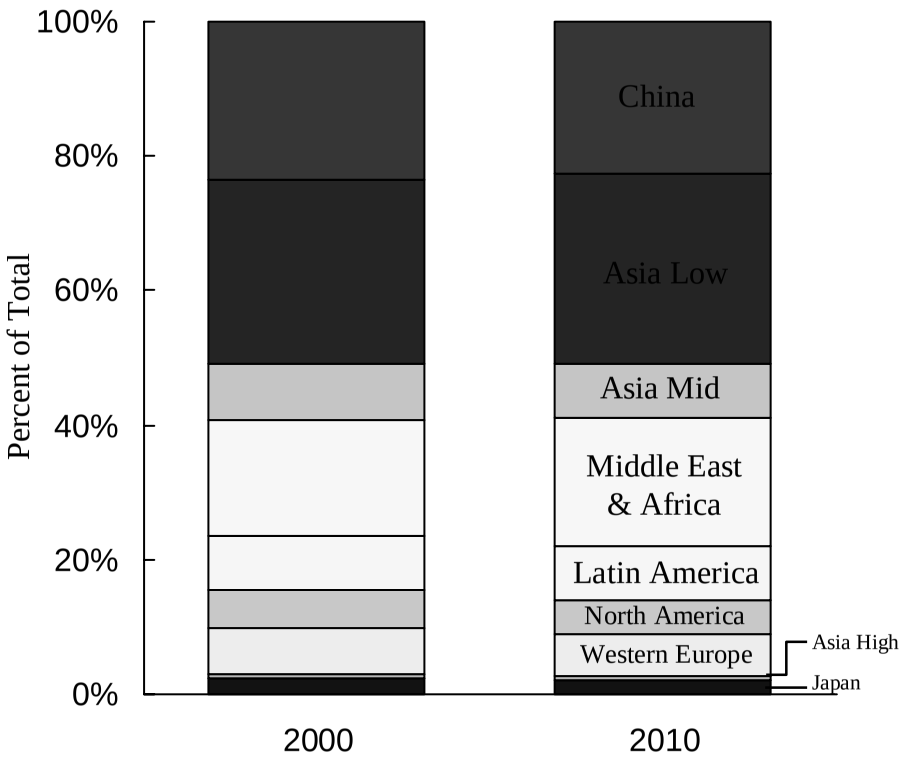
I. Endogenous Growth and International Transmission
II. The Asian Crisis and Resolution

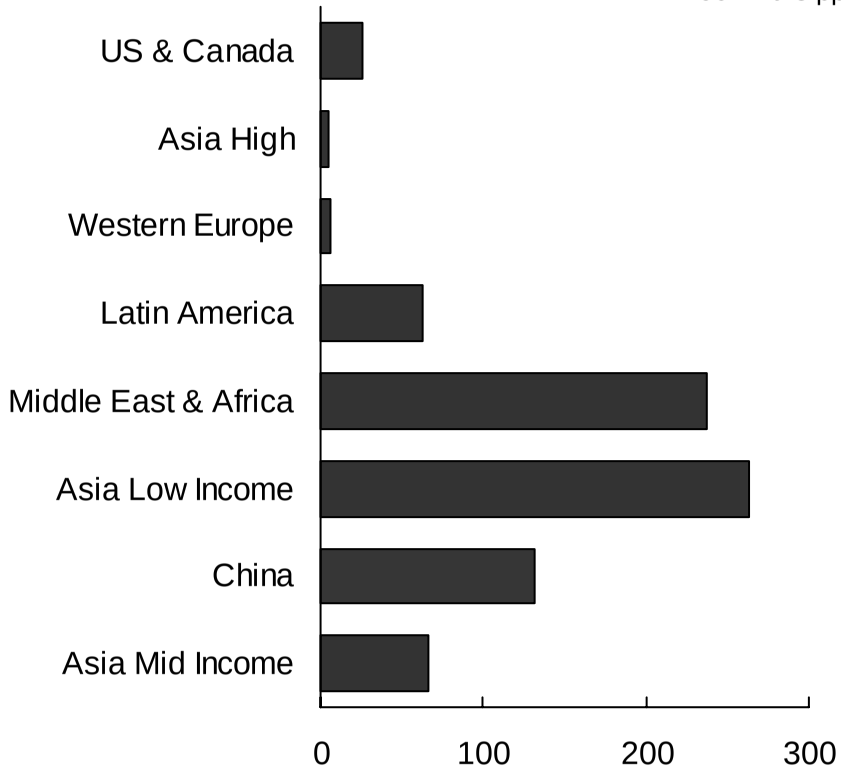
Lecture 18

The Dramatic Demographics of the Developing World

Population by Region



Population Growth, 2000-2010, Millions of People



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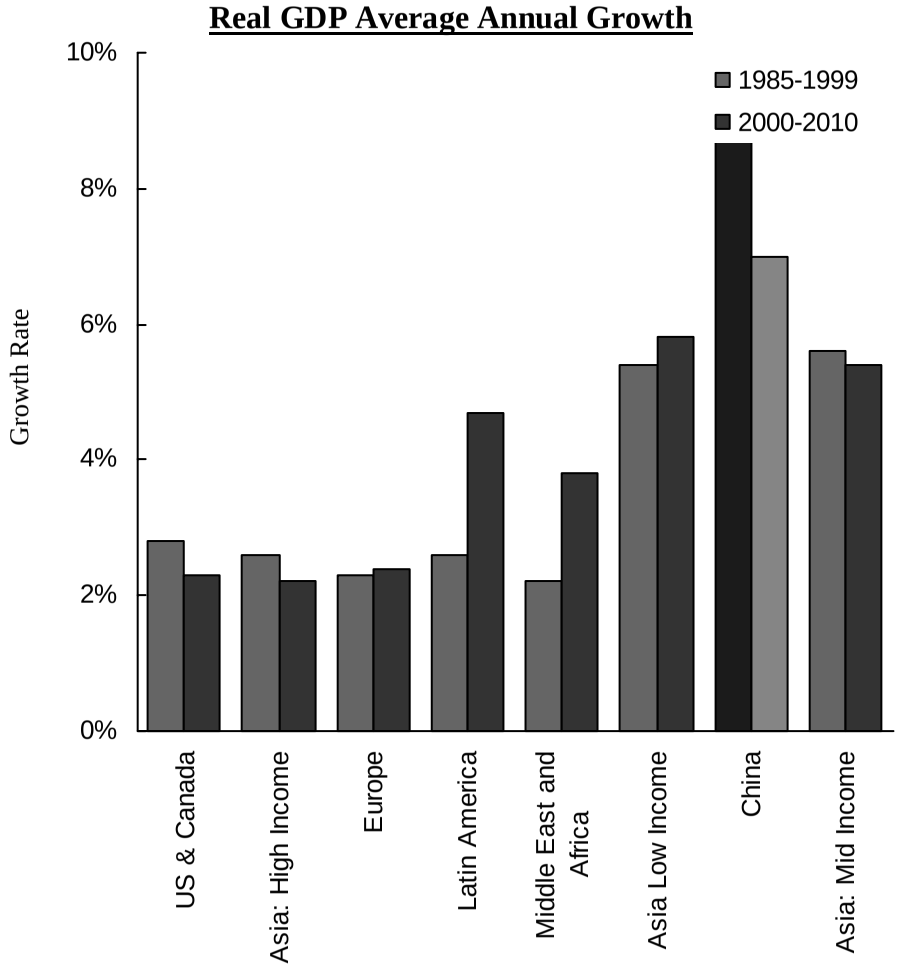
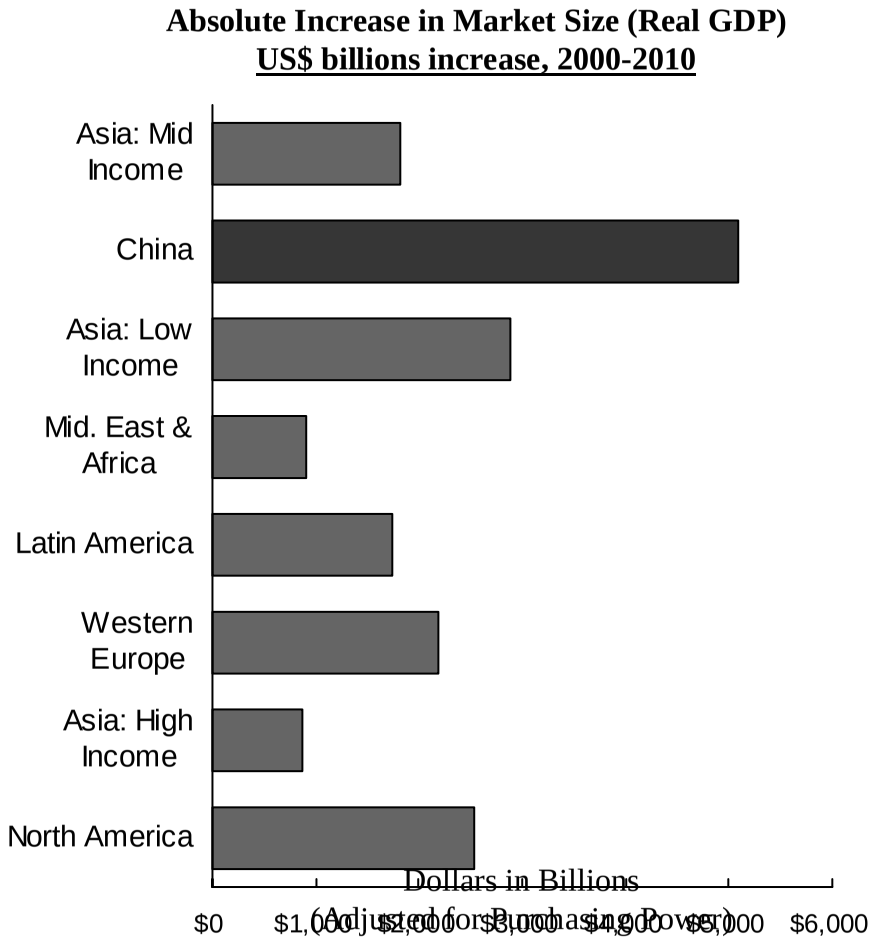
- Less than 15% of the World's Population is in Europe, Japan and North America
- Asia dominates the growth

Note: Asia High Income includes Singapore, Hong Kong, New Zealand, and Australia; Asia Mid Income includes Korea, Thailand, Indonesia, Malaysia, and the Philippines; Asia Low Income includes India and Pakistan

Asia Will Have the Largest Absolute Real GDP Gain Through 2010





Note: Asia High Income includes Japan, Singapore, Hong Kong, New Zealand, and Australia; Asia Mid Income includes Korea, Thailand, Indonesia, Malaysia, Taiwan, and the Philippines; Asia Low Income includes India and Pakistan

The New Economic Order: Open Borders for Goods, Technology and Finance

- **Increasingly *free trade with the developing world creates tremendous stress in the mature industrial economies:* the opportunity to move production and assembly technologies abroad removes a previously captive privilege from the workers of the United States, Japan, and Europe. The NAFTA and EC expansions point to extended trends in this direction.**
  - **Semi-skilled labor is now in gross over-supply worldwide.**
  - **Managers and entrepreneurs will benefit.**

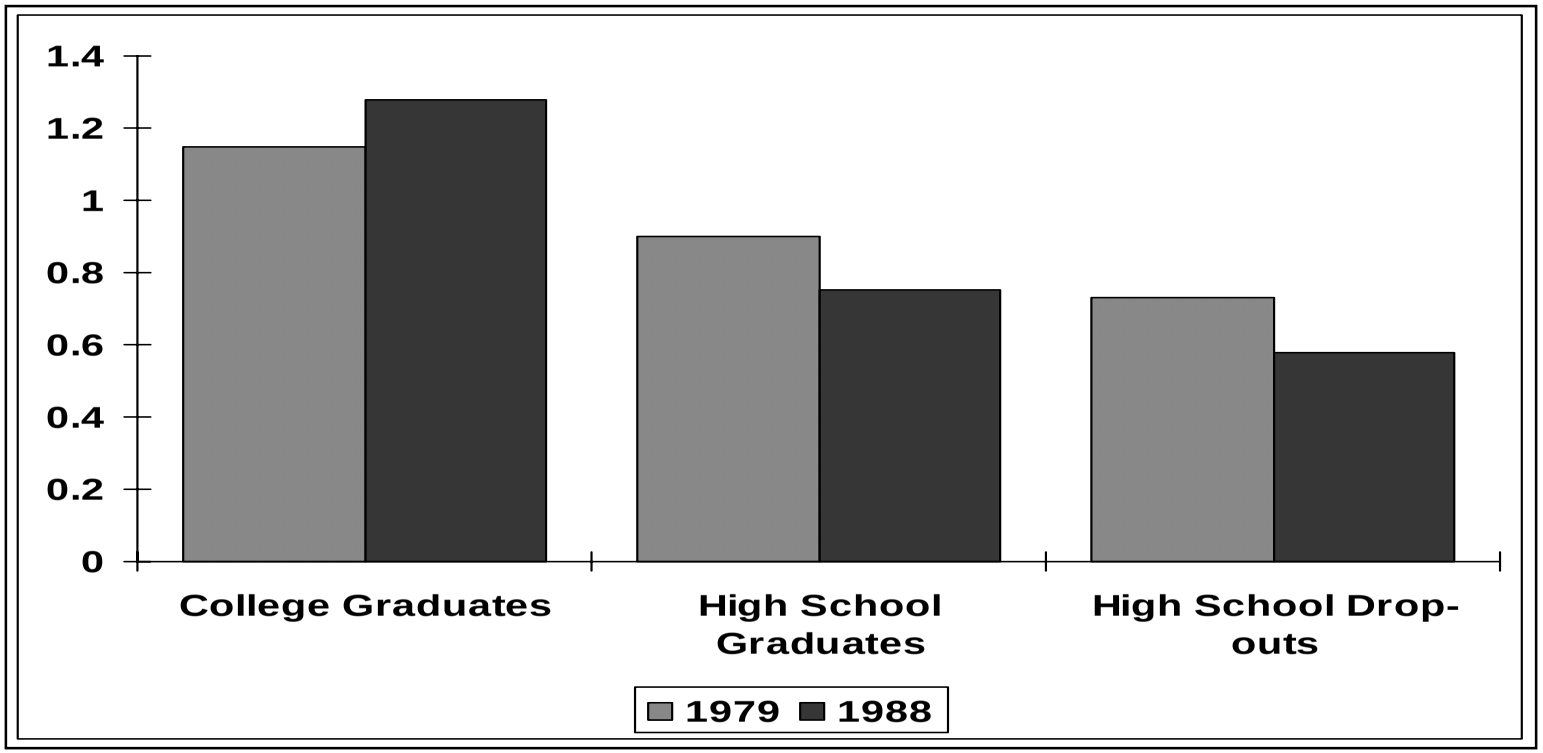
The New Economic Order: Open Borders for Goods, Technology and Finance

Unprecedented technology and capital transfers plus political *transformations signal high growth for selected developing nations*. The earliest and most rapid advancement will occur where:

- **the work-force is the best educated and motivated;**
- **the indigenous entrepreneurial climate is most positive;**
- **equity investment and trade are encouraged;**
- **government fiscal and monetary policies are best balanced to keep inflation and exchange risks minimal; and**
- **the democratic heritage is strongest.**

Returns to Education Have Risen

(Multiple of average income)



Endogenous Growth

- **"Endogenous" growth can be defined as growth than can be accounted for through explicit changes in labor supply or capital formation.**
  - **Ordinary population growth and saving/investment**
  - **Tax and benefit policies affecting these**
  - **Trade and financial regulations**
- **In contrast, "exogenous" growth is the unexplained component that shows up as an abrupt shift or a time trend.**
  - **Access to a new technology**
  - **"Learning by doing"**
  - **Unmeasured inputs (such as R&D and Infrastructure in early analyses)**

Endogenous Growth

- **Early models of growth had large "exogenous" components**
- **Researchers then began to explore the contributions of education, science, research, and technological progress "embodied" in successive generations ("vintages") of workers and machines**
  - **worker quality estimated in terms of education levels**
  - **equipment quality measured in computers**
  - **R&D as investment lifting TFP**
- **These have narrowed the exogenous component but not eliminated it.**

International Transmission

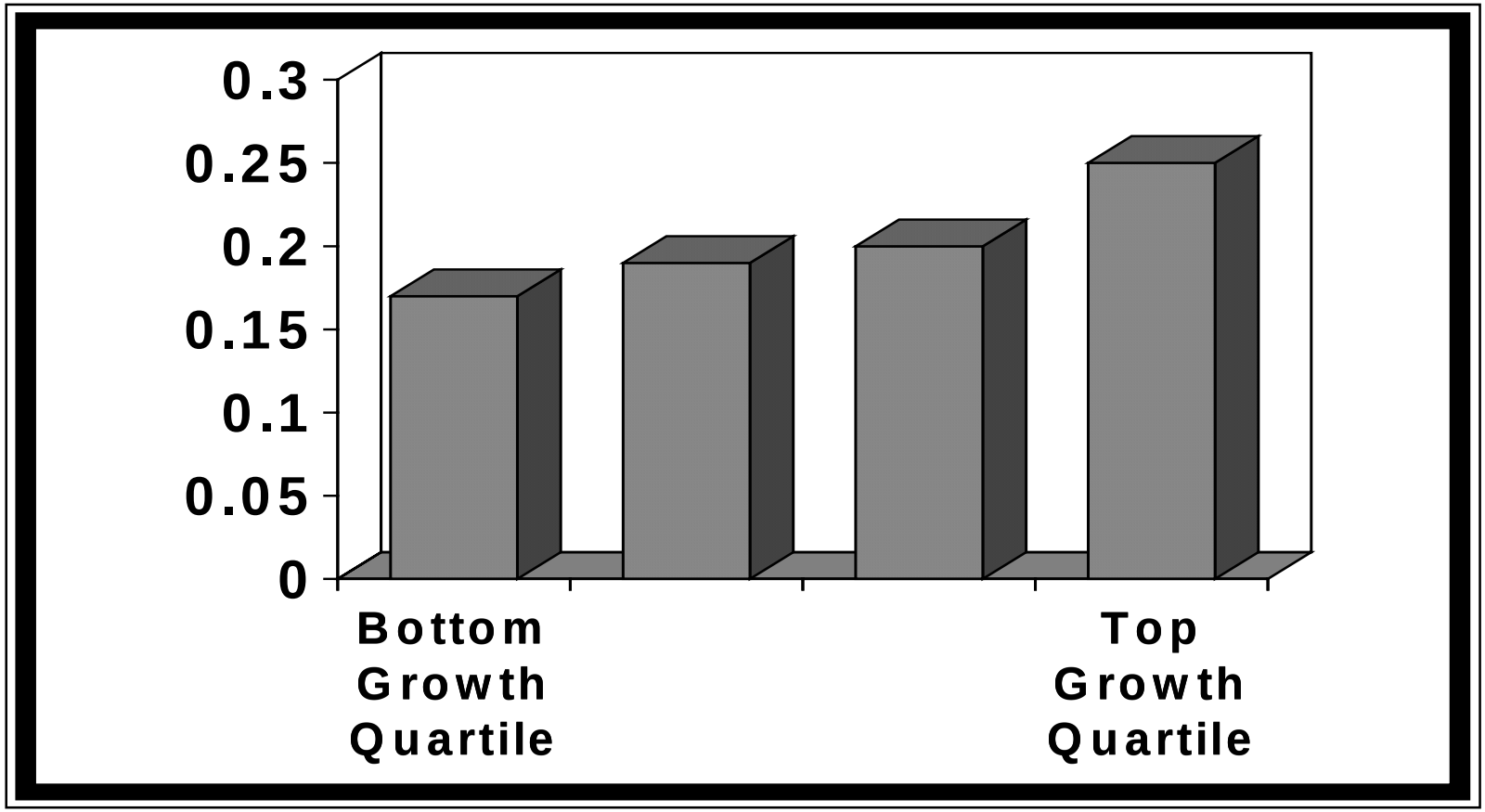
A country can import a higher level of "technology" to accelerate its growth by:

- **Copying, licensing or pirating from successful approaches elsewhere**
- **Sending students to foreign universities and technical programs**
- **Sending business managers and engineers on plant tours**
- **Reverse-engineering products**
- **All of this *tends to create a strong convergence process* pulling up nations with below average productivity**
- **This pace of convergence appears to be correlated with the level of investment in equipment.**
  - **Given the ability to change technology, the new equipment can be logically expected to yield a high rate of return.**

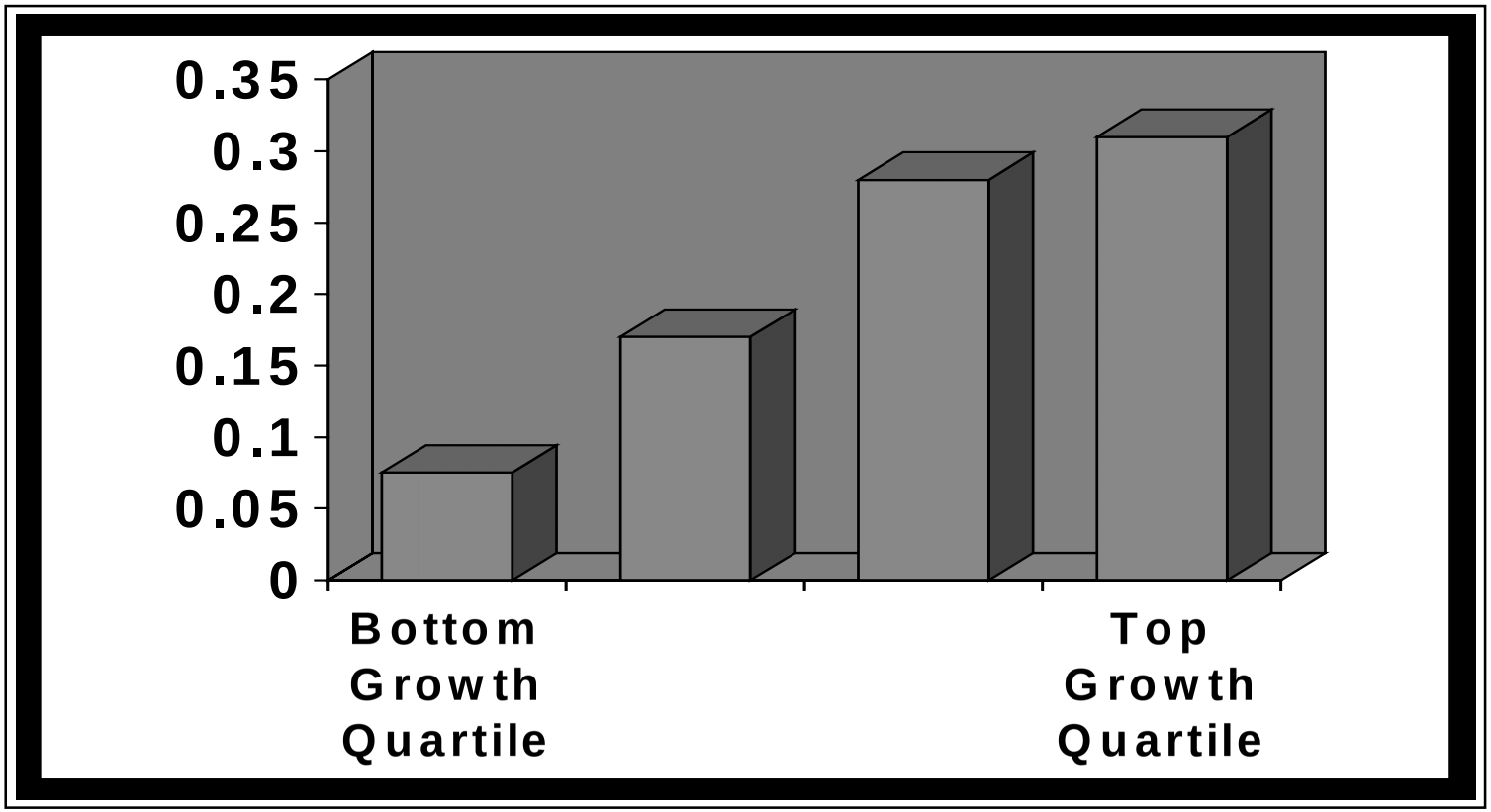
International Transmission

- **A country can import a higher level of "technology" to accelerate its growth**
  - **Depending on how the official investment series are deflated to account for quality changes, this could include better "machines" and show up as either endogenous (measured) or exogenous (unmeasured) changes in inputs or TFP**
  - **It certainly also includes better work flow and production patterns which will appear to be exogenous**
  - **Access to this may require allowing equity investment and partnerships: the best practices are not for sale to non-partners**
- **A country can also play to global comparative advantage by opening up to trade and so boost its standard of living**

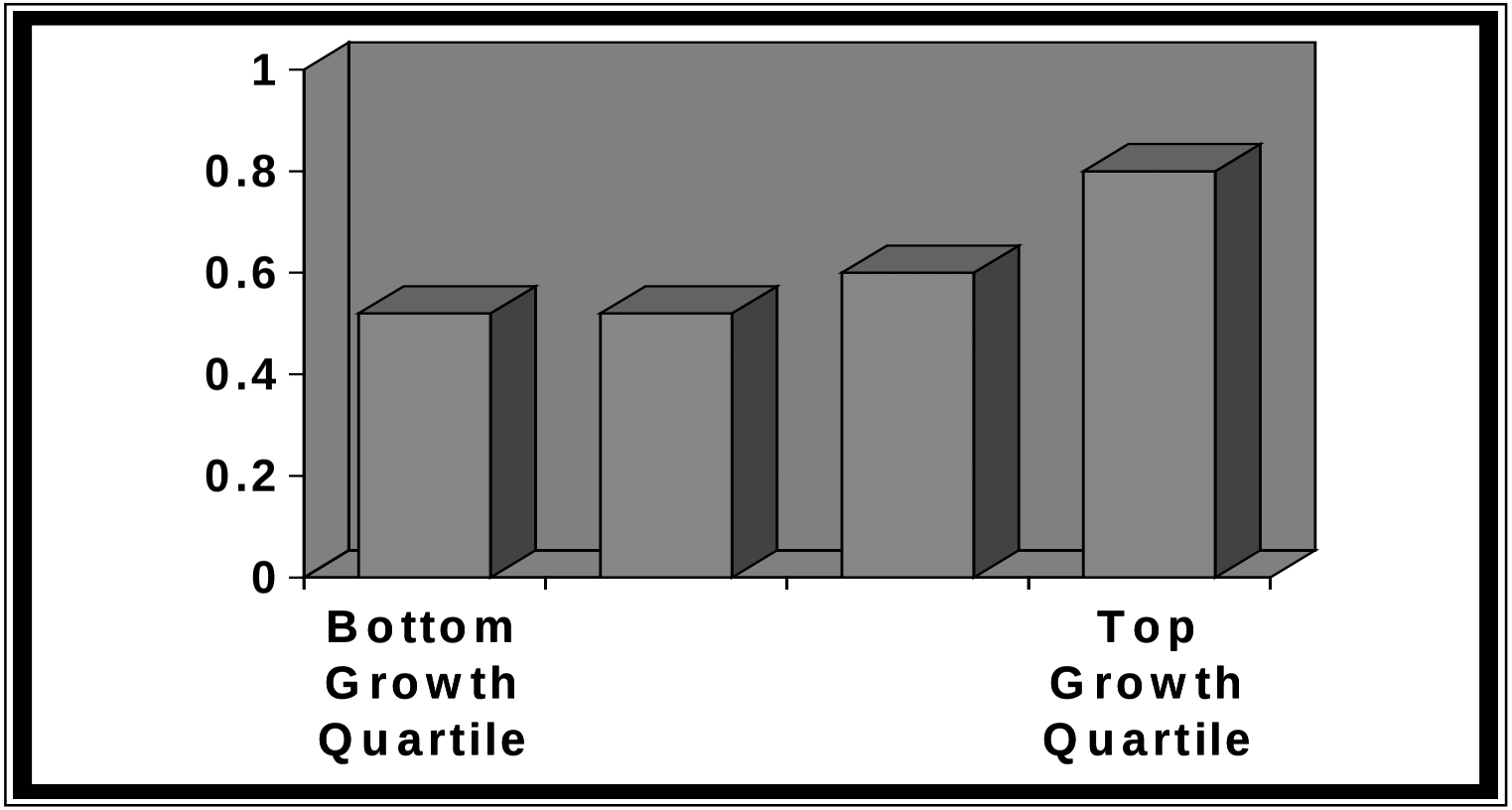
The Most Rapid Growth in Developing Nations Has Occurred for those Having.....High Investment Shares of GDP,



...High Secondary School Enrollment Rates,



...and High Trade Shares of GDP



Insights into Asian Recovery Prospects

The nations pursuing transformation toward modern industrial status offer outstanding long-term market prospects

- **However, developing nations are badly exposed to extreme foreign exchange rate changes that create short-term economic crises**

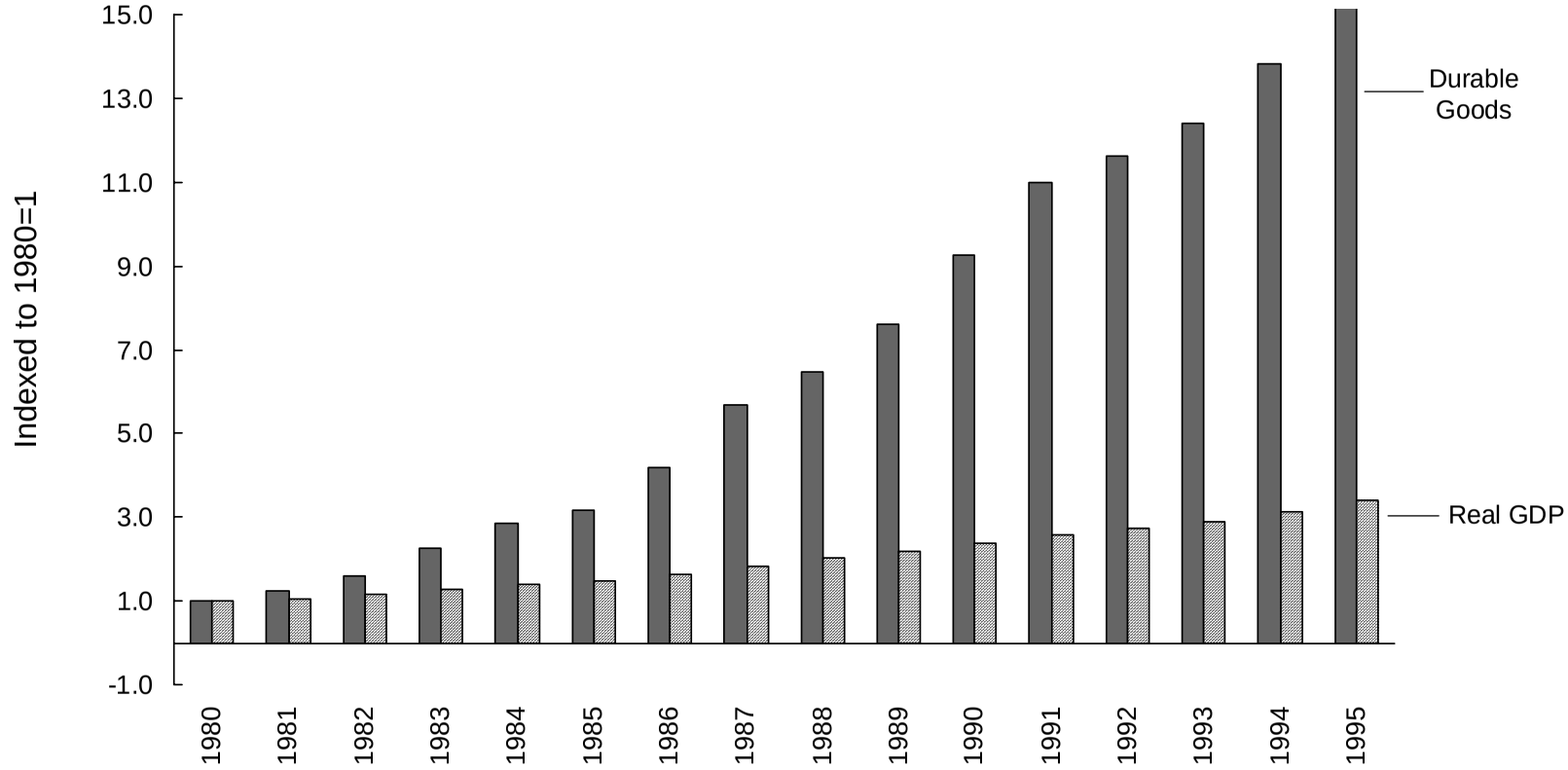
- **Asia will recover sooner than many investors and pundits expect**
  - **Foreign exchange rates have already recovered**
  - **An export-based recovery is already visible**
  - **High domestic saving rates provide massive funding to complement foreign sources**
  - **Reforms are being pursued to strengthen investor confidence**
- **Even with the rebound in currencies, Asian labor costs are now exceptionally low**
  - **Multinational companies will accelerate the migration of manufacturing capacity from high-cost European and US locations**

Markets Outside the United States Still Offer the Greatest Long-Run Growth Potential

- **LARGE POPULATIONS, WITH HIGHER GROWTH RATES**
  - **+ Opening markets for goods, technology, information and capital**
  - **+ Productivity rising toward the US standard**
  - **+ Transformation toward free enterprise economies**
  - **= RAPID INCOME GROWTH**
  - **+ Rising share of income spent on consumer durables and business capital equipment**
  - **= VERY RAPID MARKET GROWTH , IN LOCAL CURRENCIES**
  - **+ Currency appreciation relative to $US as development proceeds**
  - **= EXTRAORDINARY LONG TERM OPPORTUNITY FOR US$ REVENUE GROWTH**

- ***The long-run trend remains very positive.***
- ***However, this trend to higher-valued currencies is subject to periodic crises***

The Market Growth Advantage Exceeds the GDP Growth Advantage Korean Durable Goods vs. GDP



CAGRs: Inflation Adjusted Concepts	1980-1995
Durable Goods :	20.2%
GDP :	7.7%
Growth Multiple (Durable Goods/Real GDP):	2.6:1

In the Long-Run, Currency *Appreciation* is the Norm

VERY RAPID MARKET GROWTH, IN LOCAL CURRENCIES

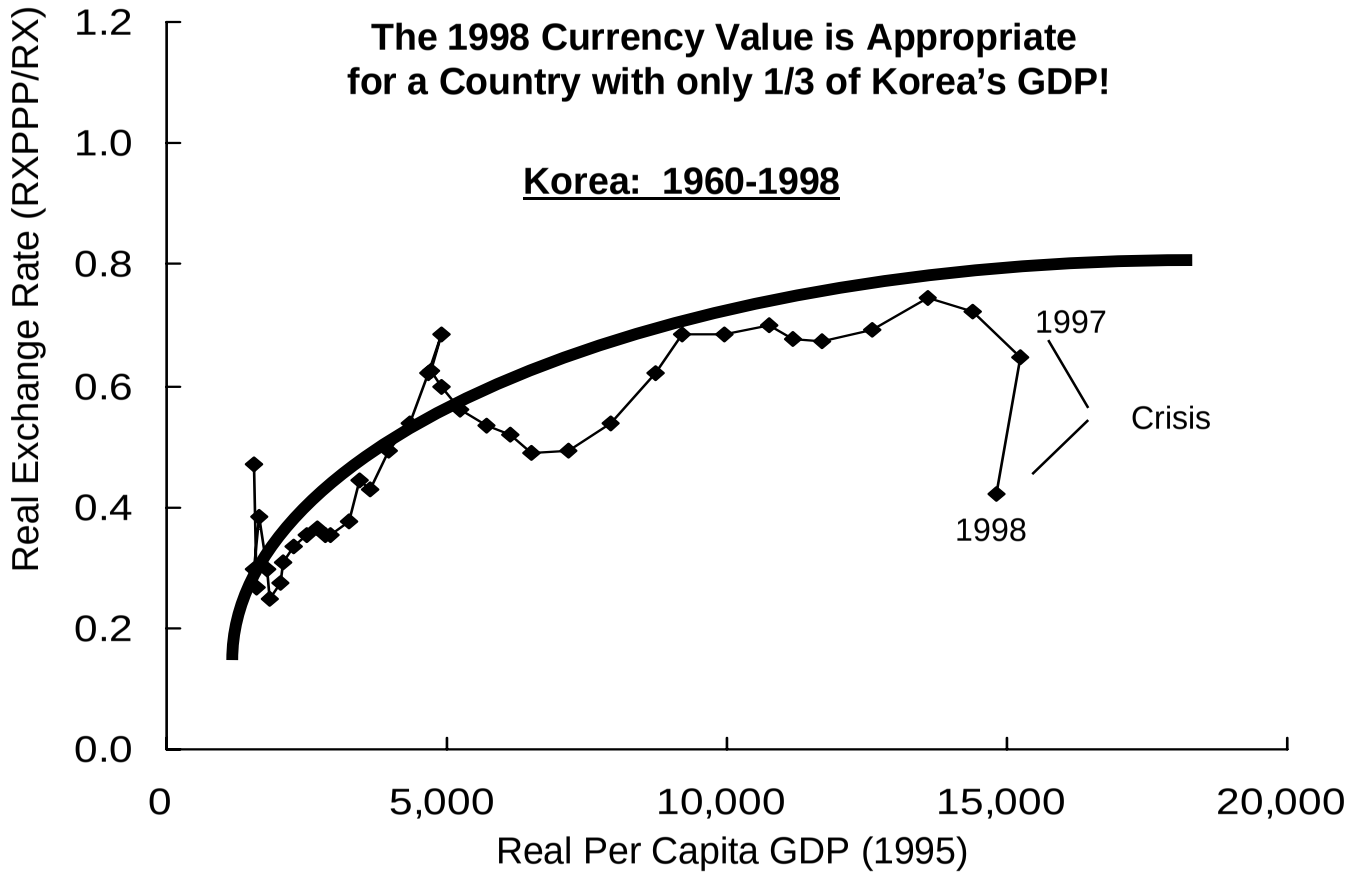
\+ (real) currency appreciation relative to $US as development proceeds

= EXTRAORDINARY LONG TERM OPPORTUNITY FOR US$ REVENUE GROWTH

- **As a national economy converges toward high-income global norms, its real exchange rate tends to appreciate**
  - **The country is more attractive for investors**
  - **The country can afford to compete on a basis other than cheap labor**
  - **Developed nations demand appreciation to protect their industries**
- **This also raises the cost for late-arriving competitors to establish facilities in the emerging nation**

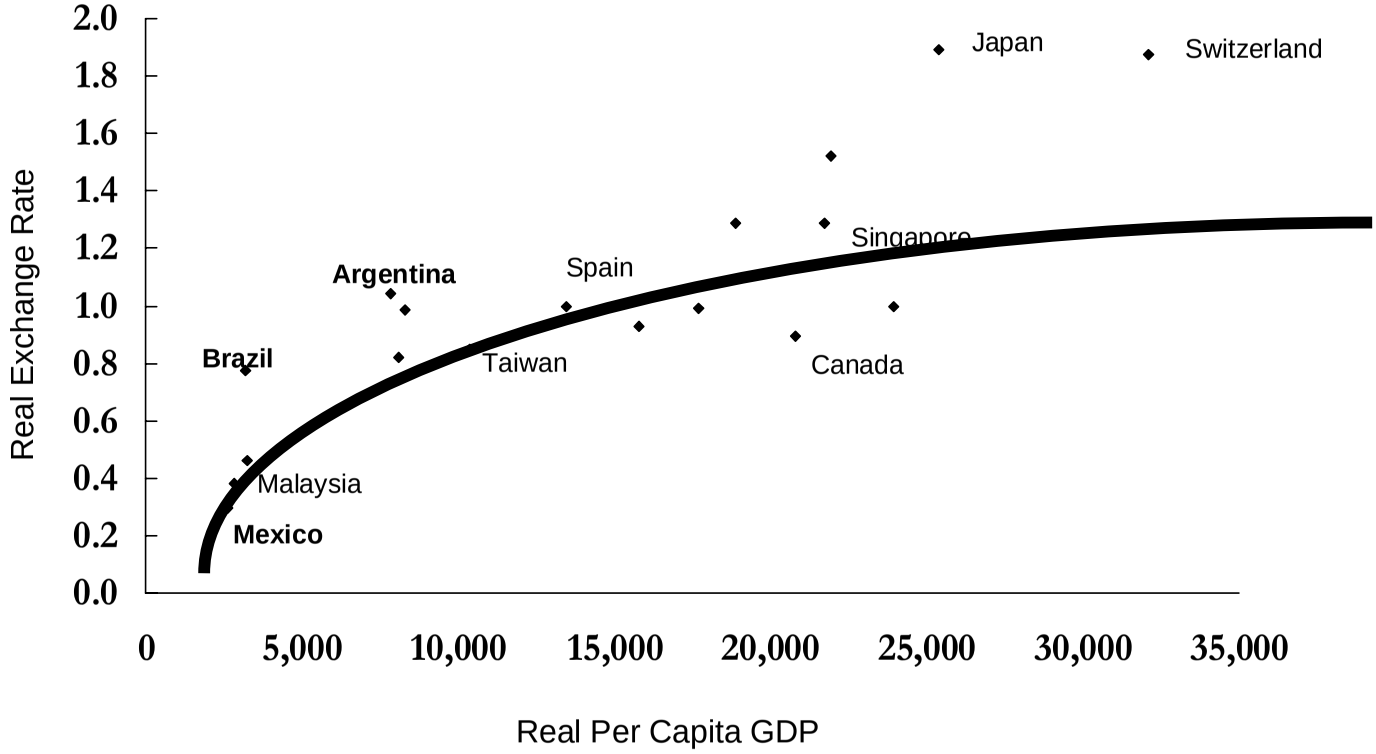
This trend to higher-valued currencies is subject to periodic crises

A Positive Trend of Currency Appreciation as Development Proceeds, But with Periodic Major Crises



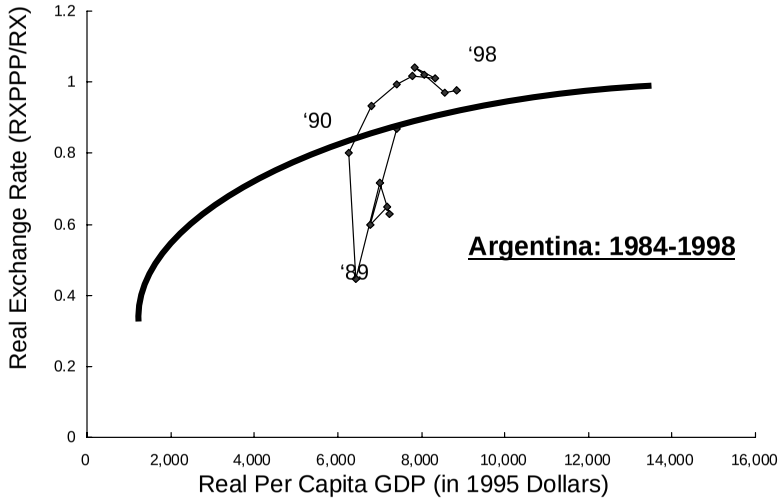
Note: The "real" exchange rate depicted here is the ratio of the market exchange rate to the hypothetical exchange rate that would equate the cost of goods in Korea to the cost of goods in the major industrial nations. For example, a real exchange rate of 0.4 means that the cost of goods in Korea is only 40% of the cost in the major nations at prevailing market won/$ exchange rates

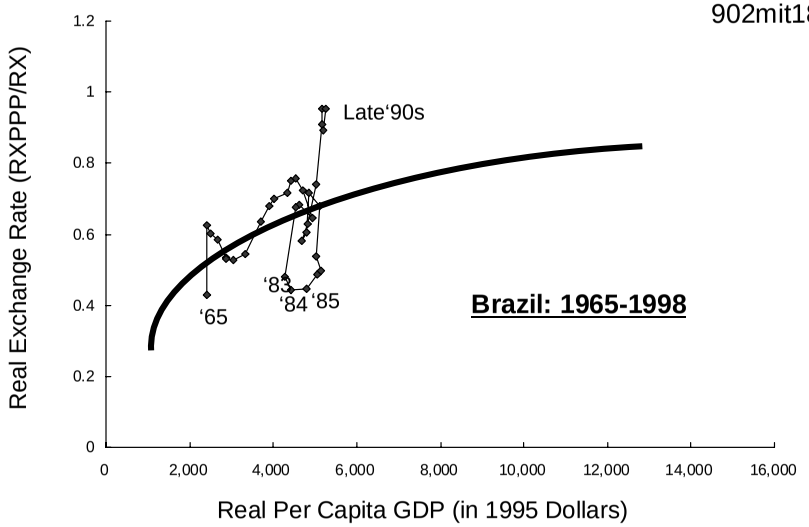
The Relationship Between a Country's Level of Development and an Appreciating Exchange Rate is Confirmed in Cross-Country Comparisons



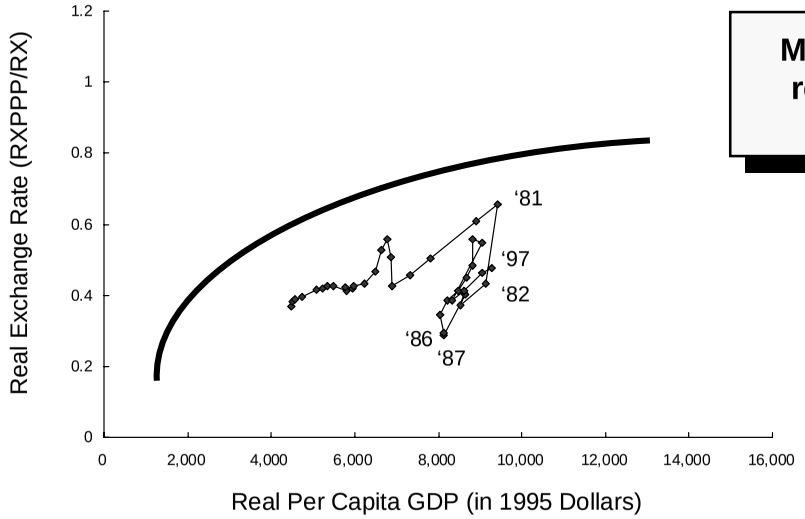
- **At any point in time (1996 shown here), the strength of a country's exchange rate correlates well with its level of development**

Brazil and Argentina were clearly overvalued until recently



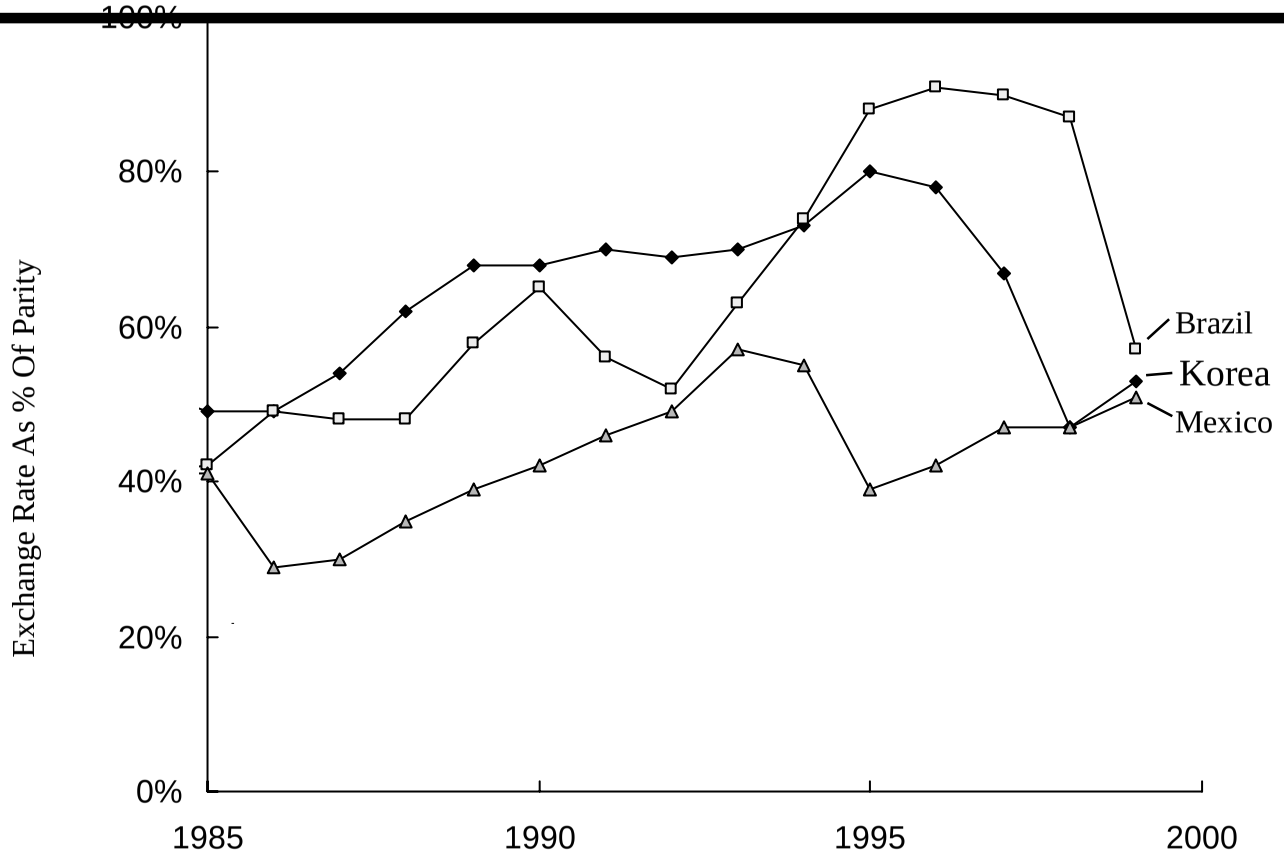


Mexico: 1960-1998



Mexico has only partially recovered, and remains cheap

The Cycles Of Crisis Devaluations (Around A Rising Trend?)



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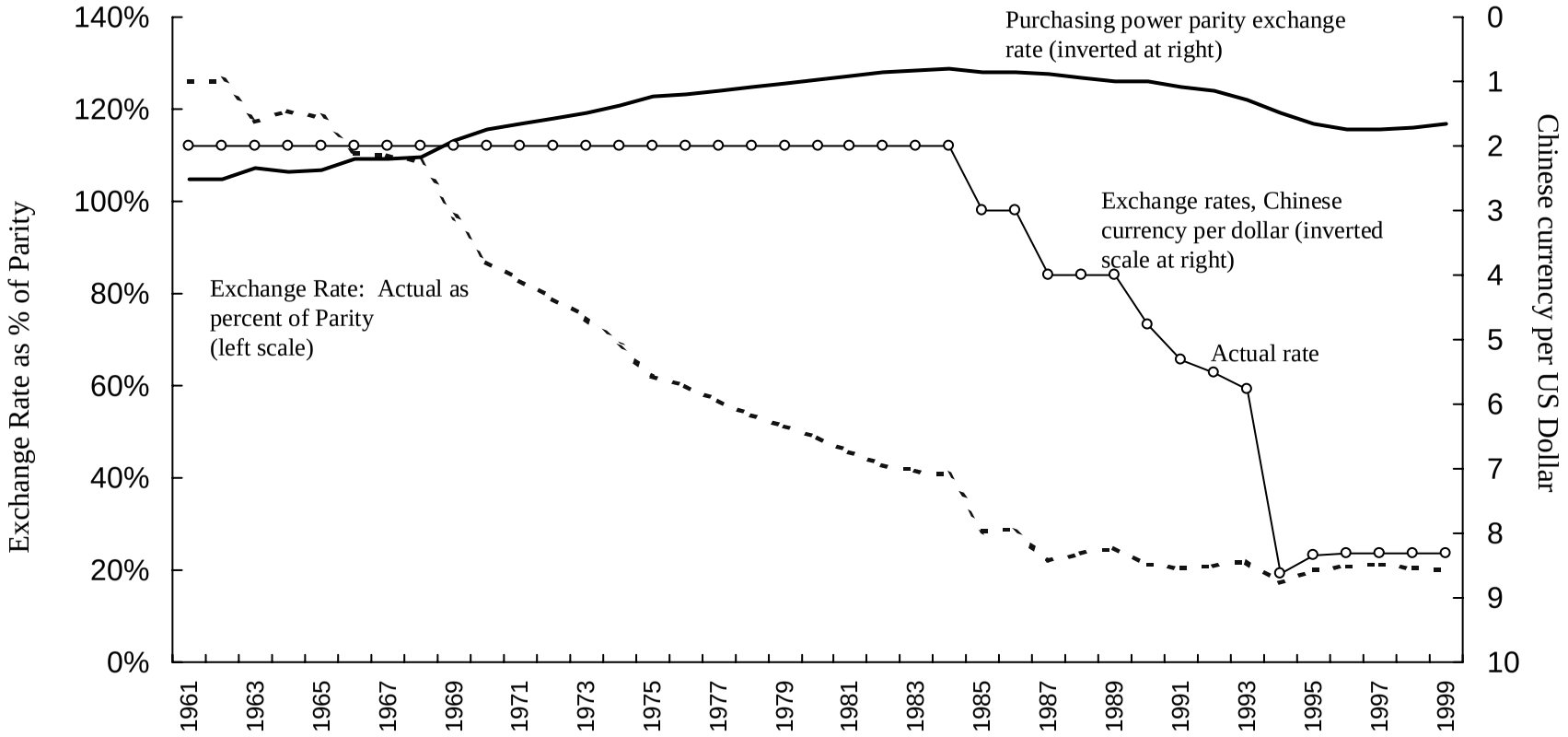
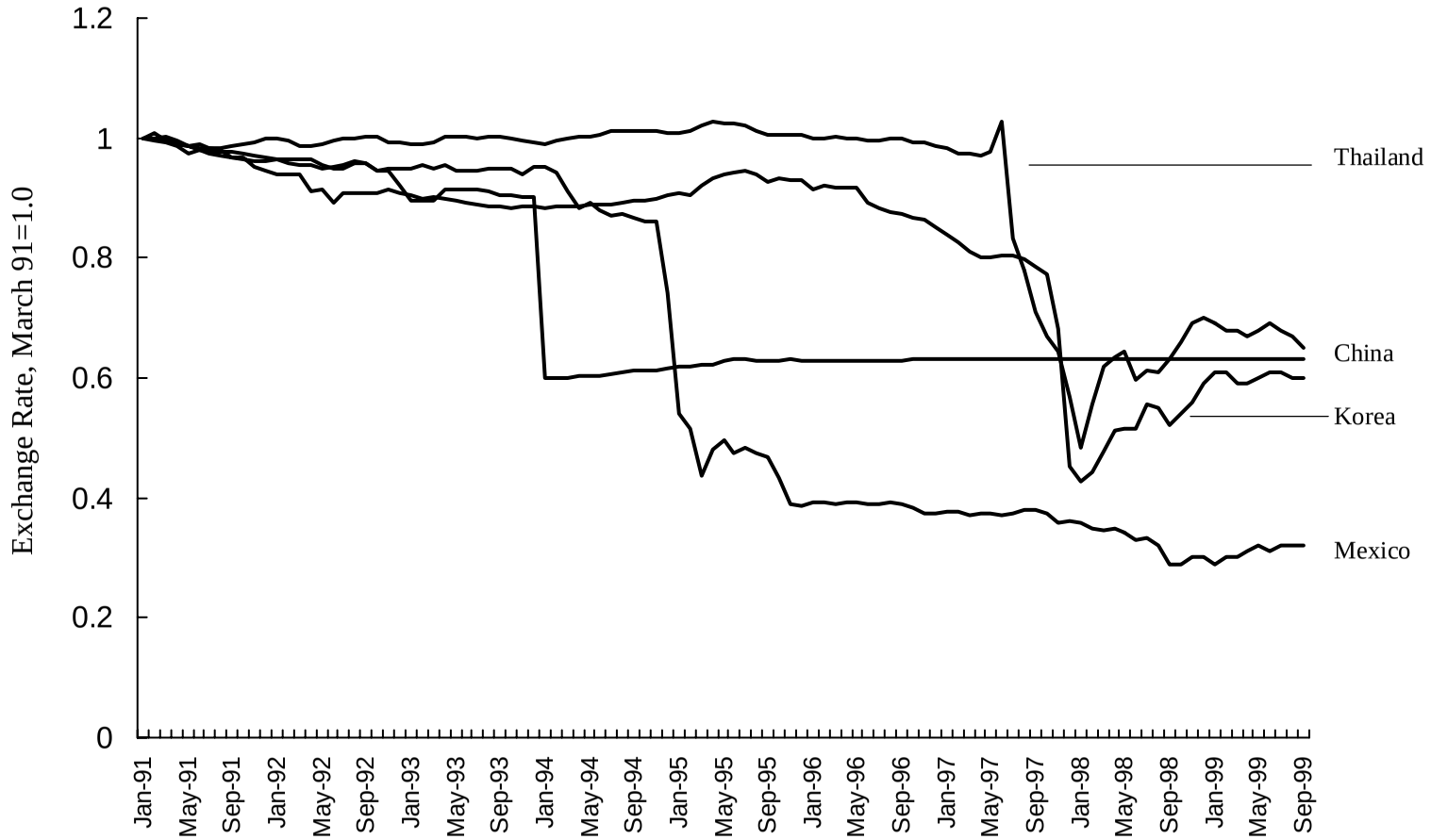
The Competitive Pressure From China: The Chinese Exchange Rate Was Cut Sharply as China Engaged in More Trade With the West



Developing Nations Compete Fiercely: The Chinese Devaluation in 1994 Was a Prime Force in the Asian Crisis



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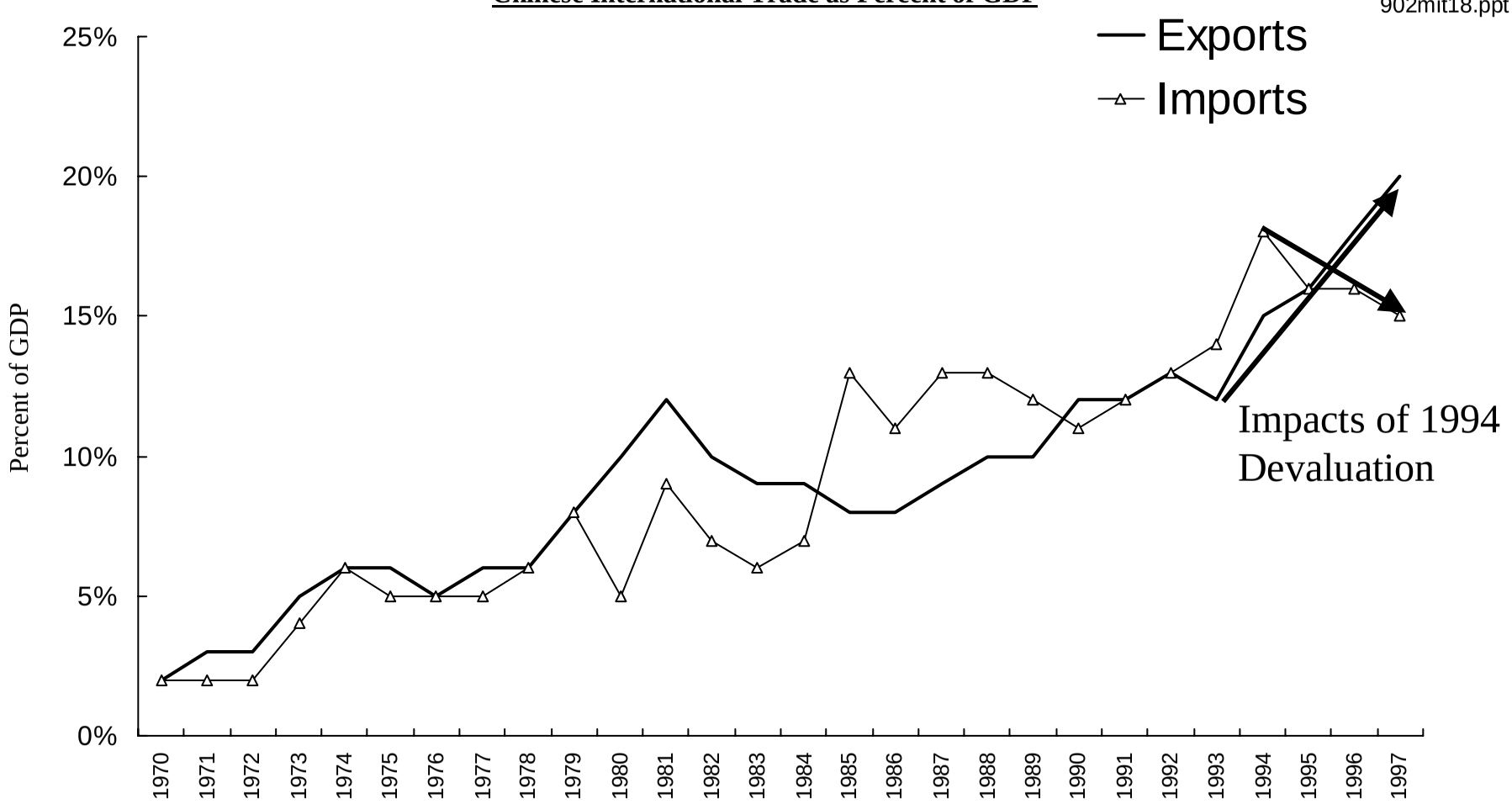
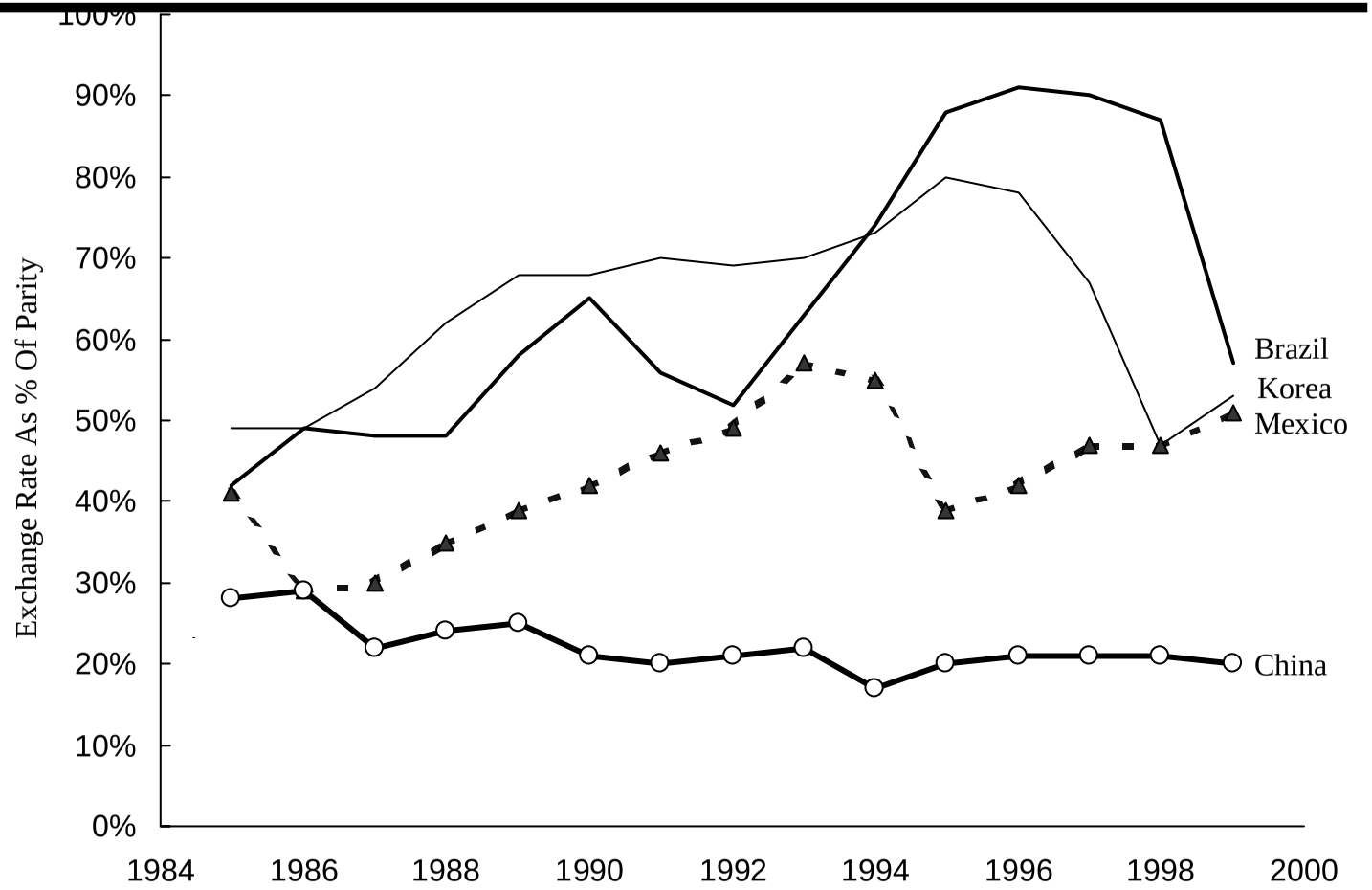


The Competitive Pressure From China: Costs At Only 20% Of Industrial Nations, And 40% Of Large Developing Nations



Note: The exchange rate percentage depicted here is the ratio of the market exchange rate to the hypothetical exchange rate that would equate the cost of goods in Korea to the cost of goods in the major industrial nations. For example, a real exchange rate of 0.4 means that the cost of goods in Korea is only 40% of the cost in the major nations at prevailing market won/$ exchange rates

Tectonic Shifts Beyond 2000 : The Global Economic Pressures

Will China Destabilize Global Competition for Decades?

- Another Chinese devaluation would be grossly destabilizing
- Chinese leaders largely understand this
  - They would prefer to increase their global clout
  - The exchange markets would not tolerate a competitive shift

- Therefore, two alternate paths exist:
  - A Chinese economy with a rising currency and massive scale
  - A continuing crisis for developing nations and disruptive job relocation from the US, Europe, Japan

Insights into Asian Recovery Prospects

- **Long-term opportunities in developing nations**

  - Causes of the immediate currency-financial-economic crisis, and probable scenarios for resolution of the crisis

- **Global competition: labor costs**

The Ingredients of the Crisis in Asia

- The emerging nations are subject to financial crises… for reasons that can be pretty well understood but not entirely eliminated
  - » Changing economic regimes and pursuing high growth fundamentally risks volatile performance
  - » Policy mistakes, limited information, and inadequate financial supervision spawn crises

Pursuing high growth adds risk, but mediocrity is the only other option

- As an individual....
  - » If you've never had a speeding ticket, on average you're driving too slow
  - » If you've never missed a flight, you're wasting too much time at the airport

Pursuing high growth adds risk, but mediocrity is the only other option

- As a nation or a world economy...
  - » If no bank fails in your country, you're over-supervised and illiquid
  - » If no currency crises ever occur, there's too little cross-border risk investment

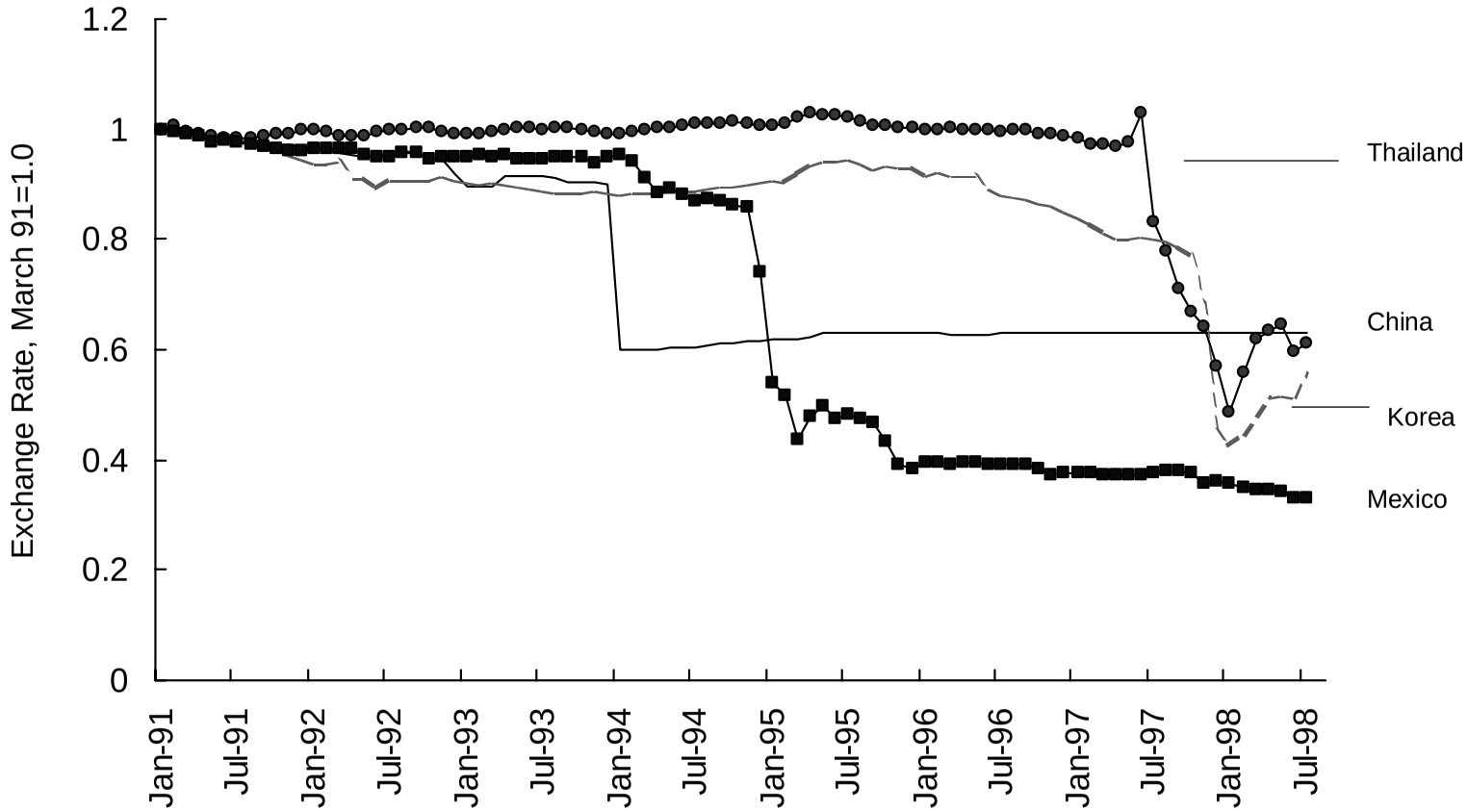
The Specific Ingredients of the Crisis in Thailand, the First Asian Victim in this Cycle

- An economy with many obvious strengths, attracting voracious investment in both industry and, as too often follows, real estate
- Borrowing in dollars, lending in local currency
- A currency that became over-valued
  - » Fixed nominal value to $U.S., combined with rapid $U.S. appreciation versus Europe and Japan
  - » 30% Chinese devaluation in 1994, plus tax rebates and aggressive lending to Chinese exporters
  - » Huge, growing current account deficit
- A banking and financial system with supervision, information and disclosure problems
  - » Financial deregulation prior to establishing supervision
  - » Fraud
  - » Too much speculative real estate lending

◆ Spillover Throughout the Region

- Currency devaluations prompted by:
  - » Competitive need to remain close to Thai and Chinese costs in manufacturing and assembly
  - » Overseas investor fears of comparable weakness--some flight without knowledge
  - » Similar banking / borrowing problems when confronted with falling currency

Asian Recovery
Exchange Rate Shocks: Asian vs. Mexican Experience



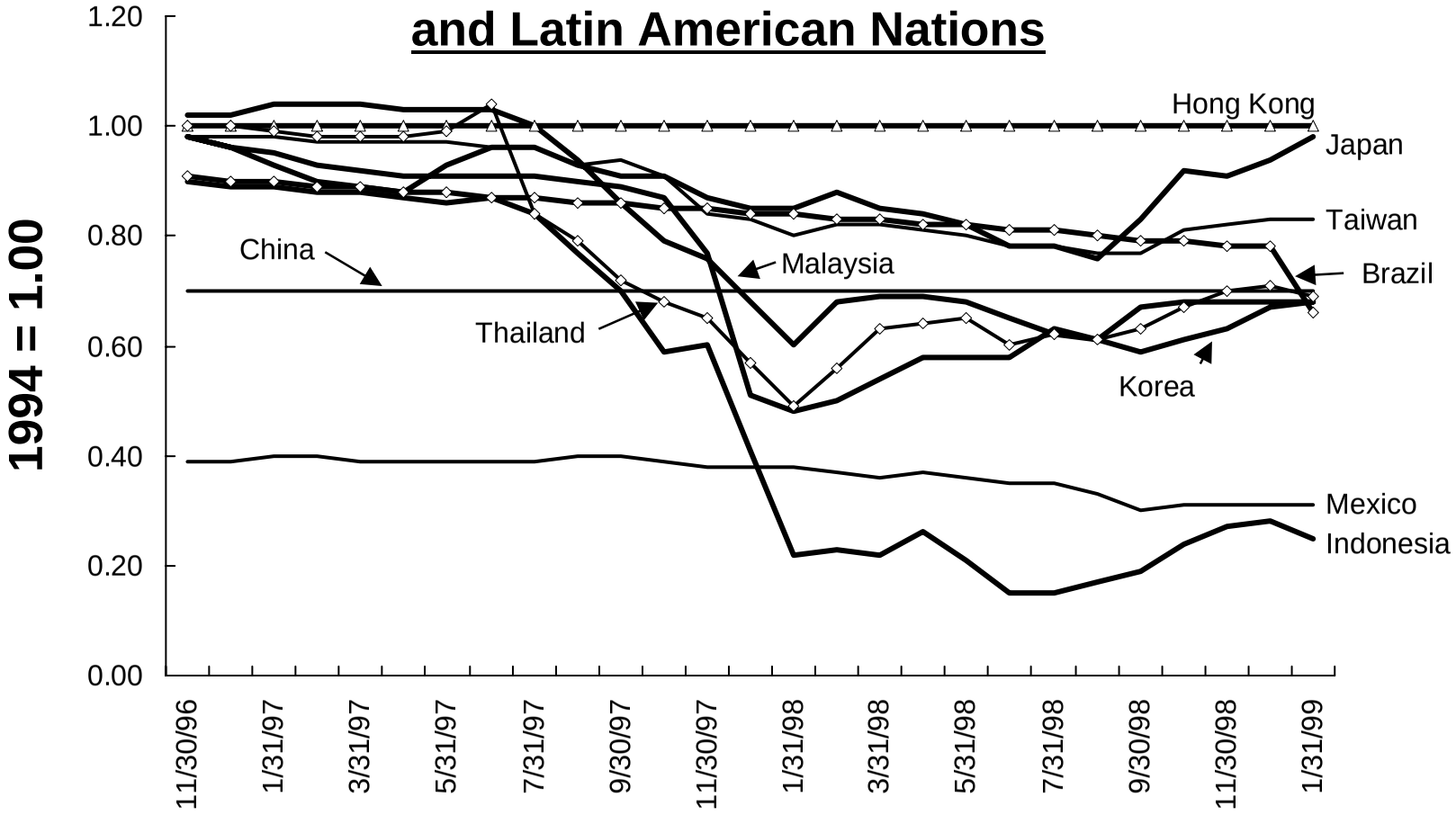
- **The Asian currency devaluations are not as severe as the Mexican devaluation, except for Indonesia (down 70-80%; not shown)**

Will Asia Recover Without Great Delay?

- Arguments for:
- **Financial shock is similar in scale to previously "well-digested" shocks in Asia, Mexico, and Brazil**
- **Asia has huge saving rates to supply much of its own capital**
- **The current drop in Asian production equals only 2 years' growth, not 5-10 years' as in Latin America**
- **The region is now even more attractive as low-cost production base**
- **Above- average entrepreneurial mode of the region will be strengthened by IMF reforms**
- Arguments against:
  - **The region has no comparable "engine" (like the US helping Mexico) to pull it out**
  - **Indeed, Japan is a heavy "caboose" retarding the region**
  - **The IMF initially forced fiscal austerity**
  - **China could be a de-stabilizing force, again**

The Resolution of the Emerging Nation Crisis

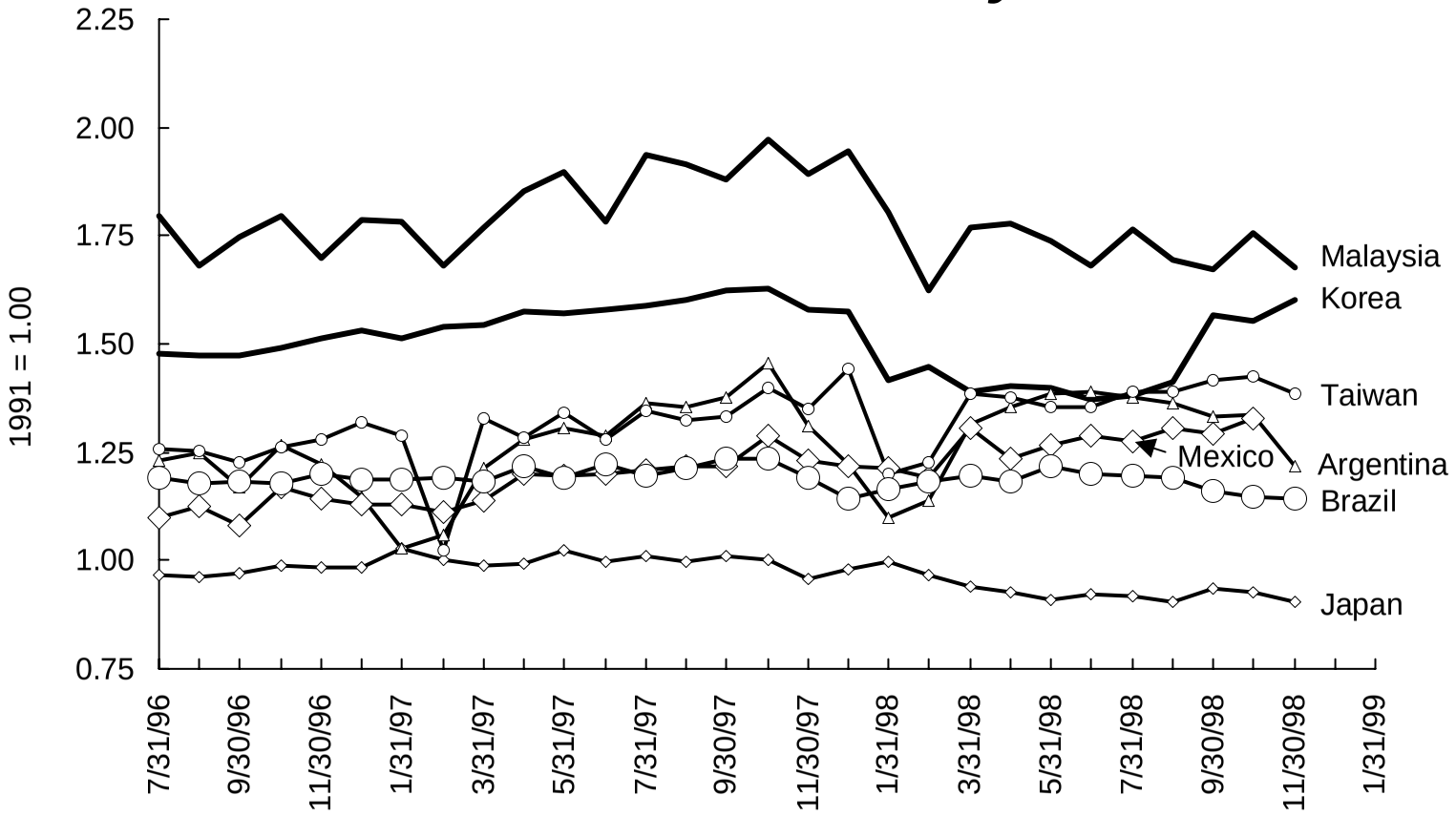
Exchange Rate Developments in Key Asian and Latin American Nations



The Resolution of the Emerging Nation Crisis

Industrial Production in Key Asian and Latin American Nations

Note the Full Recovery in Korea



Insights into Asian Recovery Prospects

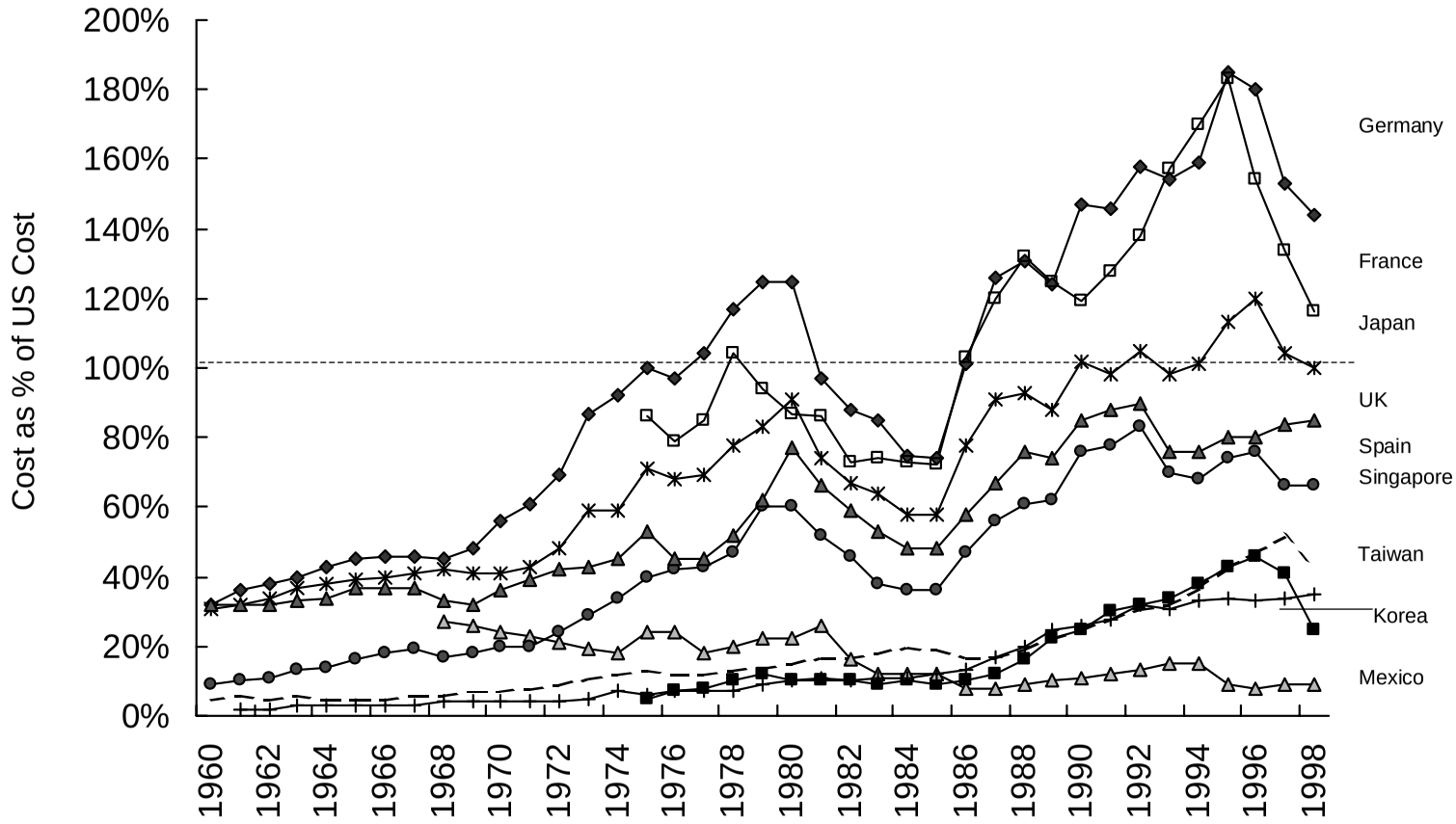
- **Long-term opportunities in Asia**
- **Causes of the immediate currency-financial-economic crisis, and probable scenarios for resolution of the crisis**
  - Global competition: labor costs

Asian Devaluations Have Dramatically Reduced Asia's Cost of Manufacturing Labor

The dramatic reductions in Asian labor costs will accelerate the migration of manufacturing and assembly to Asia from North America and Europe.

- **As Korea developed, the hourly labor cost appropriately rose from $0.32/hour in 1975 to $8.22/hour in 1996**
- **The crisis has cut the cost back down to 1991 levels ($4.81/hour), roughly 1/4 of US labor compensation ($19/hour)**
- **Taiwan, at $6.64/hour, is also competitive**
- **Mexico, at $1.77/hour in the wake of the1995 crisis, is inordinately cheap.**
- **Comparable data is not available for Brazil and Argentina, but the earlier charts of their exchange rates indicate expensive situations.**
- **Europe is very expensive, even after the 1995-1998 depreciation**

Cost of Manufacturing Labor Relative to US



Source: US Bureau of Labor Statistics; DRI Forecast