

What Makes China Grow? 中国经济增长动力探源

Lawrence J. Lau

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

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

Chinese Academy of Sciences University

Beijing, 11 July 2019

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

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

*All opinions expressed herein are the author's own and do not necessarily reflect the views of any of the organisations with which the author is affiliated.

Lecture I
The Sources of
Chinese Economic Growth

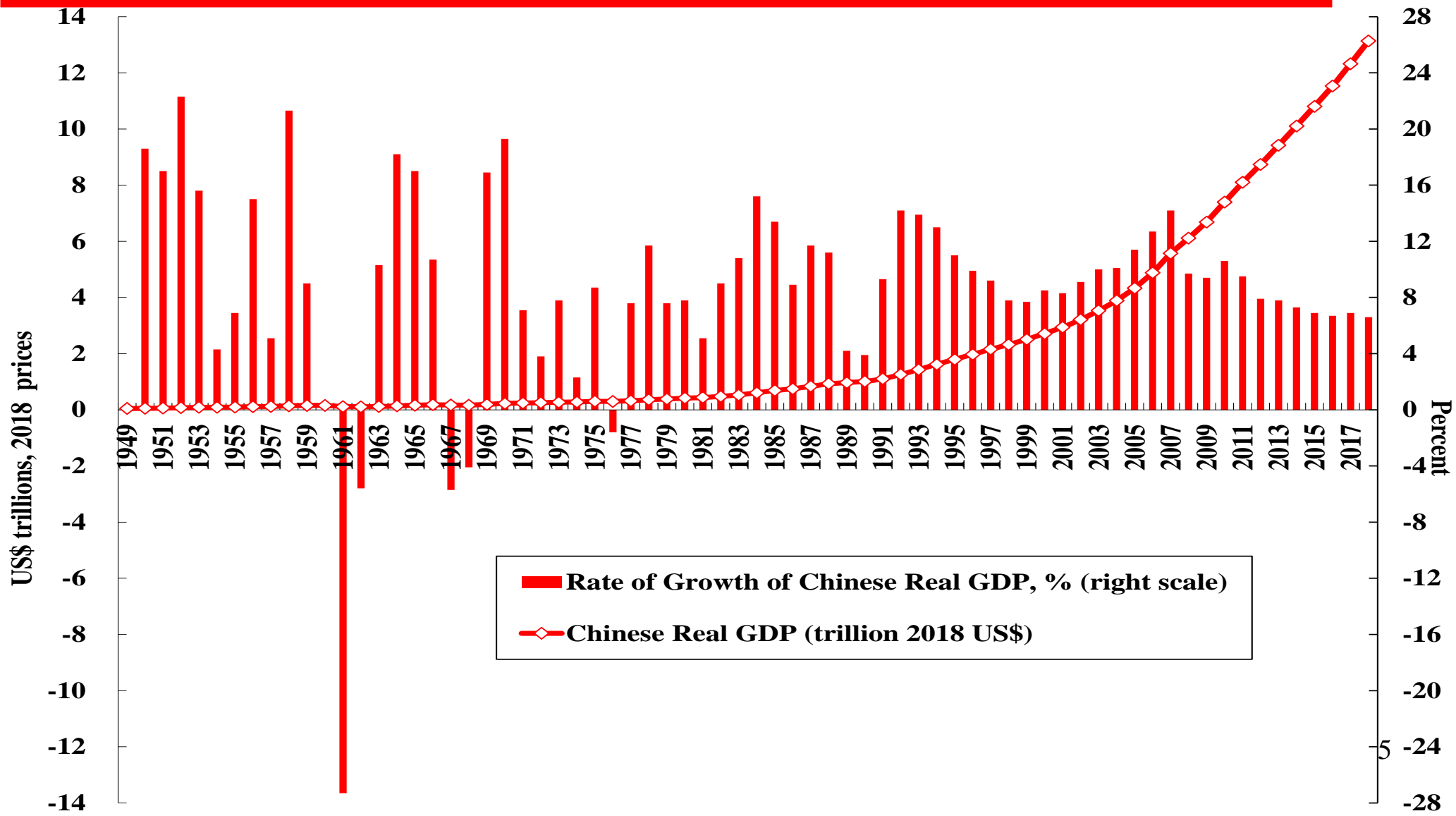
Outline

- ◆ Introduction
- ◆ The Economic Fundamentals
- ◆ The Initial Economic Inefficiency
- ◆ The Sources of Chinese Economic Growth
- ◆ Projections of the Future
- ◆ Concluding Remarks

Introduction

- ◆ The Chinese economy has been growing without any interruption at an average annual real rate of almost 10 percent since 1978, even though it has slowed down to an average rate of growth of around 6.5 percent in more recent years. Chinese GDP grew from US\$358 billion in 1978 to US\$13.1 trillion in 2018 (in prices and at exchange rate of 2018), almost 37 times, to become the second largest economy in the world, with almost two-thirds (64.1% to be exact) of the GDP of the largest economy, the United States.
- ◆ In terms of Purchasing Power Parity (PPP) GDP, according to the International Monetary Fund (IMF), China ranked first in the world, with 25.3 trillion international dollars, followed by the U.S. with 20.5 trillion, in 2018. Both the World Bank and the CIA World Factbook put Chinese and U.S. PPP GDP at more than 23 and 19.4 trillion international dollars respectively.

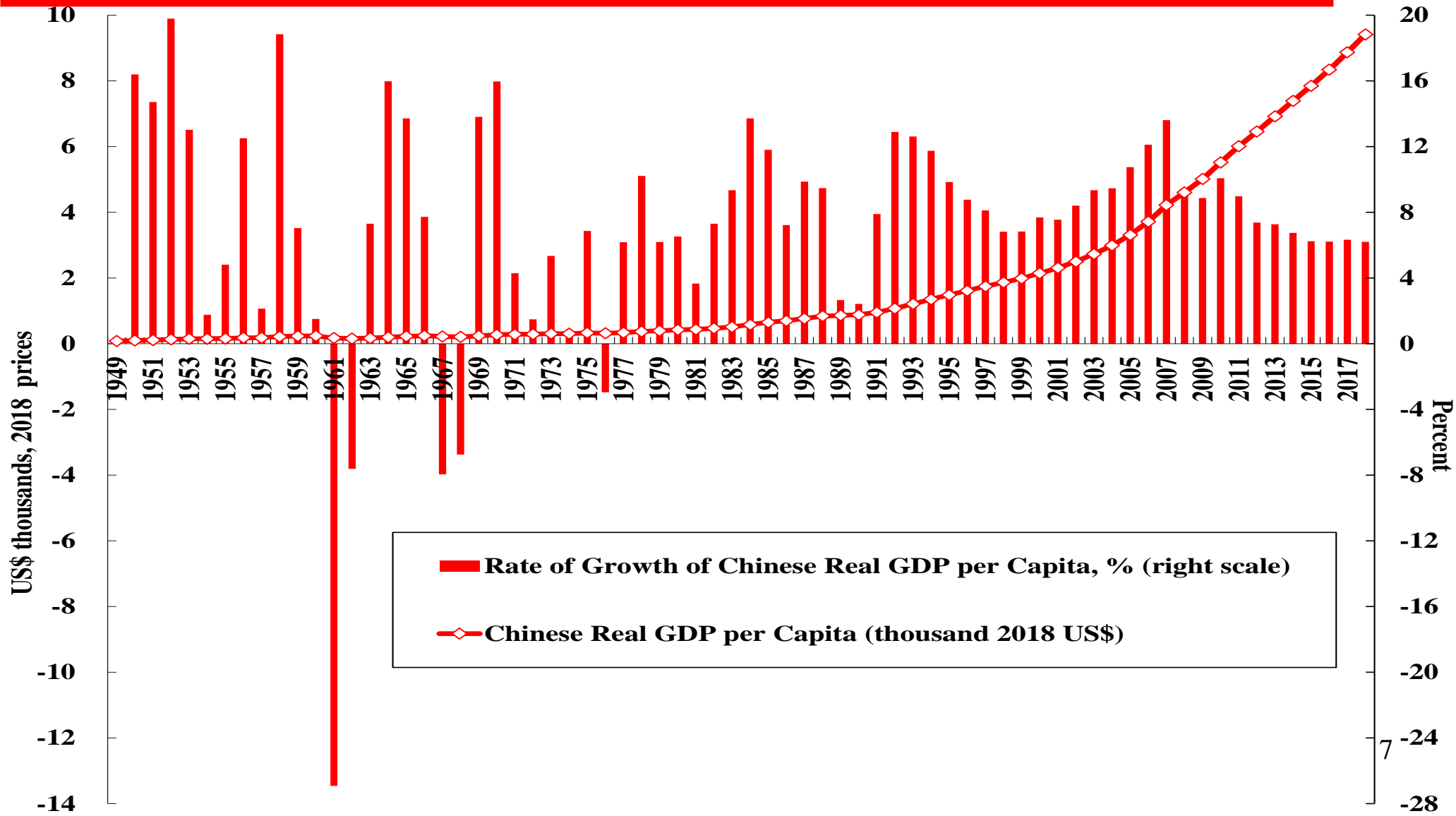
Chinese Real GDP and Its Annual Rate of Growth (trillion 2018 US\$ and %)



Introduction

- ◆ Chinese real GDP per capita grew from US\$372, approximately equal to the United Nations minimum subsistence level of US\$1 a day, in 1978 to US\$9,415 in 2018 (in 2018 prices), at an average annual rate of over 8 percent, without any interruption, achieving a more than 25-fold increase. Even then, China as a country still only ranked below seventieth in terms of real GDP per capita in the world. And its real GDP per capita was still only 15% of the U.S. real GDP per capita of US\$62,609 in 2018.
- ◆ In terms of PPP GDP per capita, according to the IMF, China ranked 73rd in the world, with 18,110 international dollars, and the U.S. ranked 10th, with 62,606, in 2018. Both the World Bank and the CIA World Factbook put Chinese and U.S. PPP GDP per capita at less than 17,000 (ranked 76th by the World Bank) and 59,500 (ranked 11th by the World Bank) international dollars respectively in 2017.

Chinese Real GDP per Capita and Its Annual Rate of Growth (thousand 2018 US\$ and %)



Introduction

- ◆ What are the sources of this unprecedentedly high and sustained rate of economic growth? Can Chinese economic growth of the past forty 40 years be understood in conventional economic terms?
- ◆ Of course, one obvious explanation of a high rate of growth of real output is the high rates of growth of the inputs—tangible capital, labour and human capital. Their rates of growth have indeed been high for China, both before and after the economic reform of 1978. The economic reform and opening of the Chinese economy which began in 1978 obviously had a positive impact. But there were also other factors at work as well in the Chinese economy: for example, the growth of intangible capital such as Research and Development (R&D) capital, the existence of significant economies of scale, the initial slack in the economy prior to the economic reform in 1978, and technical progress (or equivalently the growth of total factor productivity (TFP)).
- ◆ What are the relative contributions of these different sources of economic growth since 1978? How much of the Chinese economic growth is due to the growth in inputs, and how much is due to increases in efficiency (or equivalently technical progress or the growth of TFP)? How much is due to “working harder”? And how much is due to “working smarter”?

The 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 labour—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.

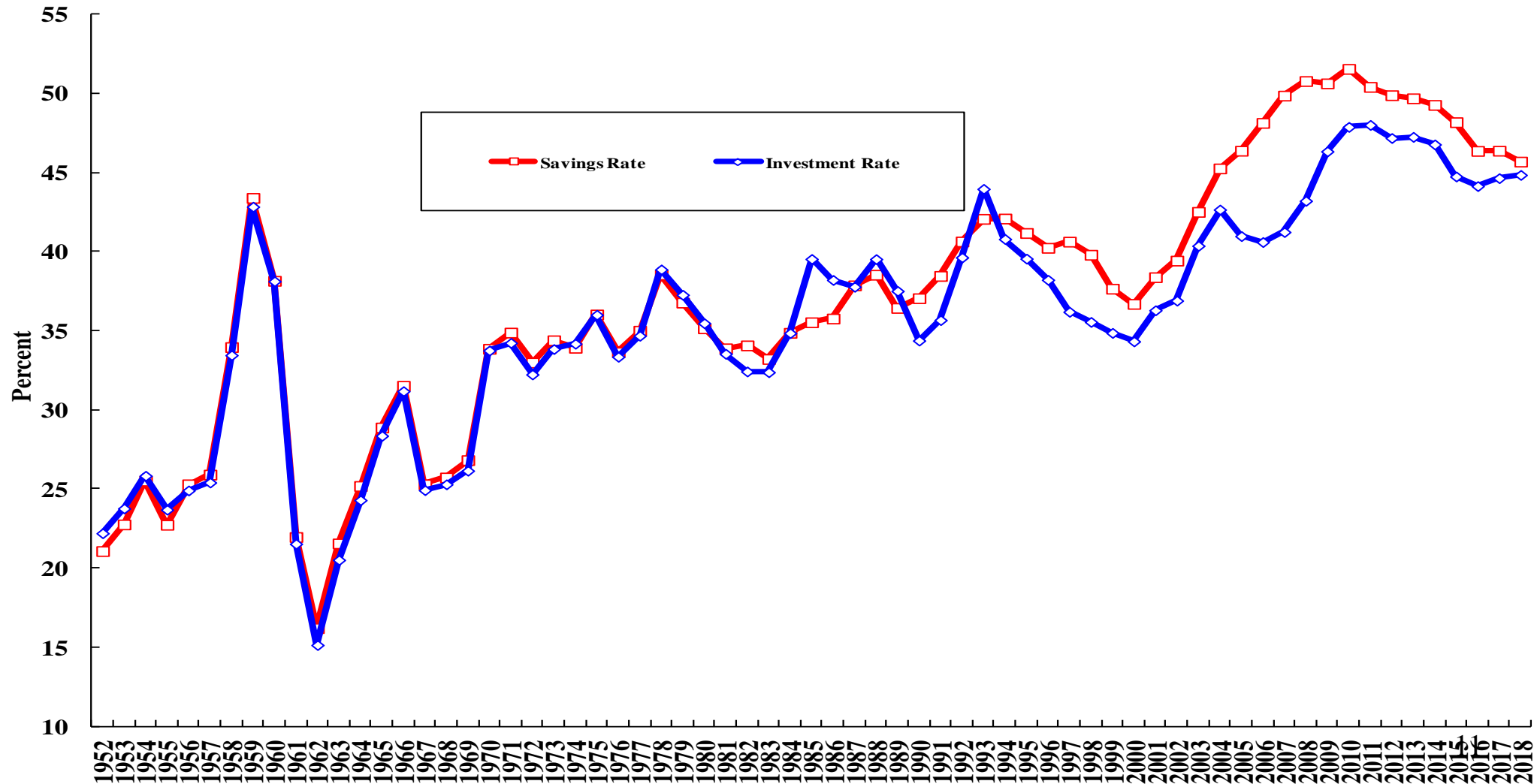
The Economic Fundamentals:

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 (1959-61) and the Great Proletariat Cultural Revolution (1966-1976). Since the early 1990s, the Chinese national saving rate has stayed around 40% and has at times approached or even exceeded 50% in some years. See the following chart.
- ◆ 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. 10

Chinese National Savings and Gross Domestic Investment as Percents of GDP

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



The 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 and 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 savings 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.

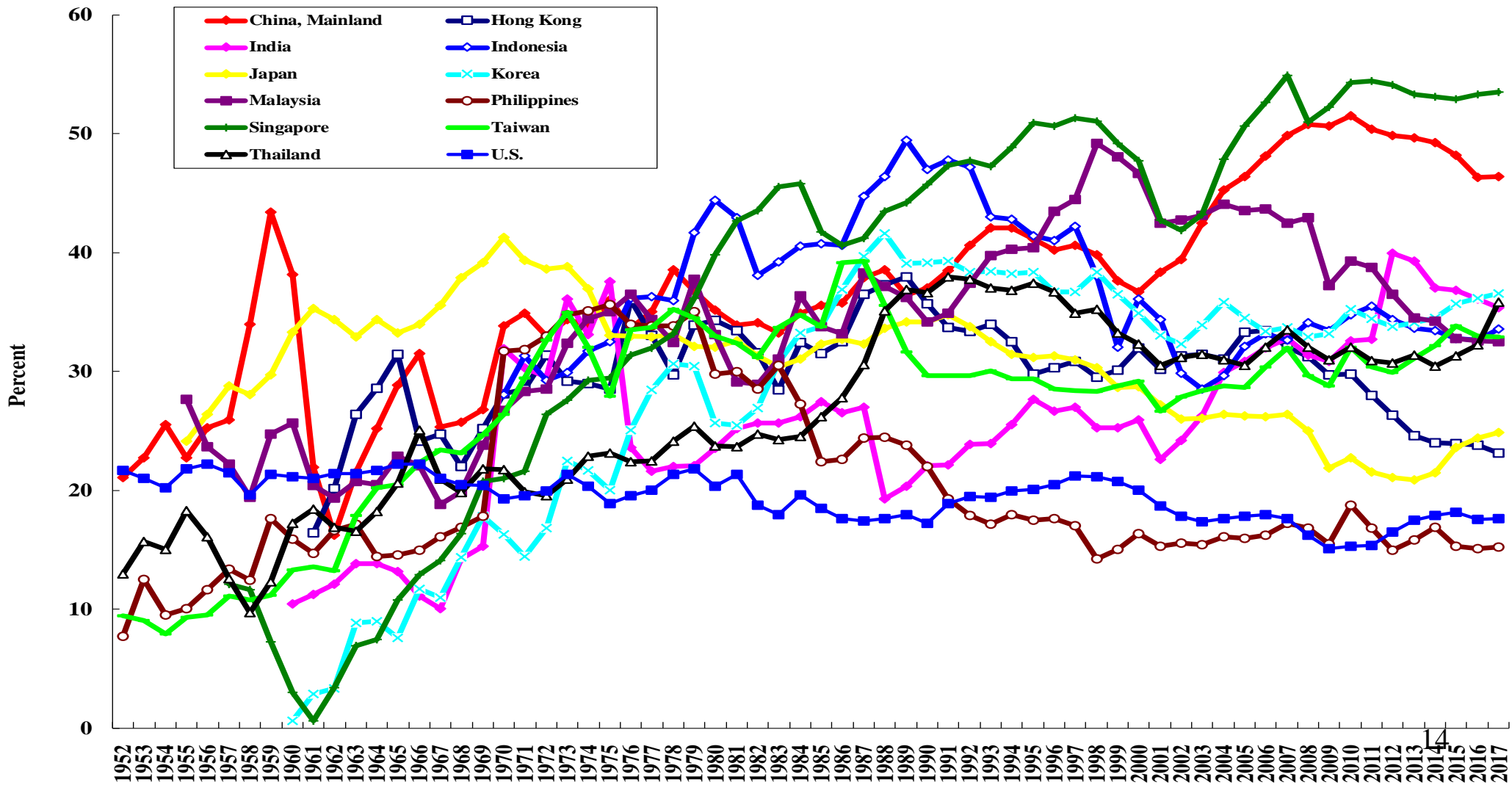
The Economic Fundamentals:

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-owned 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 labour 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.

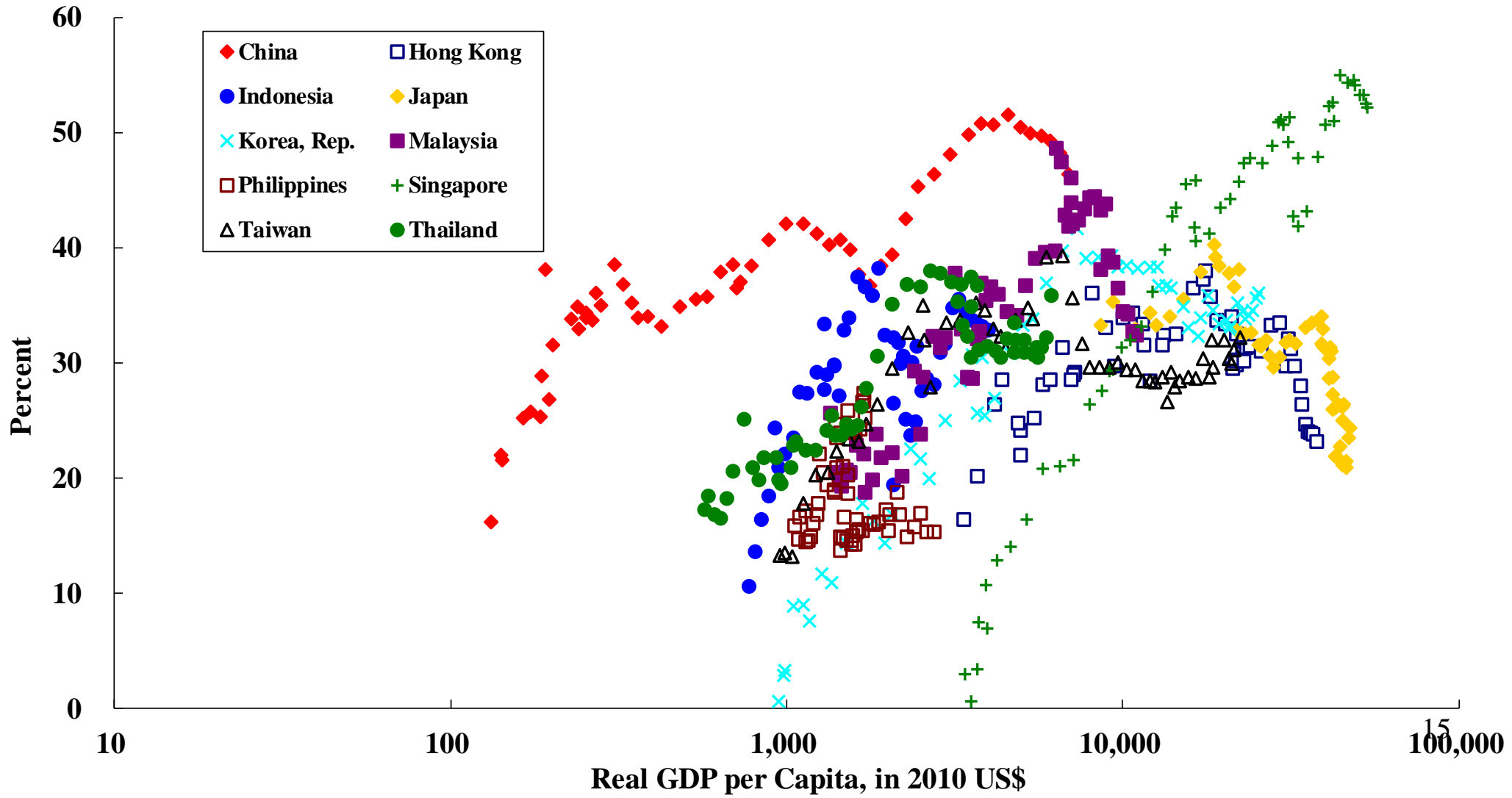
Saving Rates of Selected Economies, 1952- Present

Savings Rates of Selected East Asian Economies, 1952-present



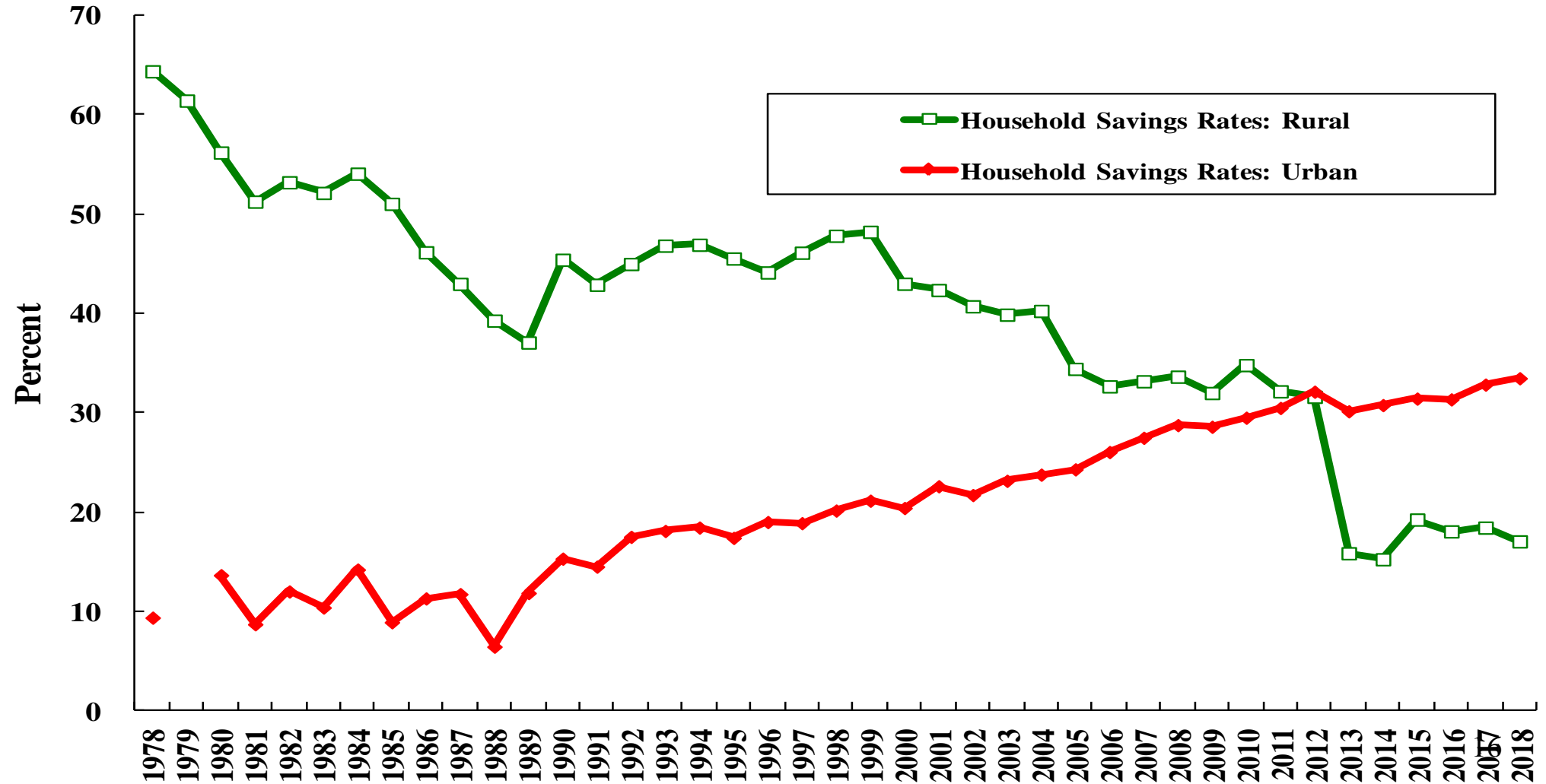
The Savings Rate and Real GDP per Capita: East Asian Economies

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



Savings Rates of Chinese Urban and Rural Households

Savings Rates of Chinese Urban and Rural Households



The Economic Fundamentals:

The High Domestic Savings Rate

- ◆ One policy that pre-dated the economic reform of 1978 was the low-wage policy in the non-agricultural sector. Prior to 1978, all workers in the non-agricultural sector were employed, directly and indirectly, by the state, which could unilaterally dictate the wage rate and other conditions of employment, being the sole employer. A low-wage policy would minimise the disposable income of the non-agricultural workers and hence aggregate non-agricultural household consumption and maximise the profits of state-owned enterprises (SOEs), which would in turn help to keep the national savings rate high.
- ◆ Moreover, a continuing low wage rate in the non-agricultural sector would enhance its capacity to absorb the continuing inflow of the surplus labour from the agricultural sector and putting it to much higher productivity use in the non-agricultural sector.

The Economic Fundamentals:

The High Domestic Savings Rate

- ◆ The one-child policy, adopted in 1979 and implemented in September 1980, almost concurrently with the beginning of the economic reform, was also supportive of the high domestic savings rate. The policy remained in force until the beginning of 2016.
- ◆ It has had a large impact on the population trajectory of China. Without the one-child policy, the Chinese population would have been at least a couple of hundreds of million persons larger today, implying a much higher aggregate household consumption, a lower national savings rate, a greater demand for social services, slower GDP growth, higher unemployment rate, lower real GDP per capita, higher prices for food and other necessities, and much greater damage to the environment.
- ◆ However, the demise of the one-child policy was also timely, perhaps even slightly overdue, as the Chinese working-age population had begun to decline, the Chinese society had begun to age, and the Chinese dependency ratio had begun to rise.

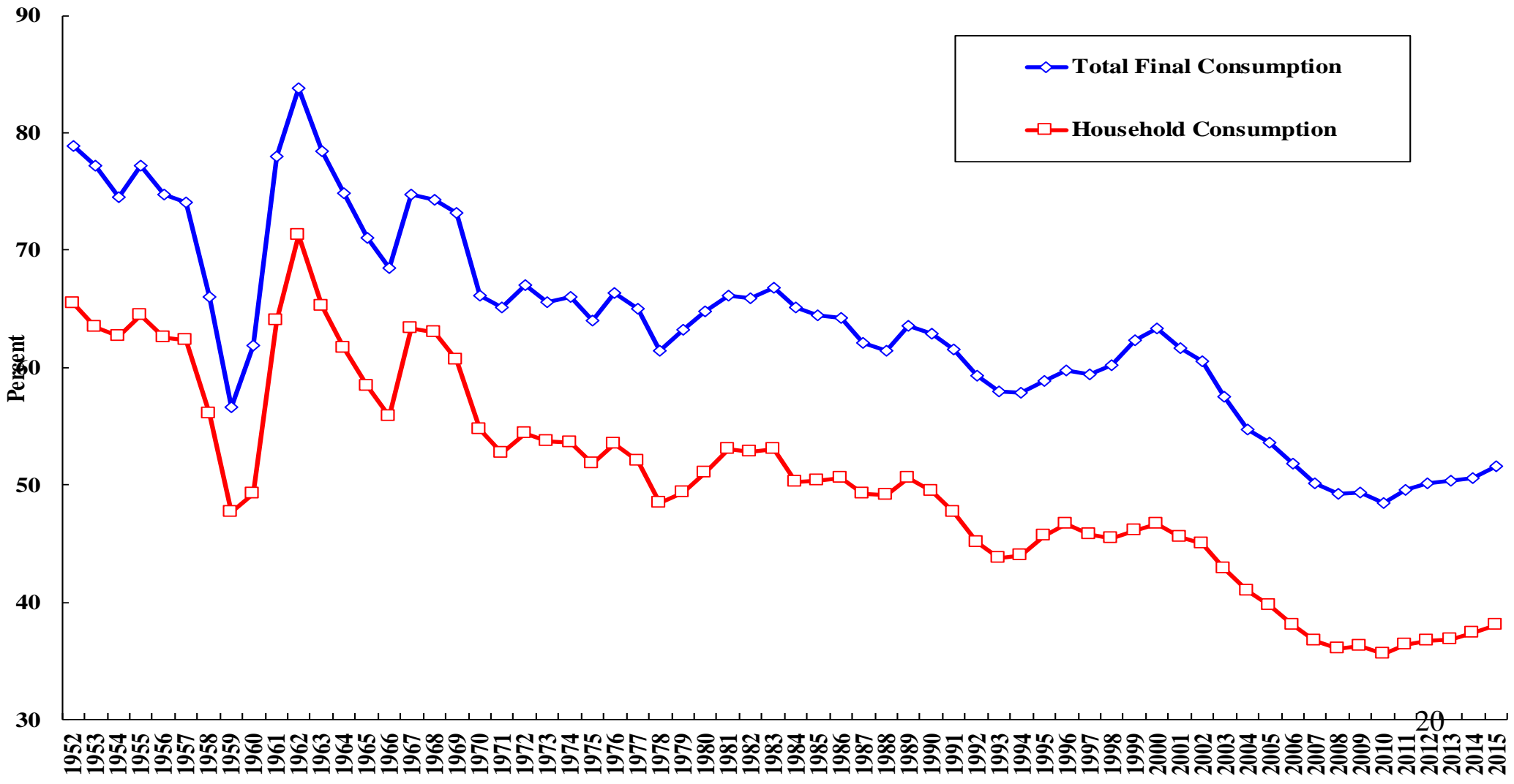
The Economic Fundamentals:

The High Domestic Savings Rate

- ◆ Another 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 current government 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



The Economic Fundamentals: The Abundant Surplus Labour

- ◆ Surplus labour 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 labour 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 labour is removed from the agricultural sector, it will not cause the agricultural output to decline. That is why the labour is referred to as “surplus”.
- ◆ In contrast, the potential marginal productivity of labour in the non-agricultural sector is much higher than that of the agricultural sector so that on the margin, a transfer of labour 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 labour in the non-agricultural sector.

The Economic Fundamentals:

The Abundant Surplus Labour

- ◆ Investment in tangible or physical capital such as structure, equipment and basic infrastructure is very productive under conditions of surplus labour. As long as there is sufficient complementary domestic physical capital, the surplus labour 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 labour sixty years ago.
- ◆ China, like Japan, Taiwan, and South Korea in their respective early stages of economic development, has an almost unlimited supply of surplus labour—there is therefore no shortage of and no upward pressure on the real wage rate of unskilled, entry-level labour in the non-agricultural sector. This means the Chinese economy can continue to grow without being constrained by the supply of labour or by rising real wage rates of unskilled, entry-level labour over an extended period of time.

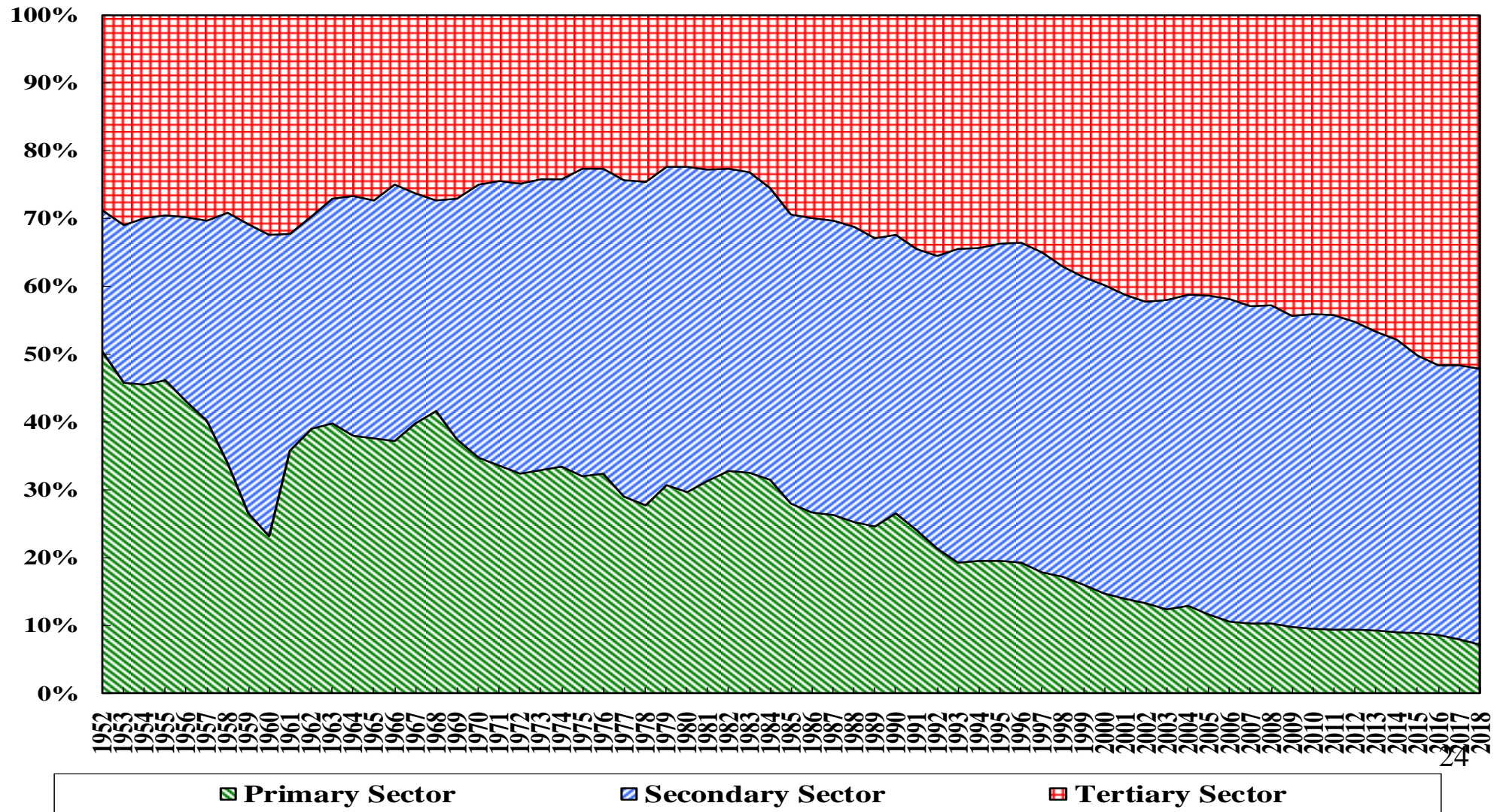
The Economic Fundamentals:

The Abundant Surplus Labour

- ◆ The distribution of Chinese GDP by production-originating sectors in 2017 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 2017 was: Primary, 28%; Secondary, 29%; and Tertiary, 43%.
- ◆ The agricultural sector employed 28% of the Chinese labour force but produced only 9.0% of the Chinese GDP in 2017. Thus labour can be productively transferred to the other two sectors where labour productivities and wage rates are higher as long as complementary capital and output demand are available.

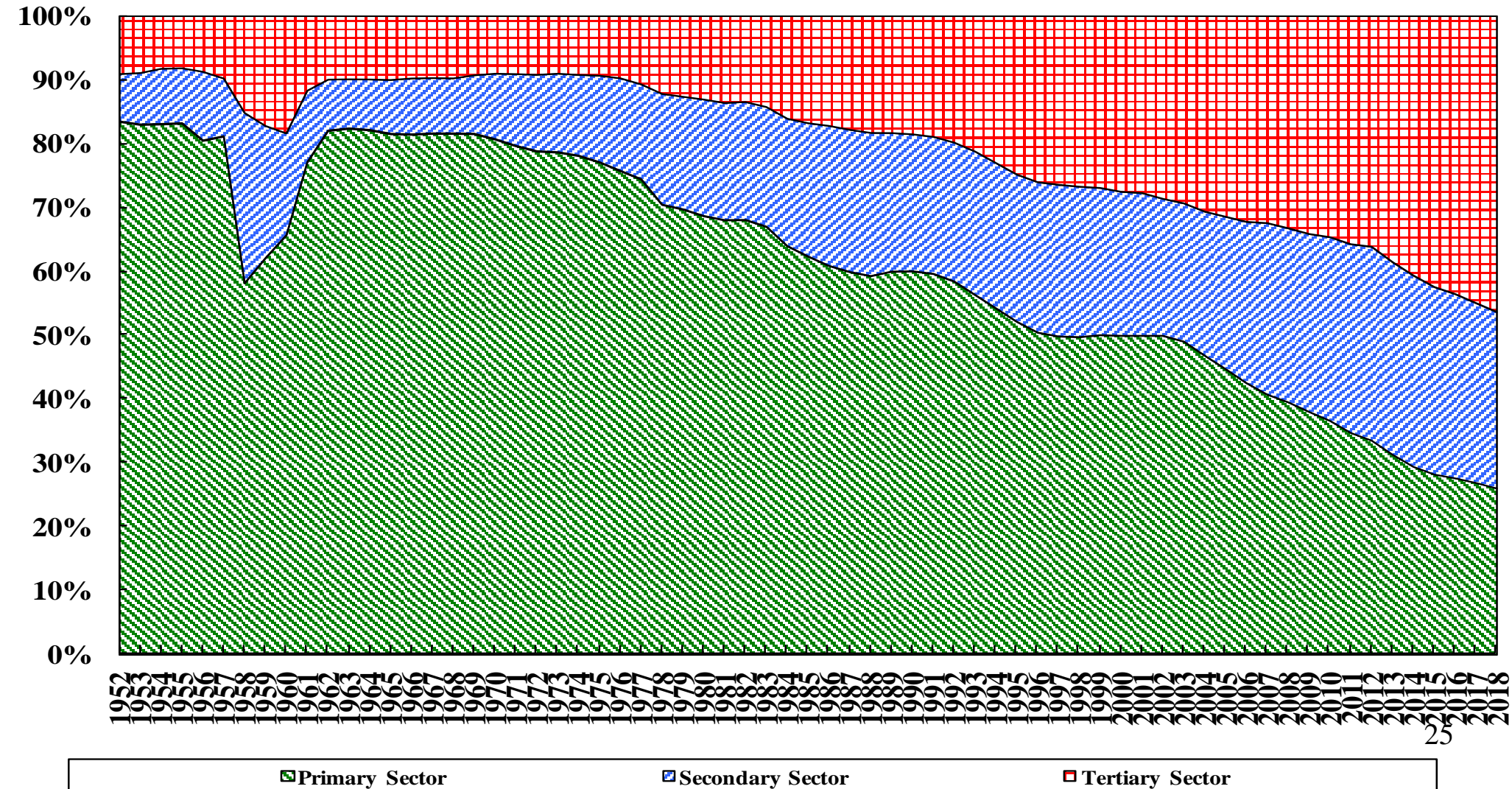
The Distribution of Chinese GDP by Sector Since 1952

The Distribution of Chinese GDP by Originating Sector Since 1952



The Distribution of Chinese Employment by Sector Since 1952

The Distribution of Employment by Sector since 1952



The Economic Fundamentals: The Abundant Surplus Labour

- ◆ Hence, as long as the percentage of labour 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 labour in the secondary and tertiary sectors. Surplus labour 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 labour in the long run. However, 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 labour force.

The 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)—its R&D expenditure has been rising rapidly, both in absolute value, and as a percentage of GDP. But it missed its target of 2.2 percent of GDP by 2015 by 0.1 percent and 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.)
- ◆ 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.

The 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.

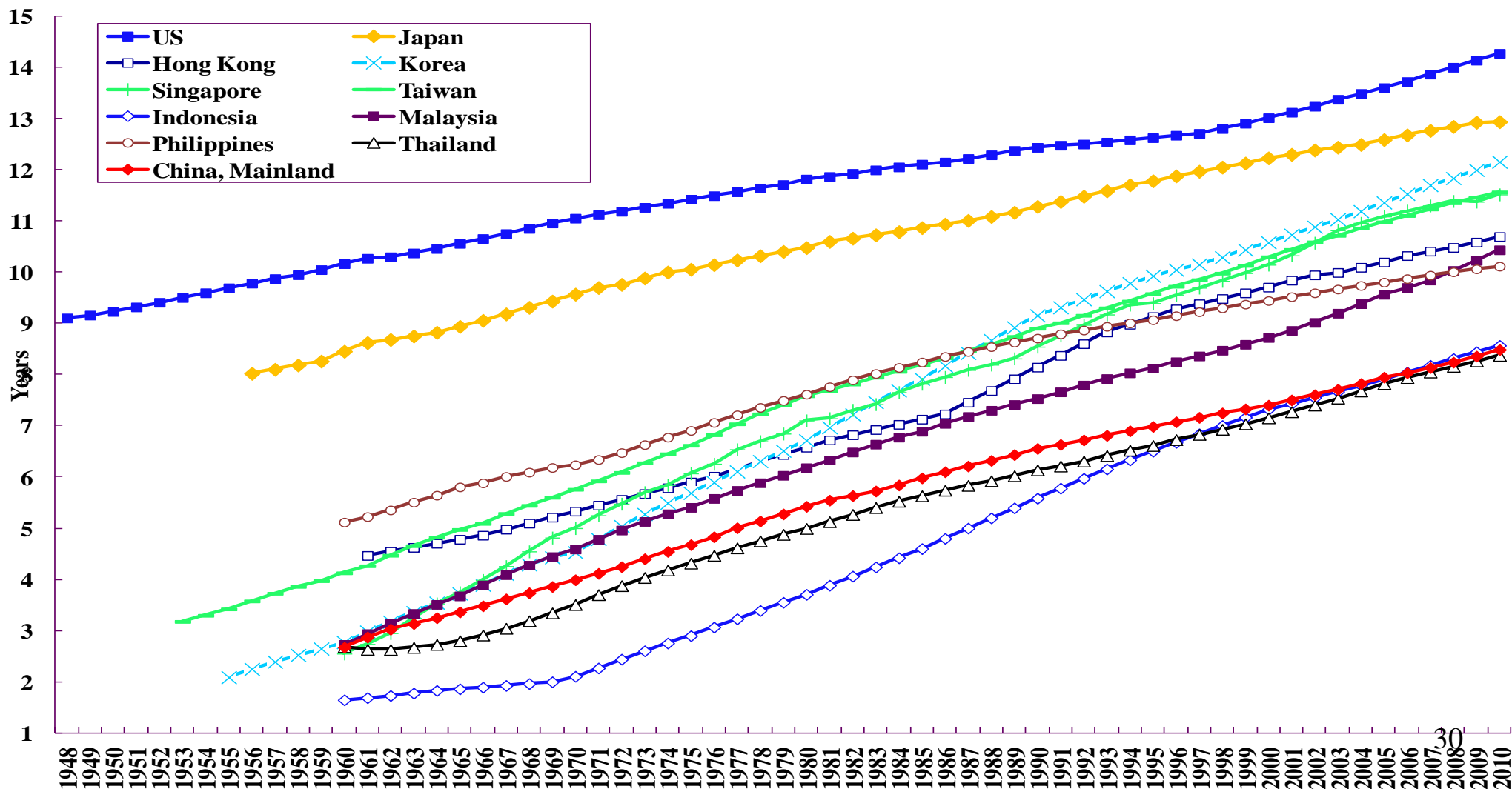
The Economic Fundamentals:

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)

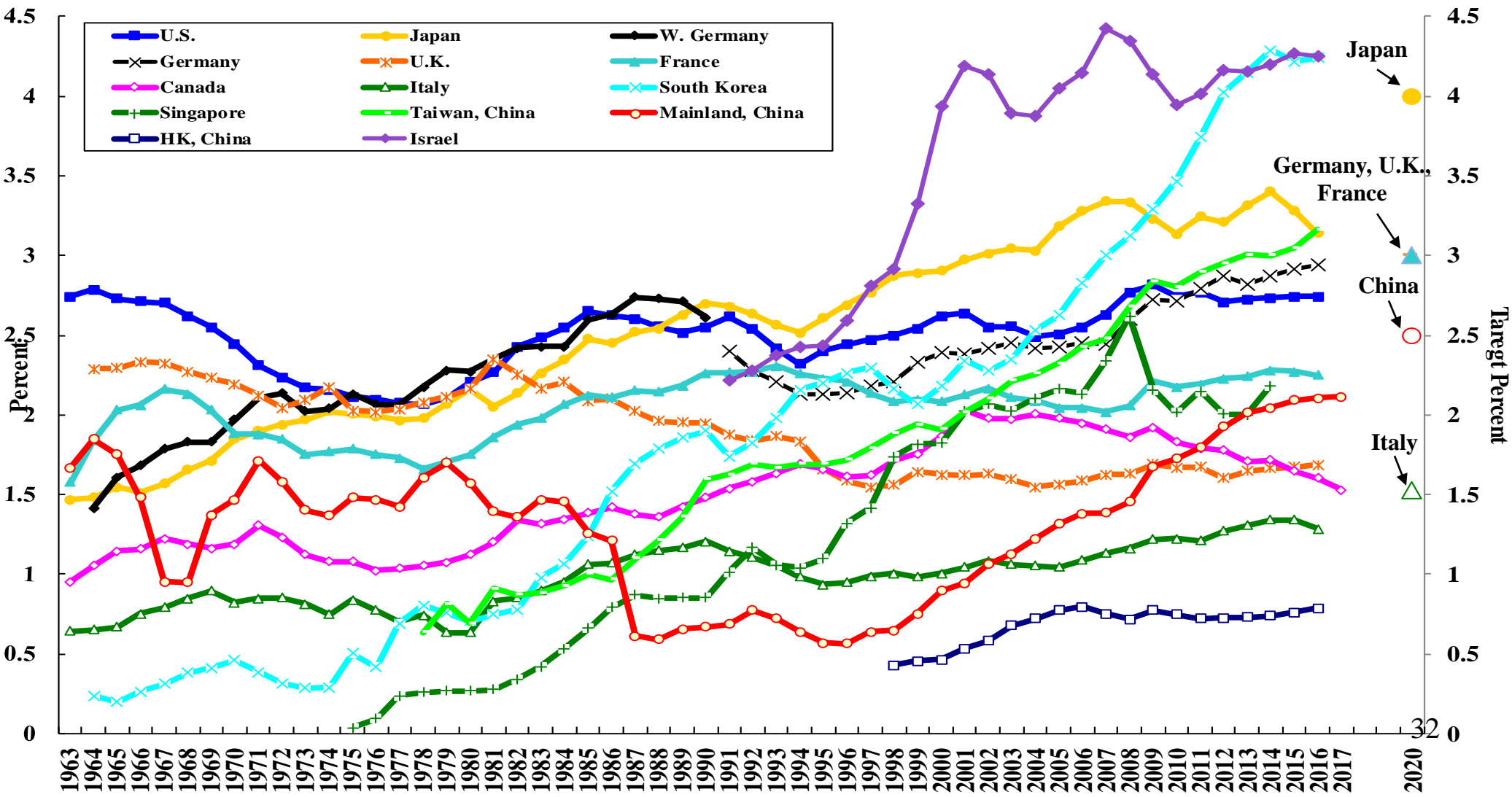


Investment in Intangible Capital (Human and R&D Capital)

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

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

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



The Economic Fundamentals:

R&D Capital Stock

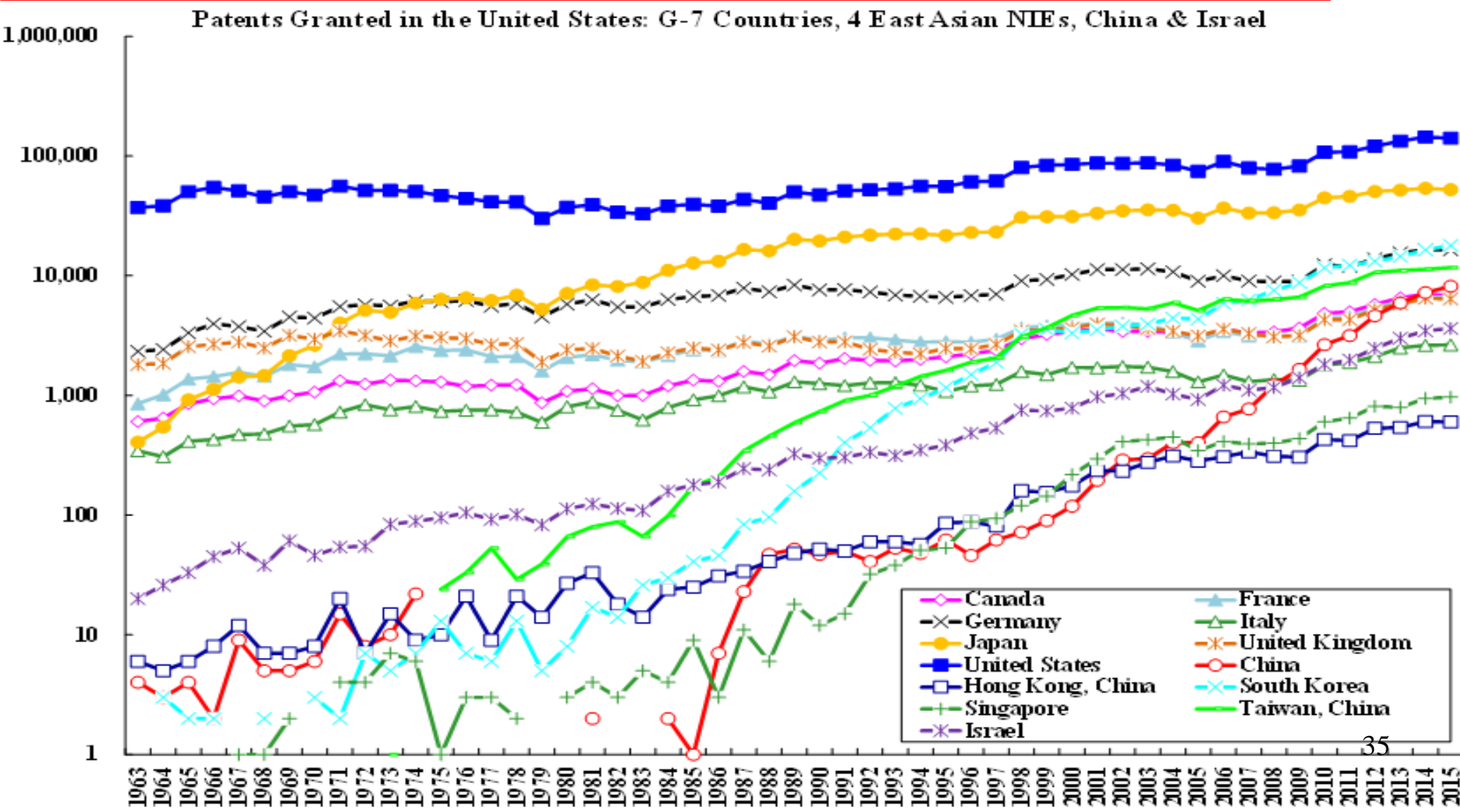
- ◆ The R&D capital stock, defined as the cumulative past real expenditure on R&D less the depreciation of 10% per year, is an useful indicator of innovative capacity. It should quite properly be treated as capital since R&D efforts generally take years to yield any results.
- ◆ Lawrence J. Lau and Yanyan 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.

The Economic Fundamentals:

Investment in R&D Capital

- ◆ One indicator of the potential for technical progress is the number of patents created each year. In the following chart, the number of patents granted in the United States each year to the nationals of different countries, including the U.S. itself, over time is presented.
- ◆ The U.S. is the undisputed champion over the past forty years, with 140,969 patents granted in 2015, followed by Japan, with 52,409. (Since these are patents granted in the U.S., the U.S. may have a home advantage; however, for all the other countries and regions, the comparison across them should be fair.)
- ◆ The number of patents granted to Mainland Chinese applicants each year has increased from the single-digit levels prior to the mid-1980s to 8,166 in 2015.
- ◆ The economies of South Korea and Taiwan, granted 17,924 and 11,690 U.S. patents respectively in 2015, were far ahead of Mainland China. In contrast, the number of U.S. patents granted to Hong Kong nationals was only 601 in 2015.

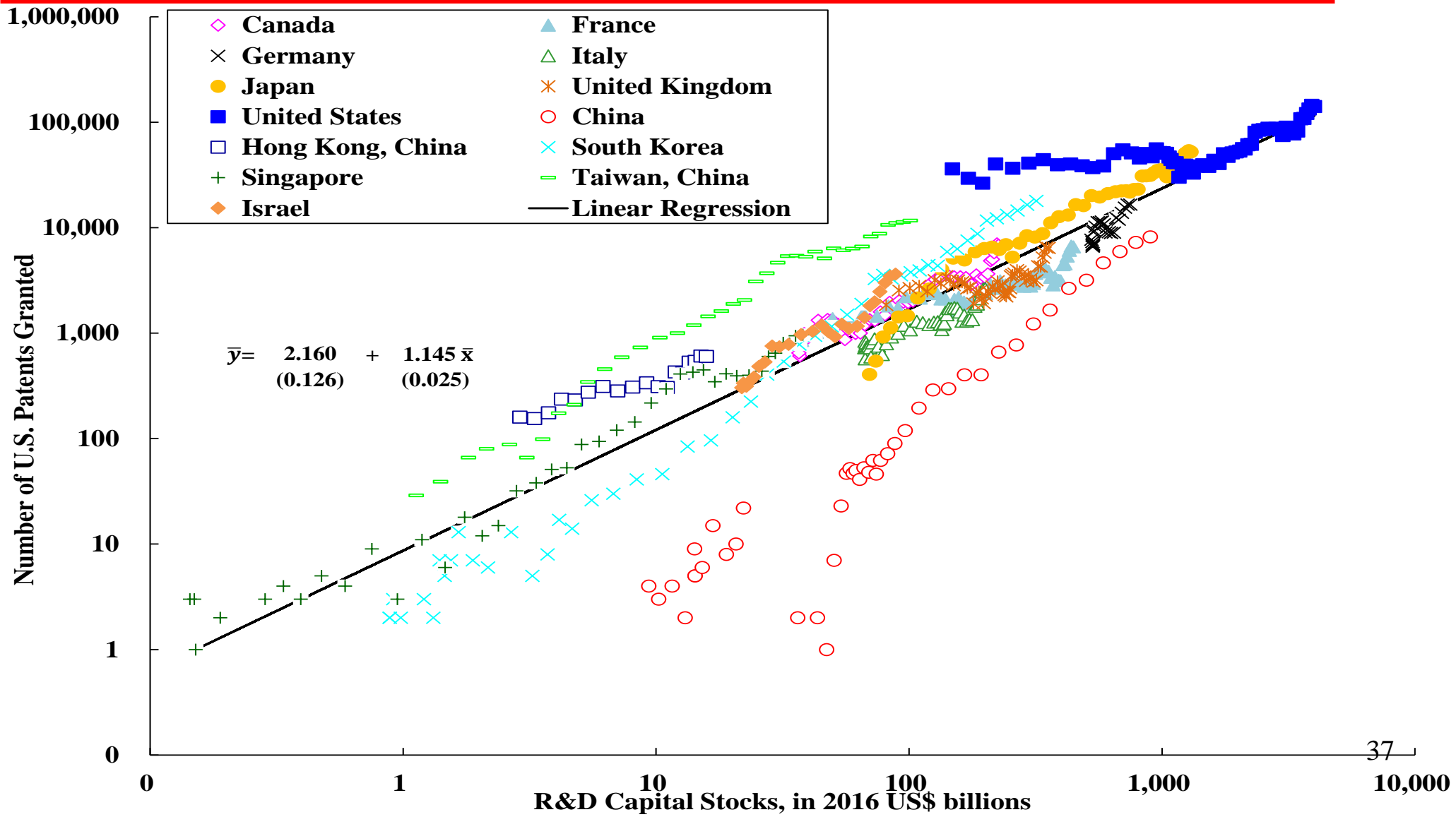
Patents Granted in the United States: G-7 Countries, 4 East Asian NIEs, China & Israel



The Economic Fundamentals: Investment in R&D Capital

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

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

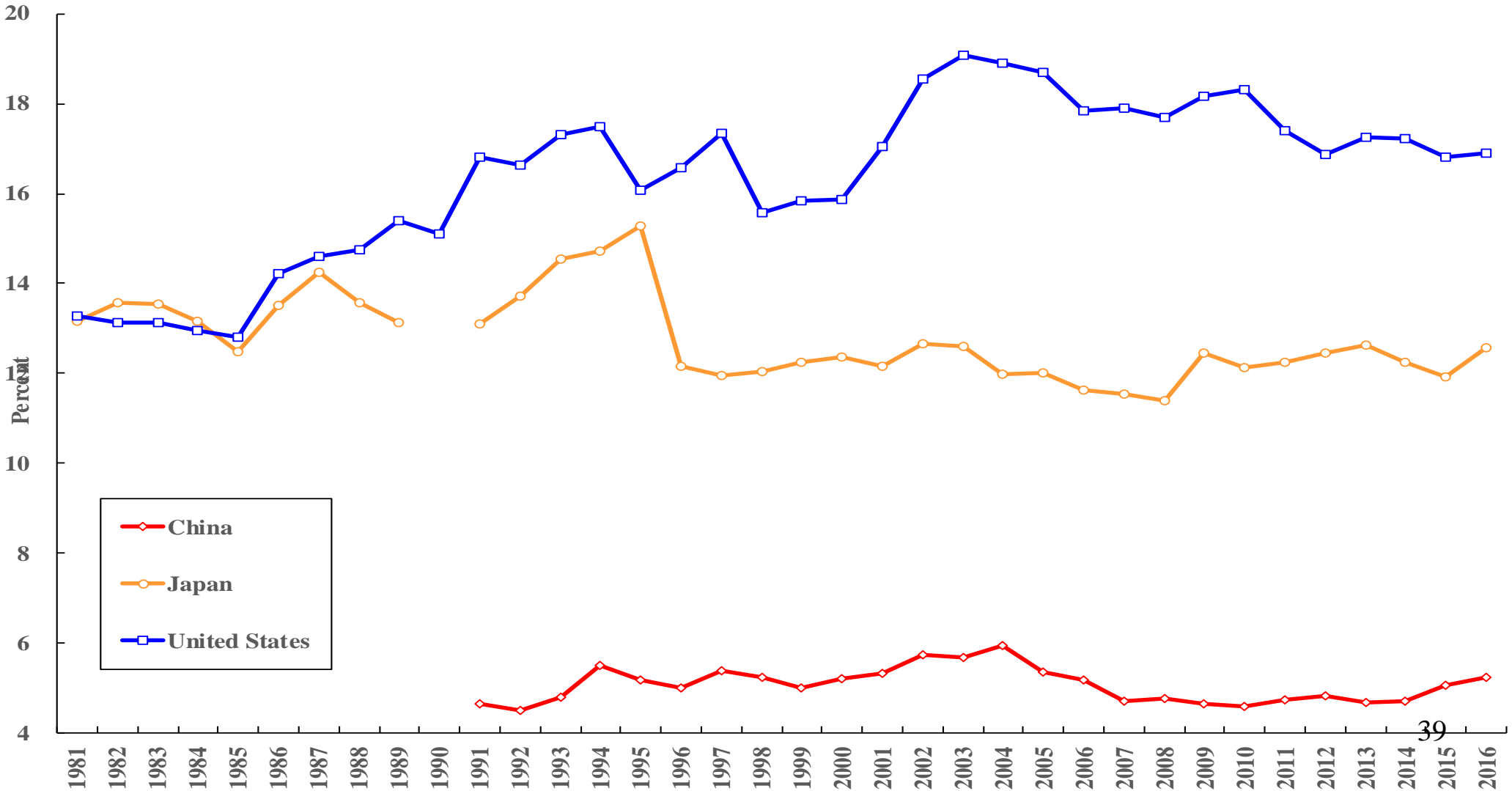


The Economic Fundamentals: Investment in R&D Capital

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

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

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



The 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.)

The Economic Fundamentals:

The Huge Domestic Market

- ◆ An economy with significant economies of scale will grow faster than an economy with constant returns to scale given the same rates of growth of the measured inputs. The degree of returns to scale at the economy-wide level is not precisely known. The assumption used by 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 1.1 times. On the assumption that this also holds for the Chinese economy, it implies that Chinese economic growth will be 10 percent higher each year than an economy with the same rates of growth of capital and labour inputs but without the economies of scale. Of course, the effects of economies of scale are sometimes confounded with those of technical progress or growth of total factor productivity (there is an identification problem). However, if there were economies of scale at all, they should be manifested in the Chinese economy.

The Economic Fundamentals:

The Huge Domestic Market

- ◆ Suppose the annual rates of growth of the inputs in the economy are 7%. Under constant returns to scale, the economy will grow at 7% per annum. However, under increasing returns to scale of degree 1.1, the economy will grow at 7.7% per annum. In 10 years, the economy with economies of scale will be 7% larger than the one without; in 20 years, 14%; and in 40 years, 31%, a significant difference. Thus, the existence of economies of scale can make a huge difference in the level of GDP in a few decades. Moreover, economies of scale can increase the rates of return to investment and may lead to higher investment rates than otherwise.

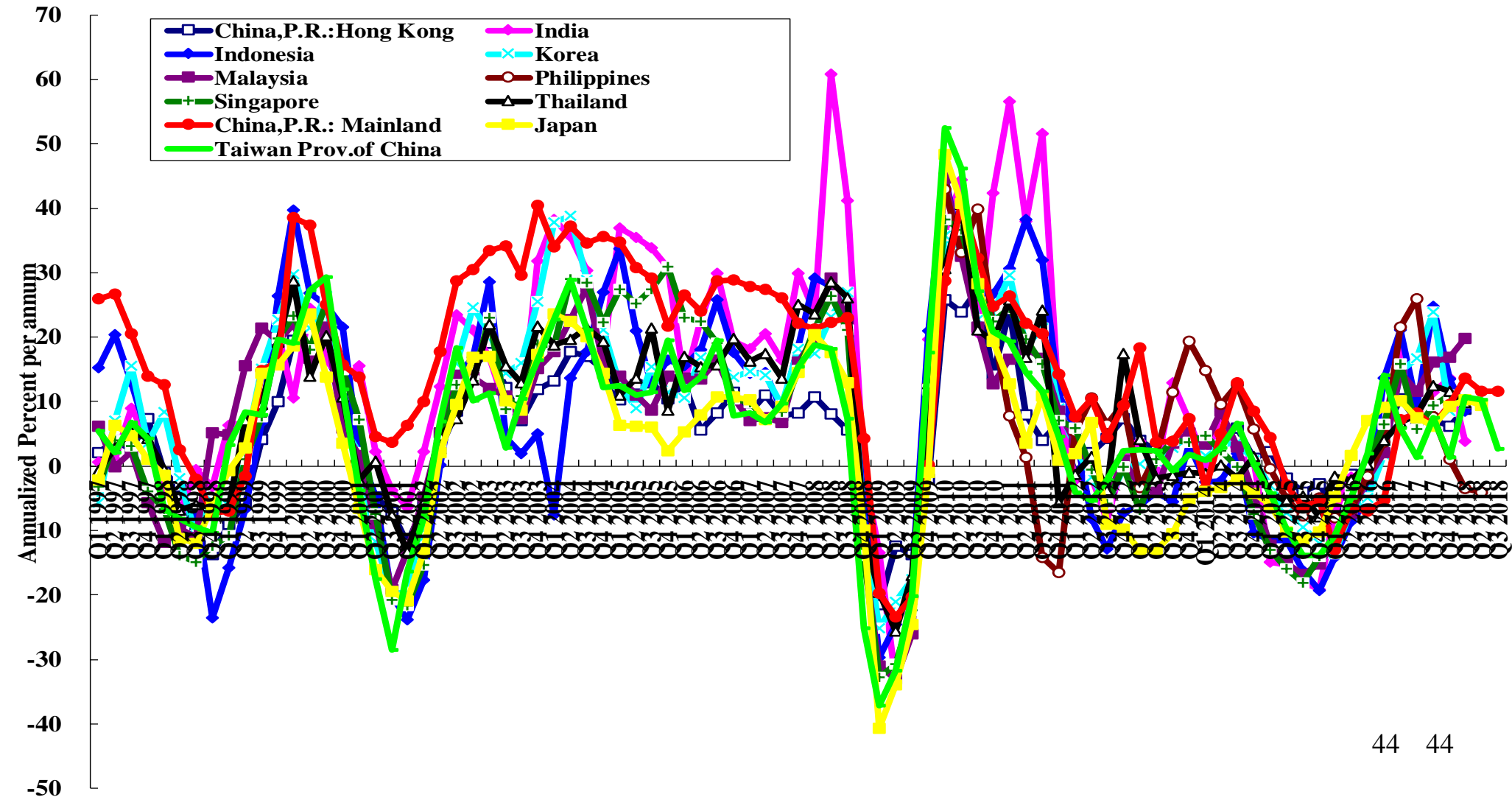
The Economic Fundamentals:

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.)

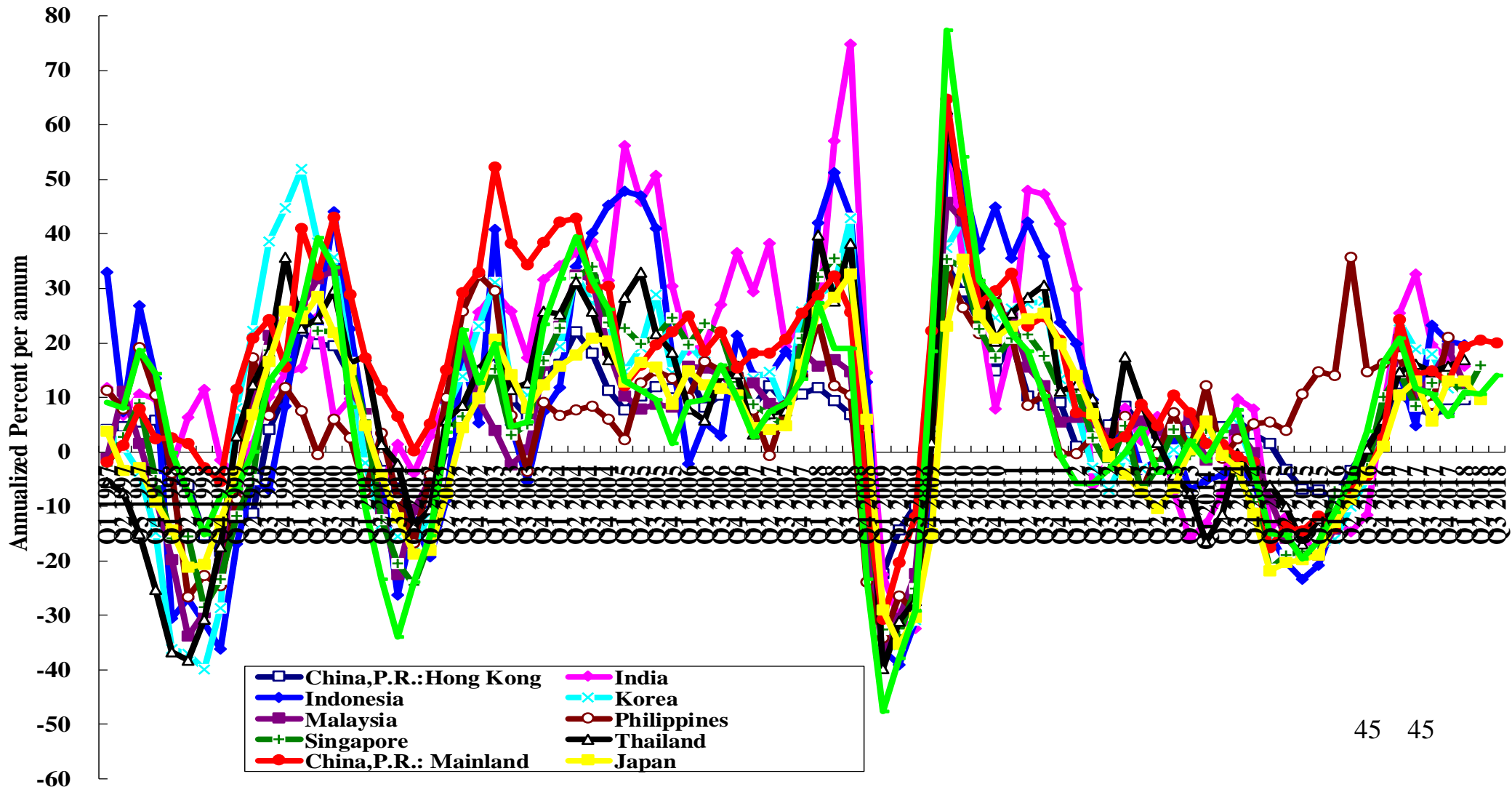
Quarterly Rates of Growth of Exports of Goods: Selected Asian Economies

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



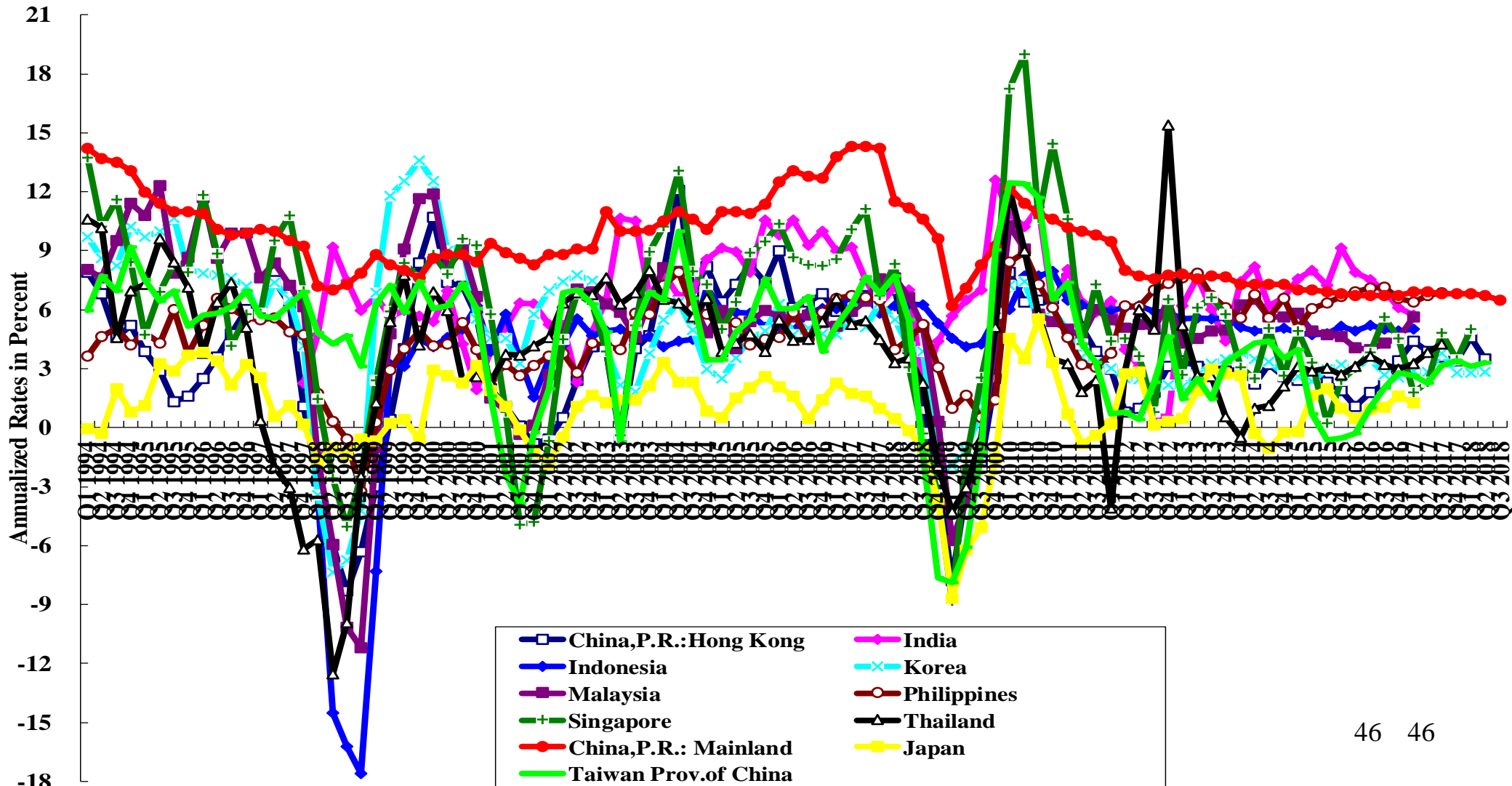
Quarterly Rates of Growth of Imports of Goods: Selected Asian Economies

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 “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 labour and face labour 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

- ◆ 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 Sources of Economic Growth:

The Relative Backwardness

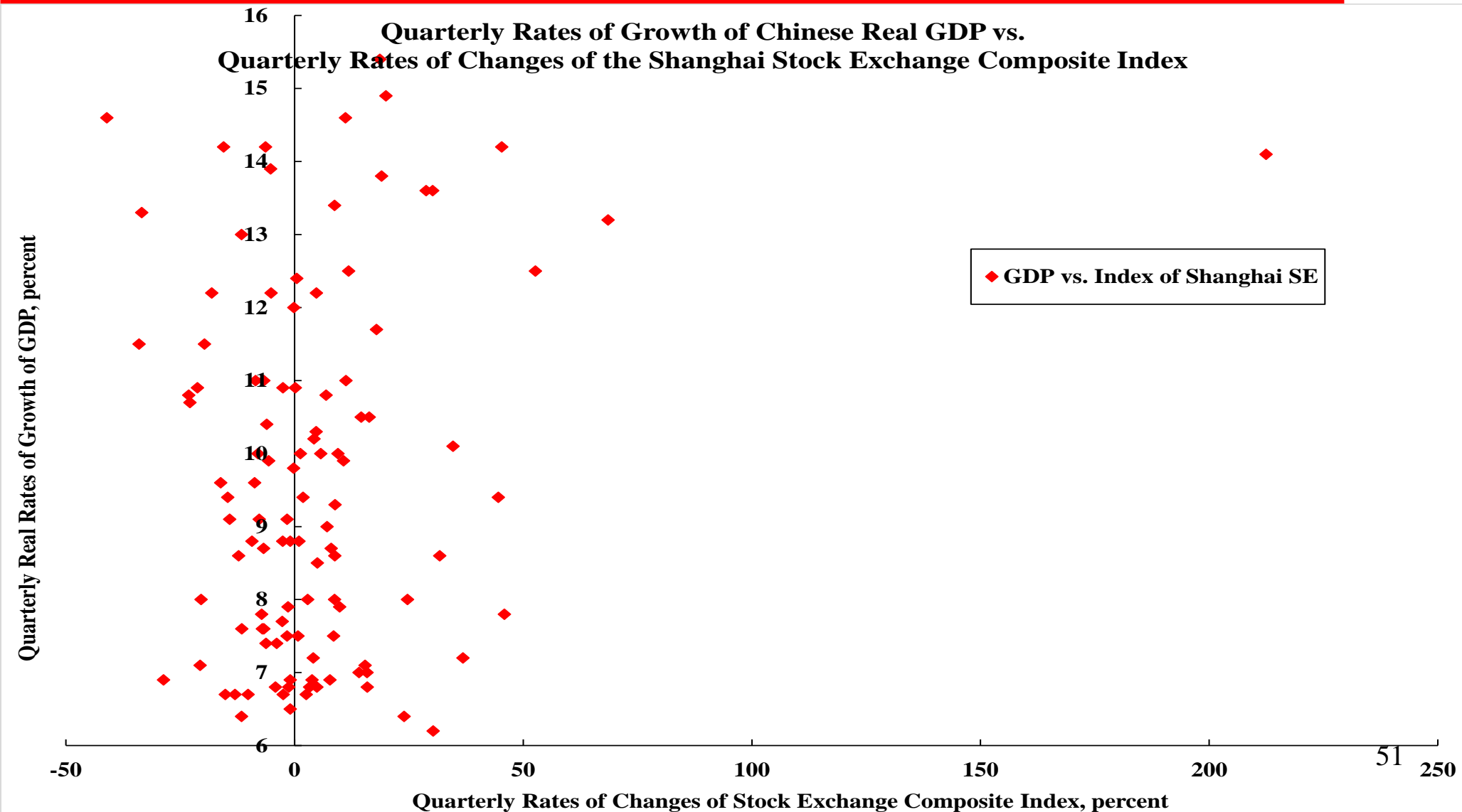
- ◆ In addition to a high domestic savings rate, abundant surplus labour, rising investment in intangible capital (human capital and R&D capital), and the huge domestic market, China also has the advantage of relative backwardness.
- ◆ Thus, the Chinese economy has:
 - ◆ The ability to learn from the 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).

The Sources of Economic Growth:

The Unimportance of the Stock Market

- ◆ However, the Chinese stock markets are not a good barometer of the state of the Chinese real economy. There is essentially no correlation between the rate of growth of Chinese real GDP and the rate of growth of the Chinese stock market price index (see the following scatter diagram between the quarterly rates of growth of Chinese real GDP and the Shanghai Stock Exchange Composite Index).
- ◆ The majority (over 80%) of Mainland Chinese investors are individual retail investors. They are typically short-term traders who tend to leave the market at the first sign of potential trouble. The average holding period of individual Chinese investors is less than 20 trading days. The Chinese institutional investors have a slightly longer average holding period of between 30 and 40 trading days.
- ◆ The short holding period is due in part to the fact that Chinese publicly listed enterprises pay little or no cash dividends. Investors can make money only through frequent trading and have little incentive to hold a particular stock long term.

The Quarterly Rates of Growth: Real GDP versus the Stock Price Index



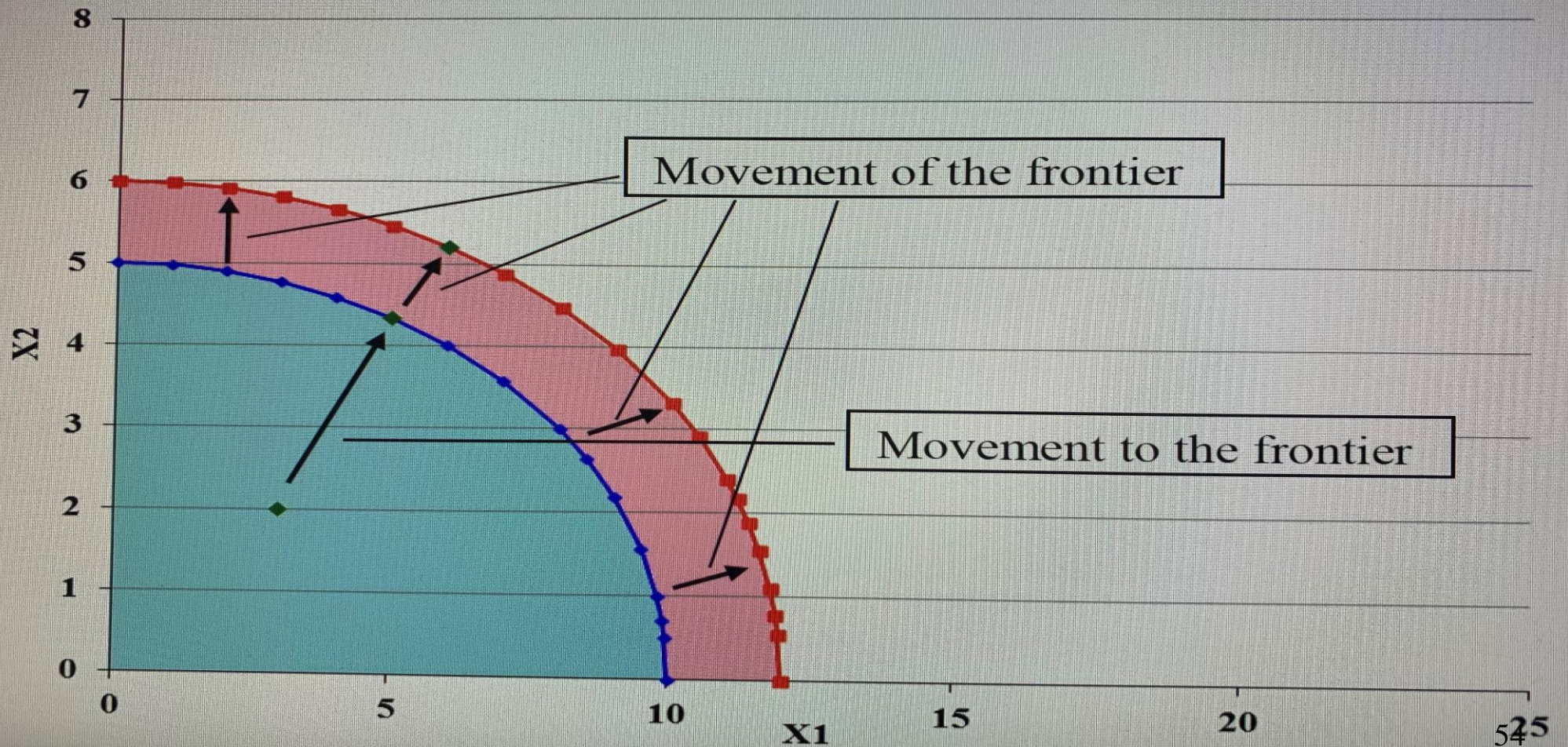
The Initial Economic Inefficiency

- ◆ From 1953 to 1978, China was a completely centrally planned economy with mandatory sector-, industry-, enterprise-, village- and farm-household-specific production targets, and was essentially closed to the rest of the world, except for the former Soviet Union and the Eastern European socialist countries before the Sino-Soviet dispute around 1960.
- ◆ The economic reform in China which began in 1978 consisted of two major components—the introduction of free markets for goods in the Chinese economy (coupled with conditional autonomy for the producers, including the agricultural households) and the opening of the Chinese economy to international trade and inbound cross-border direct investment.

The Initial Economic Inefficiency

- ◆ It is well known that there can be significant inefficiencies in centrally planned economies, with the economy operating well within the interior of its set of production possibilities—that is, far away from the frontier. As economic reform and opening proceeded successfully in China, the economy became progressively more efficient, and the point of operation of the economy began to move from the interior of the set of production possibilities to its frontier. During this process, the real output of the economy could be increased through increased efficiency alone without any increase in its inputs.
- ◆ Thus, with the introduction of enterprise and household autonomy, output could increase much faster than inputs. How much slack was actually there in the Chinese economy before its economic reform in 1978? Lau and Zheng (2017) have estimated that the real output of the Chinese economy as a whole in 1978 could have been 50 percent higher if it were operating efficiently.

Movement of the Production Possibilities Frontier versus Movement to the Frontier



The Sources of Chinese Economic Growth

- ◆ Lau (2018a) finds that Chinese economic growth since 1978 may be attributed to the following sources: (1) The realisation of the potential surplus output from the initial economic slack that existed before the economic reform (12.7%); (2) The growth of tangible capital (55.7%) and labour (9.7%) inputs; (3) Technical progress (or equivalently the growth of total factor productivity [(TFP)]) (8.0%); and (4) The effect of economies of scale (14.0%). In this case, technical progress also captures the effects of the growth of human capital and R&D capital inputs.
- ◆ These results confirm that 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.
- ◆ Thus, the growth of tangible capital is still the most important source of Chinese economic growth, and technical progress, or the increase in efficiency, other than the elimination of the initial slack, is still not yet an important source of growth for the Chinese economy, as it is in the developed industrialised economies.

The Sources of Chinese Economic Growth

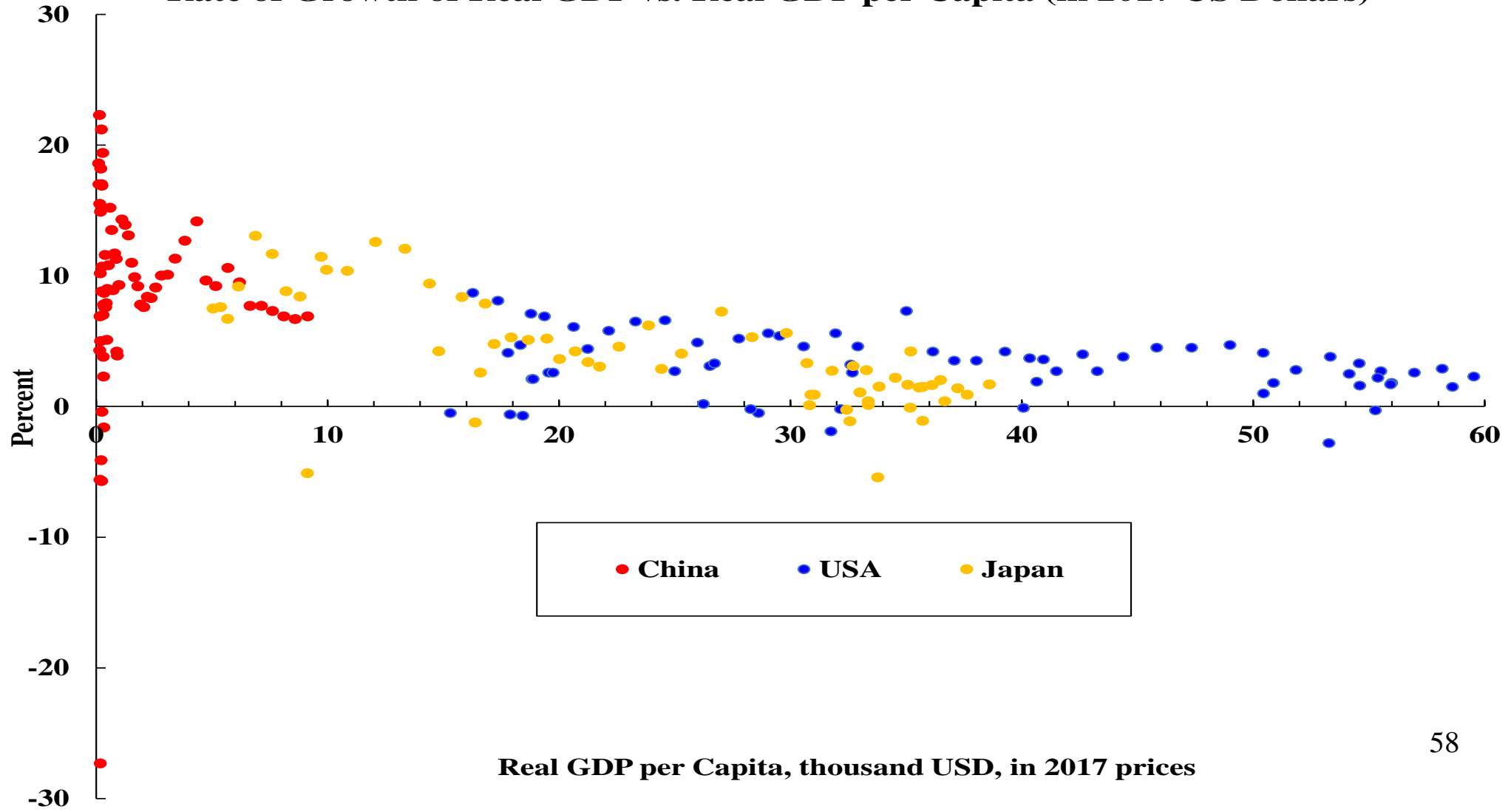
- ◆ Economies of scale are found to be a more important source of growth than either the elimination of the pre-existing economic slack or technical progress.
- ◆ In order for technical progress to become an important driver of Chinese economic growth, investment in intangible inputs such as human capital 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.

Projections of the Future

- ◆ It is assumed that the Chinese economy will continue to grow above 6% per annum for a few more years, declining gradually to between 5% and 6%, and that the U.S. economy will grow at an average rate of 3% per annum between now and 2050.
- ◆ In 2018, the Chinese economy grew 6.6%. The 2019 target growth rate for the Chinese economy is between 6% and 6.5%. In 2019Q1, the Chinese economy grew 6.4%, despite the China-U.S. trade war. The target rate of growth of the Chinese economy for 2019 is a range between 6.0 and 6.5%, indicating the confidence and resolve of the Chinese Government to achieve at least 6% growth.
- ◆ In 2018, the U.S. economy grew at 2.9%. But both the U.S. Federal Reserve Board and the U.S. Congressional Budget Office expect 2.3% growth for 2019. 3% per annum has been the long-run rate of growth of the U.S. economy.
- ◆ It may be thought that the Chinese economy will be unable to sustain an average annual rate of growth of between 5% and 6% for such a long time. Experience shows that the rate of growth of an economy declines as its real GDP per capita rises. But given the still relatively low level of real GDP per capita in China, and the low level of its capital per unit labour, such a rate of growth should still be possible for at least a couple of decades (see the following chart in which the experiences of China, Japan and the U.S. are compared.)

Growth Rate vs. Level of Real GDP per Capita (2017 tril. US\$): China, Japan and the U.S.

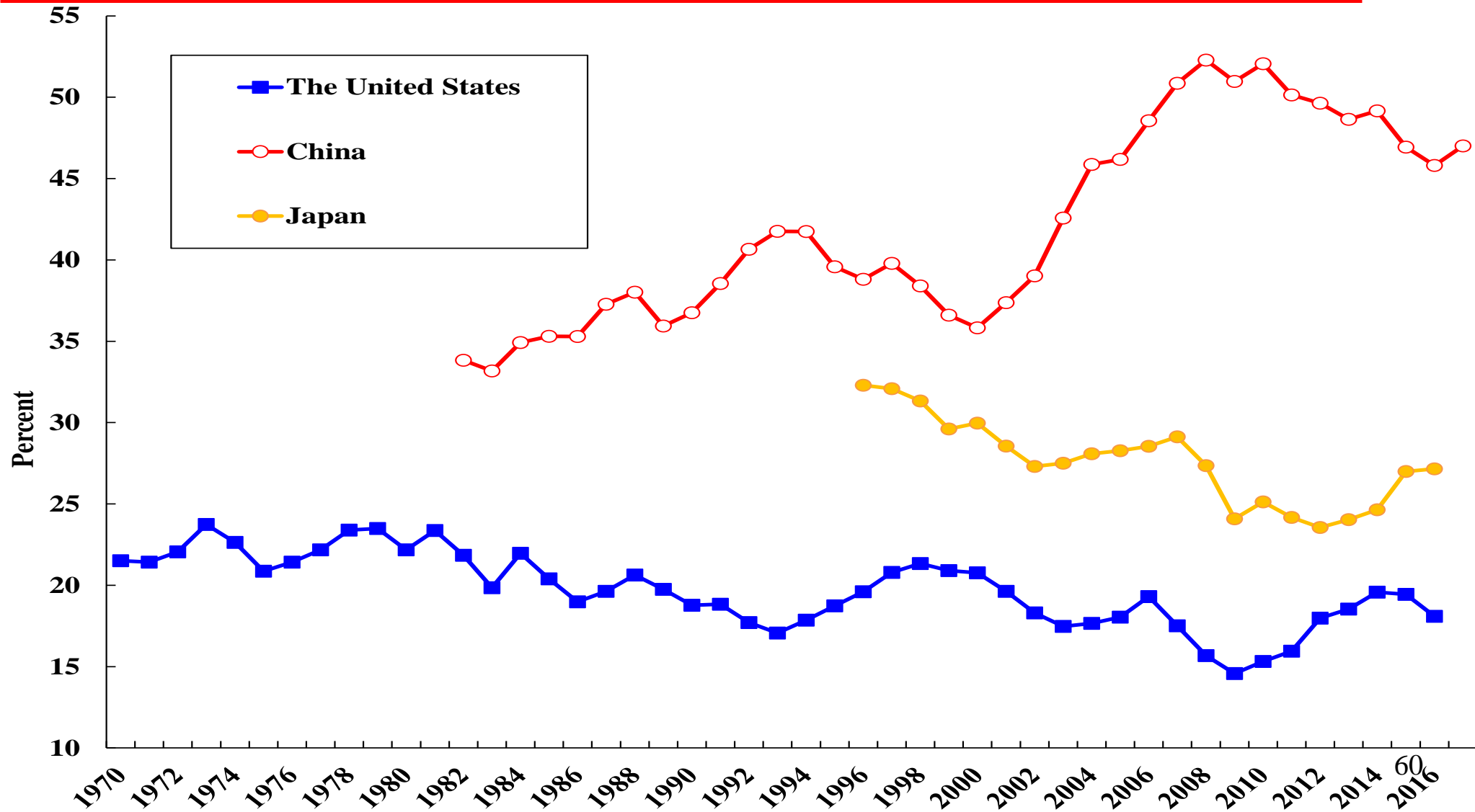
Rate of Growth of Real GDP vs. Real GDP per Capita (in 2017 US Dollars)



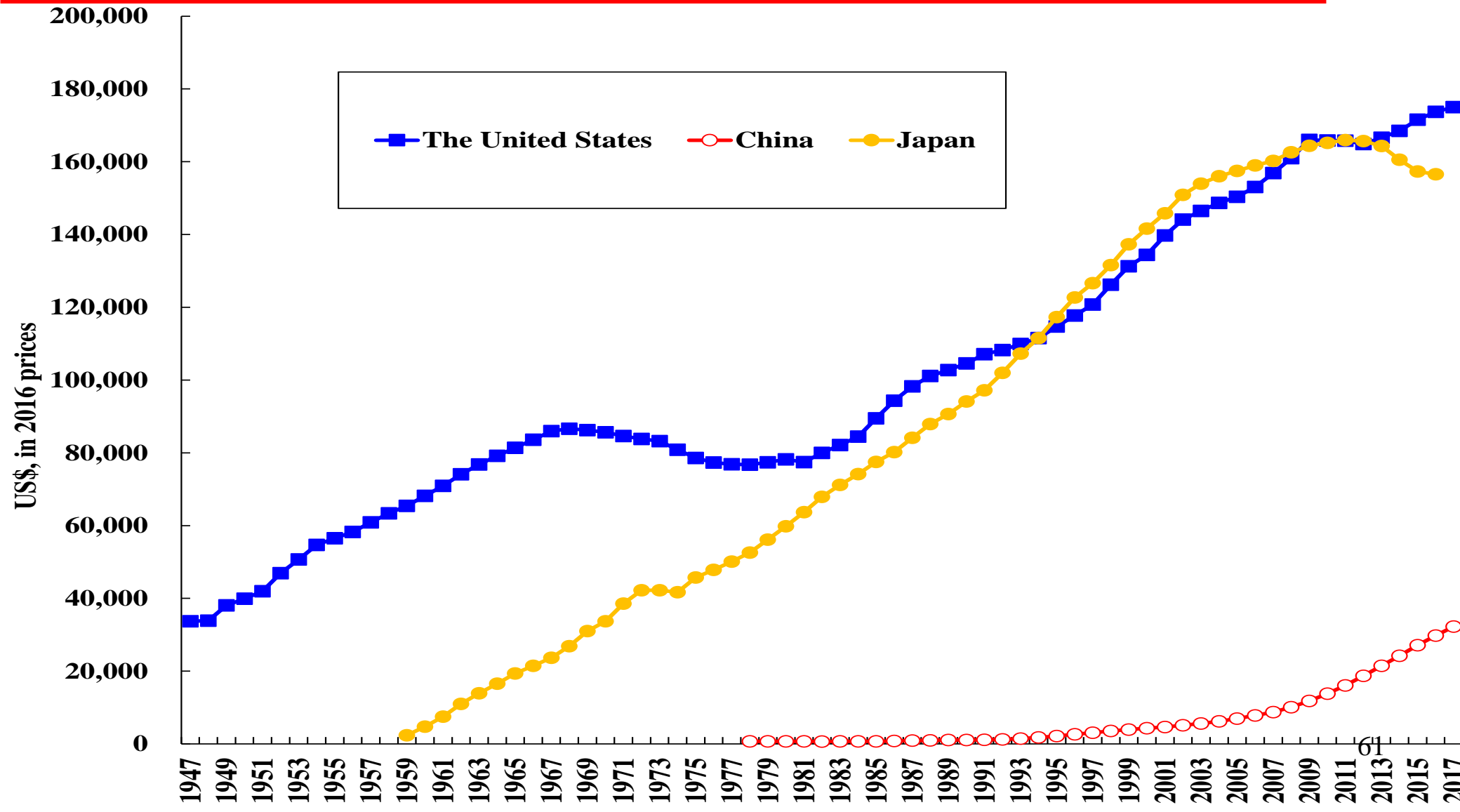
Projections of the Future

- ◆ The Chinese national savings rate is very high, which enables a very high investment rate. The tangible capital stock of China will therefore continue to grow rapidly. The capital-labour ratio of the Chinese economy is still very low compared to both the U.S. and Japan. There is a great deal of room for it to rise and to raise the productivity of labour.
- ◆ In addition, there is still significant surplus labour in the Chinese economy. The share of employment in the primary sector is just below 30% whereas the share of GDP originating from the primary sector is below 10%.
- ◆ The Chinese manpower problem can be alleviated by increasing the mandatory retirement ages from their current 55 for women and 60 for men to say 65 for all.
- ◆ China has significantly increased its investment in human capital and Research and Development. It already has the largest number of internet users in the world. Moreover, the share of internet users in its population still has significant room to grow.

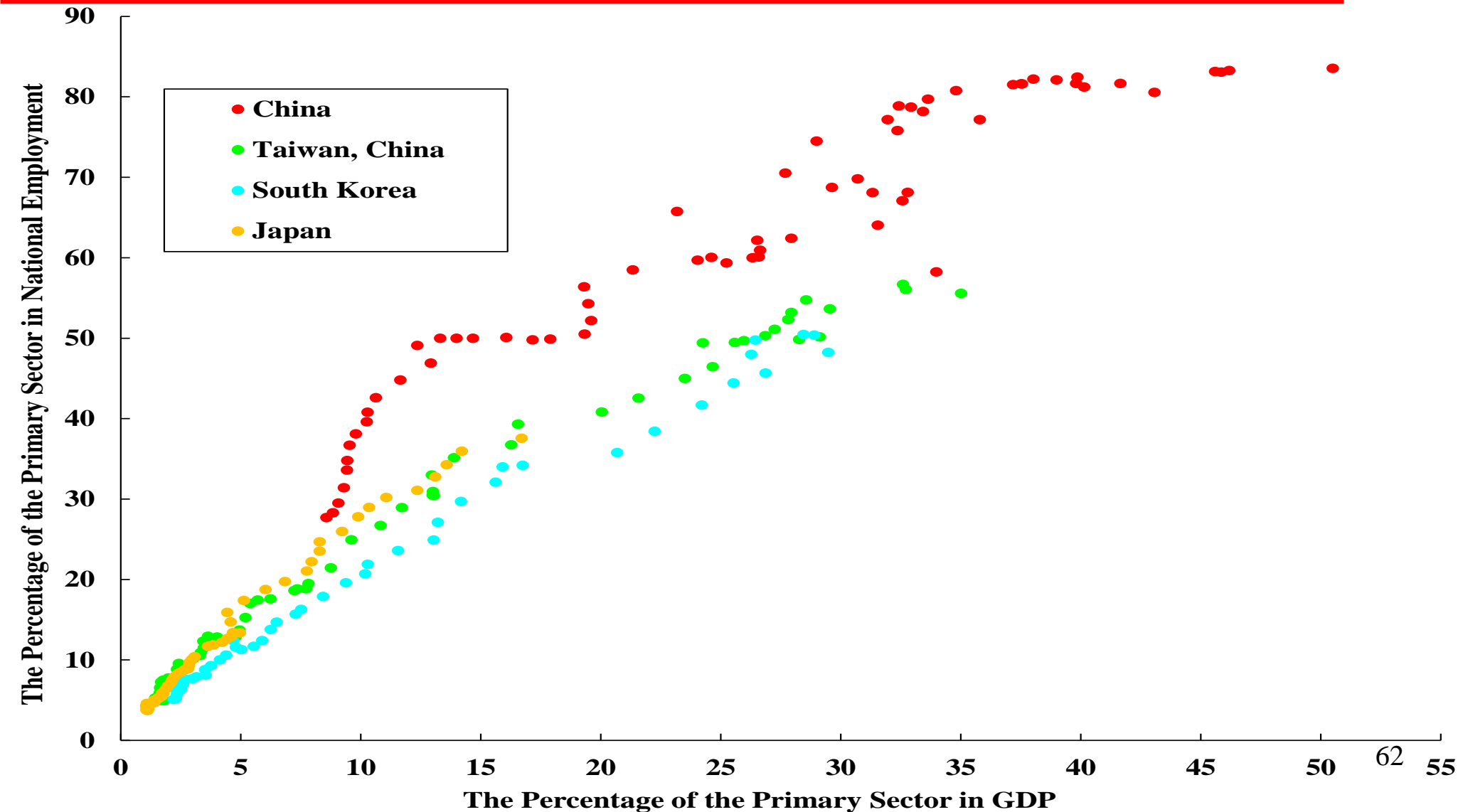
Comparison of National Savings Rates: China, Japan and the U.S.



Comparison of Capital-Labour Ratios: China, Japan and the U.S.

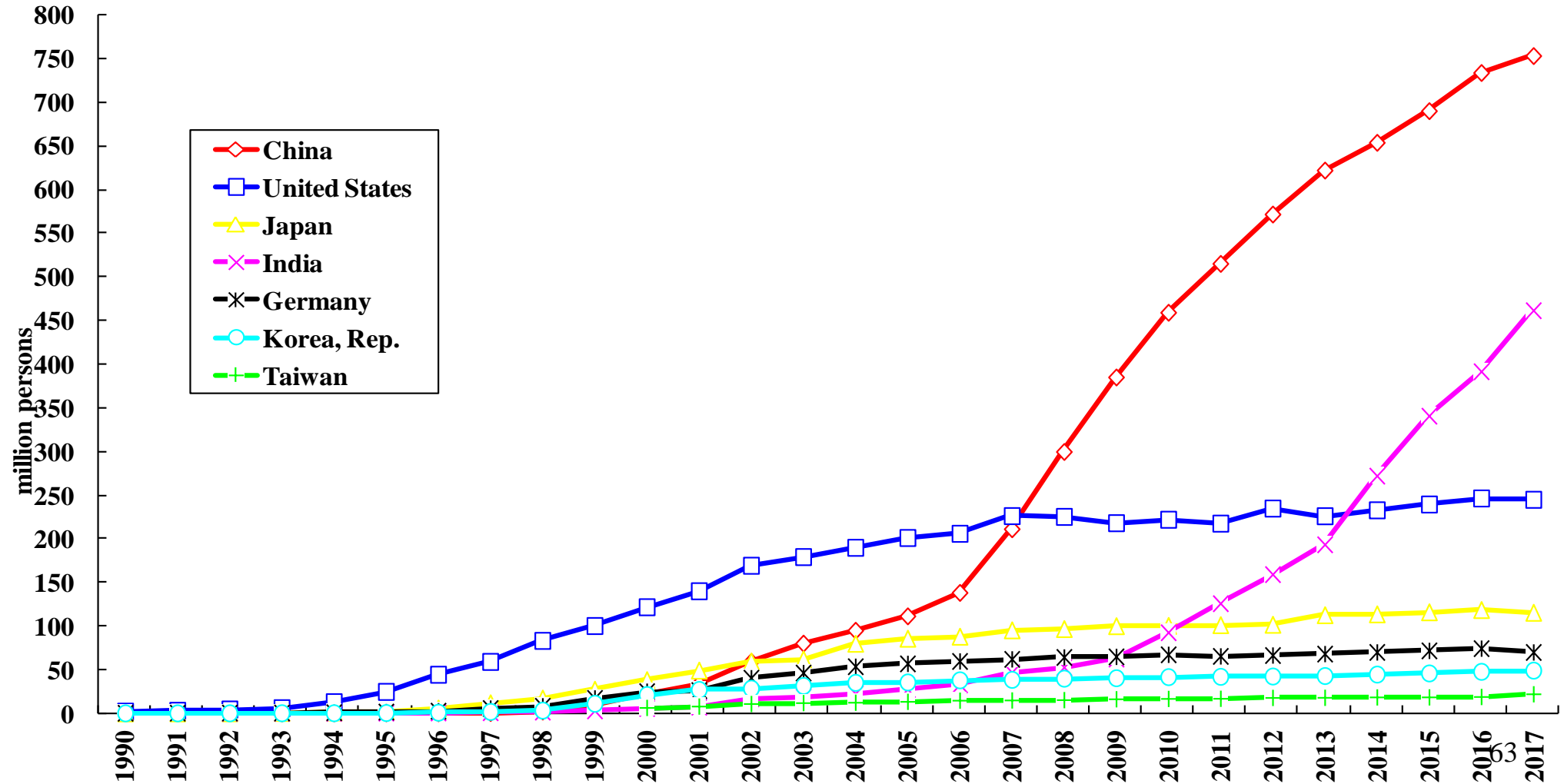


Scatter Diagram between the Shares of Employment and GDP of the Primary Sector



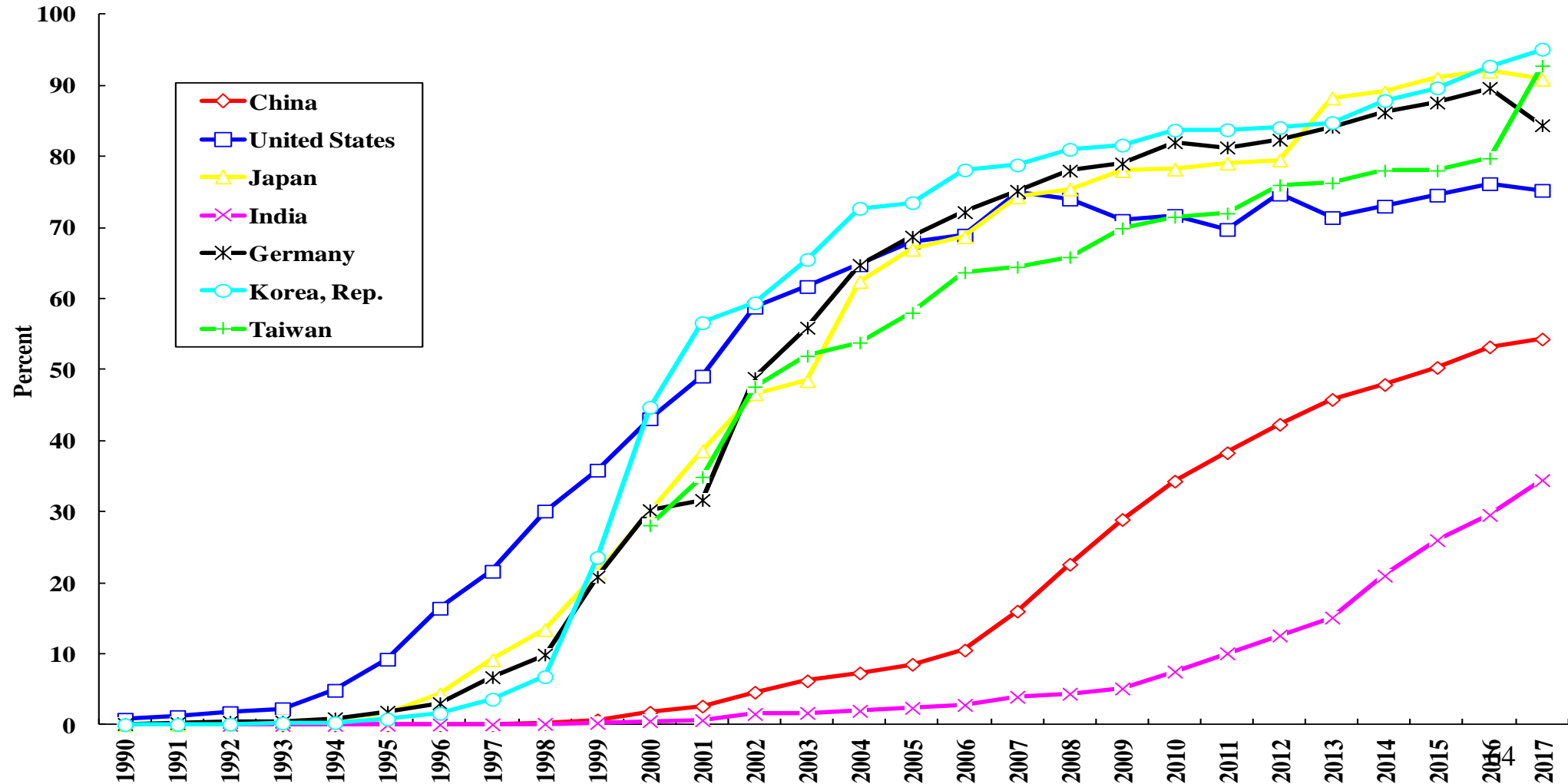
The Number of Internet Users in Selected Economies

The Number of Internet Users in Selected Economies, million persons



The Number of Internet Users as a Percent of the Population in Selected Economies

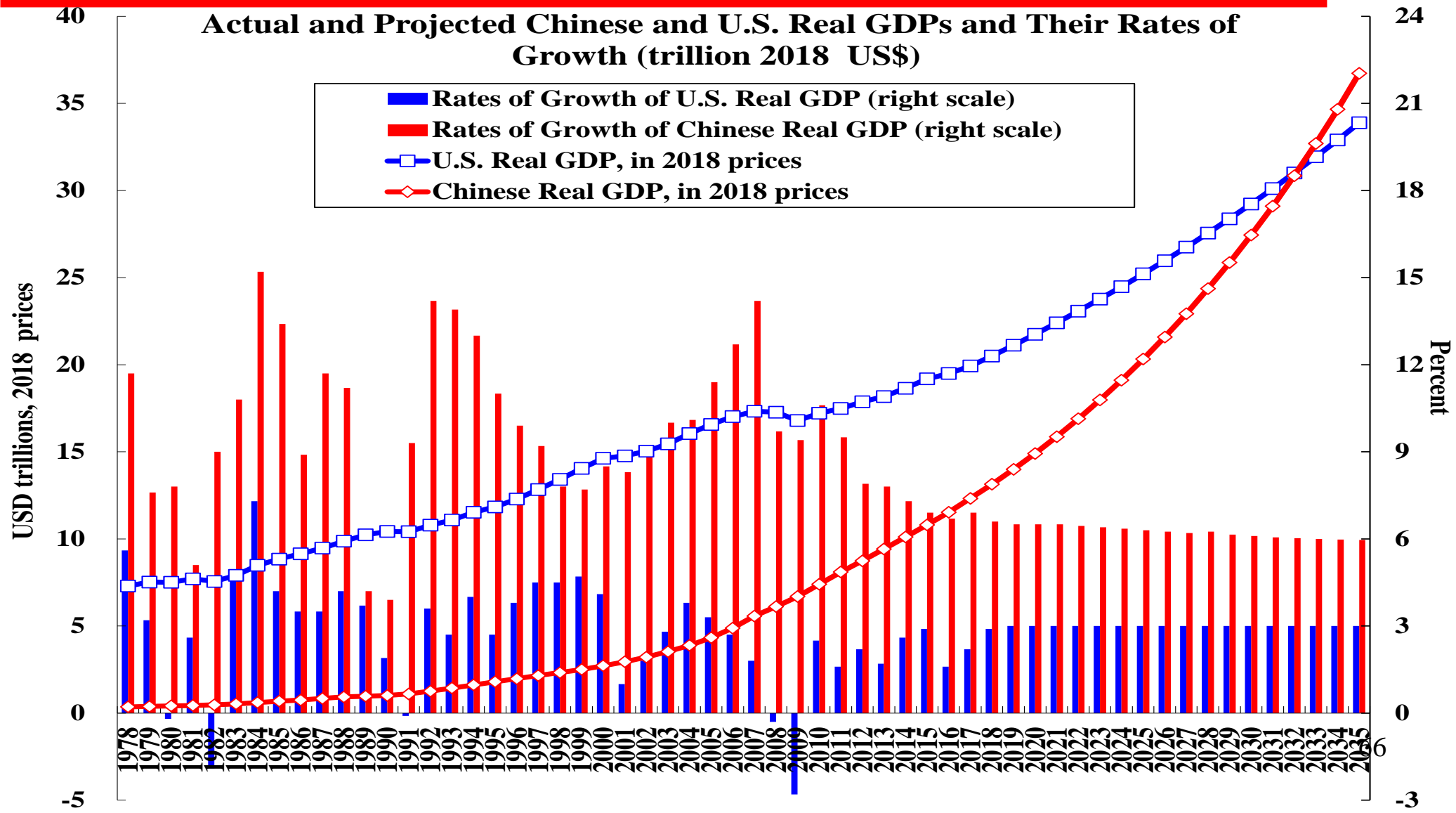
The Number of Internet Users as a Percent of the Population in Selected Economies



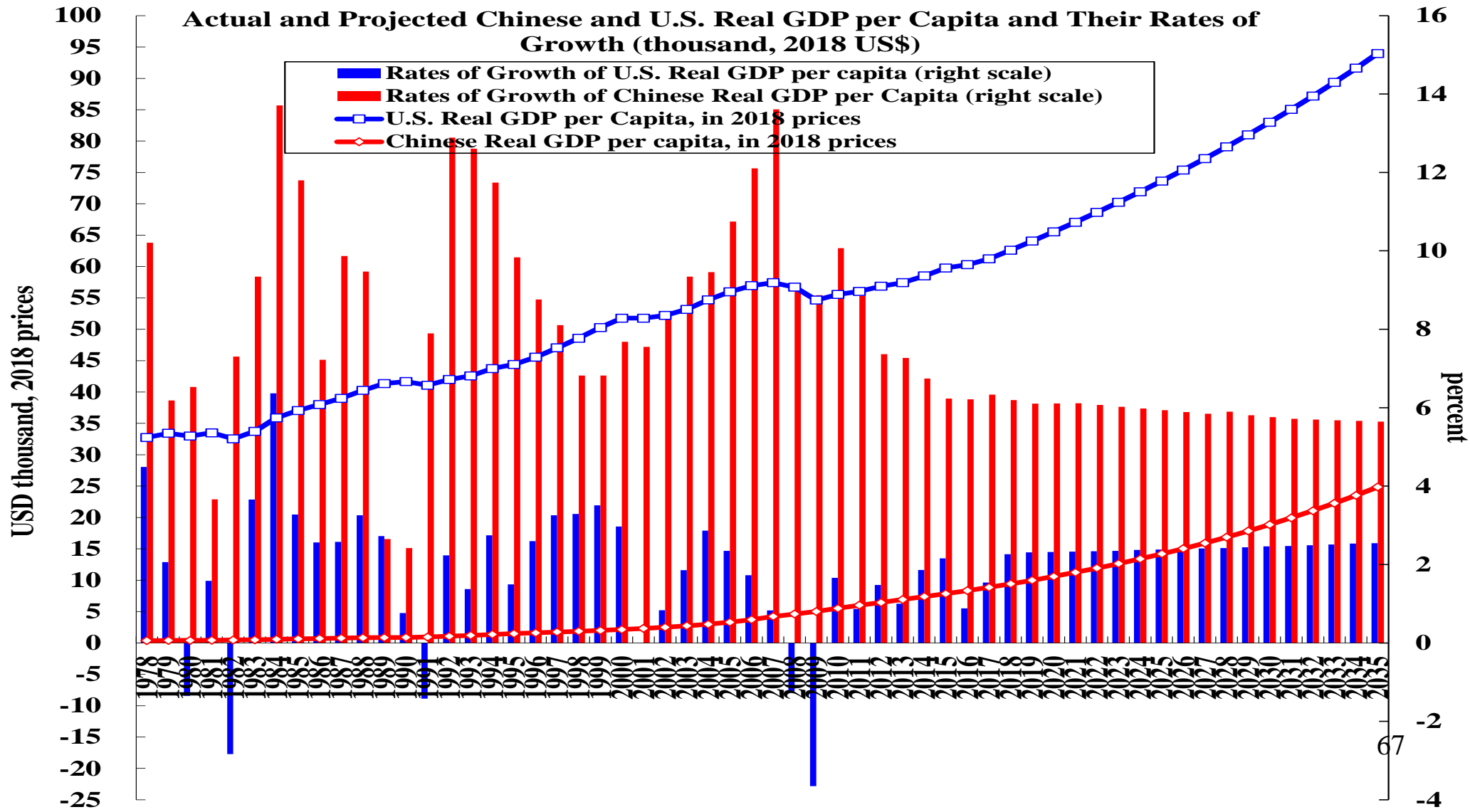
Projections of the Chinese and the U.S. Economies

- ◆ In his work report to the Nineteenth National Congress of the Communist Party of China, President XI Jinping identified several Chinese development milestones at 2020, 2035 and 2050.
- ◆ The first milestone is to become a moderately well-off society by 2020. Our projections show that by 2020, Chinese real GDP per capita (in 2018 prices) will exceed US\$10,582 (compared to US\$65,541 for the U.S.).
- ◆ Our projections also show that by 2033, Chinese real GDP will surpass U.S. real GDP (US\$32.7 trillion versus US\$31.9 trillion), making China the largest economy in the world. However, in terms of real GDP per capita, China will still lag behind significantly, with US\$22,088 compared to US\$89,363 for the U.S.
- ◆ By 2050, Chinese real GDP will reach US\$83 trillion compared to US\$53 trillion for the U.S. In terms of real GDP per capita, China will reach US\$53,408, still below the current (2018) level of U.S. real GDP per capita of US\$62,609, compared to US\$138,693 for the U.S.
- ◆ It will not be until the end of the 21st Century for the Chinese real GDP per capita to catch up with the U.S. real GDP per capita.

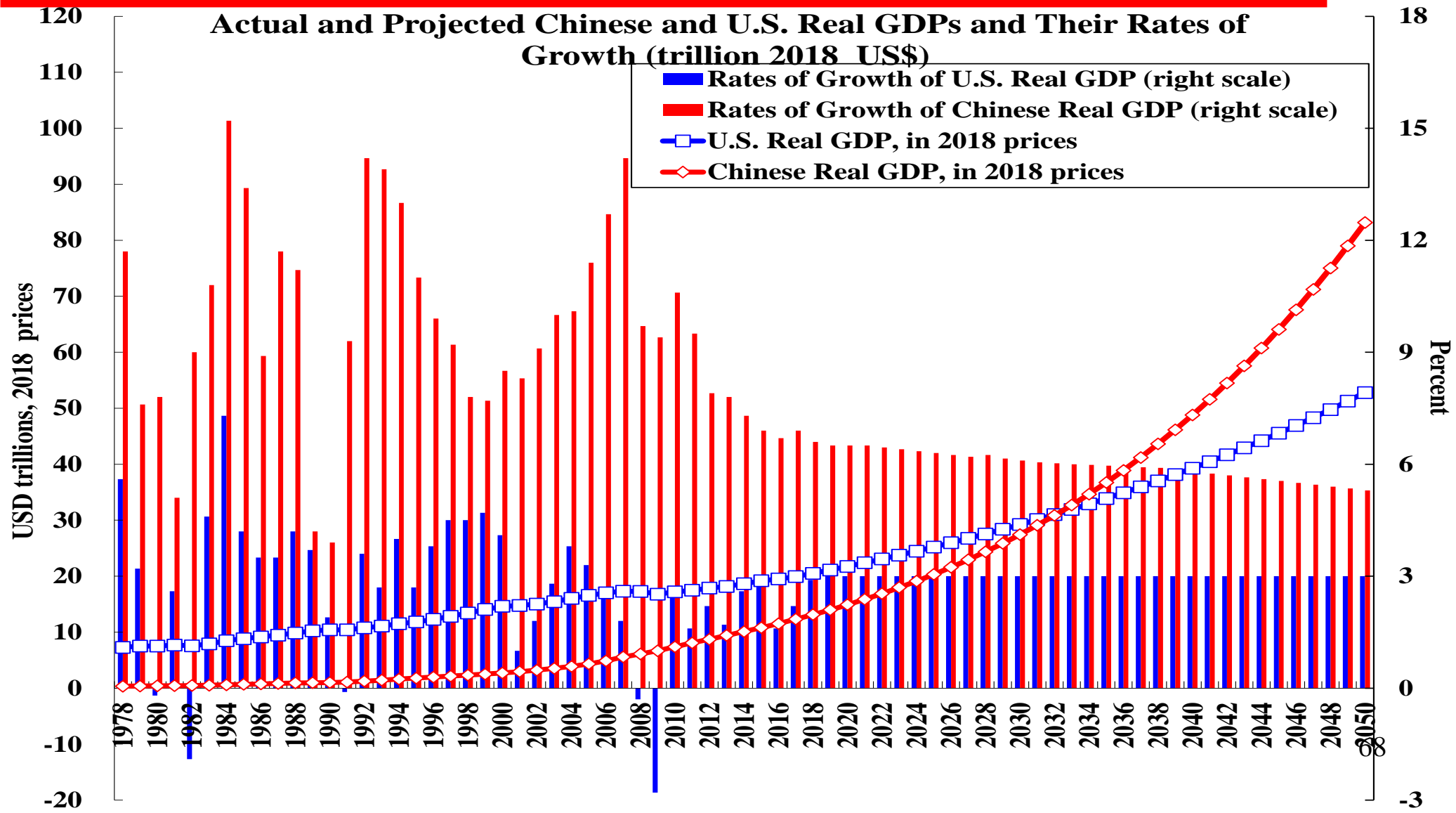
Actual and Projected Levels and Growth Rates of Chinese and U.S. Real GDP (2018 tril. US\$)



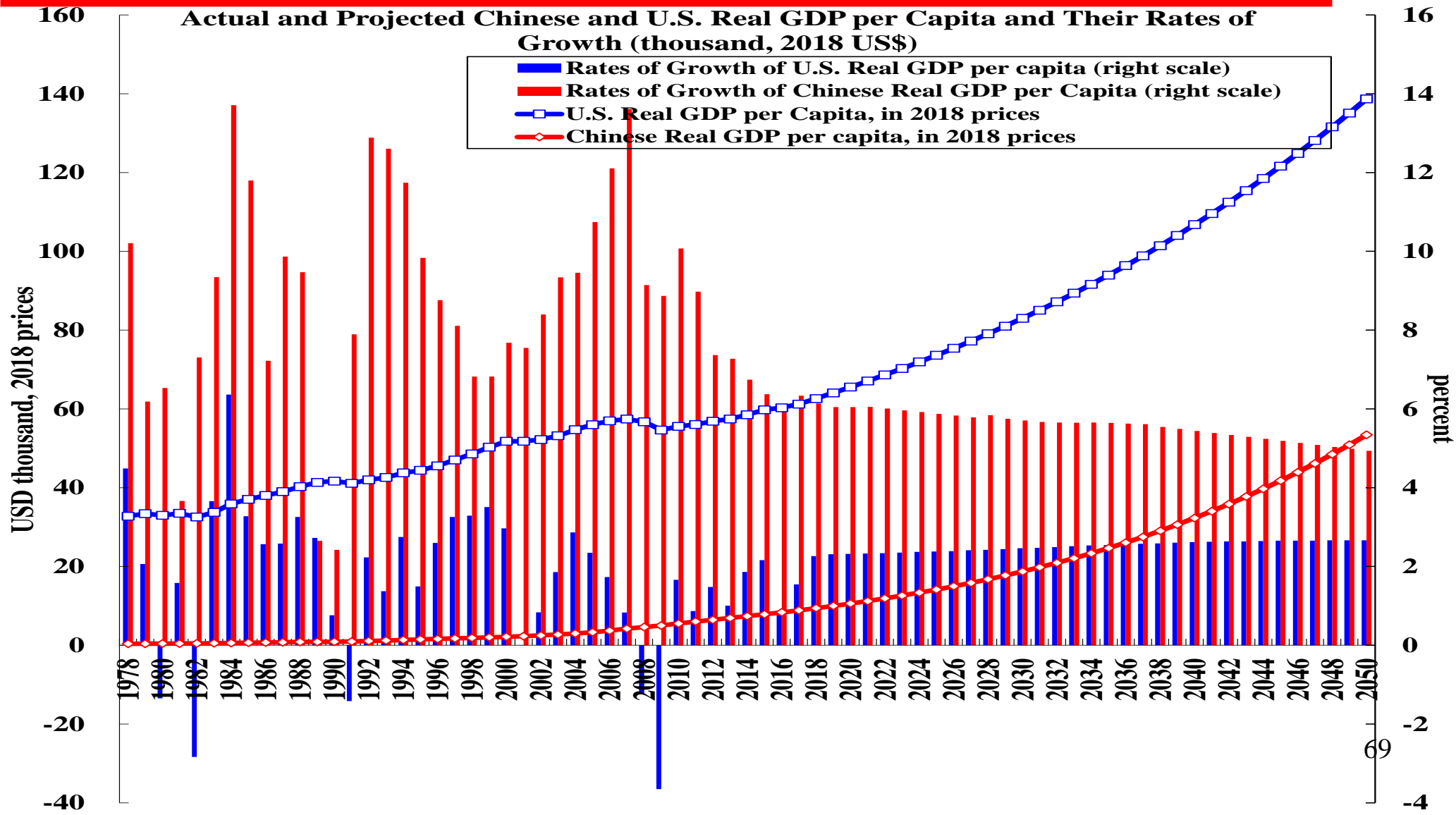
Actual and Projected Chinese and U.S. Real GDP/Capita and Their Annual Rates of Growth (1,000 2018 US\$ & %)



Actual and Projected Levels and Growth Rates of Chinese and U.S. Real GDP (2018 tril. US\$)



Actual and Projected Chinese and U.S. Real GDP/ Capita and Their Rates of Growth (1,000 2018 US\$)



Concluding Remarks

- ◆ Chinese economic growth since economic reform and opening to the World began in 1978 can be mostly attributed to the growth of tangible inputs—tangible capital and labour, 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 comparable 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 labour.
- ◆ In addition, the size of the Chinese domestic economy is a favorable factor allowing the ready realisation of economies of scale and reducing vulnerability to external disturbances.
- ◆ The Chinese experience also reaffirms the importance of investment in basic infrastructure and the maintenance of economic openness to the successful development of an economy.

Concluding Remarks

- ◆ Based on its economic fundamentals, the Chinese economy should be able to achieve a real rate of growth of at least 6% in 2019 even though the level of its exports may decline. In the long run, it should be able to continue to grow at between 5% and 6% per annum for at least a couple of decades.
- ◆ In the short 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.
- ◆ The growth in household consumption will do its part, especially in the demand for services. The expanding and rising middle class will play a crucial role.

Concluding Remarks

- ◆ 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%.

References

- ◆ Kaname AKAMATSU, "A Historical Pattern of Economic Growth in Developing Countries," *Journal of Developing Economies*, Vol. 1, No. 1, March–August 1962, pp. 3–25.
- ◆ Edward F. DENISON, *The Sources of Economic Growth in the United States and the Alternatives Before Us*, New York: Committee for Economic Development, 1961.
- ◆ Jong-Il KIM and Lawrence J. LAU, "The Sources of Economic Growth of the East Asian Newly Industrialized Countries," *Journal of the Japanese and International Economies*, Vol. 8, No. 3, September 1994, pp. 235-271.
- ◆ Jong-Il KIM and Lawrence J. LAU, "The Sources of Asian Pacific Economic Growth," *Canadian Journal of Economics*, Vol. 29, Special Issue, April 1996, pp. S448-S454.
- ◆ Paul KRUGMAN, "The Myth of Asia's Miracle," *Foreign Affairs*, Vol. 73, No. 6, November/December 1994, pp. 62-78.
- ◆ Lawrence J. LAU, "The Sources of Chinese Economic Growth Since 1978," in Martin Guzman, ed., *Towards a Just Society: Joseph Stiglitz and 21st Century Economics*, New York: Columbia University Press, 2018a, pp. 323-352.
- ◆ Lawrence J. LAU, "What Makes China Grow?," in Peter Pauly, ed., *Global Economic Modeling*, Singapore: World Scientific Publishing Company, 2018b, pp. 182-233.

References

- ◆ Lawrence J. LAU, “Chinese Economy in the New Era,” *Pacific Economic Review*, Vol. 24, No. 2, May 2019, pp. 187-207.
- ◆ Lawrence J. LAU, Yingyi QIAN and Gerard ROLAND, in ‘Pareto-Improving Economic Reforms through Dual-Track Liberalization,’ *Economics Letters*, Vol. 55, No. 2, 1997, pp. 285-292.
- ◆ Lawrence J. LAU, Yingyi QIAN and Gerard ROLAND, “Reform without Losers: An Interpretation of China’s Dual-Track Approach to Transition,” *The Journal of Political Economy*, Vol. 108, No. 1, February 2000, pp. 120–143.
- ◆ Lawrence J. LAU and Yanyan XIONG, “Are There Laws of Innovation? Part I: Introduction”, Working Paper No. 39, Hong Kong: The Institute of Global Economics and Finance, The Chinese University of Hong Kong, 2015.
- ◆ Lawrence J. LAU and Huanhuan ZHENG, “How Much Slack Was There in the Chinese Economy Prior to Its Economic Reform of 1978?”, *China Economic Review*, Vol. 45, September 2017, pp. 124-142.
- ◆ W. Arthur LEWIS, “Economic Development with Unlimited Supplies of Labour,” *Manchester School of Economic and Social Studies*, Vol. 22, 1954, pp. 139-191.