

What Makes China Grow?

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- ◆ The Chinese Economic Fundamentals
- ◆ Reform without Losers--The Chinese Strategy for Economic Reform
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- ◆ The Transition to a “New Normal” and the Thirteenth Five-Year (2016-2020) Plan
- ◆ The Internationalization of the Renminbi
- ◆ Concluding Remarks

Introduction

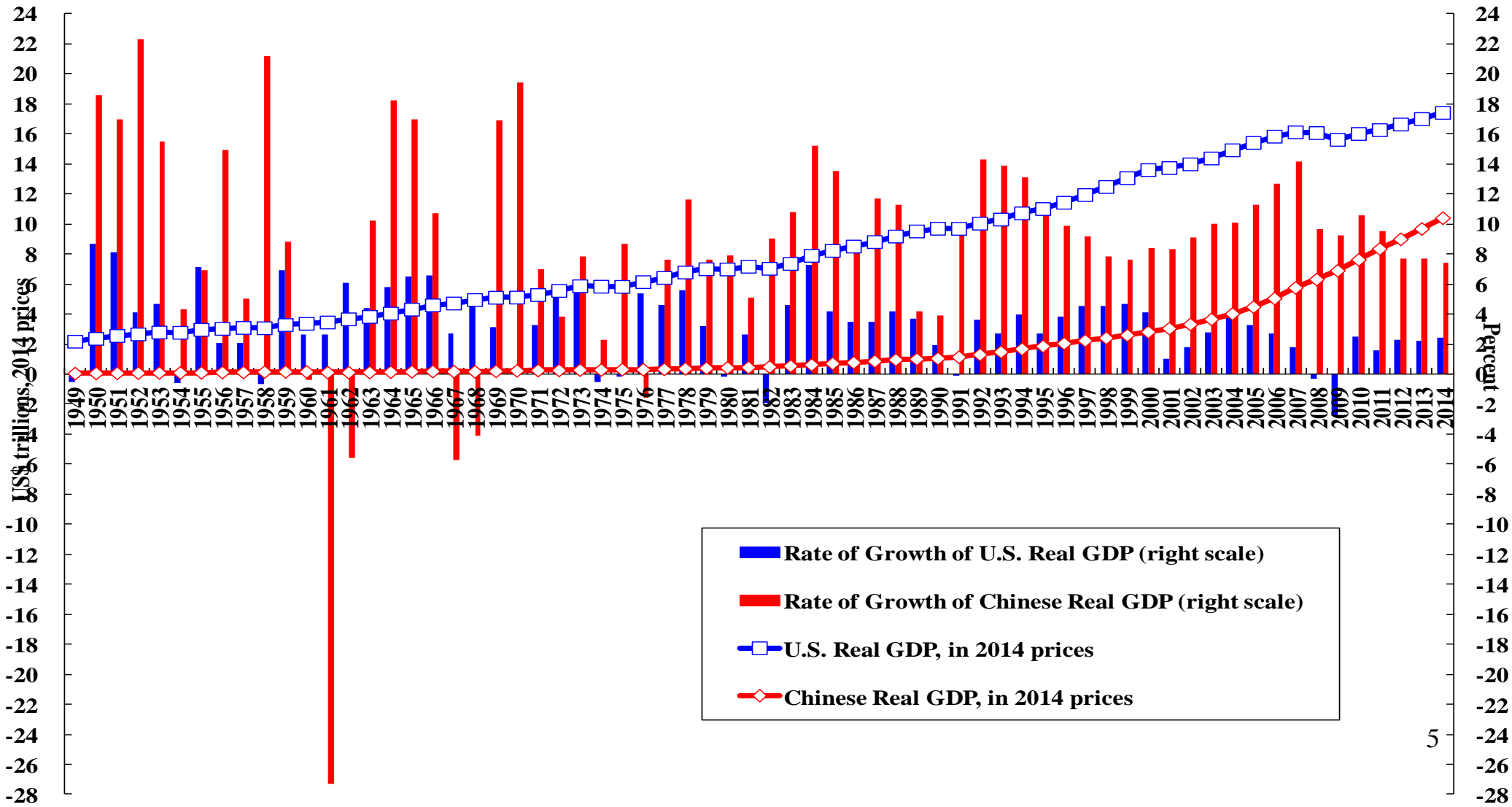
- ◆ China has made tremendous progress in its economic development since it began its economic reform and opened to the World in 1978. It is currently the fastest growing economy in the World—averaging 9.7% per annum over the past 36 years. It is historically unprecedented for an economy to grow at such a high rate over such a long period of time. However, the Chinese economy has begun to slow down, to an annual rate of growth of around 6.5%, in a process of transition to a “New Normal”.
- ◆ Why has China been able to grow at such a high rate and for such a long period of time? What makes China grow? Will China be able to continue to grow at such a high rate in the future?

Introduction

- ◆ 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 2014, Chinese real GDP grew from US\$369 billion to US\$10.4 trillion (in 2014 prices), to become the second largest economy in the World, after the U.S. By comparison, the U.S. GDP of approximately US\$17.4 trillion was a little less than 1.7 times Chinese GDP in 2014.
- ◆ 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.
- ◆ In 1978, the Chinese real GDP per capita was US\$383 (in 2014 prices) compared to the US\$30,472 of the U.S. By 2014, the Chinese real GDP per capita had grown to US\$7,604, still less than one-seventh of the U.S. GDP per capita of US\$54,575.

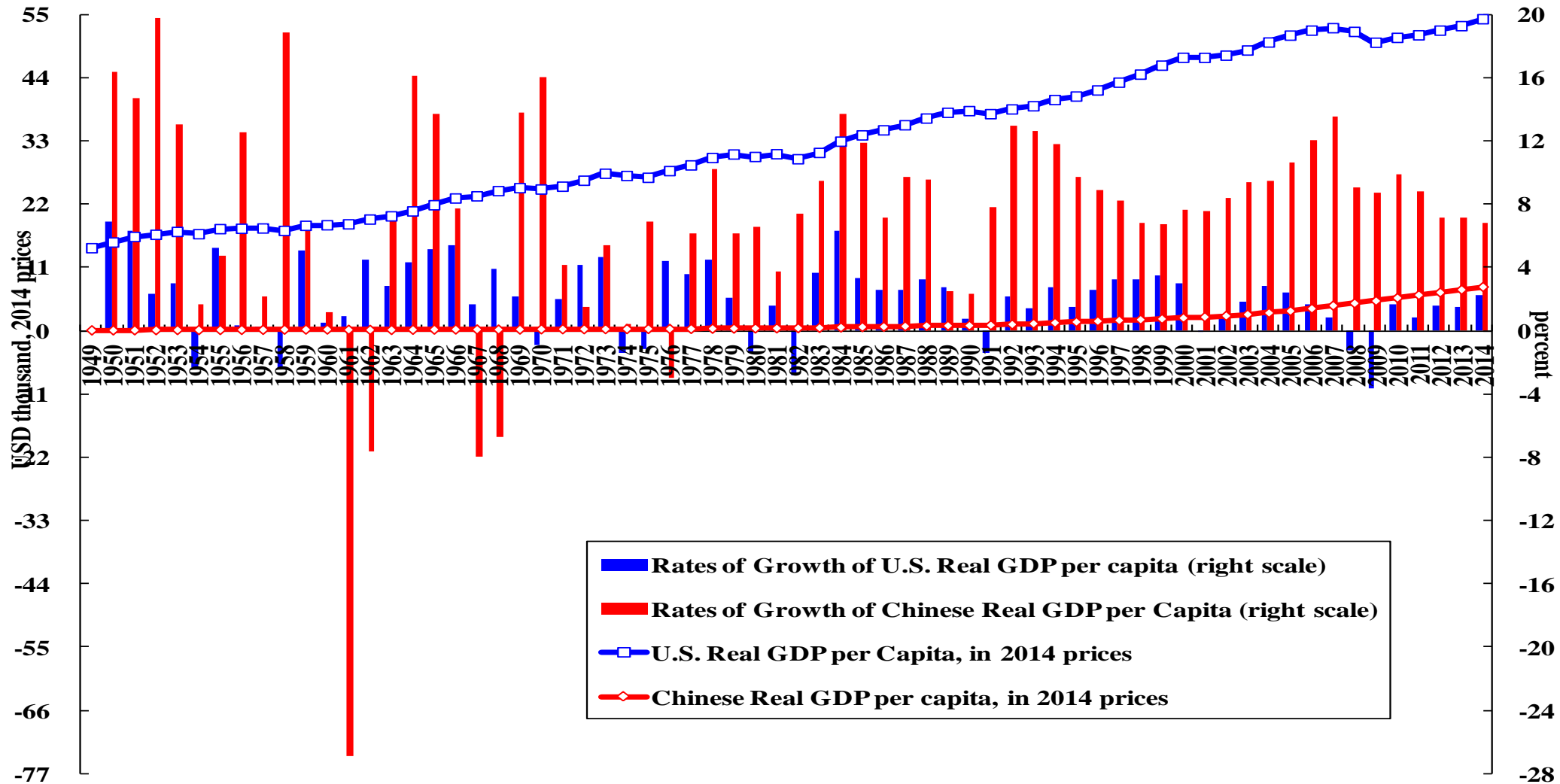
Chinese and U.S. Real GDPs and Their Rates of Growth since 1949 (2014 US\$)

Chinese and U.S. Real GDPs and Their Rates of Growth since 1949 (trillion 2014 US\$)



Chinese and U.S. Real GDPs per Capita and Their Rates of Growth since 1949 (2014 US\$)

Chinese and U.S. Real GDP per Capita and Their Rates of Growth since 1949
(thousand, 2014 US\$)

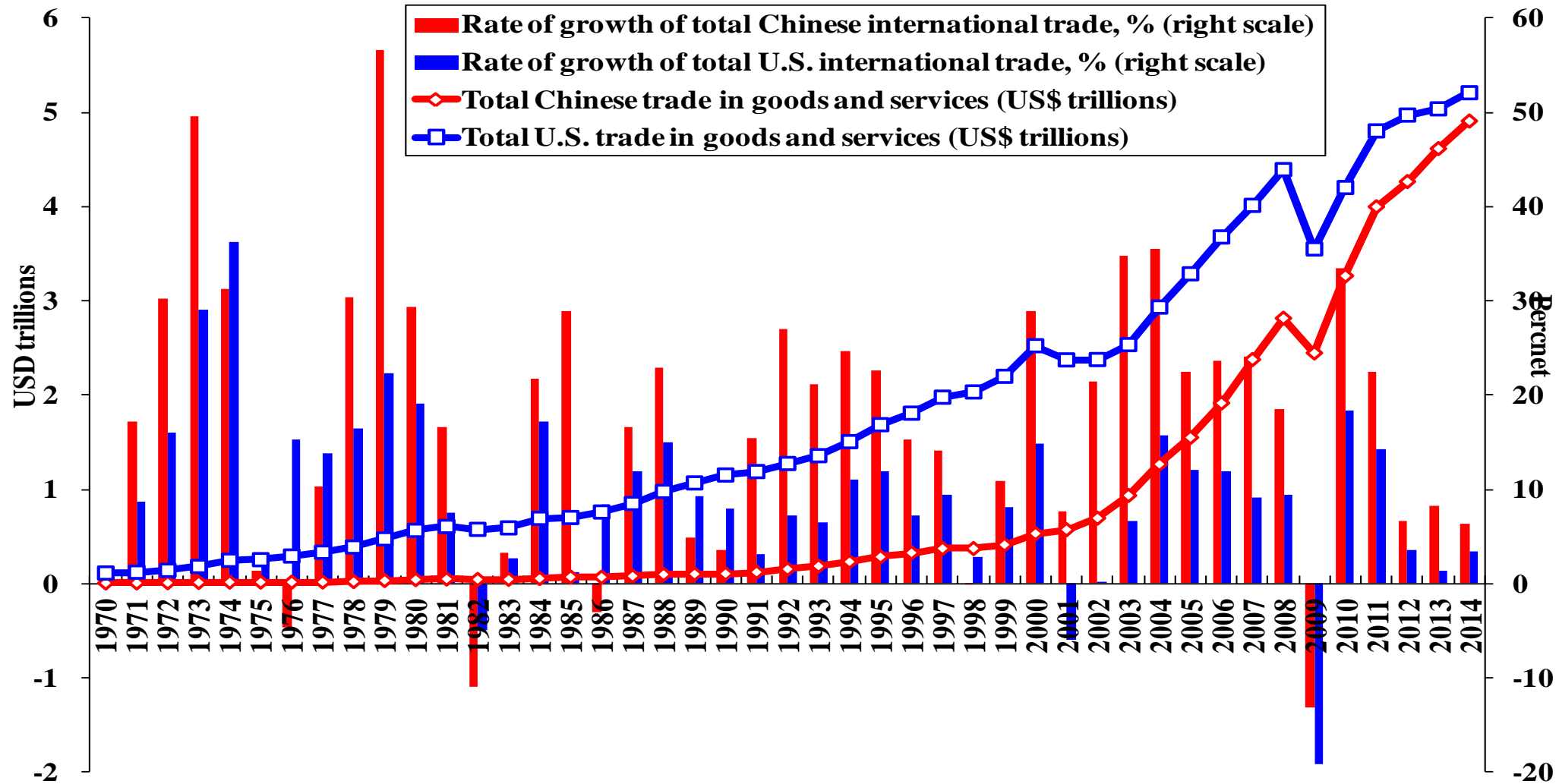


Introduction

- ◆ Chinese international trade in goods and services has also grown 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.
- ◆ Chinese total international trade grew from US\$20.3 billion in 1978 to US\$4.91 trillion in 2014, making China the second largest trading nation in the World, just after the U.S. with its total international trade of US\$5.21 trillion.

The Values of Chinese and U.S. International Trade and Their Rates of Growth, 1970- (US\$)

Chinese and U.S. International Trade and Their Rates of Growth (US\$) since 1970



Introduction

- ◆ While China is the largest exporting nation in terms of goods and services (US\$ 2.565 trillion in 2014), followed by the U.S. (US\$2.356 trillion), the U.S. is the largest importing nation in terms of goods and services (US\$2.85 trillion), followed by China (US\$2.342 trillion). China is also the largest exporting nation in terms of goods alone, followed by the U.S. 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 in the Global Economy

- ◆ The most important development in the global economy since 1978 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.

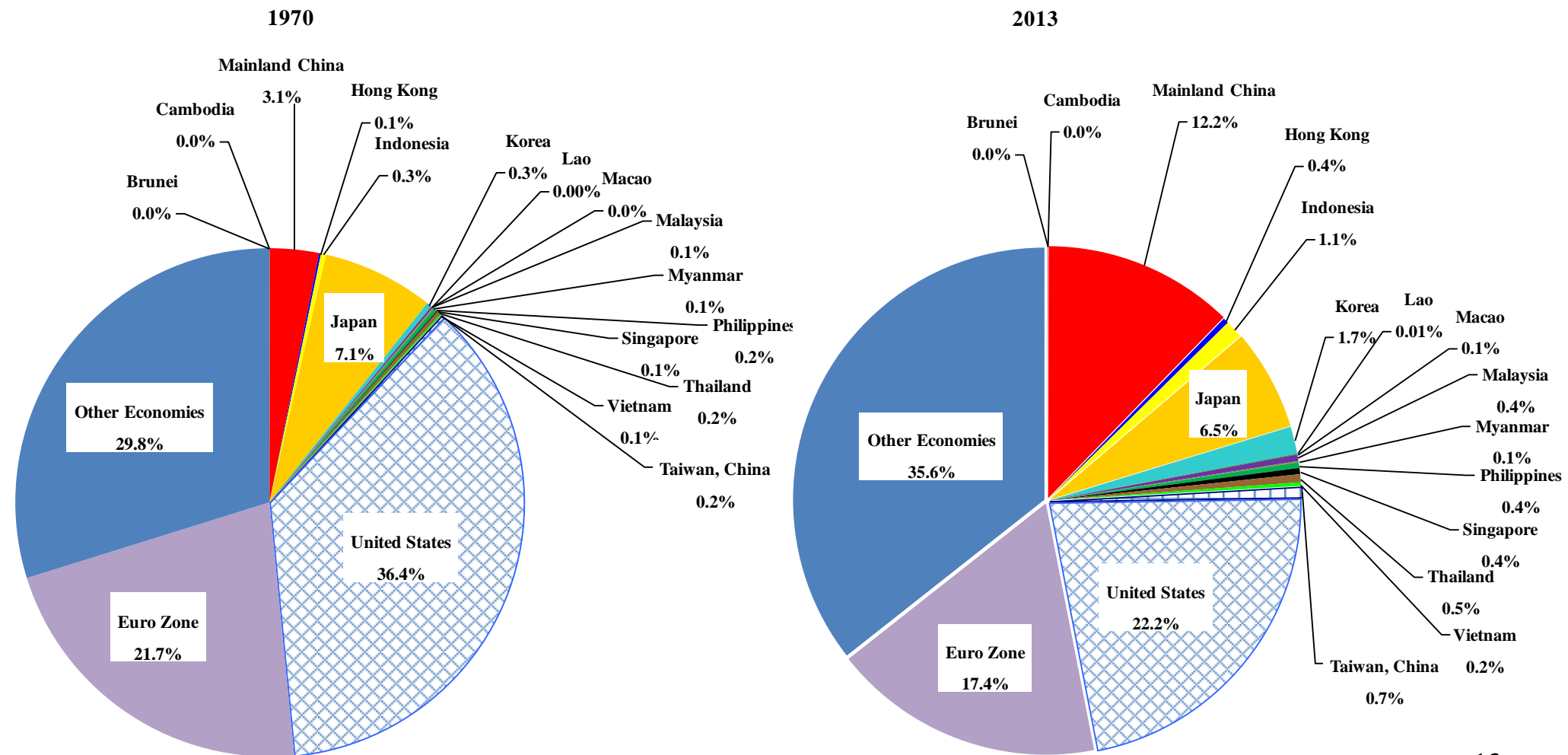
China in the Global Economy

- ◆ In 1970, the United States and Western Europe together accounted for almost 60% of World GDP. By comparison, East Asia (defined as the 10 Association of Southeast Asian Nations (ASEAN) countries--Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Vietnam--+ 3 (China including Hong Kong, Macau and Taiwan, Japan and the Republic of Korea)) accounted for approximately 10% of World GDP.
- ◆ Hong Kong, Republic of Korea, Singapore and Taiwan are also known collectively as the East Asian “Newly Industrialized Economies (NIEs)”.

China in the Global Economy

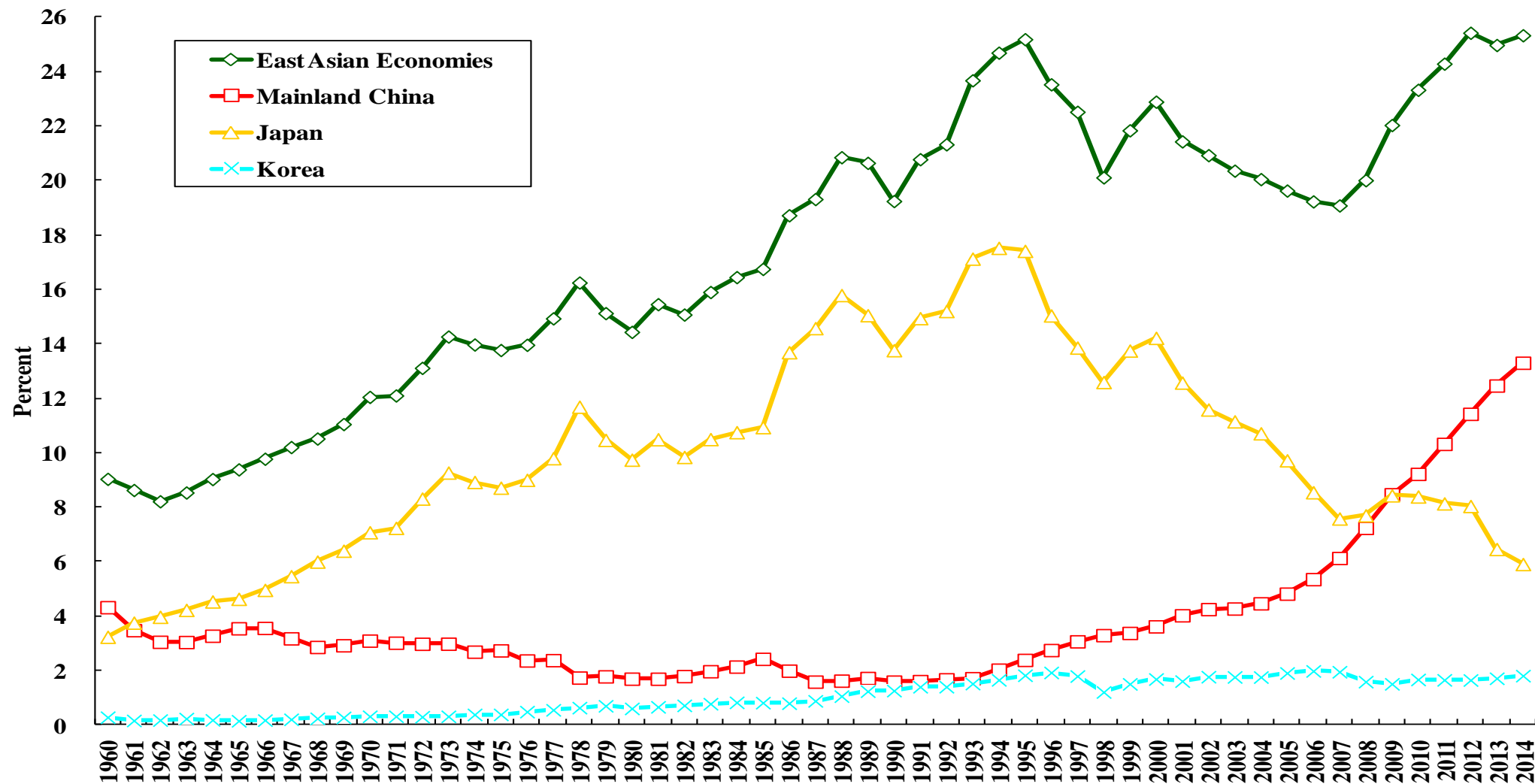
- ◆ By 2013, the share of United States and Western Europe in World GDP has declined to approximately 40% whereas the share of East Asia has risen to around 25%.
- ◆ The Japanese share of World GDP declined from a peak of almost 18% in the mid-1990s to 6.5% in 2013 while the Mainland Chinese share of World GDP rose from 3.1% in 1970 and less than 4% in 2000 to over 12.2% in 2013.

The Distribution of World GDP, 1970 and 2013, US\$



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



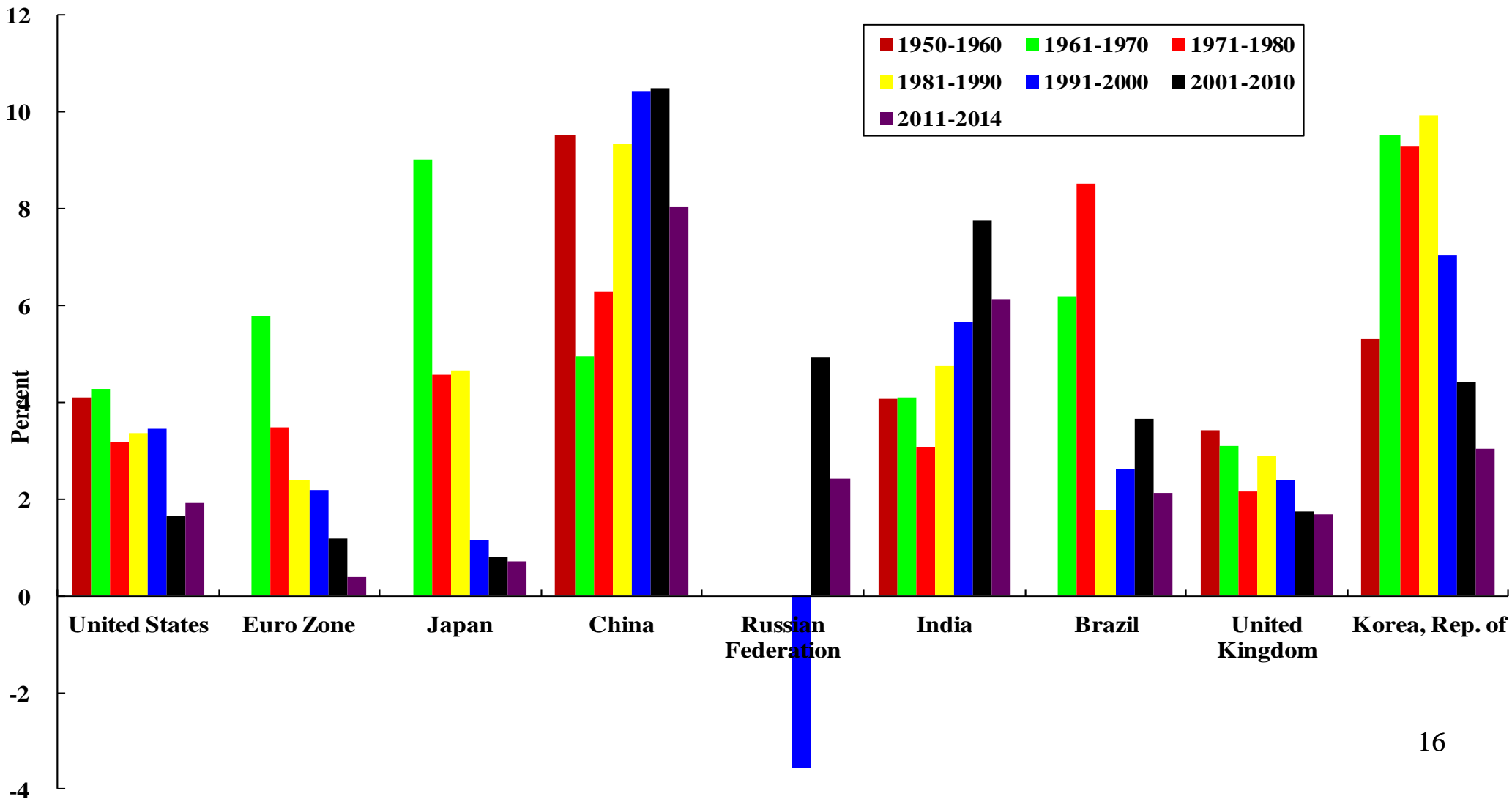
China in the Global Economy:

Economic Growth

- ◆ In the following chart, we present the average annual rates of growth of real GDP of selected economies in different decades.
- ◆ China, India and South Korea are among the fastest growing economies during the past four decades.
- ◆ Russia has also grown at a very high rate during the past decade because of its significant oil production and high oil prices but has begun to slow down recently as oil prices collapsed.
- ◆ Brazil has also grown very fast during the past decade because of the world natural resource boom but has also begun to slow down recently.
- ◆ However, all the developed economies—the U.S., Euro Zone, Japan, and the U.K.—had relatively low and declining growth rates during the past decades. Even though there are now early signs of a steady economic recovery, the rates of growth have remained low by the historical standards of these economies.

Decade Average Annual Rates of Growth of Real GDP of Selected Economies

Decade Average Annual Rates of Growth of Real GDP of Selected Economies

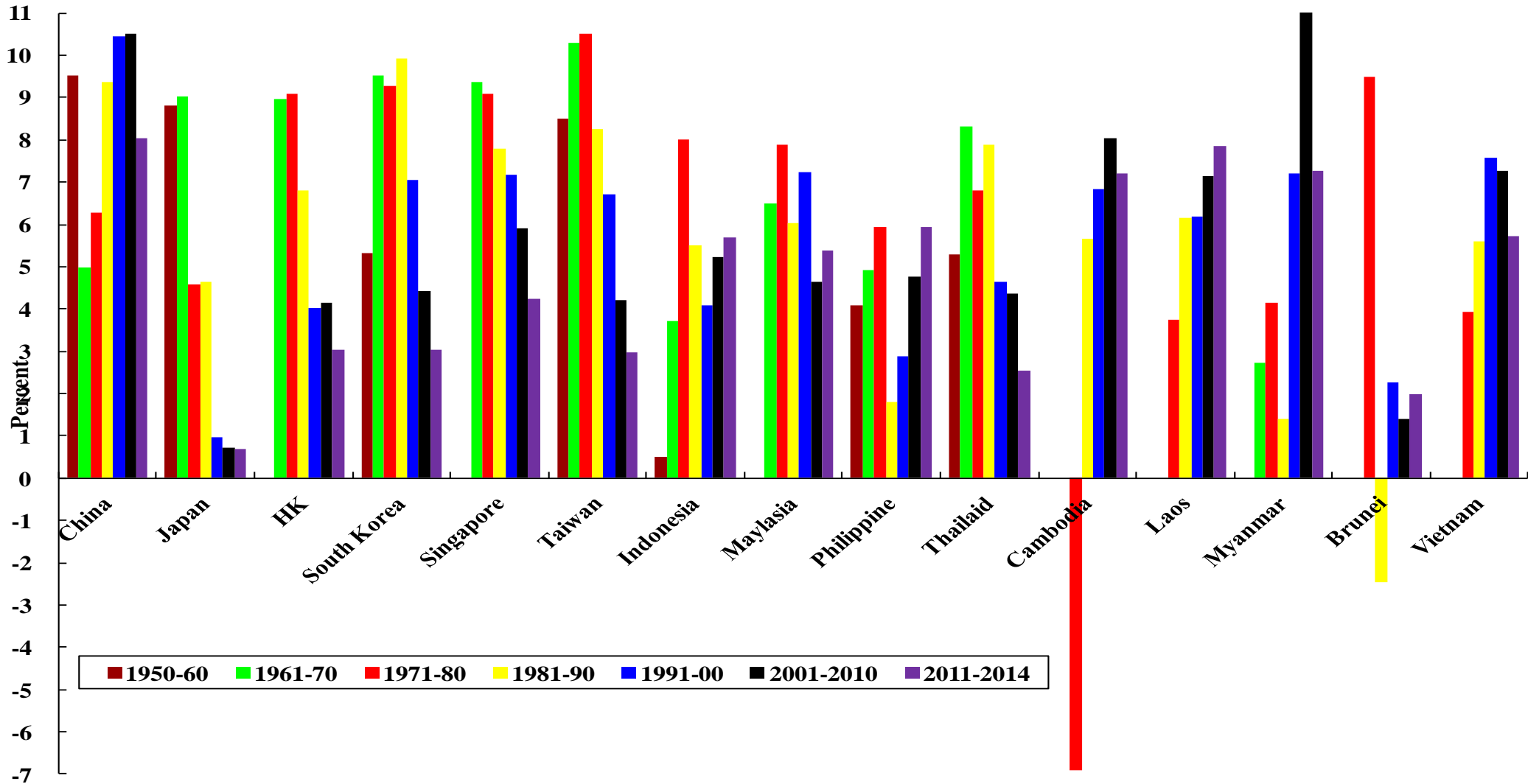


China in the Global Economy: Economic Growth

- ◆ In the following chart, we present the average annual rates of growth of real GDP of East Asian economies in different decades. It is interesting to see the diversity among them.
- ◆ Japan had a very high rate of growth in the 1950s and 1960s, and began to slow down in the 1970s and the 1980s, but hardly grew at all since the 1990s. China actually had a high rate of growth in the 1950s, but then went through the Great Famine and the Cultural Revolution in the 1960s and 1970s.
- ◆ The four “newly industrialized economies (NIEs)” of Hong Kong, Singapore, South Korea and Taiwan grew rapidly in the 1960s and 1970s and even the 1980s.
- ◆ Thailand also started growing in the 1960s, followed by Indonesia and Malaysia in the 1970s.
- ◆ In the 1980s, China began to grow rapidly and beginning in the 1990s, Cambodia, Laos, Myanmar and Vietnam began to grow too.

Decade Average Annual Rates of Growth of Real GDP of East Asian Economies

Decade Average Annual Rates of Growth of Real GDP



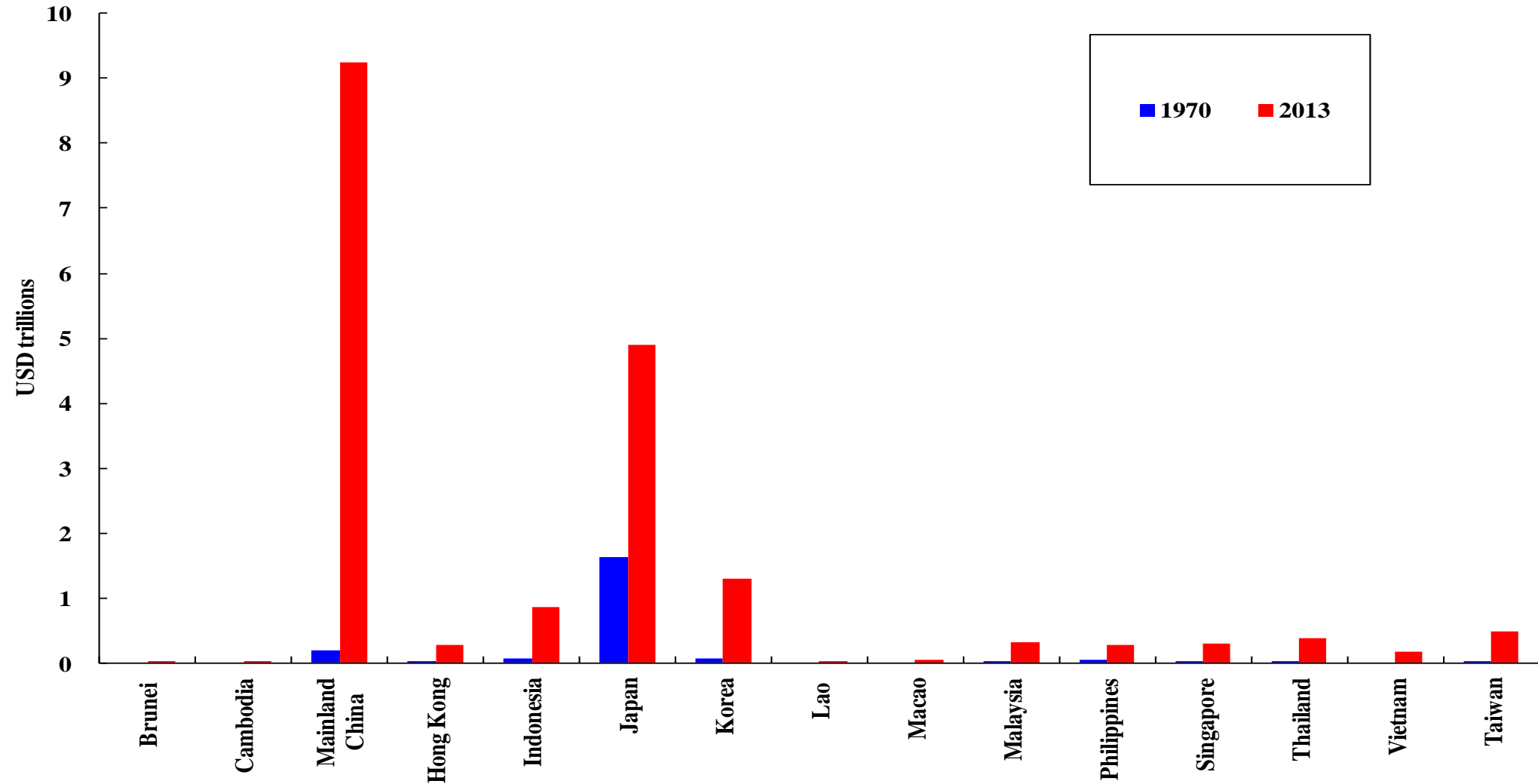
China in the Global Economy:

Economic Growth

- ◆ In the aggregate, the Chinese economy has made the most progress among East Asian economies, followed by Japan.
- ◆ In terms of per capita GDP, China still lags significantly behind the other East Asian economies. Macau has the highest per capita GDP, due to the prosperity of its gaming industry and its small population of approximately half a million, followed by Singapore, due in part to the rise in its exchange rate relative to the U.S. Dollar. Brunei has a high GDP per capita because of its oil. Otherwise, the high GDP per capita economies consist of only Japan and the four NIEs of Hong Kong, Singapore, South Korea and Taiwan.

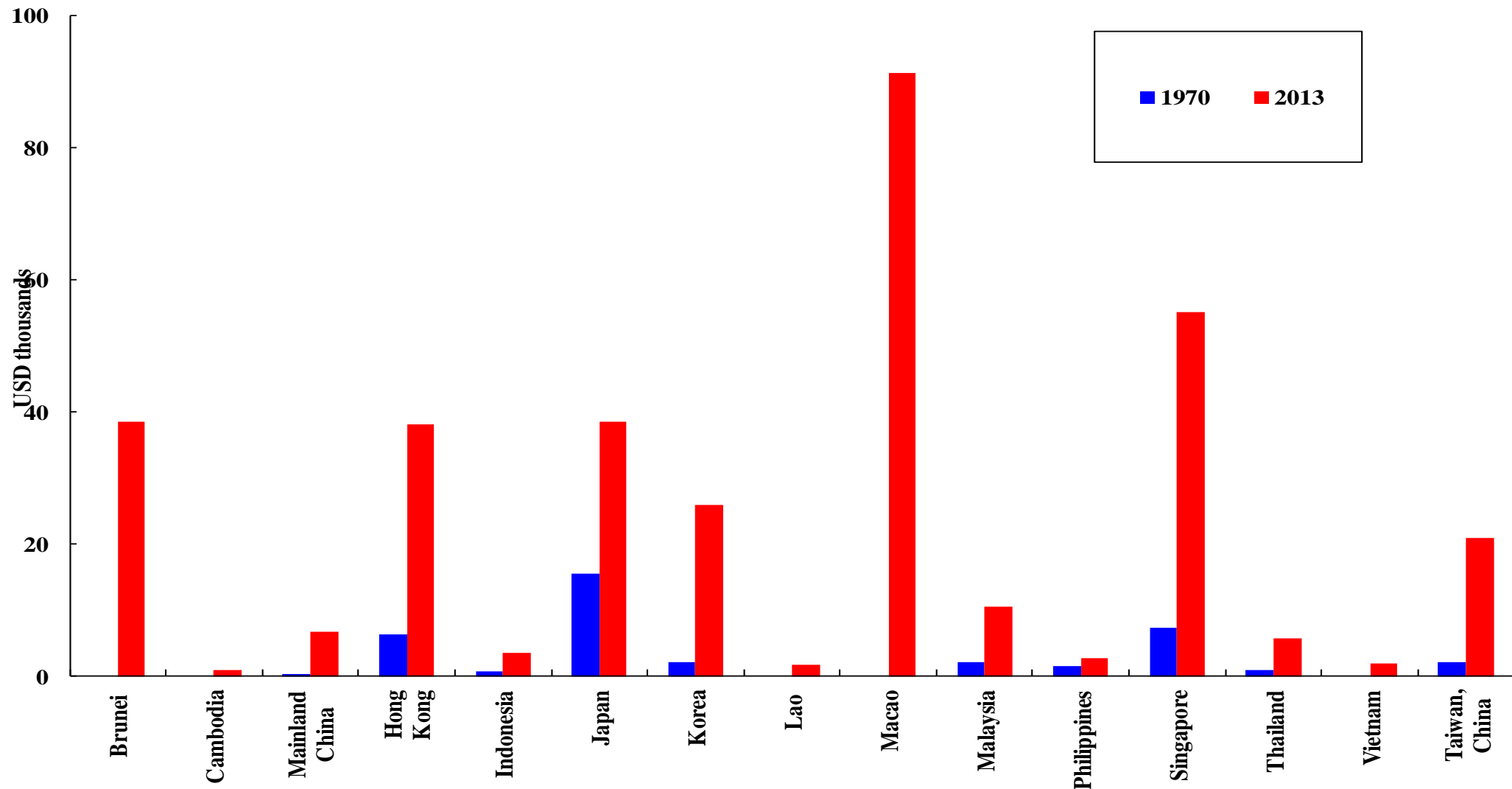
The Growth of Real GDP in East Asian Economies, 1970-2013

Real GDP of East Asian Economies in 1970 and 2013, in 2013 USD trillions



The Growth of Real GDP per Capita in East Asian Economies, 1970-2013

Real GDP per Capita of East Asian Economies in 1970 and 2013, in 2013 USD thousands



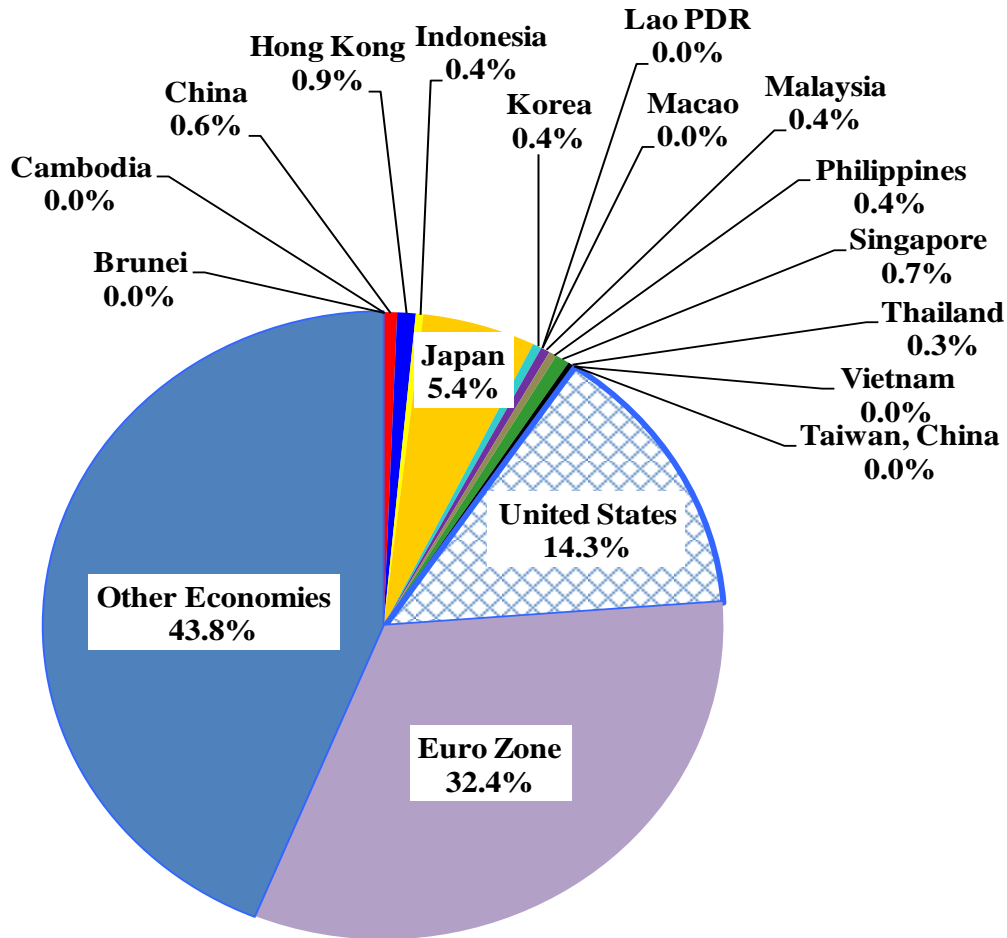
China in the Global Economy:

International Trade

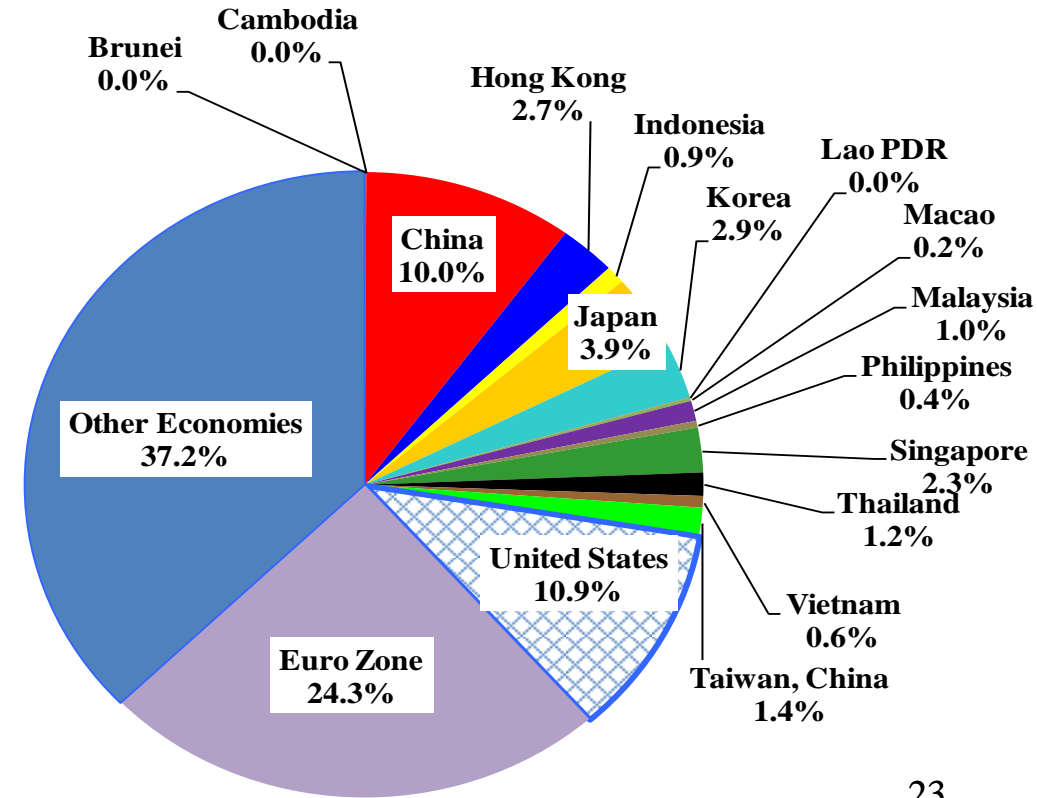
- ◆ In 1970, the United States and Western Europe together accounted for almost 60% of World trade in goods and services. By comparison, East Asia accounted for 9.5% of World trade.
- ◆ By 2013, the share of United States and Western Europe in World trade has declined to 41.4% whereas the share of East Asia has risen to almost 27.6%.
- ◆ The Chinese share of World trade rose from 0.63% in 1970 to 10.0% in 2013. The growth in Chinese international trade may be attributed in part to the reform of the Chinese exchange rate system in the early 1990s, accompanied by a significant devaluation, and to Chinese accession to the World Trade Organisation in the 2001.

The Distribution of Total International Trade in Goods and Services, 1970 and 2013

1970

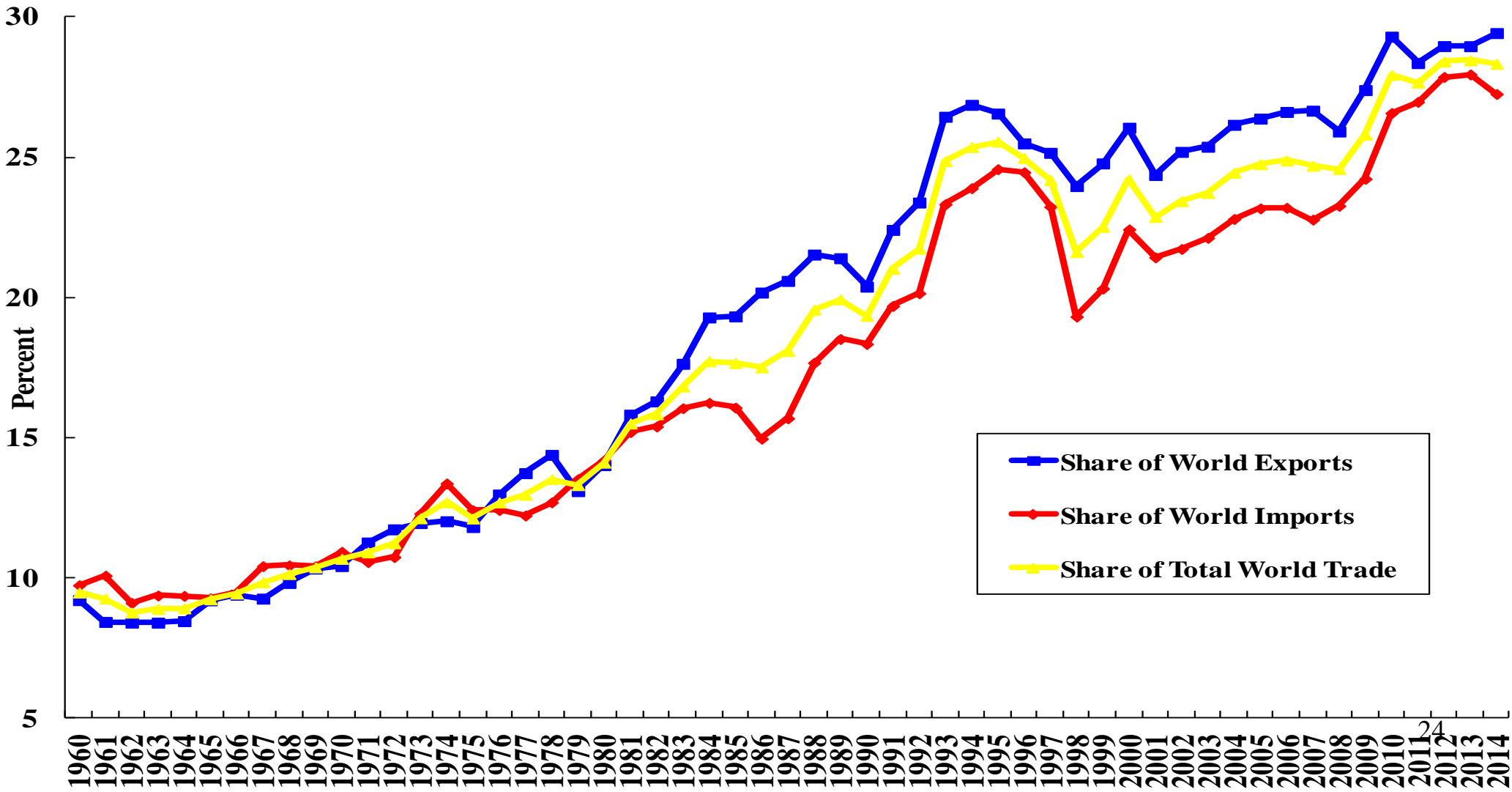


2013



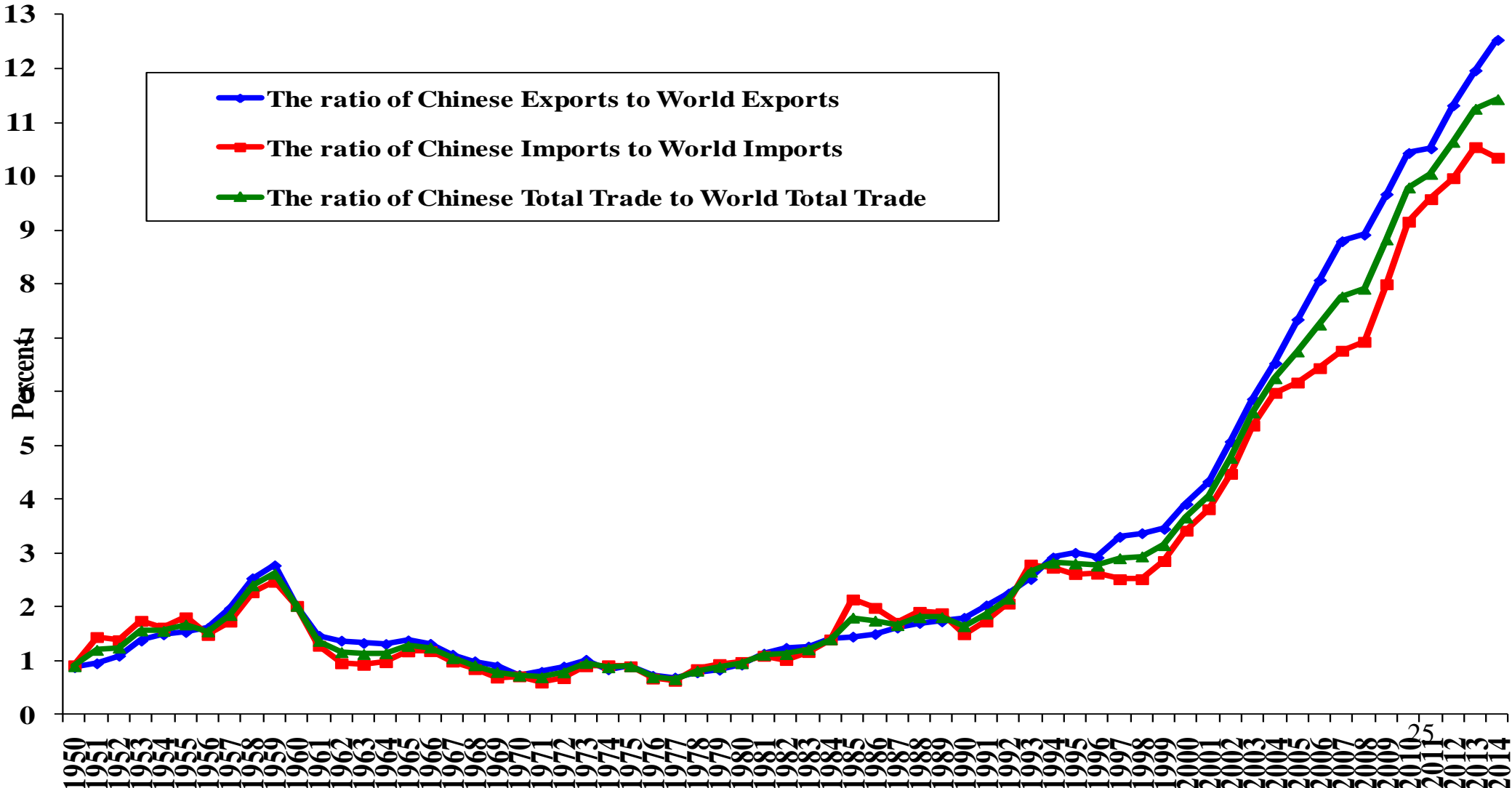
The Rising Share of East Asian Trade in Total World Trade, 1960-present

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



The Chinese Share of Total World Trade, 1950-present

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



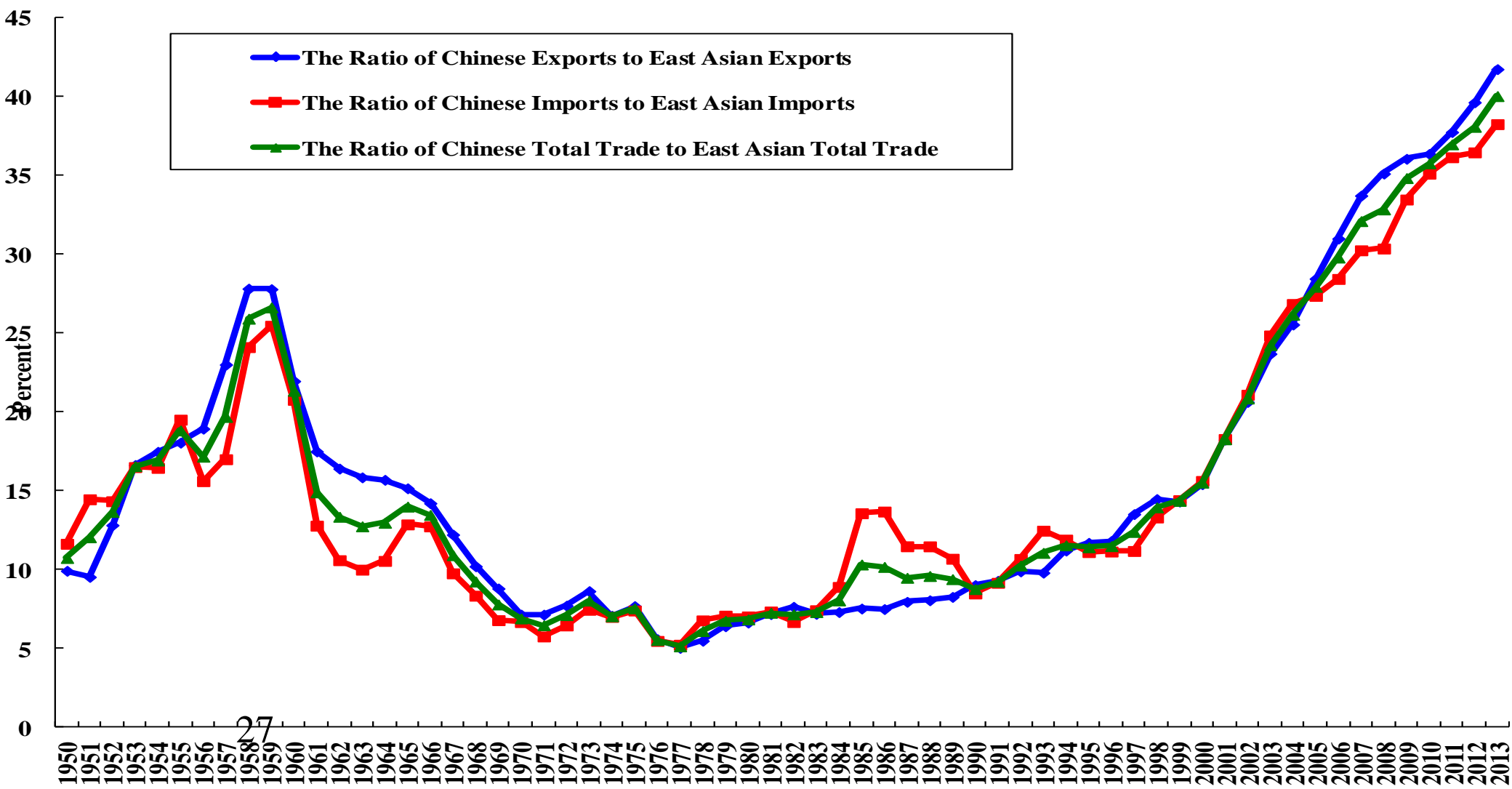
China in the Global Economy:

International Trade

- ◆ Chinese international trade also accounted for 40% of East Asian international trade in 2013. China runs a trade deficit with almost every other East Asian economy.
- ◆ Recently China has also become the largest trading partner country of the U.S., surpassing Canada.

The Chinese Share of Total East Asian Trade in Goods, 1950-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, 2013

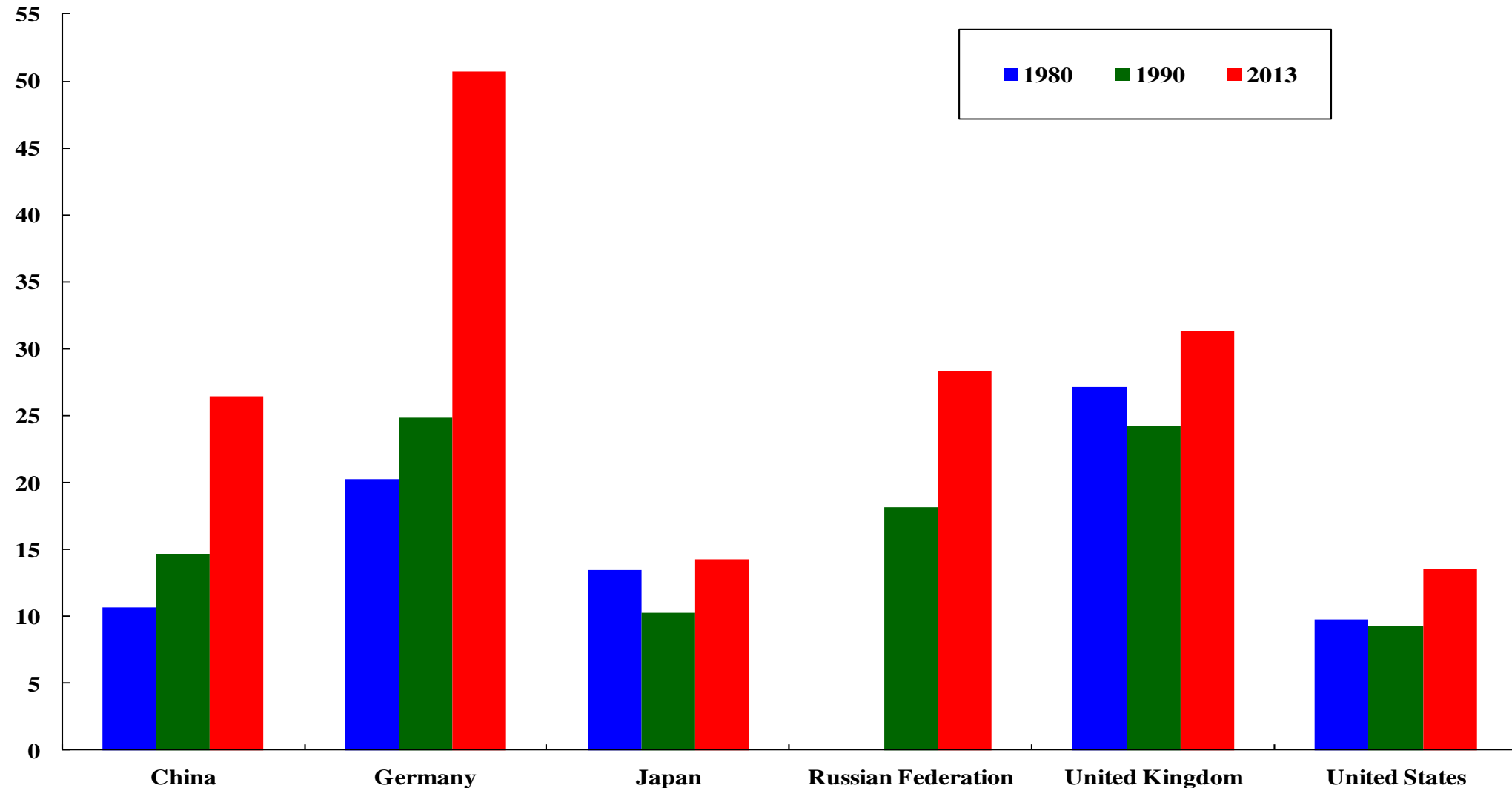
Country/Region	Chinese Rank as Trading Partner of Country/Region	Rank of Country/Region as Trading Partner of China
Australia	1	7
Brunei	3	104
Cambodia	1	78
Hong Kong	1	2
Indonesia	1	16
Japan	1	3
Korea	1	4
Laos	2	90
Macau	1	85
Malaysia	1	8
Myanmar	1	51
New Zealand	1	43
Philippines	2	27
Singapore	1	11
Taiwan	1	5
Thailand	1	13
United States	2	1
Vietnam	1	18

China in the Global Economy: International Trade

- ◆ Exports has become a relatively small percent of Chinese GDP, as is typical for large economies such as the U.S. and Japan.

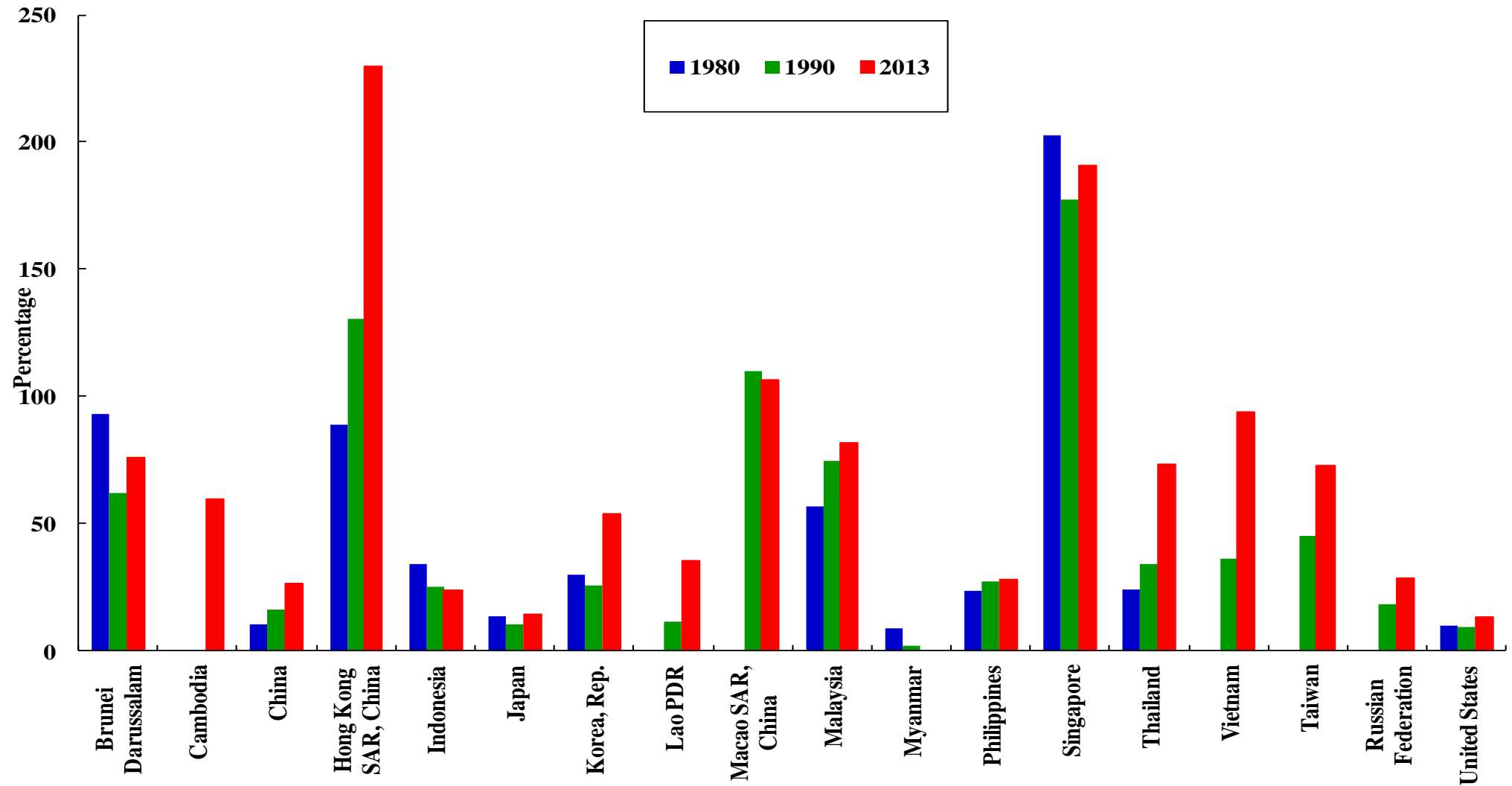
Exports of Goods and Services as a Share of GDP in Selected Economies

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



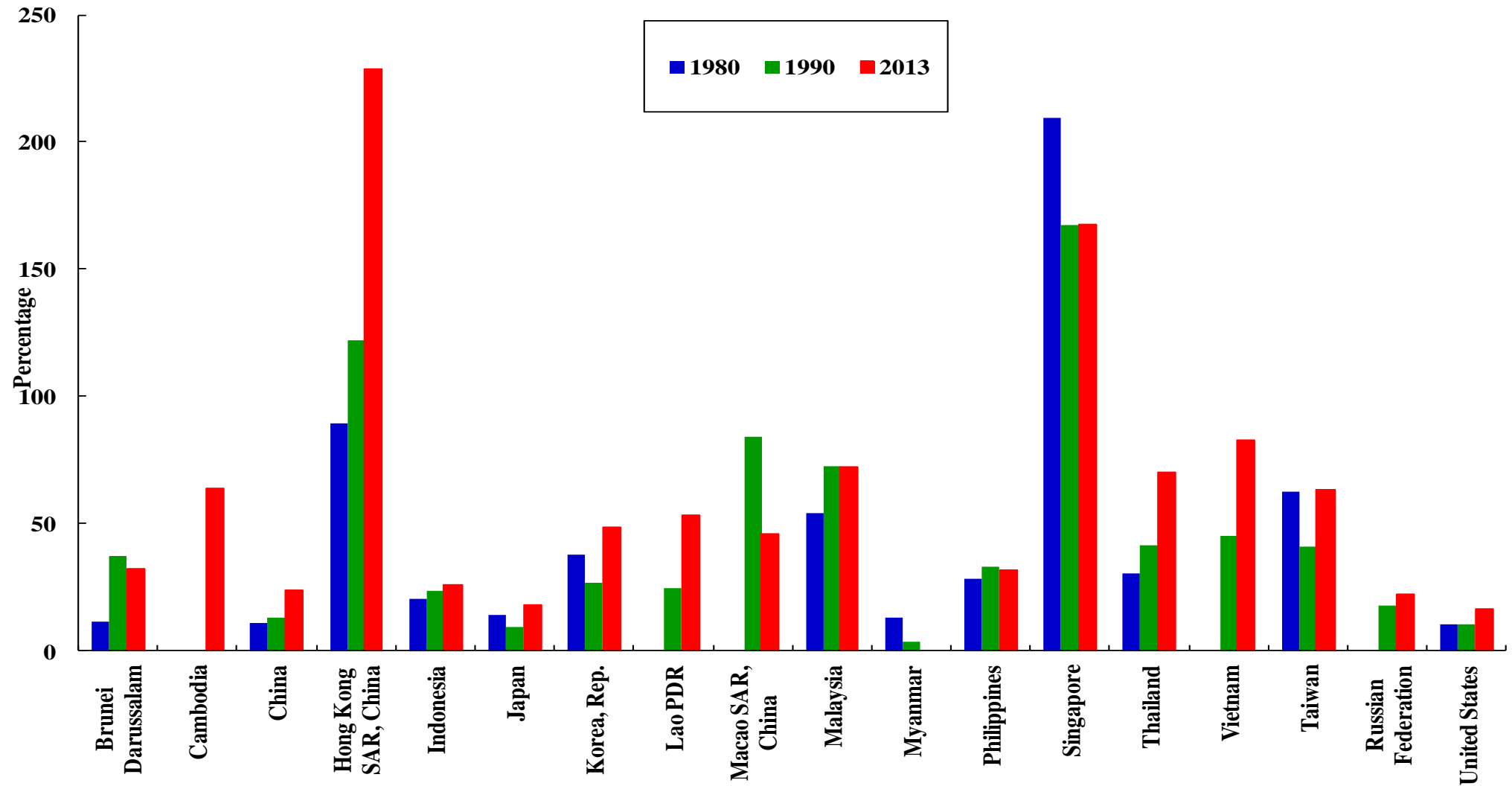
Exports of Goods and Services as a Percent of GDP: Selected Economies

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



The Chinese Economic Fundamentals

- ◆ Long-term economic growth of a country depends on the rates of growth of its primary inputs—capital (tangible or physical) and labor—and on technical progress (equivalently, the growth of total factor productivity)—that is, the ability to increase output without increasing inputs.
- ◆ The rate of growth of tangible or physical capital depends on the rate of investment on structure, equipment and basic infrastructure, which in turn depends on the availability of national savings.
- ◆ The rate of technical progress depends on investment in intangible capital (including human capital and Research and Development (R&D) capital).

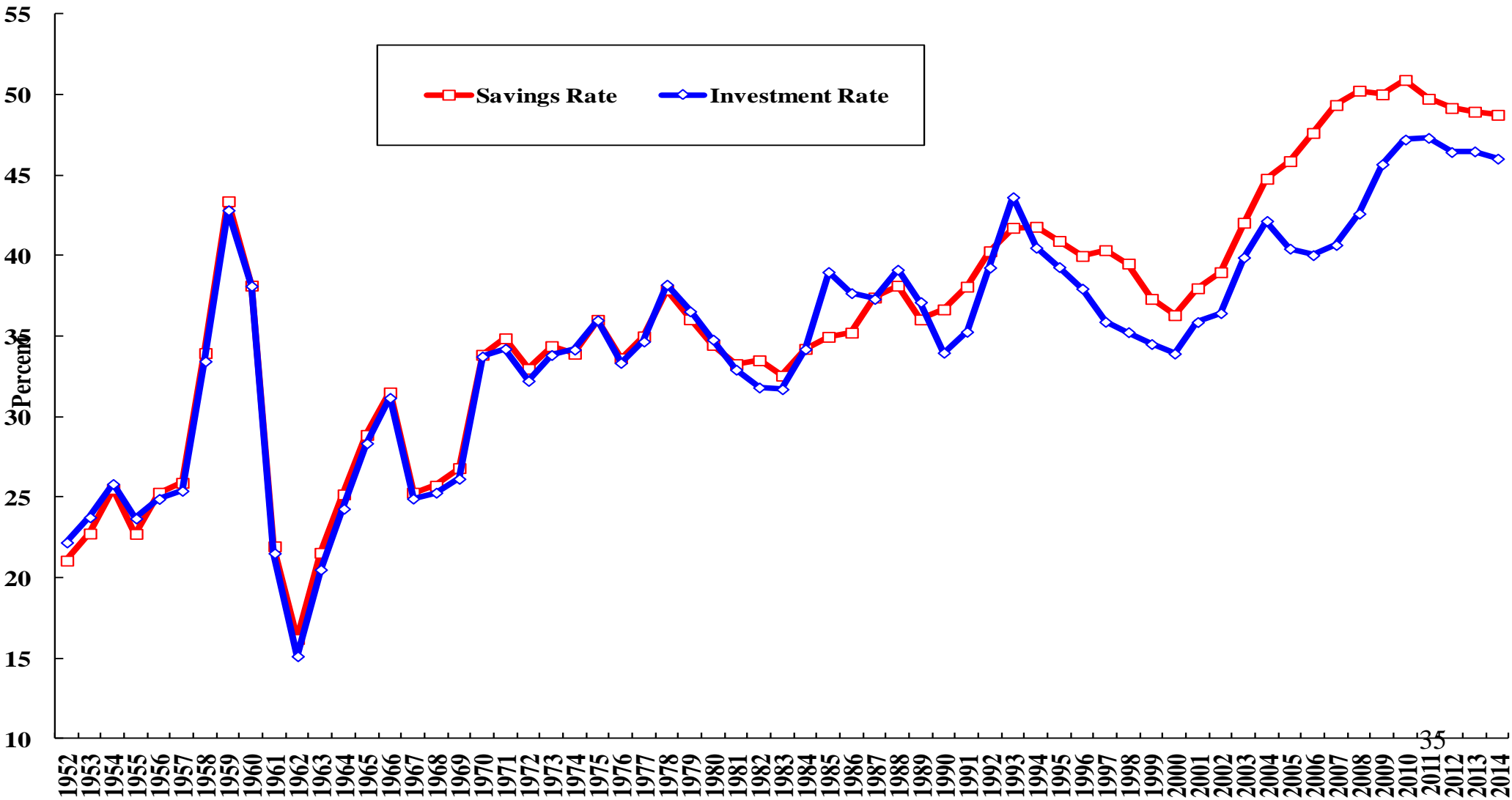
The Chinese Economic Fundamentals:

Capital

- ◆ Chinese economic growth since 1978 has been underpinned by a consistently high domestic investment rate, enabled by a national savings rate above 35% except for a brief start-up period in the early 1950s. The Chinese saving rate has risen to around 40% in the early 1990s and has at times approached or even exceeded 50% in more recent years.
- ◆ The high Chinese saving rate means that the Chinese economy can finance all of its domestic investment needs from its own domestic savings alone, without having to depend on the more fickle foreign capital inflows (including foreign direct investment, foreign portfolio investment, foreign aid, or foreign loans).
- ◆ 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 therefore also more immune from external disturbances than other economies.
- ◆ Thus, the Chinese economy is assured of a high rate of growth of the tangible capital stock.

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



The Chinese Economic Fundamentals:

Capital

- ◆ In addition, since new resources can be made available 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 and the creation of “losers” can be avoided.
- ◆ A high national savings rate also allows the normally more efficient non-state sector greater room and greater scope for development and expansion (there is less “crowding out”).
- ◆ 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.

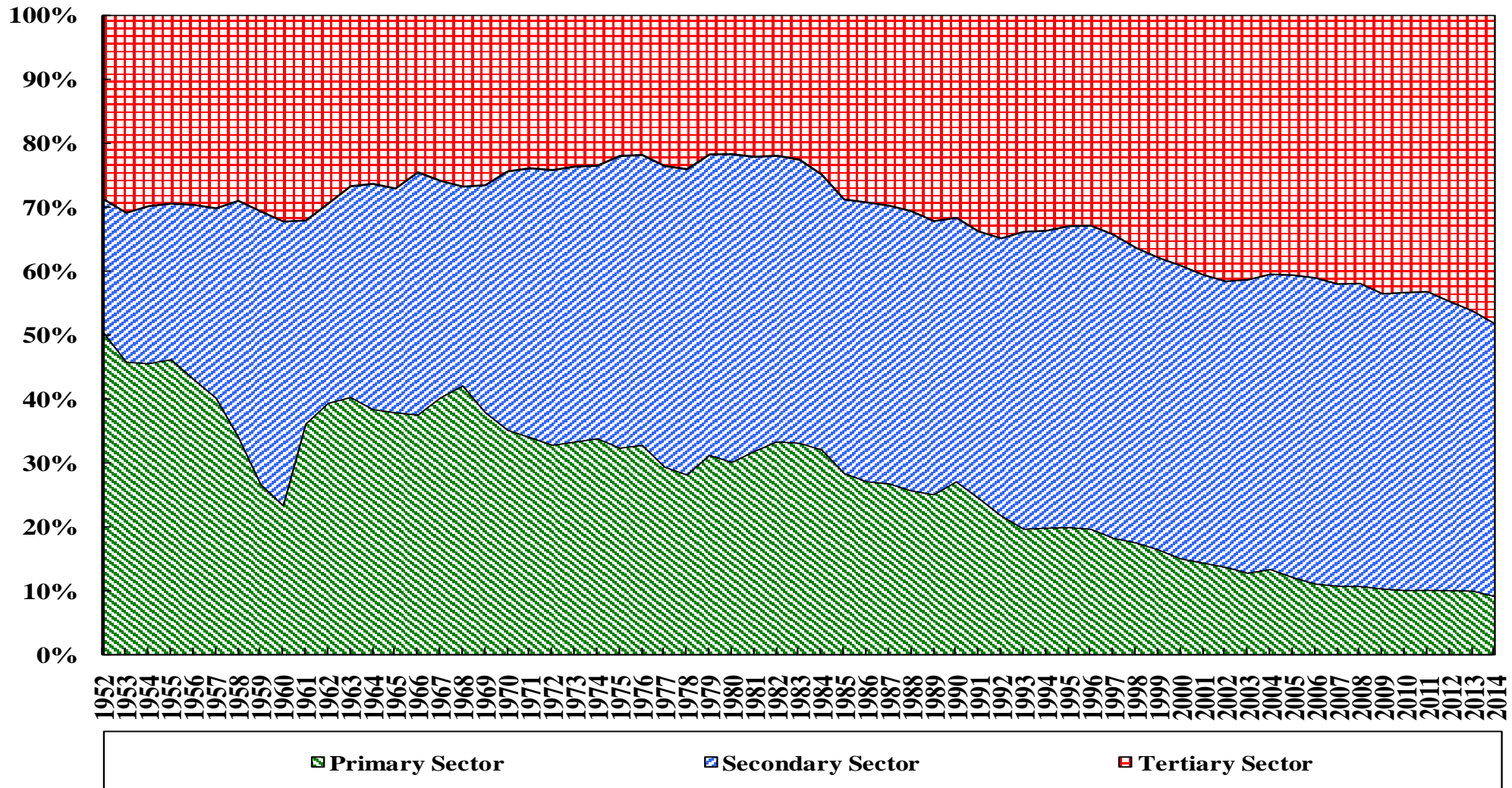
The Chinese Economic Fundamentals:

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 over an extended period of time.
- ◆ The distribution of Chinese GDP by production-originating sectors in 2014 was approximately: Primary (agriculture), 9.2%; Secondary (manufacturing, mining and construction), 42.6%; and Tertiary (services), 48.2%. (Note that mining is normally included in the primary sector in most other economies.)
- ◆ The distribution of employment by sector in 2014 was: Primary, 29.5%; Secondary, 29.9%; and Tertiary, 40.6%.
- ◆ The agricultural sector employed 29.5% of the Chinese labor force but produced only 9.2% of the Chinese GDP in 2014. 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.

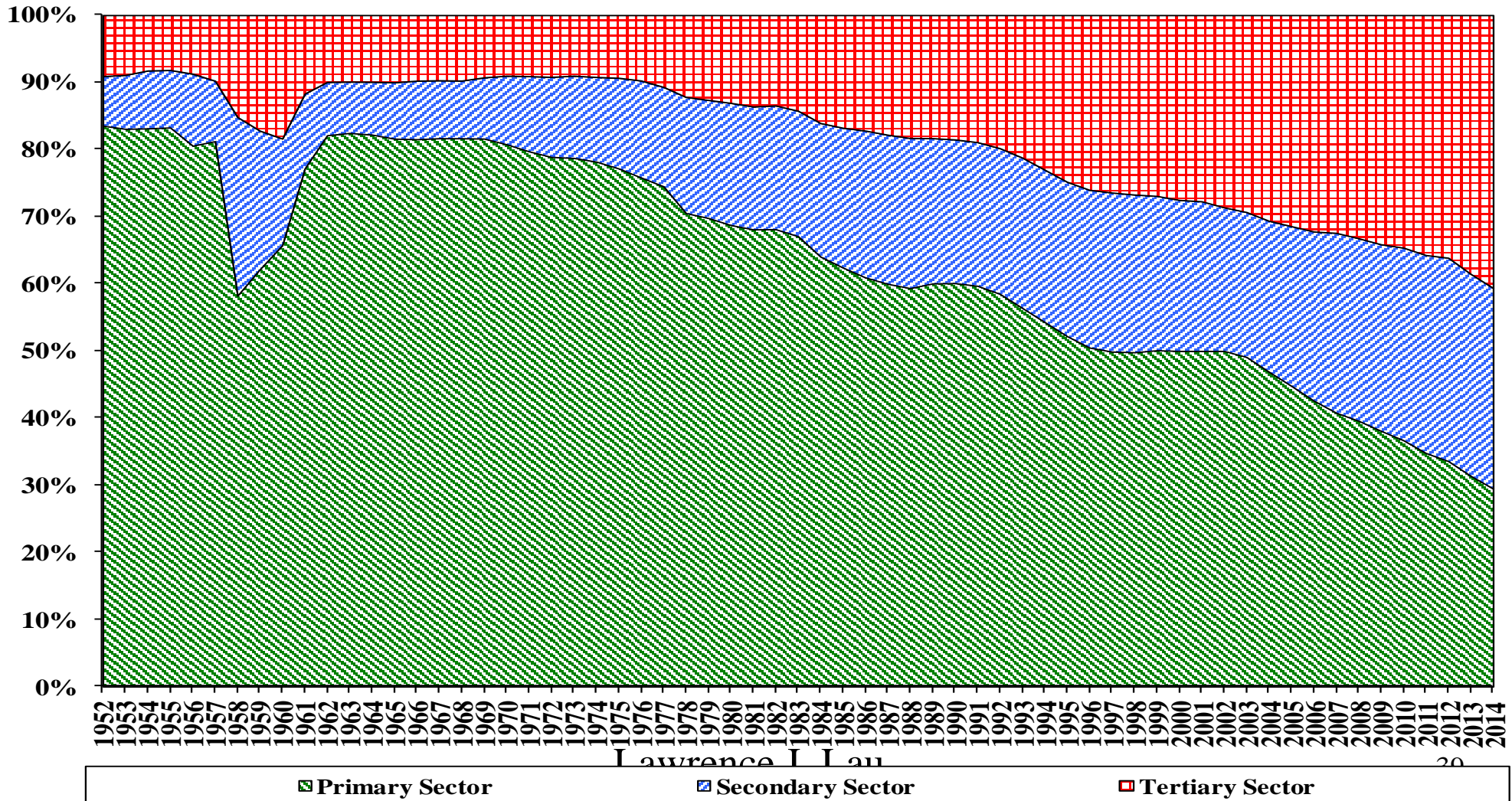
The Distribution of Chinese GDP by Sector Since 1952

The Distribution of GDP by Sector



The Distribution of Chinese Employment by Sector Since 1952

The Distribution of Employment by Sector since 1952



Lawrence Lau

The Chinese Economic Fundamentals:

Intangible Capital

- ◆ China has a long tradition of emphasis on education and learning (human capital) and will be continuing 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), with the goal of increasing it to 2.2 percent of GDP by 2015.
- ◆ However, relative to many other economies, China lags behind on both investment in human capital and R&D capital, especially on a per capita basis.

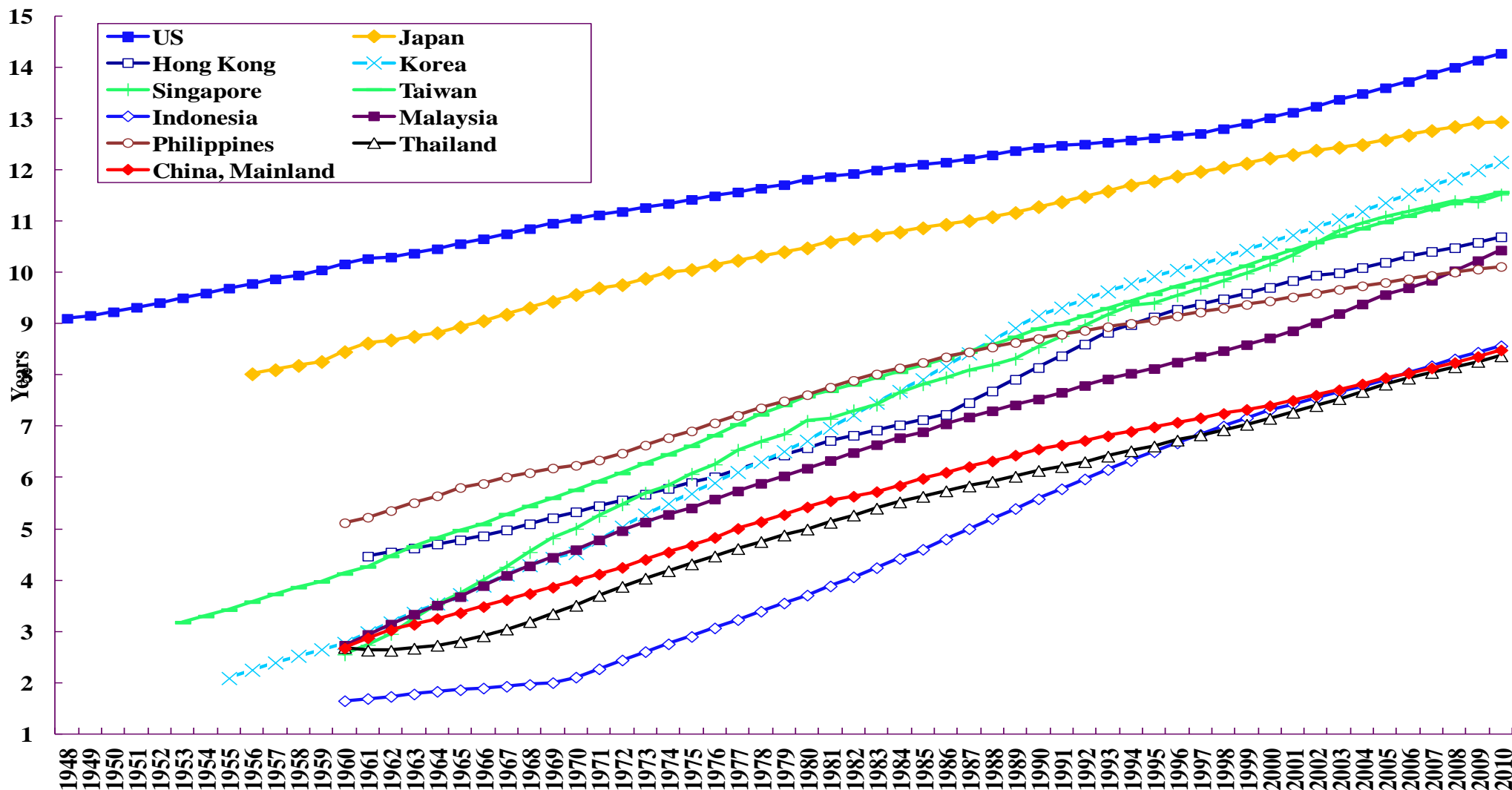
The Chinese Economic Fundamentals:

Human 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 the clear global leaders. South Korea has 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 higher. It was probably around 10 years per person in 2014.

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

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

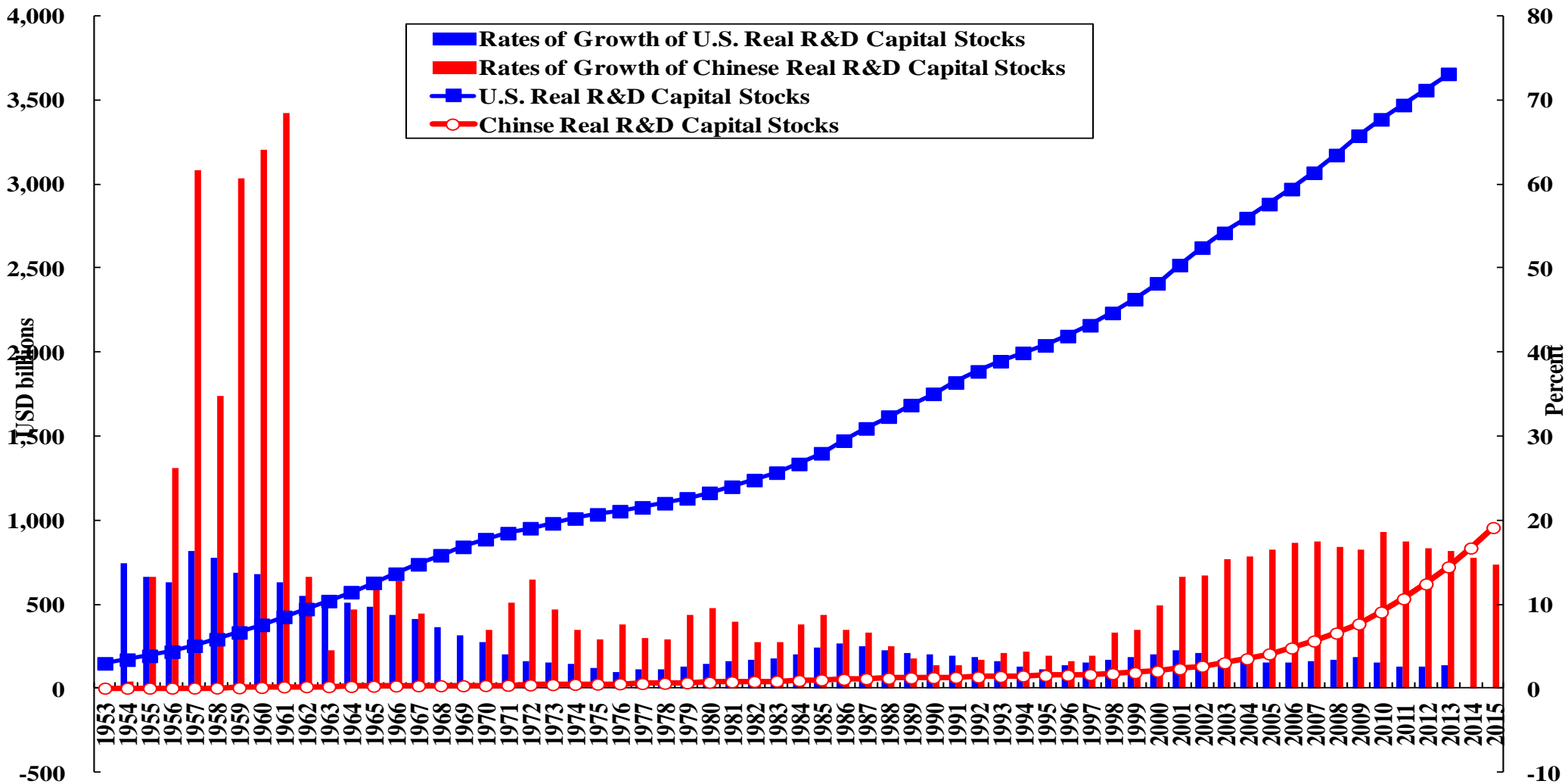


The Chinese Economic Fundamentals: R&D Capital Stock

- ◆ The R&D capital stock, defined as the cumulative past real expenditure on R&D less depreciation of 10% per year, is an useful indicator of innovative capacity. 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)



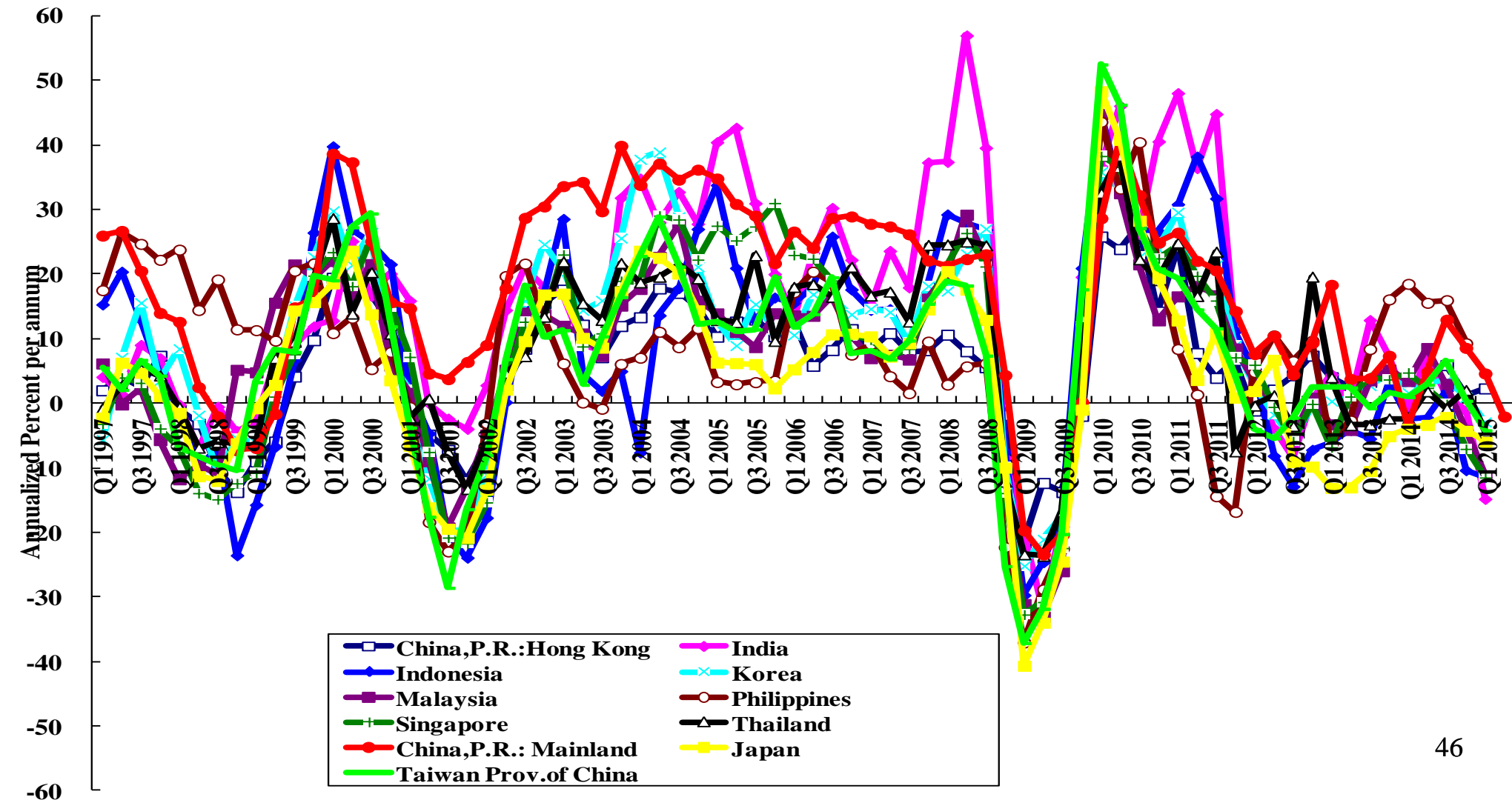
The Chinese Economic Fundamentals:

The Size of the Domestic Economy

- ◆ 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, 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.)⁴⁵

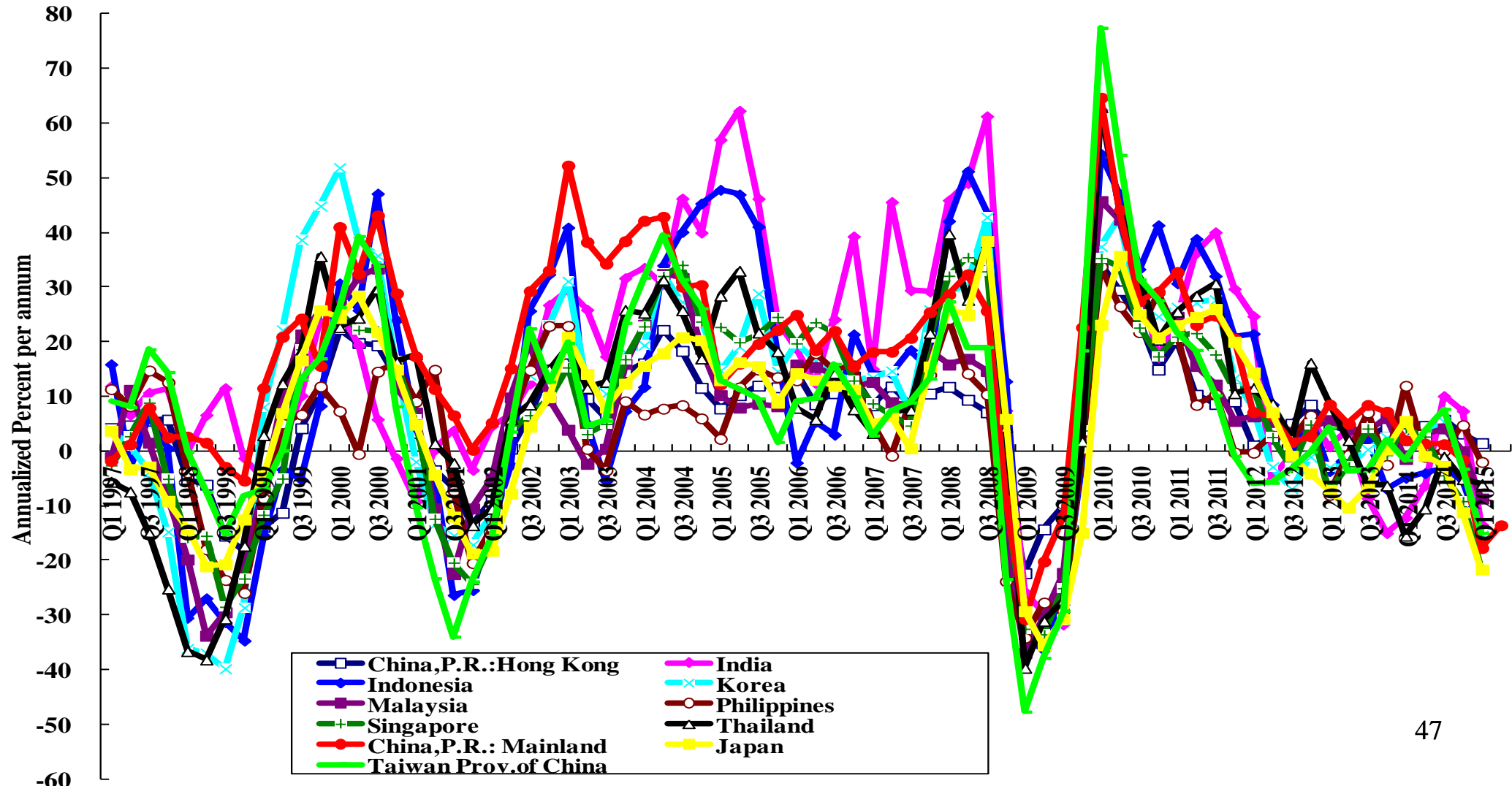
Quarterly Rates of Growth of Exports of Goods: Selected Asian Economies

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



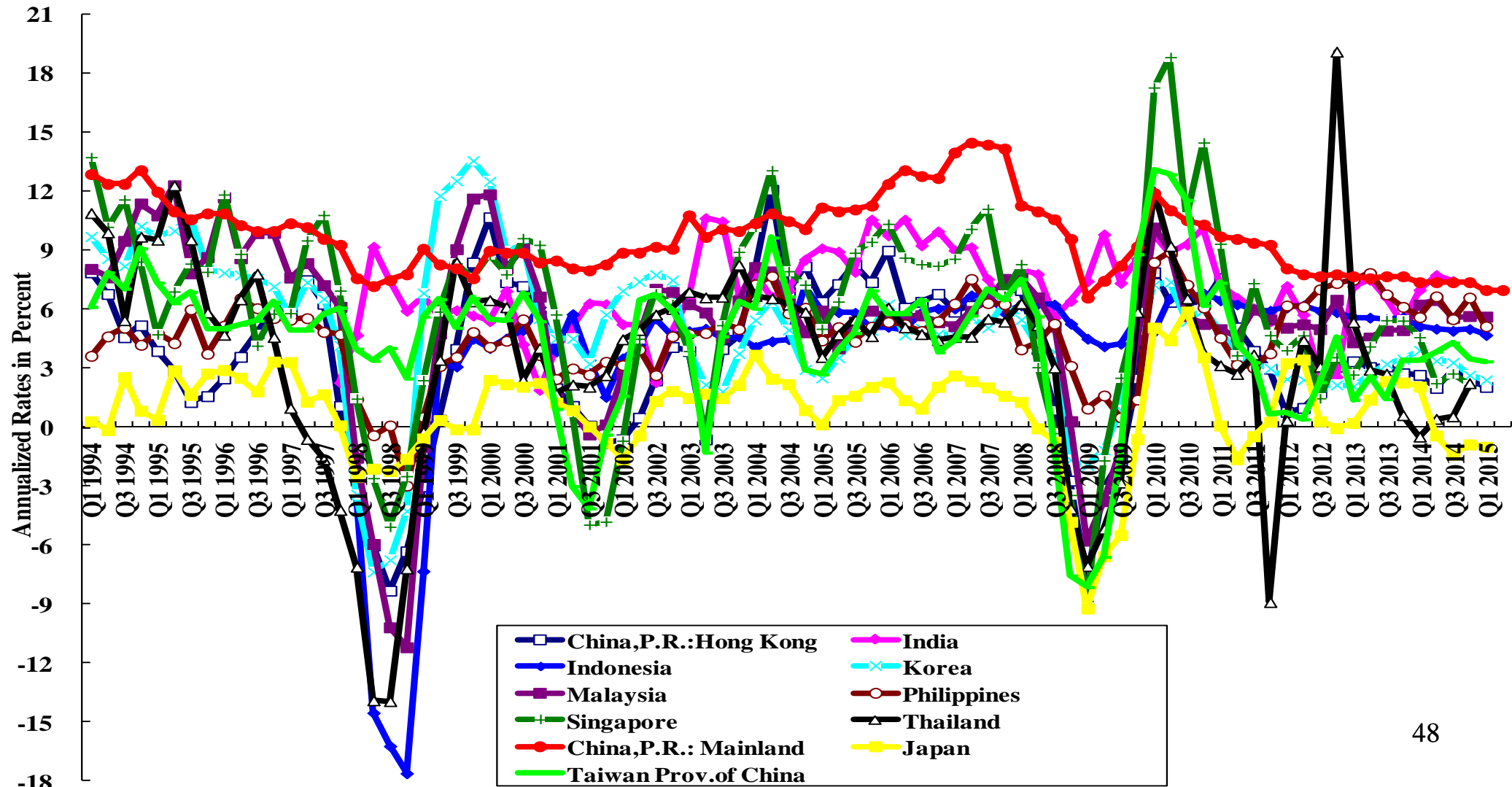
Quarterly Rates of Growth of Imports of Goods: Selected Asian Economies

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



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

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



The Chinese Economic Fundamentals: Relative Backwardness

- ◆ In addition to a high national savings rate, a large pool of surplus labor, rising investment in intangible capital (human capital and R&D capital), and the large size of its economy, 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 players, the fixed landline phones); 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).

The Inherent Economic Inefficiency of Central Planning

- ◆ However, while good economic fundamentals are necessary for a sustained high rate of growth of an economy, they are by no means sufficient.
- ◆ In the thirty years between 1949, the year of the founding of the People's Republic of China, and 1979, the first full year of the Chinese economic reform and opening, China had the same economic fundamentals, but did not experience a sustained high rate of growth during that period. Why?
- ◆ The short answer is that the Chinese economy before its economic reform of 1978 operated under mandatory central planning, with its inherent economic inefficiencies.

The Inherent Economic Inefficiency of Central Planning

- ◆ For various reasons, a centrally planned economy always operates in the interior of its set of production possibilities. They are:
 - ◆ Incomplete information;
 - ◆ Failure to optimise; and
 - ◆ Lack of incentives.
- ◆ Thus, the output of such an economy can in principle be increased by simply moving to the frontier from the interior of the set of production possibilities without any increase in the inputs. The existence of inherent inefficiency therefore also implies the existence of surplus potential output.
- ◆ However, if there is a way to provide the necessary autonomy and incentives to the producers, then without increasing the aggregate inputs assigned under the central plan, aggregate output can be increased.
- ◆ On the eve of the beginning of economic reform and opening in 1978, the Chinese economy still operated under a mandatory central plan, and therefore had significant surplus potential output waiting to be realized.

Reform without Losers—

The Chinese Strategy for Economic Reform

- ◆ We have identified two factors that contributed to Chinese economic success: favorable economic fundamentals and the existence of surplus potential output. But these factors were also common to other transition economies such as those of the former Soviet Union and the Eastern European countries.
- ◆ However, only China was able to transition from a closed centrally planned to an open market economy smoothly, stably and successfully, without incurring significant adjustment costs.
- ◆ It turns out that the choice of strategy for the economic transition matters. In the former Soviet Union and Eastern European socialist countries, the strategy adopted for the transition was the so-called “shock therapy” or “big bang” strategy—that is, a strategy that calls for the immediate and full abolition of the mandatory central plan, relying completely and solely on the newly introduced and still relatively primitive free markets, which lacked the necessary facilitating and supporting institutions.
- ◆ The Chinese Government did not adopt the “shock therapy” or the “big bang” strategy to implement its economic reform.

Reform without Losers—

The Chinese Strategy for Economic Reform

- ◆ Instead of dismantling the mandatory central plan all at once, the Chinese Government adopted the “Dual-Track” approach. While introducing enterprise autonomy and free markets, it also continued to enforce the existing central plan. There were thus simultaneously two tracks in the economy: a “Plan Track” and a “Market Track”, which operated in parallel but separately from each other.
- ◆ The “Plan Track”—the pre-existing central plan remained unchanged and the rights and obligations of individuals, households, communes, enterprises and townships under the central plan continued to be enforced by the government.
- ◆ The “Market Track”—all markets for goods and services were instantaneously open, with prices determined by supply and demand in the markets.
- ◆ Everyone was free to participate in the Market Track provided that his or her obligations under the Plan Track had been fulfilled.

Reform without Losers—

The Chinese Strategy for Economic Reform

- ◆ The “Dual-Track” approach ensured that no one would be made worse off than before as a result of the economic reform. The principle of “Reform without Losers”, that is, the avoidance of the creation of net losers in the process of economic reform, was almost always followed in the first couple of decades of economic reform.
- ◆ “Reform without Losers” was able to maximise popular support for and minimise political opposition to economic reform, thus preserving social stability in the process. This experience is probably unique in the annals of economic development.
- ◆ An easy way to understand “Reform without Losers” is that it involves the “grandfathering” of the existing vested interests so that they do not suffer any net losses as a result of the economic reform.
- ◆ Moreover, such a strategy often can not only make everyone better off than before but also enable the economy to achieve full economic efficiency (see Lawrence J. Lau, Yingyi Qian and Gerard Roland (2000)).

Reform without Losers—

The Chinese Strategy for Economic Reform

- ◆ It should be noted that “Reform without Losers” is possible in part because of the existence of the prior economic slack but also requires a state with sufficient power to continue to enforce the central plan.
- ◆ Ultimately, in the late 1990s, the mandatory centrally planned part of the Chinese economy, which had been contracting relative to the market part of the economy, became sufficiently insignificant so that the mandatory features of the central plan could be gradually phased out. The transition to an open market economy in goods and services (but not yet in factors) was thus completed.

The Sources of Chinese Economic Growth

Rate of Growth of Real Output (1978-2014)	9.72%
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Rates of Growth of Inputs (1978-2013)	
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Tangible or Physical Capital	10.83%
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Labor	56 1.88%
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The Sources of Chinese Economic Growth

- ◆ The realization of the surplus potential output from the initial economic slack that resulted from years of mandatory central planning;
- ◆ The growth of tangible capital and labor inputs;
- ◆ The growth of the intangible inputs such as human capital and R&D capital;
- ◆ Technical progress (or equivalently the growth of total factor productivity (TFP));
- ◆ The realization of the economies of scale; and
- ◆ Of course, the low costs of transition from a centrally planned to a market economy also helped.

The Sources of Chinese Economic Growth: The Realization of the Surplus Potential Output

- ◆ Lawrence J. Lau and Huanhuan Zheng (2015), in their working paper, “How Much Slack Was There in the Chinese Economy Prior to Its Economic Reform of 1978?”, find that the pre-existing slack in the Chinese economy before it undertook its economic reform and opened to the World would amount to 50% of the actual output in 1978.
- ◆ On the assumption that the Chinese real GDP in 1978 was 50% higher than it actually was, the implied average annual rate of growth of the Chinese economy between 1978 and 2014 would have been 8.49% instead of 9.72%. Thus, the reduction of the economic slack that existed before 1978 would account for approximately 1.23 percentage points of the economic growth over the past 36 years, or approximately 12.5 percent of the post-1978 economic growth. The remaining economic growth of 8.49% per annum can be attributed to the growth of the primary inputs, technical progress or growth of total factor productivity, and economies of scale.

The Sources of Chinese Economic Growth: The Effects of Economies of Scale

- ◆ Given the huge size of the Chinese economy, economies of scale can also be a significant source of growth. The existence of economies of scale implies that given the same rates of growth of the tangible and intangible inputs, China will be able to achieve a higher rate of growth of its real output than a smaller economy. A 10 percent difference in the rates of growth of real output can make a huge difference in the levels of GDP in a few decades.
- ◆ Moreover, the existence of significant economies of scale can increase the rates of return to fixed investment and investment in R&D and may therefore also lead to higher investment rates than otherwise.
- ◆ The degree of returns to scale at the economy-wide level cannot be straightforwardly estimated from the data of a single economy alone, as the effects of economies of scale are often confounded with those of technical progress or growth of total factor productivity.
- ◆ The assumption used by the late Dr. Edward F. Denison (1961) for the degree of returns to scale for the U.S. is 1.1, that is, if all inputs are doubled, output will be increased by 2 raised to the power 1.1 times (2.144 times to be exact).

The Sources of Chinese Economic Growth: The Effects of Economies of Scale

- ◆ However, a meta-production function approach, first introduced by Lau and Yotopoulos (1989) and extended by Boskin and Lau (1992), can be used to identify and separate the effects of economies of scale and technical progress.
- ◆ Michael J. Boskin, Haiqiu Guo and Lawrence J. Lau (2015), in their forthcoming study, “Technical Progress and G-7 Economic Growth”, find the degree of local returns to scale of the U.S. to be 1.20 in 1960 and 1.11 in 2007. The average returns to scale over this period would be 1.155, somewhat larger than Denison (1961)’s assumption but almost identical to Denison (1974)’s estimate of 1.15.
- ◆ Assuming that this estimate of the degree of returns to scale, 1.155, also applies to the Chinese economy on average, it would mean that over a 36-year period, from 1978 to 2014, the average rate of growth would have been 8.36% if there were only constant returns to scale, instead of the actual 9.72%. This difference would have accounted for 36.1% of the Chinese real GDP in 2014.
- ◆ It also means that out of the rate of growth of 9.72%, economies of scale accounts for 1.36 percentage points, or 13.99 percent of the measured economic growth over this period.

The Sources of Chinese Economic Growth:

The Monopsonistic Labor Market

- ◆ The actual share of labor in GDP in China is low relative to other economies. It can be estimated to be around 45%. However, it is believed that the production elasticity of labor is probably higher, somewhere between 0.55 and 0.6. Labor is just systematically underpaid—the state still employs directly or indirectly more than 50% of the urban labor force as of 2010.
- ◆ Since there exist increasing returns to scale, capital, as the residual claimant, is not necessarily paid its marginal product; but because labor is actually underpaid, capital can be either underpaid or overpaid relative to its marginal product.
- ◆ With returns to scale assumed to be 1.155, and the production elasticity of labor estimated as between 0.55 and 0.6, the production elasticity of capital may be estimated as between 0.555 and 0.605. Thus, the relative weights of capital and labor are between 0.48 versus 0.52, almost equal. We shall use 0.5 for the purpose of this exercise⁶¹.

The Sources of Chinese Economic Growth: Increasing Returns to Scale Case

Monopsonistic Labor Market Case

Sources of Chinese Economic Growth, 1978-2014	Percentage Points	Percent
Elimination of Pre-Existing Economic Slack	1.23	12.65
Growth of Tangible Capital	5.42	55.71
Growth of Labor	0.94	9.67
Technical Progress	0.78	7.97
Economies of Scale	1.36	13.99
Total	9.72	100.00

The Sources of Chinese Economic Growth:

Summary

- ◆ We note that the elimination of the pre-existing economic slack and economies of scale account for respectively 1.23 and 1.36 percentage points, or a total of 2.59 percentage points of the Chinese economic growth of 9.72% between 1978 and 2014.
- ◆ If we subtract 2.59% from 9.72%, we obtain 7.13%. This average annual rate of growth has been achieved by quite a few other economies in the past.
- ◆ In more conventional growth accounting, the effect of the elimination of the pre-existing economic slack would have been captured as technical progress or the growth of total factor productivity.
- ◆ Similarly, the effects of economies of scale would also have been attributed to technical progress or the growth of total factor productivity.

The Sources of Chinese Economic Growth:

Summary

- ◆ Chinese economic growth during the past 36 years can be mostly attributed to the growth of tangible inputs—tangible capital and labor, and in particular, tangible capital—rather than the growth in intangible capital or technical progress, just as the past economic growth of other East Asian economies at a similar stage of economic development.
- ◆ The growth of tangible capital inputs is the most important source of growth, accounting for more than half of the growth in real output.
- ◆ The contribution of technical progress or growth of total factor productivity (TFP) accounted for less than 8 percent of Chinese economic growth since 1978.
- ◆ The successful Chinese experience strongly reaffirms the fundamental importance of having and maintaining a high investment rate, enabled by a high national savings rate, and surplus labor.

The Sources of Chinese Economic Growth:

Summary

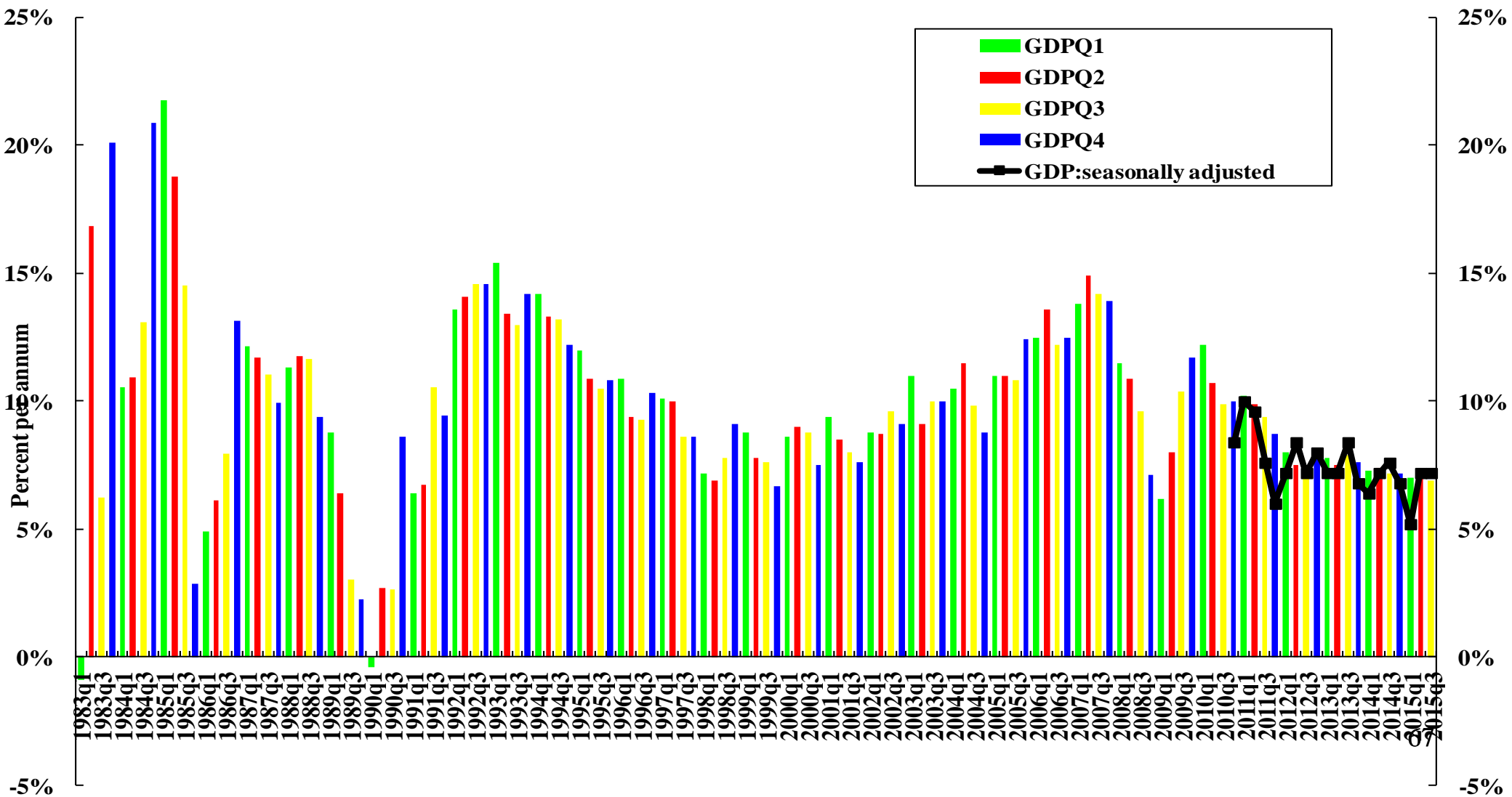
- ◆ In addition, the size of the Chinese domestic economy is a favorable factor allowing the ready realization of economies of scale and reducing vulnerability to external disturbances. Economies of scale accounted for one-seventh of the Chinese economic growth since 1978.
- ◆ The prior economic slack, inherent in any previously centrally planned economy, can be a significant source of economic growth upon transition to a market economy. In the Chinese case, it accounted for one-eighth of the Chinese economic growth since 1978.

The Transition to a “New Normal” and the Thirteenth Five-Year (2016-2020) Plan

- ◆ Going forward, will the Chinese economy continue to grow at close to 10 percent per annum in the future? The short answer is no, for many reasons. The target rate of growth under the “New Normal” is likely to be 6.5 percent per annum as indicated in the Thirteenth Five-Year Plan.
- ◆ Since 2013, the Chinese economy has been in the process of transitioning to a “New Normal”. The rate of growth of the Chinese economy has since been slowing down gradually from double-digit rates to 7.7% in 2013 and 7.3% in 2014 and is expected to grow around 7% in 2015, which is in accord with the Chinese plan.
- ◆ In 2015Q1, 2015Q2 and 2015Q3, the annualized rates of growth were respectively 7.0%, 7.0% and 6.9% ,Y-o-Y. Seasonally adjusted, they were 5.6%, 6.8% and 7.2% respectively. The economic performance in 2015Q3 was actually above expectations because factories were closed down for a couple of weeks in the regions surrounding Beijing to ensure a clear sky and clean air for the World Track and Field Meet and for the 70th Anniversary of the Victory of World War II in the Asia-Pacific Military Parade.

Quarterly Rates of Growth of Chinese Real GDP, Y-o-Y and Seasonally Adjusted

Quarterly Rates of Growth of Chinese Real GDP, Y-o-Y and Seasonally Adjusted

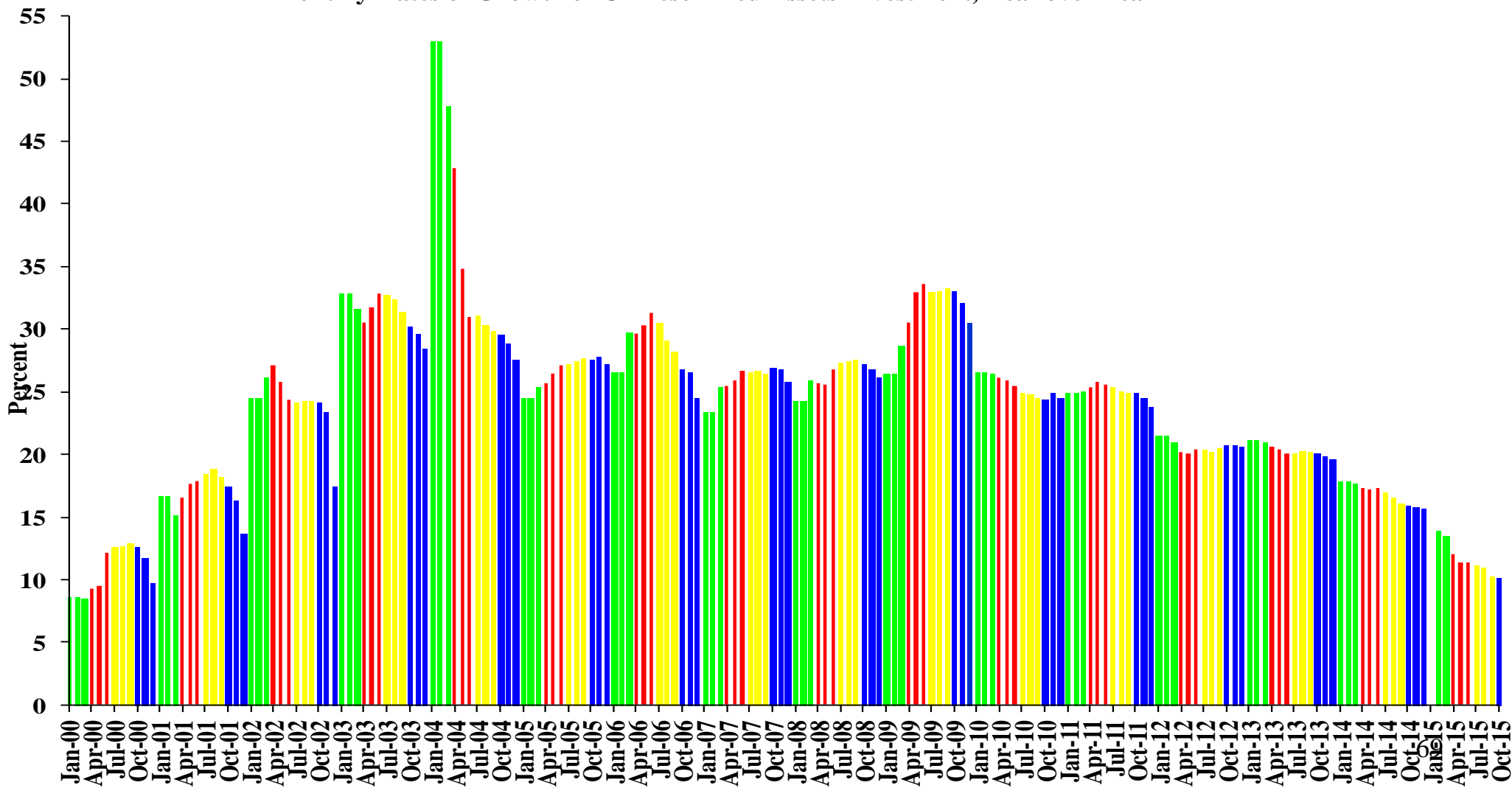


The Transition to a “New Normal” and the Thirteenth Five-Year (2016-2020) Plan

- ◆ The rate of growth of fixed asset investment has been declining, reflecting, in part, that the expectation that the rate of growth of real GDP will decline from almost 10% to around 6.5% going forward, and in part the changing composition of GDP with the service sector, which requires much less fixed asset investment per unit GDP, becoming the largest sector of the economy (48.2% in 2014).
- ◆ However, the expectations of the consumers appear to have remained positive. The rate of growth of real retail sales has continue to rise at approximately one and a half times the rate of growth of real GDP.
- ◆ The target growth rate of the Chinese economy for 2015 is around 7%. The actual rate of growth for the year as a whole is likely to be somewhere between 6.5% and 7%.

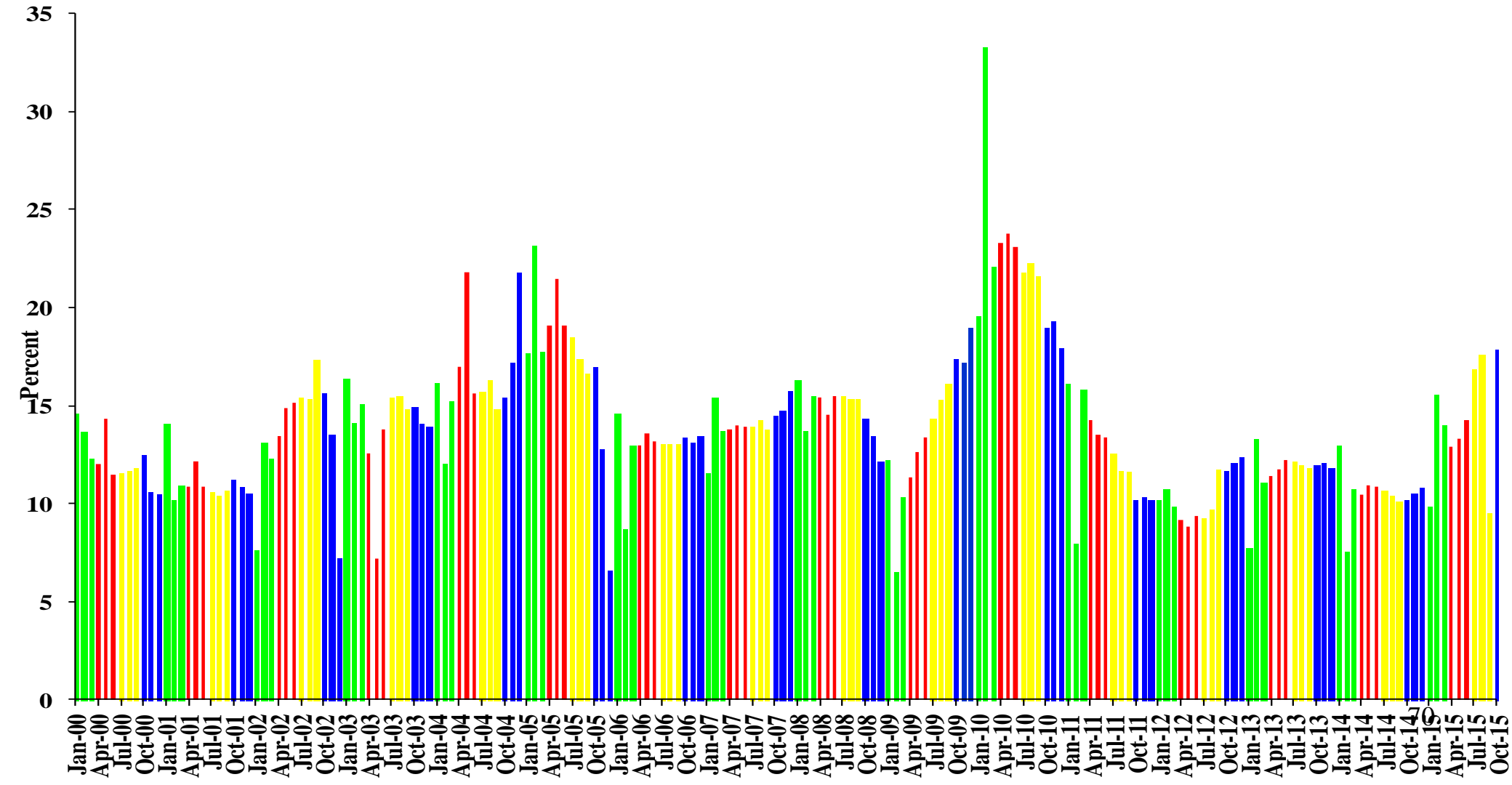
Monthly Rates of Growth of Chinese Fixed Assets Investment, Y-o-Y

Monthly Rates of Growth of Chinese Fixed Assets Investment, Year-over-Year



Monthly Rates of Growth of Chinese Real Retail Sales, Y-o-Y

Monthly Rates of Growth of Chinese Real Retail Sales since, Year-over-Year



The Transition to a “New Normal”: Trading Quantity for Quality

- ◆ What does the “New Normal” imply?
- ◆ First, there will be a reduction of the rate of growth of the measured real GDP, from almost 10% to perhaps just around 6.5% per annum, but with a greater emphasis on the “quality” of the economic growth, including the preservation, protection, restoration and enhancement of the environment and improvement of access to education, health care and elderly care, which are not necessarily reflected in the GDP as conventionally measured.

The Transition to a “New Normal”: Trading Quantity for Quality

- ◆ The key performance indicators for the local government officials will be changed so that long-term economic viability and sustainability are also taken into account in addition to short-term growth in real GDP and employment.
- ◆ Moreover, other key performance indicators, such as those on the environment, both globally and locally, for example, air and water quality, should also be included. The improvement of energy efficiency and the reduction of carbon emission are also important areas of focus.
- ◆ It is believed that these key performance indicators which relate to the quality of growth will also be reflected in the targets of the Thirteenth Five-Year Plan.

The Transition to a “New Normal”: Transformation of Supply Composition

- ◆ Second, there will be a transformation in the composition of GDP by production sectors.
- ◆ The tertiary sector has already overtaken the secondary sector as the most important sector by GDP originating. It accounted for more than 52% of GDP in 2015H1. The GDP originating from the primary (agricultural) sector fell below 9.2% in 2015.
- ◆ The shift in the sectoral composition has led to changes in the demands for energy, including electricity, transportation, and fixed investment. Thus, while the so-called “Keqiang Index”, which consists of the weighted sum of rates of growth of electricity consumption, railroad freight volume and bank credit may have been a good indicator of the rate of growth of the industrial sector, it will be an increasingly downward-biased indicator of the rate of growth of real GDP because of the continuing shift in the sectoral composition of output towards the tertiary or service sector.

The Transition to a “New Normal”: Transformation of Supply Composition

- ◆ The principal challenge facing the Chinese economic policy makers is not so much the growth of real GDP but employment.
- ◆ The service sector (48.2% by GDP and 40.6% by employment in 2014) is now larger and growing faster than the industrial sector (42.6% by GDP and 29.9% by employment in 2014).
- ◆ In 2013 and 2014 respectively, 13 million and 10 million new jobs were created. An expansion of the service-sector GDP creates 30% more employment than an expansion of industrial sector GDP of the same magnitude and requires much less fixed investment as well as energy. Thus, the shift in sectoral composition in favor of the service sector will raise the employment/GDP ratio and lower the energy/GDP ratio.
- ◆ It will also lead to reductions in the rates of growth of Chinese demands for imports of natural resources from around the World.
- ◆ The growth of the service sector has been and will continue to be driven by rising urbanization in China.

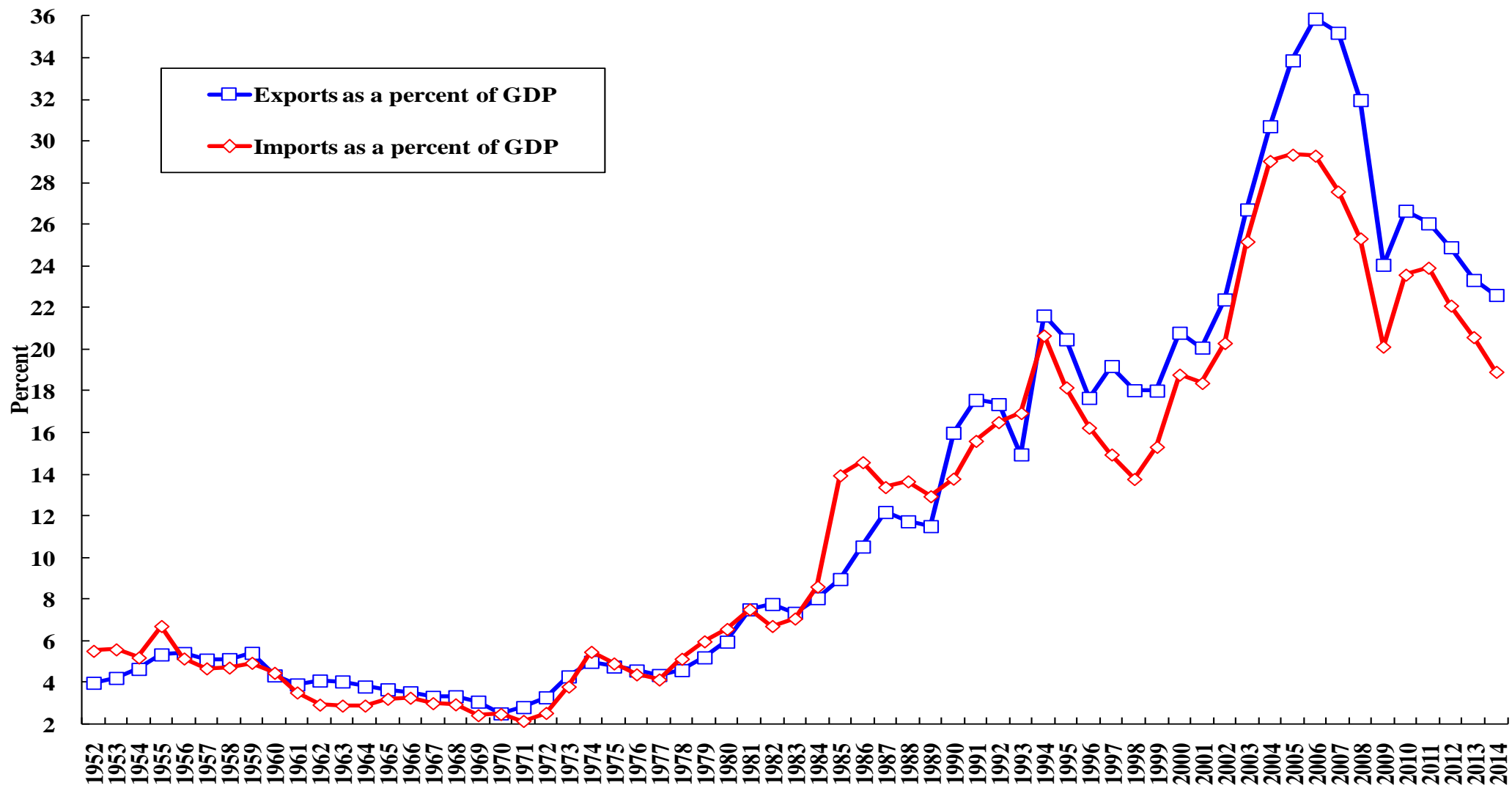
The Transition to a “New Normal”:

Transformation of Final Demand Composition

- ◆ Third, there will be a transformation in the composition of final demand . On the demand side, Chinese economic growth will be principally driven by the growth of its own internal demand, consisting of public infrastructural investment (for example, high-speed railroads, urban mass transit systems and other urban public works, public wifi towers, affordable housing (slum clearance), other urban public works, clean energy), public goods consumption (education, health care, elderly care, and environmental protection, preservation and restoration—clean air, water and soil) as well as household consumption. It will no longer be driven by the growth of exports, or fixed investment in the manufacturing sector, or residential real estate.
- ◆ However, it should be noted that while the gross value of exports may not grow very fast any more, and will be a declining share of GDP, the value-added of exports may actually grow faster than the gross value itself. After all, it is the value-added that counts, not the gross value.

Exports and Imports as a Percent of Chinese GDP, 1952-present

Exports and Imports as a Percent of Chinese GDP, 1952-present



The Transition to a “New Normal”:

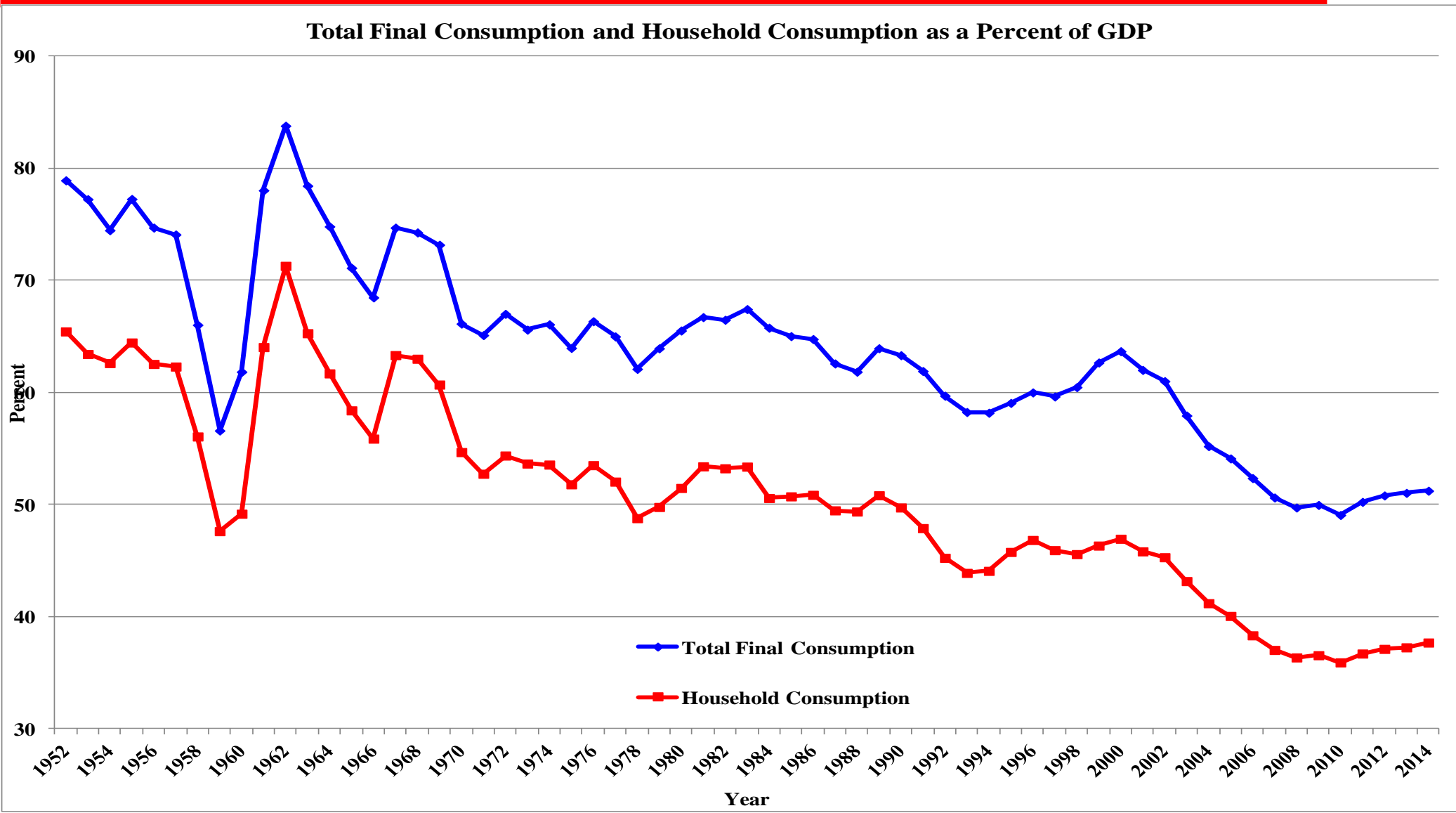
Transformation of Final Demand Composition

- ◆ Urbanization can not only increase the demand for public infrastructure and housing, but also promote the growth of the service sector, on both the supply and the demand sides.
- ◆ The growth in public goods consumption (including necessary related investments) such as education, health care, care for the elderly, and environment protection, preservation and restoration--securing cleaner air, water and soil can and should be an important component of the growth of aggregate demand going forward.
- ◆ Increasing public goods consumption is an effective method of redistribution in kind. For example, since everyone breathes the same air, if the air is cleaner, both the wealthy and the poor benefit equally; and better access to health care may benefit the lower-income households more. Expansion of public goods consumption can thus reduce the real income disparity significantly.

The Transition to a “New Normal”: Transformation of Final Demand Composition

- ◆ The share of household consumption in GDP was approximately 38% in 2014. It will be a while 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.
- ◆ Delinking of the salaries between the government sector and the enterprise sector as well as increasing cash dividend payments by publicly listed enterprises may be helpful in increasing household income and hence household consumption.

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



The Transition to a “New Normal”: Transformation of the Sources of Growth

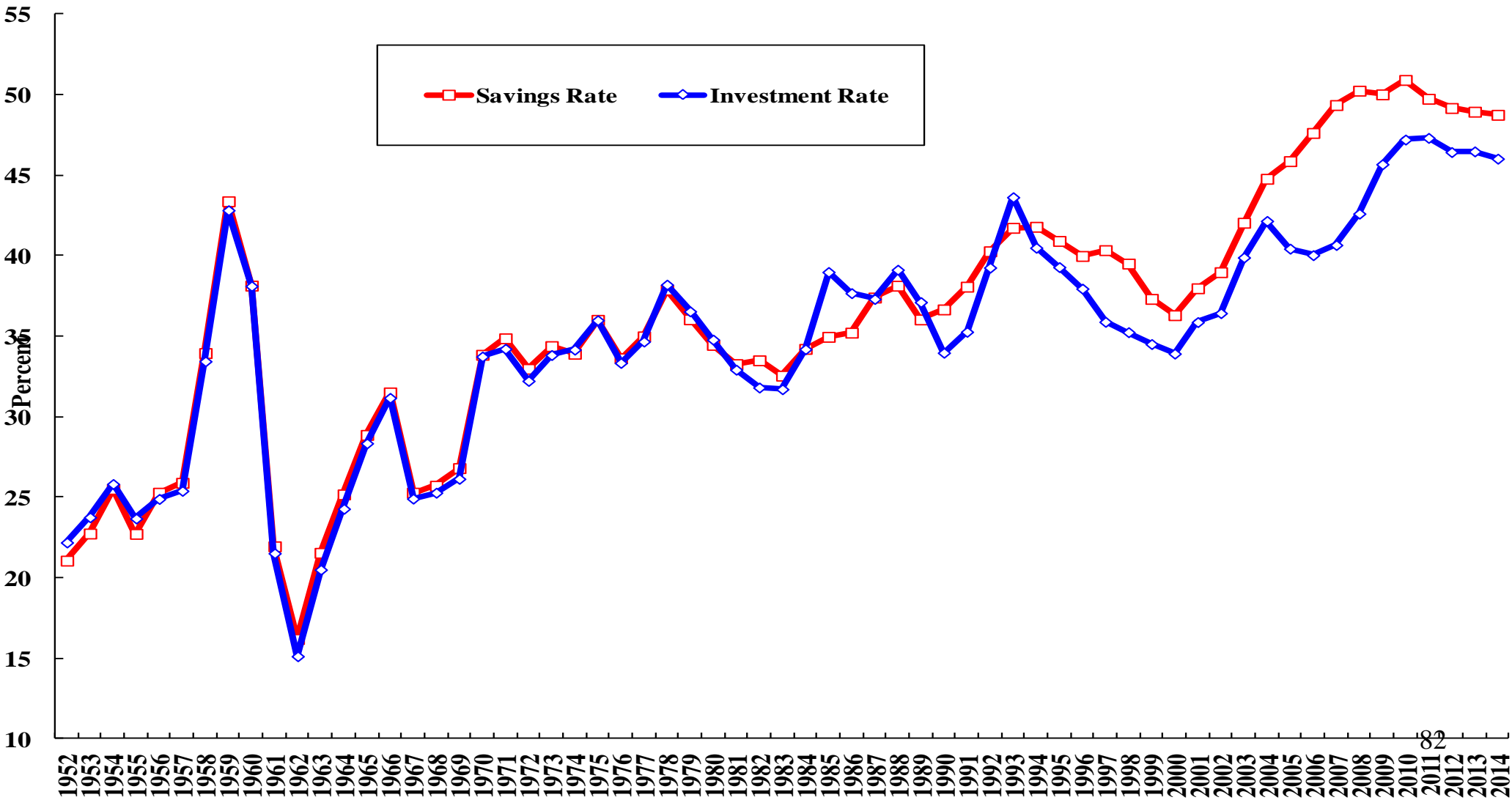
- ◆ Fourth, there will be a gradual transformation of the sources of growth, from the growth of tangible inputs such as structures, equipment, and labor, and infrastructural investment, to the growth of intangible inputs such as human capital and R&D capital.
- ◆ Past economic growth has been mostly driven by the growth of tangible capital. Technical progress or growth of total factor productivity accounts for less than 8 percent of Chinese economic growth since 1978.

The Transition to a “New Normal”: Transformation of the Sources of Growth

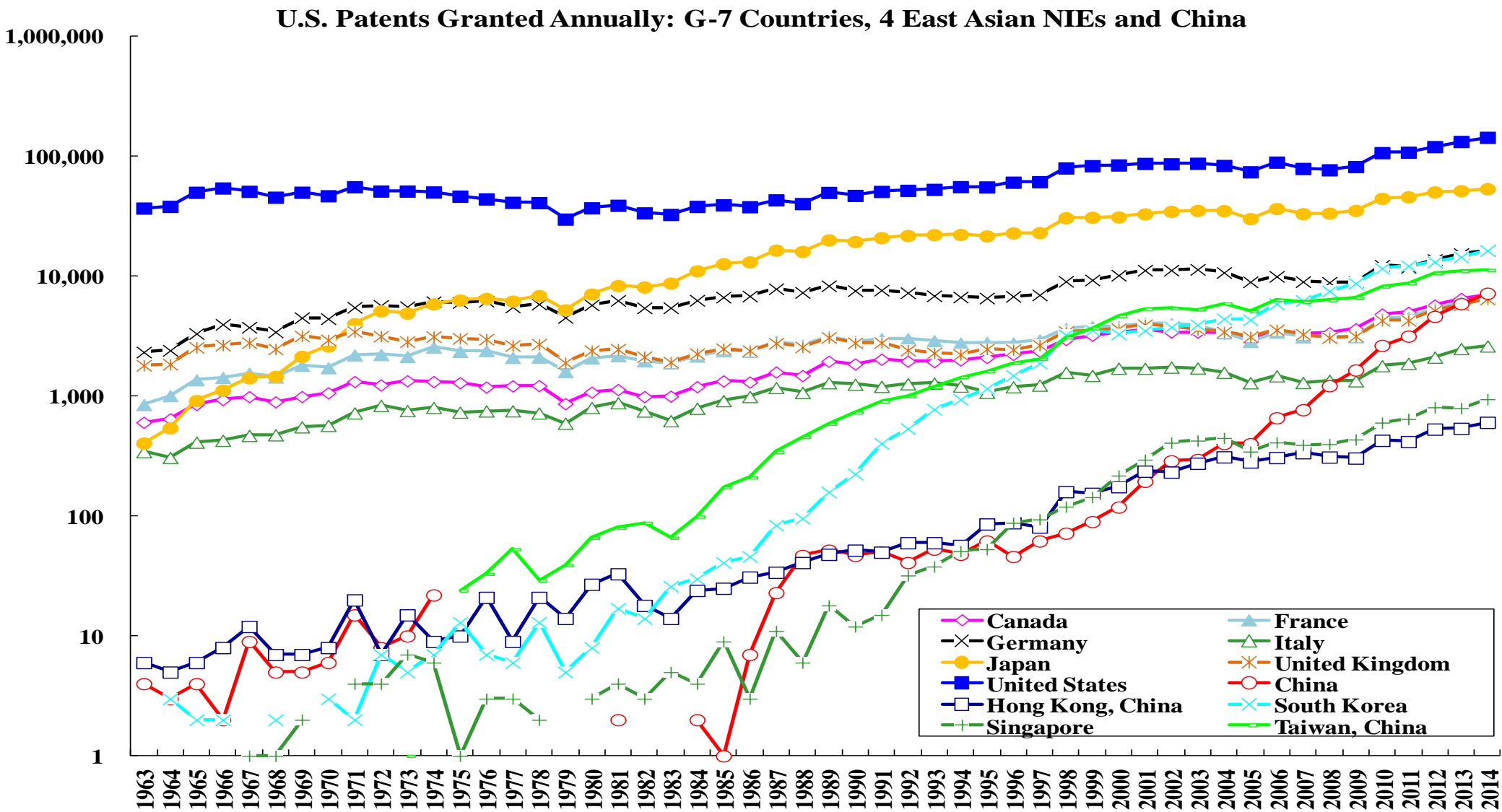
- ◆ The Chinese economy will still have strong economic fundamentals--a high domestic saving rate, abundant labor, and a huge domestic market that enables the realization of economies of scale—for a couple of decades. Moreover, advances in the information and communication technology has enhanced the positive effects of economies of scale even further.
- ◆ Investment in human capital and R&D has been increasing rapidly, even though both the stocks of human capital and R&D capital still lag significantly behind those of the U.S. and Japan, especially on a per capita basis.
- ◆ In time, Chinese economic growth will also be driven by innovation and technical progress in addition to the growth in tangible inputs.

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



Annual Number of U.S. Patents Granted: Selected Economies



The Transition to a “New Normal”: Transformation of the Sources of Growth

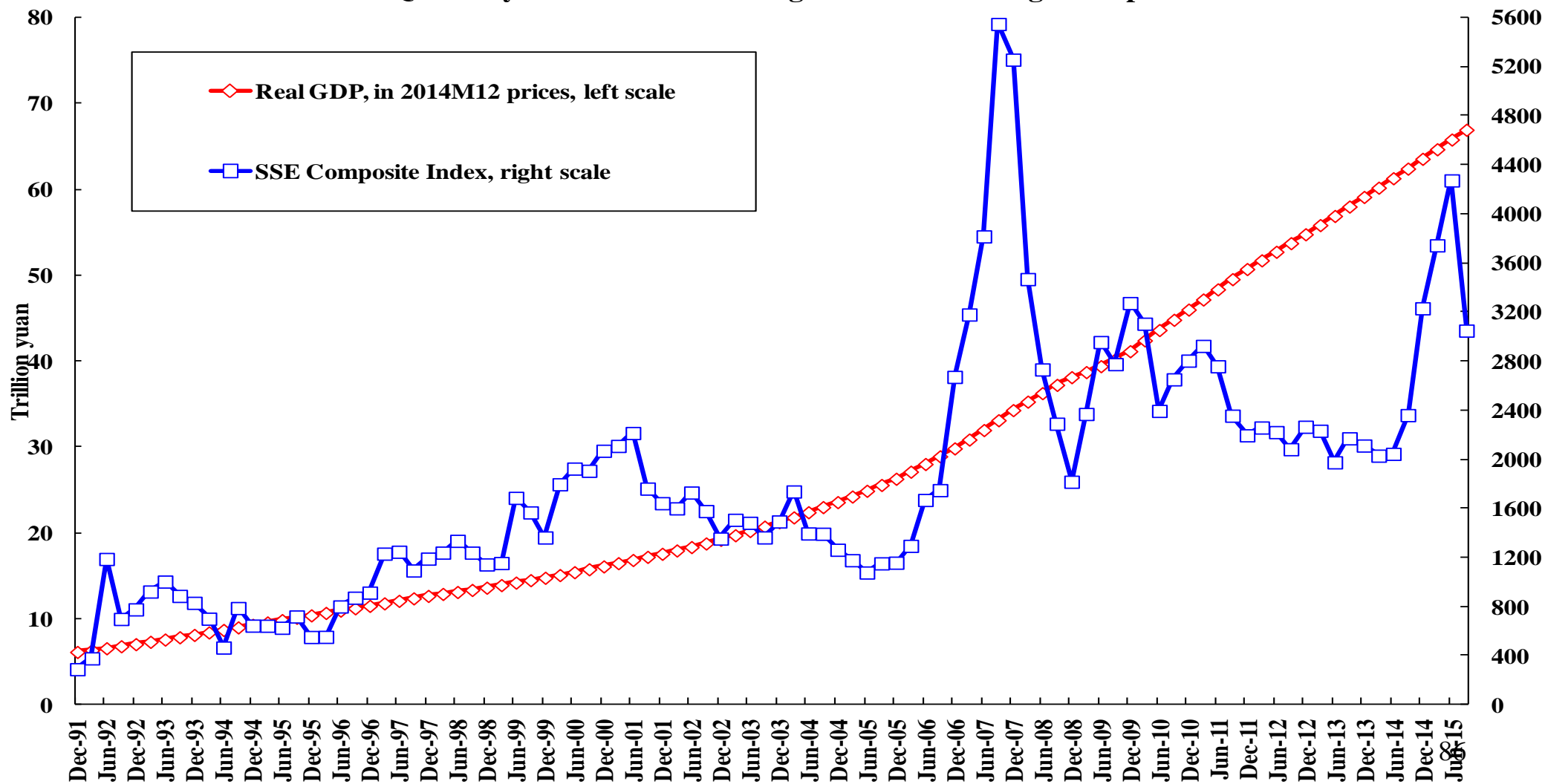
- ◆ The “Made in China 2025“ plan recently announced by the State Council is designed to transform China into a world manufacturing power comparable to Germany and Japan today.
- ◆ The 10 key sectors that are the foci of “Made in China 2025“ plan are new information technology, numerical control tools and robotics, aerospace equipment, ocean engineering equipment and high-tech ships, railway equipment, energy saving and new energy vehicles, power equipment, new materials, biological medicine and medical devices, and agricultural machinery.

The Transition to a “New Normal”: 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 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 shows 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.

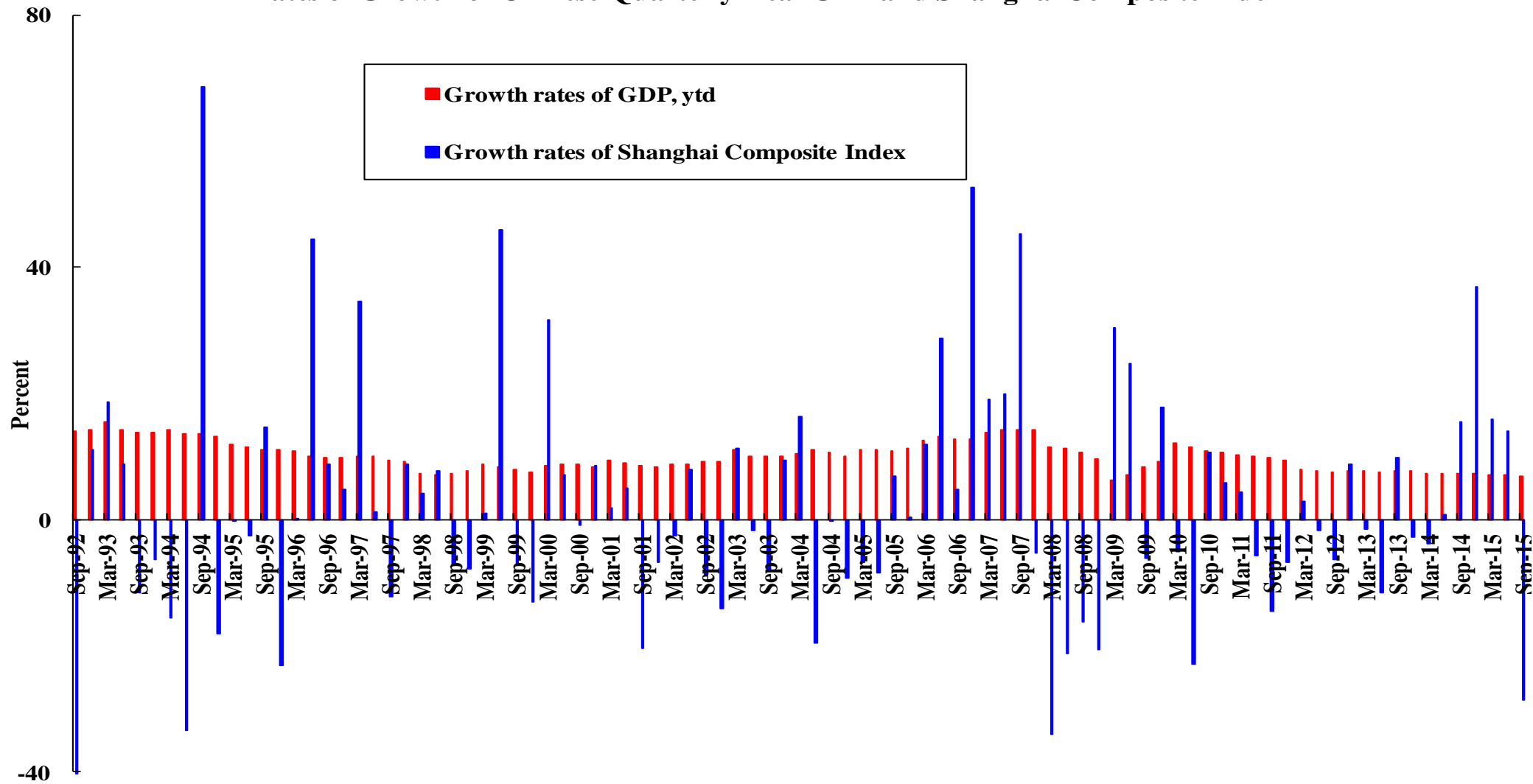
The Chinese Quarterly Real GDP and the Shanghai Stock Exchange Composite Index

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 Shanghai Composite Index



The Transition to a “New Normal”: The Unimportance of the Stock Market

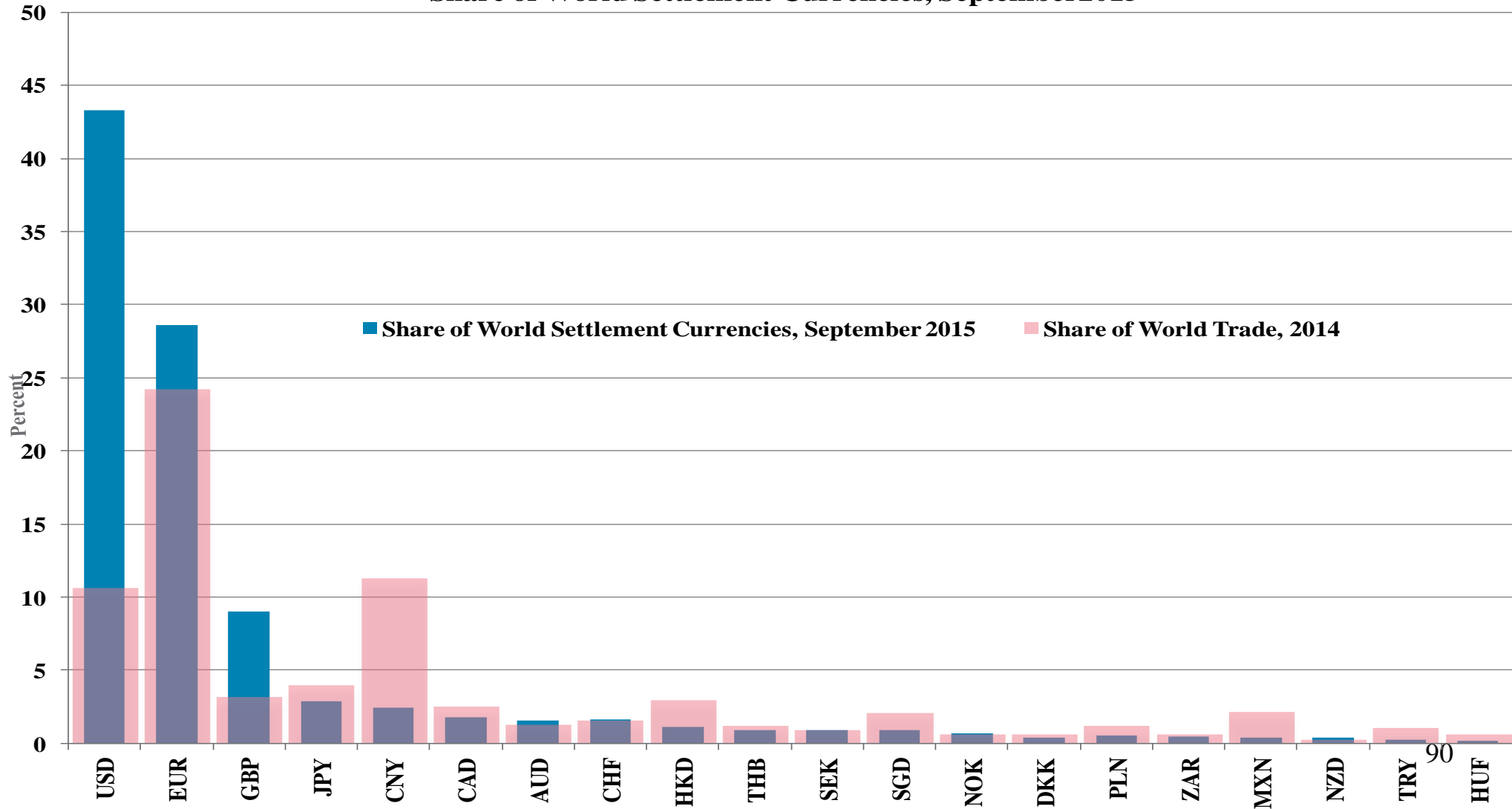
- ◆ In mid-November 2015, margin finance for stock purchase was tightened up in China. New margin loans must be fully backed by collateral, doubled the previous 50%. This should help to prevent another stock price bubble from developing.

The Internationalization of the Renminbi

- ◆ The Renminbi, the Chinese currency, is increasingly used as an invoicing and settlement currency for cross-border transactions, especially those involving Chinese enterprises as transacting parties.
- ◆ The proportion of Mainland Chinese international trade settled in Renminbi has grown rapidly, from almost nothing in 2010Q1 to 32.4% of the total value of Chinese international trade in goods in 2015Q3 (US\$333.5 billion). In absolute value, more than US\$1.33 trillion worth of Chinese international trade (approximately a quarter) is now settled in Renminbi annually.

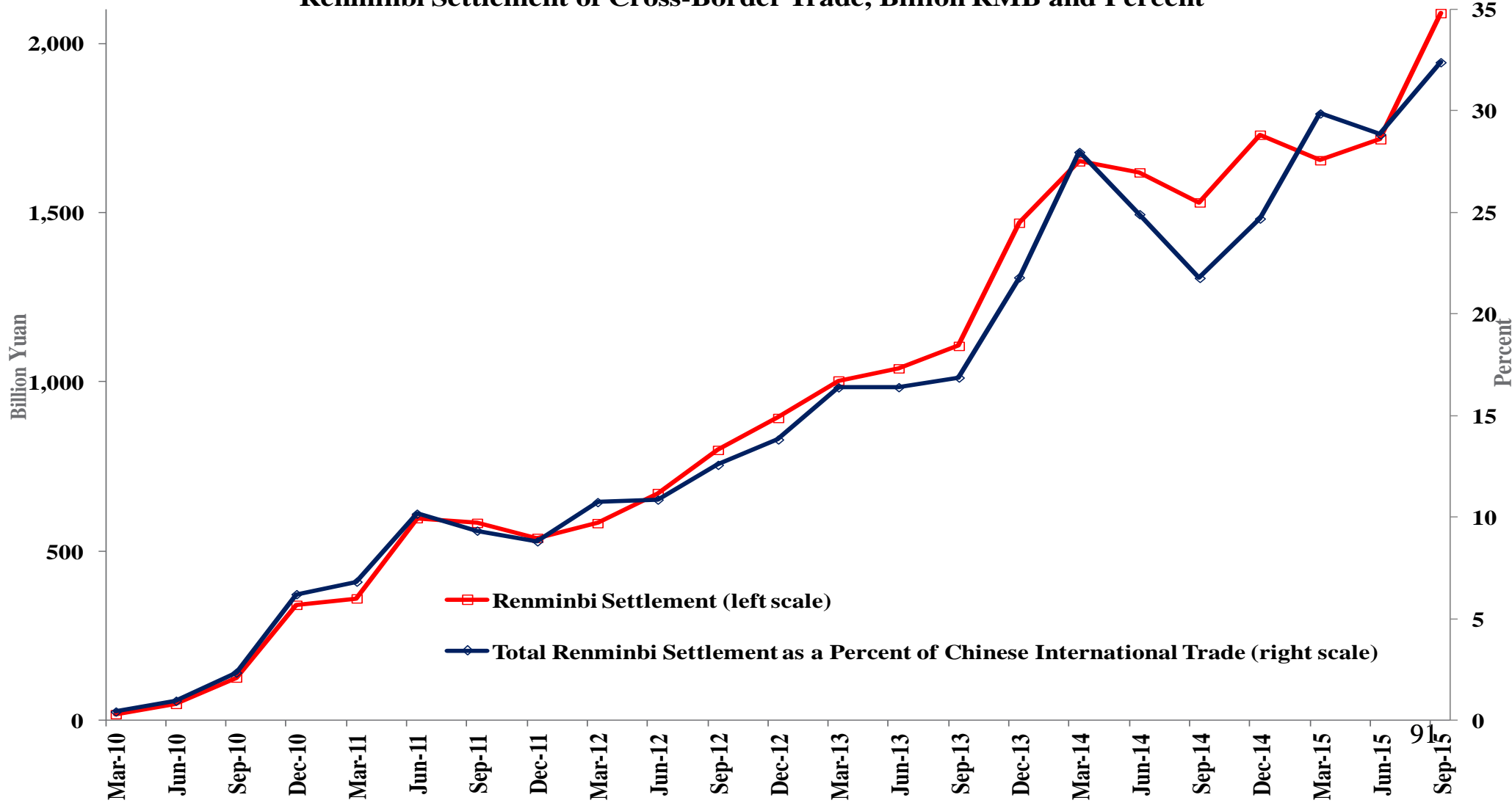
Distribution of World Trade Settlement Currencies versus World Trade, Sept. 2015

Share of World Settlement Currencies, September 2015



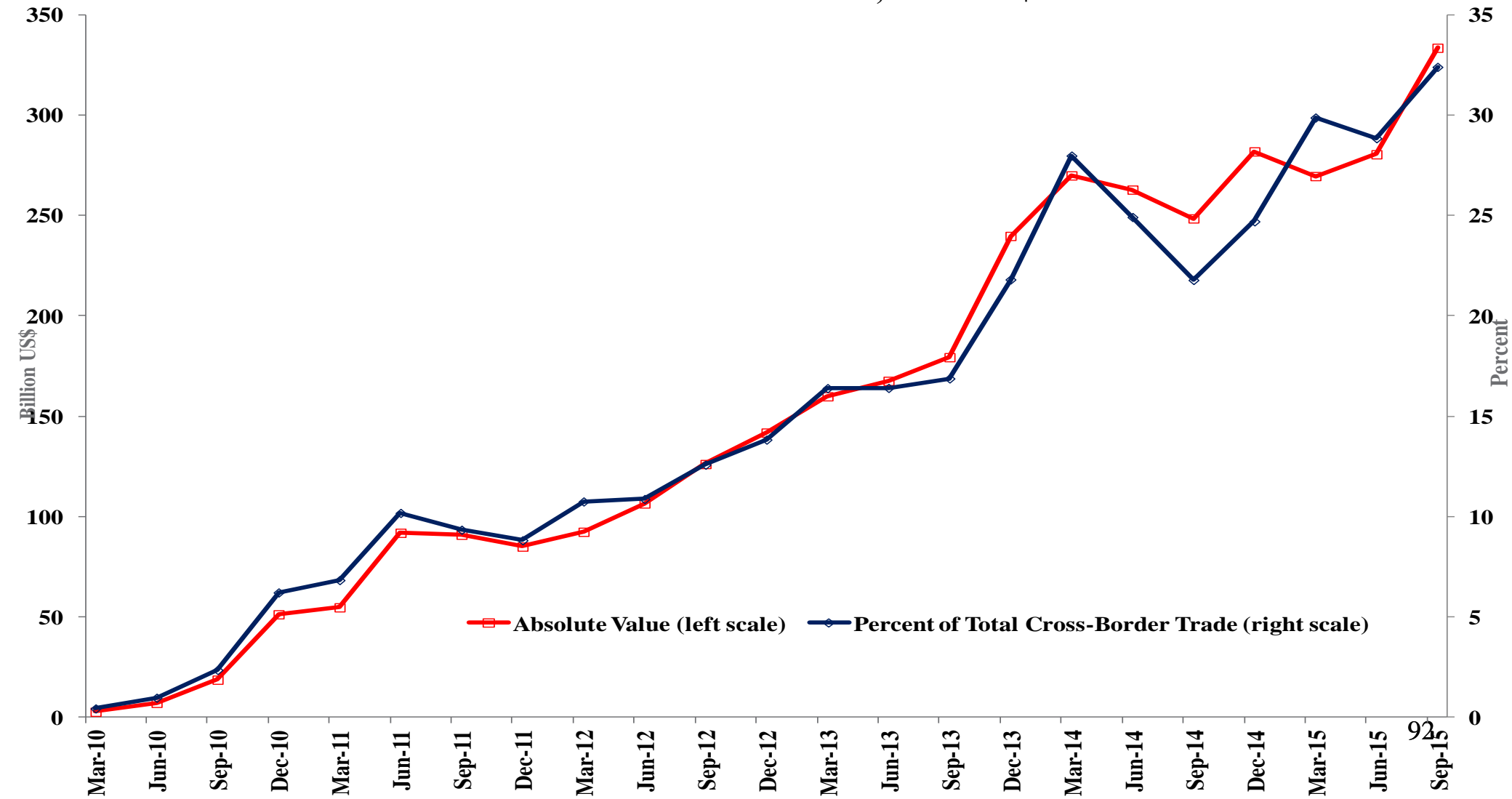
Renminbi Settlement of Chinese Cross-Border Trade, Billion RMB and Percent

Renminbi Settlement of Cross-Border Trade, Billion RMB and Percent



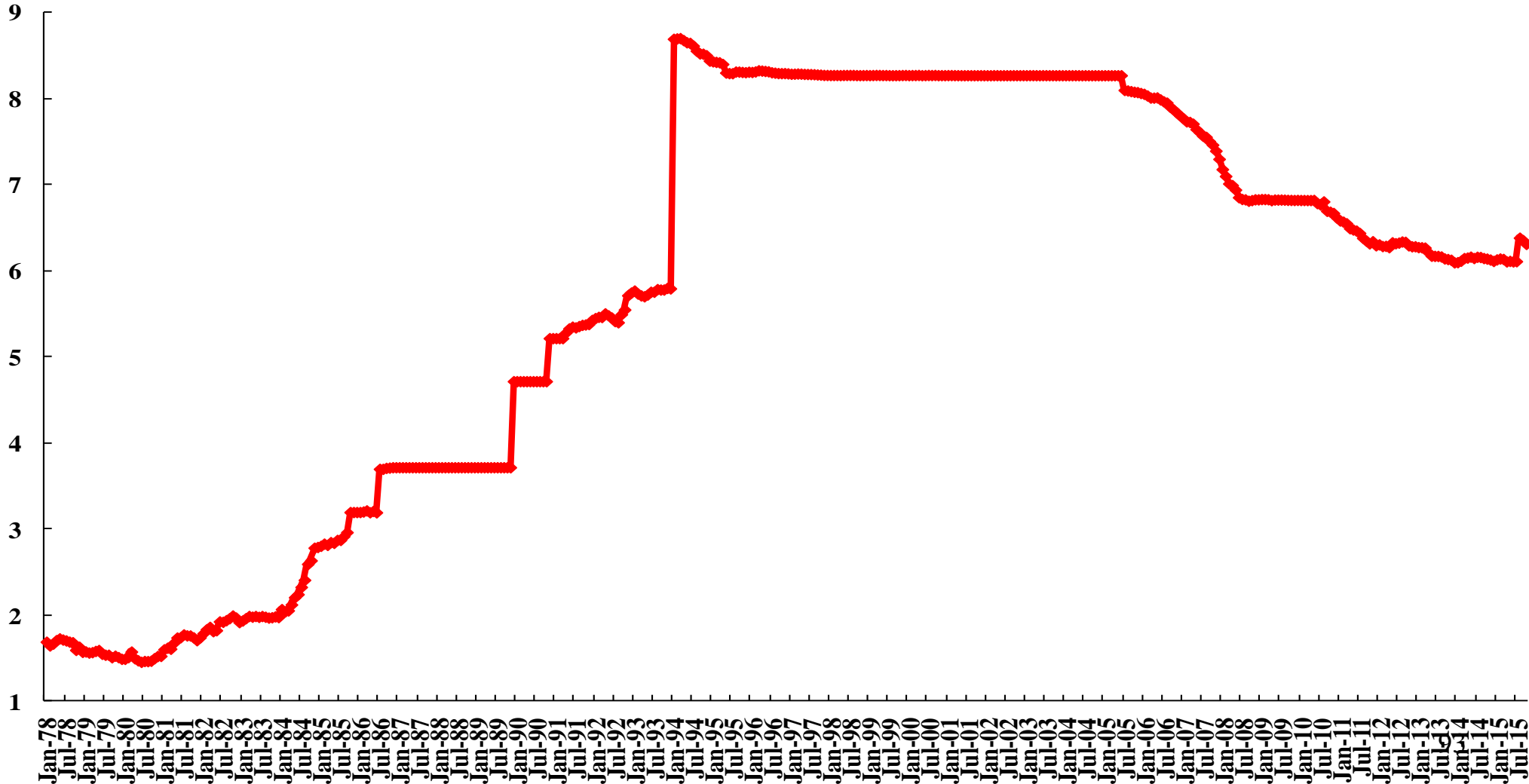
Renminbi Settlement of Chinese Cross-Border Trade, Billion US\$ and Percent

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



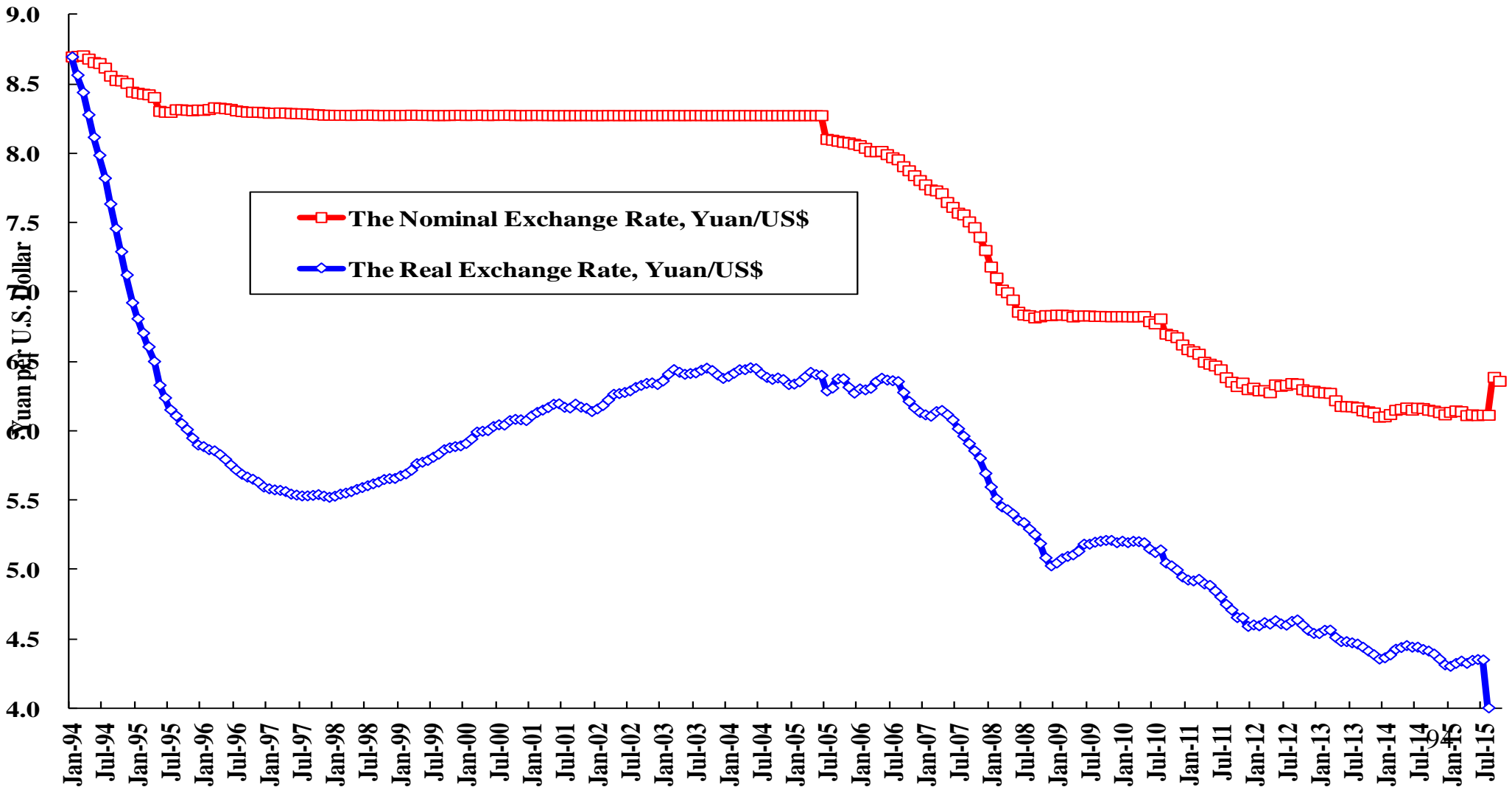
Nominal Exchange Rate of the Renminbi, Yuan/US\$, 1978-present

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



The Nominal and Real Yuan/US\$ Exchange Rates

The Nominal and Real Yuan/US\$ Exchange Rates (1994 prices)



The Internationalization of the Renminbi

- ◆ The Renminbi exchange rate is likely to hold steady vis-a-vis the US\$ in the near term.
- ◆ It is in China's interests to promote the use of its own currency, the Renminbi, as a medium of international exchange, certainly in international transactions in which its national is one of the transacting parties. This requires a stable exchange rate vis-a-vis the US\$.
- ◆ It appears that the Renminbi is likely to be included as part of the basket of currencies constituting the "Special Drawing Right (SDR)" basket, being "freely usable".
- ◆ China will continue to face a net capital outflow, which is natural and expected as its enterprises (and in time its households) diversify their investment to overseas. However, this does not diminish its ability to stabilize the Renminbi exchange rate. It has large foreign exchange reserves of US\$3.6 trillion. It still runs a significant trade surplus amounting to 2% of its GDP.
- ◆ China will over time become a large net capital exporter, especially as its enterprises and households attempt to re-balance its portfolio if and when capital controls are fully lifted. There will be a significant one-time stock adjustment ⁹⁵ when capital control is finally completely lifted.

The Internationalization of the Renminbi

- ◆ A devaluation is unlikely to be helpful to the Chinese economy. It is not in China's best interests to return to making garments, shoes and stuffed toys with the lower standard of living that this implies. The Chinese economy has also grown too large to be sustained by the growth of exports alone.
- ◆ It is also not in the best interests for China to compete with the other East Asian developing economies through competitive devaluation. China should strive to move up the value chain, as Japan, Hong Kong, South Korea and Taiwan did before.
- ◆ The status quo, that is, a Renminbi that is informally pegged to the US\$, is acceptable to the U.S. (This may not be the preference of U.S. hedge funds that have been hoping for a Renminbi devaluation.)

Concluding Remarks

- ◆ Chinese economic growth during the past 36 years can be mostly attributed to the growth of tangible inputs—tangible capital and labor, and in particular, tangible capital—rather than the growth in intangible capital or technical progress, just as the past economic growth of other East Asian economies at a similar stage of economic development.
- ◆ The successful Chinese experience strongly reaffirms the fundamental importance of having and maintaining a high investment rate, enabled by a high national savings rate, and surplus labor.
- ◆ In addition, the size of the Chinese domestic economy is a favorable factor allowing the ready realization of economies of scale and reducing vulnerability to external disturbances.
- ◆ The economic slack, inherent in any previously centrally planned economy, can be a significant source of economic growth upon transition to a market economy. In the Chinese case, it accounted for one-eighth of the Chinese economic growth since 1978.

Concluding Remarks

- ◆ In the near to medium term, continuing Chinese economic growth going forward will depend mostly on the growth of internal demand (public infrastructural investment, public goods consumption (education, health care and environmental control, preservation and restoration) and household consumption) and not on exports and not on manufacturing capacity expansion in the existing industries, or residential real estate.
- ◆ The growth in household consumption will do its part, especially in the demand for services. The expanding and rising middle class will also play a crucial role. However, the growth of household consumption alone will not be enough.
- ◆ In the longer run, Chinese economic growth will make a transition from tangible-inputs-driven to intangible-inputs- or innovation-driven.
- ◆ The “New Normal” is thus neither a “boom” of close to double-digit rates of growth, nor a “bust” of negative or low single-digit real rates of growth. There will be both sufficient supply and demand in the Chinese economy to support an average annual real rate of growth of around 6.5%.