago when most of the East Asian exports was destined for either the United States or Western Europe.
- ◆ Similarly, the share of East Asian imports originated from East Asia has remained above 50%.

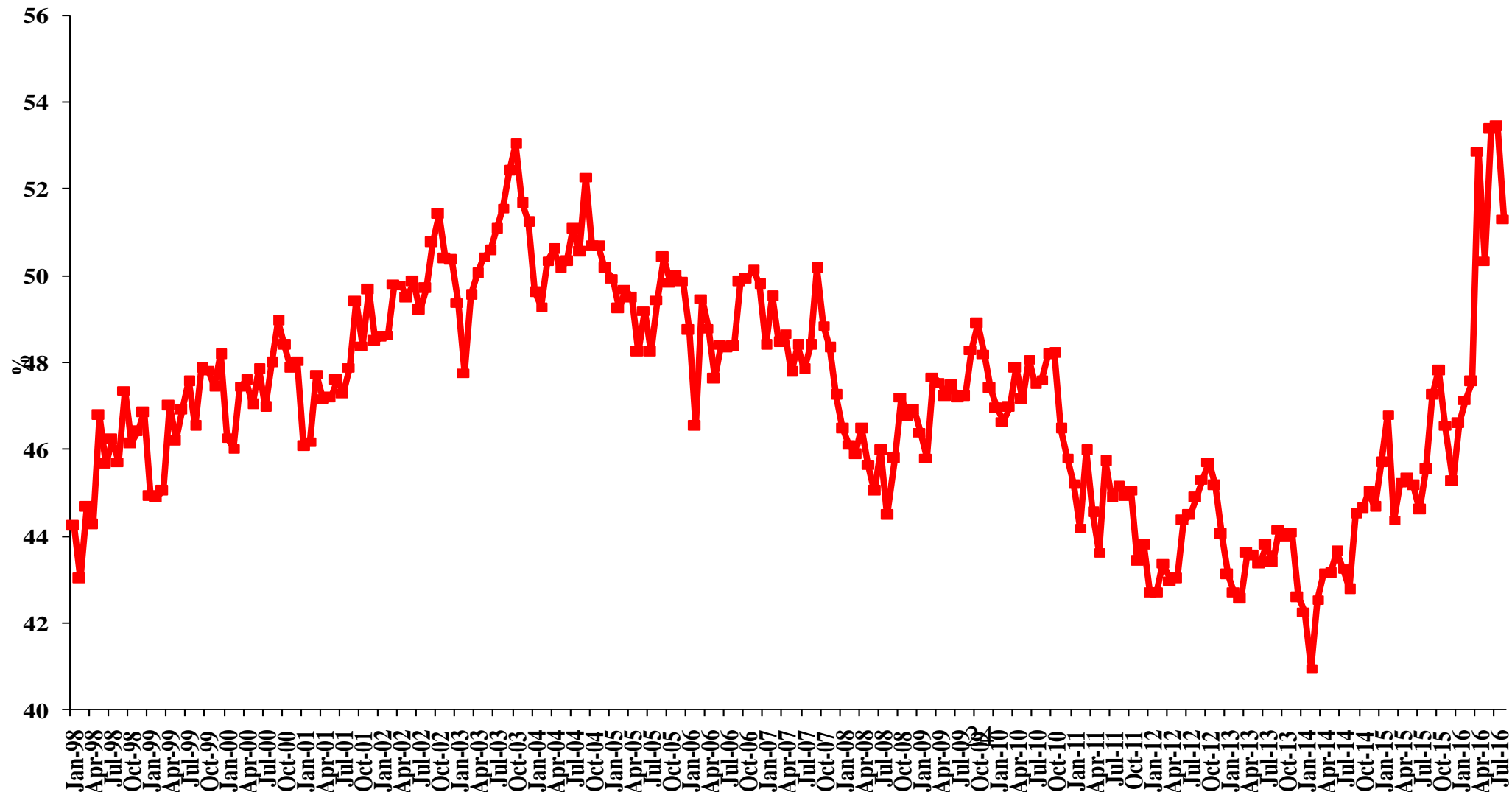
The Share of East Asian Exports Destined for East Asia

The Share of East Asian Exports Destined for East Asia



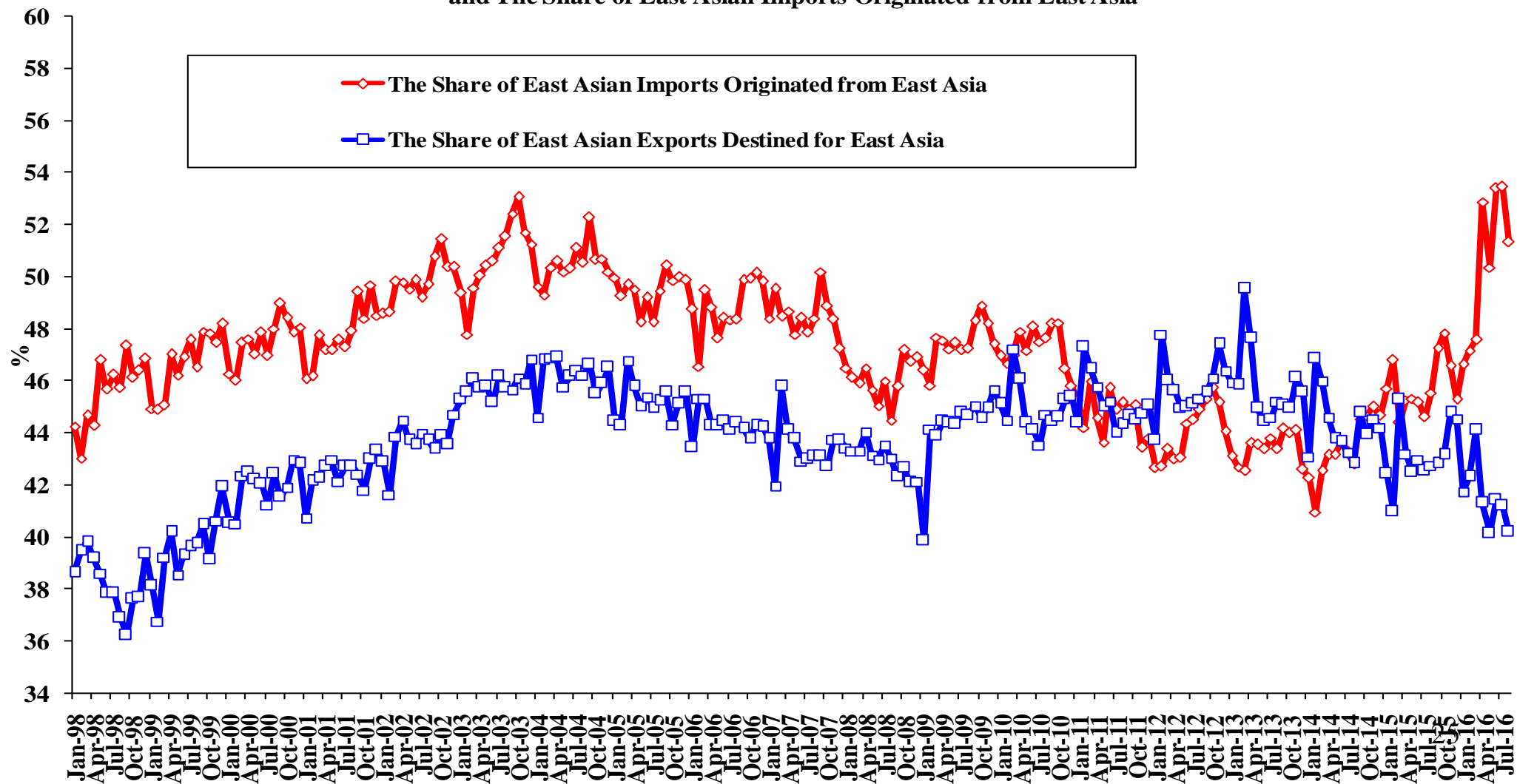
The Share of East Asian Imports Originated from East Asia

The Share of East Asian Imports Originated from East Asia



The Shares of East Asian Exports Destined for East Asia and Imports Originated from East Asia

The Share of East Asian Exports Destined for East Asia
and The Share of East Asian Imports Originated from East Asia



Global Economic Trends:

The Partial De-Coupling Hypothesis

- ◆ Any doubt that the Chinese economy can be partially de-coupled from the world economy should be resolved by the observation that while the rates of growth of Chinese exports and imports fluctuate like those of all the other East Asian economies, the rate of growth of real GDP of the Chinese economy has been relatively stable compared to those of the other East Asian economies.

Global Economic Trends:

The Limits of Monetary Policy

- ◆ The experiences of the quantitative easing policies undertaken by the U.S. Federal Reserve Board, the Bank of Japan, the European Central Bank (ECB) and other central banks since late 2008 confirm what should have been well known all along—that monetary policy alone cannot turn a depressed economy around. Low interest rates cannot overcome the effects of negative expectations about the future. If expectations about the future of the economy are poor, firms will not make new investments and households will reduce their consumption no matter how low the interest rate becomes, even if it turns negative. Moreover, such expectations can be self-fulfilling.
- ◆ The U.S., Japan and many of the European countries have been stuck in a classic “liquidity trap”. As the saying goes: “One can pull on a string, but not push on a string”. Monetary policy or quantitative easing is powerless when faced with a low level of confidence about the future of the economy.

Global Economic Trends:

The Limits of Monetary Policy

- ◆ In addition, zero or negative interest rates create asset price bubbles, which will eventually burst, with damaging consequences. They also have serious negative effects on the income and wealth distribution and impose hardships on the net savers of the economy--the middle- and lower- income households, and especially the retired elderly.
- ◆ The truth is that easy monetary policy has not worked to revive the economies, and should have never been expected to work by itself alone.
- ◆ What is needed in every economy is some real economic stimulus in the form of real aggregate demand expansion that is sufficient to change expectations about the future.
- ◆ However, ideological considerations may prevent some of these economies from undertaking more aggressive actions.

Global Economic Trends:

The Limits of Monetary Policy

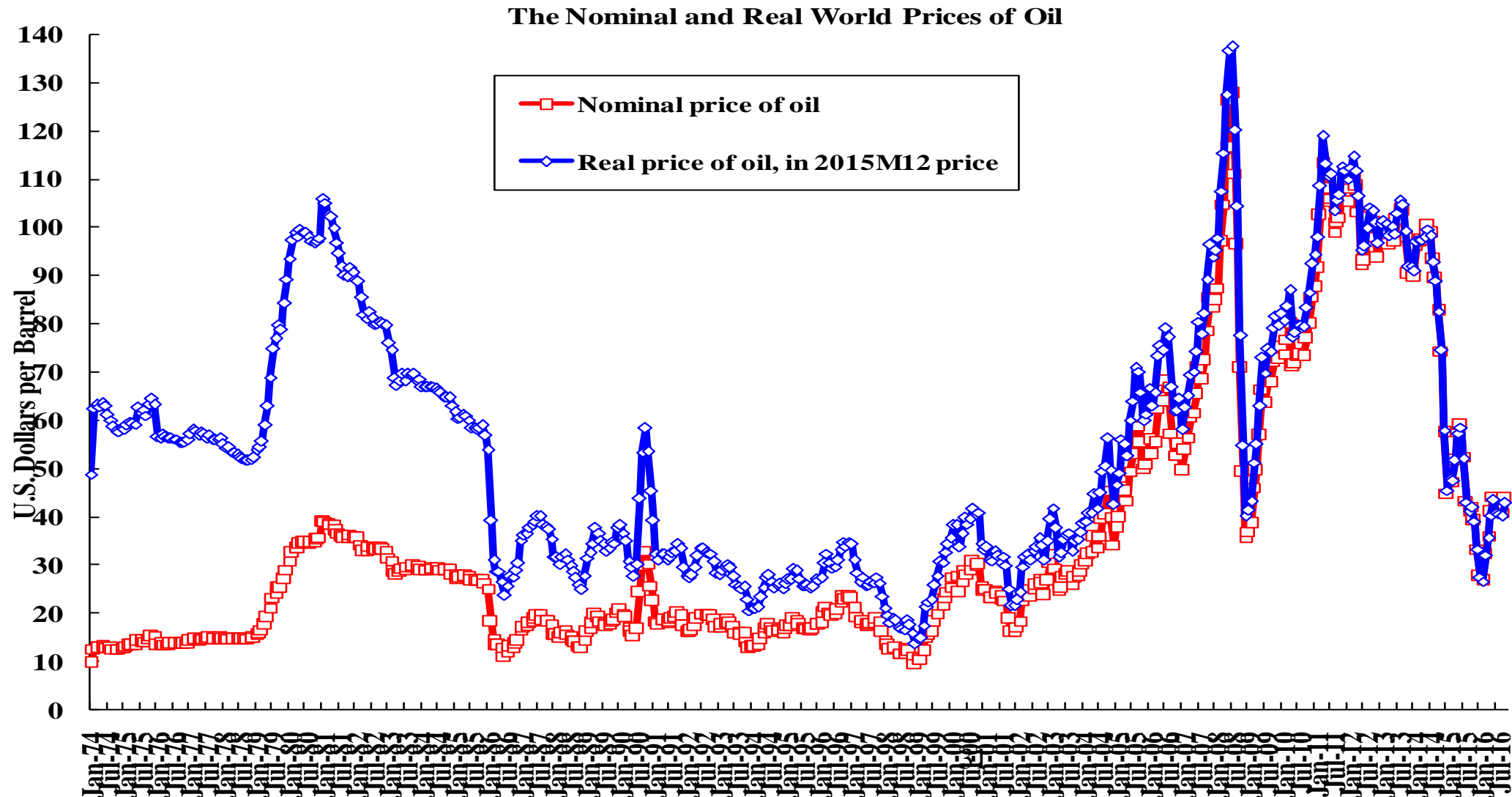
- ◆ As there is excess capacity almost everywhere, the social cost of an economic stimulus is small, especially compared to the lost output and employment.
- ◆ The world can really use a “simultaneous coordinated real economic stimulus” by all the major economies such as the U.S., China, Japan and the Euro Zone.

Global Economic Trends:

The World Price of Oil

- ◆ The world price of oil has been falling since 2014. In real terms it is now back where it was before its spectacular rise in 2004.
- ◆ Overall, the fall in the world price of oil has to be regarded as a net positive factor for the world economy.
- ◆ The world price of oil is not really determined by supply and demand. It has never been determined by supply and demand. It is an oligopolistic market. The largest producer, Saudi Arabia, used to produce at the rate of 8.5 million barrels a day. Currently, it produces at more than 10 million barrels a day. It has the capacity of producing 12.5 barrels a day.
- ◆ However, given the advances in shale oil technology (“fracking”) and the abundant potential supply in the U.S., which can be tapped in a matter of months, it is unlikely that the world price of oil will rise above US\$60 a barrel for a long time.

The Nominal and Real World Prices of Oil (2015 prices)



China in the Global Economy—International Trade

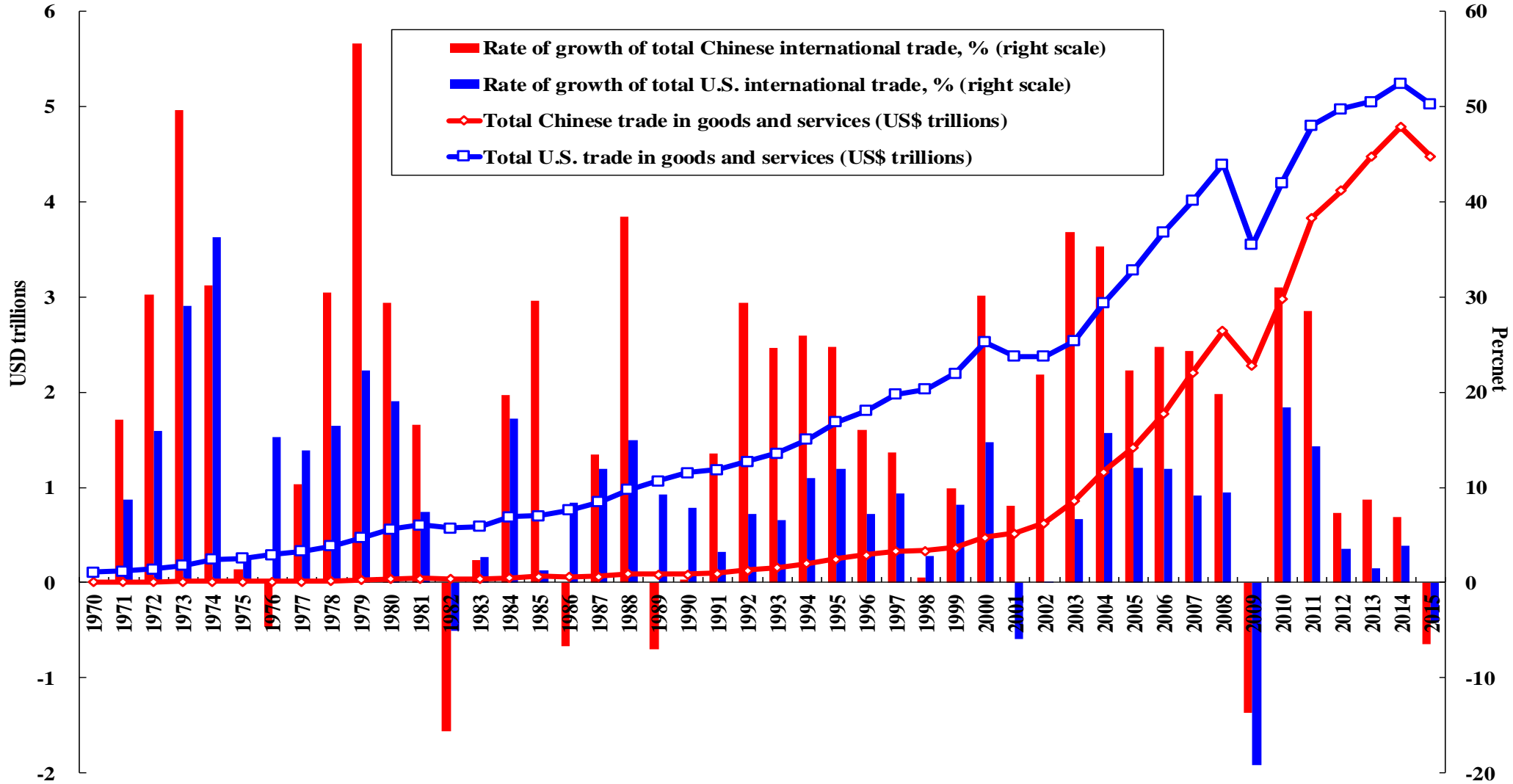
- ◆ Chinese international trade in goods and services has also been growing very rapidly since the beginning of its economic reform in 1978, and the rate of growth accelerated after Chinese accession to the World Trade Organisation (WTO) in 2001 even though it has begun to slow down recently.
- ◆ Chinese total international trade grew from US\$20.3 billion in 1978 to US\$4.67 trillion in 2015, making China the second largest trading nation in the world, just after the U.S. with its total international trade of US\$4.99 trillion.
- ◆ Even though Chinese total international trade fell in 2015, as did the U.S., in terms of value-added, the decline was much more modest, probably on the order of 1%.

China in the Global Economy—International Trade

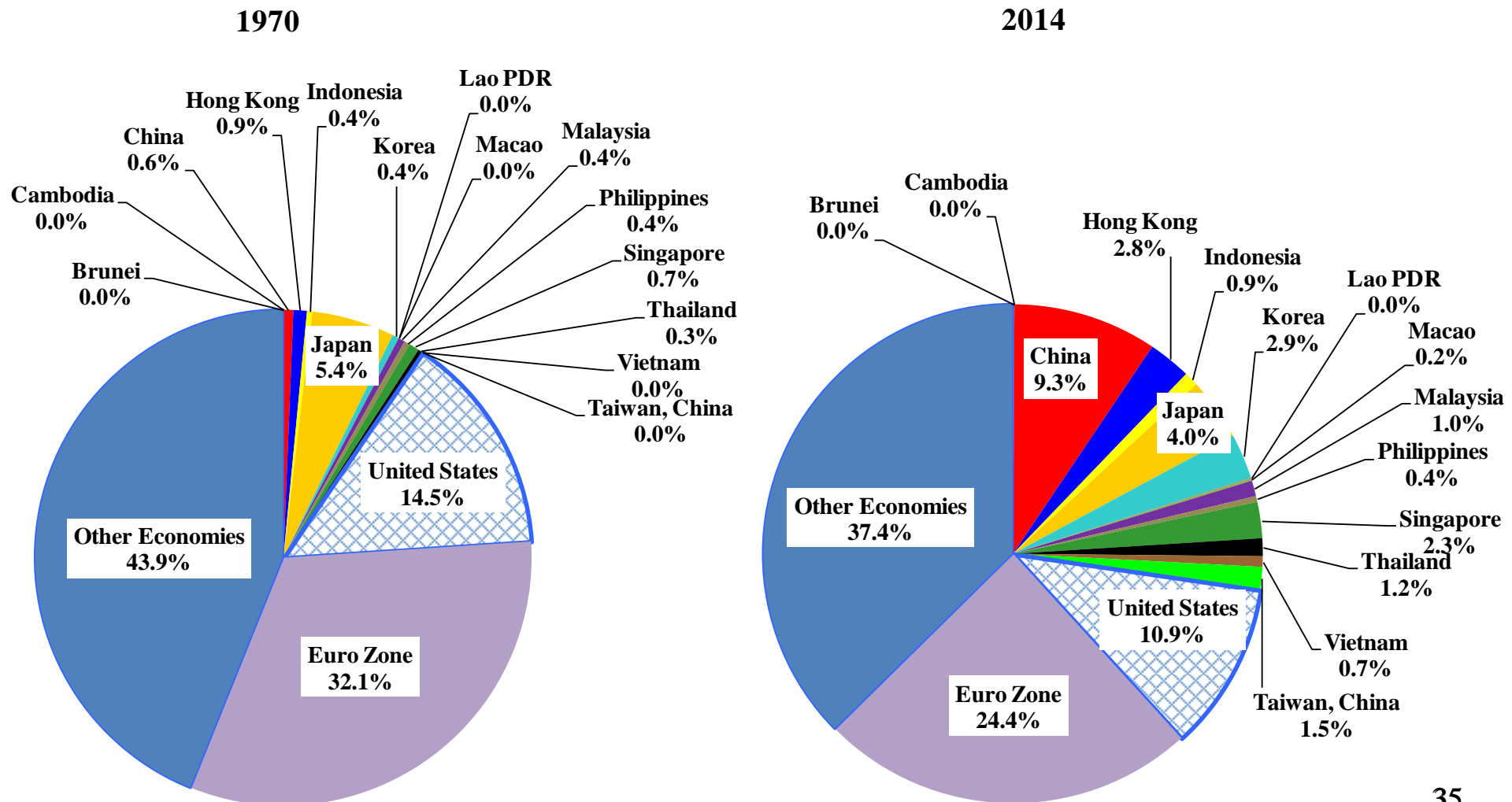
- ◆ While China is the largest exporting nation in terms of goods and services (US\$2.56 trillion in 2015), followed by the U.S. (US\$2.22 trillion), the U.S. is the largest importing nation in terms of goods and services (US\$2.76 trillion), followed by China (US\$2.11 trillion). China is also the largest exporting nation in terms of goods alone (US\$2.27 trillion), followed by the U.S. (US\$ 1.50 trillion). The U.S. is the largest exporting as well as importing nation in terms of services, followed by respectively the United Kingdom and Germany.
- ◆ China has also become the second largest trading nation in services alone, with US\$713 billion in 2015, just after the U.S.

Chinese and U.S. International Trade and Their Respective Rates of Growth since 1970

International Trade & Its Rate of Growth: A Comparison of China and US since 1970



The Distribution of Total International Trade in Goods and Services, 1970 and 2014



China in the Global Economy—International Trade

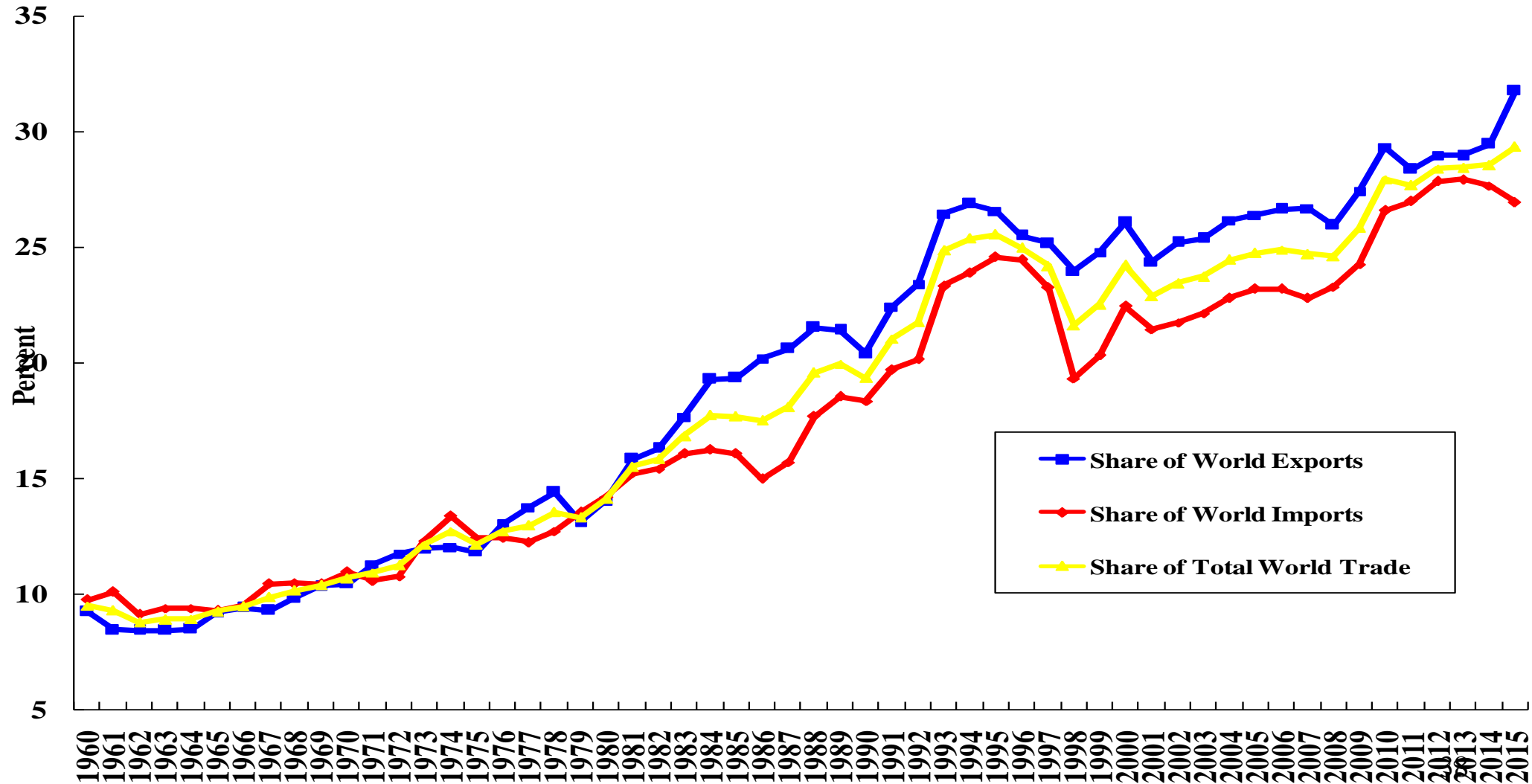
- ◆ In 1970, the United States and Western Europe together accounted for almost 46.6% of world trade in goods and services. By comparison, East Asia accounted for 9.5% of world trade.
- ◆ By 2014, the share of United States and Western Europe in world trade has declined to 35.1% whereas the share of East Asia has risen to almost 27.3%.
- ◆ The Chinese share of world trade rose from 0.6% in 1970 to 9.3% in 2014 and to over 10% in 2015. The growth in Chinese international trade may be attributed in part to the reform of the Chinese exchange rate system in the early 1990s, which was accompanied by a significant devaluation of the Renminbi, and to Chinese accession to the World Trade Organisation in the 2001.
- ◆ In 2015, China has also become the largest trading partner country of the U.S., surpassing Canada.

China in the Global Economy—International Trade

- ◆ The East Asian share of world trade (goods only) rose from 10% in 1970 to just below 30% in 2015.
- ◆ The Chinese share of world trade (goods only) rose from 1% in 1970 to 12% in 2015.
- ◆ Chinese international trade (goods only) also accounted for 41.5% of East Asian international trade in 2015. China runs a trade deficit with almost every other East Asian economy.
- ◆ China ranked as either the largest or the second largest trading partner of almost every economy in the Asia-Pacific region.

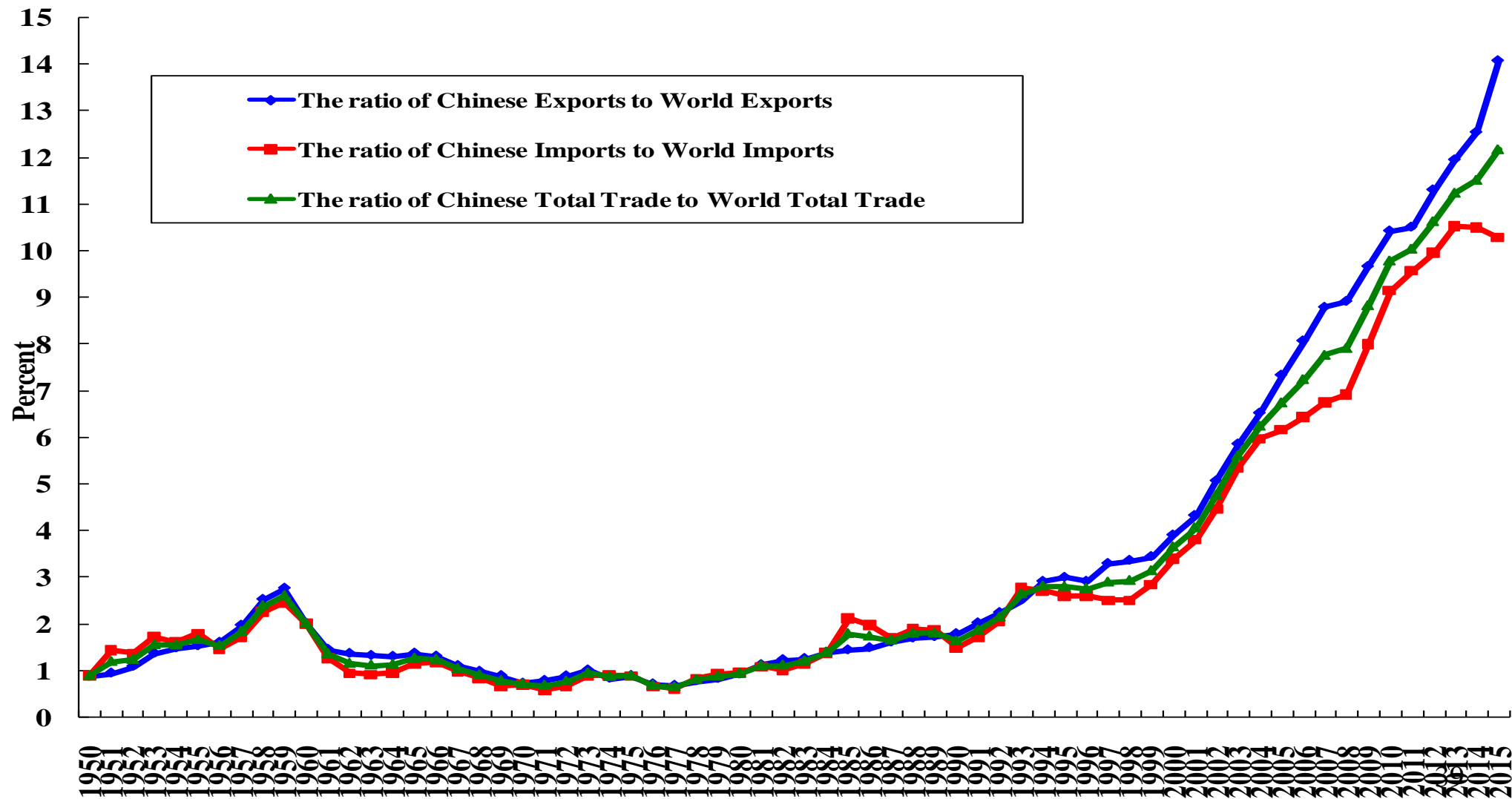
The Rising Share of East Asian Trade in Total World Trade, 1960-present

The Rising Share of East Asian Trade in Total World Trade, 1960-present



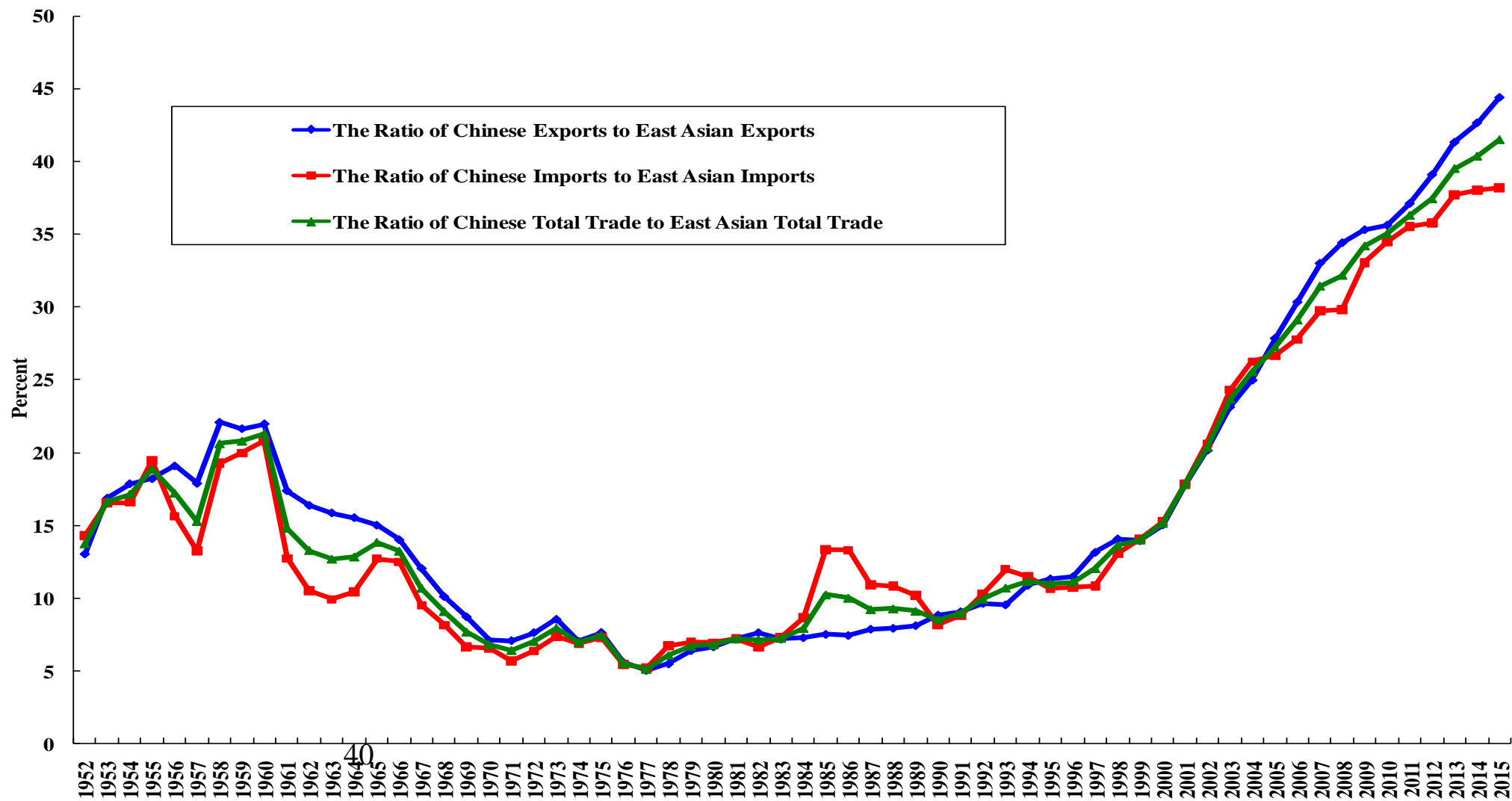
The Chinese Share of Total World Trade, 1950-present (in Goods Only)

The Share of Chinese Trade in Total World Trade, 1950-present



The Chinese Share of Total East Asian Trade in Goods, 1952-present

The Share of Chinese Trade in Total East Asian Trade, 1952-present



The Ranks of China as Trading Partner of Asia-Pacific Countries/Regions and Vice Versa, 2014

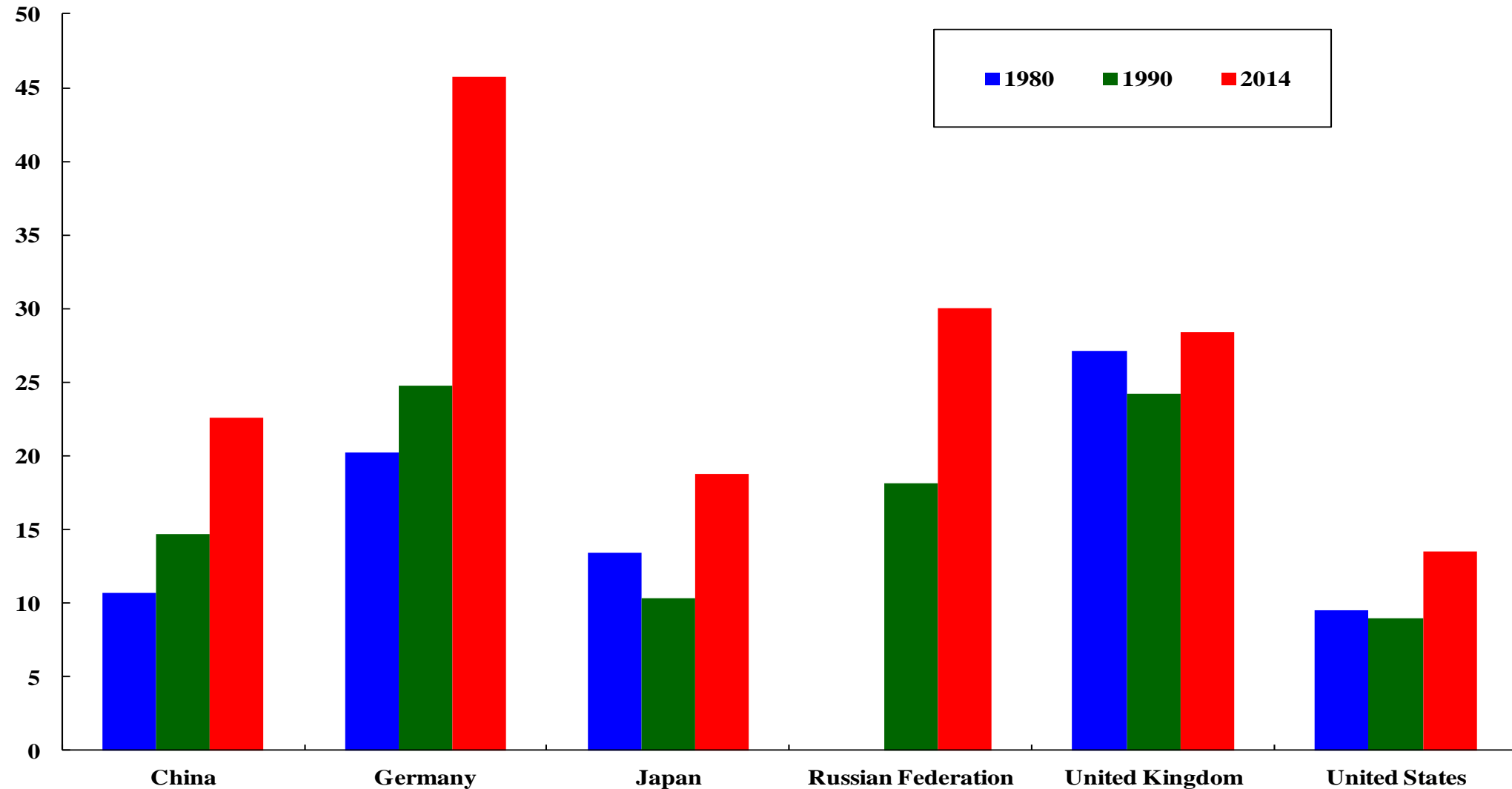
Country/Region	Chinese Rank as Trading Partner of Country/Region	Rank of Country/Region as Trading Partner of China
Australia	1	7
Brunei	3	105
Cambodia	2	85
Hong Kong	1	2
Indonesia	1	18
Japan	1	3
Korea	1	4
Laos	2	88
Macau	1	82
Malaysia	1	8
Myanmar	1	34
New Zealand	1	43
Philippines	2	25
Singapore	1	13
Taiwan	1	5
Thailand	1	15
United States	2	1
Vietnam	1	11

China in the Global Economy—International Trade

- ◆ Contrary to the public impression, the ratio of exports to GDP is actually relatively low for China compared to other East Asian economies (see the next charts). This is really a reflection of the fact that China is a large economy. A low exports to GDP ratio is typical for large economies such as the U.S. and Japan.
- ◆ The low and declining ratio of exports to GDP is likely to be a continuing feature of the “New Normal”.

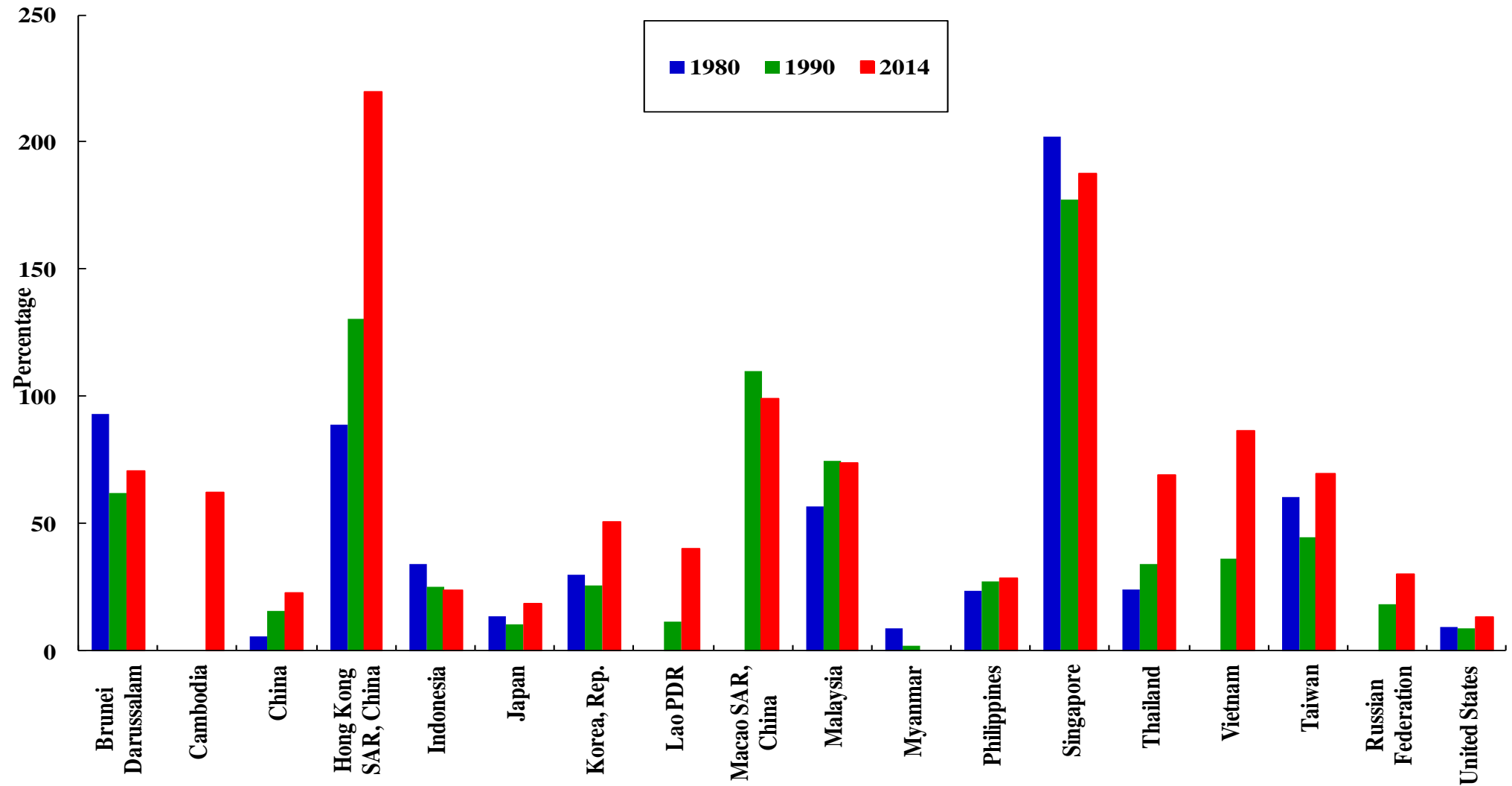
Exports of Goods and Services as a Share of GDP in Selected Economies

Exports of Goods and Services as a Share of GDP in Selected Economies



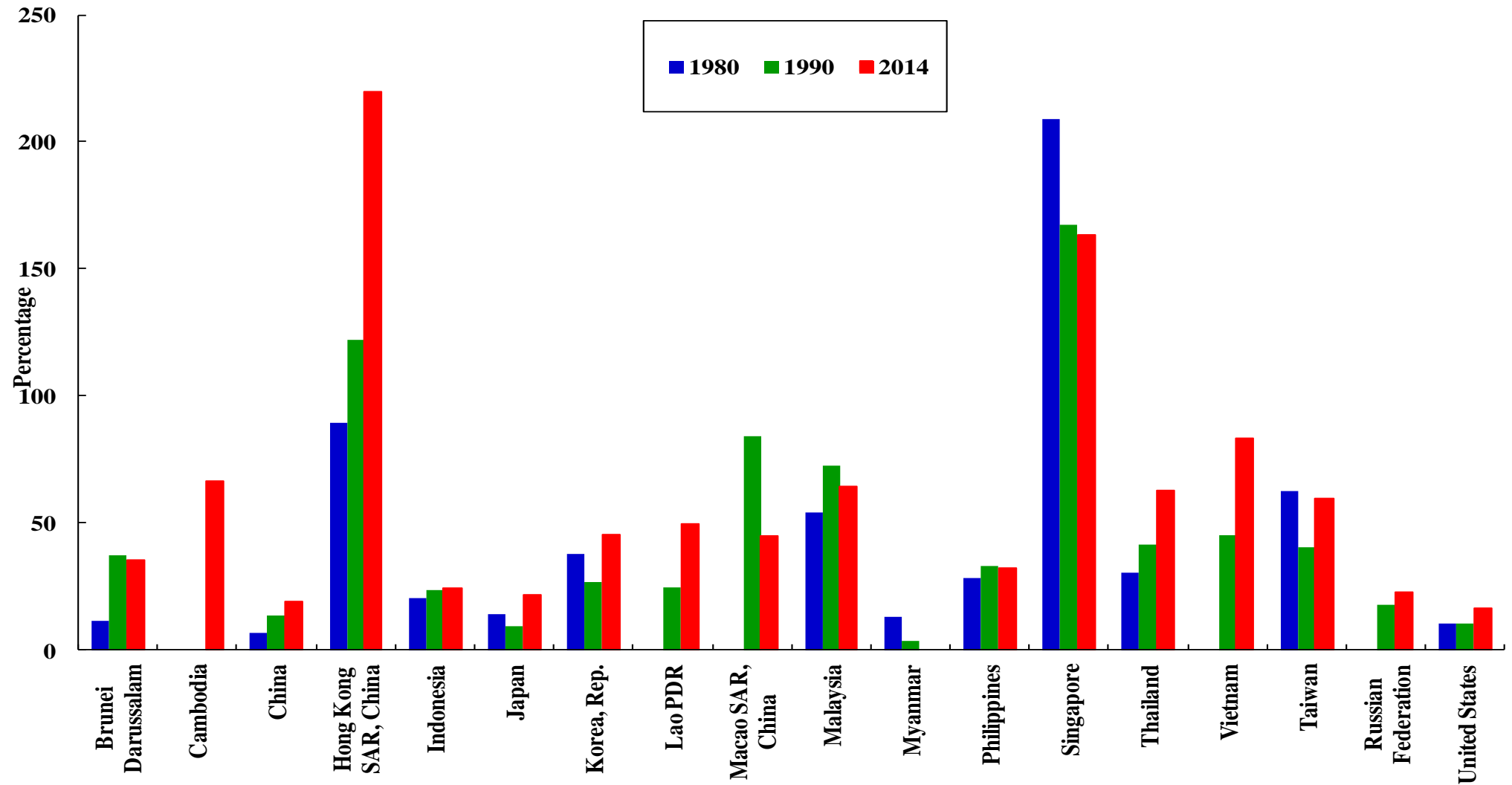
Exports of Goods and Services as a Percent of GDP: Selected Economies

Exports as a share of GDP of East Asian Economies



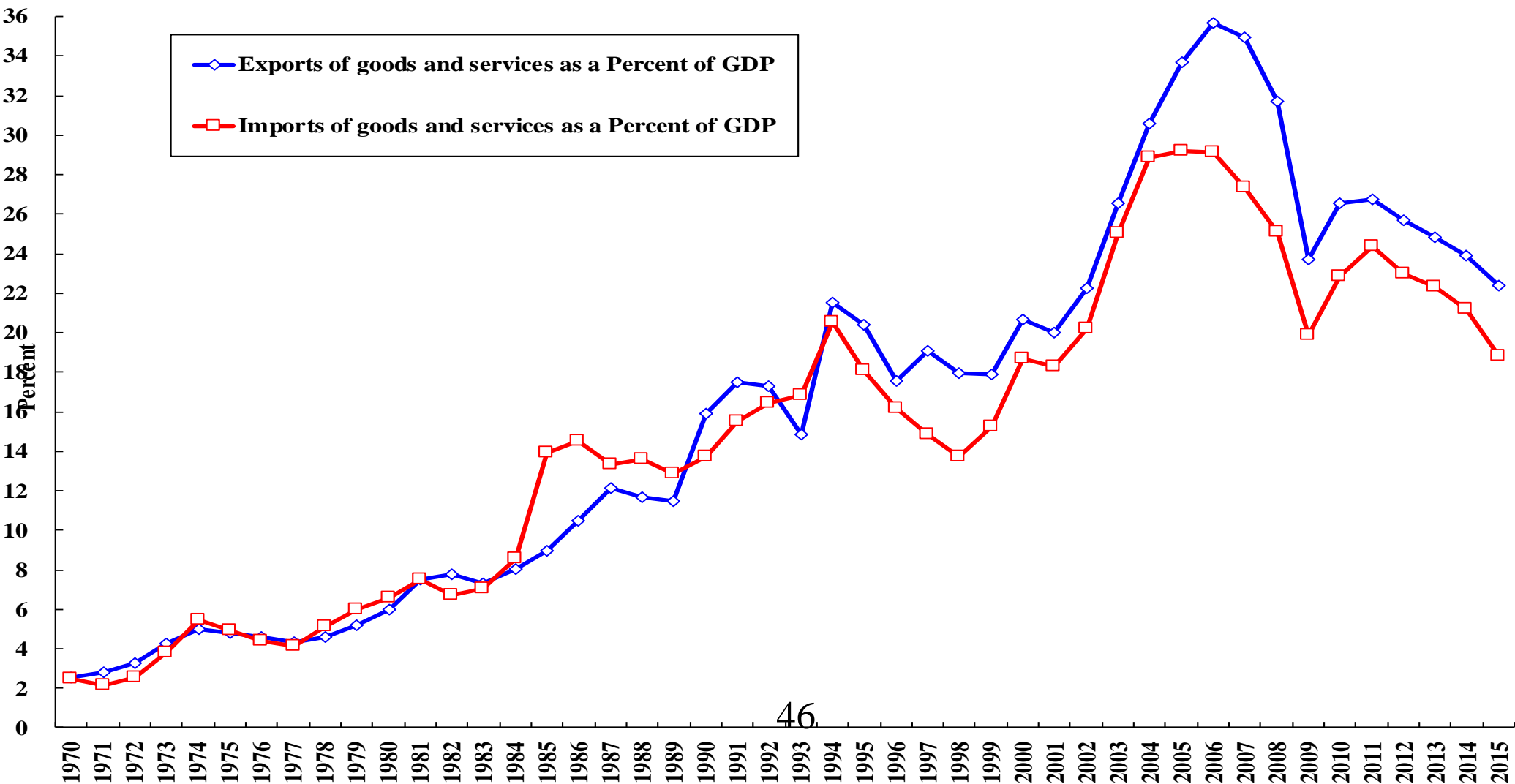
Imports of Goods and Services as a Percent of GDP: Selected Economies

Imports as a share of GDP of East Asian Economies



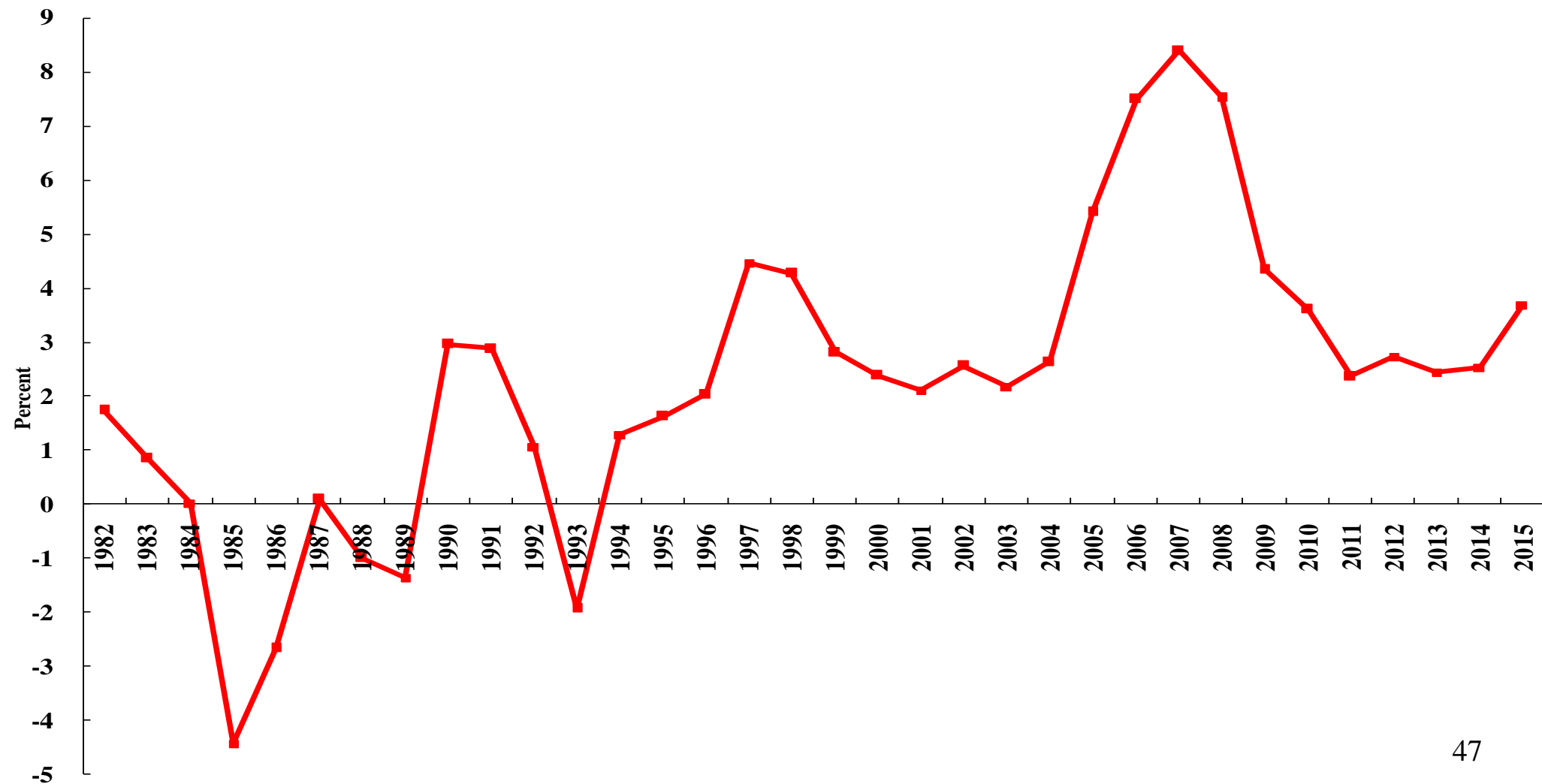
Exports and Imports of Goods and Services as a Percent of Chinese GDP, 1970-present

Exports and Imports of Goods and Services as a Percent of Chinese GDP, 1970-present



Chinese Trade Balance of Goods & Services as a Percent of GDP since 1982

Chinese Trade Balance of Goods and Services as a Percent of GDP since 1982



Chinese Economic Fundamentals

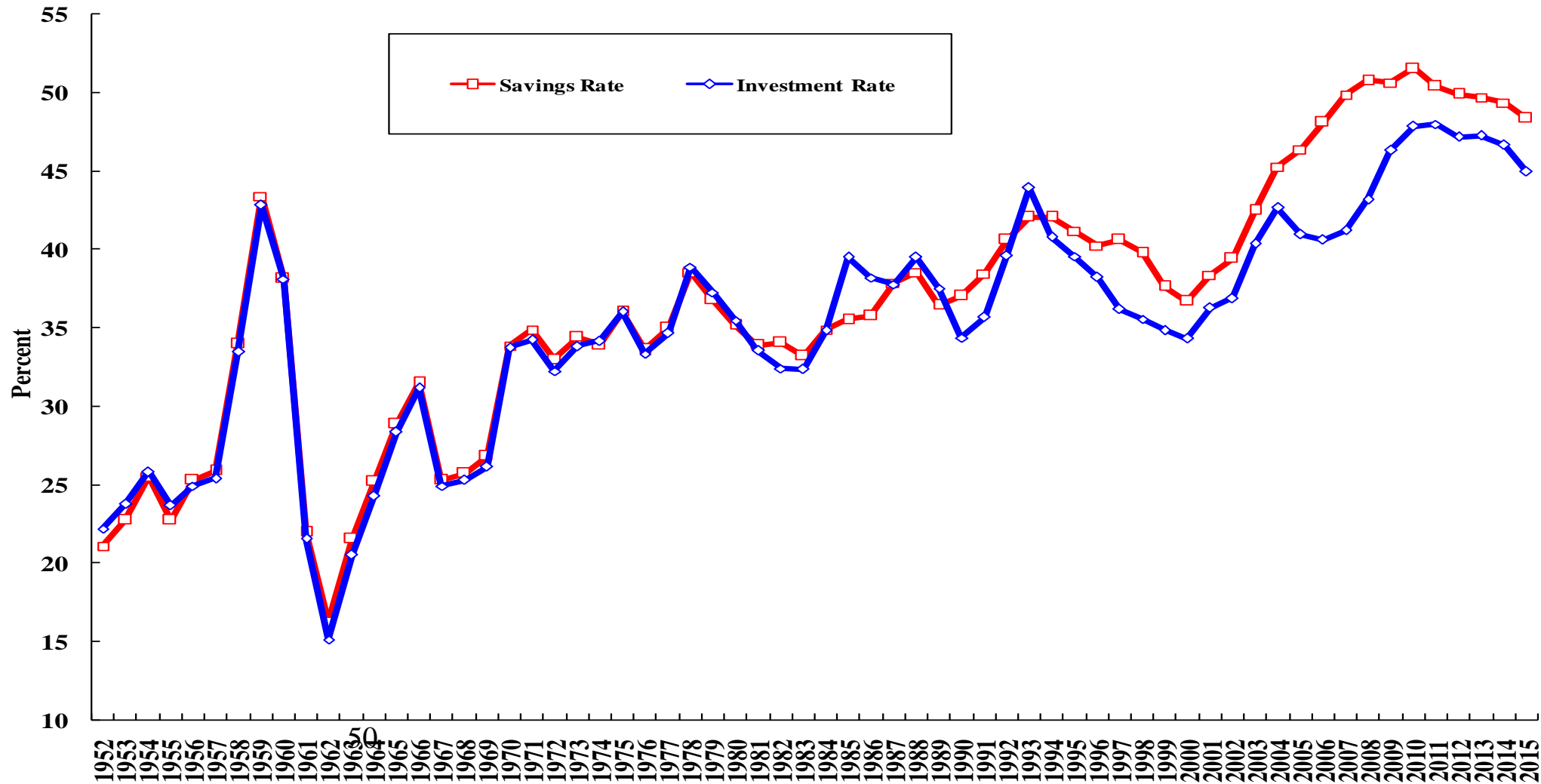
- ◆ The long-term economic growth of a country depends on the rates of growth of its primary inputs—tangible (or physical) capital and labor—and on technical progress (or equivalently, the growth of total factor productivity (TFP))—that is, the ability to increase output without increasing inputs.
- ◆ The tangible capital stock is defined as the cumulative past real investment in structure, equipment and basic infrastructure, less the respective appropriate depreciations. The rate of growth of the tangible capital depends on investments in these three categories of fixed capital. The quantity of total investment in turn depends on the availability of national savings as well as foreign direct investment, foreign portfolio investment, foreign loans and foreign aid.
- ◆ Technical progress (or the rate of growth of TFP) is not manna from heaven but depends on the cumulative past investments in (that is, the stocks of) intangible capital such as human capital and Research and Development (R&D) capital.

Chinese Economic Fundamentals: The High Domestic Savings Rate

- ◆ Chinese economic growth since 1978 has been underpinned by a consistently high domestic investment rate, enabled by a high national savings rate. In fact, the Chinese national savings rate has consistently been quite high except for a brief start-up period in the early 1950s and during the periods of the Great Famine and the Great Proletariat Cultural Revolution. Since the early 1990s, the Chinese national saving rate has stayed around 40% and has at times approached or even exceeded 50% in more recent years.
- ◆ In the early 1950s, the Chinese economy benefitted from loans and aid from the Soviet Union, which made possible many of the investment projects in the First Five-Year (1953-1957) Plan. 49

Chinese National Saving and Gross Domestic Investment as Percents of GDP

Chinese National Savings and Gross Domestic Investment as a Percent of GDP since 1952



Chinese Economic Fundamentals:

The High Domestic Savings Rate

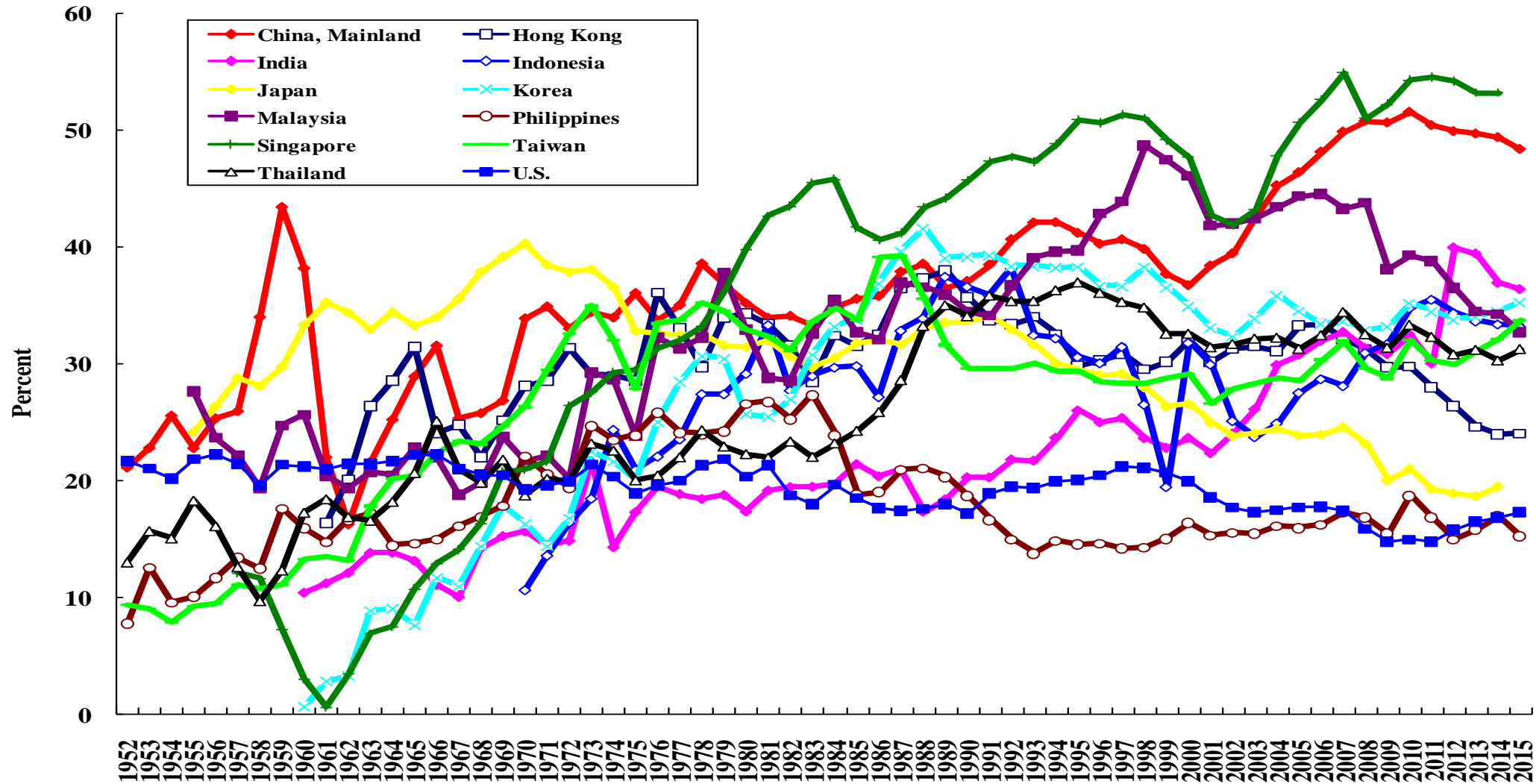
- ◆ The high domestic savings rate means, among other things, that the Chinese economy can finance all of its domestic investment needs from its own domestic savings alone, thus assuring a high rate of growth of its tangible capital stock without having to depend on the more fickle foreign capital inflows (including foreign direct investment, foreign portfolio investment, foreign loans or foreign aid). In particular, it does not need to borrow abroad and bear the potential risks of a large, short-term and often interruptible, foreign-currency denominated debt. The Chinese economy is thus also more immune from external disturbances than other economies. For example, it was relatively unaffected by the 1997-1998 East Asian currency crisis, the 2008-2009 global financial crisis and the more recent European sovereign debt crisis.
- ◆ The national saving rate in China will remain high for a while even though it is expected to decline gradually. Consequently the Chinese economy is assured of a high rate of domestic investment and hence a high rate of growth of its tangible capital stock.

Chinese Economic Fundamentals: The High Domestic Savings Rate

- ◆ In addition, since new resources are forthcoming each year from new savings, enabling new investments to be made, the necessity of restructuring, redeploying or privatising existing fixed assets is greatly diminished. Thus, the potentially politically divisive issues such as factory closings and lay-offs of redundant workers and the creation of “losers” can be avoided. This helps to maintain social harmony and facilitate economic reform.
- ◆ A high national savings rate also allows the normally more efficient non-state sector more room and greater scope for development and expansion as there is less “crowding out” of the non-state enterprises by the investments of the government as well as the state-owned enterprises.
- ◆ However, tangible capital input-driven economic growth has its limitations, because as the stock of tangible capital relative to labor increases, the marginal productivity of tangible capital will begin to decline and will eventually reach a point when additional tangible capital is no longer productive. This is a point made by Prof. Paul Krugman in his influential article, “The Myth of Asia’s Miracle,” Foreign Affairs, Vol. 73, No. 6, November/December, 1994, pp. 62-78.

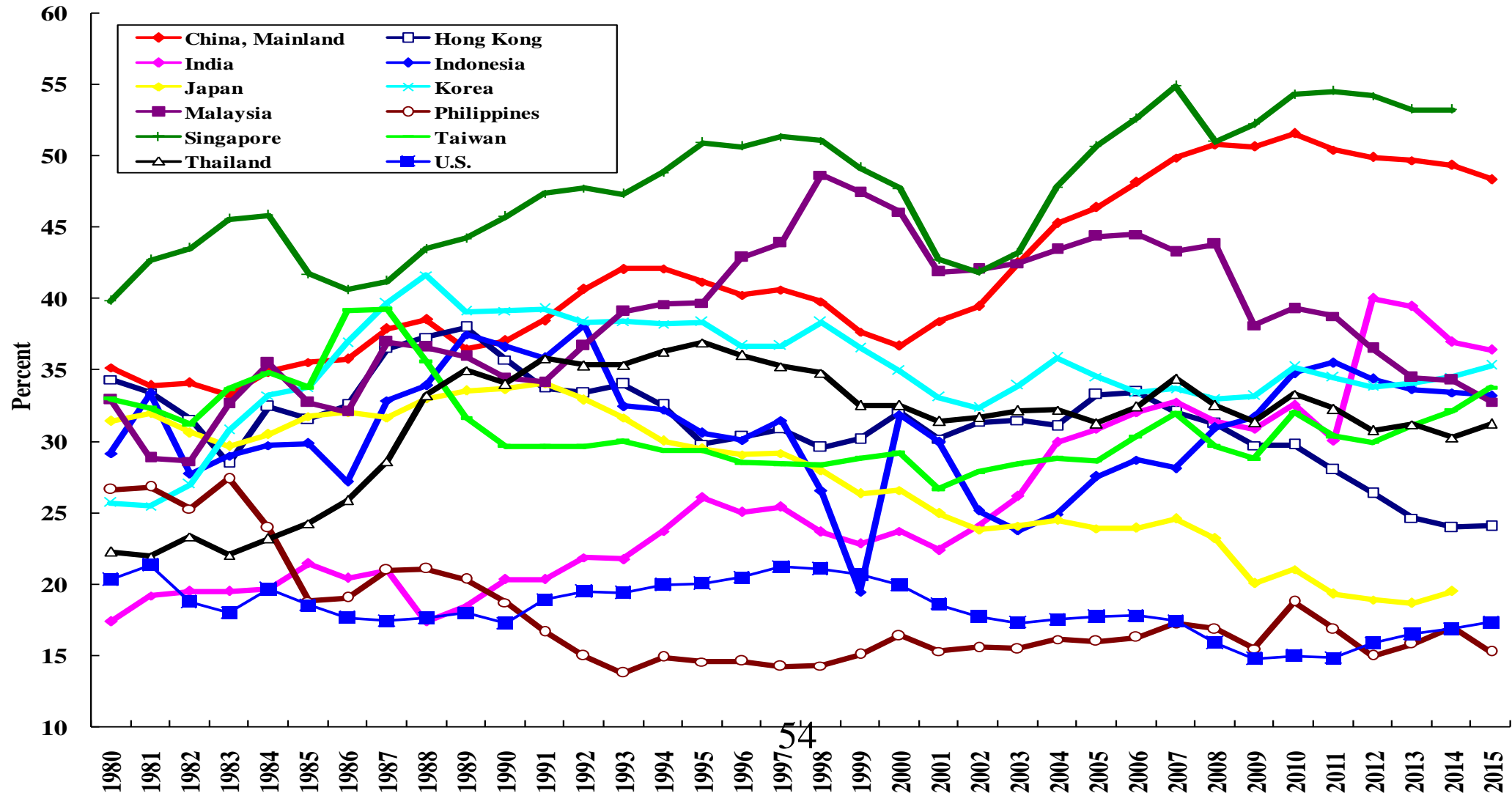
Savings Rates of Selected Economies, 1952-present

Savings Rates of Selected East Asian Economies, 1952-present



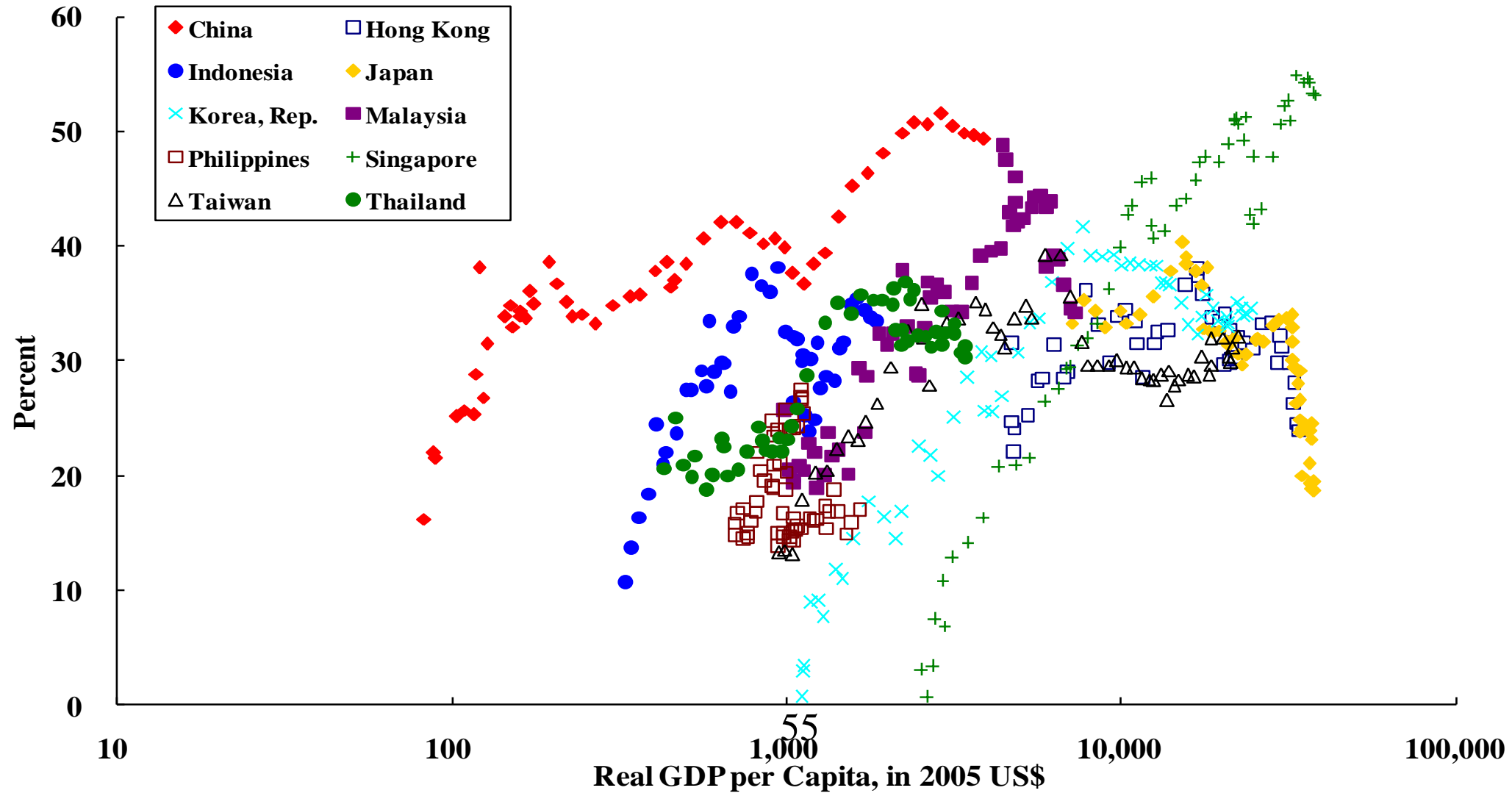
Savings Rates of Selected Asian Economies (1980-present)

Savings Rates of Selected Asian Economies



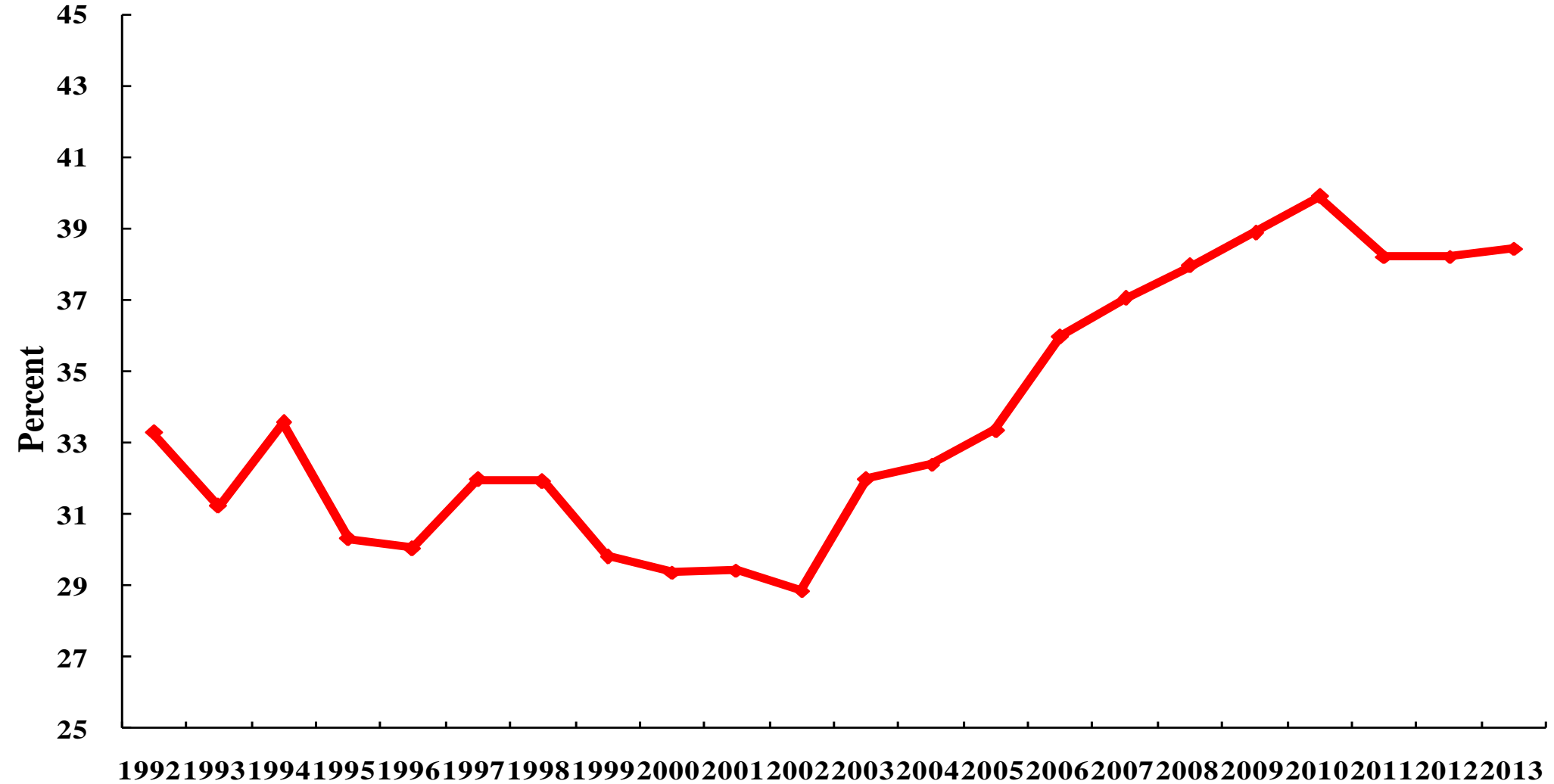
The Savings Rate and Real GDP per Capita: East Asian Economies

The Savings Rate and Real GDP per Capita: East Asian Economies



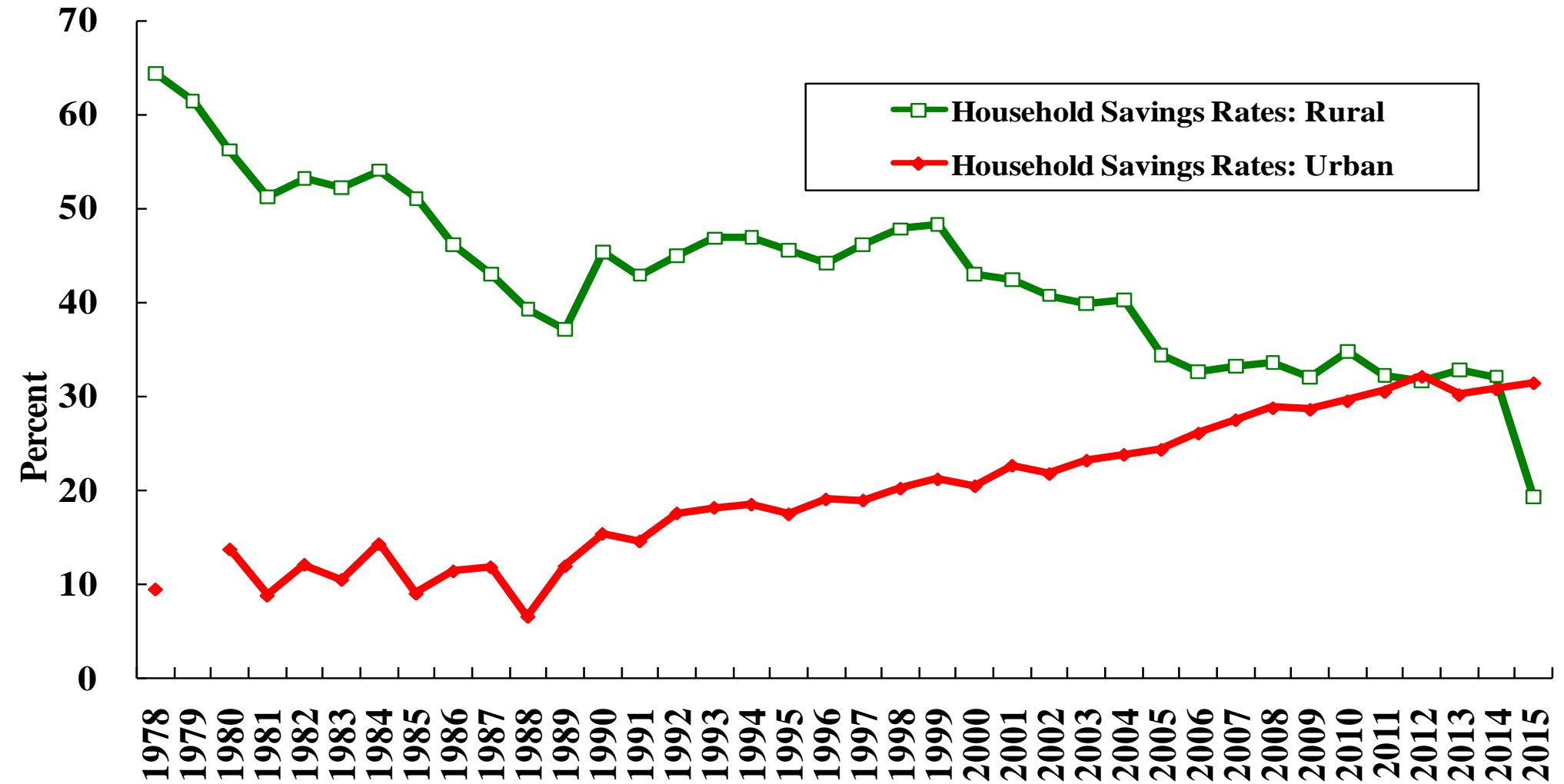
Chinese Household Savings Rates

Chinese Household Savings Rates



Savings Rates of Urban and Rural Chinese Households

Savings Rates of Chinese Urban and Rural Households

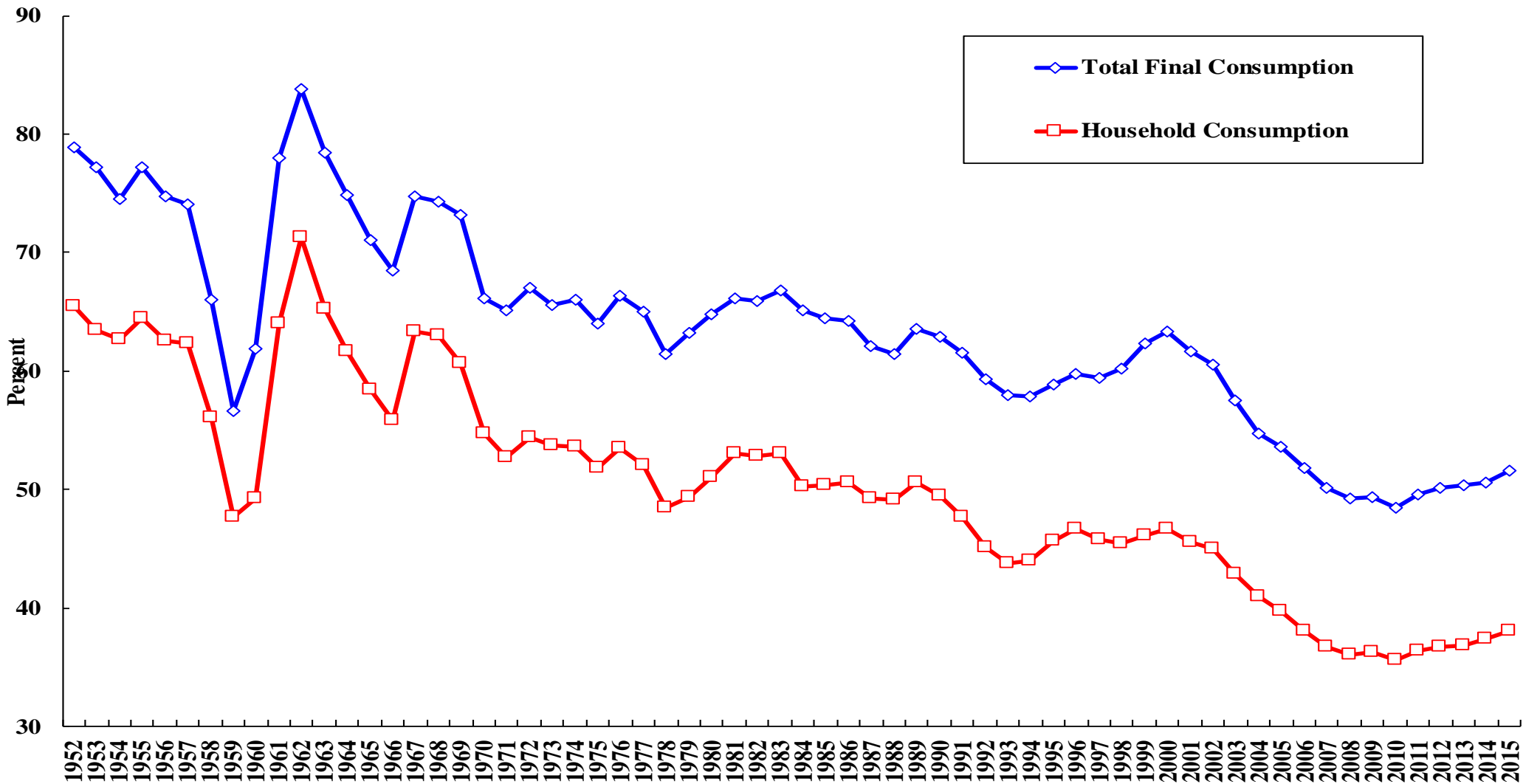


Chinese Economic Fundamentals: The High Domestic Savings Rate

- ◆ One way to understand the high Chinese domestic savings rate is to look at the share of final consumption (the total of household consumption and government consumption (aggregate government current expenditures at all levels)) in GDP. It is only approximately 60% as of 2015. The rest is national savings.
- ◆ The share of household consumption in Chinese GDP was approximately 38% in 2015. It will take a fairly long time before Chinese household consumption can become the major driver of Chinese economic growth. The share of disposable household income in Chinese GDP may be estimated to be no more than 50% in 2014. Even if the households consume its entire disposable income, household consumption cannot exceed 50% of GDP, compared to between 65% and 70% for developed economies.

Total Chinese Final and Household Consumption as a Percent of Its GDP

Total Final Consumption and Household Consumption as a Percent of GDP



Chinese Economic Fundamentals:

The Abundant Surplus Labor

- ◆ China, like Japan, Taiwan, and South Korea in their respective early stages of economic development, has an unlimited supply of surplus labor—there is therefore no shortage of and no upward pressure on the real wage rate of unskilled, entry-level labor. This means the Chinese economy can continue to grow without being constrained by the supply of labor or by rising real wage rates of unskilled, entry-level labor over an extended period of time.
- ◆ Surplus labor is best understood in the context of a two-sector model of an economy, say, an agricultural (traditional) sector, and a non-agricultural (advanced) sector. At the very early stage of the development of an economy, the agricultural sector is large and the non-agricultural sector is small. The bulk of the labor force is employed in the agricultural sector, where its marginal productivity is low or even zero. The basic idea is that if on the margin some labor is removed from the agricultural sector, it will not cause the agricultural output to decline. That is why the labor is referred to as “surplus”⁶⁰

Chinese Economic Fundamentals: The Abundant Surplus Labor

- ◆ In contrast, the potential marginal productivity of labor in the non-agricultural sector is much higher than that of the agricultural sector so that on the margin, a transfer of labor from the agricultural sector to the non-agricultural sector will increase total output of the economy. However, the transfer is potentially constrained by the scarcity of complementary capital in the non-agricultural sector, the demand for non-agricultural goods, and the supply of wage goods for the labor in the non-agricultural sector.
- ◆ Investment in tangible or physical capital such as structure, equipment and basic infrastructure is very productive under conditions of surplus labor. As long as there is sufficient complementary domestic physical capital, the surplus labor can be gainfully employed and enable the real output of the economy to grow rapidly. This is exactly what the late Professor W. Arthur Lewis (1954), Nobel Laureate in Economic Sciences, said in his celebrated paper on surplus labor sixty years ago.

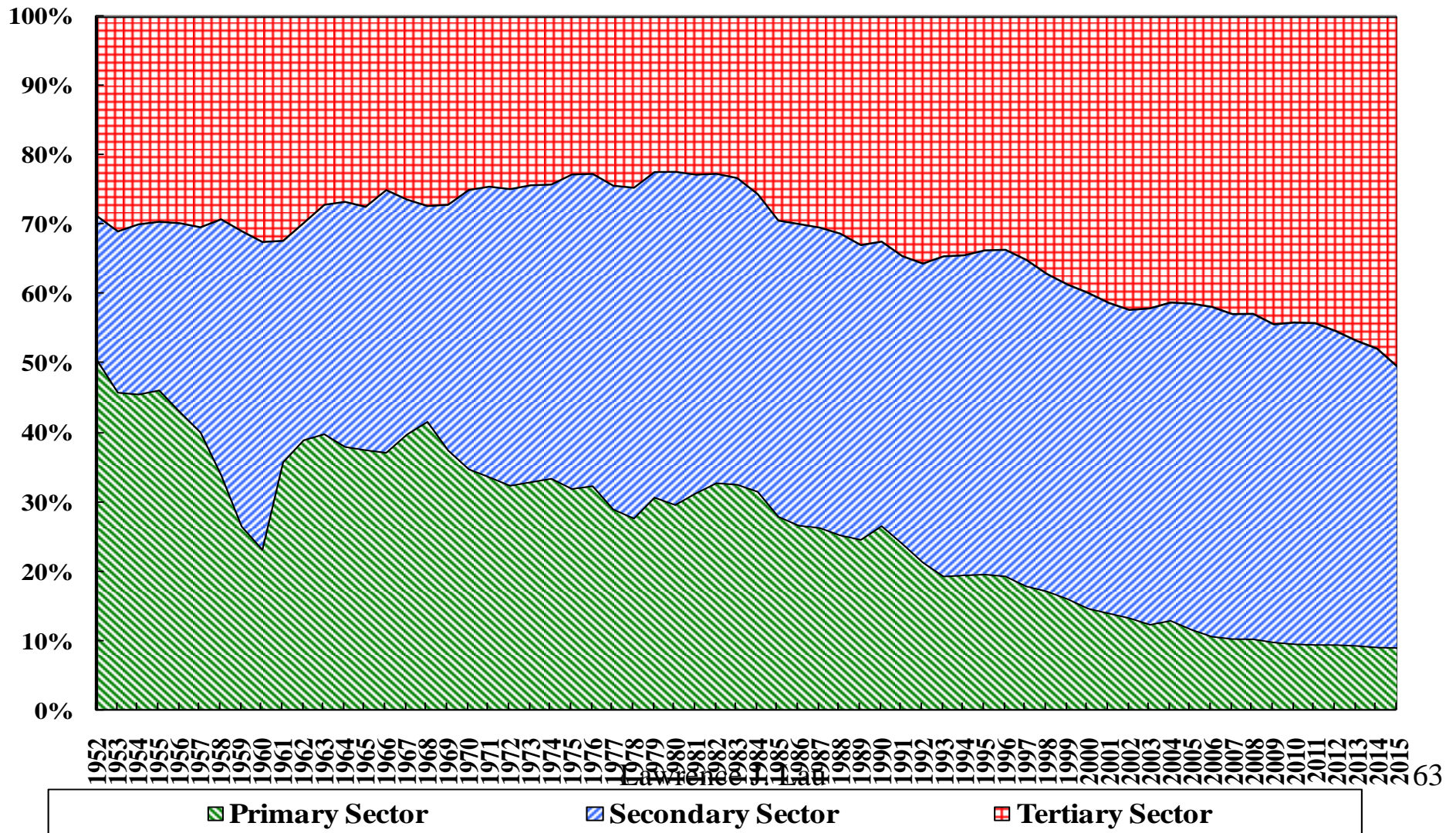
Chinese Economic Fundamentals:

The Abundant Surplus Labor

- ◆ The distribution of Chinese GDP by production-originating sectors in 2015 was approximately: Primary (agriculture), 9.0%; Secondary (manufacturing, mining and construction), 40.5%; and Tertiary (services), 50.5%. (Note that mining is normally included in the primary sector in most other economies.)
- ◆ The distribution of employment by sector in 2015 was: Primary, 28.3%; Secondary, 29.3%; and Tertiary, 42.4%.
- ◆ The agricultural sector employed 28.3% of the Chinese labor force but produced only 9.0% of the Chinese GDP in 2015. Thus labor can be productively transferred to the other two sectors where labor productivities and wage rates are higher as long as complementary capital and demand are available.

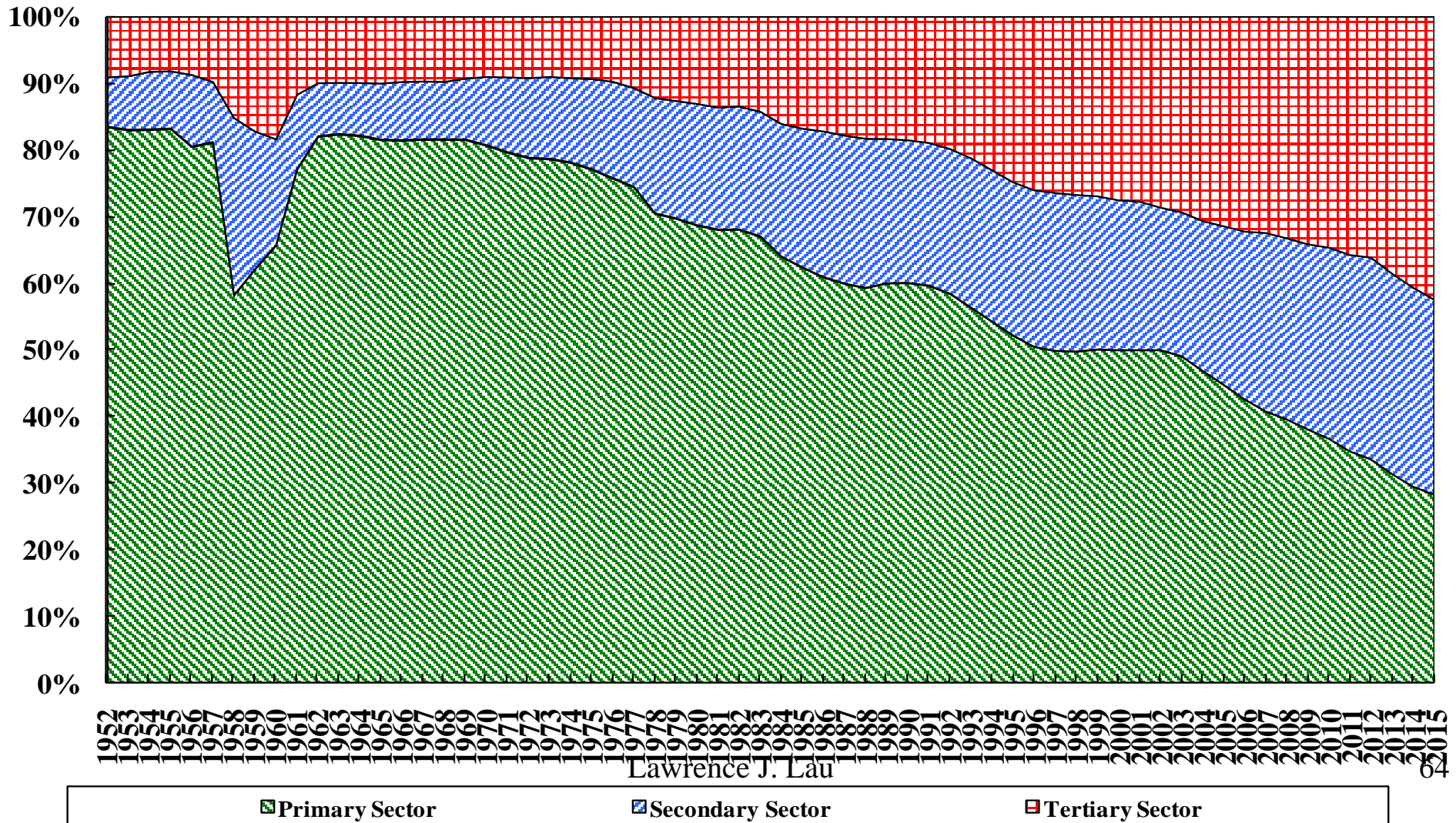
The Distribution of Chinese GDP by Sector Since 1952

The Distribution of GDP by Sector Since 1952



The Distribution of Chinese Employment by Sector Since 1952

The Distribution of Employment by Sector since 1952

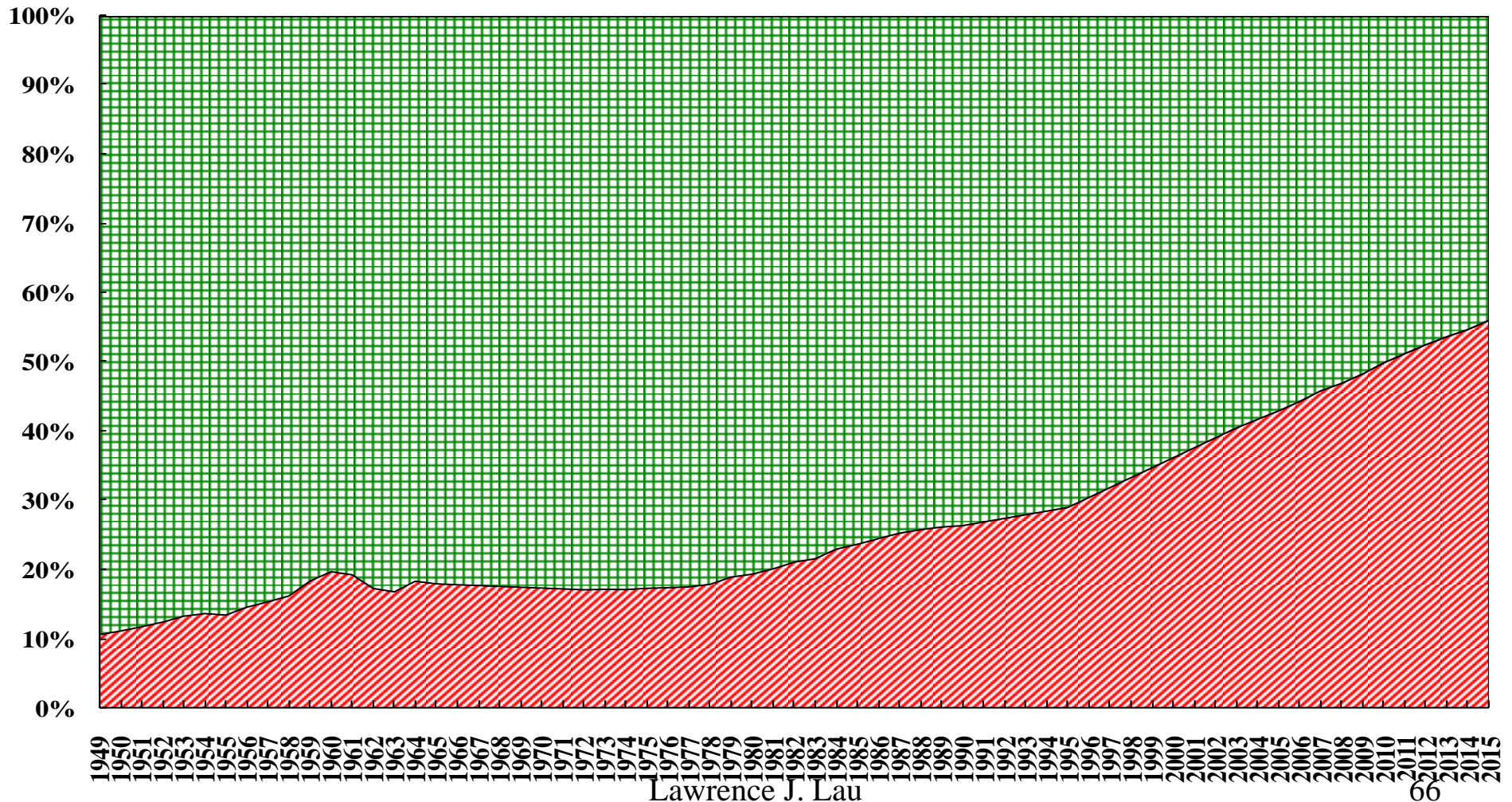


Chinese Economic Fundamentals: The Abundant Surplus Labor

- ◆ Hence, as long as the percentage of labor force employed in the primary sector significantly exceeds the percentage of GDP originating from the primary sector, there will be little or no upward pressure on the real wage rate of unskilled, entry-level labor in the secondary and tertiary sectors. Surplus labor will continue to exist in the Chinese economy for a couple of decades.
- ◆ The termination of the “one-child” policy will help to maintain the supply of labor in the long run. It will take at least a couple of decades before the “two-child” policy can make a significant impact.
- ◆ In the interim, increasing the retirement age and changing the related rules on administrative leadership positions can reverse the decline of the active labor force.

The Shares of Rural and Urban Population in China, 1949-Present

The Shares of Rural and Urban Populations in China, 1949-Present



Lawrence J. Lau

Urban population Rural Population

Chinese Economic Fundamentals:

The Rising Importance of Intangible Capital

- ◆ China has a long tradition of emphasis on education and learning (human capital) and will continue to increase its investment in human capital. The enrollment rate of tertiary education has been rising rapidly and stands at over 30 percent today. It is expected to rise further over the next decades as private tertiary educational institutions become more numerous in response to demand and facilitated by government policy.
- ◆ China has also begun to increase its expenditure on Research and Development (R&D), but it missed its target of 2.2 percent of GDP by 2015 by 0.1 percent. The target is to increase its expenditure on R&D to 2.5 percent by 2020.
- ◆ However, relative to many other economies, China lags behind on investment in both human capital and R&D capital, especially on a per capita basis.

Chinese Economic Fundamentals:

The Rising Importance of Intangible Capital

- ◆ The principal sources of Chinese economic growth will gradually evolve from the growth of tangible inputs such as tangible capital and labour, to the growth of intangible inputs such as human capital, R&D capital, and reputational capital (branding and goodwill).
- ◆ Sustained investment in human capital and research and development (R&D) is essential for the occurrence of technical progress or growth in total factor productivity in an economy.
- ◆ China has also begun to invest heavily in R&D in recent years—its R&D expenditure has been rising rapidly, both in absolute value, and as a percentage of GDP. But it still lags behind the developed economies as well as the newly industrialised economies of East Asia. (The Chinese R&D Expenditure/GDP ratio is targeted to reach 2.5% in 2020, approximately the same as the historical average of 2.5% for the U.S.)

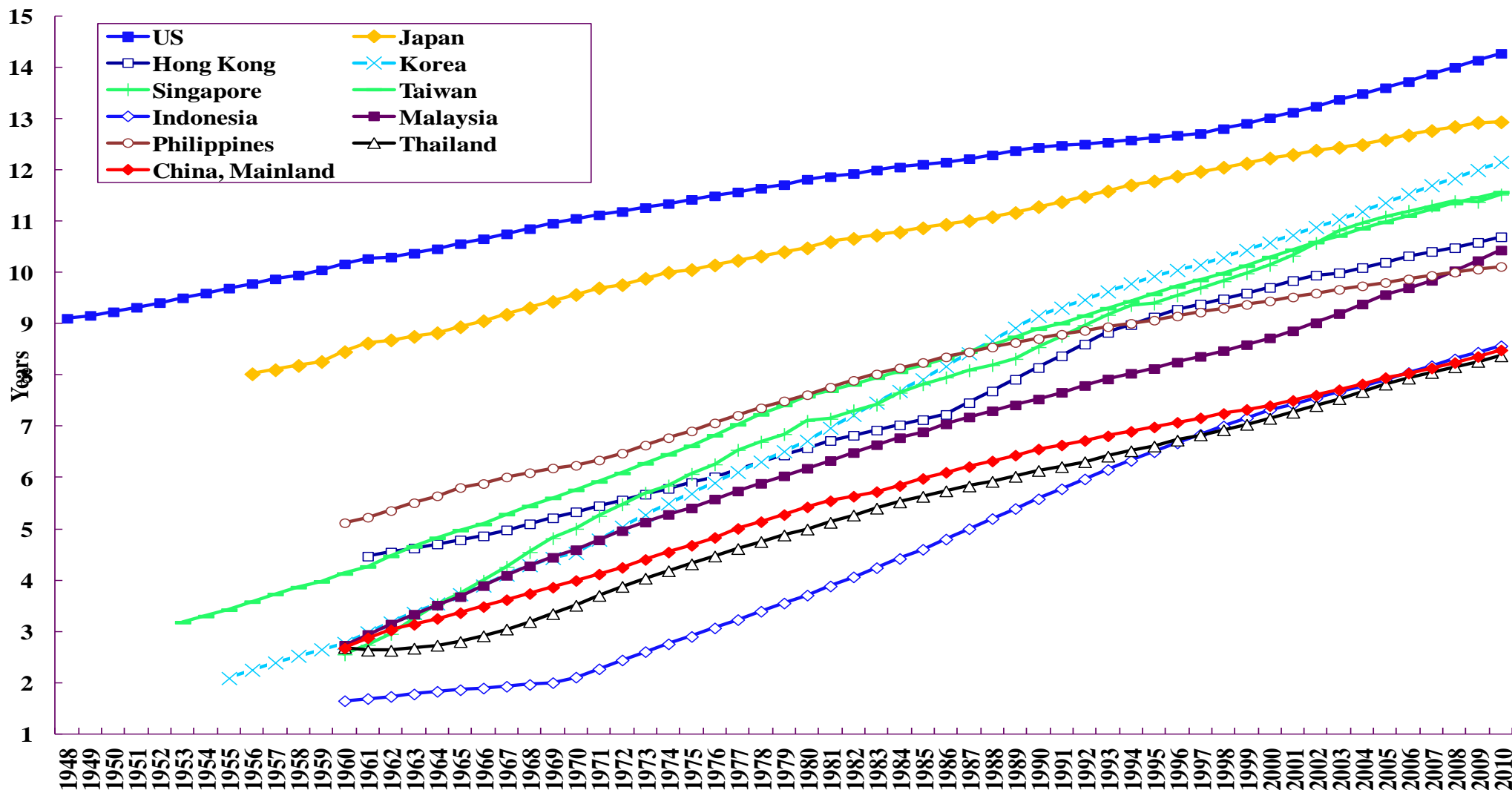
Chinese Economic Fundamentals:

The Rising Importance of Intangible Capital

- ◆ One indicator of the level of human capital in an economy is the average number of years of schooling per person in the working-age population. In the following chart, the average number of years of schooling is compared across selected economies.
- ◆ By this measure, the United States and Japan are clearly the global leaders. South Korea has also been catching up fast. Most of the other East Asian economies also have quite rapidly increasing levels of human capital but it will take a while before they can catch up with the levels of human capital in the developed economies. China, Indonesia and Thailand have lagged behind in terms of investment in human capital.
- ◆ China has a different definition of working-age population—with a terminal age of 60--and so the number of school years per person in the customary working-age population, that is, up to 65, may well have been lower, given the lower enrolment rates at all levels of education 60 years ago.
- ◆ The number of school years per working-age person in China was probably around 9 years in 2014.

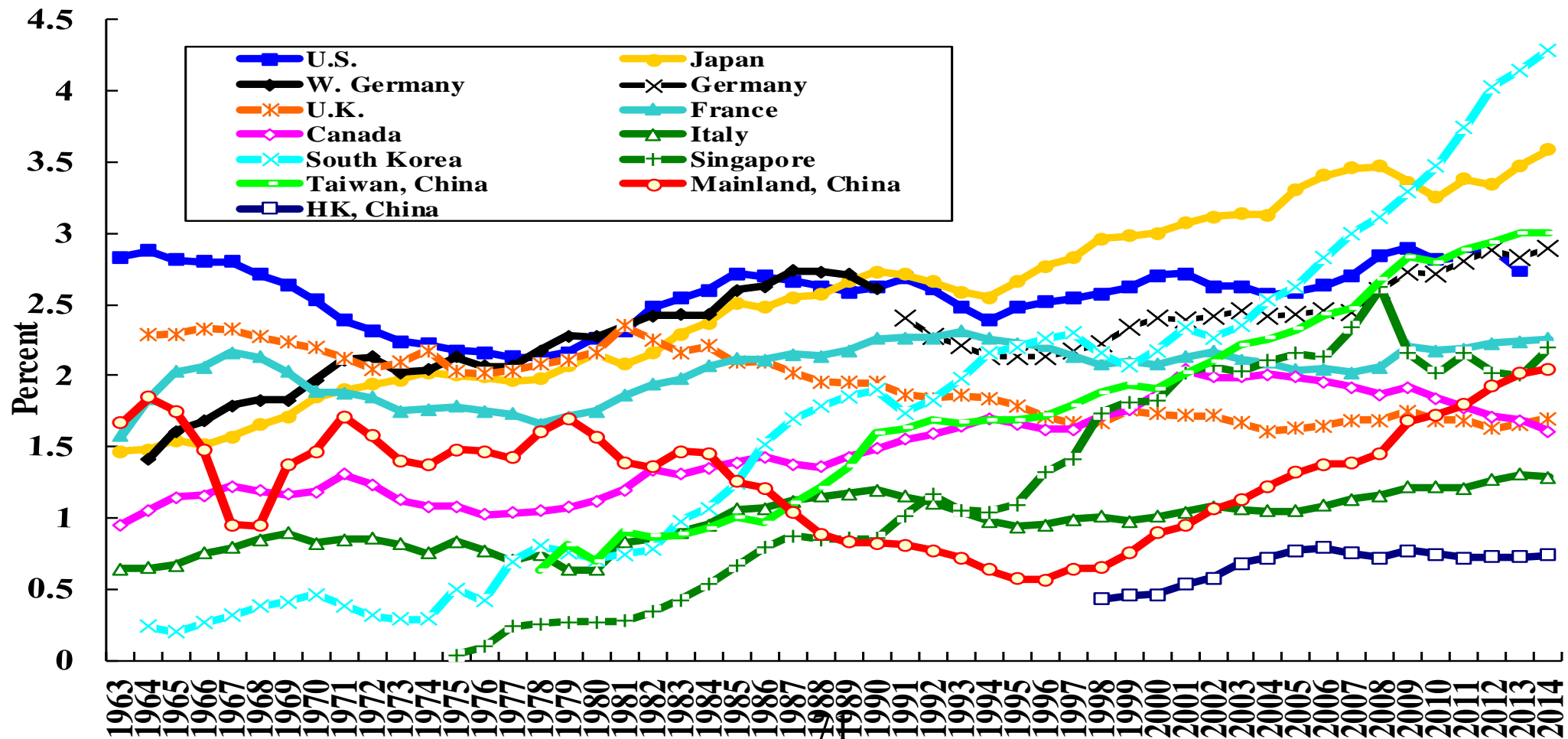
Average Number of Years of Schooling of Selected Economies (1948-present)

Average Number of Years of Schooling of Selected Economies (1945-present)



R&D Expenditures as a Percent of GDP: G-7 Countries, 4 East Asian NIES & China

R&D Expenditures as a Percentage of GDP: G-7 Countries, 4 East Asian NIEs and China



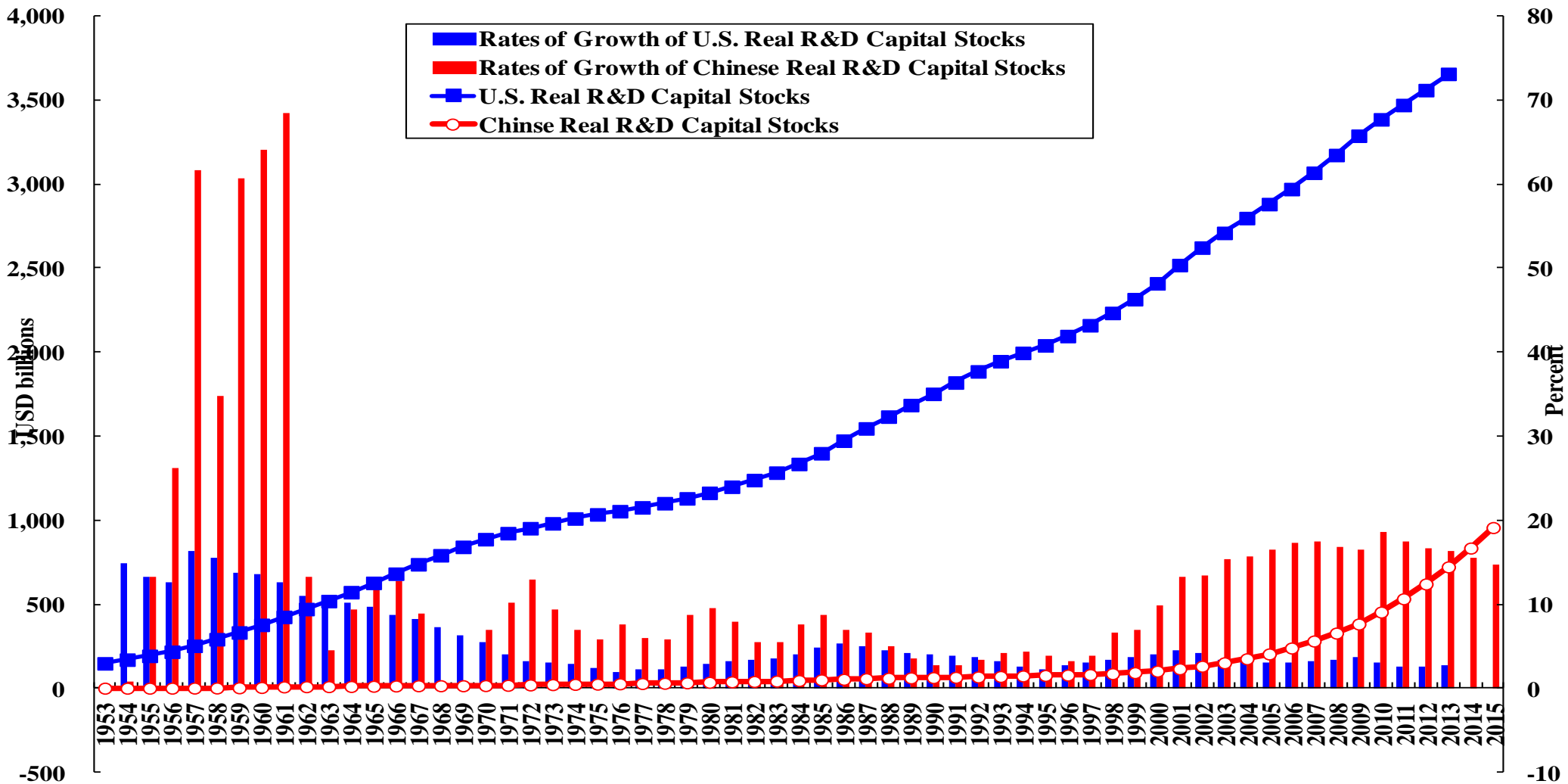
The Chinese Economic Fundamentals:

R&D Capital Stock

- ◆ The R&D capital stock, defined as the cumulative past real expenditure on R&D less the depreciation of 10% per year, is an useful indicator of innovative capacity. It should quite properly be treated as capital since R&D efforts generally take years to yield any results.
- ◆ Lawrence J. Lau and Yanyan Xiong (2015), in their Working Paper, “Are There Laws of Innovation? Part I: Introduction”, have constructed R&D capital stocks for the Group-of-Seven (G-7) countries, the East Asian Newly Industrialized Economies (NIEs) and China. The R&D capital stocks of China and the U.S. are presented in the following chart.
- ◆ At US\$3.656 trillion in 2013 (in 2012 prices), the U.S. is the World leader in R&D capital stock. The Chinese R&D capital stock, at US\$722 billion in 2013, has caught up with those of most countries and regions with the exceptions of the U.S., Japan and Germany.

R&D Capital Stocks and their Growth Rates: A Comparison of China and the U.S., 2012 US\$

Real R&D Capital Stocks and their Growth Rates: A Comparison of China and the U.S.
(Billion US\$, 2012 Prices)



Chinese Economic Fundamentals:

The Rising Importance of Intangible Capital

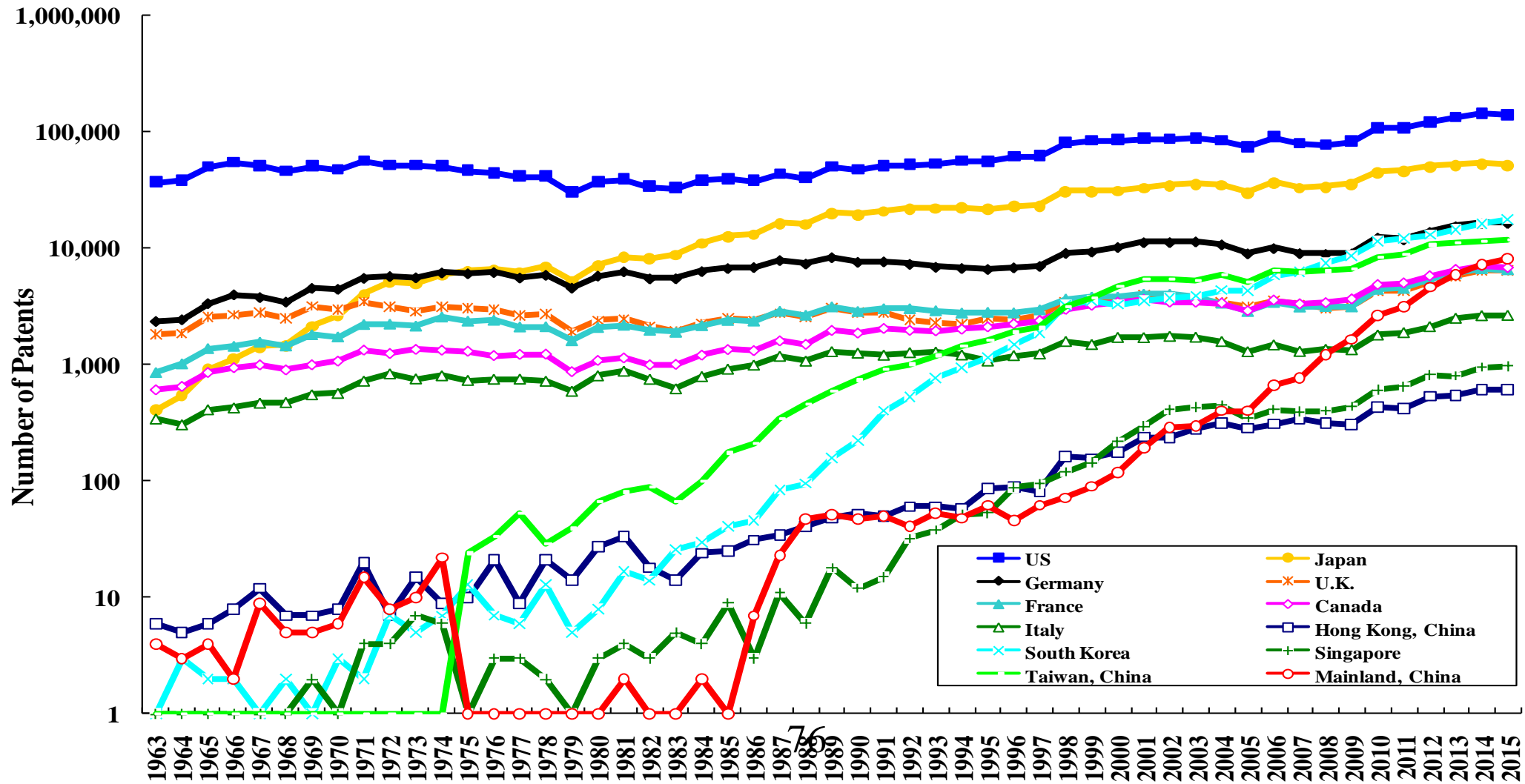
- ◆ One indicator of the potential for technical progress (national innovative capacity) is the number of patents created each year. In the following chart, the number of patents granted in the United States each year to the nationals of different countries, including the U.S. itself, over time is presented.
- ◆ 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.)

Chinese Economic Fundamentals: The Rising Importance of Intangible Capital

- ◆ The number of patents granted to 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, are still far ahead of Mainland China.

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

Patents Granted Annually in the United States: G7 Countries, 4 East Asian NIEs and China



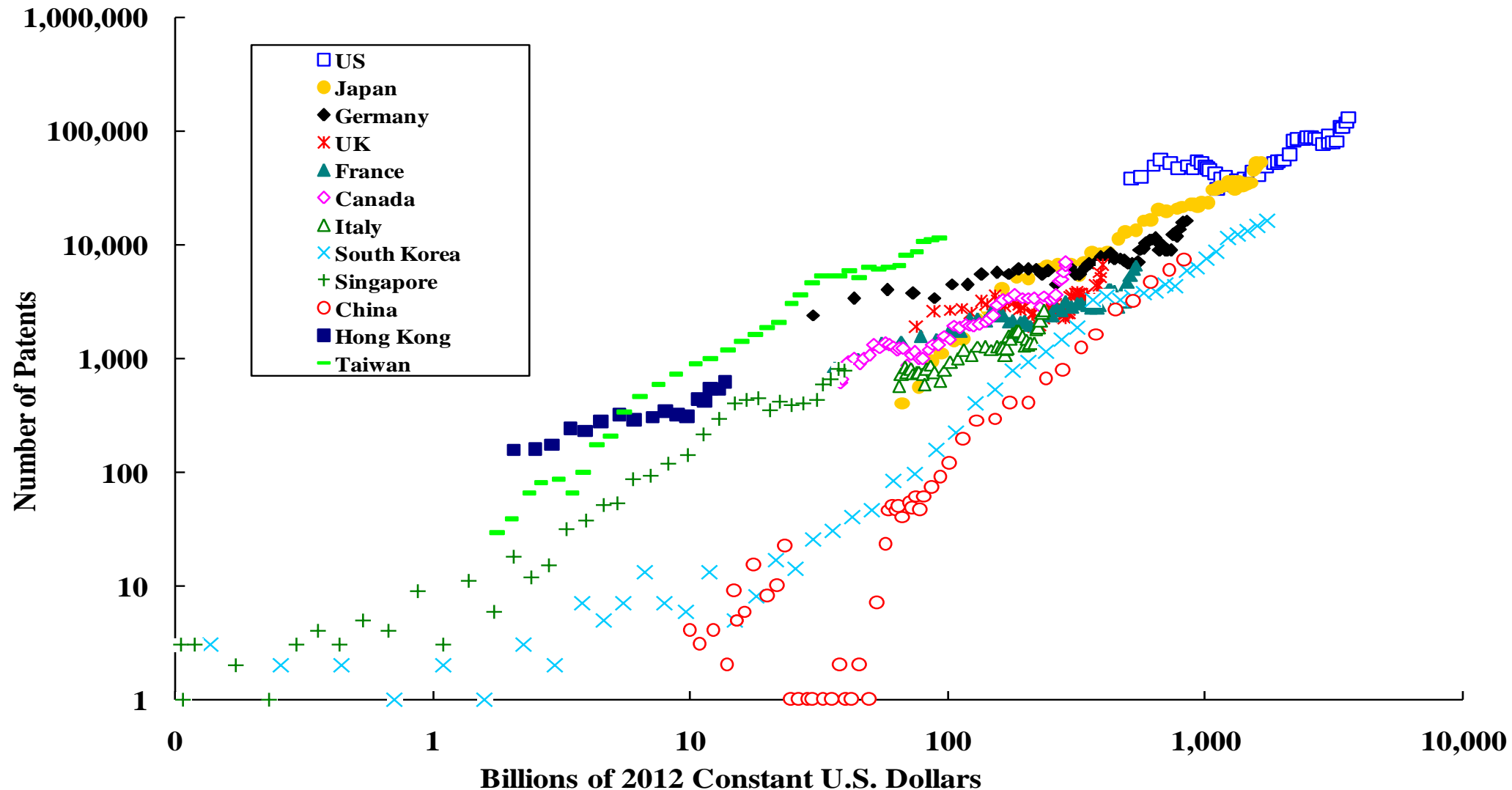
Chinese Economic Fundamentals:

The Rising Importance of Intangible Capital

- ◆ The stock of R&D capital, defined as the cumulative past real expenditure on R&D less depreciation of 10% per year, 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 country).
- ◆ 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.
- ◆ Because China has had both a much lower R&D expenditure to GDP ratio and a much lower GDP than the United States and other developed economies in the past, it will take more than a couple of decades before the Chinese R&D capital stock can catch up to the level of U.S. R&D capital stock (and hence to the number of U.S. patents granted each year).

Patents Granted in the United States and R&D Capital Stocks, Selected Economies

Patents Granted in the United States and R&D Capital Stocks, Selected Economies



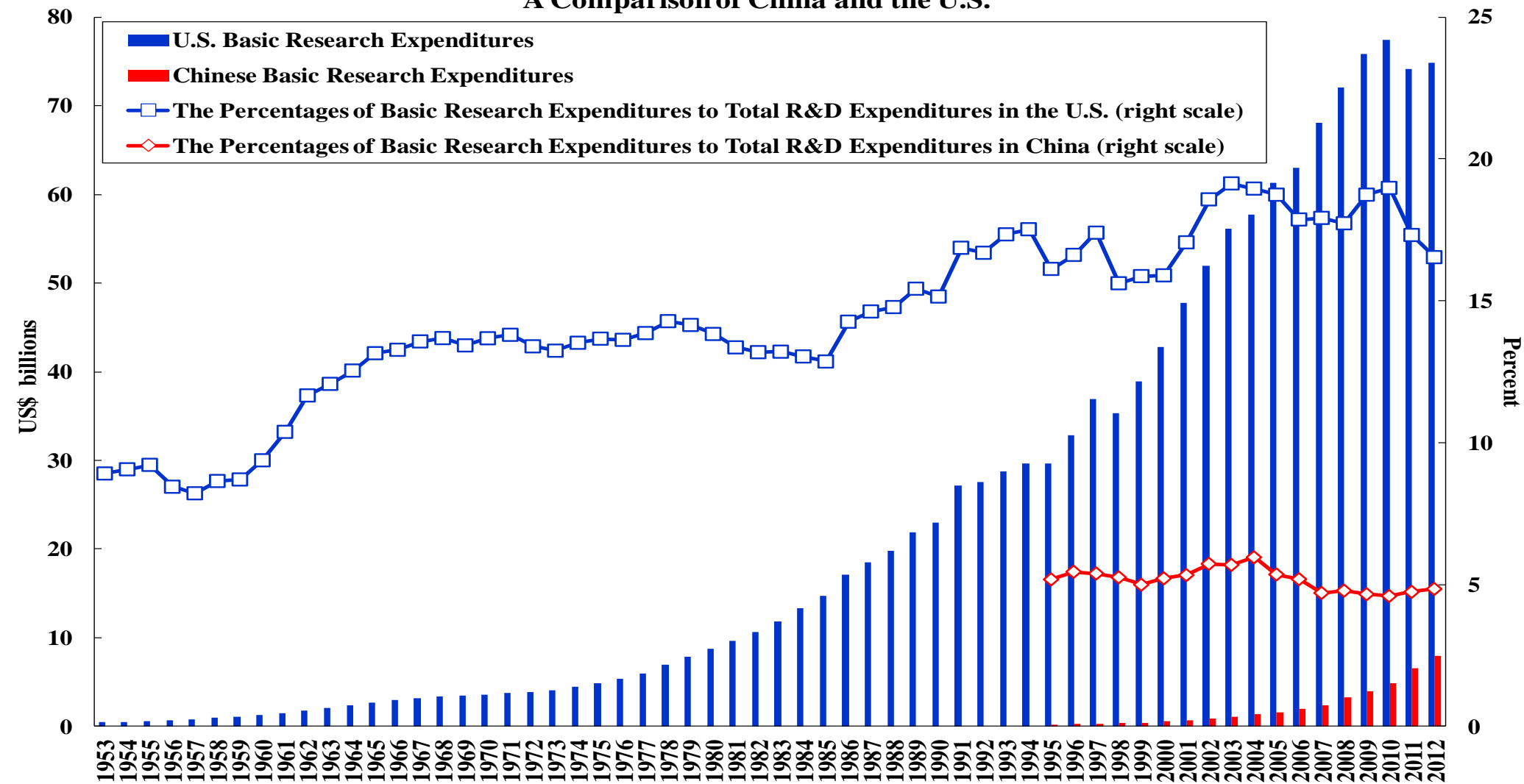
Chinese Economic Fundamentals:

The Rising Importance of Intangible Capital

- ◆ However, innovation also depends on the existence of competition. Monopolies are generally not very good in innovation and not very good in making full use of their innovation. China must create and maintain a competitive market environment with free entry and exit so as to encourage innovation.
- ◆ In addition, in order to encourage innovation, China also needs to protect intellectual property rights vigorously. The establishment of a national intellectual property court was an important step towards better protection of intellectual property rights, both Chinese and foreign.
- ◆ Finally, in order that “break-through” innovation can occur in China, the Chinese Government must commit a much greater share of its R&D expenditure to the support of basic research.⁷⁹

Basic Research Expenditure and Its Share in Total R&D Expenditure: China & U.S.

Basic Research Expenditure and its Share in Total R&D Expenditure:
A Comparison of China and the U.S.



Chinese Economic Fundamentals:

The Rising Importance of Intangible Capital

- ◆ Past Chinese economic growth has been mostly driven by the growth of tangible capital. Technical progress or growth of total factor productivity accounts for less than 10 percent of Chinese economic growth since 1978.
- ◆ In order for technical progress to become an important driver of economic growth, investment in intangible inputs such as human capital and R&D capital must be increased. Moreover, capital allocation must be made more efficient. That is why the “supply side” reform is so important for the Chinese economy.

Chinese Economic Fundamentals:

The Huge Domestic Market

- ◆ The huge domestic market of 1.37 billion consumers with pent-up demand for housing and transportation and other consumer goods and services (e.g., education, health care, and more recently, elderly care), enables the realization of significant economies of scale in production in many manufacturing industries, based entirely on the domestic market in China.
- ◆ The huge domestic market also greatly enhances the productivity of intangible capital (e.g., R&D capital and goodwill including brand building) by allowing the fixed costs of the R&D for a new product or process or advertising and promotion in brand building to be more easily amortized and recovered.
- ◆ Another important implication of the size of the domestic economy is the relatively low external dependence. Thus, while the rates of growth of Chinese exports and imports fluctuate like other economies, the rate of growth of Chinese real GDP has been relatively much more stable. (China is represented by a red line in the following charts.)

Chinese Economic Fundamentals: The Huge Domestic Market

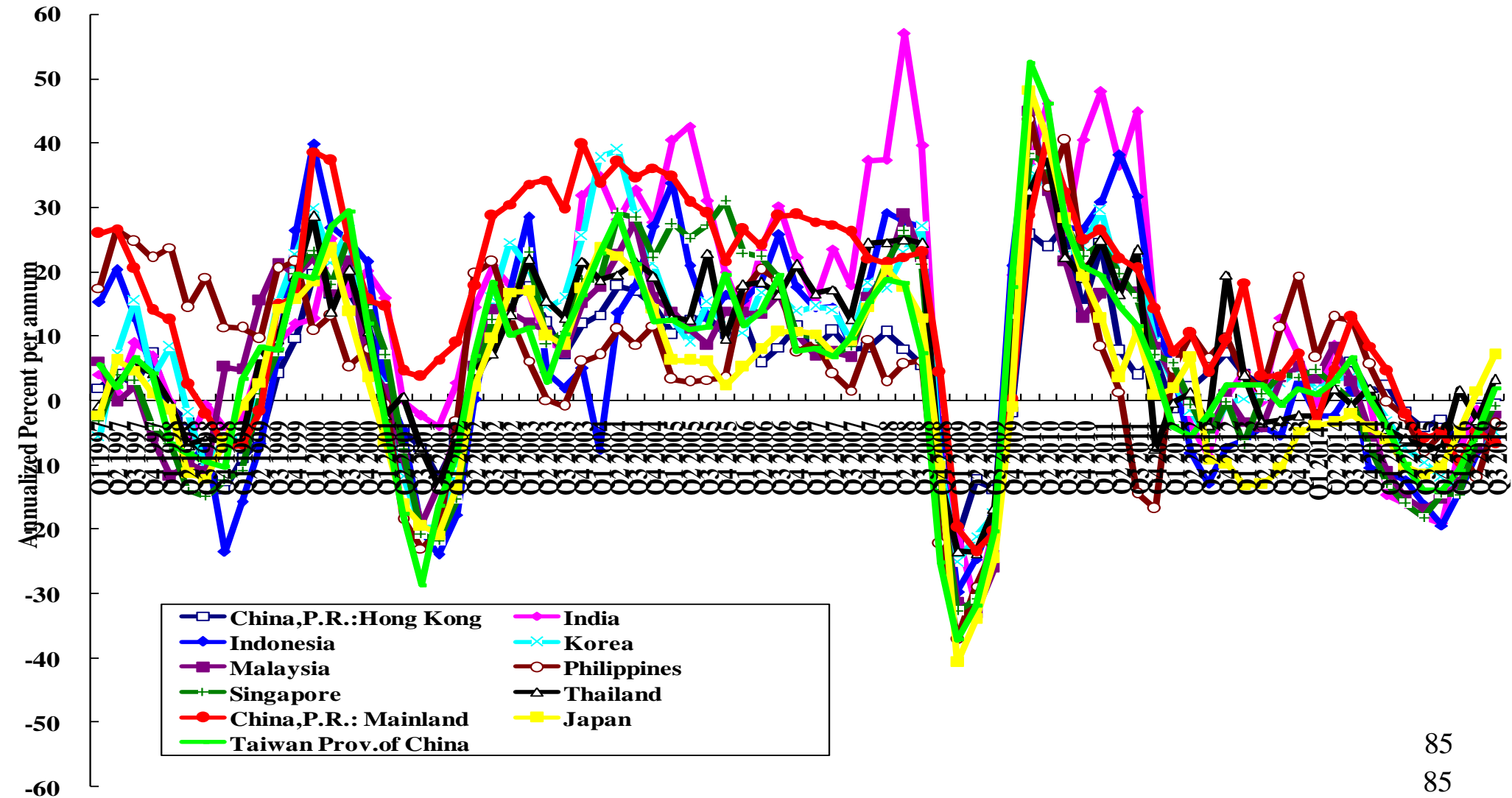
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Chinese Economic Fundamentals: The Huge Domestic Market

- ◆ Another important and favorable implication of a large domestic economy is the relatively low degree of external dependence and hence vulnerability. Large continental economies, such as China, Russia and the United States, are likely to be self-sufficient in many of the resources because of their large size and geographically diversified location. These economies are also mostly driven by their internal demands, and not by international trade. For example, exports have never been very important to the U.S. economy, and the U.S. economy has never been dependent on international trade, except perhaps in the 19th Century. The Chinese economy is similar—China has adequate supplies of most natural resources domestically (with the possible exception of oil). Chinese economic growth in the future decades will be mostly driven by internal demand rather than exports.
- ◆ Thus, while the rates of growth of Chinese exports and imports fluctuate like other economies, the rate of growth of Chinese real GDP has been relatively much more stable. China is relatively immune to external disturbances, just like other large economies such as the U.S. and Japan (China is represented by a red line in the following charts.)

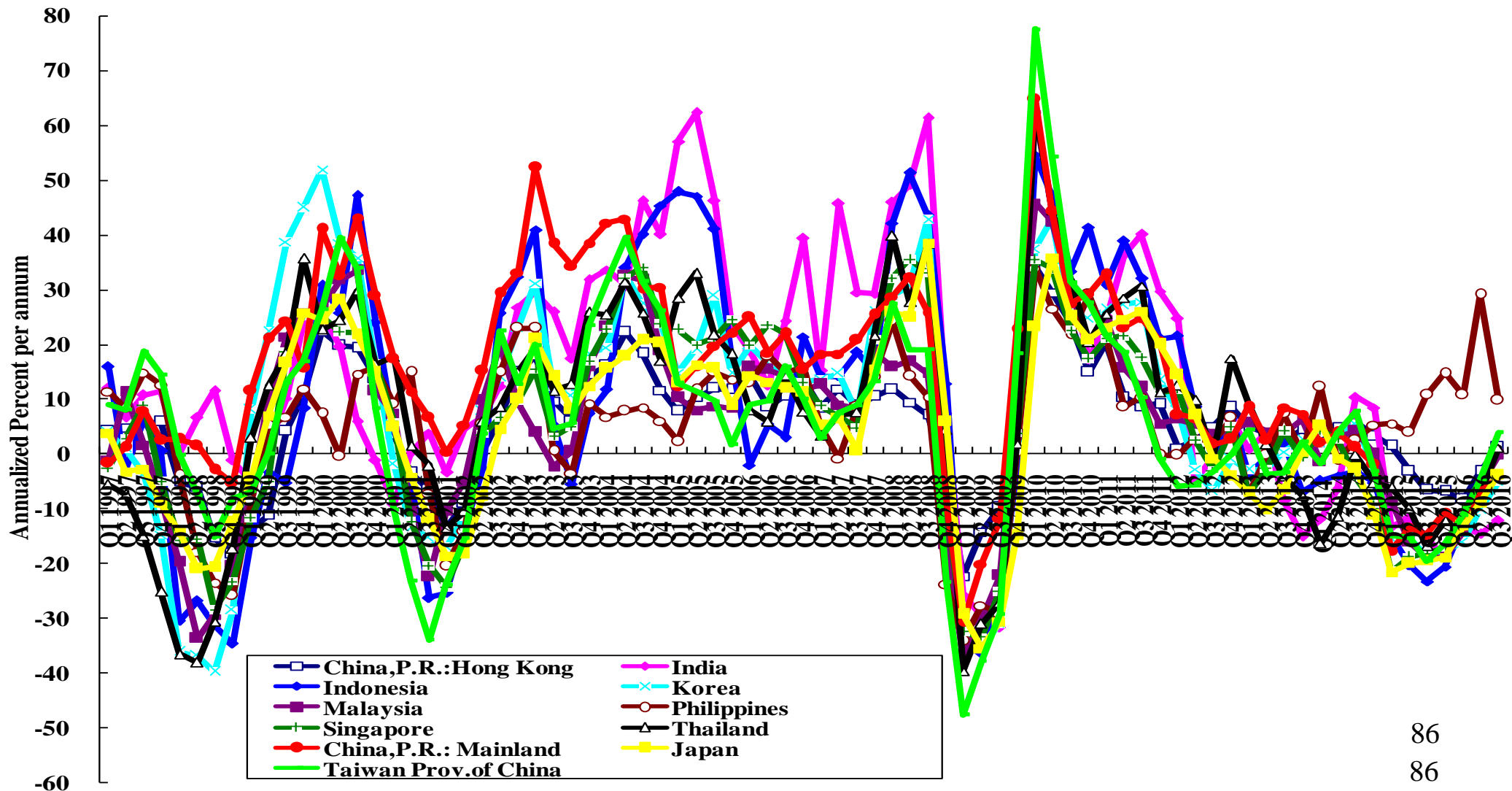
Quarterly Rates of Growth of Exports of Goods: Selected East Asian Economies

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



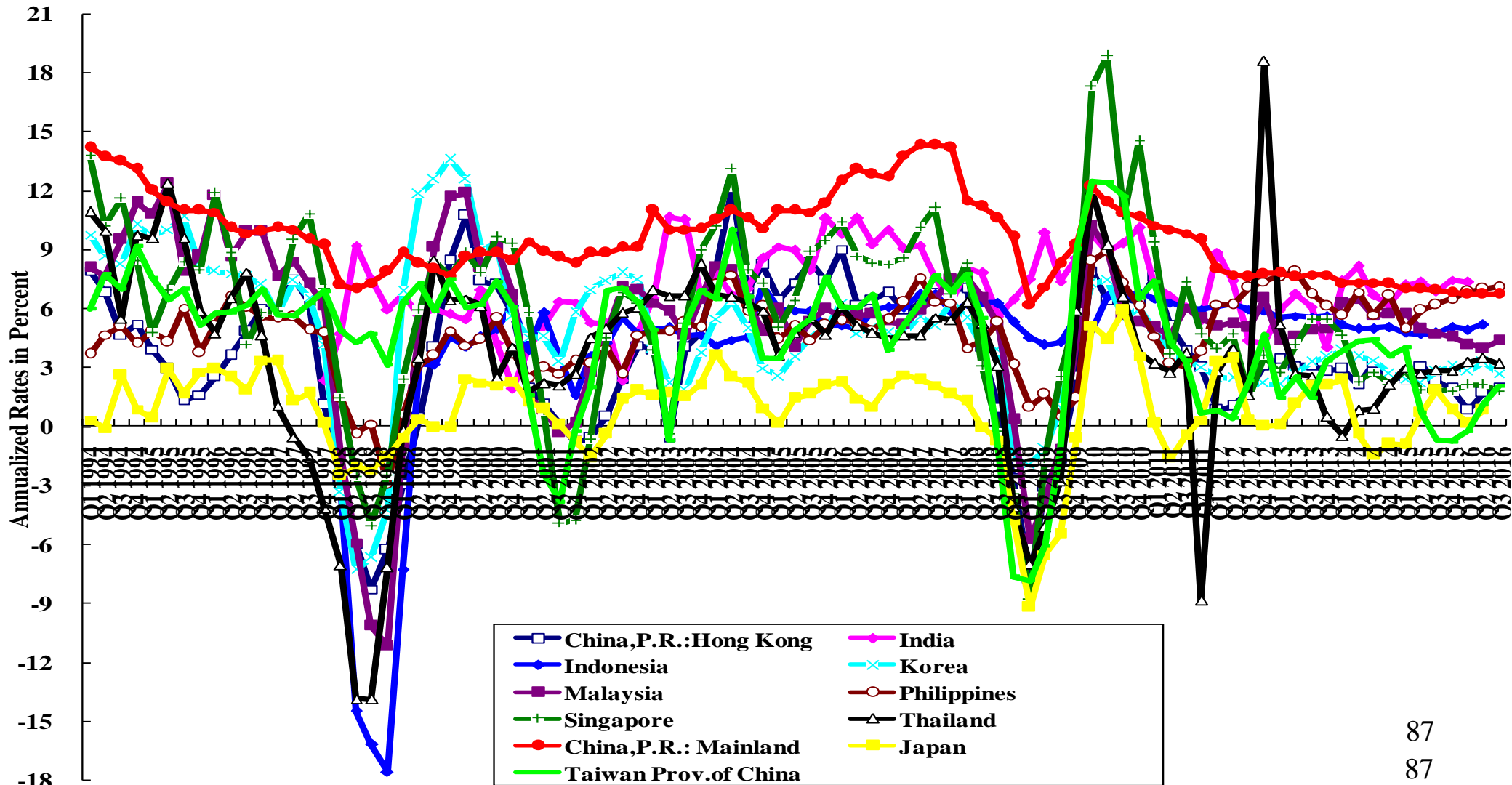
Quarterly Rates of Growth of Imports of Goods: Selected East Asian Economies

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



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

Quarterly Rates of Growth of Real GDP, Year-over-Year: Selected East Asian Economies



The “Wild Geese Flying Pattern”--The Further Advantage of China’s Size

- ◆ Professor Kaname Akamatsu (1962) was the first to introduce the metaphor of the "wild-geese-flying pattern" of East Asian economic development, which suggests that industrialization will spread from economy to economy within East Asia as the initially fast-growing economies, beginning with Japan, run out of surplus labor and face labor shortages, rising real wage rates, and quota restrictions on their exports, and need to relocate some of its industries to lower-cost economies. The fastest-growing economy will thus slow down and a lower-cost economy will take over as the fastest-growing economy.
- ◆ Thus, East Asian industrialization spread from Japan to first Hong Kong in the mid-1950s, and then Taiwan in the late 1950s, and then South Korea and Singapore in the mid-1960s, and then Southeast Asia (Thailand, Malaysia, Indonesia) in the 1970s, and then to Guangdong, Shanghai, Jiangsu and Zhejiang in China as China undertook economic reform and opened to the world beginning in 1978. During this industrial migration, the large trading firms such as Mitsubishi, Mitsui, Marubeni and Sumitomo of Japan and Li and Fung of Hong Kong played an important role as financiers, intermediaries, quality assurers, and managers of logistics and supply chains.

The “Wild Geese Flying Pattern”—The Further Advantage of China’s Size

- ◆ This metaphor actually applies not only to East Asia but also to China itself because of its large size. Within China, industrialisation first started in the coastal provinces, autonomous regions and municipalities and then would migrate and spread to other provinces, regions and municipalities in the interior—to Chongqing, Henan, Hunan, Jiangxi, Shaanxi and Sichuan—as real wage rates rose on the coast.
- ◆ As the coastal provinces, regions and municipalities began to slow down in their economic growth, the provinces, autonomous regions and municipalities in the central and western regions of China would take their turns as the fastest growing areas in China. China as a whole will therefore be able to maintain a relatively high rate of growth for many years to come.

The “Wild Geese Flying Pattern”--The Further Advantage of China’s Size

- ◆ However, this metaphor actually applies not only to East Asia but also to China itself because of its large size. Within China, industrialization first started in the coastal regions and then would migrate and spread to other regions in the interior—to Chongqing, Henan, Hunan, Jiangxi, Shaanxi and Sichuan—as real wage rates rose on the coast. As the coastal regions began to slow down in their economic growth, the regions in the central and western regions of China would take their turns as the fastest growing regions in China. China as a whole will therefore be able to maintain a relatively high rate of growth for many more years to come.

The “Wild Geese Flying Pattern”—The Further Advantage of China’s Size

- ◆ The economies of the Chinese coastal regions such as the Pearl River Delta (Guangdong Province) and the Yangzi River Delta (Jiangsu and Zhejiang Provinces and Shanghai Municipality) would have slowed down a long time ago had it not been for the couple of hundreds of million migrant labourers that flocked to these regions from the interior, constantly replenishing the supply of surplus labour there.

Chinese Economic Fundamentals:

The Relative Backwardness

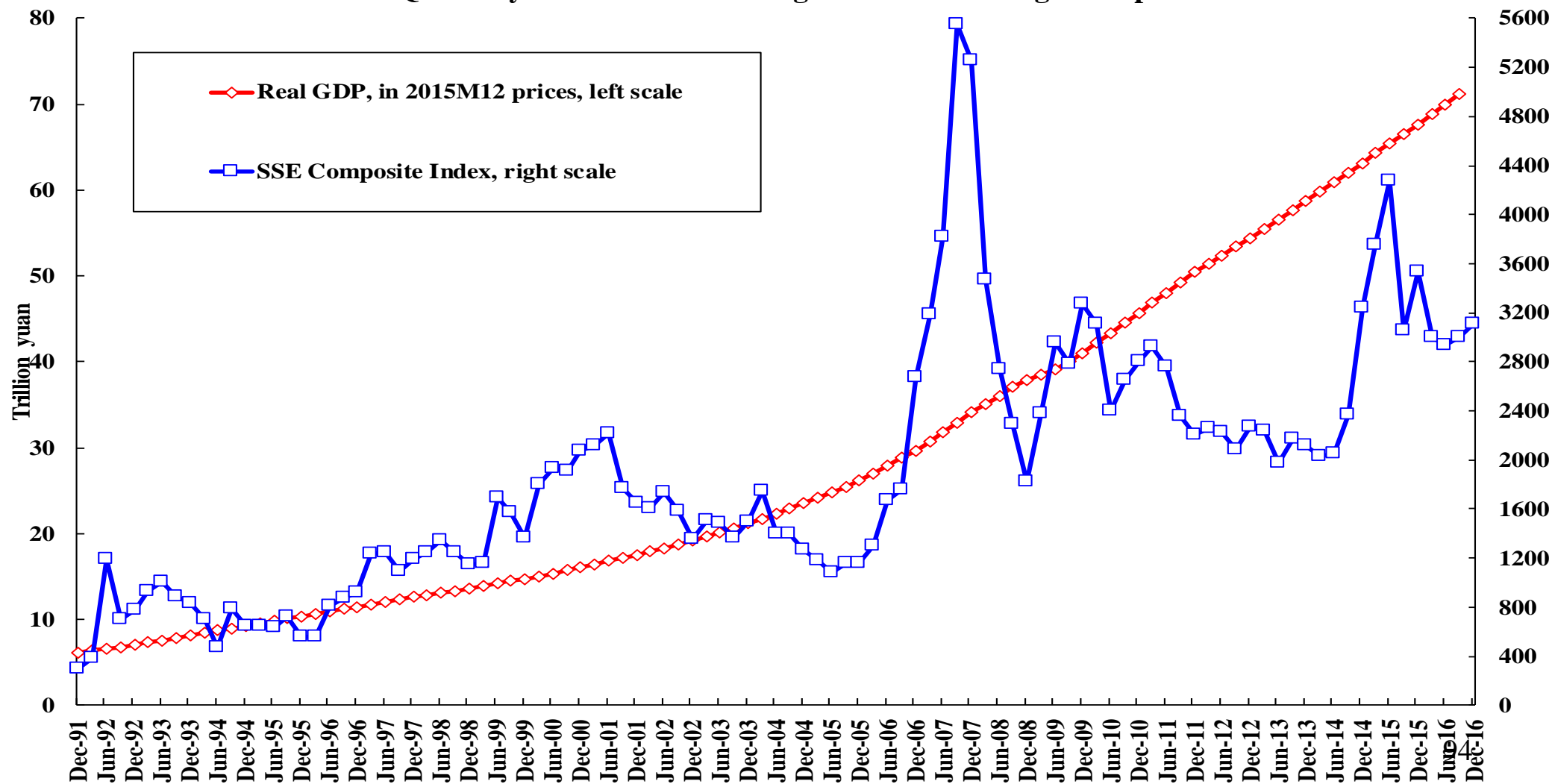
- ◆ In addition to a high domestic savings rate, abundant surplus labor, rising investment in intangible capital (human capital and R&D capital), and the huge domestic market, China also has the advantage of relative backwardness.
- ◆ Thus, the Chinese economy has:
 - ◆ The ability to learn from the experiences of successes and failures of other economies, e.g., by adopting an export-oriented rather than an import-substitution development strategy;
 - ◆ The ability to leap-frog and by-pass stages of development (e.g., the telex machine, the VHS video-tape player, and the fixed landline telephone are all mostly unknown in China; and the personal computer is not a household consumer good as it was in the developed economies); and
 - ◆ The possibility of creation without destruction (e.g., online virtual bookstores like Amazon.com do not have to destroy brick and mortar bookstores which do not exist in the first place; internet shopping versus brick and mortar malls).

Chinese Economic Fundamentals: The Unimportance of the Stock Market

- ◆ What is the impact of the bursting of the Chinese stock market bubble in June 2015 on the Chinese economy itself? It should be realized that this is not the first time that a Chinese stock market price bubble burst. It happened once before, in 2007, when the peak of the bubble was higher and the trough was lower than the current one (see the following chart). However, neither the run-up of the stock price bubble, or its subsequent burst, appeared to have had much effect on the Chinese real economy.
- ◆ Why is this the case? One reason is that approximately 90 percent of the Chinese stock investors are individual retail investors, who tend to hold their shares for only brief periods, and trade very often. It is probably more accurate to describe their behavior as “gambling” rather than “investing”. Moreover, for the longest time, “Initial Public Offerings (IPOs)” were suspended on Chinese stock markets. Thus, the developments in the real economy and the stock market are uncorrelated. The next two charts also show that the real rates of growth of the Chinese economy are basically uncorrelated with the rates of growth of the Shanghai Composite Stock Price Index.

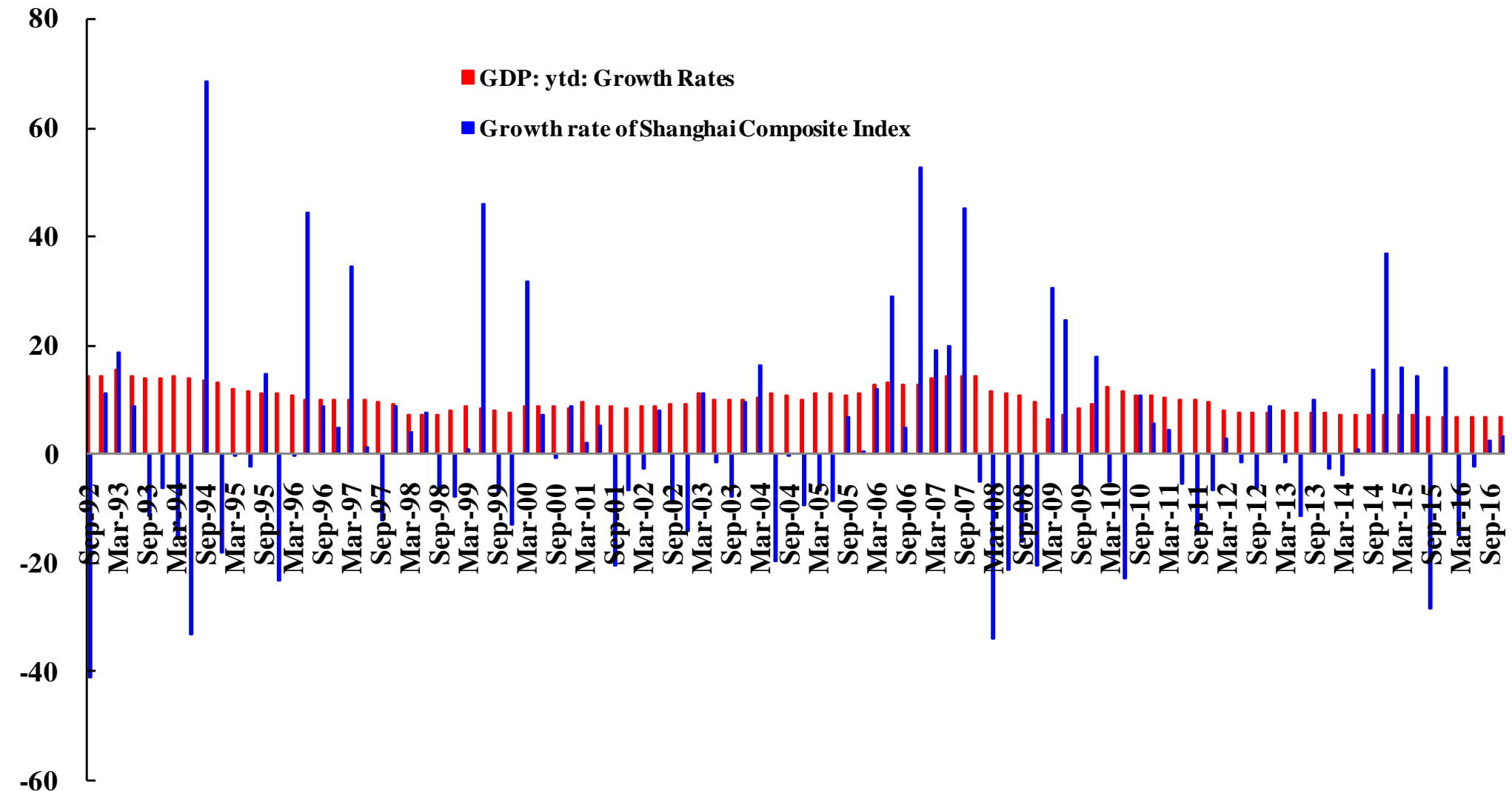
The Chinese Quarterly Real GDP and the Shanghai Stock Exchange Composite Index

Chinese Quarterly Real GDP and Shanghai Stock Exchange Composite Index



The Rates of Growth of Chinese Quarterly Real GDP and the Shanghai Stock Index (1993-)

Rates of Growth of Chinese Quarterly Real GDP and the Shanghai Composite Index

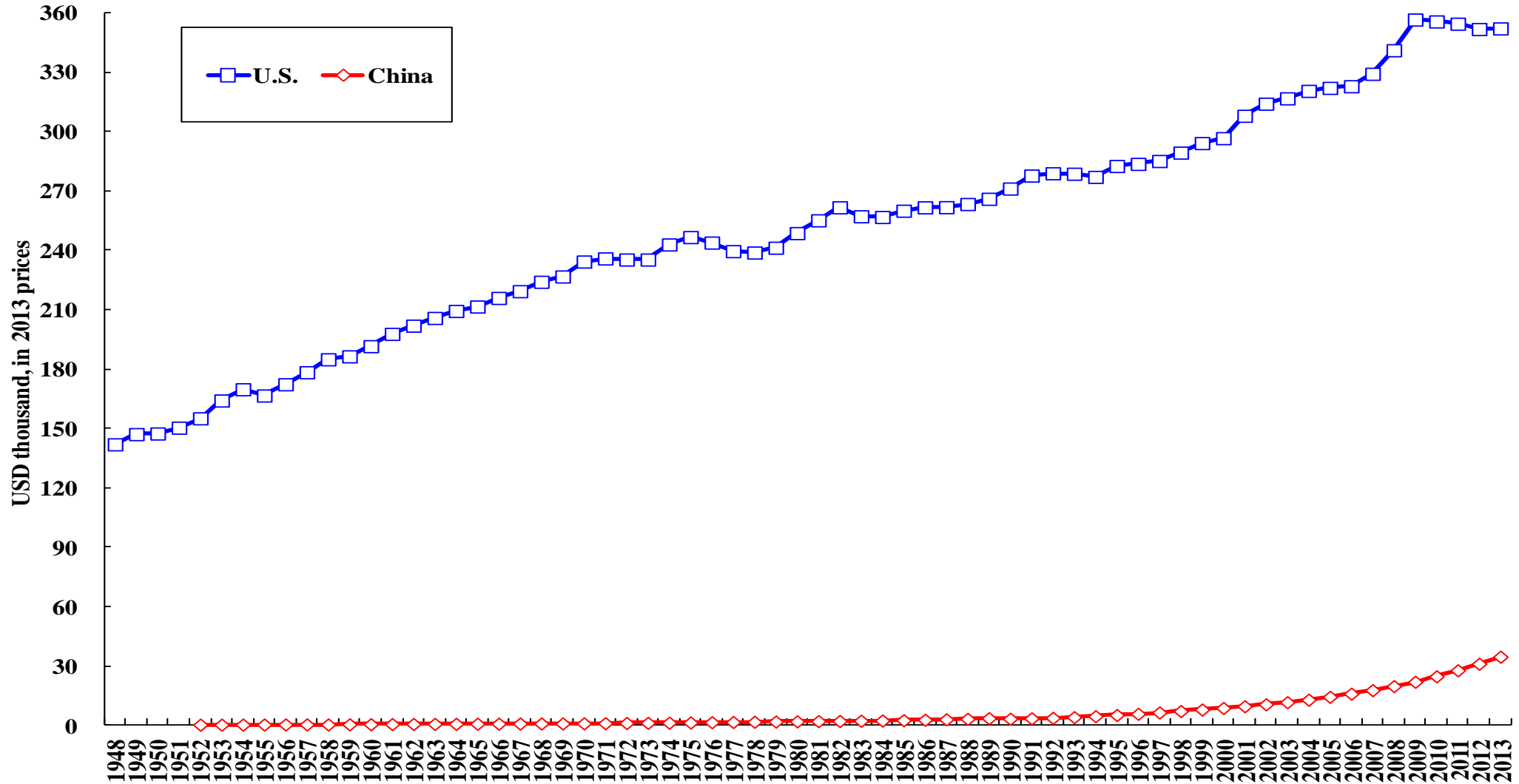


Projections of the Future

- ◆ It is projected that the Chinese and the U.S. economies will grow at average annual real rates of approximately 6.5% and 3.0% respectively between 2016 and 2030. Chinese real GDP is projected to catch up to U.S. real GDP around 2030, at which time both Chinese and U.S. real GDP will exceed US\$28 trillion (in 2015 prices), almost three times the Chinese GDP and approximately one and a half times the U.S. GDP in 2015. By that time, China and the U.S. will each account for approximately 15% of world GDP.

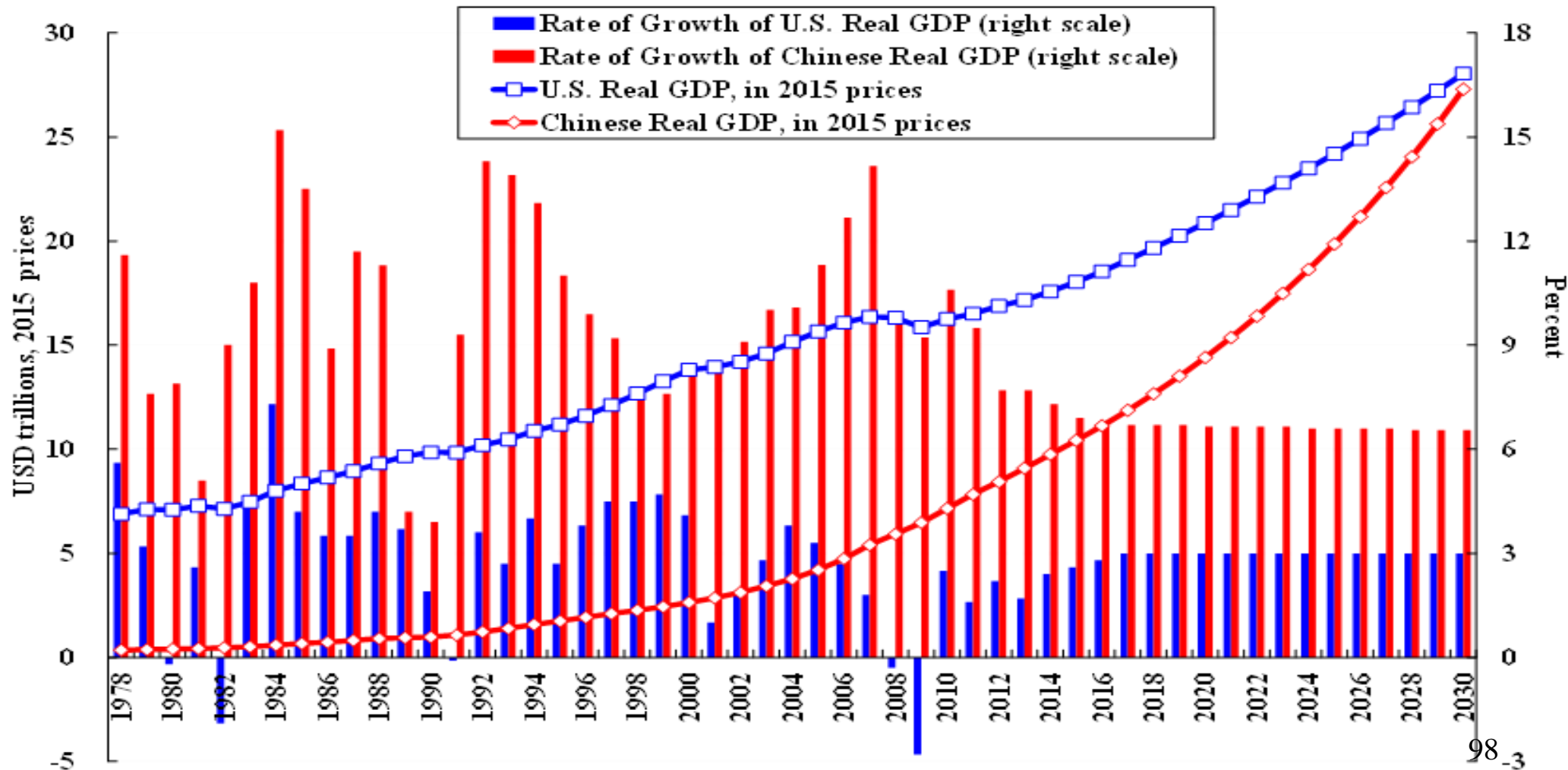
Tangible Capital per Unit Labour, 2013 US\$, China and the U.S.

Tangible Capital per unit Labor of China and the U.S., in 2013 prices



Actual and Projected Real GDPs and their Annual Rates of Growth: China & the U.S.

**Actual and Projected Chinese and U.S. Real GDPs and Their Rates of Growth
(trillion 2015 US\$)**

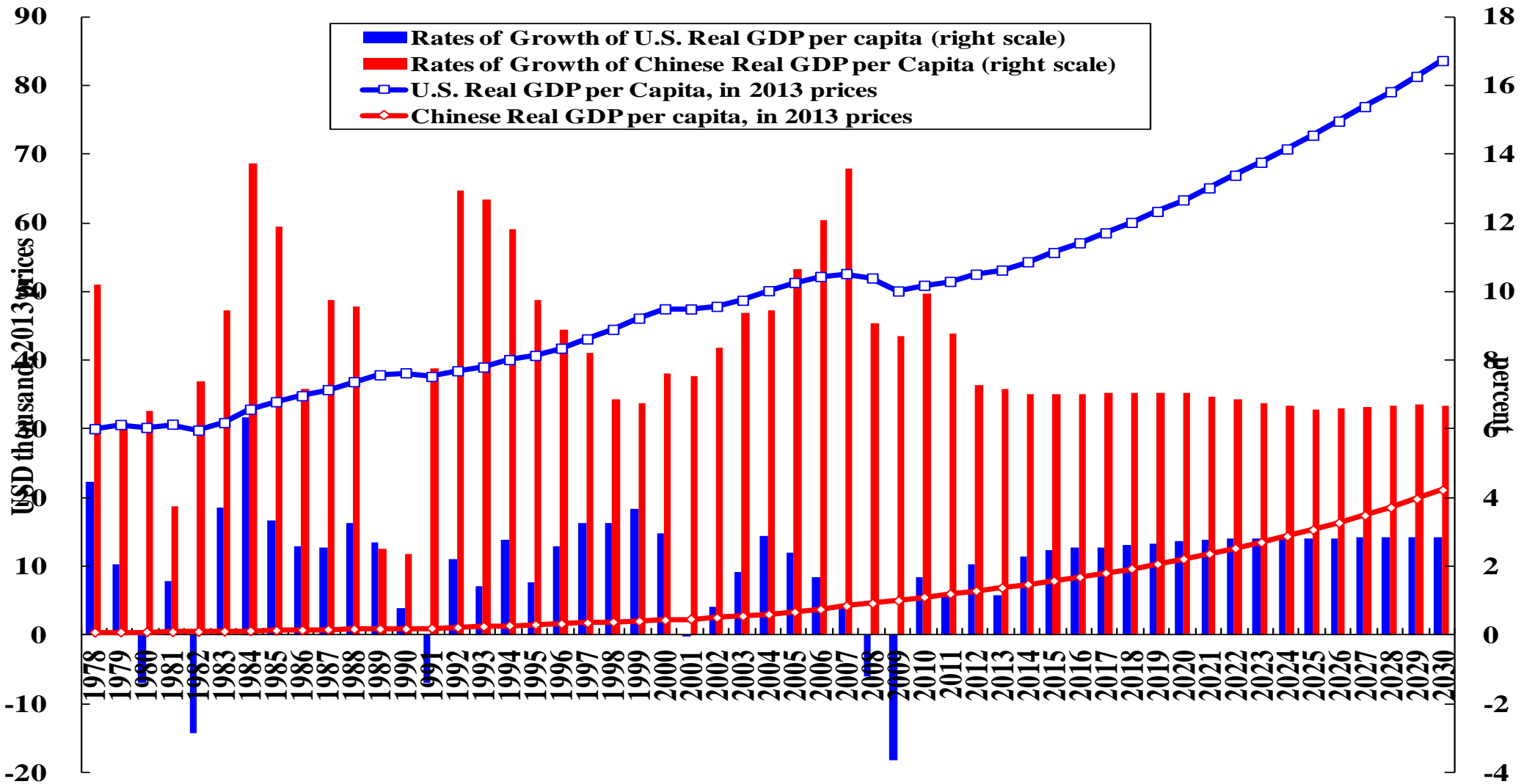


Projections of the Future

- ◆ By 2030, the Chinese real GDP per capita is projected to reach 19,000 (in 2015 prices), which would still be less than a quarter of the projected then projected U.S. real GDP per capita of US\$77,000. It will probably take until 2060 for China to catch up to the United States in terms of real GDP per capita.

Actual and Projected Real GDP per Capita's and their Annual Rates of Growth

Actual and Projected Real GDP per Capita and their Annual Rates of Growth of China and the U.S., (thousand, 2013 US\$)



Concluding Remarks

- ◆ The center of gravity of the world economy has been gradually shifting to East and South Asia. The center of gravity of the East Asian economy has been gradually shifting to China.
- ◆ The Chinese and East Asian economies have been partially decoupled from the United States and Europe.
- ◆ Will the Chinese economy be able to avoid the “Middle-Income-Trap”? The answer is yes.
- ◆ The Chinese economy will catch up to the U.S. economy in terms of aggregate GDP some time around 2030. However, it will be past the middle of this century, perhaps around 2060, before the Chinese economy can catch up to the U.S. economy in terms of per capita GDP (bear in mind that in the meantime, the U.S. economy will also continue to grow, albeit at rates significantly lower than those of the Chinese economy and that the Chinese population is likely to reach a plateau in 2045).

Concluding Remarks

- ◆ China is a large continental country like the United States and will similarly develop into a largely internal-demand driven economy. International trade and international investment will not have a decisive impact on the Chinese economy in the future. Eventually, Chinese exports as a percent of its GDP should be relatively low, in the teens.
- ◆ Chinese economic growth will be marginally, but not critically, affected by a large decline in its exports, as demonstrated by its experience in the past several years as well as during the 1997-1998 East Asian currency crisis. Thus, it will be able to survive even prolonged economic recessions in the European and U.S. economies.

Concluding Remarks

- ◆ Given the huge excess capacities in the Chinese manufacturing industries, in the time frame of the next five to ten years, Chinese GDP, as mentioned above, will not be supply-constrained but will be primarily determined by aggregate demand. China should have no problem achieving a rate of real economic growth of around 6.5%.
- ◆ Beyond that, on the basis of its strong economic fundamentals, China should also be able to continue to grow at an average annual rate of 6.5% for the following decade, more or less independently of what happens in the rest of the World.
- ◆ The declared goal of doubling real GDP per capita between 2013 and 2020 should be readily achievable.