

Measuring the Chinese Economy

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Introduction

- ◆ The Chinese Economy Today
- ◆ The Measurement of Chinese GDP
- ◆ The Measurement of Household Consumption
- ◆ The Measurement of International Trade
- ◆ The Lack of Seasonally Adjusted Data
- ◆ Concluding Remarks

The Chinese Economy Today

- ◆ Mainland China is currently the fastest growing economy in East Asia and the World—averaging approximately 10% per annum since the beginning of economic reform in 1978 thirty years ago.
- ◆ Between 1978 and 2007, Chinese real GDP grew fifteen-fold from US\$227 billion to US\$3.38 trillion (2007 prices) (4th largest economy in the world) and real GDP per capita grew more than ten-fold from US\$236 to US\$2,541. By contrast, the U.S. GDP (approximately US\$13.84 trillion) and GDP per capita (approximately US\$45,671) are respectively 4 and 18 times the comparable Chinese figures in 2007.
- ◆ Despite its rapid growth, China is still a developing economy in terms of its real GDP per capita. An economy is generally considered to be developed if its GDP per capita exceeds US\$10,000. It will probably take another 20-25 years before China joins the ranks of developed economies, and a further 20-25 years before China reaches the same level of per capita GDP as the United States (some time around the middle of the 21st Century).

The Chinese Economy Today

	1978	2007
	US\$ (2007 prices)	
Real GDP	227 bill.	3.38 trill.
Real GDP per capita	236	2,541

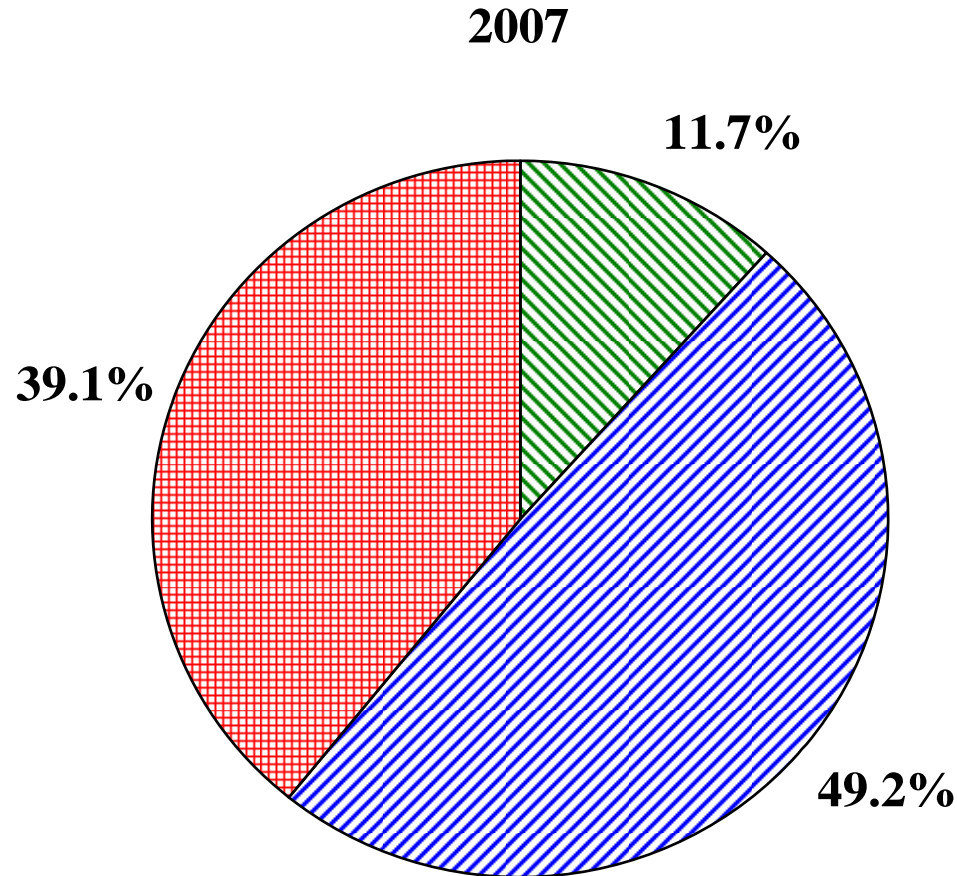
The Chinese Economy Today

	U.S.	China
	US\$ (current prices)	
2007 GDP	13.84 trill.	3.38 trill.
2007 GDP per capita	45,671	2,541

The Measurement of Chinese GDP

- ◆ Based primarily on the measurement of output rather than expenditure
- ◆ The unreliability of provincial and local measurements
- ◆ The under-measurement of the service sector
- ◆ The treatment of the real estate development industry
- ◆ The treatment of unsold inventory

The Sectoral Distribution of Chinese GDP, 2007



■ Primary Industry ■ Secondary Industry ■ Tertiary Industry

The Sectoral Distribution of Chinese GDP, 2007

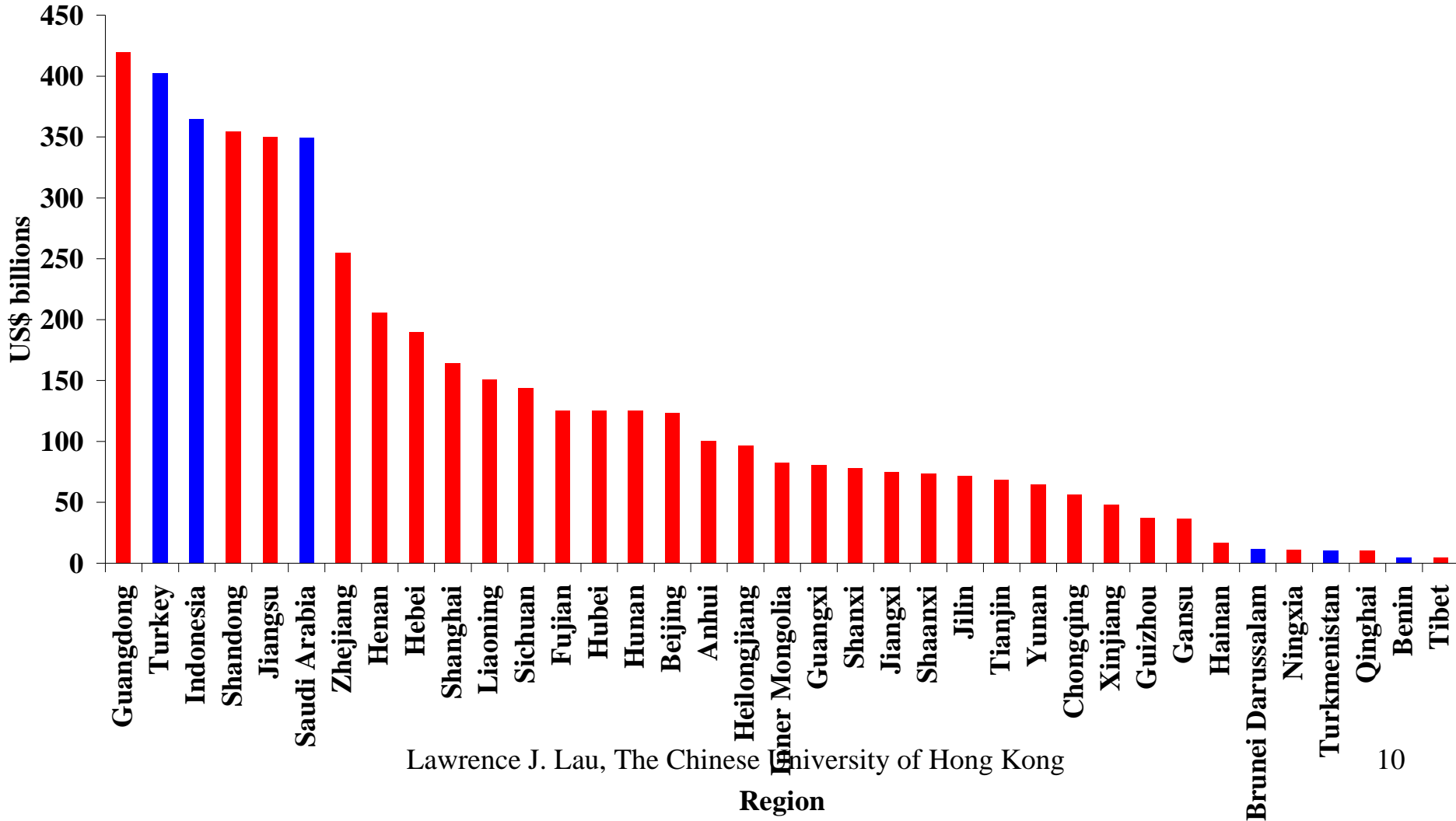
- ◆ The distribution of Chinese GDP by originating sector has become approximately: Primary, 11.7%; Secondary, 49.2%; and Tertiary, 39.1%. But the bulk of the labor force, more than 40%, is still in the primary sector, ensuring that there is no upward pressure on the real wage rate for unskilled entry-level labor for decades to come.

Inter-Provincial Diversity

Rank by GDP	GDP in 2007 (USD bn)	Rank by Population	Population in 2007 (Persons mn)	Rank by GDP per capita	GDP per capita in 2007 (USD)
Guangdong	420	Henan	99	Shanghai	8,843
Henan	206	Guangdong	94	Guangdong	4,444
Shanghai	164	Guizhou	40	Henan	2,089
Guizhou	37	Shanghai	19	Tibet	1,649
Tibet	5	Tibet	3	Guizhou	933

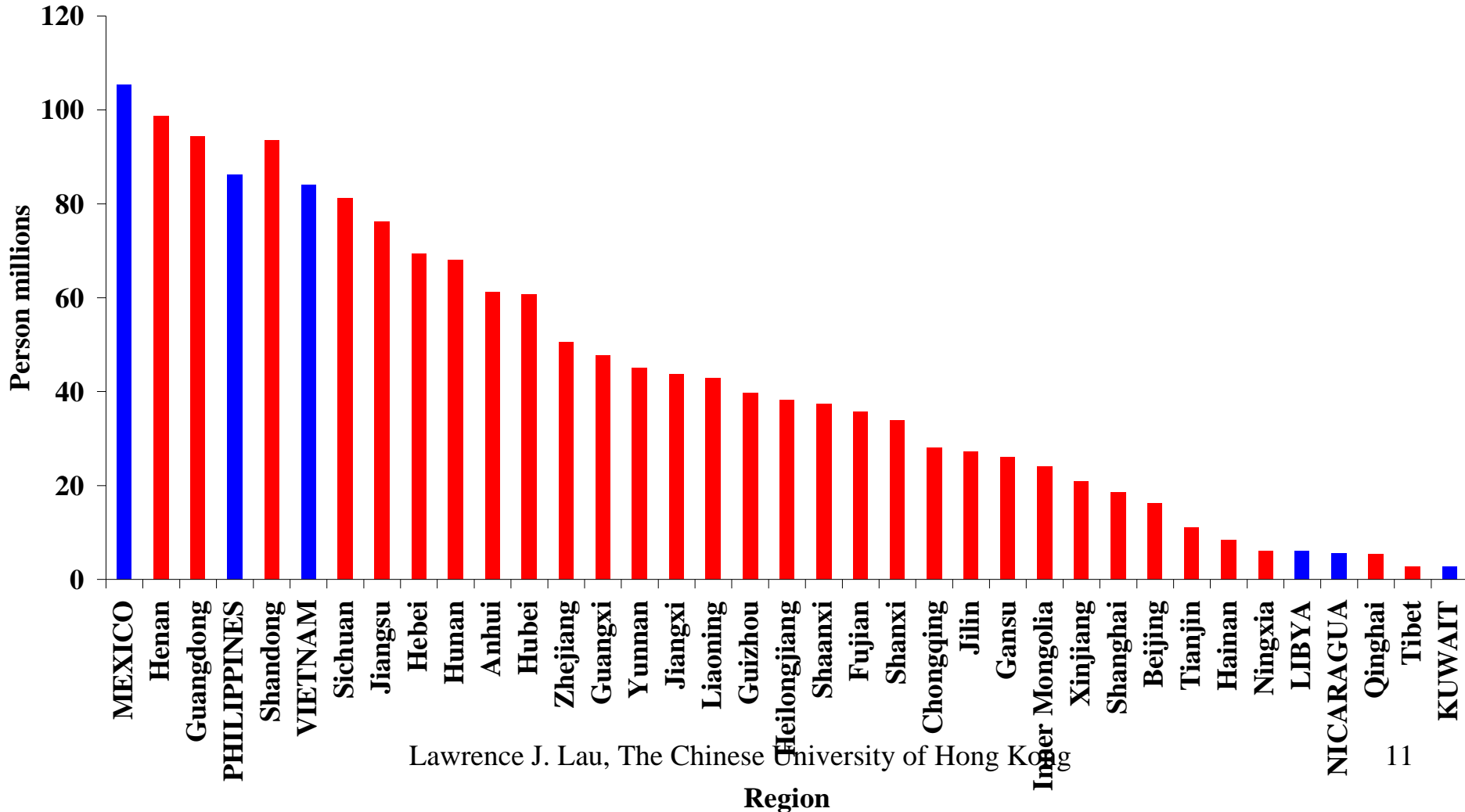
Inter-Provincial Diversity--GDP

Rank by GDP in 2007



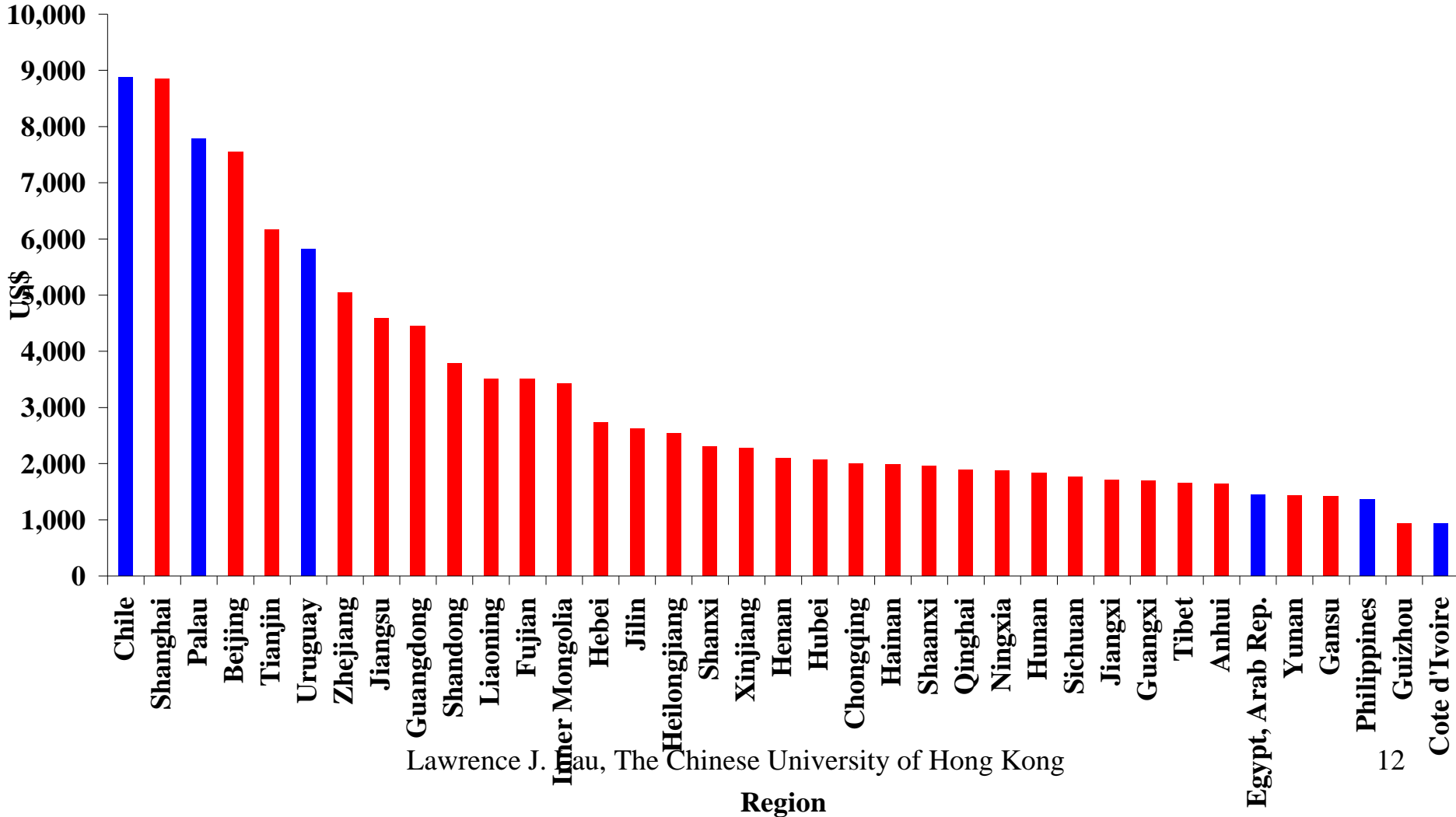
Inter-Provincial Diversity--Population

Rank by Population in 2007



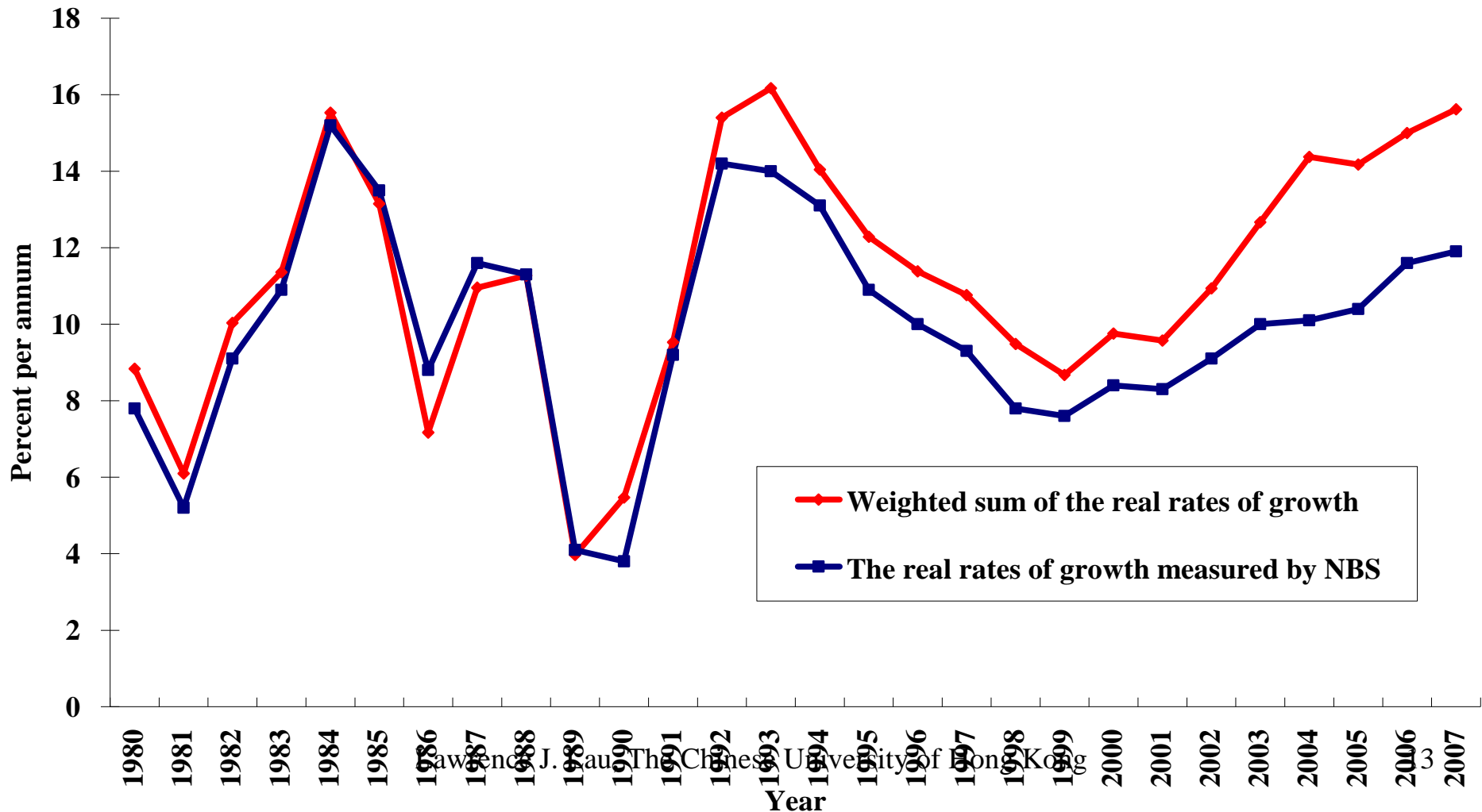
Inter-Provincial Diversity— GDP per Capita

Rank by GDP per Capita in 2007



Weighted Sum of Provincial and Aggregate NBS Real Rates of Growth

Comparison between the Weighted Sum of the Provincial Real Rates of Growth and the NBS Aggregate Real Rate of Growth



The Inconsistency between National & Provincial/Regional/Municipal Data

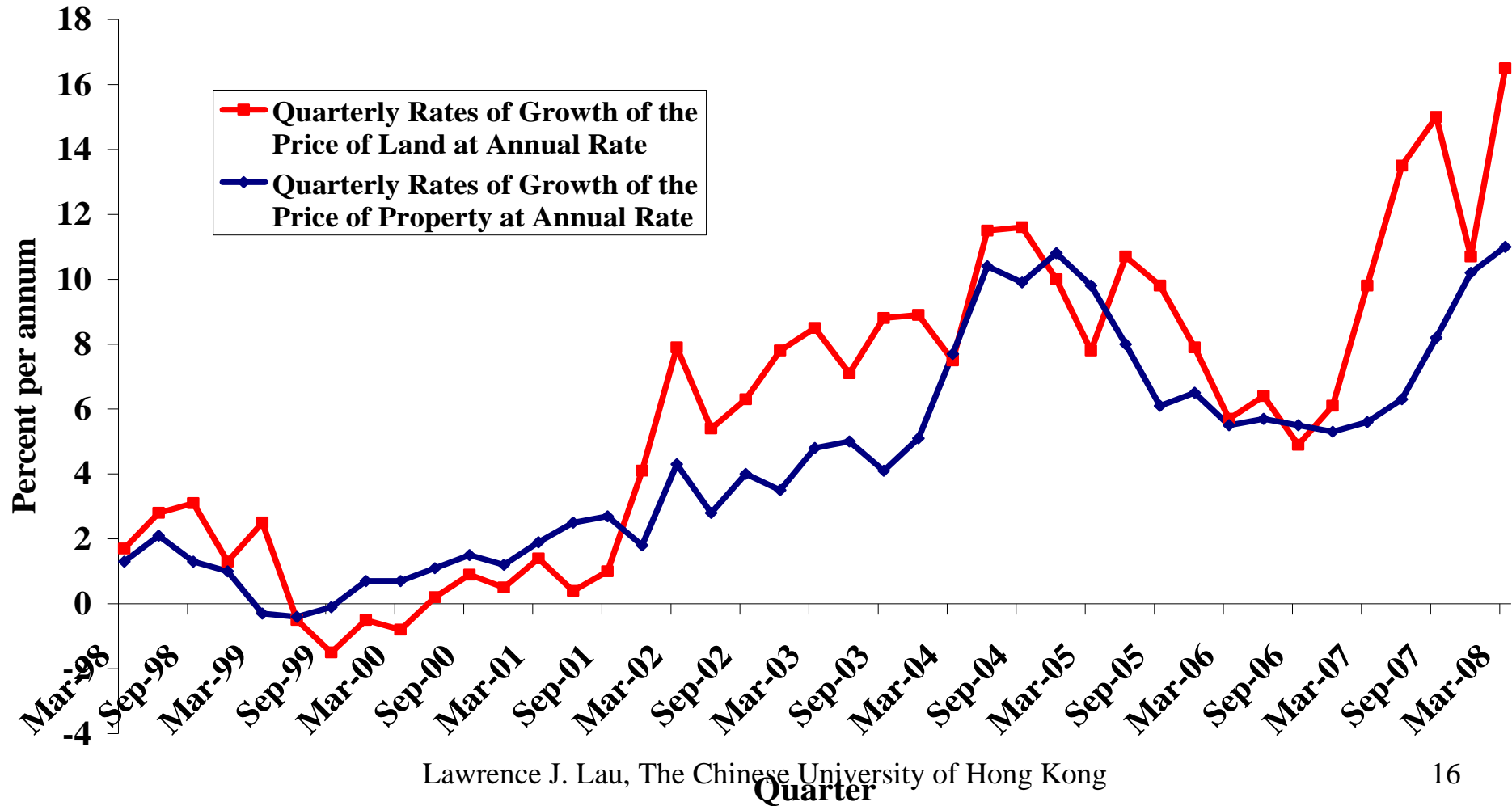
- ◆ As the National Bureau of Statistics states in the Chinese Statistical Yearbook, "Regional data in this Yearbook are prepared from the national accounts data provided by the statistical bureaus of the provinces, autonomous regions and municipalities. The sum of the regional data is not equal to the national total due to the decentralized accounting approach."

The Treatment of Real Estate Development

- ◆ The growth of the Chinese economy since 2003 has been largely driven by real estate development.
- ◆ Value-added from real estate development should not include the appreciation in value of the land per se but should include only the value of the improvements put in by the developers. It is, however, difficult to separate the two components.
- ◆ In the Chinese case the situation is worsened by the fact that most of the land have extremely low, almost zero basis, compared to the market price of land. Thus, when a developer sells completed houses and flats, the revenue consists of both the value-added, and a large “appreciation” component.
- ◆ This latter component should have been omitted from the estimation of value-added/GDP but can be included in the estimation of wealth. To the extent that this component cannot be isolated, the estimates of the value-added of the real estate development sector will be upward-biased. This bias will disappear as below-market low or zero-basis land is exhausted and no longer available.

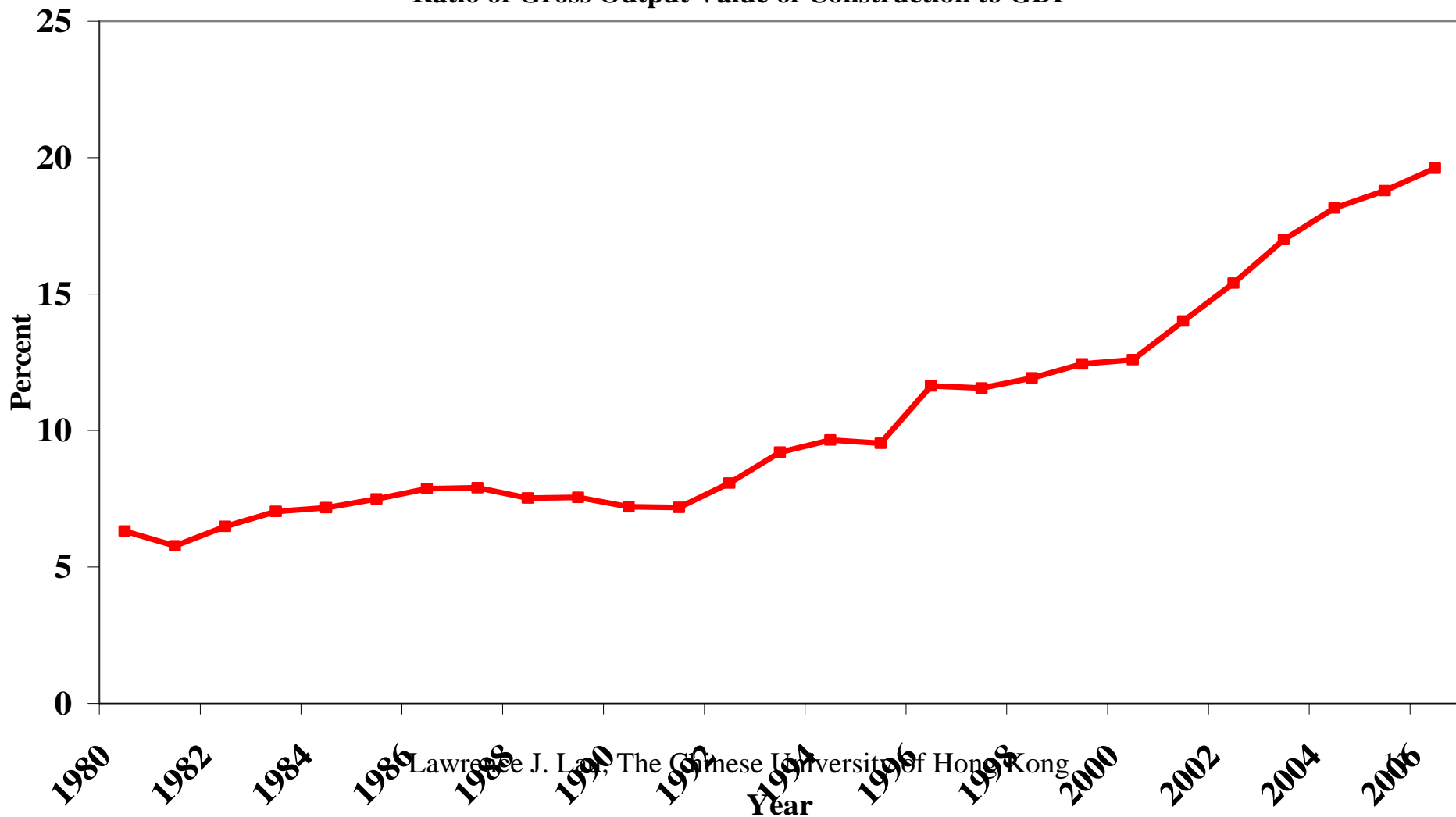
Quarterly Rates of Growth of the Prices of Real Estate at Annual Rate (Y-o-Y)

Quarterly Rates of Growth of the Price of Land at Annual Rate



The Ratio of Gross Output Value of Construction to GDP (Percent)

Ratio of Gross Output Value of Construction to GDP



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The Measurement of Household Consumption

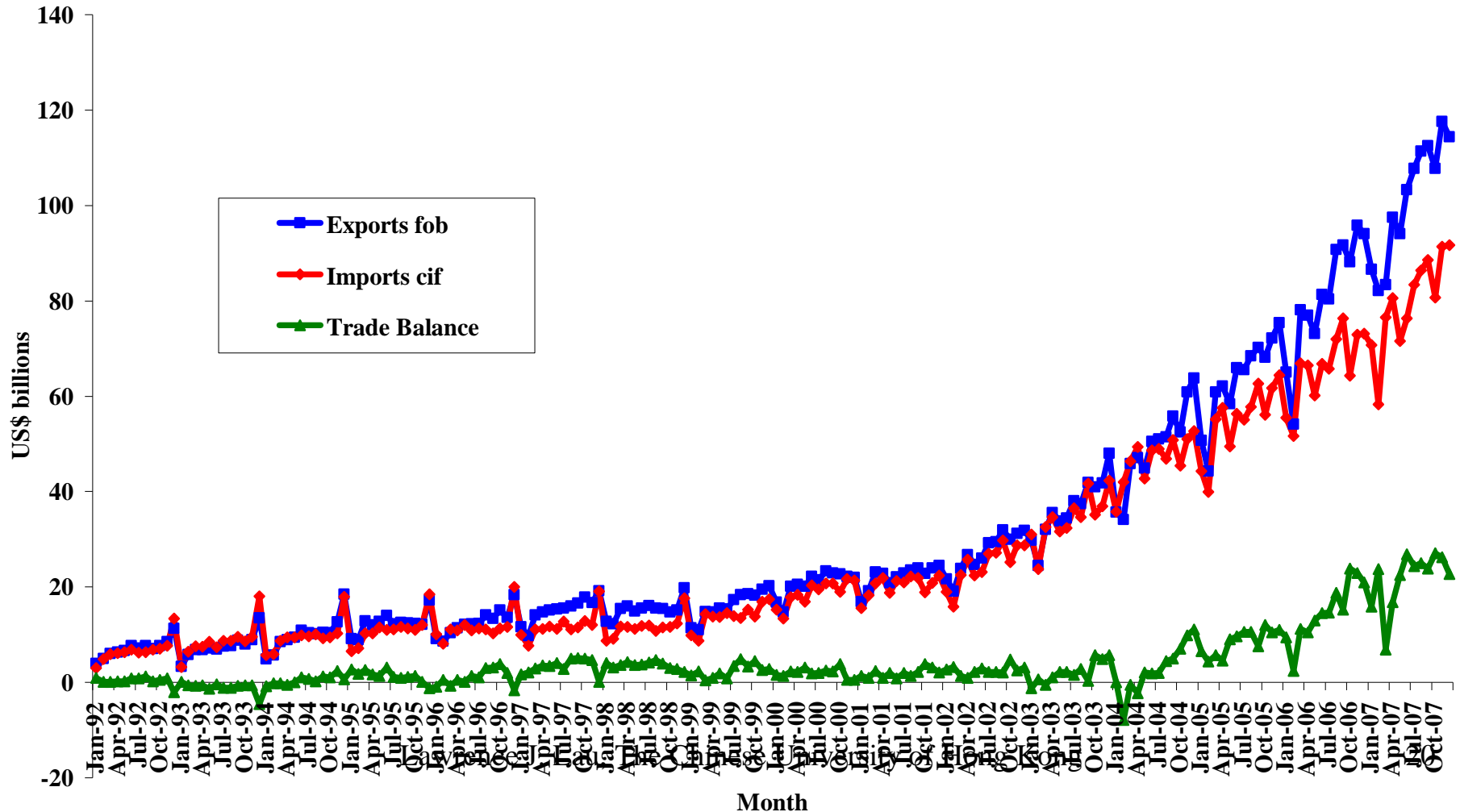
- ◆ The under-measurement of household consumption of services

The Measurement of International Trade

- ◆ Currency and price adjustments
- ◆ Over- and under-invoicing of international trade
- ◆ The measurement of value-added from exports

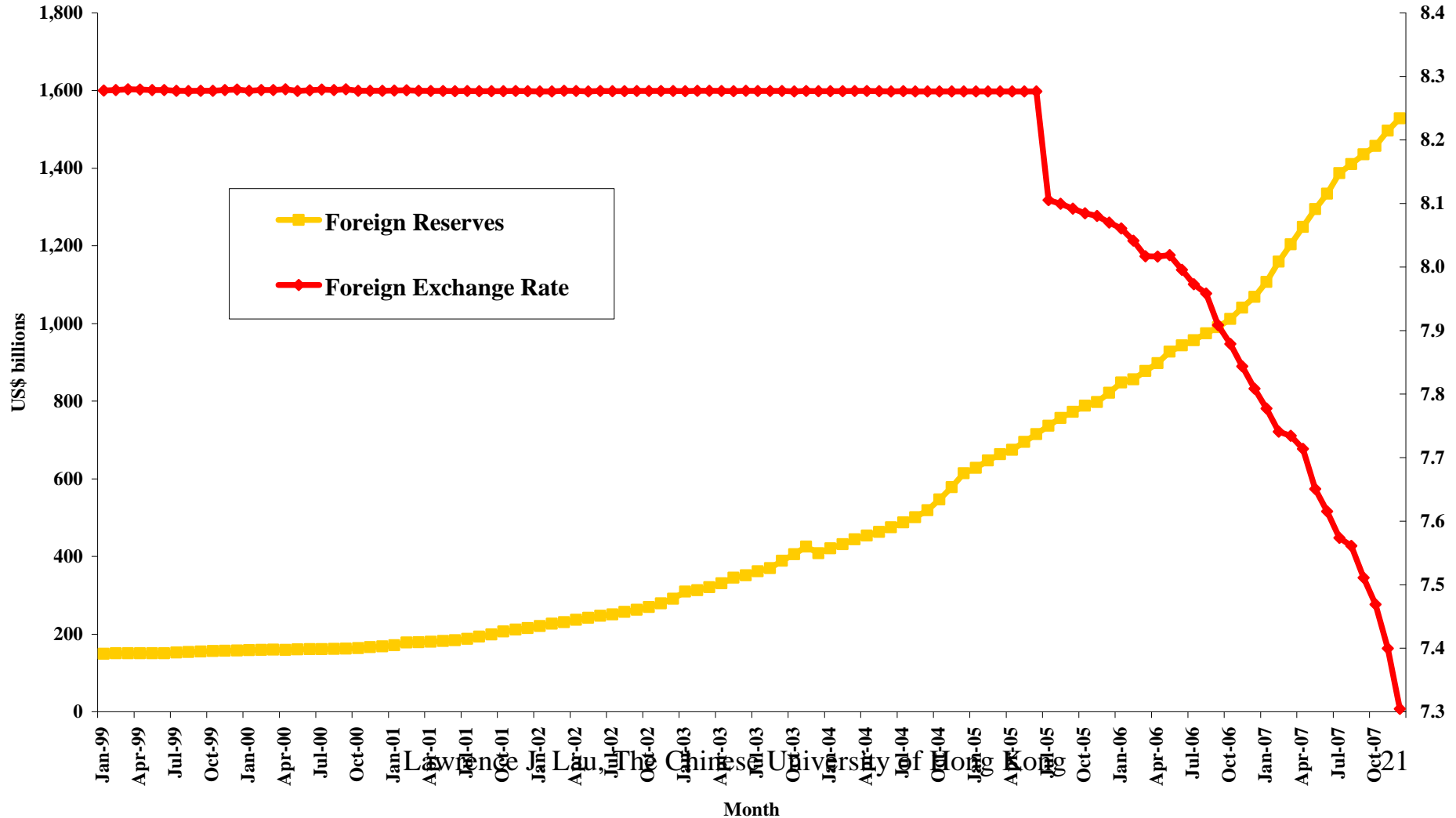
Exports, Imports and Trade Balance: Monthly Data, US\$

The Level of Exports, Imports and Trade Balance of Goods at the End of the Month



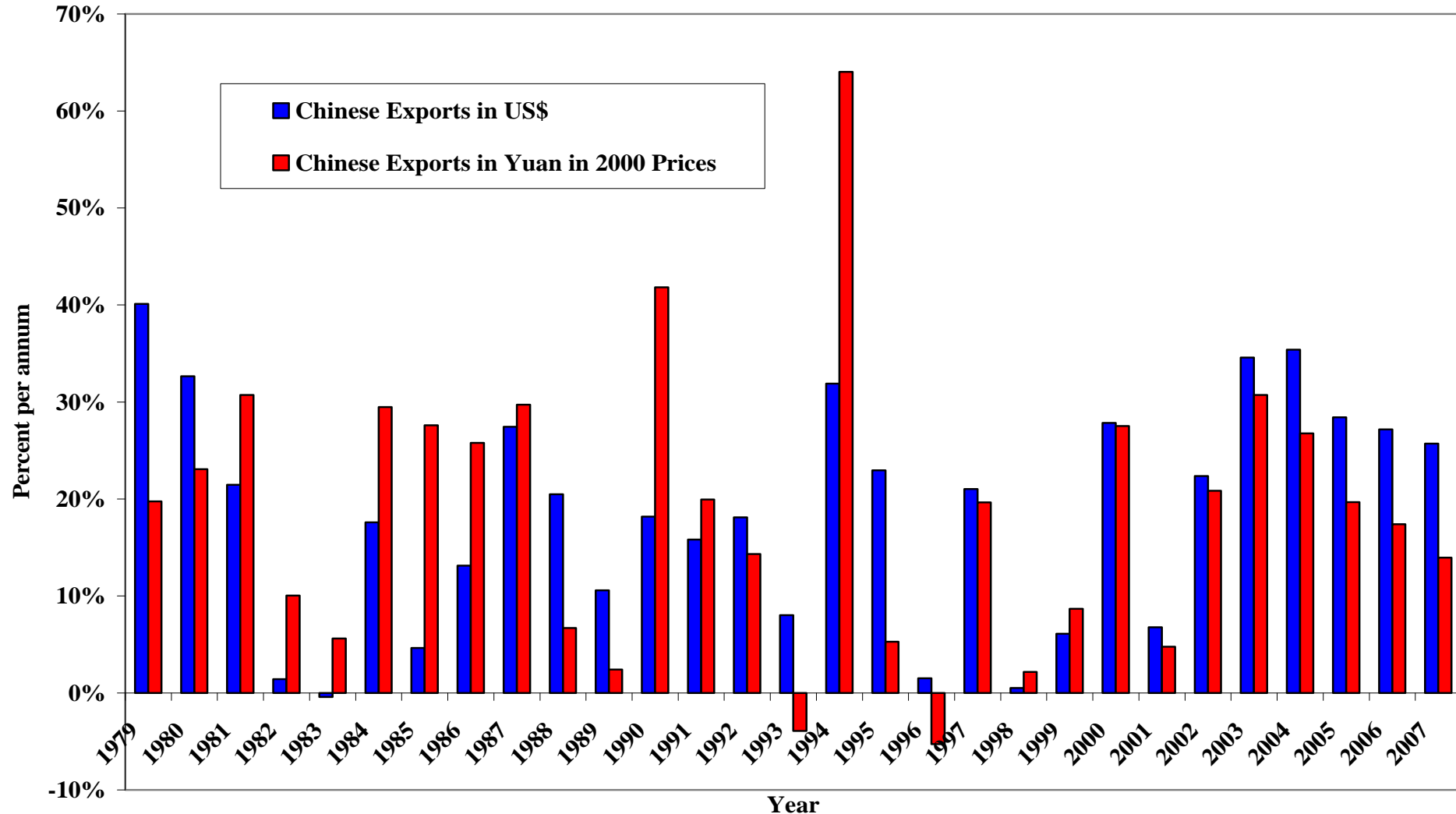
Foreign Exchange Reserves and the Exchange Rate, End of the Month

The Level of Foreign Exchange Reserves and Exchange Rate (Yuan per US Dollar) at the End of Month



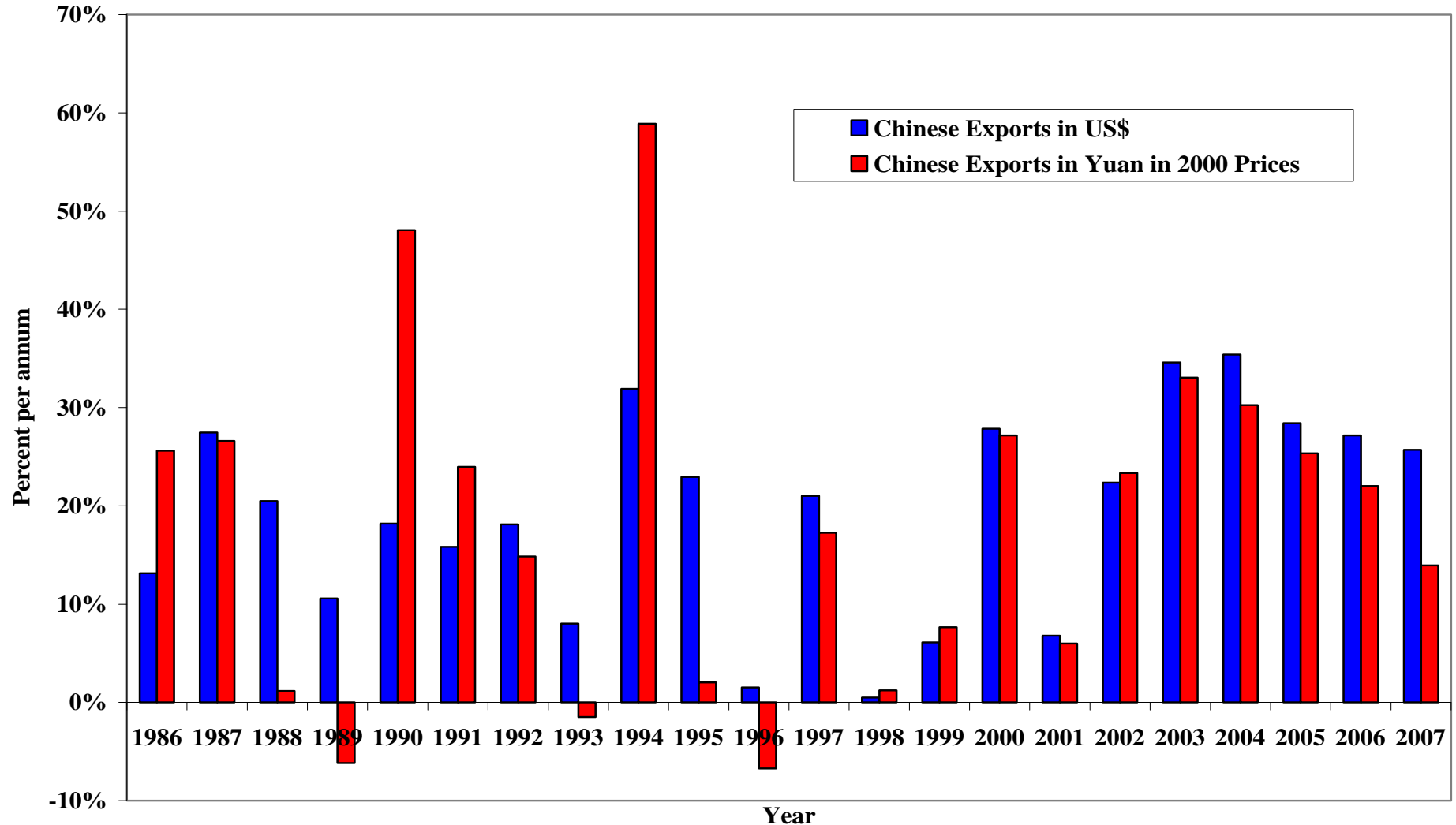
Rates of Growth of Chinese Exports in Nominal US\$ and in 2000 Yuan

Rates of Growth of Chinese Exports in Nominal US\$ and Yuan in 2000 prices (GDP Deflator-based)



Rates of Growth of Chinese Exports in Nominal US\$ and in 2000 Yuan

Rates of Growth of Chinese Exports in Nominal US\$ and Yuan in 2000 prices (CPI-based)



The Valuation of Chinese Exports

- ◆ The rapid increase in the **measured** Chinese exports and hence trade surplus during the past few years may be attributed to
 - ◆ The expiration of the quota system of the Multi-Fibre Agreement which effectively restricted Chinese exports of textiles in years prior to 2005;
 - ◆ The appreciation of the Yuan by almost 20 percent relative to the U.S. Dollar since July 2005 implies that if in real terms the exports and imports remain unchanged, the exports will be worth more in US\$ terms and imports less in US\$ terms and hence the trade surplus will rise, until the real quantity of exports begins to fall and the real quantity of imports begin to rise because of the price effects. But the price effects themselves are expected to be small.
 - ◆ The decrease in the use of under-invoicing of exports and over-invoicing of imports because of the change in the expectation of the relative benefits of holding Yuan and US\$. The prevailing view is that the Yuan is likely to appreciate relative to the US\$. Enterprises in China (whether Chinese or foreign-owned) are therefore more willing to hold the Yuan rather than the US\$. The incentive for under-invoicing of exports and over-invoicing imports in order to gain access to foreign exchange has declined. It is even possible that over-invoicing of exports and under-invoicing of imports have been occurring.

The Valuation of Chinese Exports

- ◆ Despite the existence of capital controls, there are many channels of leakages, for both inflows and outflows. For example, the statistical discrepancy (errors and omissions) in the International Monetary Fund statistics has changed directions in recent years. Over- and under-invoicing, for transfer pricing, tax avoidance, and other purposes, are prevalent, especially in international transactions between connected parties (e.g., in intra-firm trade, which accounts for almost 60 percent of Chinese exports).
- ◆ Over- or under-invoicing of exports and imports by 5% is normally undetectable. 5% of Chinese international trade in goods in 2007 amounts to almost US\$110 billion. This is comparable to the magnitude of the swing in the statistical discrepancy of Chinese balance of payments in the International Monetary Fund statistics.
- ◆ Due to the imminent equalization of the tax rates on domestic and foreign-invested enterprises in China, it is possible that the foreign-invested enterprises in China may once again prefer under-invoicing of exports and over-invoicing of imports.

The Valuation of Chinese Exports

- ◆ In any case, it is inevitable that the growth of Chinese exports will slow down considerably for a variety of reasons: the appreciation of the Renminbi (almost 20 percent since July 2005 and 6.5 percent in 2007), the reduction in the value-added tax rebate on exports, the unification of the income tax rates of domestic and foreign-invested enterprises, the new labor law, etc. “Processing and Assembly” exports, that have very low domestic value-added content, are no longer encouraged and may have a hard time surviving economically.

The Valuation of Chinese Exports

- ◆ The valuation of Chinese exports probably has very little impact on the estimates of the level of Chinese GDP since the estimate is primarily based on data on output. However, it does have an implication on estimates of the savings/investment rate through the expenditure identity:

$$C + I + G + X - M = Y$$

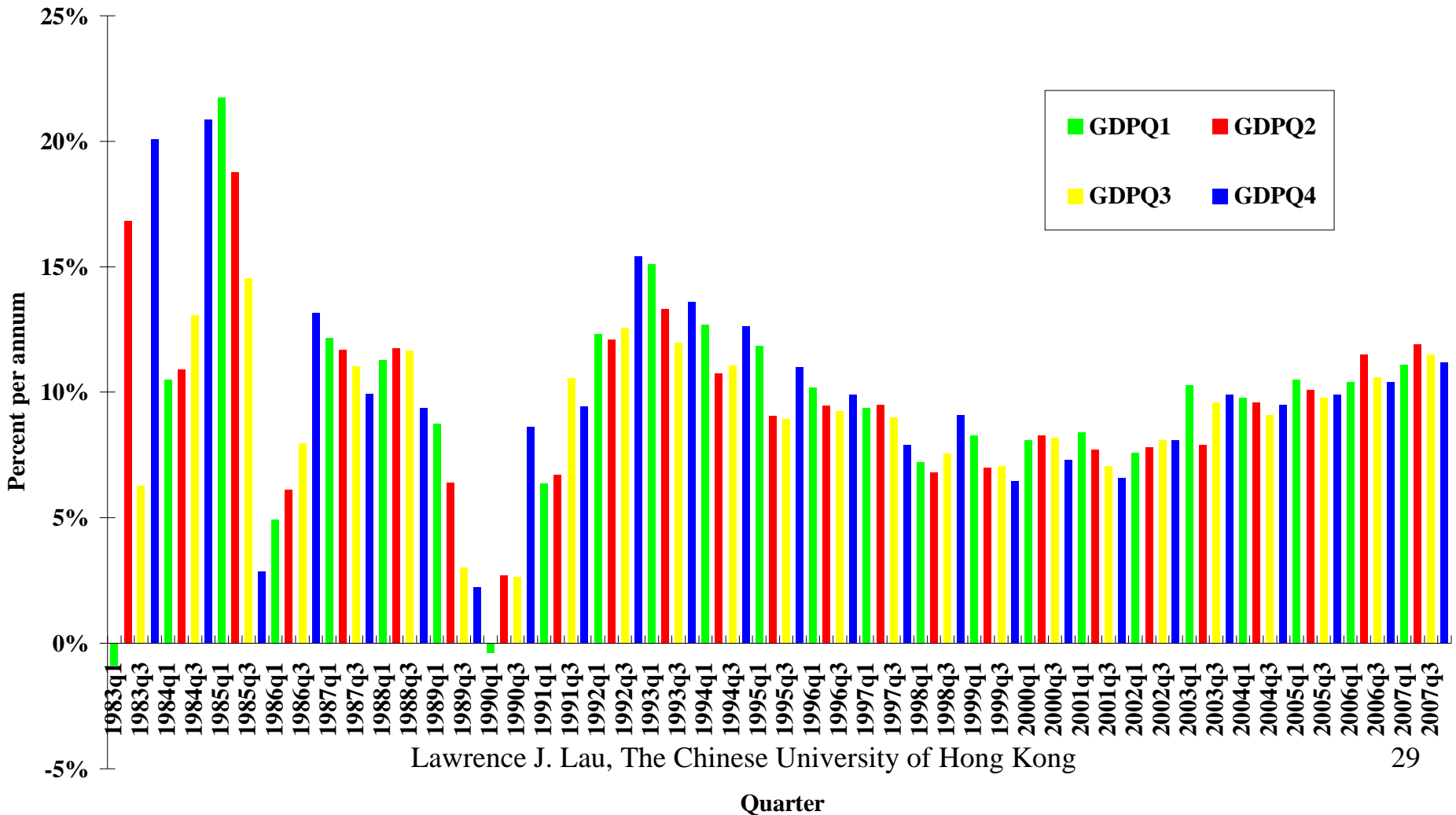
If X is under-reported/under-estimated, then estimates of either C or I or both will have to be raised to maintain the identity for any given estimate of Y , resulting in over-estimates of C or I or both.

The Lack of Seasonally Adjusted Data

- ◆ The lack of seasonally adjusted data necessitates the reporting of monthly and quarterly data in terms of year-over-year changes. These measurements are inevitably lagging indicators and are not informative as to whether the instantaneous rates of growth are rising or falling.

Quarterly Rates of Growth of the Real GDP of Mainland China (Year-over-Year)

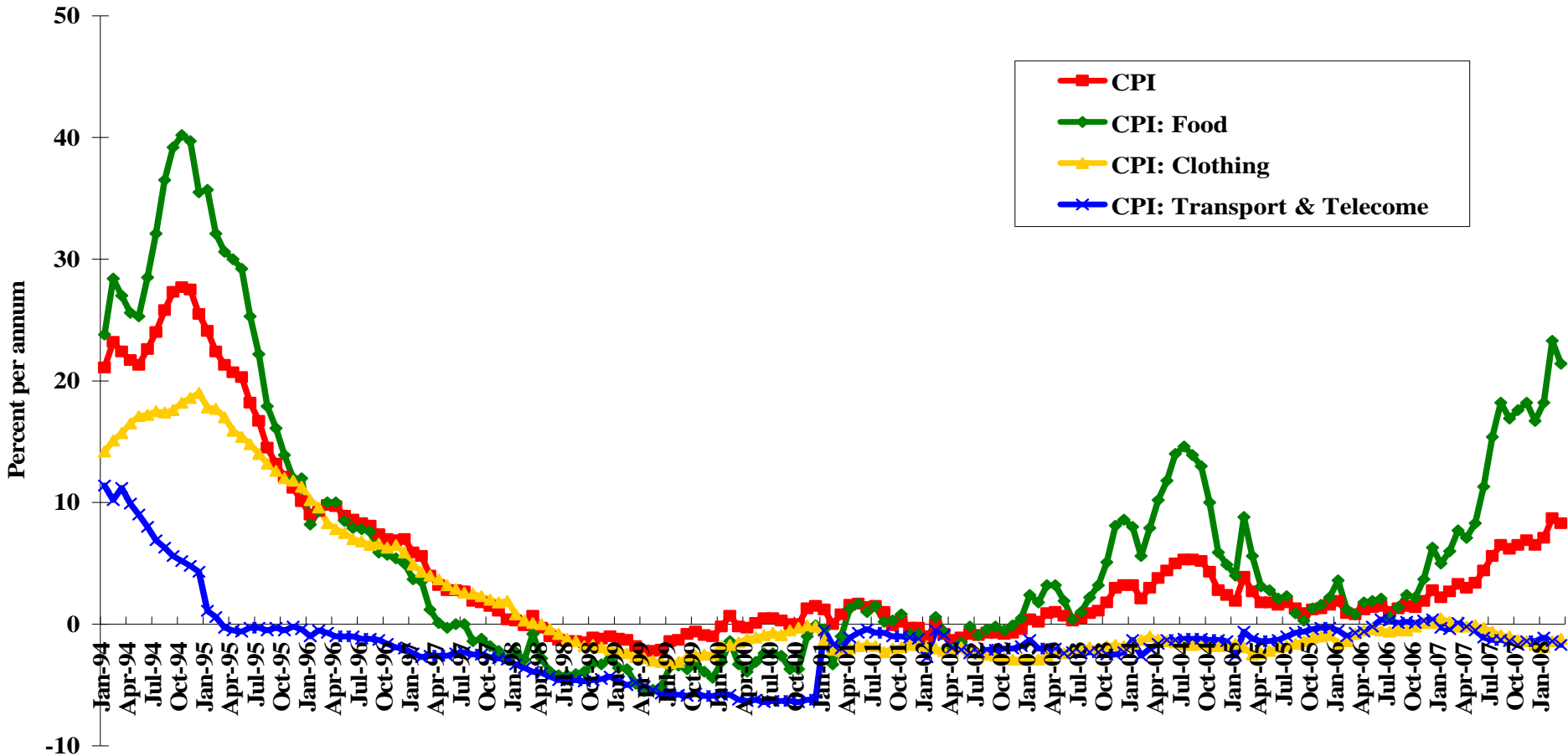
Quarterly Rates of Growth of Real GDP (YoY)



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Monthly Rates of Change of the Consumer Price Index, Year-over-Year

Monthly Rates of Change of Consumer Price Index and Its Components Since 1994, Year-over-Year



Concluding Remarks

- ◆ The National Bureau of Statistics of the People's Republic of China has been doing its best professionally, producing the best data that it can under the current circumstances.
- ◆ The official estimates of the rates of growth of real GDP are probably slightly over-estimated.
- ◆ There is more uncertainty on the official estimates of the levels of real GDP, which are not unrelated to the official estimates of the rates of growth. If one has to guess, the levels are probably still somewhat under-estimated.