

Economics 216: The Macroeconomics of Development

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Lecture 2

The Historical Experience of Economic Development

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The Definition of Economic Take-Off

- ◆ Take-off into "Self-Sustained Economic Growth"
- ◆ Working definition: A continuous growth of output of more than 4 percent per annum on a per capita basis over a decade
- ◆ East Asia has done exceptionally well in the post-war period, despite relatively unfavorable natural resource endowment and population density. How has it been able to achieve this economic growth?
- ◆ Philippines is the only economy in East Asia that has not achieved an economic take-off into self-sustained growth

The Record of Postwar Economic Growth

- ◆ Asia was the poorest region in the World in 1950
- ◆ Between 1960 and 1996, according to World Bank data, China, Hong Kong, Indonesia, Japan, South Korea, Malaysia, Singapore, Taiwan, Thailand, Botswana and Swaziland were the only countries that achieved an average annual rate of growth of real GDP per capita greater than 4%
- ◆ Botswana and Swaziland (both in Africa) are the only non-Asian countries that achieved an average annual rate of growth of real GDP per capita greater than 4% between 1960 and 1997
- ◆ Philippines is the only economy in East Asia that was not able to achieve a 4% rate of growth over the same period

The Sources of Economic Growth: Findings of Kim & Lau As Reported by Krugman (1994)

- ◆ Using data from the early 1950s to the late 1980s, Kim and Lau (1992, 1994a, 1994b) find, by estimating a meta-production function for the G-5 and the 4 Newly Industrialized Economies (NIEs—Hong Kong, South Korea, Singapore and Taiwan) that:
- ◆ (1) East Asian economic growth has been tangible input-driven, with tangible capital accumulation as the most important source of economic growth (the latter applying also to Japan)
 - ◆ Working harder as opposed to working smarter
- ◆ (2) There has been no technical progress (or growth of total factor productivity) in the East Asian NIEs in contrast to the industrialized G-5 countries where technical progress has been the most important source of growth.
- ◆ Similar results are obtained when China and the ASEAN countries of Indonesia, Malaysia, Philippines and Thailand are included in the sample.

Krugman's Hypothesis about East Asia

- ◆ If the major source of economic growth is the growth of tangible capital, then given the diminishing marginal productivity of tangible capital, as more and more tangible capital is accumulated, each additional unit of tangible capital will be less productive than the unit before it. Eventually economic growth must slow down and then stop altogether.
- ◆ The former Soviet Union was used as an example where a great deal of tangible capital was accumulated but failed to be productive, as was also the case in Mainland China before the economic reforms of 1979.

Was East Asian Economic Growth a Miracle or a Bubble?

- ◆ Past economic growth neither a miracle nor a mere bubble
 - ◆ Economic growth experience replicated in different East Asian economies
 - ◆ Sustained economic growth over decades
 - ◆ Recent crisis due to many factors, of which “irrational exuberance” is only one
 - ◆ Economic fundamentals remain sound--high savings rates, investment in human capital, and more recently in R&D capital, entrepreneurship, market orientation
- ◆ Past economic growth tangible input-driven rather than intangible input or technical progress-driven--it is attributable to growth in tangible inputs, particularly the efficient and rapid accumulation of tangible capital
- ◆ However, East Asian economies lag far behind in both tangible and intangible capital per unit labor.
- ◆ There is therefore still considerable room for continuation of rapid tangible input-driven economic growth in the future--tangible capital per unit labor in East Asian economies, with the exception of Japan, still lags significantly behind the developed economies.
- ◆ Intangible capital per unit labor, e.g., R&D capital, lags even further behind, offering additional opportunities for investment. Investment in intangible capital can enhance the productivity of tangible capital because of its complementarity with tangible capital and retard the decline in the marginal productivity of tangible capital and hence counteract the “Krugman effect”

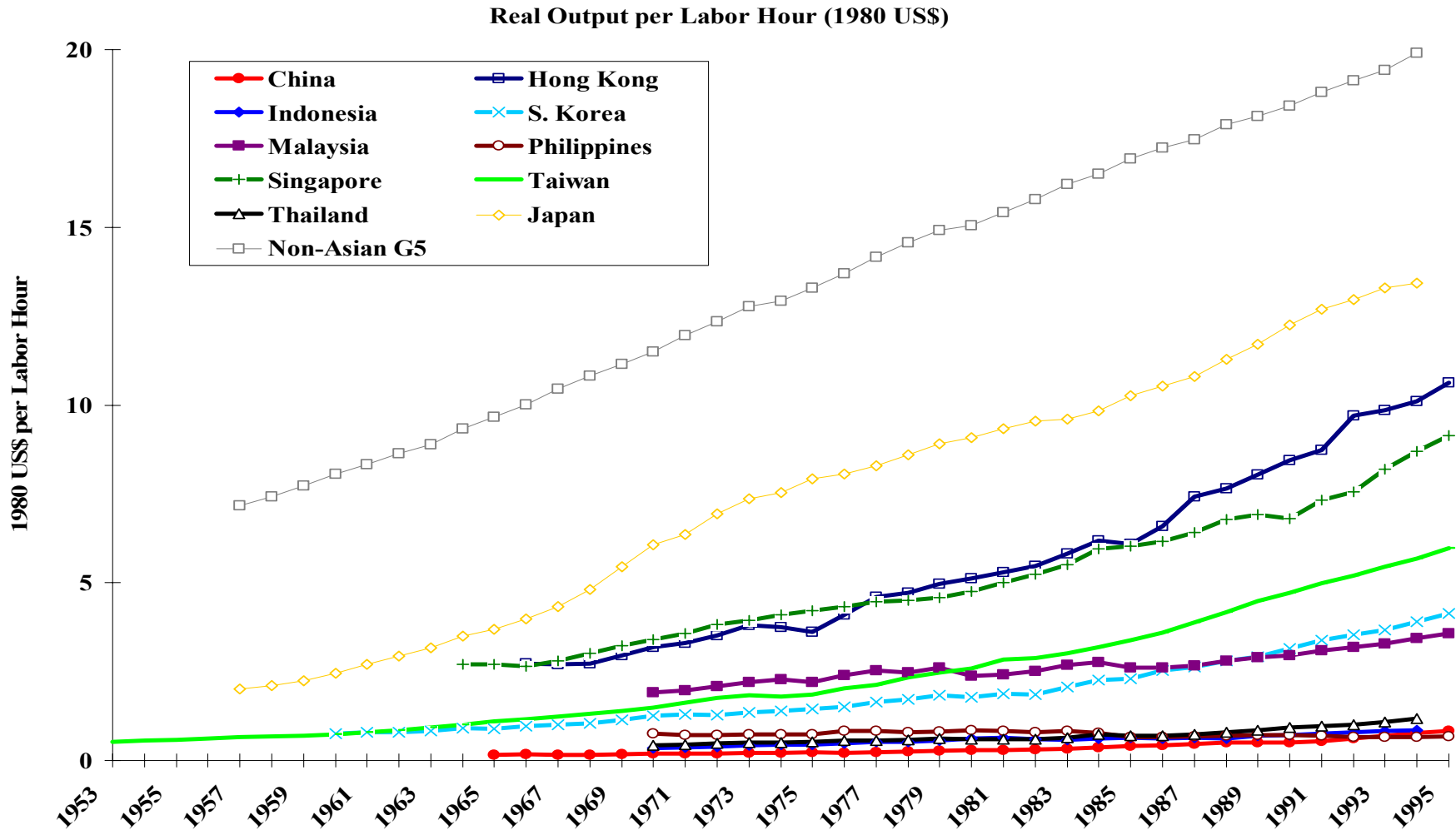
Rates of Growth of Inputs & Outputs of the East Asian Developing & the G-7 Countries

Table 1.1: Average Annual Rates of Growth of Real Output and Inputs (Entire Sample Period), percent

	Sample Period	Output (Real GDP)	Tangible Capital Stock	Utilized Tangible Capital	Employment	Total Labor Hours	Average Years of Education of the Working-Age Population ¹	Total Years of Education of the Working-Age Population ¹	Average Share of Labor Earnings to GDP
Hong Kong	66-95	7.36	8.79	8.79	2.56	2.44	2.09	4.80	0.51
South Korea	60-95	8.49	12.28	12.28	3.06	3.35	3.72	6.31	0.37
Singapore	64-95	8.88	10.23	10.23	4.29	4.70	3.28	5.92	0.38
Taiwan	53-95	8.45	11.76	11.76	2.69	2.33	2.72	5.40	0.44
Indonesia	70-94	6.68	10.73	10.88	2.72	2.72	7.70	10.34	0.31
Malaysia	70-95	7.32	9.65	9.65	4.15	4.68	4.88	8.02	0.34
Philippines	70-95	3.53	5.32	5.40	3.37	3.94	4.46	7.41	0.33
Thailand	70-94	7.74	9.69	9.68	2.74	2.93	4.75	8.00	0.25
China	65-95	8.30	11.60	11.63	2.55	2.55	3.12	5.99	0.54
Japan	57-94	5.88	8.12	7.98	1.12	0.56	0.98	2.15	0.62
France	57-94	3.33	3.93	3.88	0.40	-0.24	1.11	1.95	0.64
West Germany	57-94	3.25	3.25	3.09	0.08	-0.29	1.00	1.55	0.66
United Kingdom	57-94	2.41	3.90	3.81	0.23	-0.11	0.83	1.14	0.65
United States	49-94	3.13	3.03	3.30	1.71	1.31	0.81	2.06	0.66

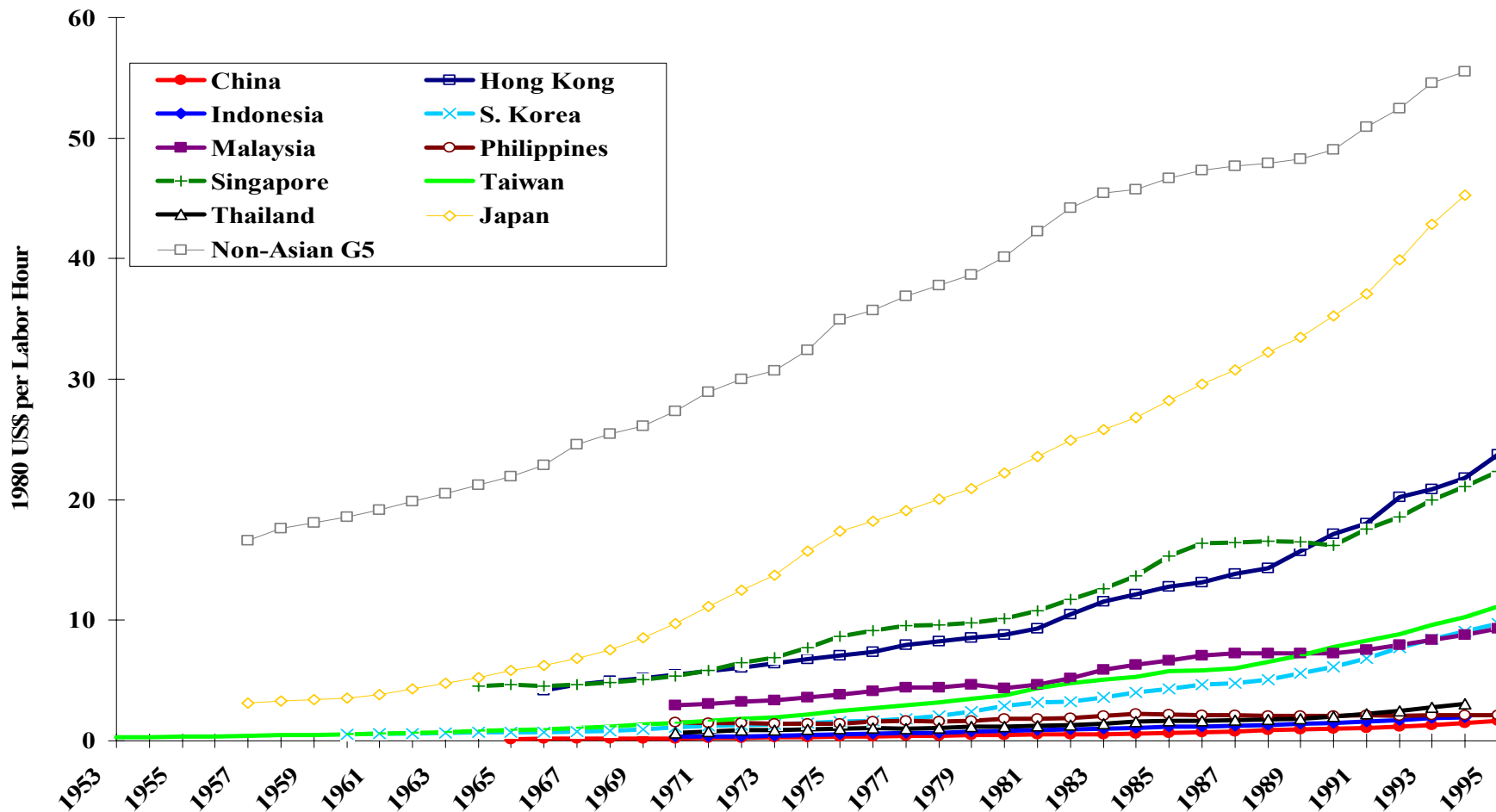
Note: 1. Working-age population is defined as the number of persons in the population aged between 15 and 64, inclusive.

Real Output per Labor Hour (1980 US\$)



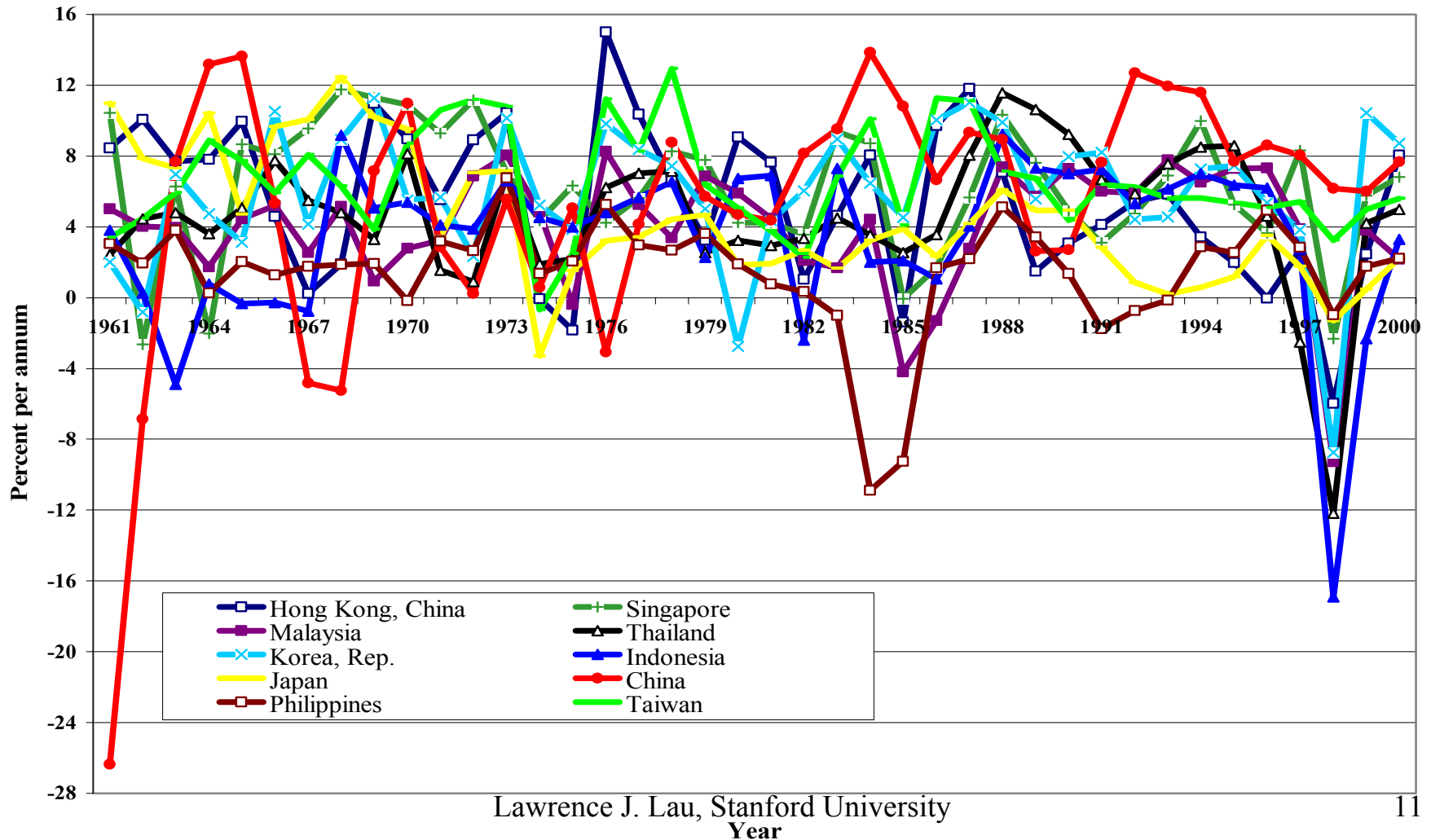
Tangible Capital Stock per Labor Hour (1980 US\$): Selected Economies

Tangible Capital Stock per Labor Hour (1980 U.S.\$)



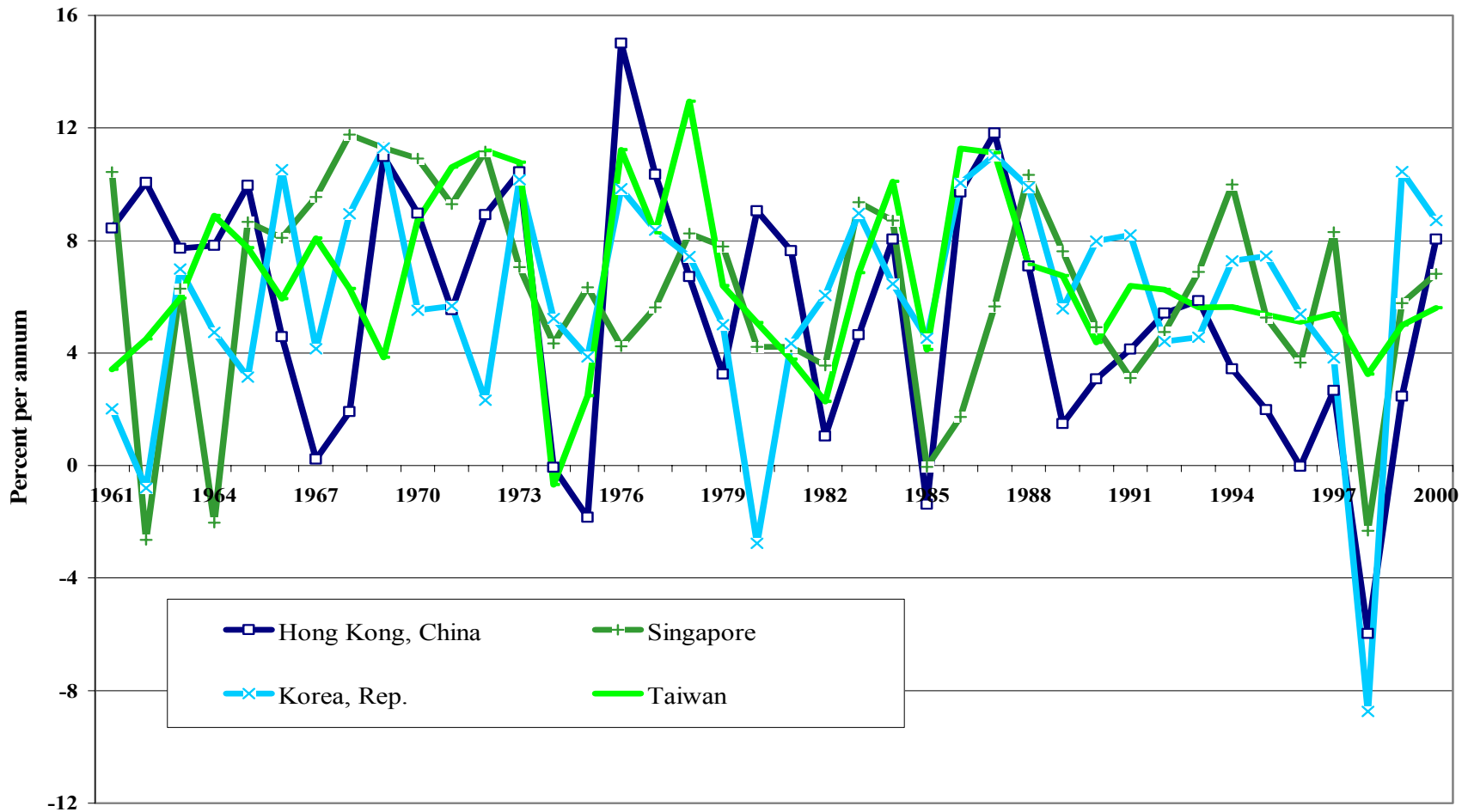
Rates of Growth of Real GNP per Capita: Selected East Asian Economies

Rates of Growth of Real GNP per Capita, Selected East Asian Economies



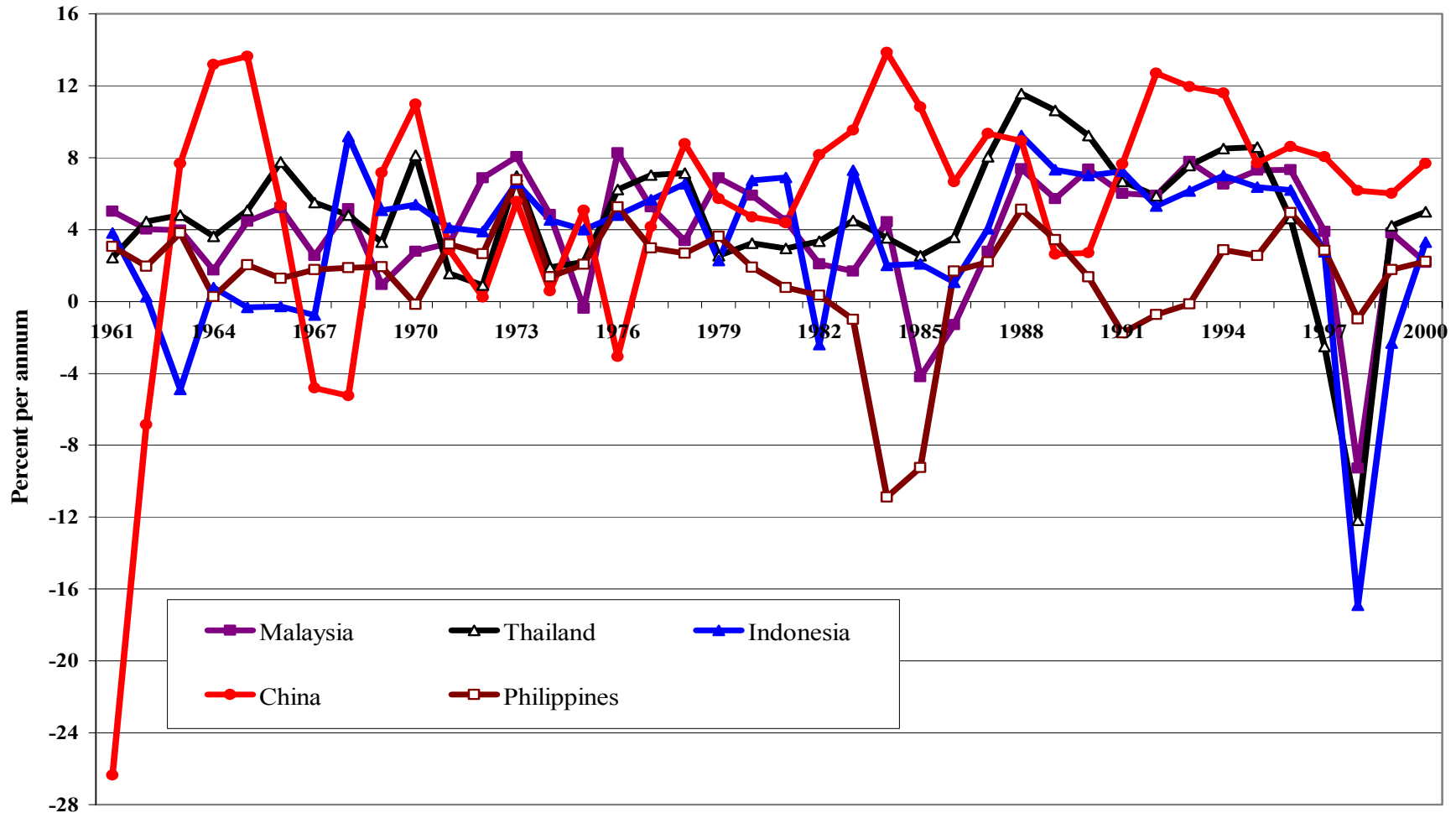
Rates of Growth of Real GNP per Capita: East Asian Newly Industrialized Economies

Rates of Growth of Real GNP per Capita, Selected East Asian Economies



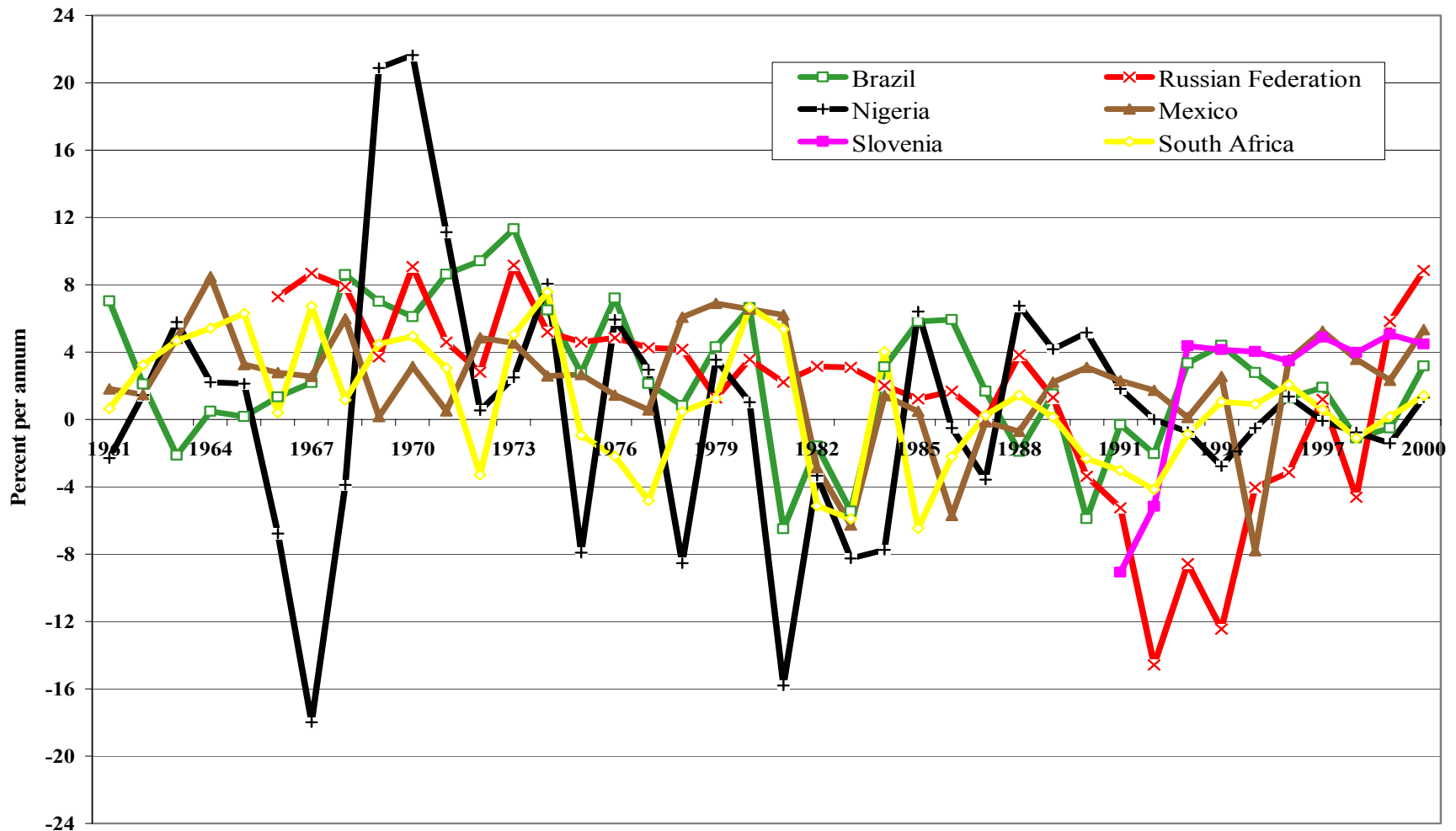
Rates of Growth of Real GNP per Capita: Selected East Asian Economies

Rates of Growth of Real GNP per Capita, Selected East Asian Economies



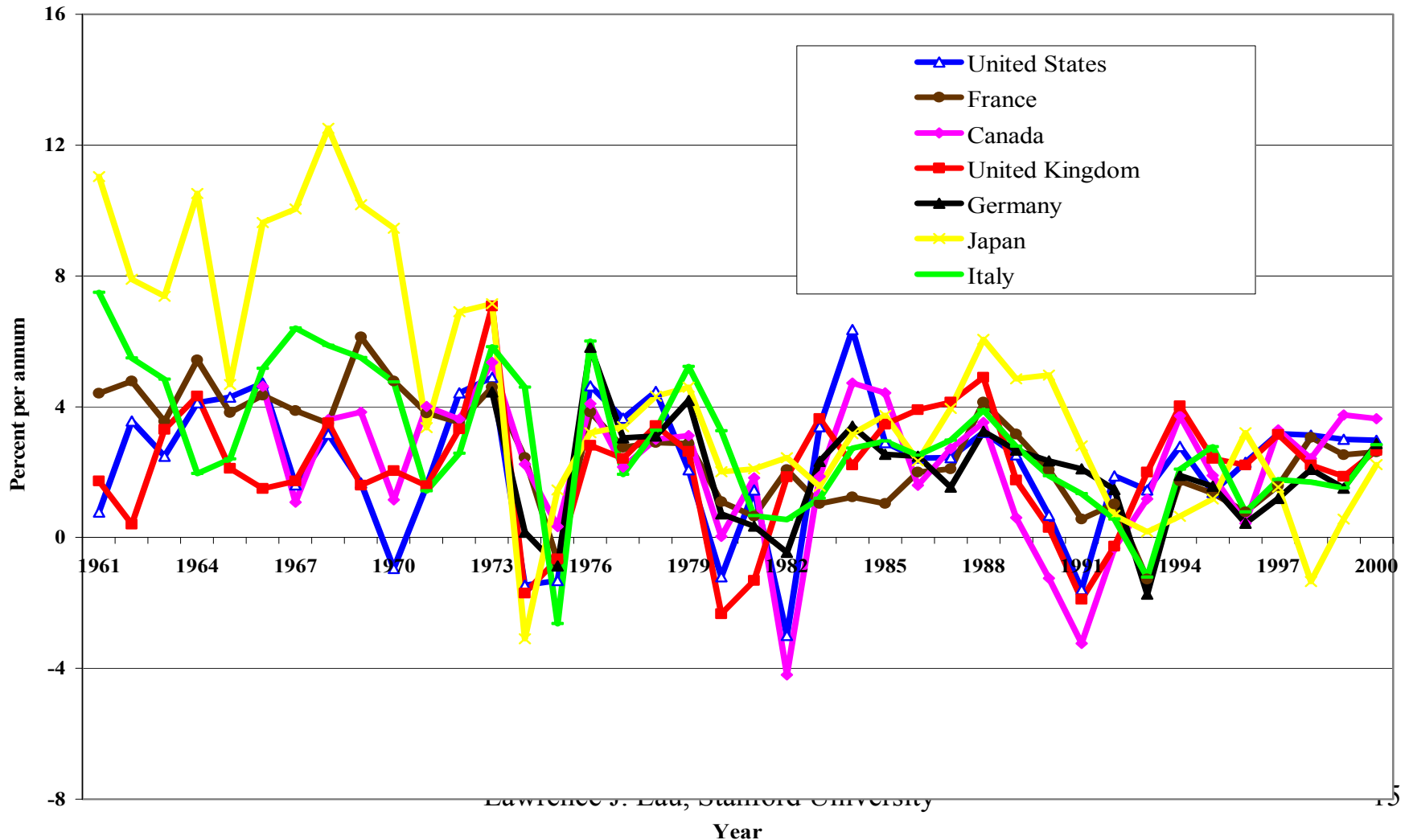
Rates of Growth of Real GNP per Capita: Selected Non-Asian Economies

Rates of Growth of Real GDP per Capita, Selected Economies



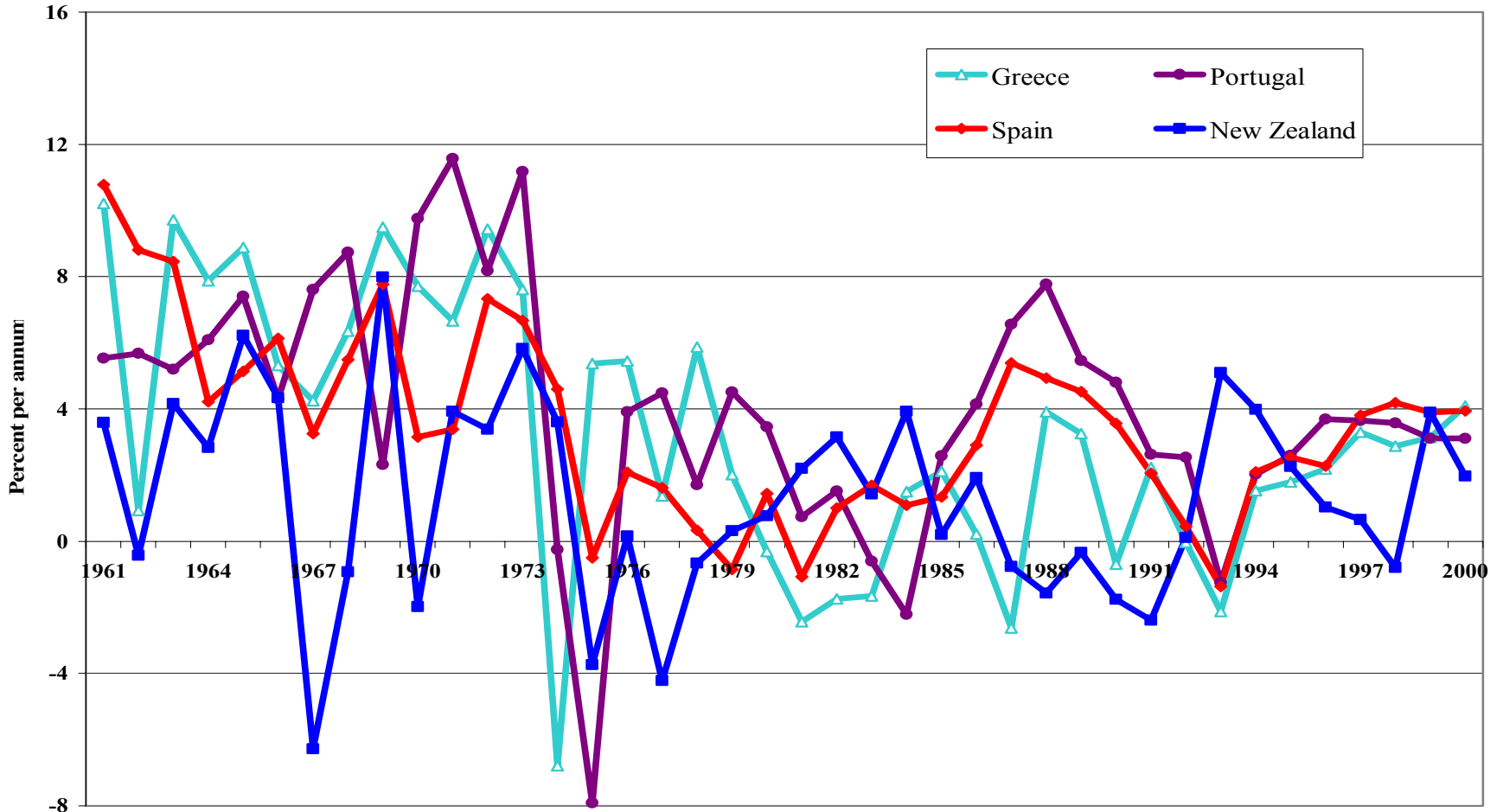
Rates of Growth of Real GNP per Capita: The Group-of-Seven (G-7) Countries

Rates of Growth of Real GDP per Capita, Selected Economies



Rates of Growth of Real GNP per Capita: Other Developed Economies

Rates of Growth of Real GDP per Capita, Selected Economies



Internal and External Factors

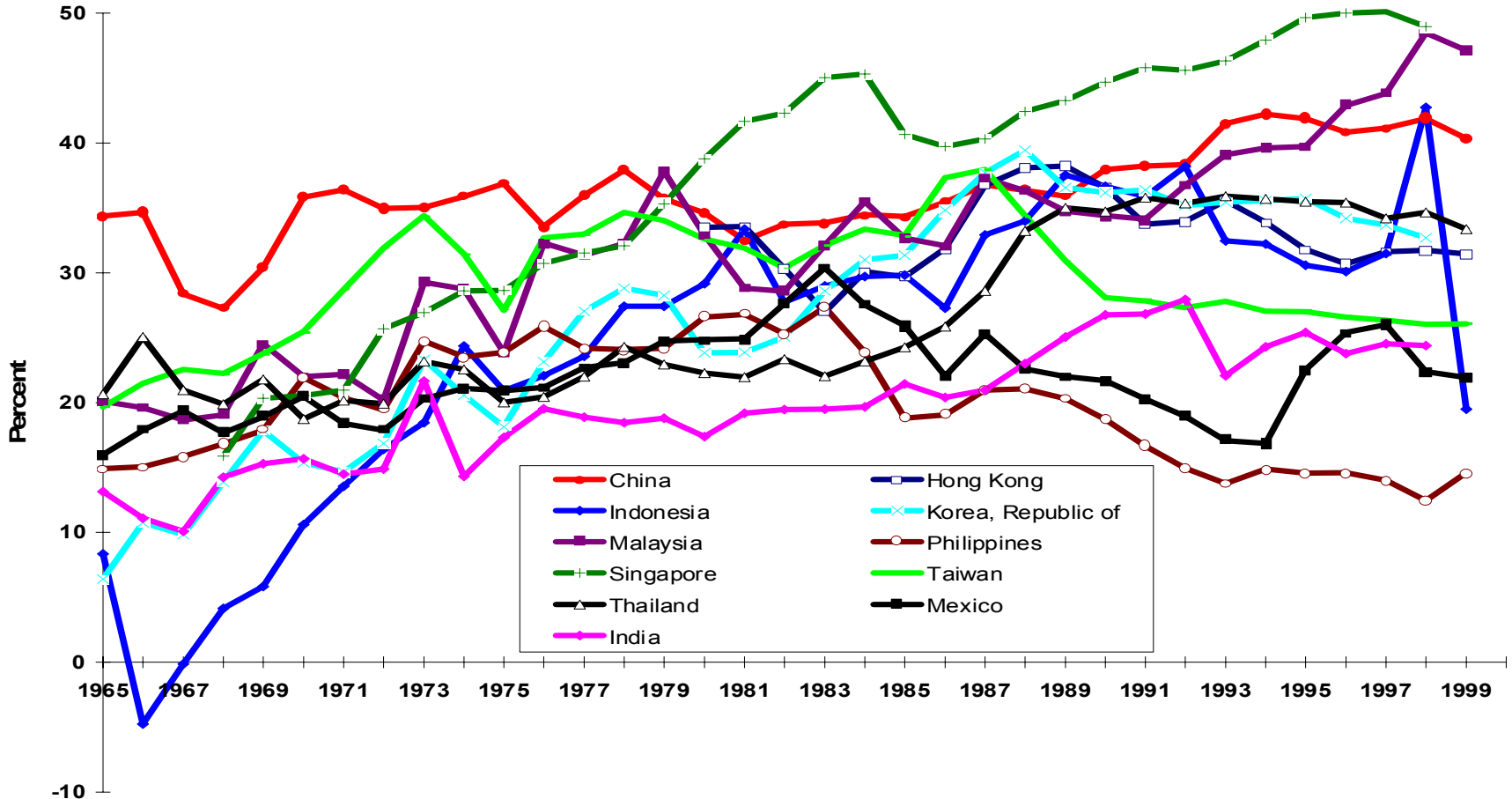
- ◆ Demographic transition--a pronounced decline in the fertility rate, the rate of growth of population, and the dependency ratio
- ◆ A rise in the productivity of labor in the agricultural sector enabling a release of surplus output and labor to the industrial sector (land reform, etc.)
- ◆ Foreign assistance may be needed at the beginning--e.g. U.S. aid to South Korea (in the 50s and 60s) and Taiwan (up until 1965); Soviet aid to China (in the 1950s), etc.
- ◆ A Two-Gap Model (savings gap and foreign exchange gap--both can be bridged with foreign aid or investment)
- ◆ The positive effects of adversity on the four “Newly Industrialized Economies” (Hong Kong, South Korea, Singapore and Taiwan)

High Domestic Savings and Investment Rates

- ◆ Reasons for high domestic savings rate
 - ◆ (inadequacy of) social safety net
 - ◆ (unavailability) of consumer credit
 - ◆ (high) price of housing
 - ◆ positive real rates of return (achieved through low inflation)
 - ◆ stable financial system/implicit deposit insurance
 - ◆ bonus system of compensation
 - ◆ social norms of (low and inconspicuous) consumption
- ◆ A high domestic savings rate enables a high domestic investment rate
- ◆ A high domestic investment rate is the key to sustained economic growth
- ◆ If technical progress were “embodied”, a high investment rate is required in order to benefit from technical progress

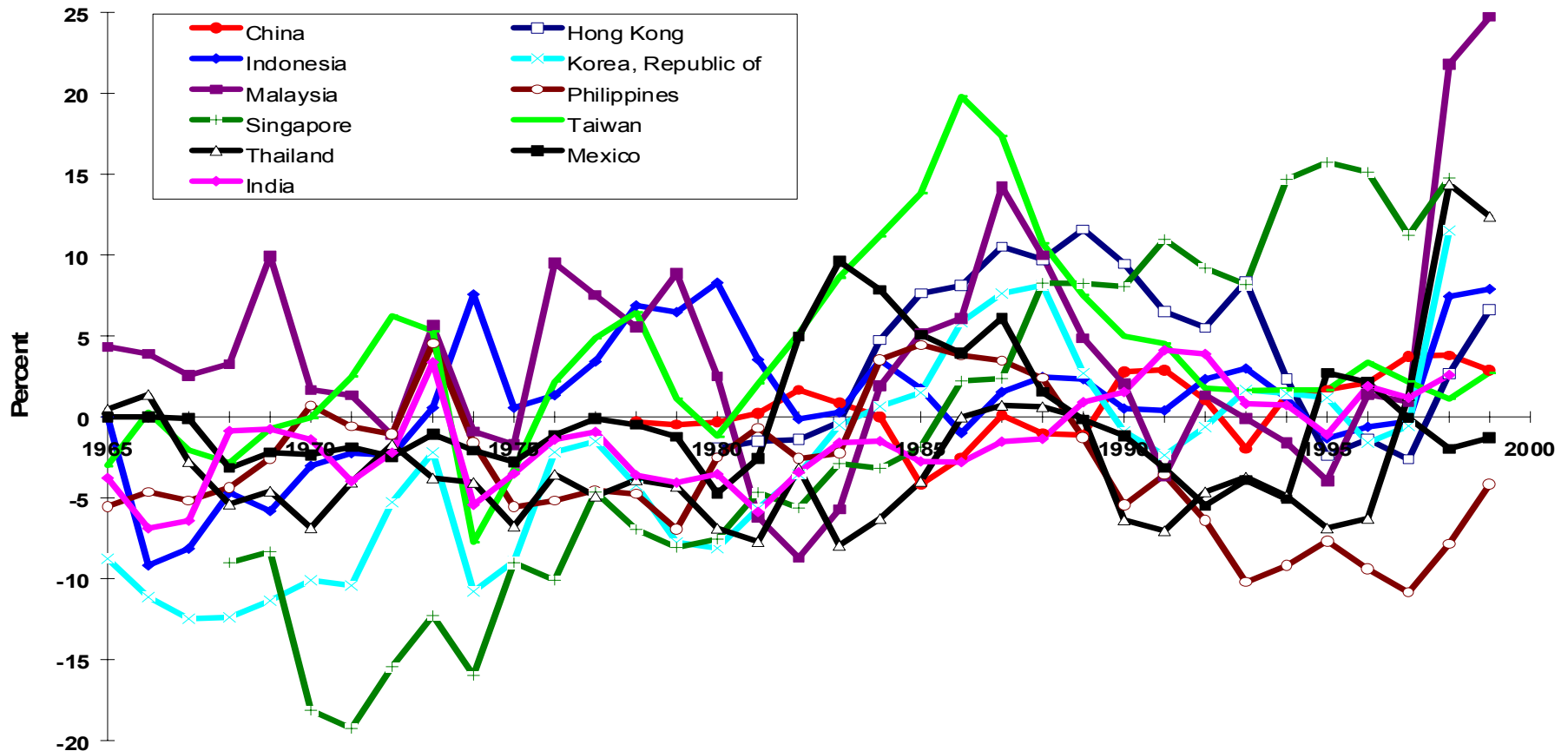
Savings Rates as a Percent of GDP of Selected East Asian Countries

The Savings Rate as a Percent of GDP



The Savings-Investment Gap as a Percent of GDP--Selected East Asian Countries

The Savings-Investment Gap as a Percent of GDP

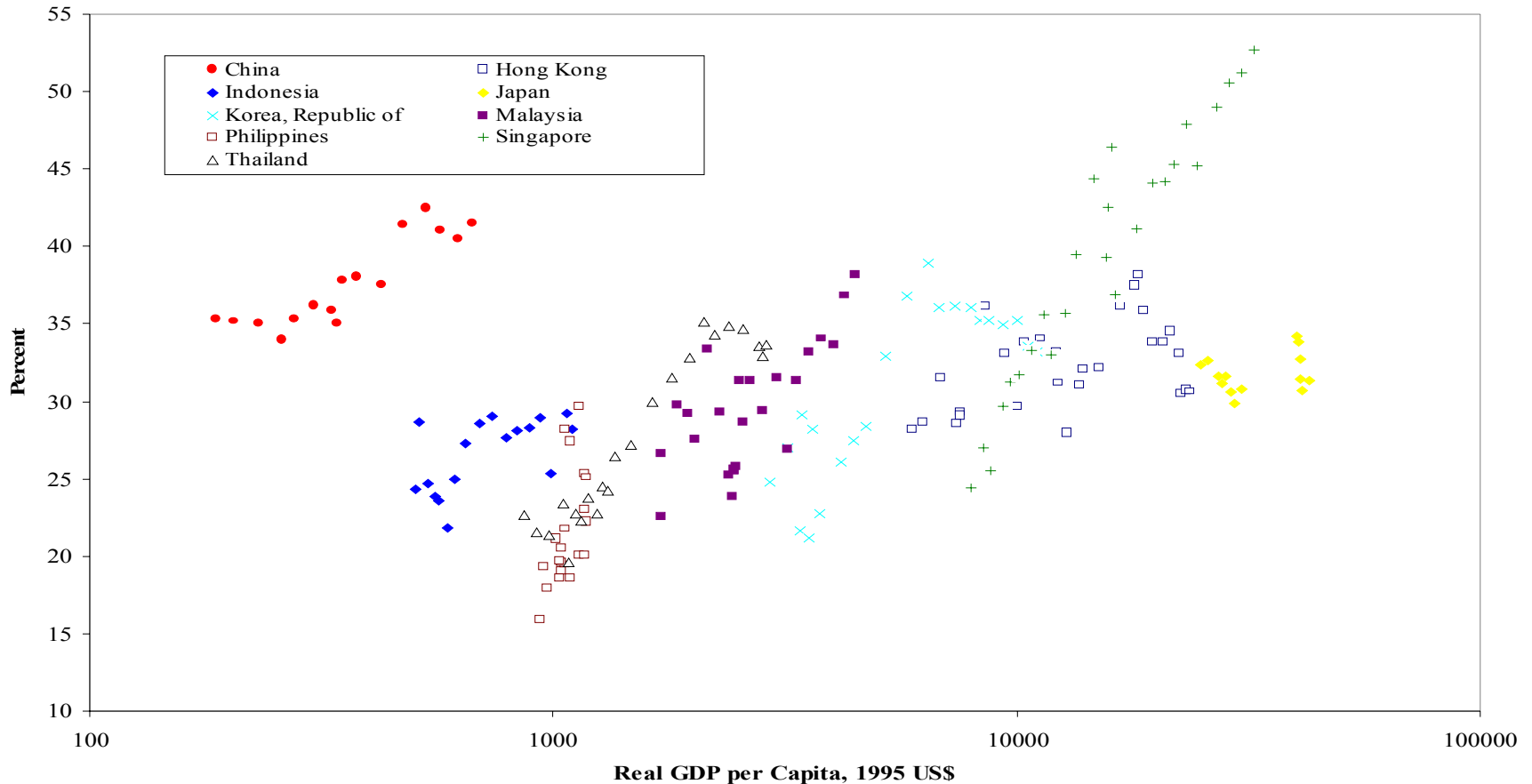


The Savings Rate and Real GNP per Capita

- ◆ The savings rate was typically very low initially
- ◆ It rose rapidly with the growth of real GNP per capita
- ◆ It reached a plateau and stabilized at a level between 30 and 40% of GDP and stayed there

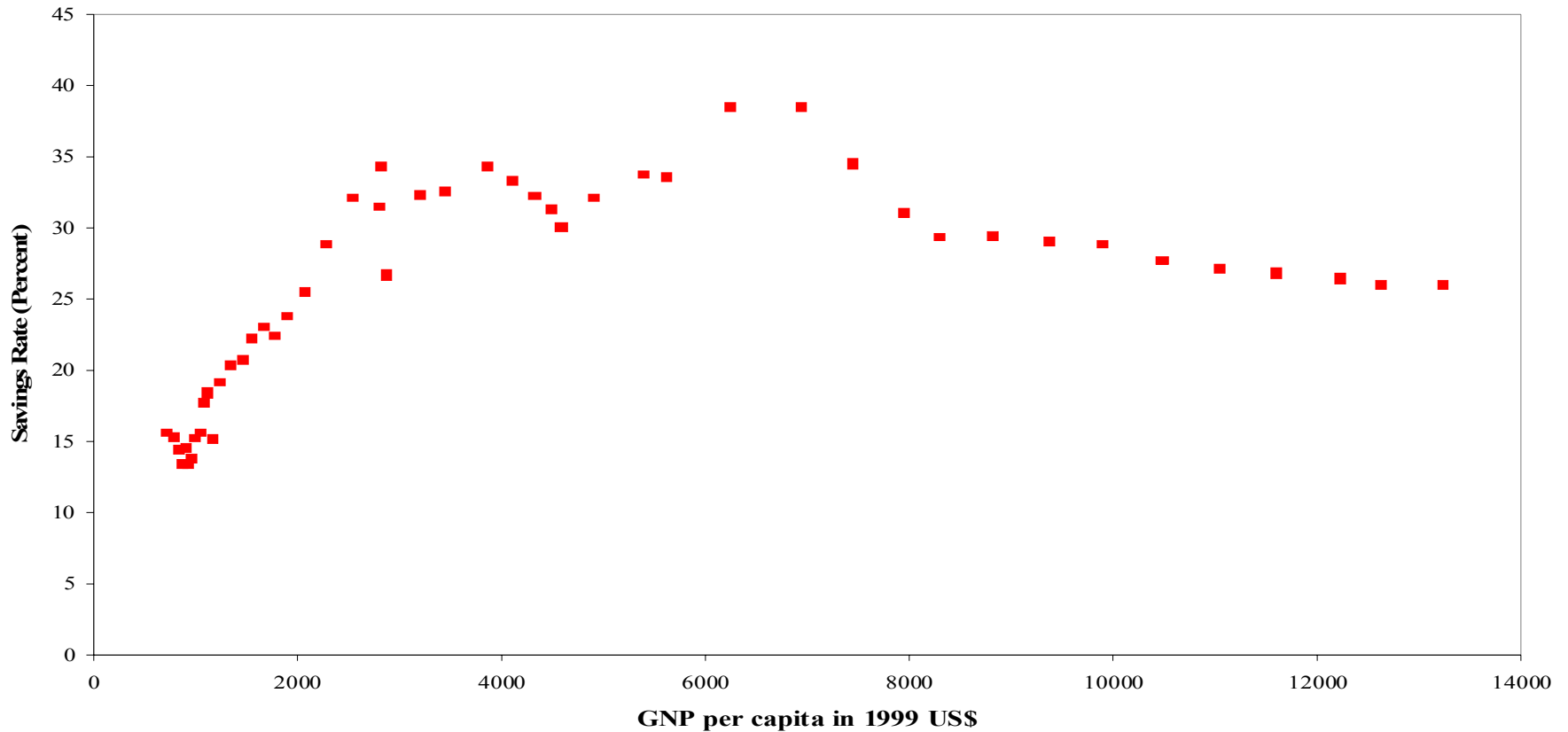
The Savings Rate and Real Output per Capita: East Asian Economies

National Savings Rate and Real GNP per Capita



The Savings Rate and Real Output per Capita: Taiwan

Savings Rate versus Real GNP per Capita

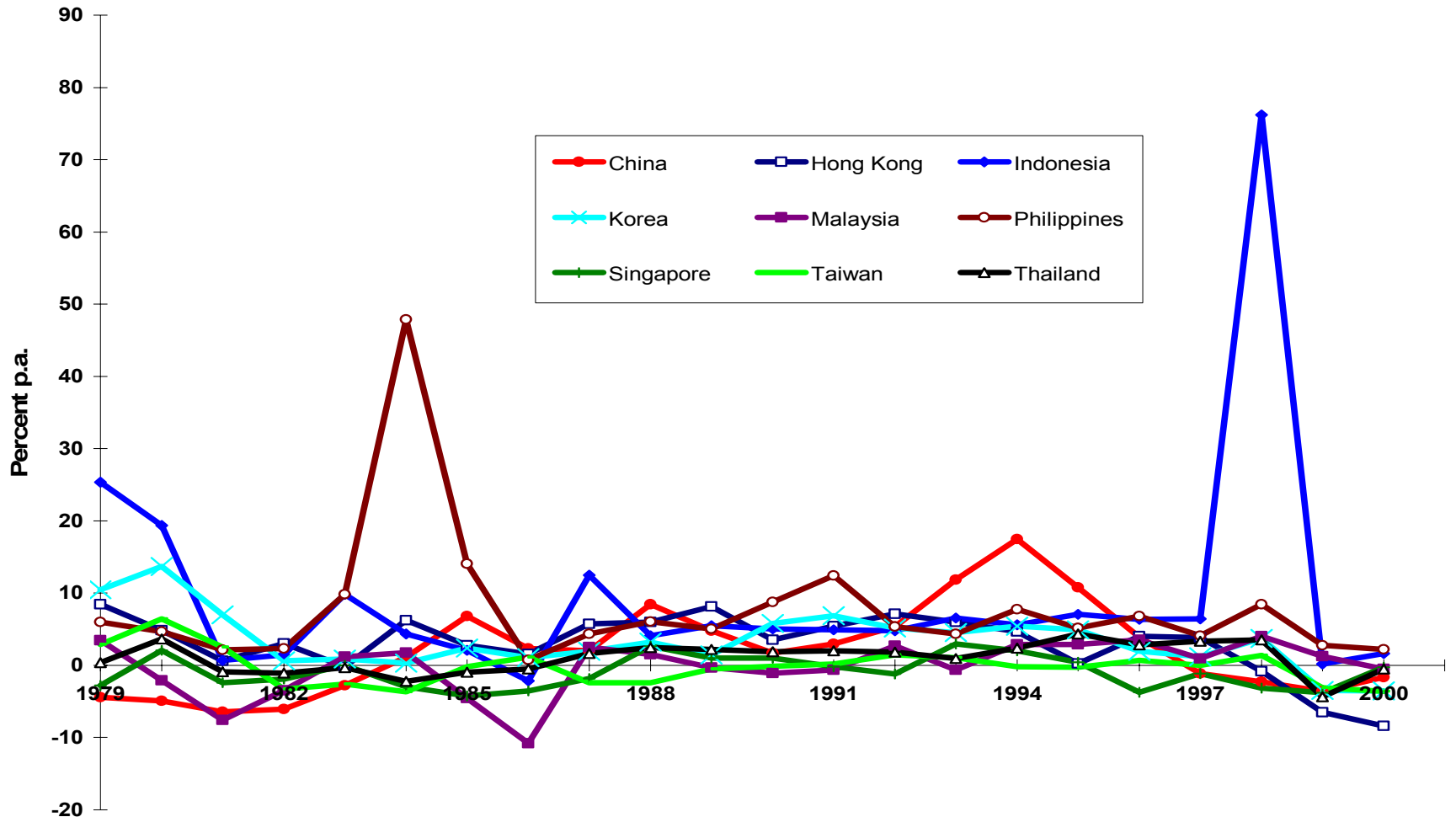


Relative Inflation in East Asian Economies

- ◆ Inflation in the East Asian economies has remained low relative to the United States

Rates of Inflation Relative to the United States- -Selected East Asian Countries

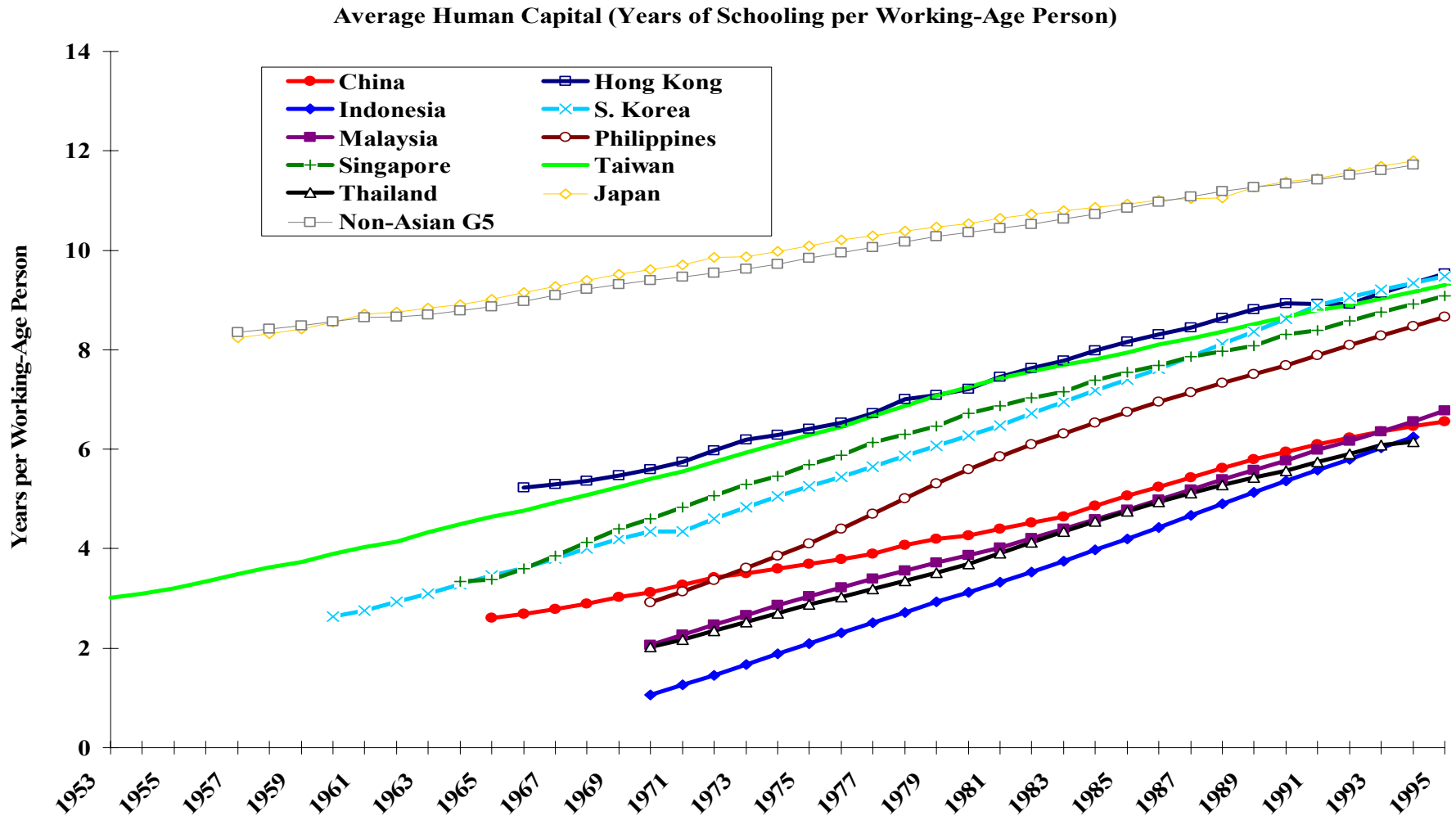
Rates of Inflation Relative to the United States (percent p.a.)



A High Rate of Investment in Human Capital (Education)

- ◆ High rates of investment in human capital
 - ◆ High value for education because of the traditional “examination system”
 - ◆ An effective and trainable labor force
 - ◆ Implies that the actual savings rate has been even higher
- ◆ Was “brain drain” a problem?

Average Human Capital (Years/Working-Age Person: Selected Economies)



Export Orientation

- ◆ Export orientation implies a low (under-valued) exchange rate, low tariffs (after rebates) on imported inputs including capital, raw materials and intermediate inputs, trade credits for exporters, development of ports and harbors and other infrastructure
- ◆ Export orientation also implies that investment must be market-directed as opposed to government-directed (a country cannot afford to subsidize losses indefinitely in the face of competition in the open world market)
- ◆ Export orientation facilitates foreign direct investment and foreign loans (because of the ease of repayment and repatriation)

Export Orientation

- ◆ Export orientation encourages the adoption/importation of new technology and know-how
- ◆ International competition requires efficient operations for survival

The Concept of Comparative Advantage: A Simple Two-Country, Two-Good Model

- | | Country A | Country B |
|--------------------------------------|-----------|-----------|
| ◆ Natural Endowments of Labor | 10 | 10 |
| ◆ Labor Required per Unit of Good I | 1 | 2 |
| ◆ Labor Required per Unit of Good II | 2 | 5 |
- ◆ Country A is therefore more efficient than Country B in the production of every good
 - ◆ **Question: Is there any gain for Country A to trade with Country B?**

Production and Consumption Patterns in the Absence of International Trade

◆ Let us suppose that in the absence of international trade, the pattern of production (and consumption) is given by:

◆	Country A	Country B	World
◆ Units of Good I	6	2.5	8.5
◆ Units of Good II	2	1	3

◆ It may be verified that labor is fully employed in both countries

A Possible Production Pattern with International Trade

- ◆ With international trade, a possible pattern of production is given by:

◆	Country A	Country B	World
◆ Units of Good I	4	5	9
◆ Units of Good II	3	0	3

- ◆ It may be verified that labor is fully employed in both countries
- ◆ Thus, the World can be better off with international trade in the sense that the total availability of goods is enhanced
- ◆ International trade expands the production/consumption possibilities of the world--when international trade is first introduced, total world GNP is increased (one-time)

A Possible Consumption Pattern with International Trade

- ◆ With international trade and the above pattern of production, a possible pattern of consumption is given by:

◆	Country A	Country B	World
◆ Units of Good I	6.25	2.75	9
◆ Units of Good II	2	1	3

- ◆ It may be verified that total world consumption is equal to total world production of each good
- ◆ In this case, country A trades 1 unit of good II with country B for 2.25 units of good I. Both countries are better off with trade than without trade

Another Possible Consumption Pattern with International Trade

- ◆ With international trade and the above pattern of production, a possible pattern of consumption is given by:

◆	Country A	Country B	World
◆ Units of Good I	6.01	2.99	9
◆ Units of Good II	2	1	3

- ◆ It may be verified that total world consumption is again equal to total world production of each good
- ◆ In this case, country A trades 1 unit of good II with country B for 2.01 units of good I. Both countries are still better off with trade than without trade. But note that the distribution of the gains from trade is changed. Country A does not gain as much under this alternative scenario as under the previous scenario.

A Third Possible Consumption Pattern with International Trade

- ◆ It is also possible to have most of the gains appropriated by Country A--such a possible pattern of consumption is given by:

◆	Country A	Country B	World
◆ Units of Good I	6.49	2.51	9
◆ Units of Good II	2	1	3

- ◆ In this case, country A trades 1 unit of good II with country B for 2.49 units of good I. Both countries are still better off with trade than without trade.

The Distribution of Gains from Voluntary International Trade is Indeterminate

- ◆ What these examples illustrate is that while voluntary international trade brings gains to everyone, the distribution of gains from trade, or the terms of trade, is not uniquely determined by the principles of comparative advantage alone but depends on the relative bargaining power of the trading partners

Is Free Trade Always Good?

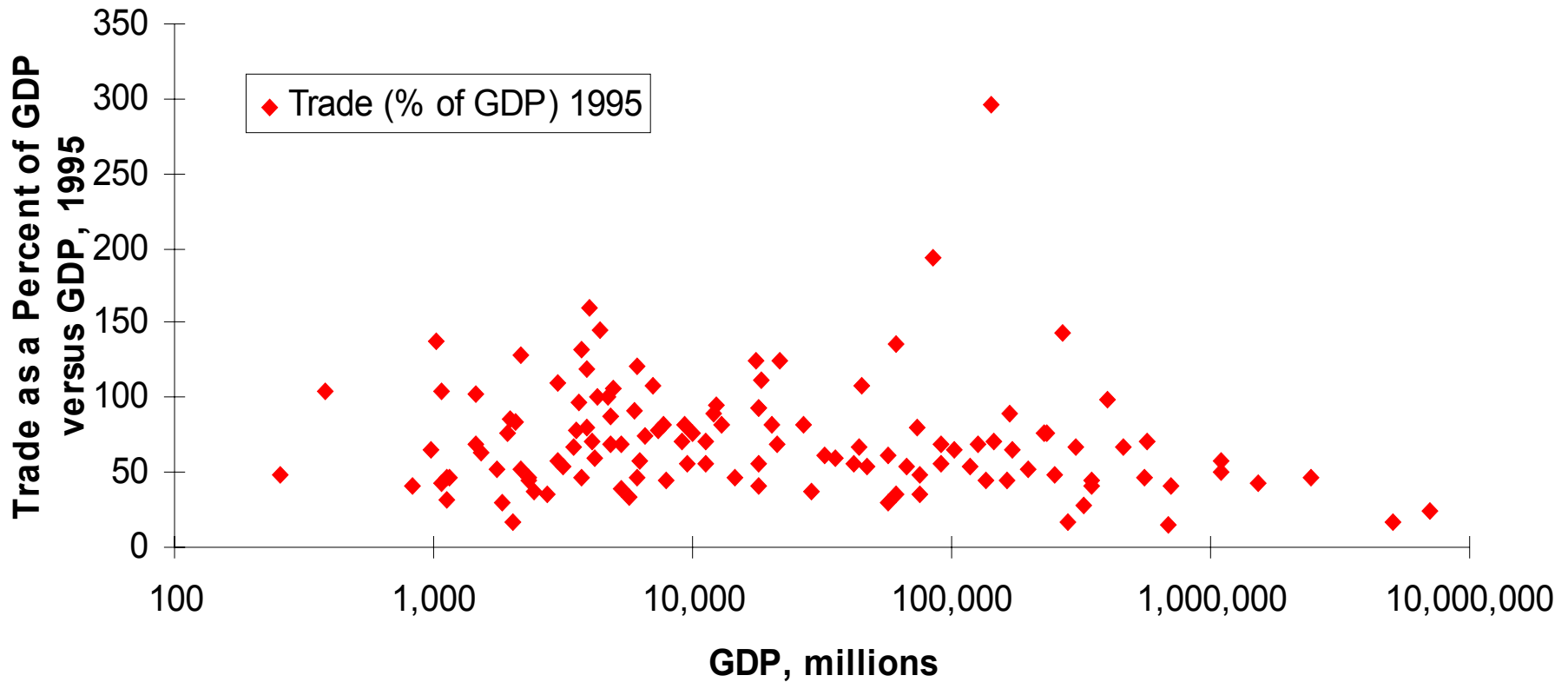
- ◆ Voluntary international trade is always beneficial to both trading partner countries
- ◆ However, transitional assistance may be required (re-training, unemployment insurance)
- ◆ Protection can be justified under the “infant industry argument”
 - ◆ Economies of scale
 - ◆ Learning by doing
 - ◆ Predatory competition
 - ◆ Sunset provision

Empirical Regularities

- ◆ Large economies have low trade/GDP ratios
 - ◆ e.g., United States, Japan, China

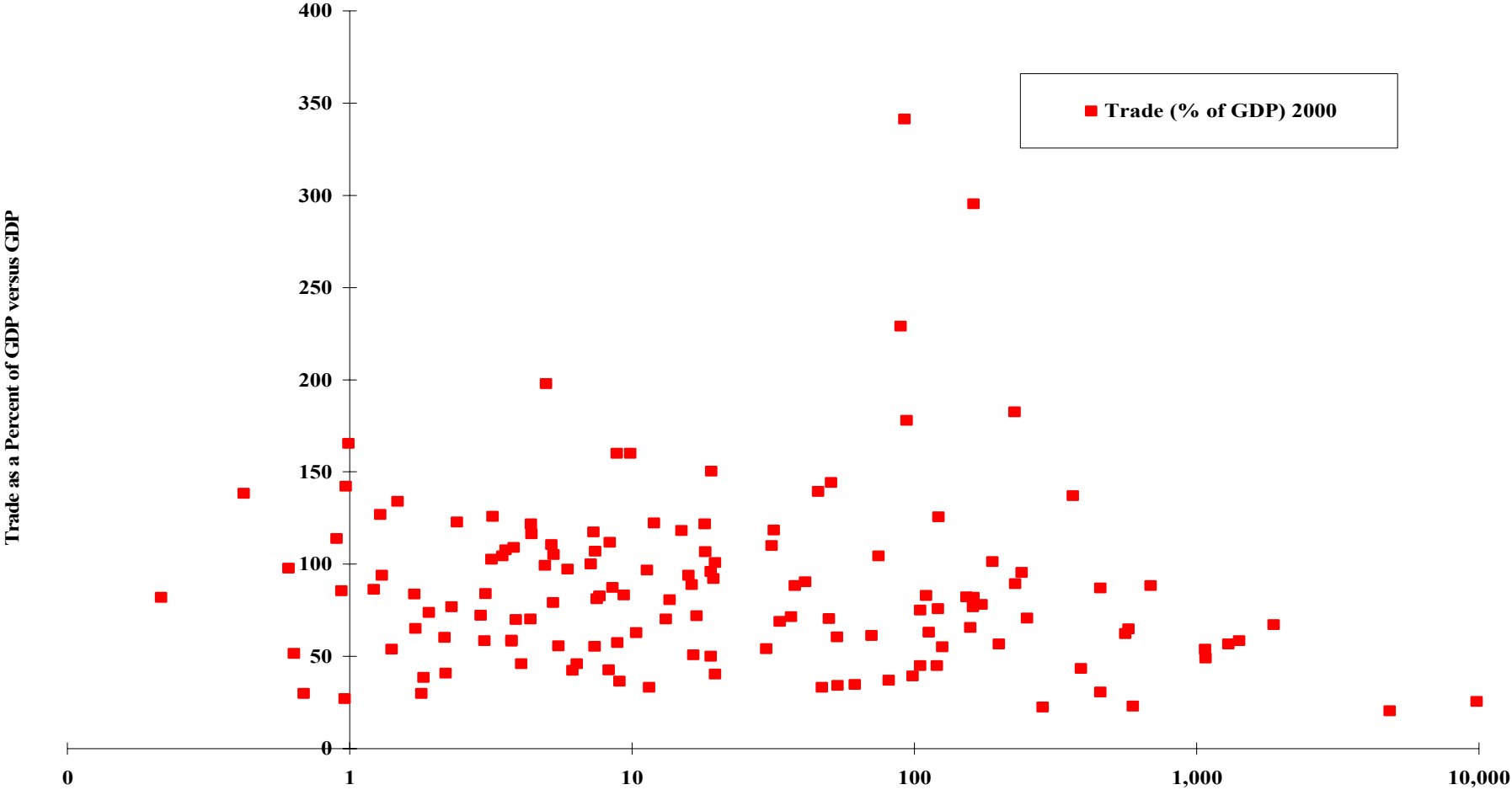
The Effect of Size: Trade/GDP Ratio versus GDP

Trade as a Percent of GDP versus GDP, 1995



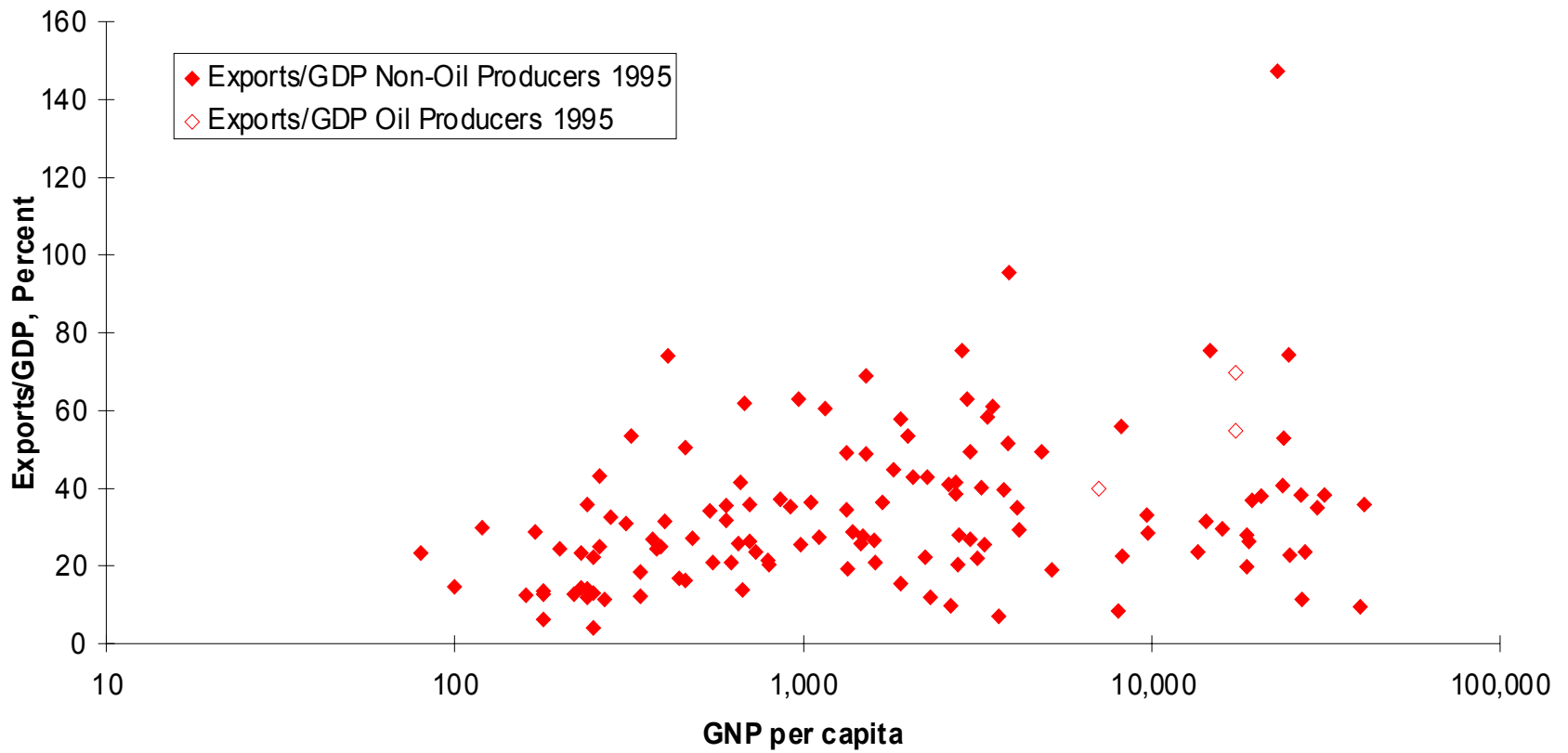
The Effect of Size: Trade/GDP Ratio versus GDP

Trade as a Percent of GDP versus GDP, 2000



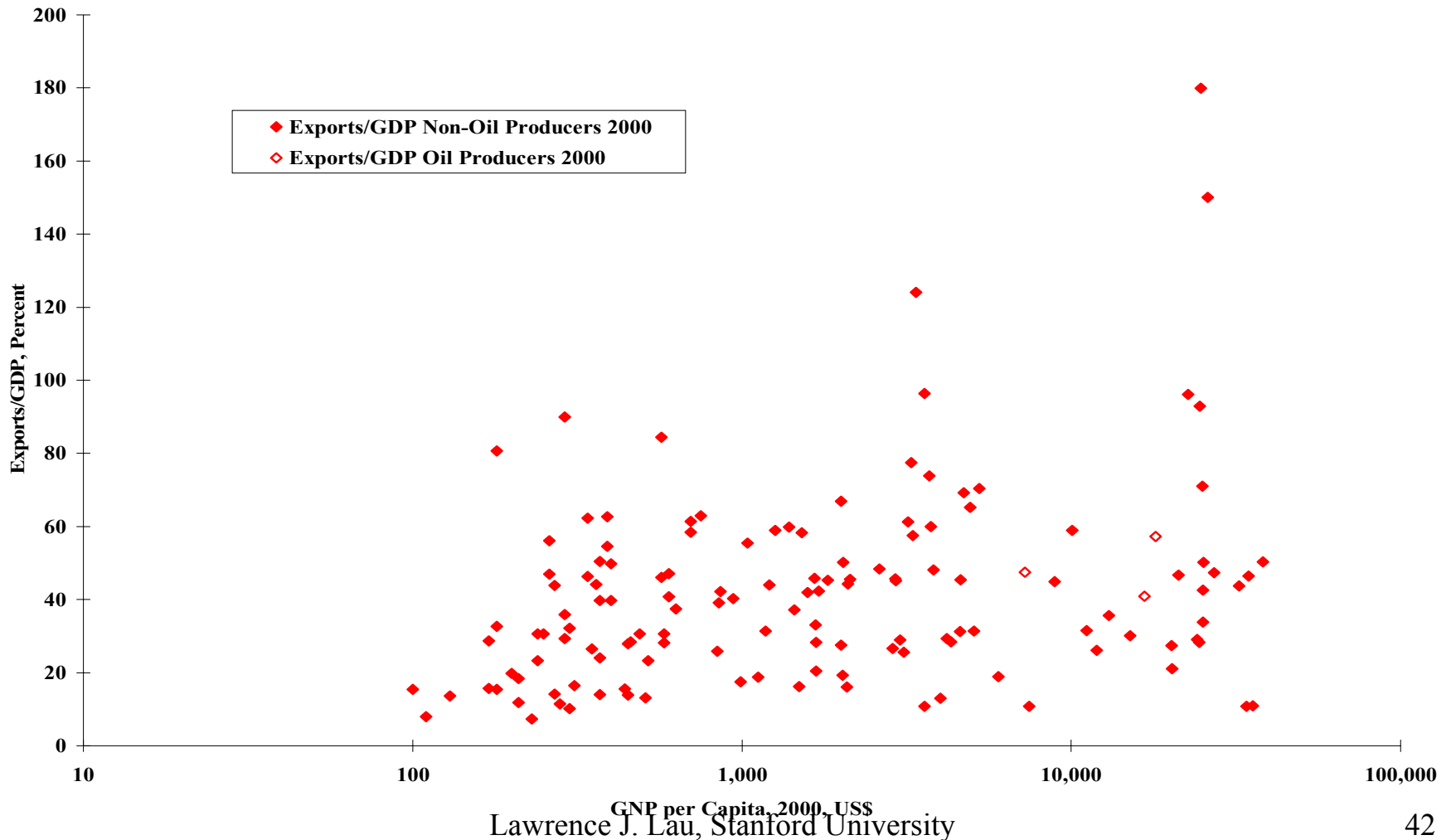
The Export/GDP Ratio and GNP per Capita

Exports/GDP and GNP per capita, 1995



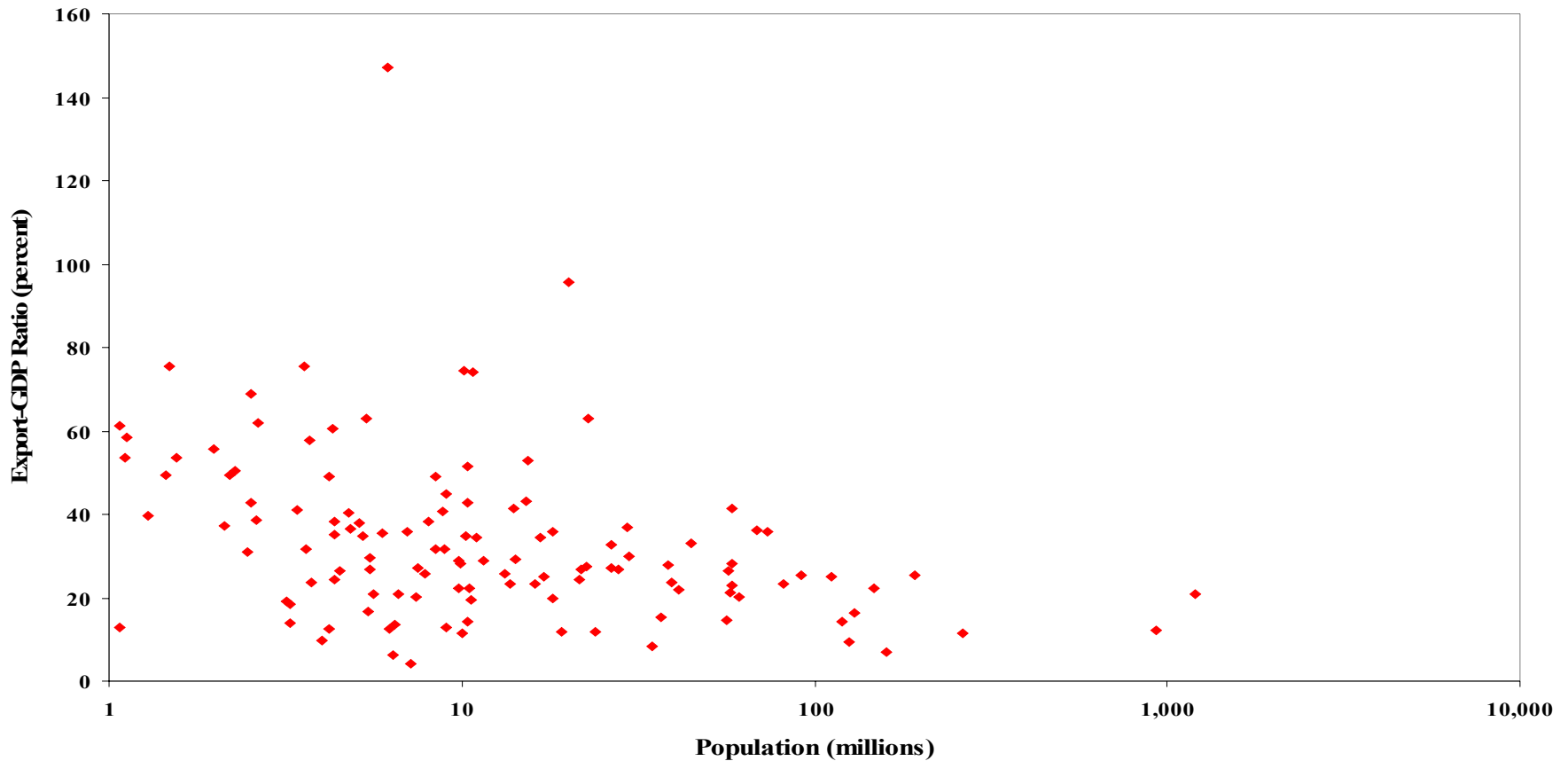
The Export/GDP Ratio and GNP per Capita

Exports/GDP and GNP per Capita, 2000



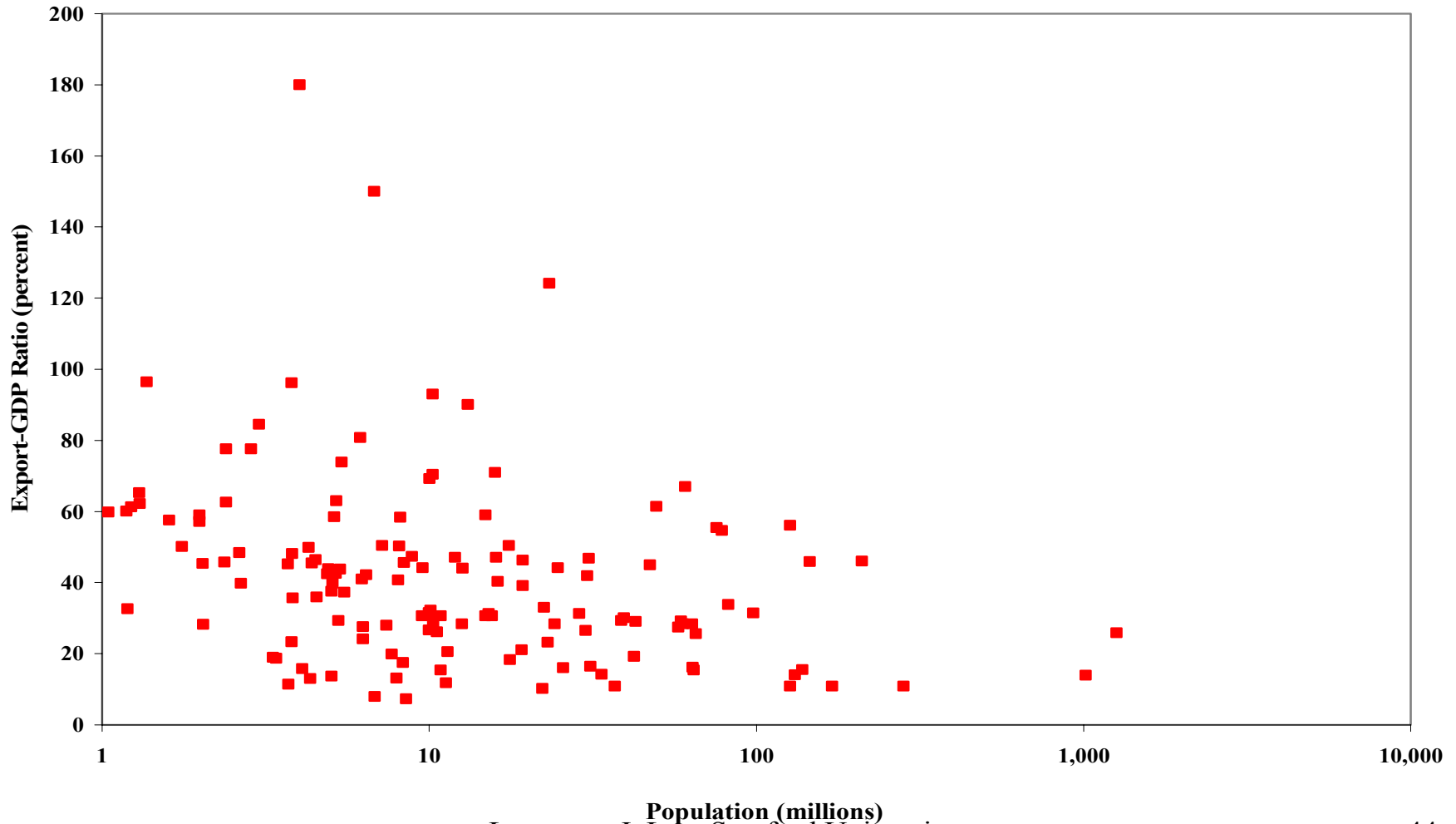
The Effect of Size: Export/GDP Ratio versus Population

Export-GDP Ratio and Population

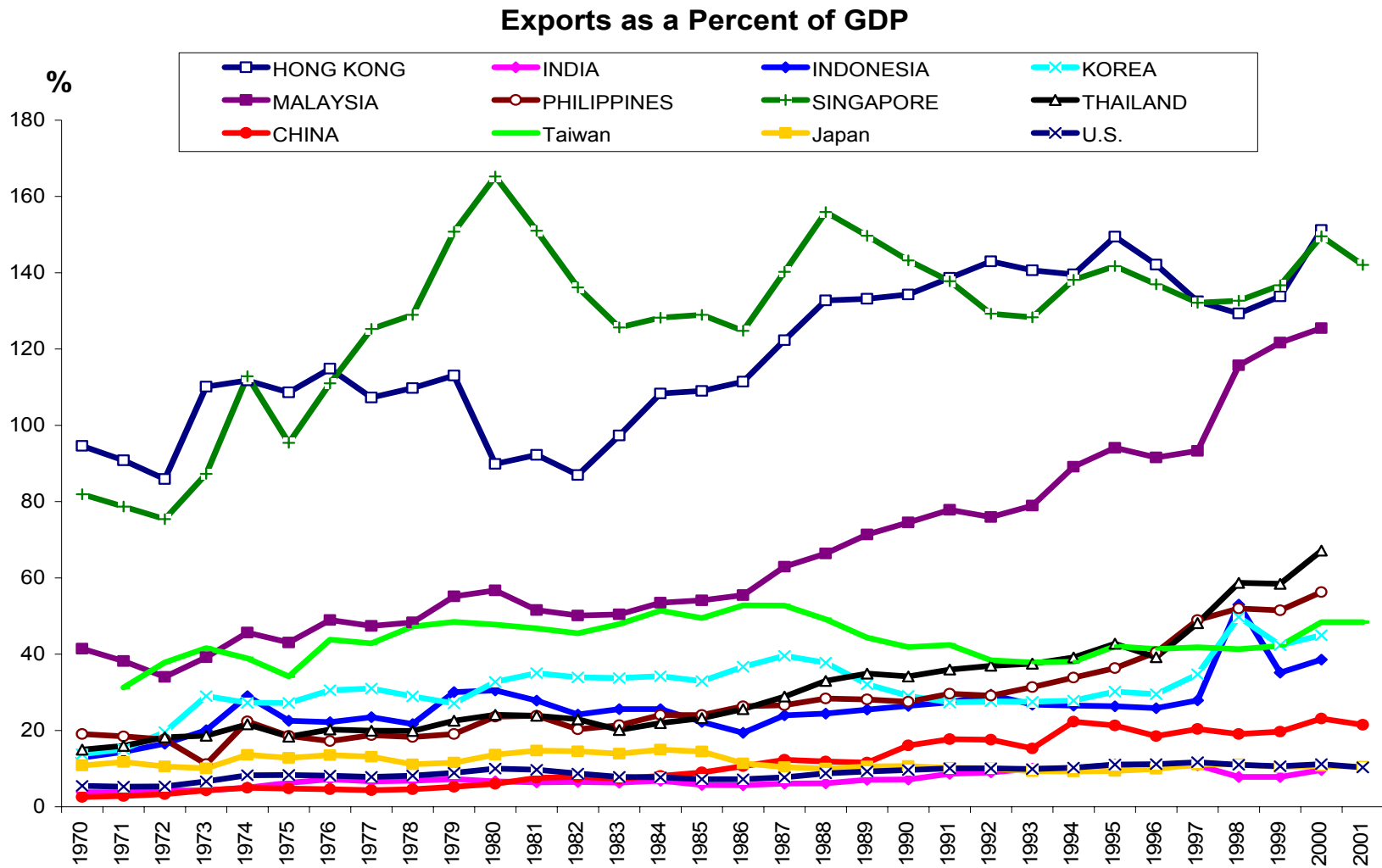


The Effect of Size: Export/GDP Ratio versus Population

Export-GDP Ratio and Population, 2000

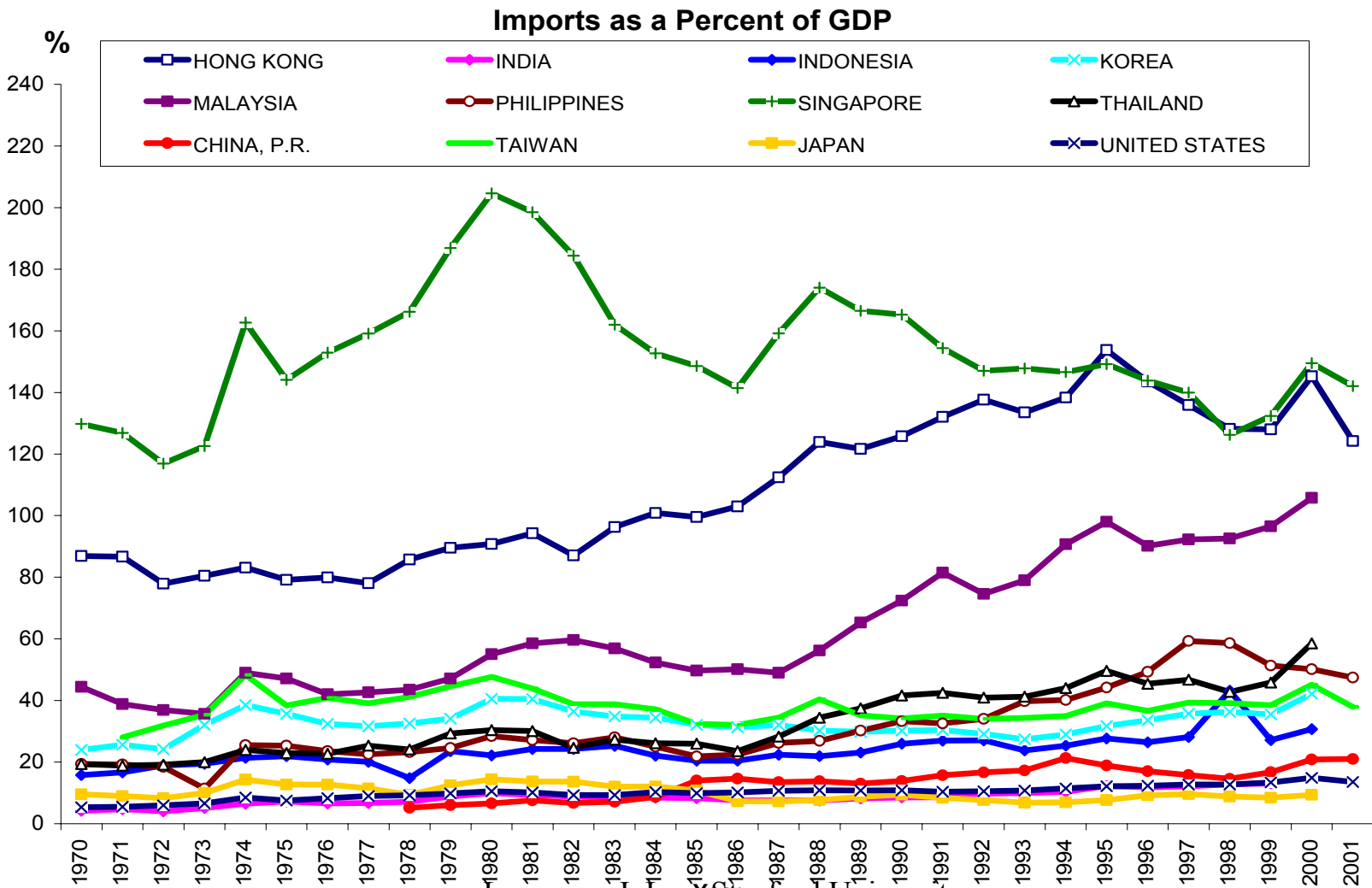


Exports as a Percent of GDP: Selected East Asian Economies and U.S.



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Imports as a Percent of GDP: Selected East Asian Economies and U.S.



Lawrence J. Lau, Stanford University

The Importance of Exports in the East Asian Economies

- ◆ While exports is a very high percentage of GDP in Hong Kong, Malaysia, Singapore and Taiwan, it is a relatively low percentage of the Chinese economy, amounting to approximately 25 percent
- ◆ The proportion of total exports destined for the U.S. has generally declined in the East Asian economies over the years, to less than 30 percent
- ◆ The one exception is the Chinese economy, where the proportion of Chinese exports destined for the U.S. has been rising to its current level of approximately 20 percent
- ◆ Overall, the East Asian economies export approximately 60% of their total exports to other East Asian economies.

Reliance on the Private Sector

- ◆ Reliance on the private sector means mistakes are corrected immediately--the public sector takes a long time to correct mistakes because it has deep pockets and operates with “other people’s money”

Does Economic Openness Promote Economic Growth?

- ◆ Definitions of economic openness
- ◆ The implications of economic openness
 - ◆ Free flow of goods
 - ◆ Free flow of services
 - ◆ Free flow of capital
 - ◆ Free flow of labor
 - ◆ “Free” flow of technology and intellectual capital
 - ◆ National treatment for all
- ◆ Measurements of economic openness
 - ◆ Statutory tariff rates
 - ◆ Non-tariff barriers
 - ◆ Actual tariffs collected as a percent of imports
 - ◆ Actual market share
 - ◆ Price differentials

Does Economic Openness Promote Economic Growth?

- ◆ How does economic openness help or hurt an economy?
 - ◆ In general economic openness should always be helpful to an economy. It can hurt an economy only insofar as
 - ◆ (1) it deprives an economy of the opportunity of “learning by doing” and
 - ◆ (2) it increases the magnitude and the variability of the economic shocks faced by the economy, thus creating additional economic risks that cannot be effectively hedged. However, (2) is a difficult argument to make because it is like blaming the lender for the borrower’s default and other woes, unless there is moral hazard on the part of the lender.
- ◆ Do initial conditions and natural endowments matter?
- ◆ Does size matter?
- ◆ Does location (distance) matter?