Chinese Economic Development Trends

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W. I. Harper Group
Annual General Meeting
Beijing, 30 May 2011

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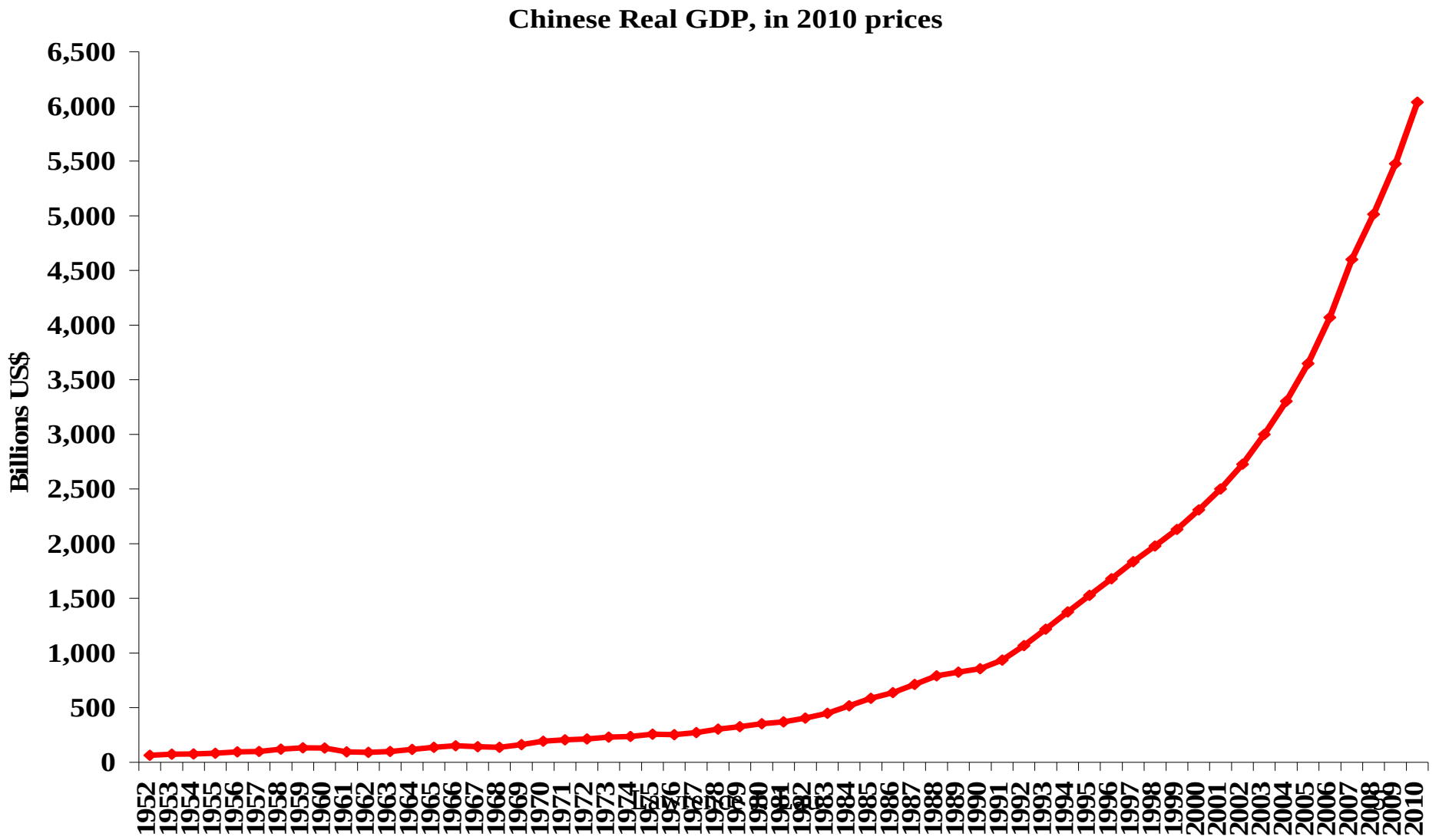
Introduction

- China has made tremendous progress in its economic development since it began its economic reform and opened to the World in 1978.
- China is currently the fastest growing economy in the World—averaging 9.8% per annum over the past 33 years. It is historically unprecedented for an economy to grow at such a high rate over such a long period of time.
- China is one of the very few socialist economies that have made a smooth transition from a centrally planned to a market system. It is a model for other transition economies such as Vietnam and potential transition economies such as Cuba, Laos, and North Korea.

Introduction

- Between 1978 and 2010, Chinese annual real GDP grew more than 20 times, from US$304 billion to more than US$6.04 trillion (2010 prices) to become the second largest economy in the World, after the United States.
- By comparison, the U.S. GDP (approximately US$14.66 trillion in 2010 prices) was 2.4 times the Chinese GDP in 2010.

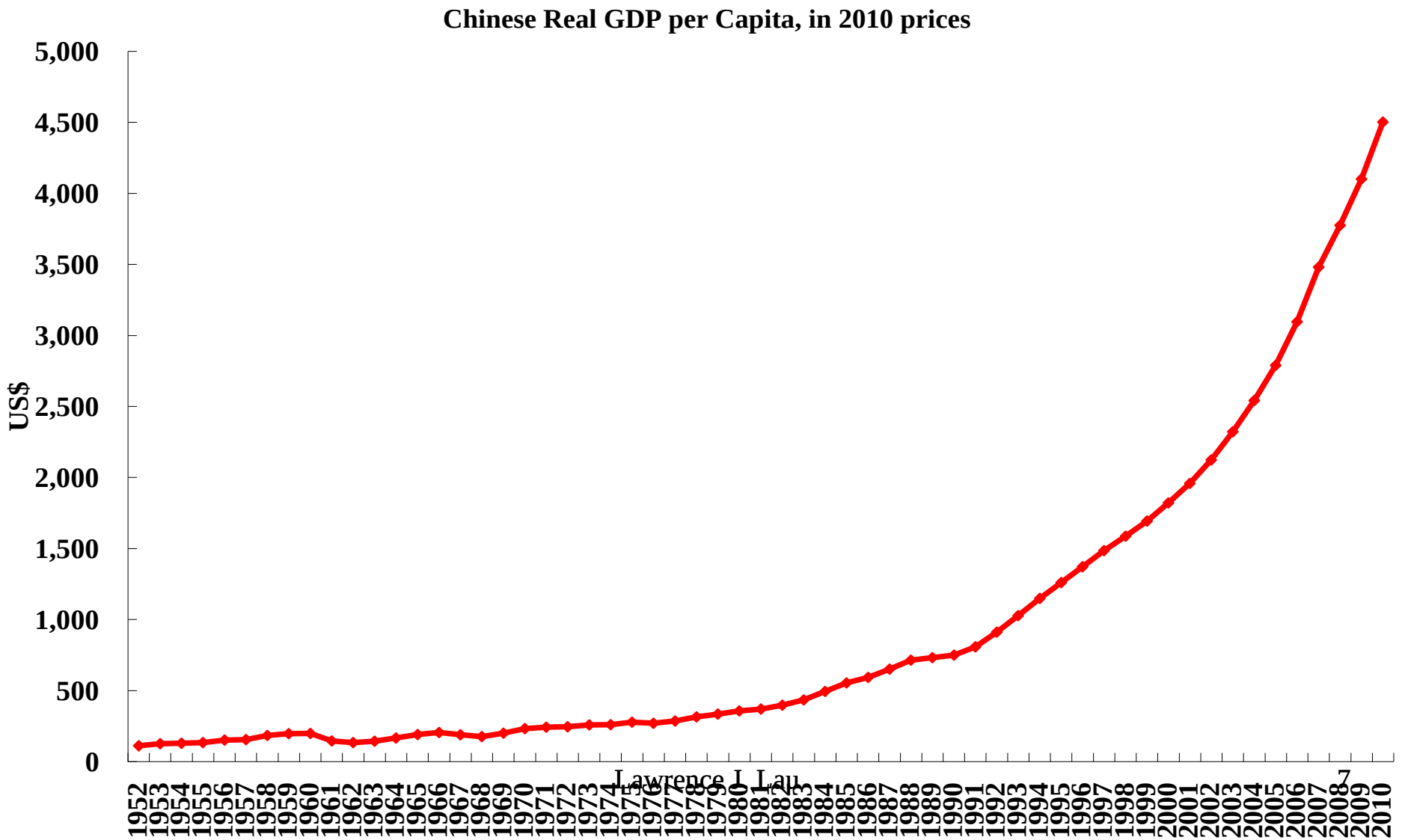
Chinese Real GDP in US$ Since 1952 (2010 Prices)



Introduction

- Despite the rapid economic growth of China, in terms of real GDP per capita, it is still a developing economy.
- Between 1978 and 2010, Chinese real GDP per capita grew almost 15 times, from US$316 to US$4,503 (in 2010 prices). By comparison, the U.S. GDP per capita (approximately US$47,274 in 2010 prices) was 10.5 times Chinese GDP per capita in 2010.
- Chinese GDP per capita ranks below 90th among all economies in the World.

Real Chinese GDP per Capita in US$ Since 1952 (2010 Prices)



Introduction

- While many problems have arisen in the Chinese economy within the past decade—for example, increasing income disparity--both inter-regional and intra-regional--uneven access to basic education and health care, environmental degradation, inadequate infrastructure and corruption—it is fair to say that every Chinese citizen has benefitted from the economic reform and opening since 1978, albeit to varying degrees, and few want to return to the central planning days.
- The Chinese Government leaders have also demonstrated their ability to confront important challenges and solve difficult problems, as for example, in maintaining Chinese economic growth during the 1997-1998 East Asian currency crisis and the 2007-2009 global financial crisis.

Key Performance Indicators Before and After Chinese Economic Reform

	Growth Rates percent per annum	
	Period I	Period II
	1952-1978	1978-2010
Real GDP	6.15	9.79
Real GDP per Capita	4.06	8.66
Exports	9.99	17.23
Imports	9.14	16.37
Inflation Rates (GDP deflator)	0.50	5.47
	1952-1978	1978-2009
Real Consumption	5.05	8.96
Real Consumption per Capita	2.99	7.79

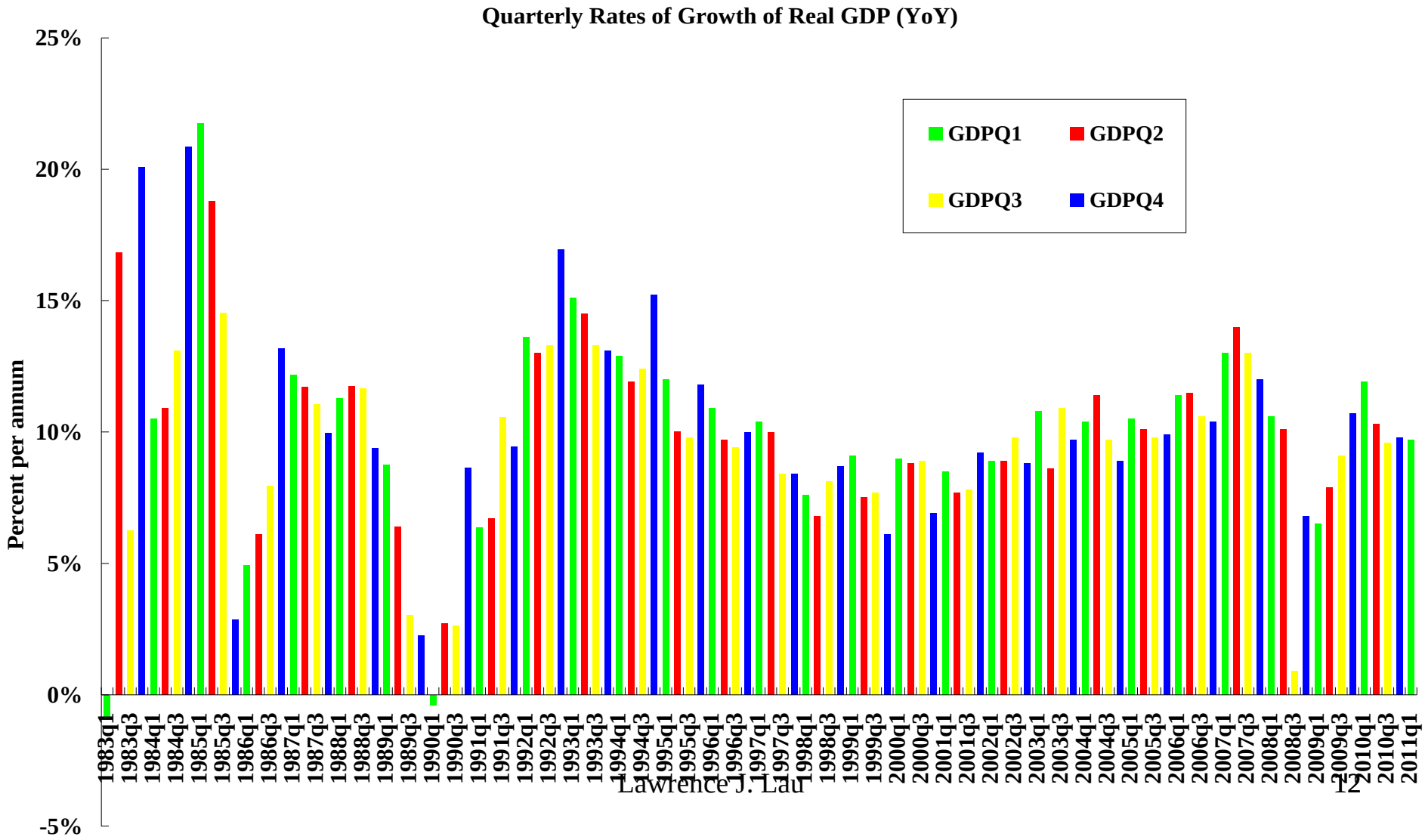
The Macroeconomic Outlook

- The Chinese economy has survived the global financial crisis of 2007-9 reasonably unscathed.
- The 4-trillion Yuan economic stimulus package launched by the Chinese Government in November 2008, barely six weeks after the bankruptcy of Lehman Brothers, has been quite effective in sustaining the confidence and positive expectations of the future of Chinese enterprises and households and thereby maintaining Chinese economic growth despite the economic turmoil in the United States and Europe.

The Macroeconomic Outlook

- The Chinese economy grew 9.1% in 2009 and 10.3% in 2010 even as the European and U.S. economies remained in recession.
- The outlook is that there will be a gradual slowdown in the real rate of growth of the economy in 2011, to perhaps around 8%, which is actually a positive development for the Chinese economy.
- While 8% may seem like a significant reduction from 10.3%, there are reasons to believe that the impact of the economic slowdown on Chinese employment will not be that severe.
- For 2011Q1, the seasonally adjusted rate of growth was 8.4%, confirming that a slowdown has already begun.

Quarterly Rates of Growth of Chinese Real GDP, Y-o-Y



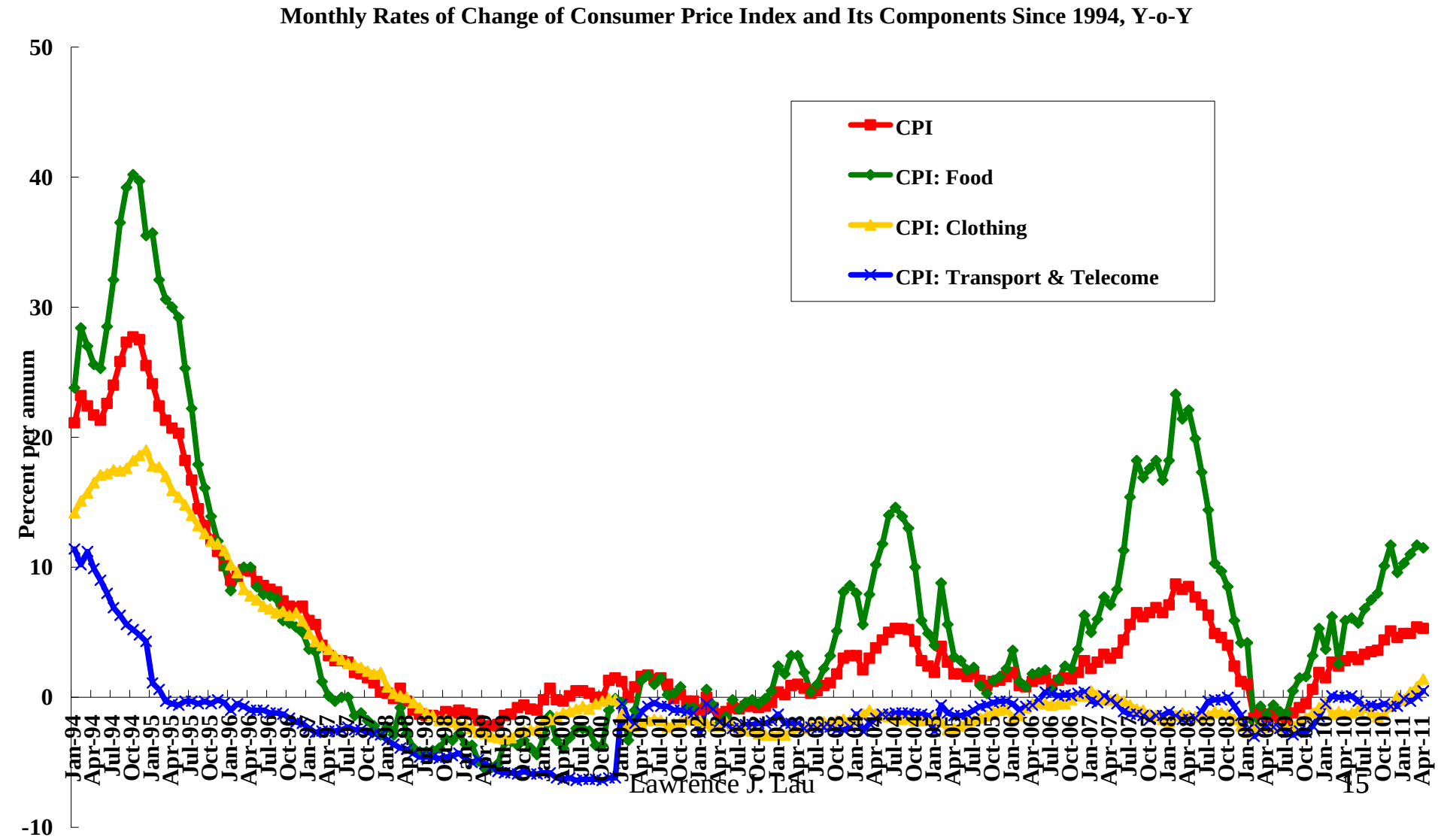
The Macroeconomic Outlook

- For 2010 as a whole, the rate of inflation of the prices of goods and services, as measured by the consumer price index (CPI), exceeded the objective of the Chinese Government of 3% slightly, at 3.3%.
- The CPI rose above 5% year-over-year in the first months of 2011.

The Macroeconomic Outlook

- However, the bulk of the increase in the consumer price index (approximately 70%) in 2010 was caused by the increase in food prices (principally vegetables), due mostly to weather and possibly also to some hoarding and market manipulation but not to monetary factors.
- The core rate of inflation, that is, the rate of inflation net of the changes in the prices of agricultural and energy goods, has remained relatively tame at the 1-1.5% per annum level, as has been the case in the past few years.
- Moreover, given the excess production capacity in many key industries, such as steel, cement, and glass, it is unlikely that there will be much inflation in the prices of non-agricultural goods in the next couple of years.

Monthly Rates of Change of the Consumer Price Index (CPI), Y-o-Y



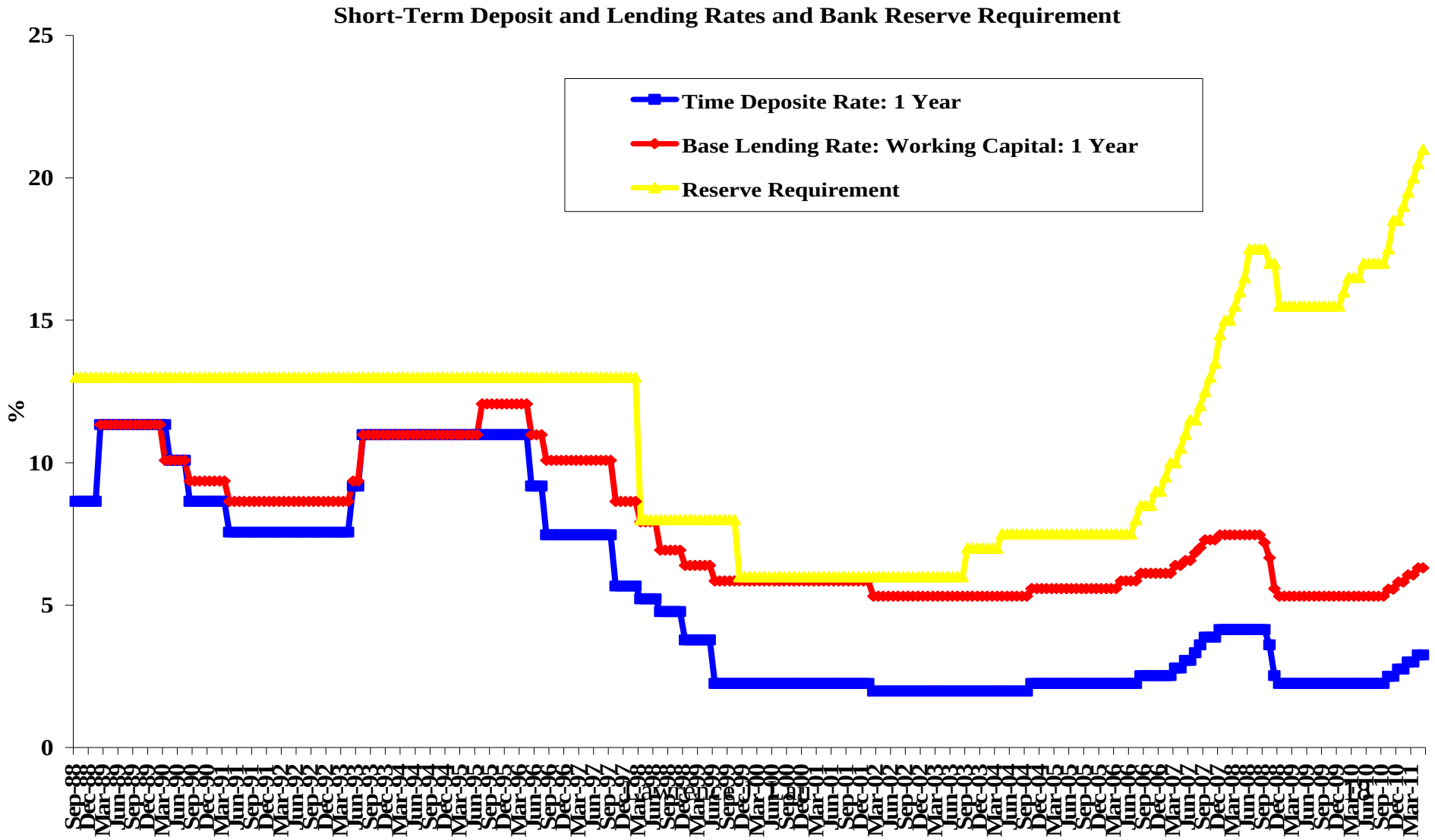
The Macroeconomic Outlook

- Yet there has been significant inflation in the prices of assets such as real estate since 2009, due in part to the implementation of the 4 trillion Yuan economic stimulus package and the significant increases in the rates of growth of money supply and commercial bank credit.
- Measures have been taken recently to contain the asset price bubble. State-owned enterprises that have not been explicitly authorised are now forbidden to invest in real estate. Bank lending rules have also been tightened so as to discourage the purchases of more than one residential unit by a single household. Non-local residents may have to wait years before being allowed to purchase a residential unit in some localities.

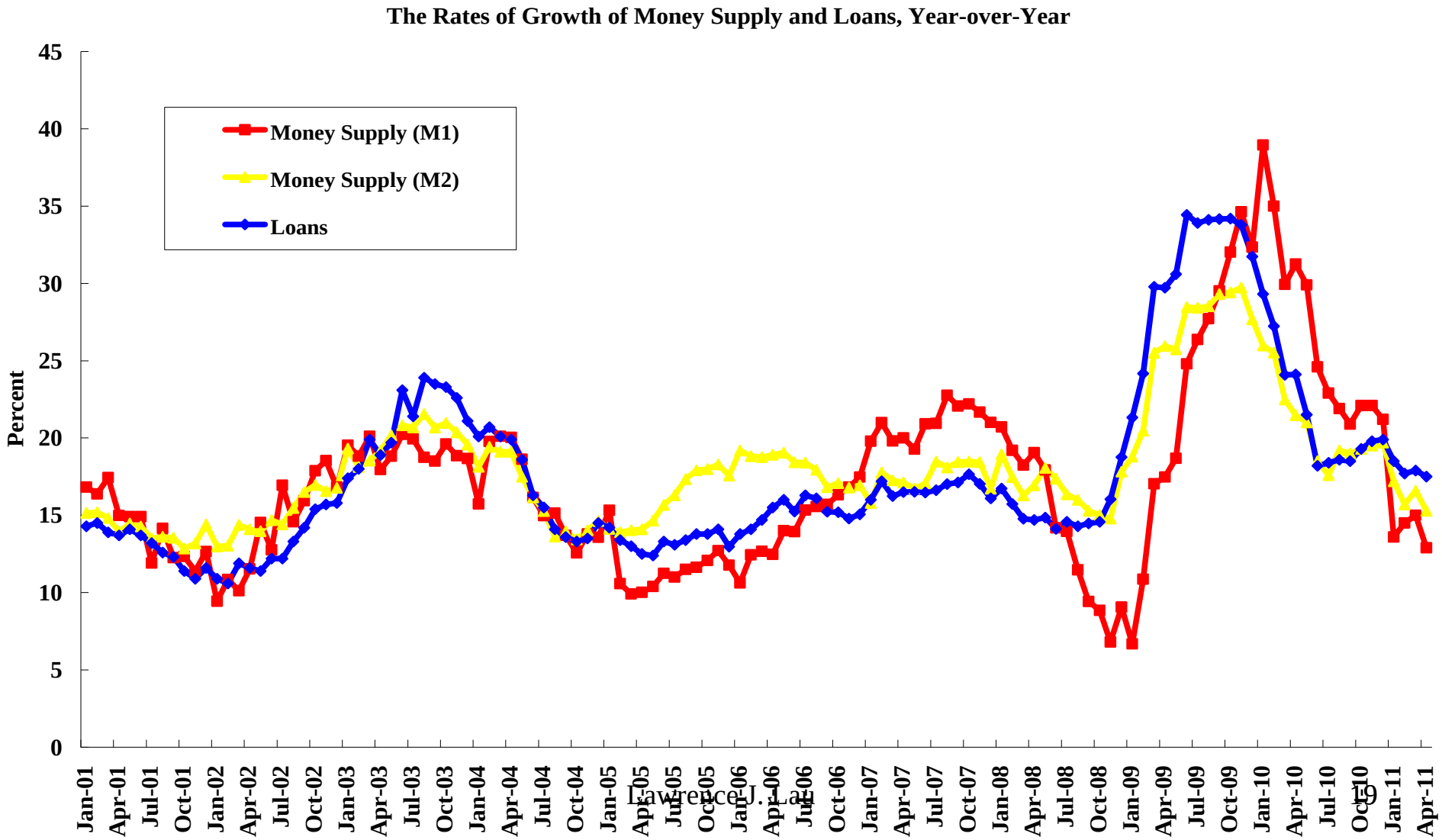
The Macroeconomic Outlook

- Recently, the People's Bank of China, the central bank, has also increased the rates of interest (the minimum lending rate and the maximum deposit rate) and the reserve requirement ratio repeatedly.
- The rates of growth of money supply (both M1 and M2) and loans have also declined significantly to more sustainable levels.

Short-Term Deposit and Lending Rates and Bank Reserve Requirement



The Rates of Growth of Money Supply and Loans, Year-over-Year



The Macroeconomic Outlook

- There is not much any central bank can do about agricultural prices. No head of a central bank anywhere in the World has been able to control the weather.
- Agricultural prices and outputs also follow their own cycles, with alternate periods of excess supply and demand—for example, the hog cycle.
- The real concern is with the increases in asset, especially real estate prices—whether they will lead to increases in rents and hence in distribution and space costs, which can lead to general price inflation of goods and services at the retail level. Such increases can in turn feed into inflationary expectations and wage increases.

The Macroeconomic Outlook

- The key in reining in increases in asset prices, especially real estate prices, is to ensure that there is a continuing dependable and steady supply of the assets going forward. Only credible and dependable future supply availability can change price expectations.
- The Government must therefore try to create and maintain the expectation of regular increases of actual and potential supply through both its policy and its actual behaviour.
- Under the Twelfth Five-Year Plan (2011-2015), 36 million affordable housing units are supposed to be completed during the next five years.

The Macroeconomic Outlook

- If the public expects that residential housing units will be just as available or even more available next year compared to this year, there will be no reason for anyone to rush out to buy something now. Thus, the real estate price bubble can be more readily contained.
- All economic and financial bubbles burst eventually (The Japanese real estate price bubble in the late 1980s and early 1990s, the Hong Kong real estate price bubble in 1997-1998, and the U.S. housing price bubble between 2000 and 2006 are some examples from the real estate markets around the World). However, the longer the government waits to act, the larger the bubble becomes, and the greater the damage when it eventually bursts.

The Macroeconomic Outlook

- Other instruments that may be effective in containing the real estate price bubble, in addition to raising the rate of mortgage interest, include the strict control, perhaps even prohibition, of financing of any non-owner-occupied residential unit, and increasing the equity (down payment) to loan ratio.
- Capital gains tax, especially short-term capital gains tax, and stamp duty on real estate transactions, especially those that discriminate between short and long holding periods, can also be effective in reducing short-term speculation in the real estate market.
- The introduction of a property tax as a source of revenue for local governments will also help to discourage speculation as well as reduce the dependence of local governments on revenue from the sale of land leases and hence the incentive for maintaining high and rising expectations of local land prices.

The Economic Fundamentals

- Long-term economic growth of a country depends on the rates of growth of its primary inputs—capital (tangible or physical) and labour—and on technical progress (or 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 (principally human capital and R&D capital).

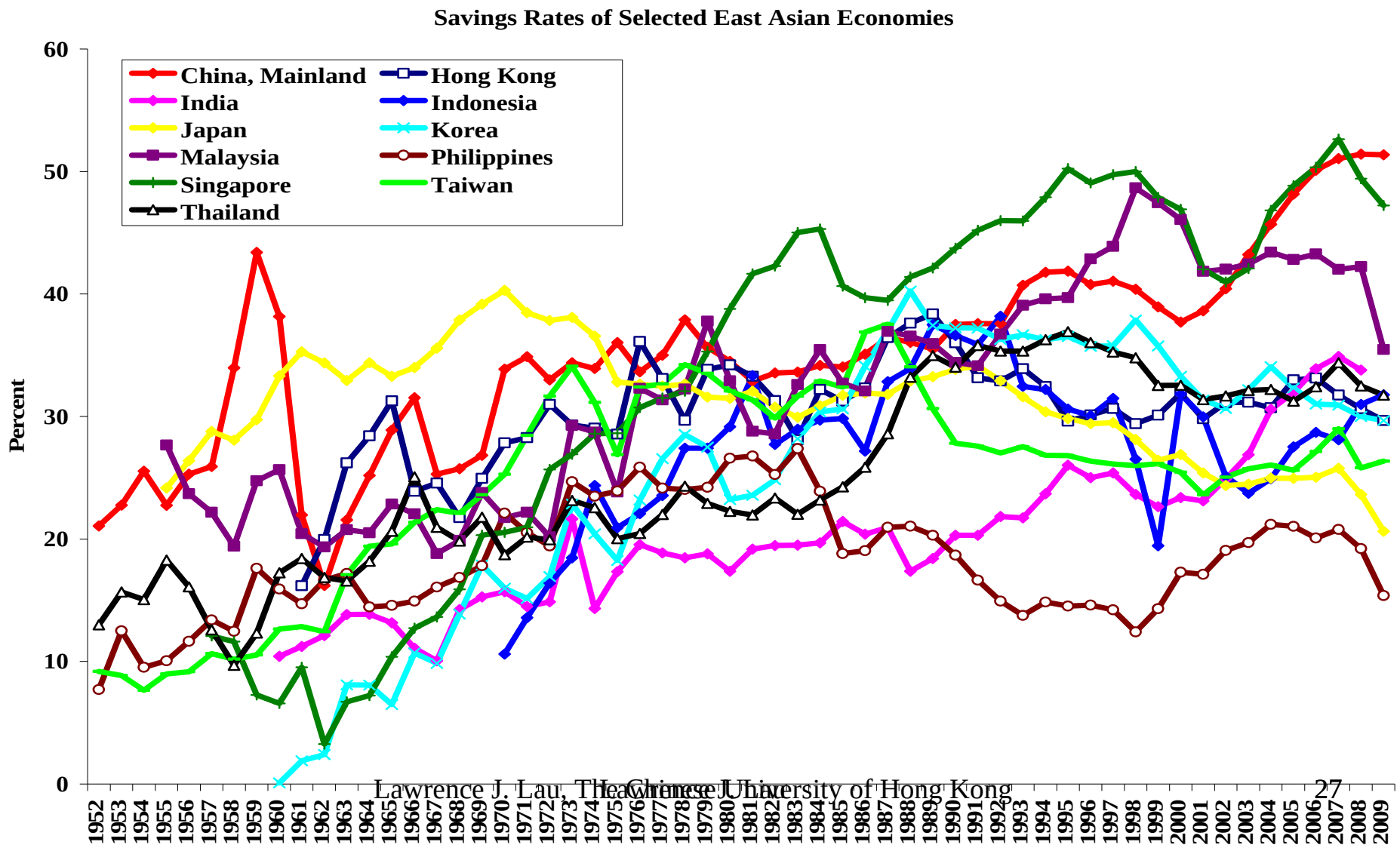
The Economic Fundamentals

- The most important source of Chinese economic growth over the past three decades has been the growth of inputs, principally tangible capital (structures, equipment, and basic infrastructure) and not technical progress. The growth of tangible capital accounts for the bulk, approximately 80%, of the measured economic growth in China.
- This experience is not unlike those of other East Asian economies such as South Korea and Taiwan and even Japan and the United States at a similarly early stage of economic development.

The Economic Fundamentals

- Chinese national savings rate has consistently been high--in excess of 30%--and in recent years has exceeded 40%, which is more than adequate to finance all of its domestic investment needs. It does not need to depend on foreign direct investment, foreign portfolio investment, or foreign loans.
- China has an almost unlimited supply of surplus labour, ensuring that there will be little or no pressure on the real wage rate of unskilled, entry-level labour for decades to come.

Savings Rates of Selected Asian Economies (1952-present)



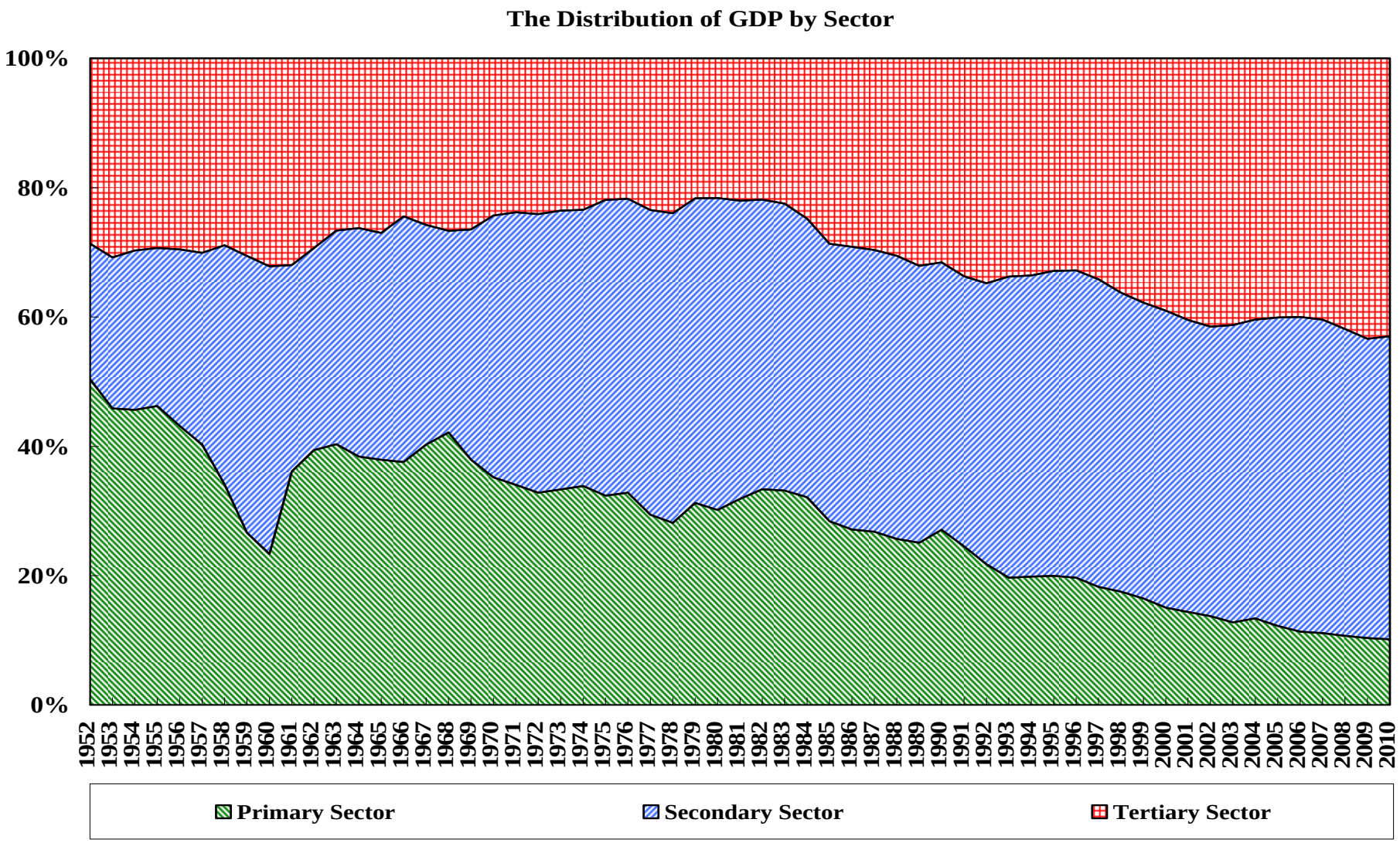
The Economic Fundamentals

- China, like Japan, Taiwan, and South Korea in their early stages of economic development, has an abundant supply of surplus labour. This means China can 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.
- Investment in physical capital is very productive under conditions of surplus labour and as long as there is sufficient complementary domestic physical capital, the surplus labour will enable the output of the economy to grow rapidly.
- This is exactly what the late Prof. W. Arthur Lewis, Nobel Laureate in Economic Sciences, said in his famous paper on surplus labour more than fifty years ago.

The Economic Fundamentals

- The distribution of Chinese GDP by originating sectors in 2009 was approximately: Primary (agriculture), 10.6%; Secondary (manufacturing, mining and construction), 46.8%; and Tertiary (services), 42.6%. (Note that mining is normally included in the primary sector in most other economies.)
- In 2010, the distribution has changed slightly to 10.2%, 46.9% and 43.0% respectively.

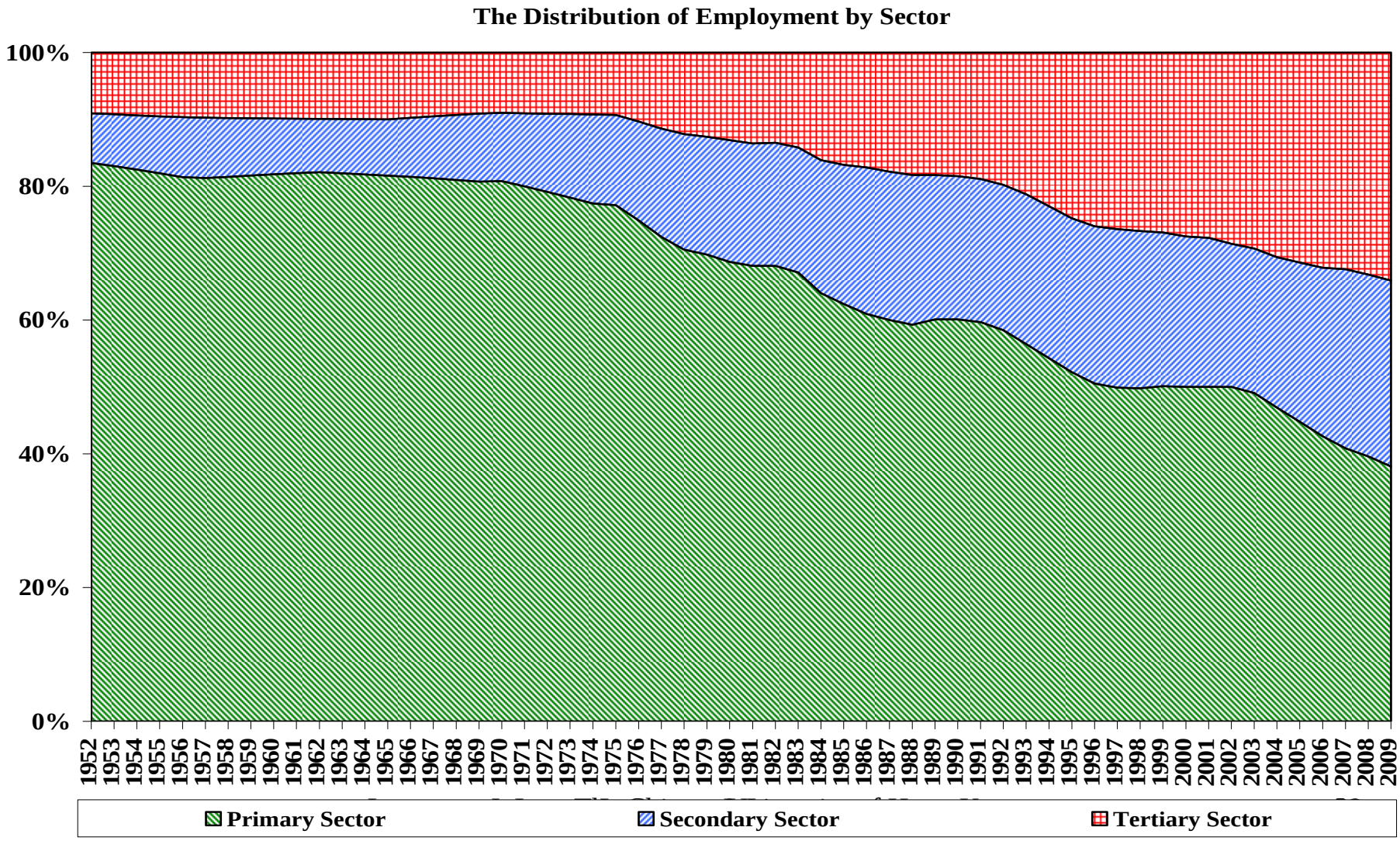
The Distribution of Chinese GDP by Sector Since 1952



The Economic Fundamentals

- But the bulk of the labour force, more than 40%, is still employed in the primary sector, which in the case of China consists of only agriculture, waiting to be transferred to the other two sectors which have higher productivity.
- 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 is little or no upward pressure on the real wage rate of unskilled, entry-level labour in the secondary and tertiary sectors.

The Distribution of Chinese Employment by Sector Since 1952



The Economic Fundamentals

- It took thirty years for the percentage of labour force employed in the Chinese primary sector to decline from 70% in 1978 to its current 40%, at the rate of approximately 1 percentage point per year.
- It will take approximately another 30 years for the percentage of labour force employed in the Chinese primary sector to decline from its current 40% to below 10%, which is approximately the same as the percentage of Chinese GDP produced by the primary sector today. By that time (2040), it is expected that the primary sector will account for no more than 5% of Chinese GDP.
- China will therefore continue to have surplus labour for another two or three decades. There will not be any shortage of unskilled, entry-level labour for a long time to come, even though there may be shortages of skilled or experienced labour in the secondary and tertiary sectors.

The Economic Fundamentals

- Even with increases in the levels of minimum wage rates in the different provinces, regions and municipalities, the real wage rate of unskilled, entry-level labour has basically remained stable and is expected to be stable for a long time because of the continuing existence of significant surplus labour in the Chinese economy.
- However, there is upward pressure on the real wage rates of skilled and experienced labour, which is actually in short supply, especially as Chinese enterprises move up the value-added chain. The high-profile wage settlements made by Honda and Foxconn plants in China in 2010 provided for wage increases of 24 percent and 30 percent respectively.
- But given the trend of rapid expansion of Chinese tertiary education in recent years, with 6 million new graduates projected annually, the increase in the real wage rate of even skilled labour is likely to be relatively limited going forward.

The Economic Fundamentals

- The huge domestic market of 1.34 billion consumers allows economies of scale in production to be easily realised in China. The domestic demand alone is large enough to support efficient-scale plants in many industries.
- On intangible capital, China has a long tradition of emphasis on education and learning (human capital) and will be increasing its investment in human capital. The enrollment rate of tertiary education has been rising rapidly and stands at 24 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 in Research and Development (R&D), with the goal of increasing it from the current 1.8 percent to 2.2 percent of GDP by 2015.

The Economic Fundamentals

- The huge domestic market of 1.34 billion consumers also greatly enhances the productivity of intangible capital (e.g., R&D capital, goodwill). The fixed research and development costs of a new product or process can be easily amortised over a large market. The benefits of investment in goodwill, e.g., brand-building, are also much greater in a large market.
- The huge domestic market also enables active Chinese participation in the setting of product and technology standards, for example, fourth-generation (4-G) standards for telecommunication, and sharing the benefits of such standard-setting.
- Brand-building is a pre-requisite for Chinese enterprises to re-orient themselves to take advantage of the huge domestic market. It is true that brand-building requires resources, but it also enables the owners of brand names to have much more pricing power and higher profit margins than enterprises that do only OEM (original equipment manufacturing) business.

The Economic Fundamentals

- In addition to a high national savings rate, a large pool of surplus labour, a huge domestic market, and rising investment in intangible capital (human capital and R&D capital), China also has the advantage of relative backwardness. It has:
  - The ability to learn from the experiences of successes and failures of other economies;
  - 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).
- China also possesses an abundance of scientific and technical manpower the cost of which is a fraction of the cost in developed economies.

The Metaphor of the "Wild Geese Flying Pattern"

- The metaphor of the "wild-geese-flying pattern" of East Asian economic development over time (Kaname Akamatsu (1962)) suggests that industrialisation will spread from economy to economy as the initially fast-growing economies, beginning with Japan, run out of surplus labour and face labour shortages, rising real wage rates, appreciating exchange rates of their currencies and quota restrictions on their exports.
- Thus East Asian industrialisation spread from Japan to first Hong Kong in the early 1960s, and then Taiwan in the mid-1960s, and then South Korea in the 1970s, and then Southeast Asia (Thailand, Malaysia, Indonesia), and then to Guangdong, Shanghai, Jiangsu and Zhejiang in China as China undertook economic reform and opened to the World beginning in 1978.
- The industrial migration has continued with Vietnam, Khmer Republic, Laos and Bangladesh as the real wage rate begins to rise in the coastal regions of China and the Renminbi appreciates in value.

The Metaphor of the "Wild Geese Flying Pattern"

- 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 and managers of logistics and supply chains.
- However, this metaphor applies not only to East Asia but also to China itself. Within China, industrialisation will begin first in the coastal provinces, regions and municipalities and then migrate and spread to other provinces, regions and municipalities in the interior. As the coastal provinces, regions and municipalities slow down in their economic growth, the central and western provinces, regions and municipalities will take their turn as the fastest growing areas in China. China as a whole will be able to maintain its high rate of growth for many years to come.

The Twelfth Five-Year Plan for National Economic and Social Development

- The Eleventh Five-Year Plan for National Economic and Social Development of China officially ended on 31st December 2010.
- Most of the Plan targets were achieved or exceeded, including the reduction in energy consumption per unit GDP of 20 percent compared to year end 2005.
- The Eleventh Five-Year Plan provided for a target rate of growth of real GDP of 7.5% per annum between 2005 and 2010. The actual rate of growth achieved was 11.2% per annum.
- The only other major target not achieved was the percentage of GDP expended on R&D—the target was 2% and the actual achieved was 1.8%.

The Twelfth Five-Year Plan for National Economic and Social Development

- The Twelfth Five-Year Plan for National Economic and Social Development of China was approved by the National People's Congress in mid-March of this year. It is mostly an indicative plan rather than a mandatory plan.
- The most remarkable feature of the Twelfth Five-Year Plan is the lowering of the target real growth rate from 7.5% per annum in the Eleventh Five-Year Plan to 7% per annum. It is almost certain that this target will be exceeded, just as the target was exceeded in the 11th Five-Year Plan (the actual rate achieved was 11.2%). However, the reduction in the target growth rate signals the determination of the Chinese Government to de-emphasise quantitative economic growth and to focus on the quality of the economic growth.

The Twelfth Five-Year Plan for National Economic and Social Development

- A principal theme of the Twelfth Five-Year Plan is the transformation in the mode of Chinese economic development—first, from export-oriented to domestic demand-oriented and second, from input-driven to technical progress- or innovation-driven.
- The Plan also aims at essentially balanced international trade in goods and services.

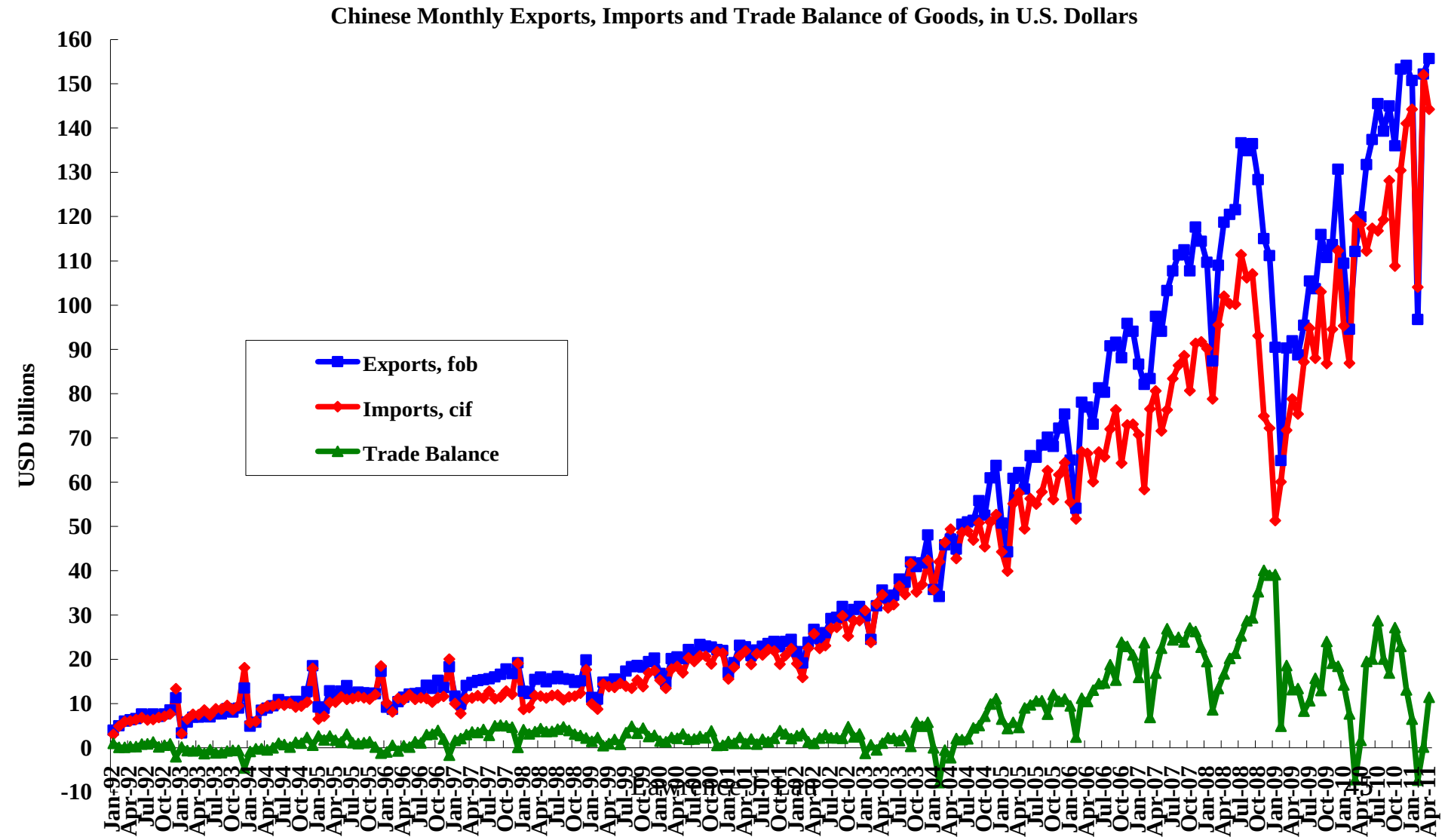
The Twelfth Five-Year Plan for National Economic and Social Development

- The Plan also provides for increased expenditures for education and healthcare, especially in the rural regions, environmental preservation and protection, and air and water pollution control. It also has mandatory targets for improvement in energy efficiency and reduction in carbon emission.
- It also provides for improvements in the income distribution through taxation, transfer payments and targeted government expenditures on education and health care.
- The Plan also calls for more infrastructural investment in the Central and Western parts of the country, thus also helping to improve the inter-regional income distribution.

Transformation of the Mode of Development

- There is a common mis-impression that the Chinese economy is highly dependent on exports, and in particular, on its export surpluses, as a source of growth.
- The facts are that China only began to have a significant trade surplus vis-a-vis the World in 2005, whereas the Chinese economy has been growing at an average real rate of almost 10 percent per annum since 1978.
- It should therefore be clear that the trade surpluses could not have been an important source of growth for the Chinese economy during the past three decades. Chinese economic growth does not depend on Chinese trade surpluses.

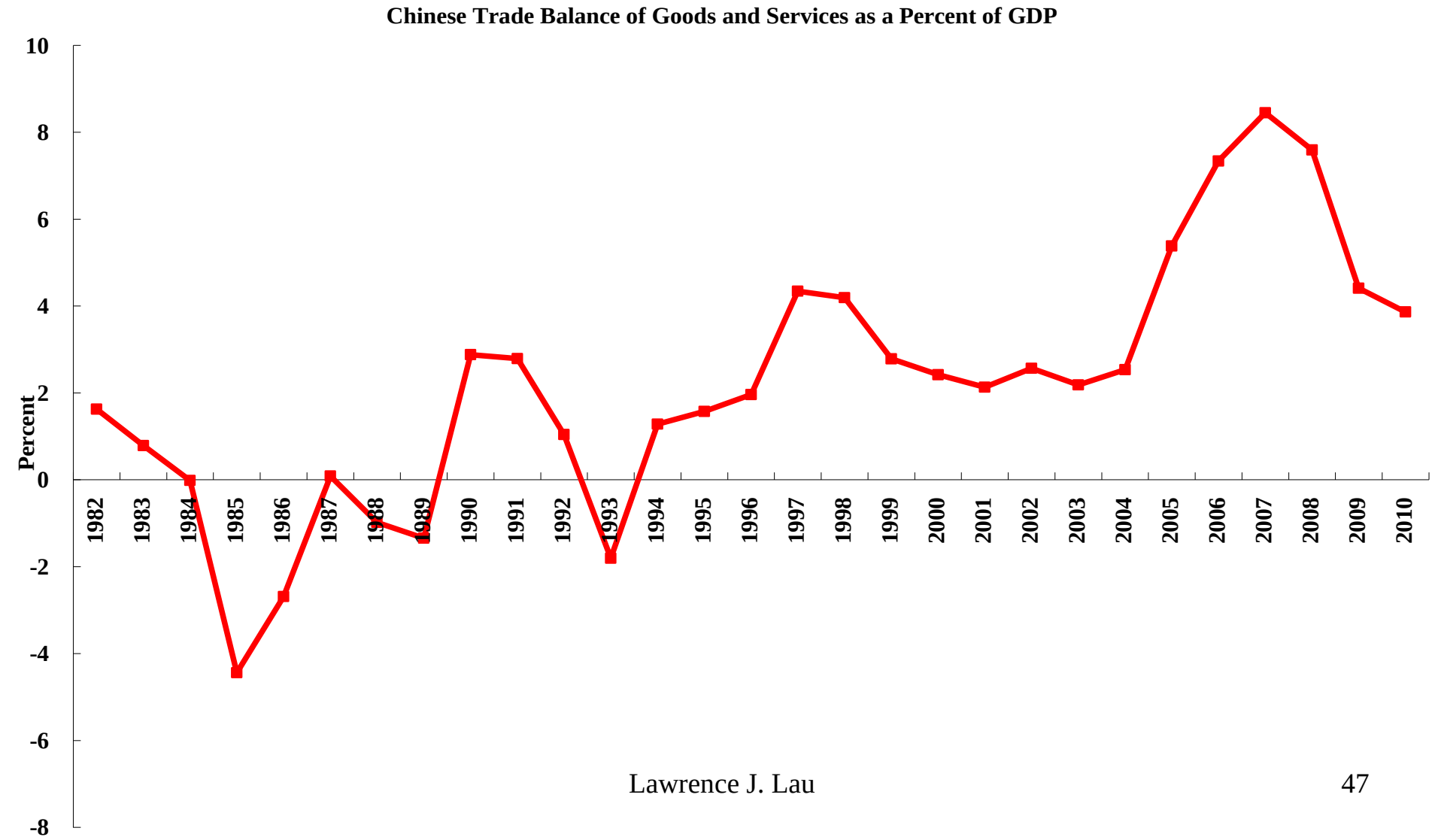
Chinese Monthly Exports, Imports and Trade Balance, US$



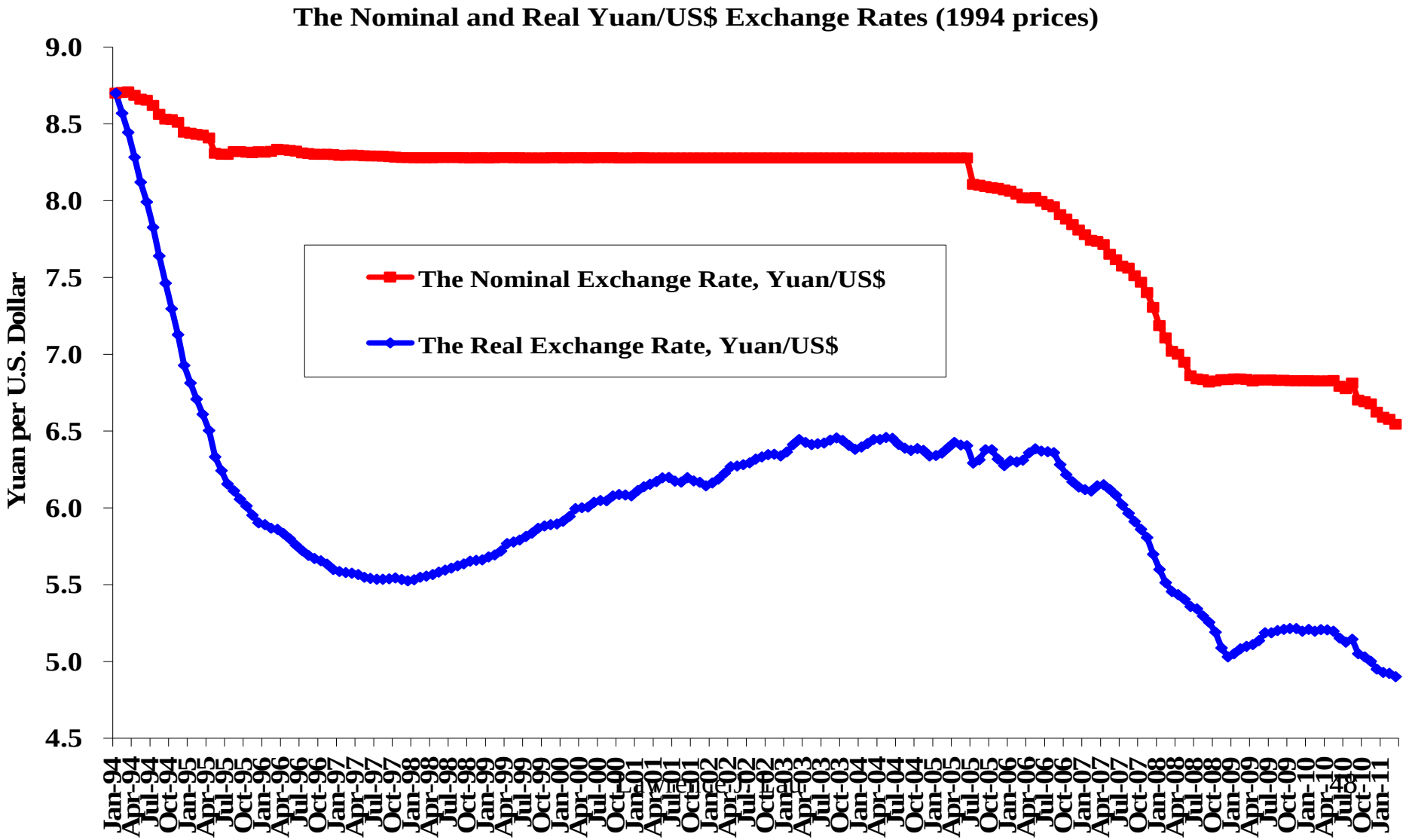
From Export-Oriented to Domestic Demand-Oriented

- Chinese trade surplus as a percent of Chinese GDP fluctuated between -4.5 percent and 4.5 percent between 1982 and 2004 with an average of less than 2 percent of GDP. It then rose to a peak of almost 9 percent in 2007. It has since declined significantly and was less than 3 percent in 2010. China should have no problem meeting a 4% trade surplus to GDP target as proposed by the United States.
- Chinese international trade in goods and services vis-à-vis the whole world is expected to be essentially balanced in a couple of years, without necessarily any large adjustments in the Yuan/US$ exchange rate.
- One reason that this is possible is the gradual closing of the savings-investment gap in China, as well as the substantial real appreciation of the Yuan versus the U.S.$ that has occurred since mid-2005, to the tune of 25%.

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



The Nominal and Real Yuan/US$ Exchange Rates



From Export-Oriented to Domestic Demand-Oriented

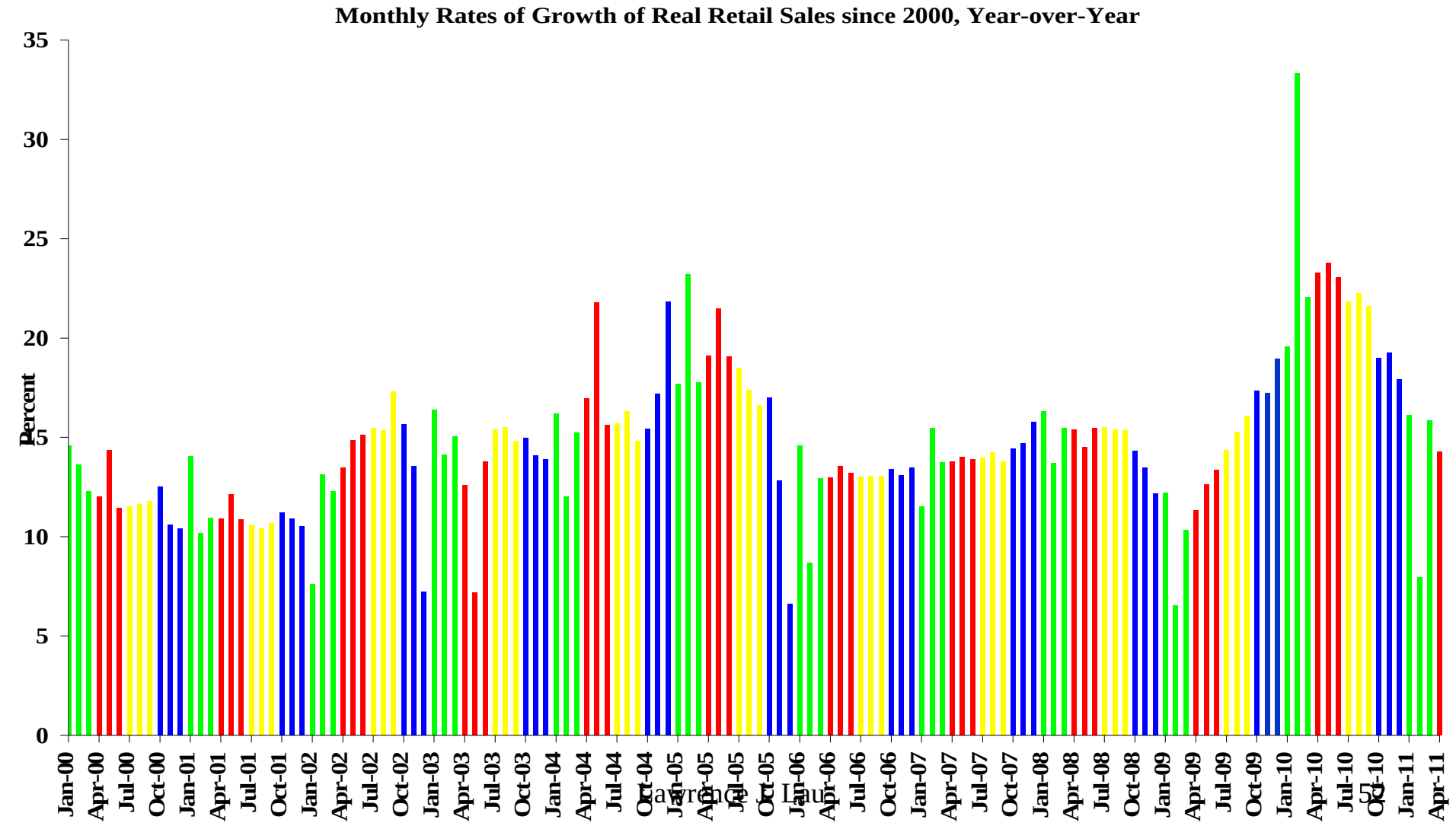
- Chinese exports as a ratio of GDP rose steadily beginning in 1978 and reached a peak of almost 40 percent in 2006 and then began to decline to approximately 25 percent in 2009.
- While this ratio appears large, it is not when compared to Hong Kong, Singapore, South Korea and Taiwan, where exports can be more than 100 percent of the respective GDPs.
- And the Chinese Exports/GDP ratio actually exaggerates the importance of exports in the Chinese economy because it fails to take into account the low domestic value-added content of Chinese exports.

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

From Export-Oriented to Domestic Demand-Oriented

- Chinese household consumption is sometimes viewed as a potential sustainable source of growth of Chinese domestic aggregate demand. It has actually been growing quite rapidly, as indicated by the double-digit monthly year-over-year rates of growth of real retail sales since the first quarter of 2009.
- The rates of growth of real retail sales have far exceeded the rates of growth of real GDP or real household income during the same period, reflecting in part the lagged adjustment process of household consumption to increases in household income.
- Real rates of growth of consumption that are significantly higher than the rates of growth of real GDP may persist for a while if real household income continues to grow rapidly. But they are sustainable only if the share of household income in GDP, currently less than 50%, continues to increase.

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



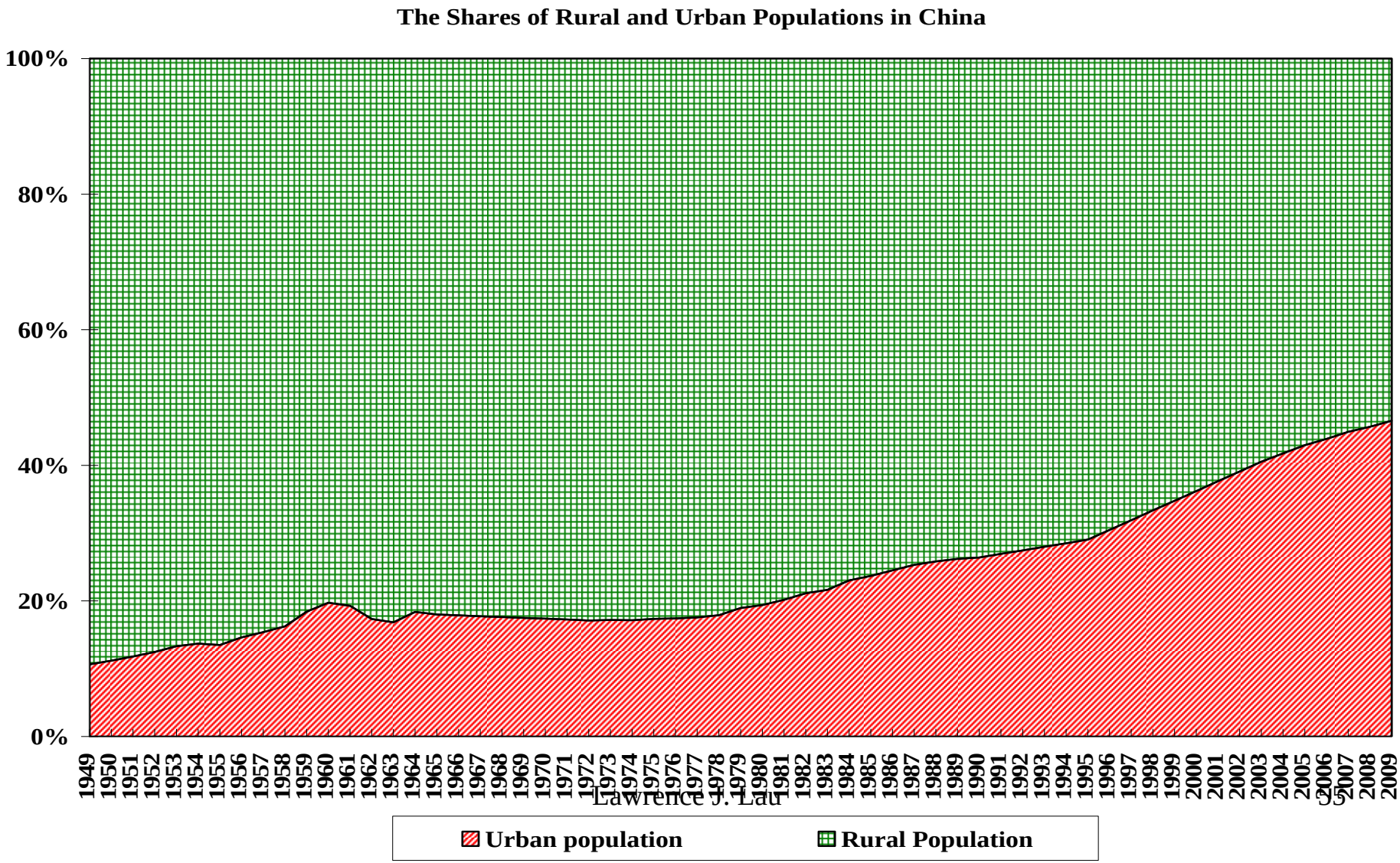
From Export-Oriented to Domestic Demand-Oriented

- The possible areas that have the potential of generating sustainable increases in aggregate domestic demand, in addition to household consumption and public infrastructural investment (e.g., high speed railroads, power plants, etc.), include investments in the following sectors:
- (1) Owner-occupied residential housing;
- (2) Education and health care and the application of high technology in these sectors;
- (3) Urbanisation (building new cities including urban mass-transit systems);
- (4) Energy conservation, environmental protection and preservation and renewable energy.

From Export-Oriented to Domestic Demand-Oriented: Urbanisation

- The share of rural population in China was just under 90% in 1949. By 1978, the beginning of the Chinese economic reform and opening to the World, the share of rural population was 82%.
- By 2010, the share of rural population has fallen to 52.5%. Still more than half of Chinese population lives in rural areas. It is expected to continue to fall during the period of the Twelfth Five-Year Plan, 2011-2015, by 4 percentage points, to 48.5%.
- The rate of decline of the share of rural population has been approximately 1 percentage point per year, about the same rate of decline as the share of employment of the primary (agriculture and mining) sector.
- It is expected that the share of rural population will continue to decline by 1 percentage point a year until 2040, when the share of rural population will have fallen below 25%.

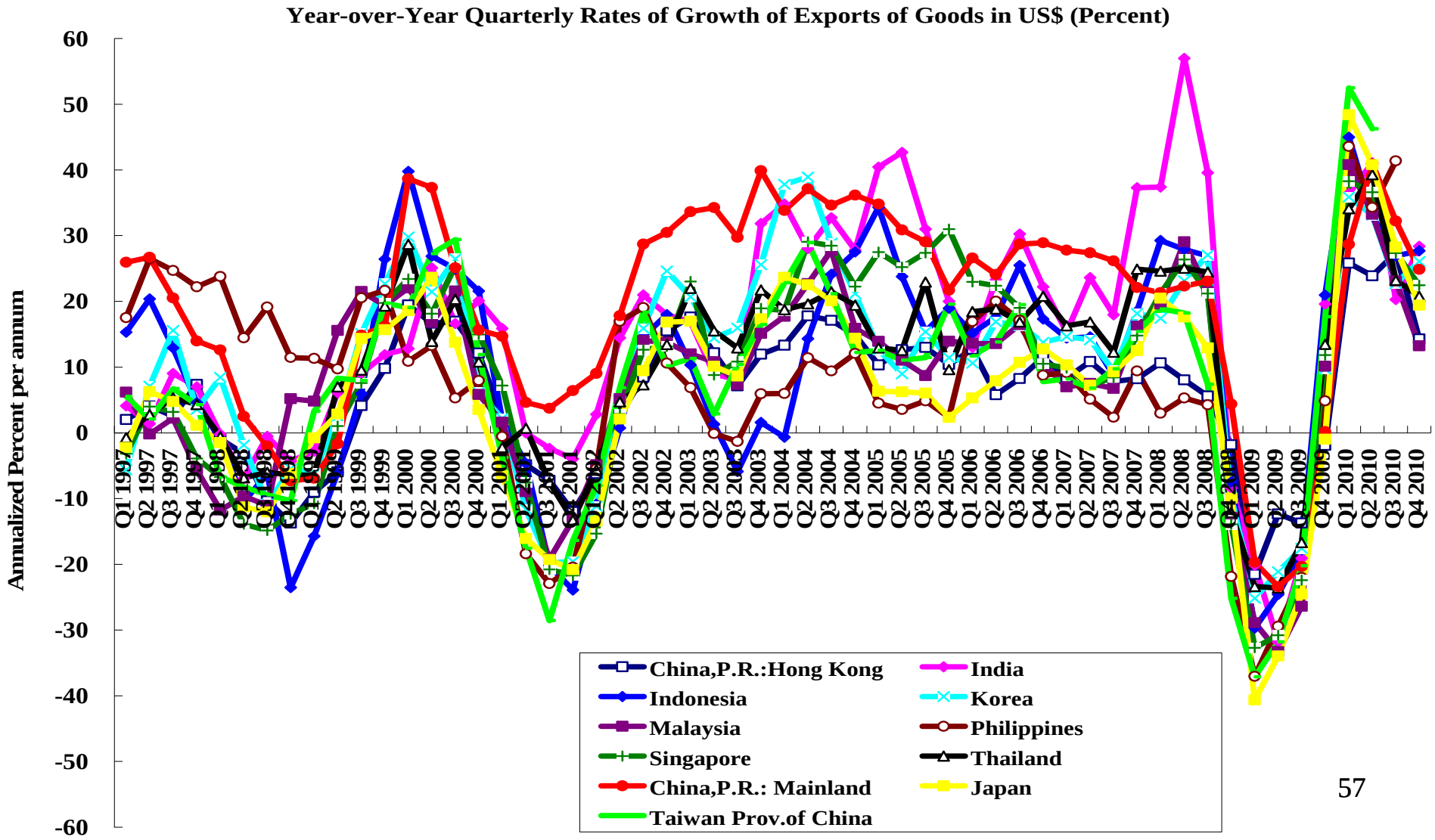
The Shares of Rural and Urban Population in China, 1949-Present



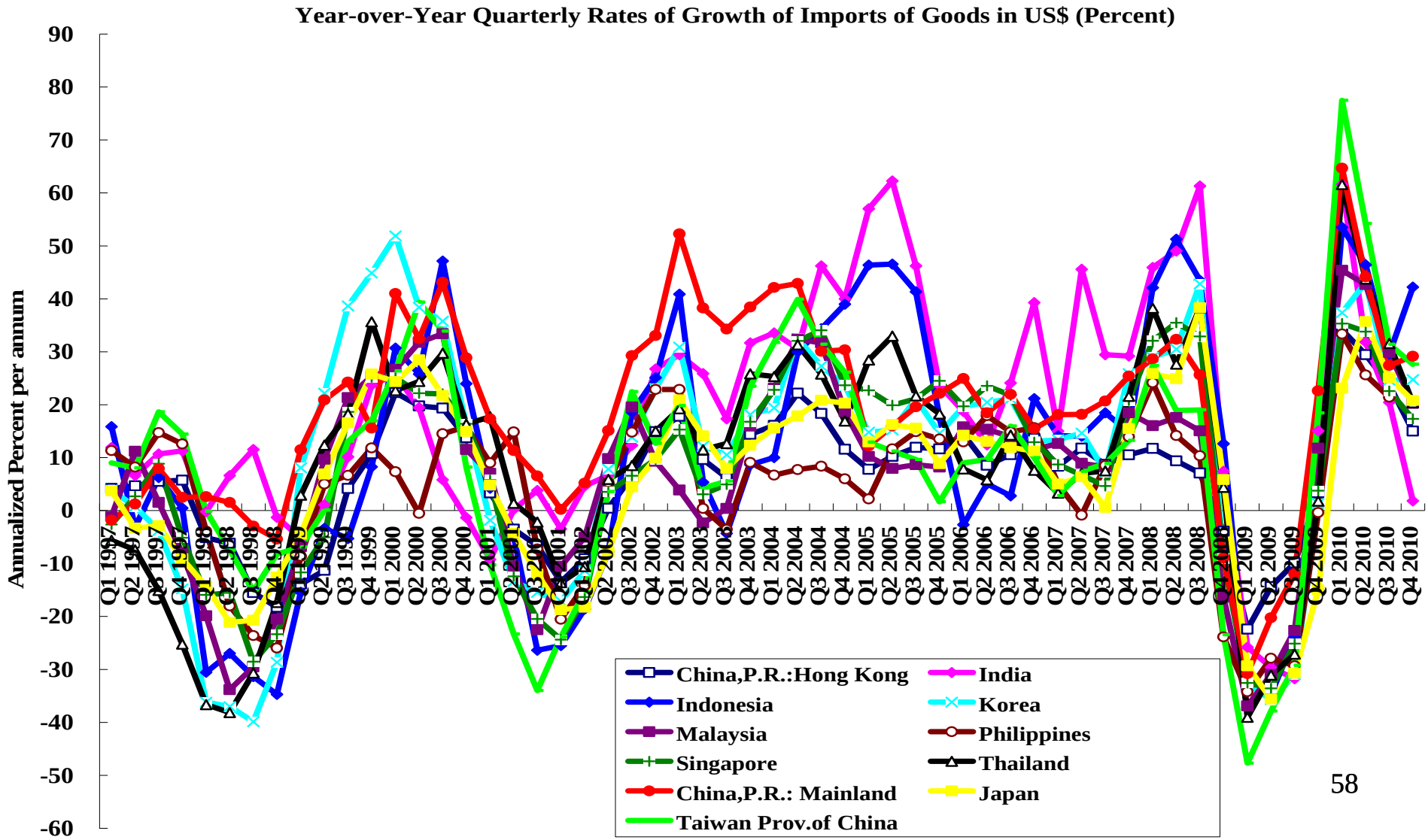
From Export-Oriented to Domestic Demand-Oriented

- An important implication of the relatively low export dependence of Chinese GDP is that the rate of growth of Chinese real GDP is relatively stable, unlike those of other East Asian economies, even as Chinese exports and imports fluctuate as widely as the exports and imports of other East Asian economies. (see the following charts on the rates of growth of exports, imports and real GDP of East Asian economies).
- In addition, China is a large, continental economy like the United States that is relatively self-sufficient and is therefore relatively insulated from disturbances in the rest of the World.

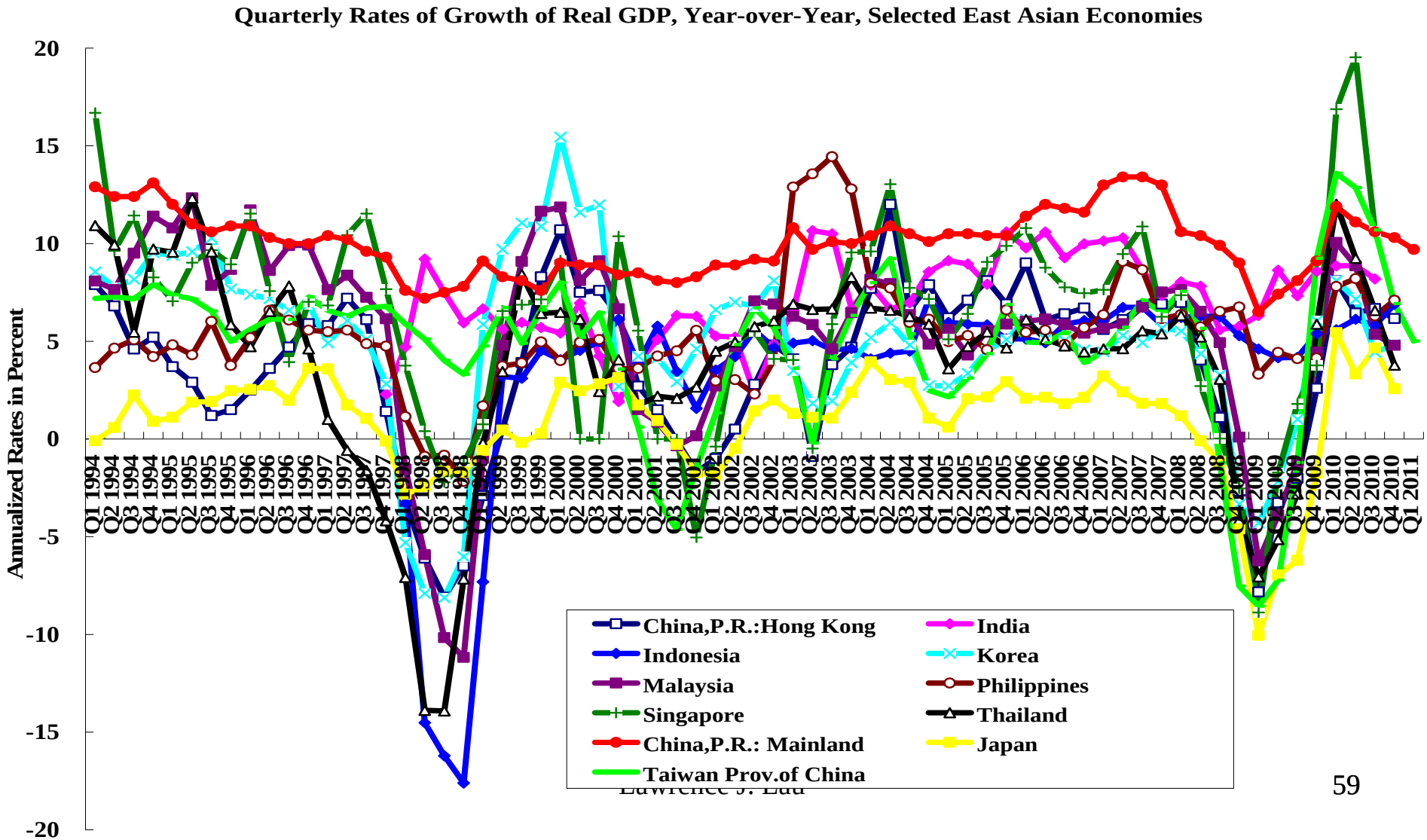
Quarterly Rates of Growth of Exports of Goods: Selected East Asian Economies



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



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



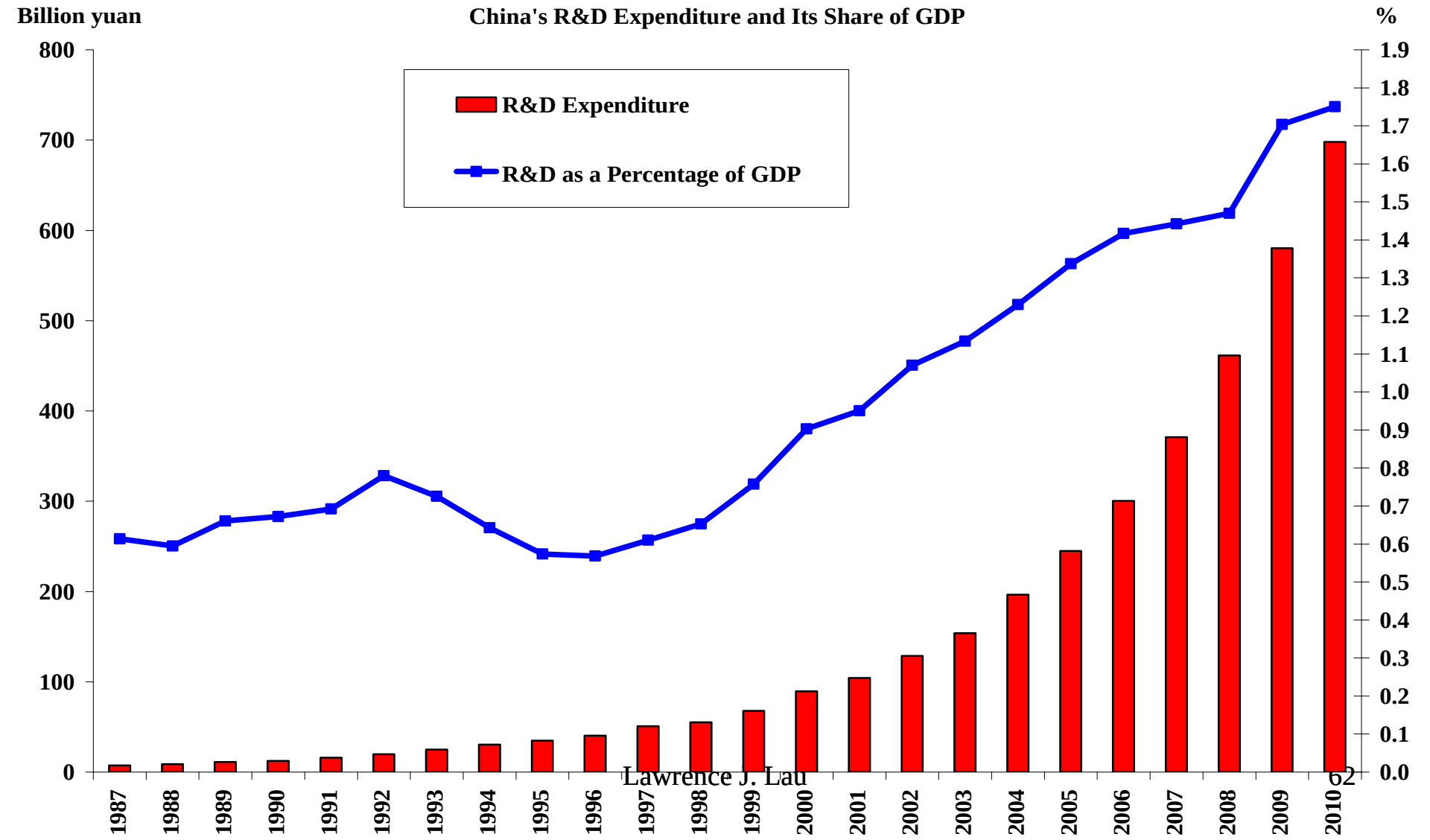
From Export-Oriented to Domestic Demand-Oriented

- The fact that the Chinese economy has continued to grow at an average rate of approximately 10% per annum since the beginning of the global financial crisis in 2007 is further proof that the Chinese economy has been at least partially de-coupled from the rest of the World, and in particular, from the United States and Europe, both of which have been mired in economic recession and recovering very slowly.

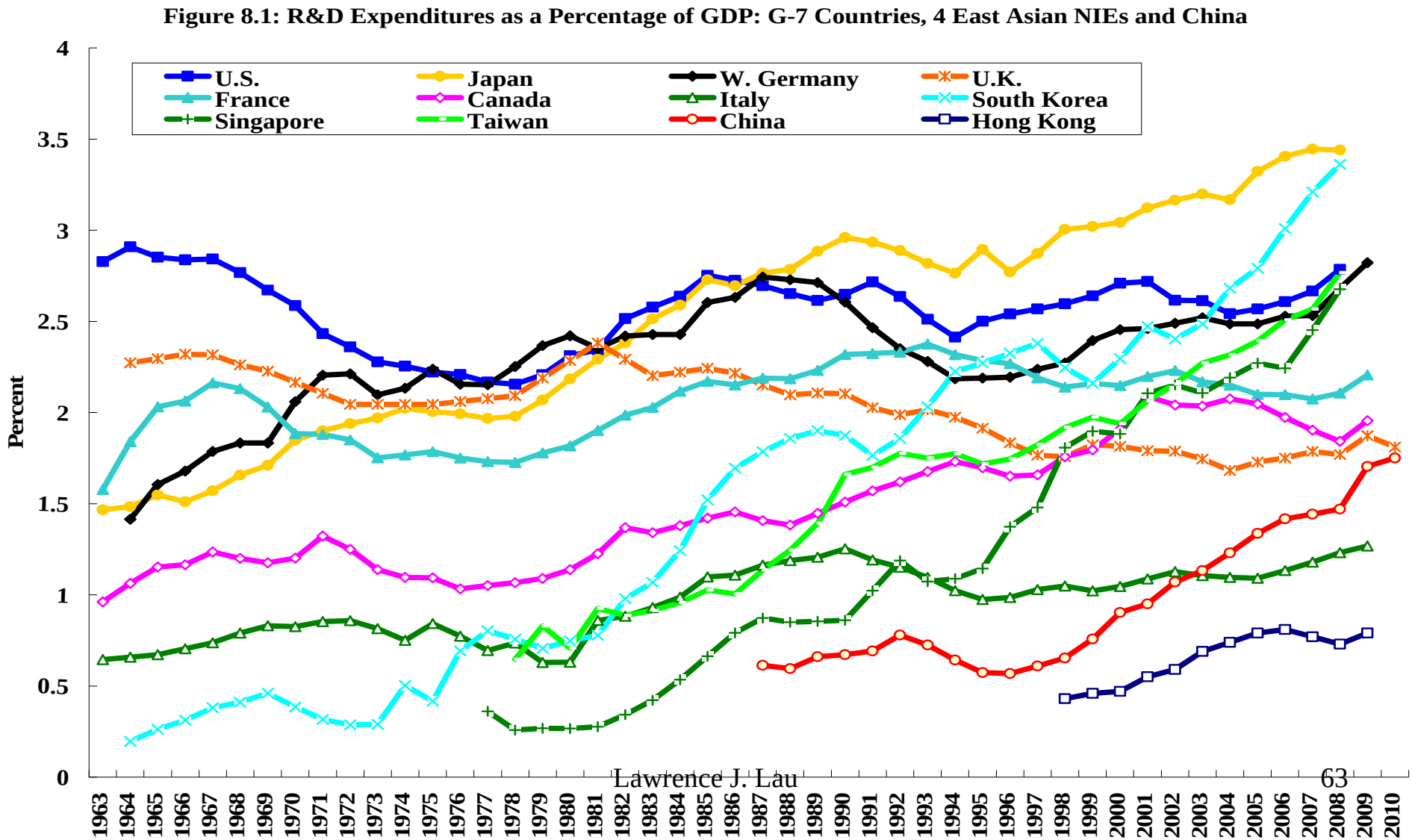
From Input-Driven to Technical Progress-Driven

- Sustained investment in R&D is essential for technical progress in an economy. China has also begun to invest heavily in R&D in recent years--R&D expenditure has been rising rapidly, both in absolute value, and as a percentage of GDP, but 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 2.2% in 2015, still below the historical average for the U.S.
- By comparison, both Japan and South Korea invest more than 3% of their GDPs in R&D annually. The United States has on average invested approximately 2.5% of its GDP in R&D since the late 1950s.

China's R&D Expenditure and Its Share of Chinese GDP



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

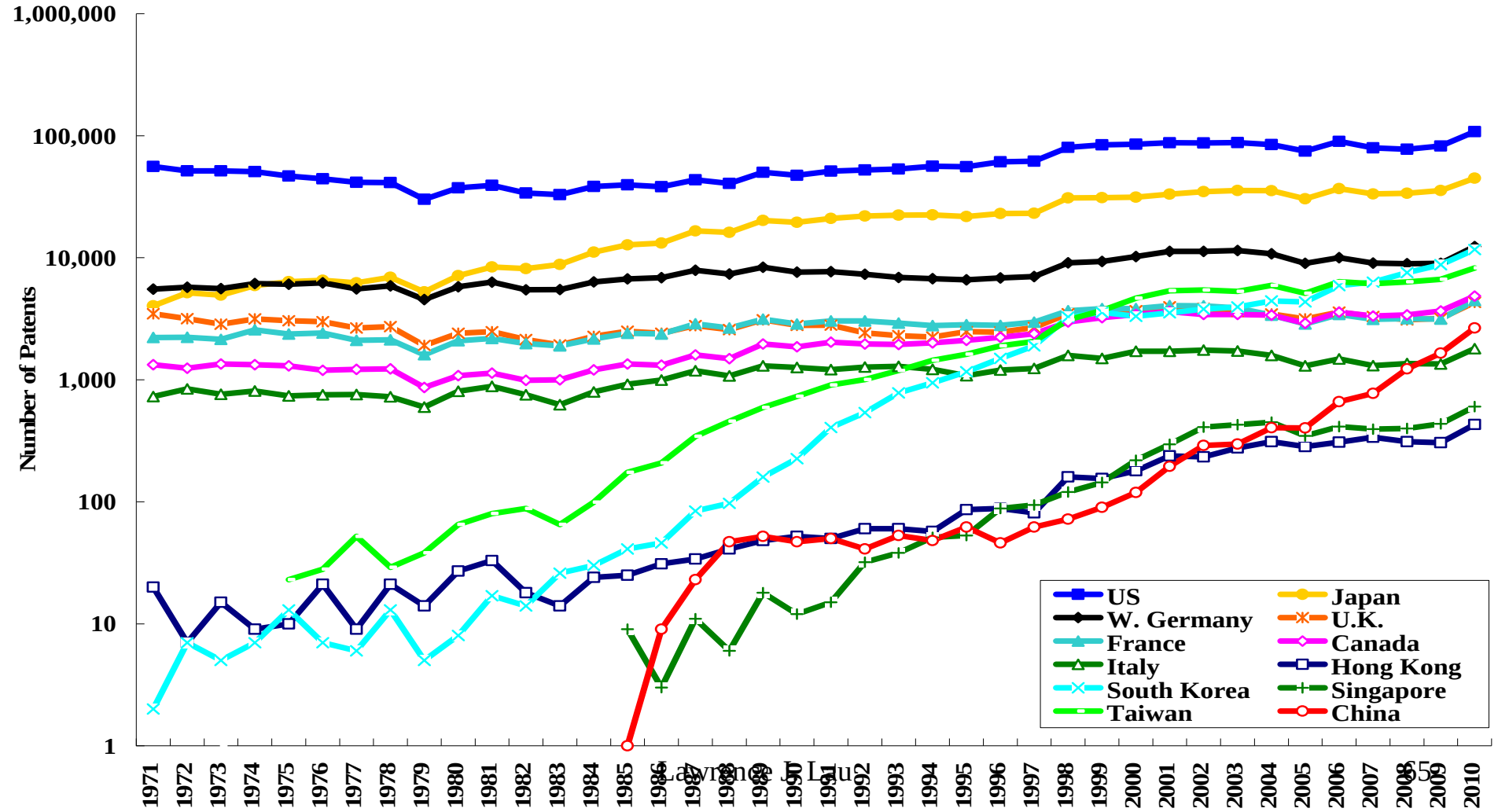


From Input-Driven to Technical Progress-Driven

- One indicator of the potential for technical progress (national innovative capacity) is the number of patents created each year. In the following chart, the number of patents granted in the United States each year to the nationals of different countries, including the U.S. itself, over time is presented.
- The U.S. is the undisputed champion over the past forty years, with more than 100,000 patents granted in 2010, followed by Japan, with approximately 45,000.
- Since these are patents granted in the U.S., the U.S. may have a home advantage; however, for all the other countries, the comparison across them should be fair.

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

Figure 8.3: Patents Granted Annually in the United States: G7 Countries, 4 East Asian NIEs and China

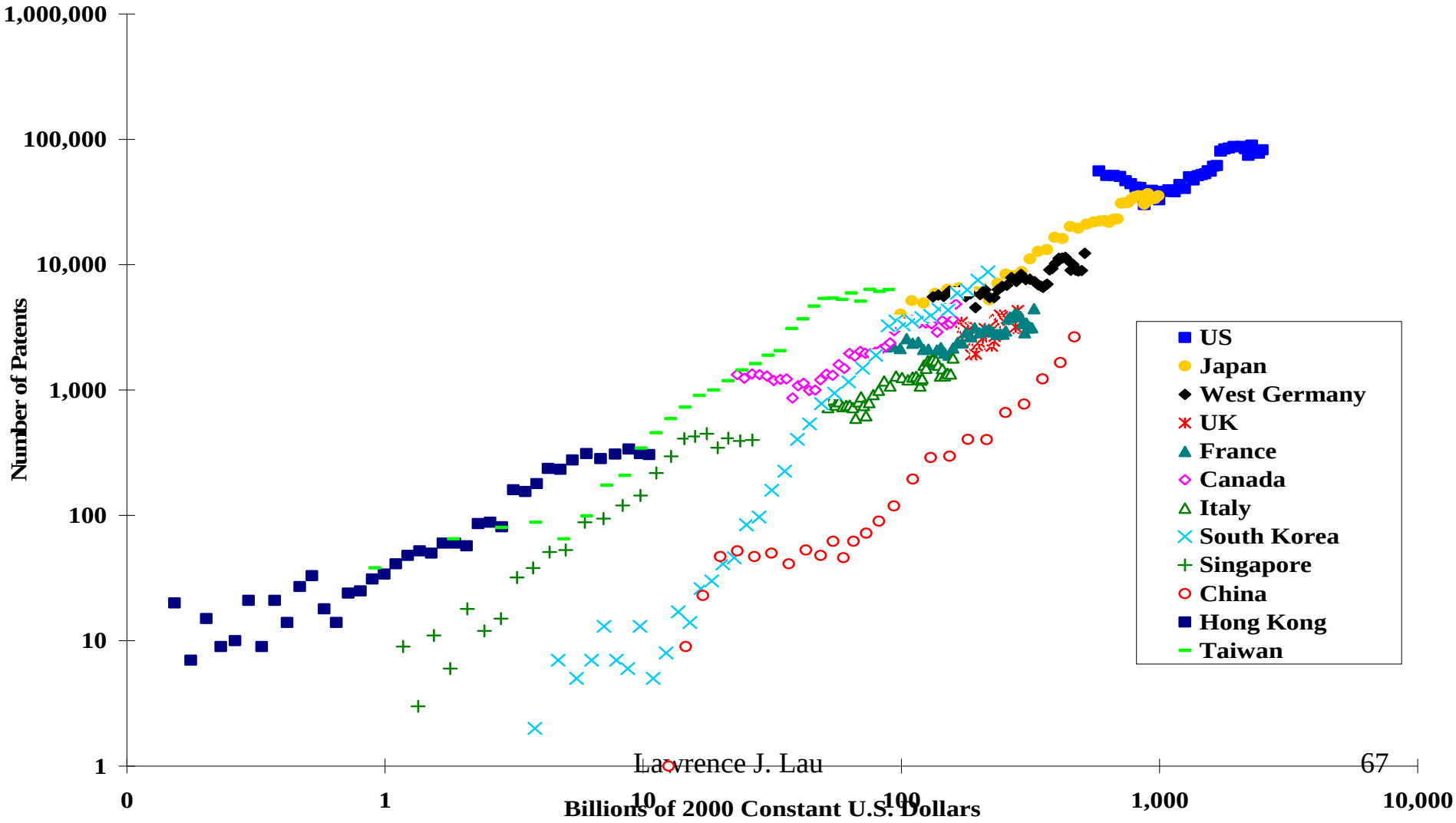


From Input-Driven to Technical Progress-Driven

- The number of patents granted to Chinese applicants each year has increased from 1 in 1985 to 2,657 patents in 2010.
- South Korea and Taiwan are still ahead of China in terms of the number of patents granted in the U.S., with 11,671 and 8,238 patents in 2010 respectively.
- The stock of R&D capital, defined as the cumulative past real expenditure on R&D less depreciation of 10% per year, can be shown to have a direct causal relationship to the number of patents granted (see the following chart, in which the number of patents granted is plotted against the R&D capital stock for each country and each year).

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

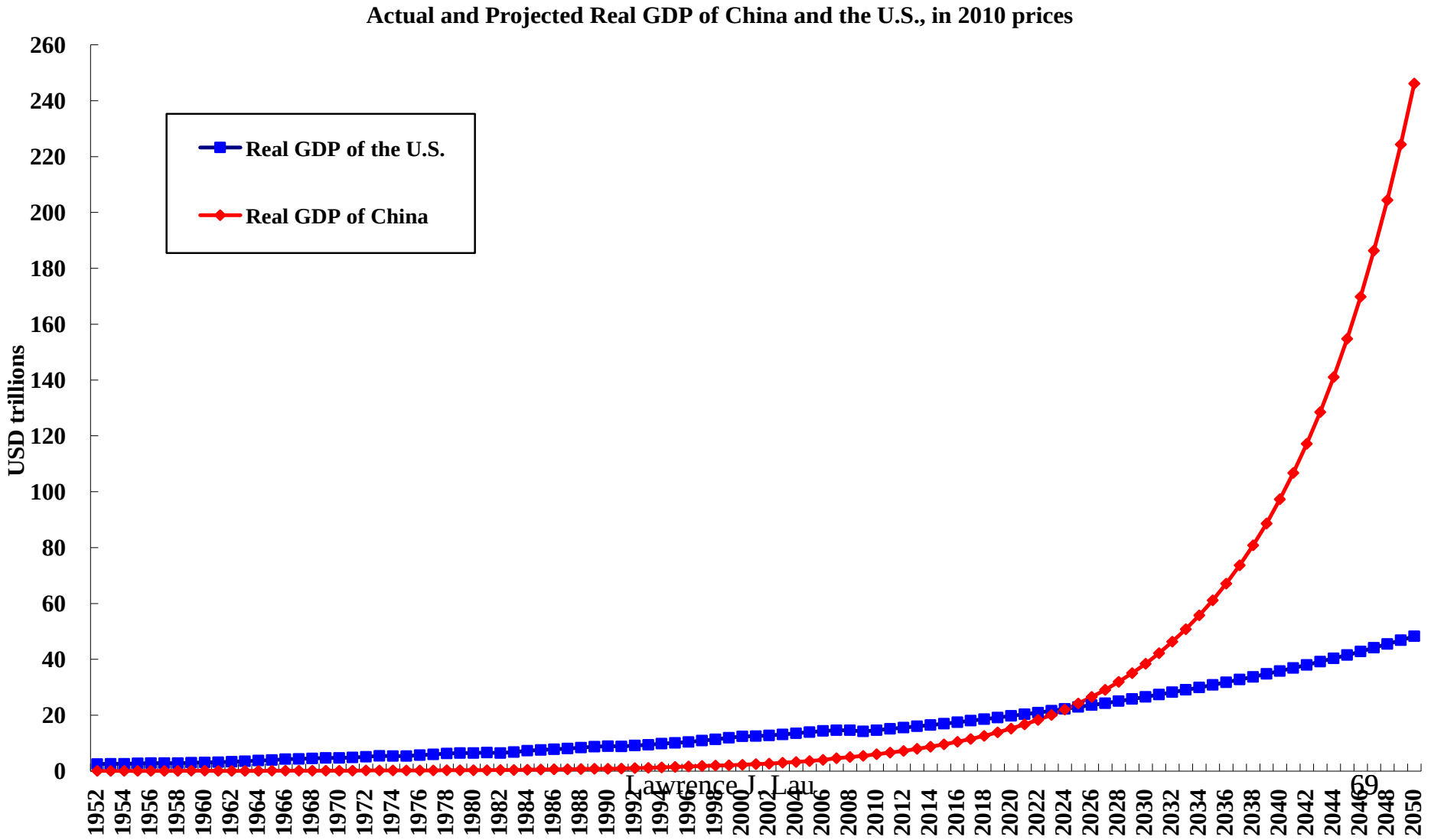
Figure 8.4: The Number of U.S. Patents Granted Annually vs. R&D Capital Stocks



Projections of the Future

- If current trends continue, Chinese real GDP will approach the level of U.S. real GDP in approximately 15 years' time--around 2025, at which time Chinese real GDP will exceed US$20 trillion (in 2010 prices) and Chinese real GDP per capita will exceed US$ 14,000.
- By that time, 2025, China and the U.S. will each account for approximately 15% of World GDP.

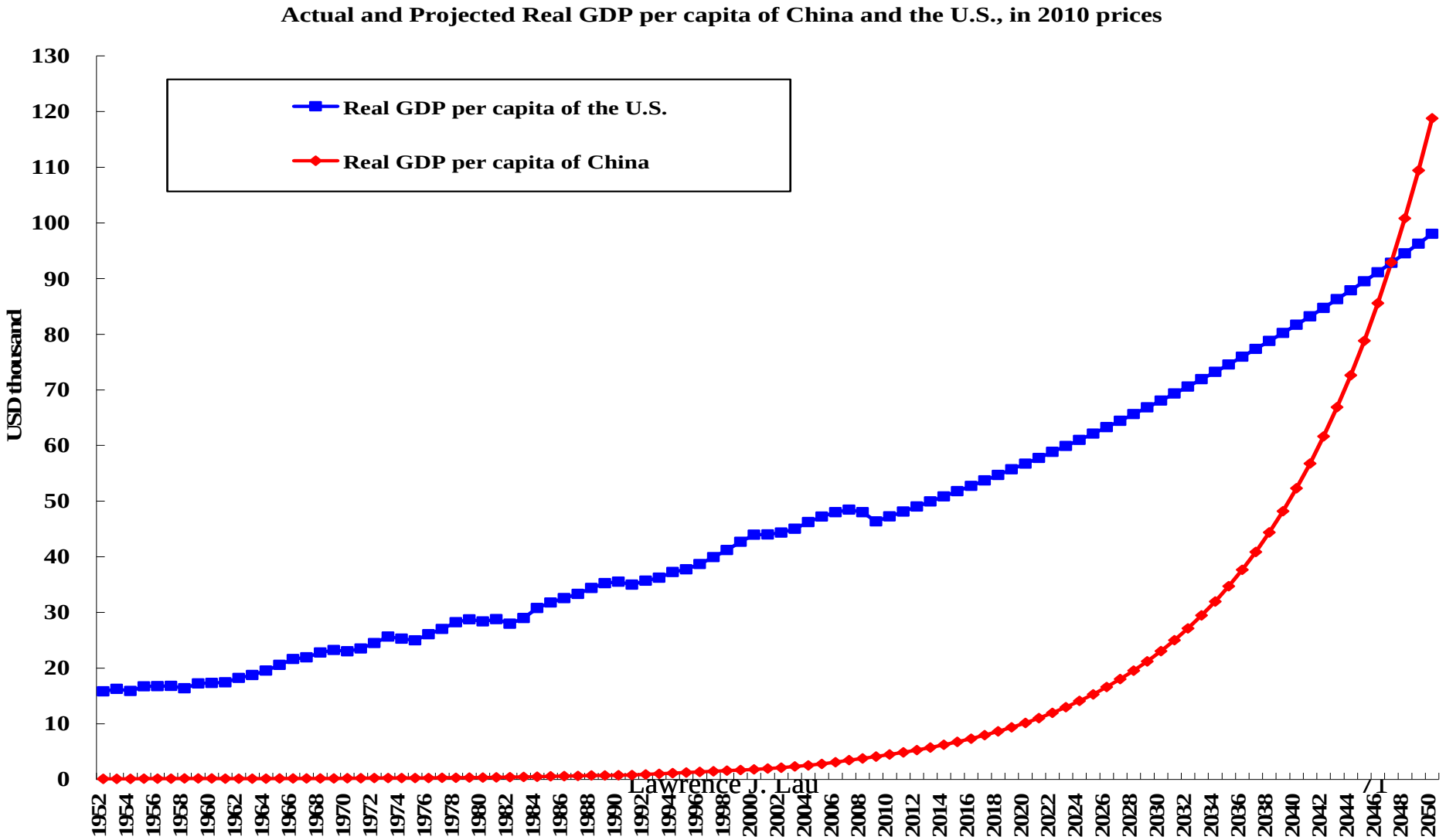
Actual and Projected Mainland Chinese and U.S. Real GDP (trillion 2010 US$)



Projections of the Future

- It will take another 20-25 years, between 2045 and 2050, before China reaches the same level of real GDP per capita as the United States, at US$90,000 in 2010 prices (bear in mind that in the meantime, the U.S. economy will also continue to grow, albeit at rates significantly lower than those of the Chinese economy and that Chinese population will reach a peak around 2035 and then begin to decline slowly).
- By that time, Chinese GDP will be approximately 6 times U.S. GDP, and will account for between a third and a half of World GDP (depending on the growth rates of other economies, especially the developing economies of today).

Actual and Projected Mainland Chinese and U.S. Real GDP per Capita (2010 US$)



Concluding Remarks

- Given its economic fundamentals, the Chinese economy will be able to continue to grow rapidly over the next couple of decades, at an average rate of between 7% and 8% per annum.
- In the long run, the sources of sustainable Chinese aggregate demand will be internal: household and public consumption, investment in infrastructure (including high-speed inter-urban trains), urbanisation (building new cities including urban mass-transit systems), investment in owner-occupied residential housing, investment in education and health care, energy conservation environmental protection and preservation, and renewable energy.

Concluding Remarks

- Consumption will rise, as GDP per capita and the real wage rate rise and the social safety net is gradually perfected. But the national savings rate will remain high for a long time, which implies that China does not need to depend on foreign investment or foreign loans to finance its continuing economic development and growth.
- Exports as a share of Chinese GDP will probably continue to decline over time, as befitting a large, continental economy like the United States. It is therefore also relatively self-sufficient and hence relatively insulated from disturbances in the rest of the World (with the possible exception of the World oil market).

Concluding Remarks

- Chinese economic growth will be marginally, but not critically, affected by a large decline in its exports, as demonstrated by its experience in the past couple of years as well as during the 1997-1998 East Asian currency crisis. Thus, it will be able to survive even prolonged economic recessions in the European and U.S. economies.
- The Renminbi will be used more and more in the settlement of Chinese international trade with East Asian economies and perhaps even in the settlement of trade among East Asian economies.

Concluding Remarks

- For 2011, the short-term economic targets of the Chinese Government are to achieve a real rate of growth of 8 percent and a rate of inflation of 4 percent. I am confident that both targets are achievable.