

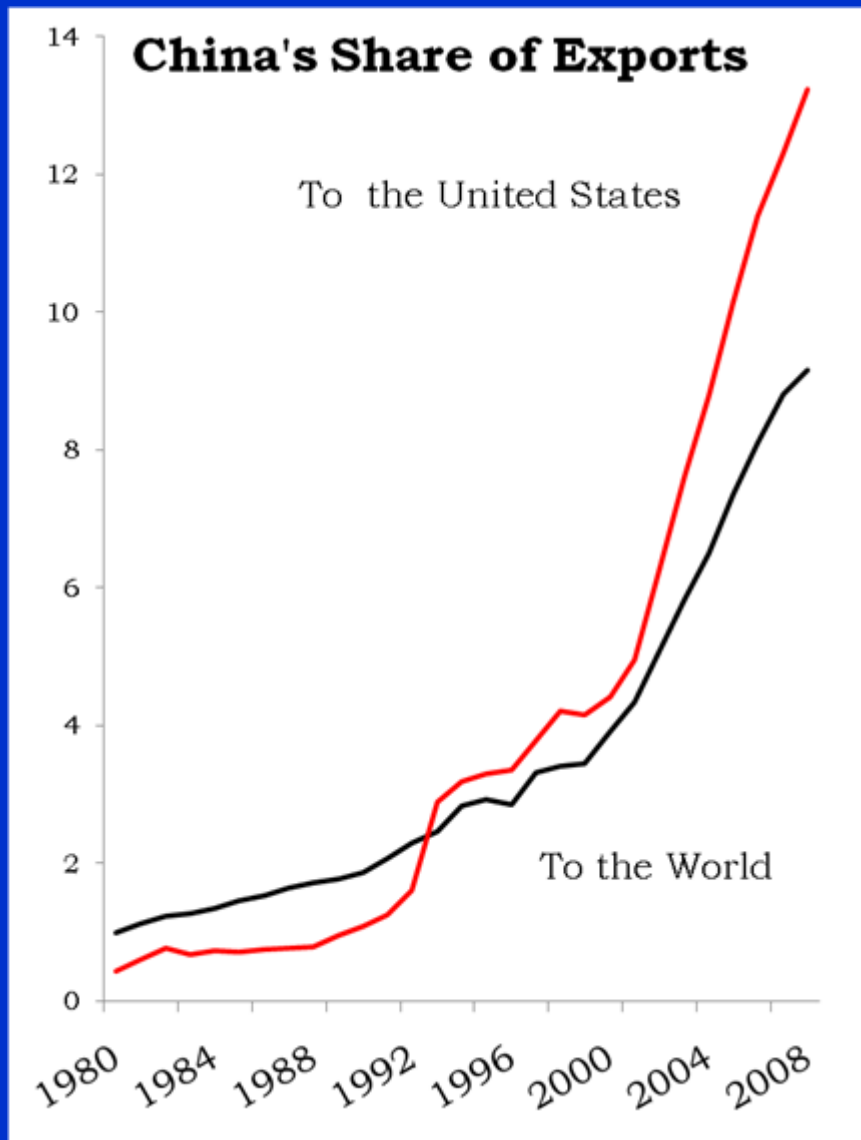
The Role of China in Asia: Engine, Conduit, or Steamroller?

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Federal Reserve Board

Presentation for
**Trade and Industry in Asia Pacific:
History, Trends and Prospects
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Canberra, Australia**

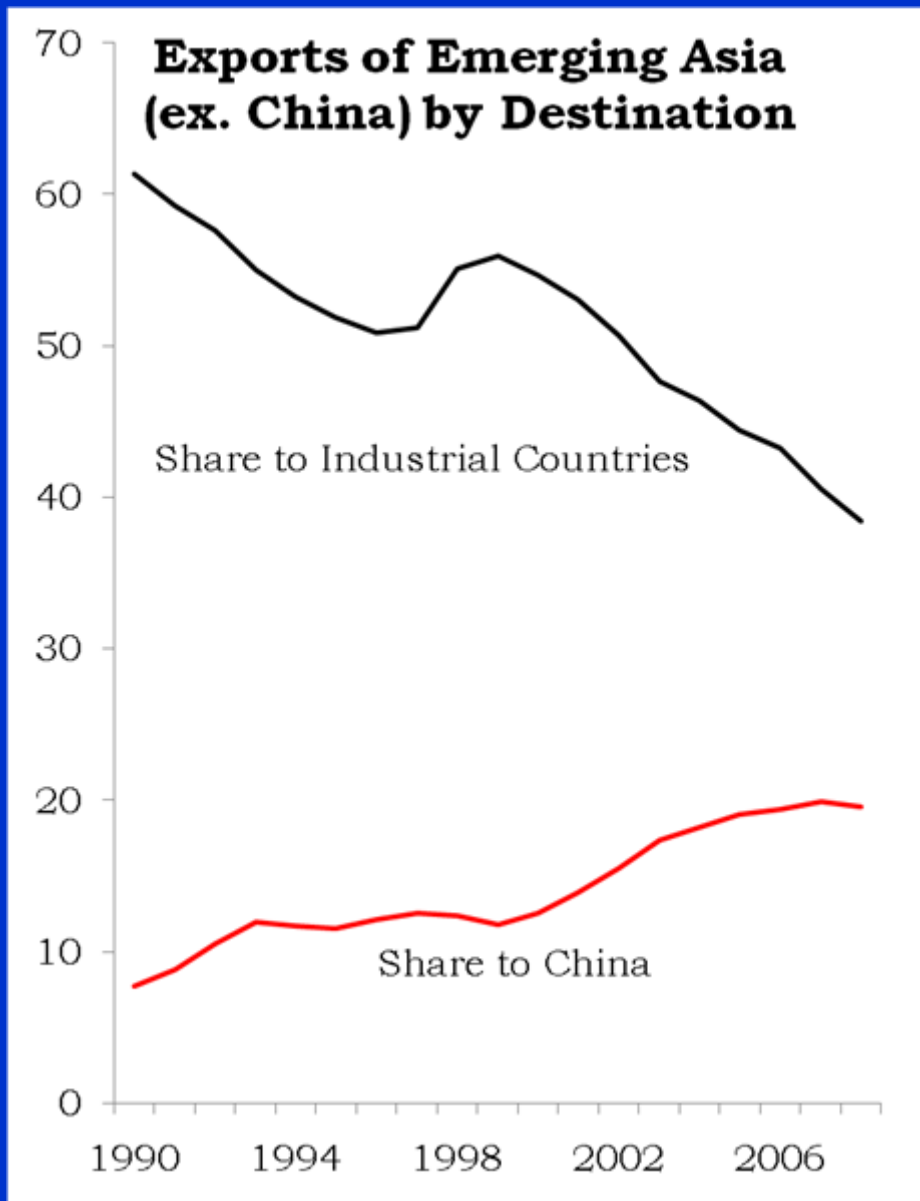
China: Challenges *and* Opportunities



Possible Responses for other countries:

- Rely more on domestic demand
- Seek out consumer markets in China
- Integrate production with China
- Look for ways to reduce competition with China

What Is China's Role or Roles in Asia?



Neutral?

Independent engine of growth?

Conduit of industrial country demand?

Competitor for other Asia producers?

□ Paper provides evidence on

- **Regional dependence on net exports**

=> not all countries are equally dependent

- **Regional macroeconomic linkages**

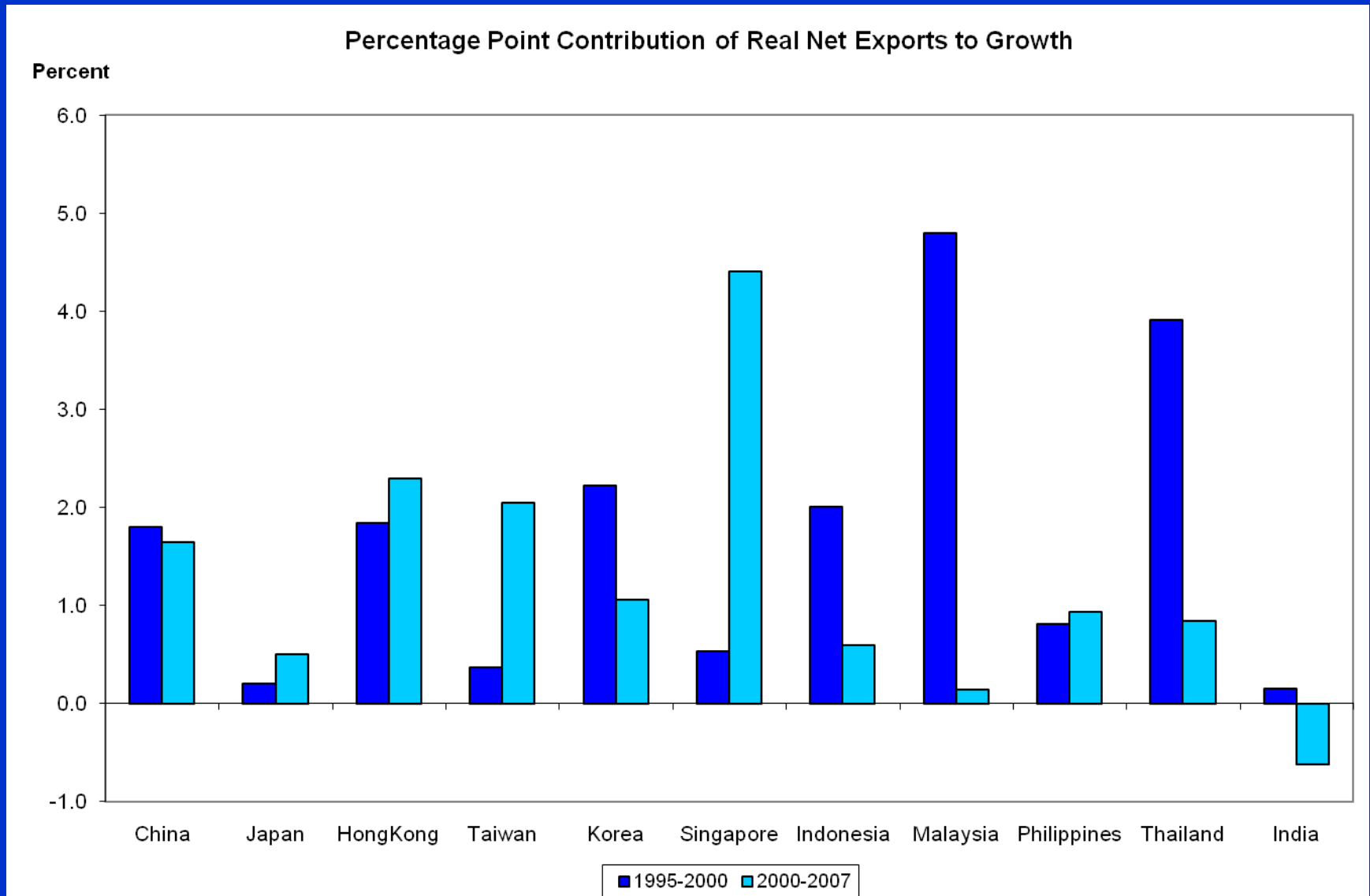
=> Some hints that China is becoming an engine

- **Micro trade flows**

=> China's role as conduit is sizable, increasing, and may have been underestimated

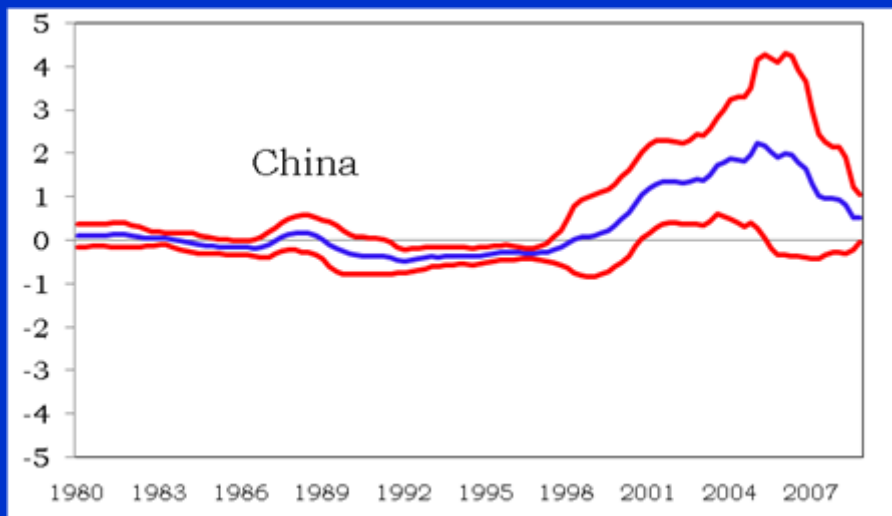
=> Signs that China is displacing some production but countries are adjusting

How dependent is the region on net exports?

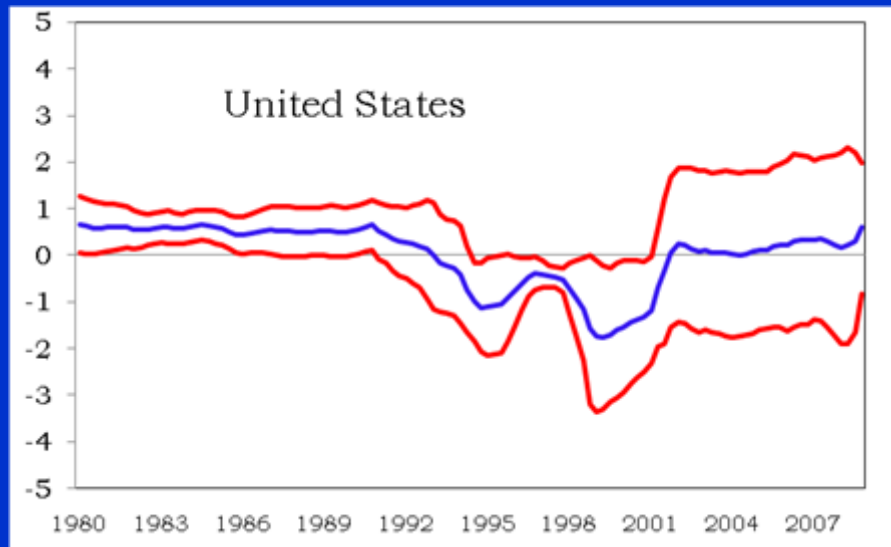
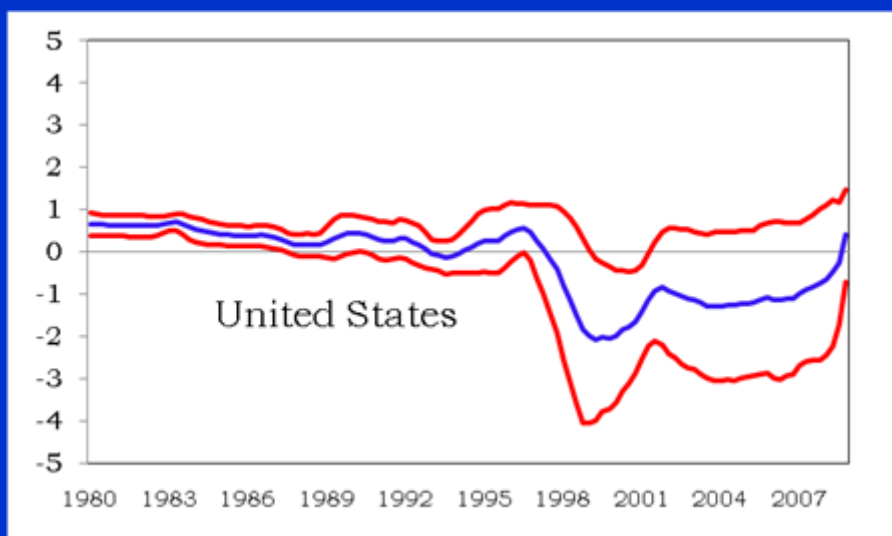
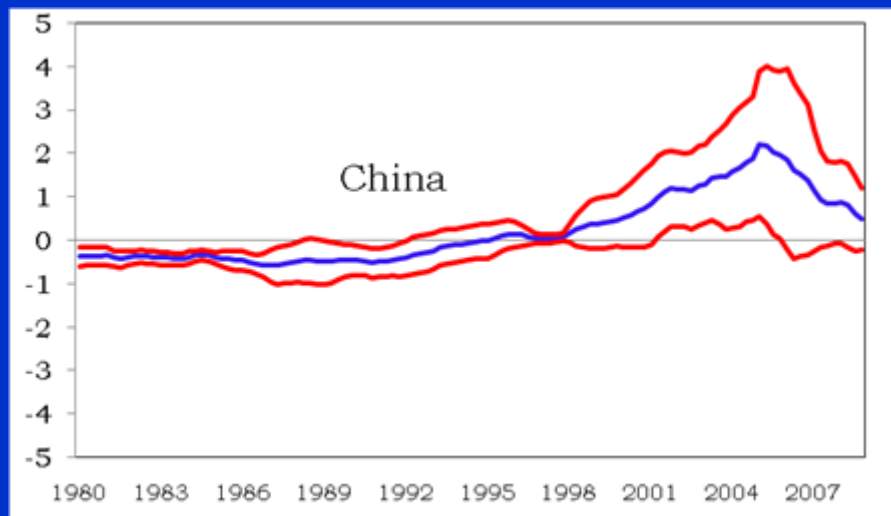


Macroeconomic Linkages I: Growth comovements with the U.S. and China using rolling regressions

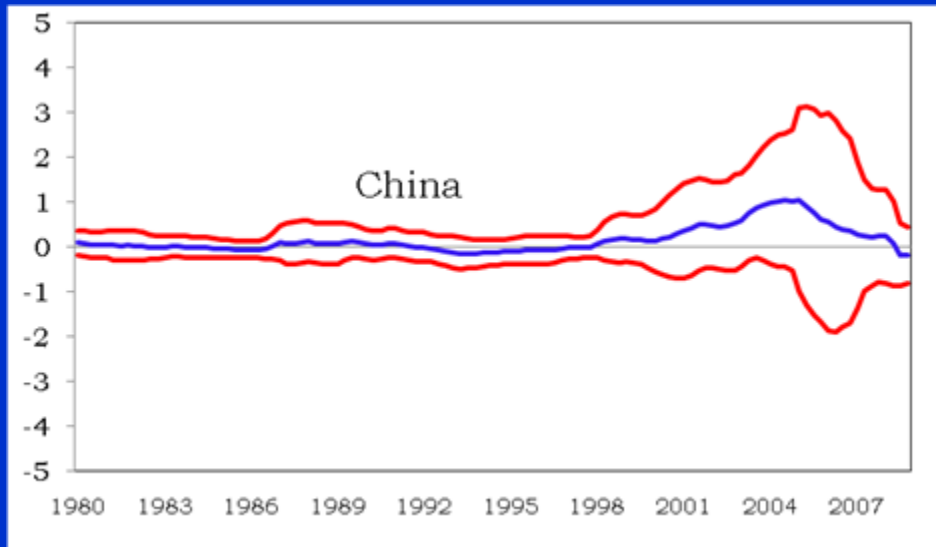
Thailand



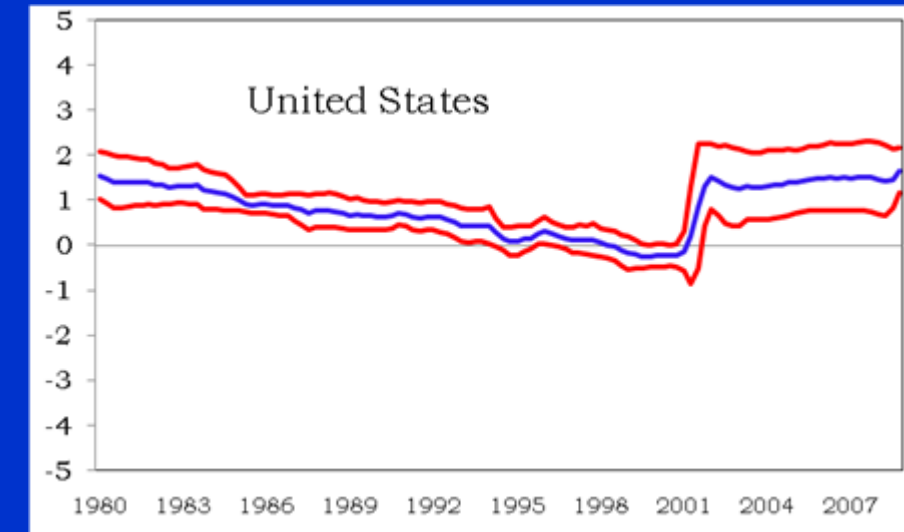
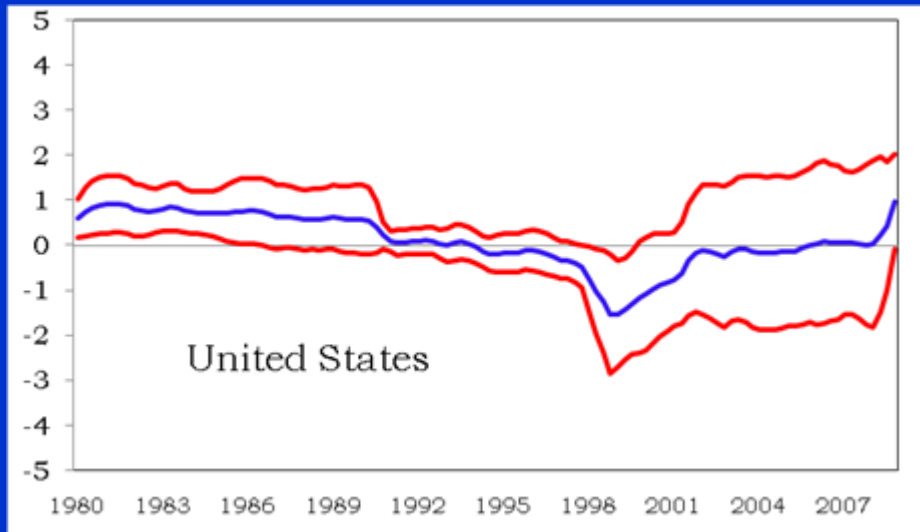
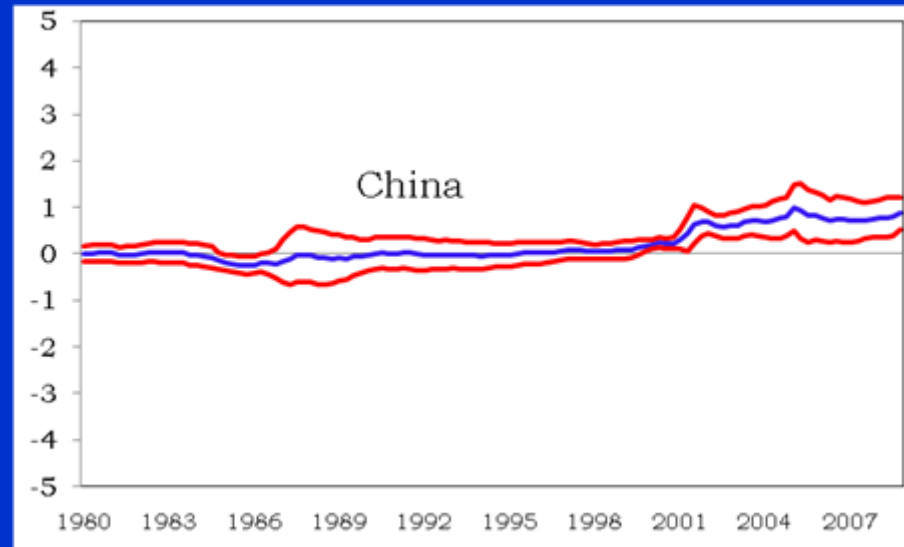
Malaysia



Korea



Taiwan



Macroeconomic Linkages II: VAR

- Estimate a 3-variable structural VAR for several Asian economies (1993:2-2006:4)**
 - Real exports to United States**
 - Real exports to China/Hong Kong**
 - Domestic real GDP growth**

- System is block-recursive with the first two variables being exogenous to the third, based on SOE assumption**

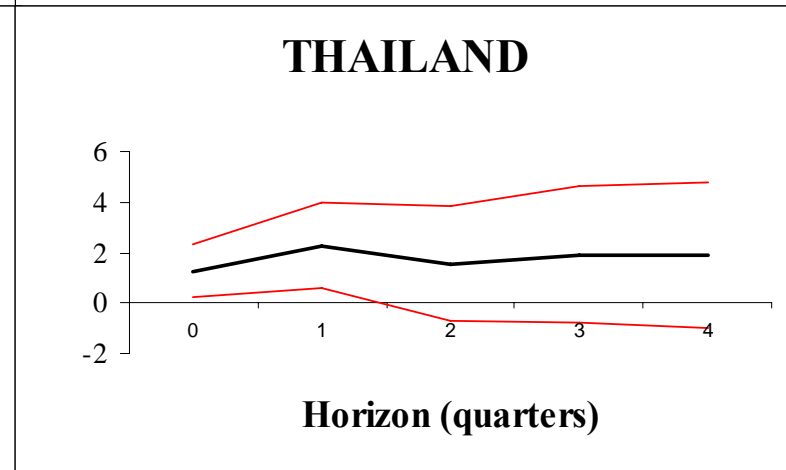
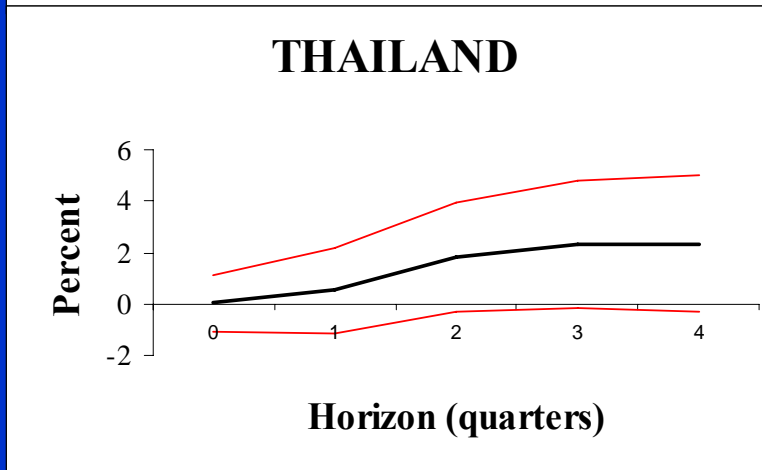
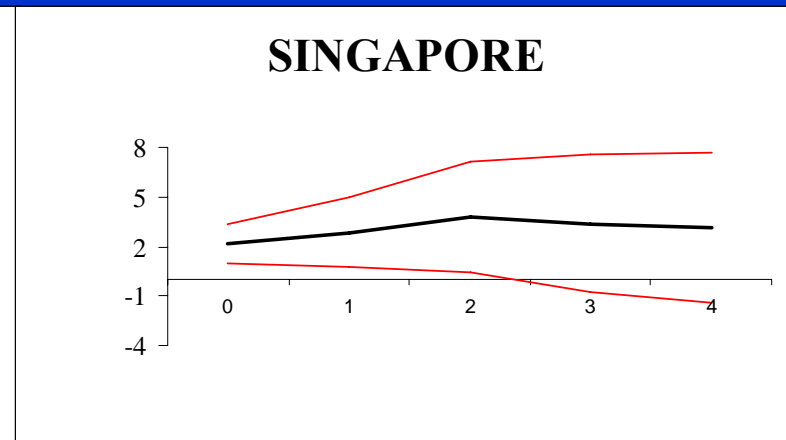
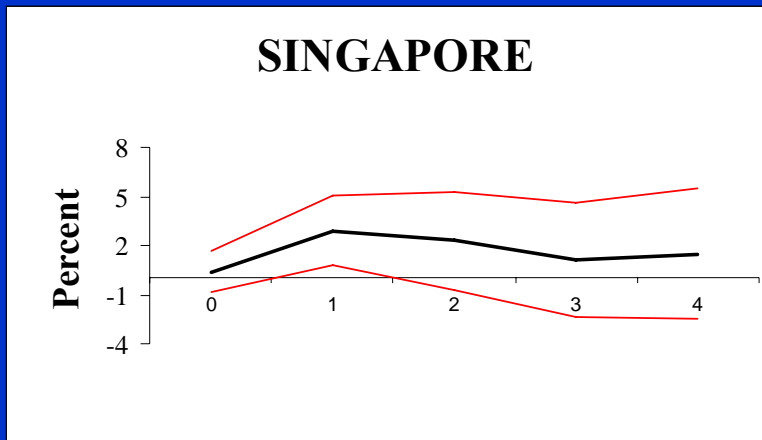
- Exports to U.S. come before exports to China in contemporaneous causal ordering**

Impulse Responses

Response of domestic output to one std. dev. shock to

Exports to U.S.

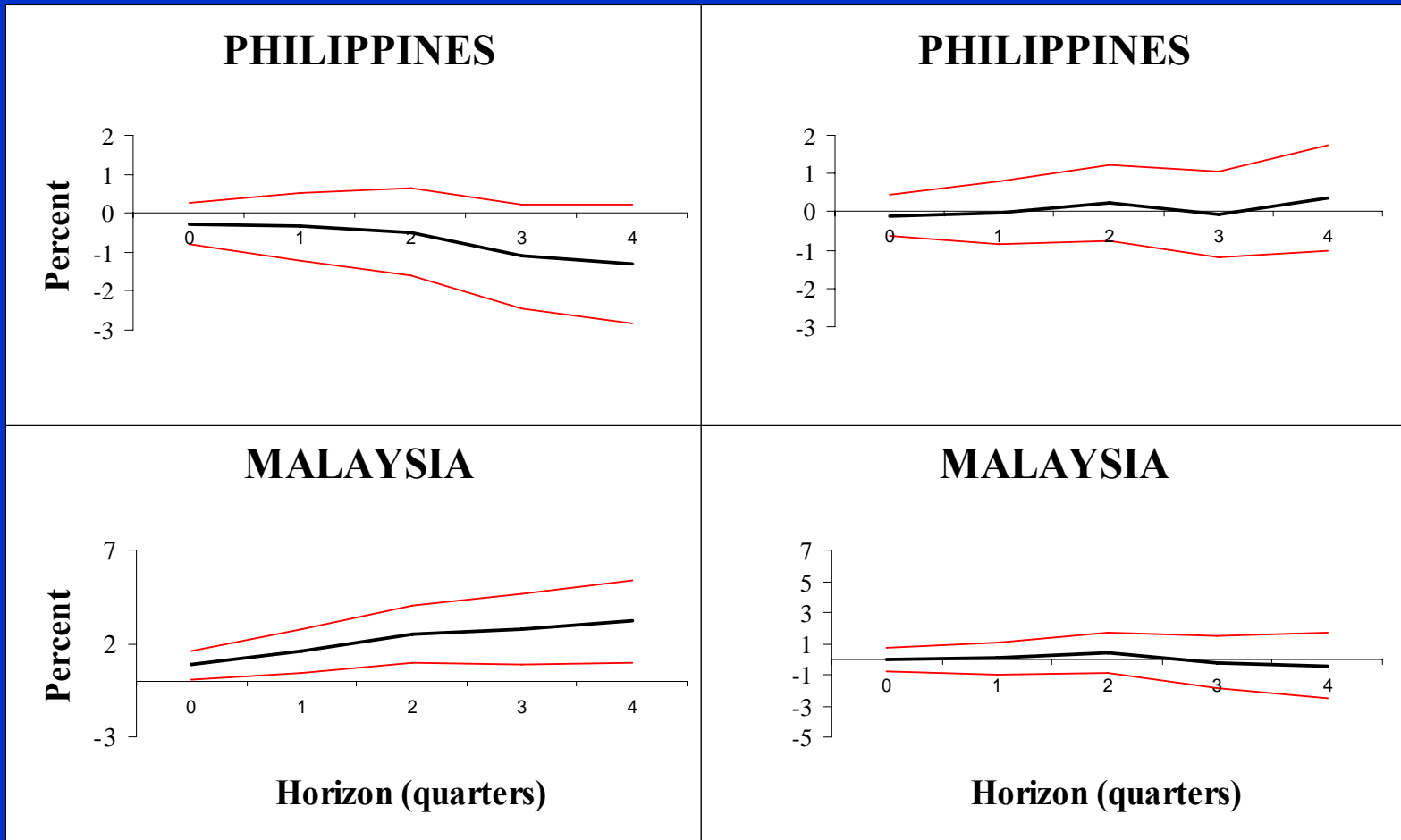
Exports to China



Response of domestic output to one std. dev. shock to

Exports to U.S.

Exports to China



Variance Decompositions

Percent of 4-quarter ahead forecast error variance of domestic output growth explained by:

| | Shock to | | |
|-------------|-----------------|------------------|--------|
| | Exports to U.S. | Exports to China | Other |
| Korea | 26.0** | 24.2** | 49.8** |
| Singapore | 24.4** | 21.2** | 54.4** |
| Taiwan | 12.3* | 31.3** | 56.4** |
| Indonesia | 14.1** | 7.6 | 78.3** |
| Malaysia | 20.4** | 8.9 | 70.6** |
| Philippines | 14.9* | 8.8 | 76.3** |
| Thailand | 13.3* | 17.3** | 69.4** |

*, ** indicate significance at the 10 and 5 percent levels, respectively.

- ❑ **U.S. demand shocks important for nearly all countries**
- ❑ **Chinese demand shocks almost as or more important in some economies (KO, SI, TA, TH)**

Micro Trade Flows I: Relative Importance of MPC Trade

- ❑ Trade in finished goods v. parts and components (MPC)**

- ❑ At 5-digit level, break down trade in SITC codes 1-8 into**
 - Basic products, i.e., natural resources and building materials (BP)**
 - Manufactured parts and components (MPC)**
 - Manufactured finished goods (MFG)**

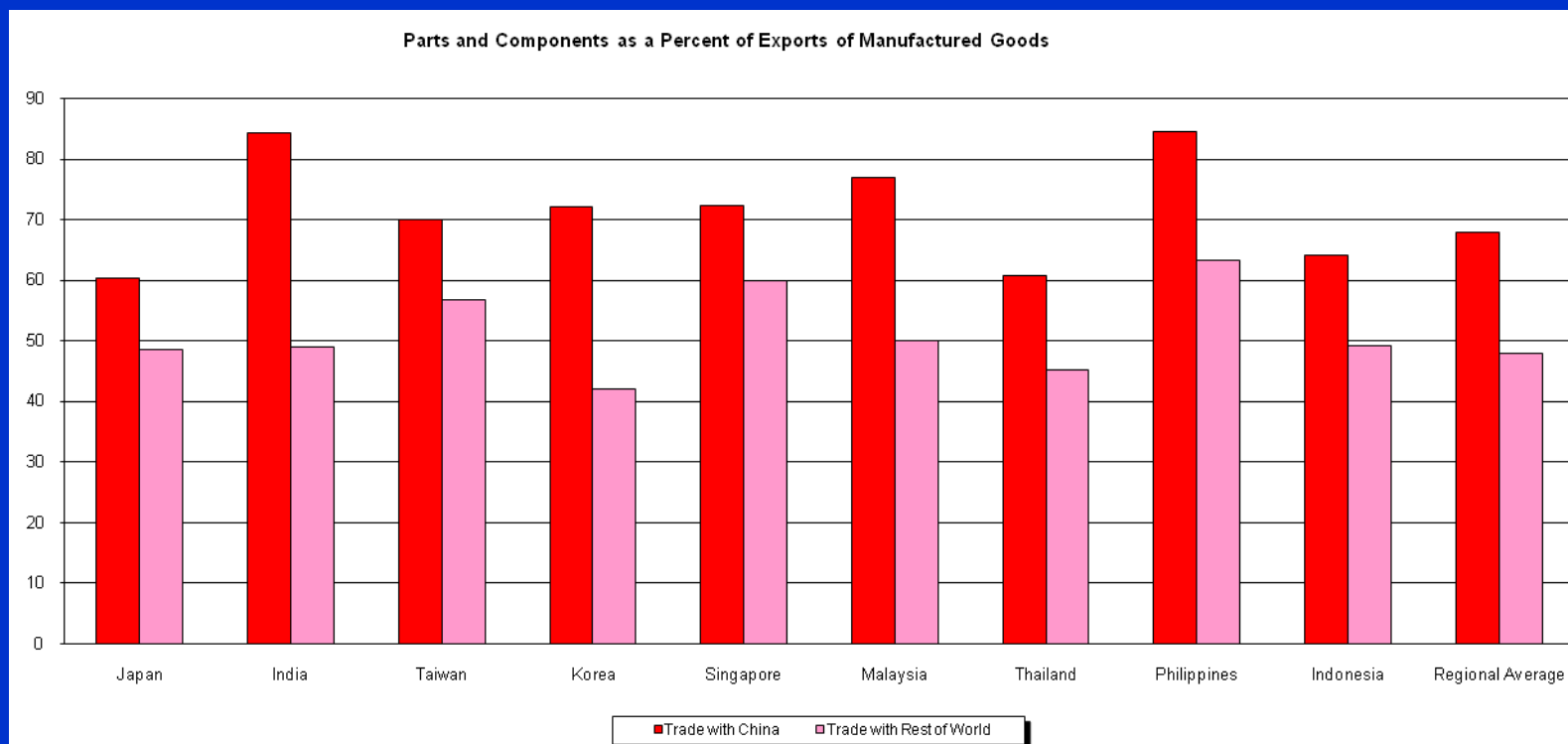
- ❑ Follows and extends previous work by Athukorala and others**

- ❑ Previous studies found lower estimates of degree of product fragmentation (20-30%)
- ❑ Broader definition leads to a more comprehensive estimate of importance of P&C in trade
- ❑ Sizable difference between China and the rest of the region

**Share of Parts and Components in Manufactured Exports by 1-Digit SITC Code, 2005
(percentage points)**

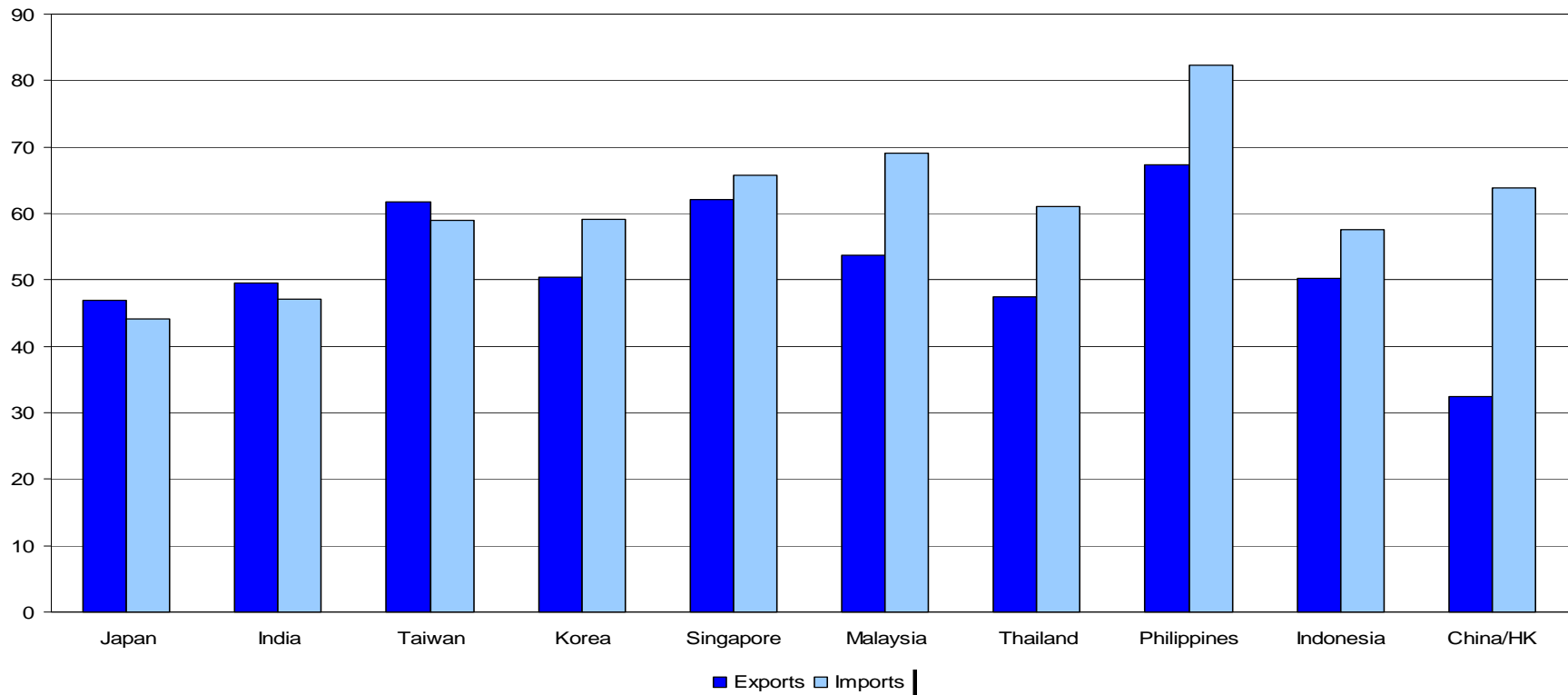
| | Chemicals & Related Products, n.e.s. | Manuf. Goods | Machines, transport equipment | Misc. Manuf. articles | Total |
|---------------|--------------------------------------|--------------|-------------------------------|-----------------------|-------|
| SITC | (5) | (6) | (7) | (8) | |
| Asia | 59.8 | 70.6 | 52.0 | 7.2 | 46.5 |
| China/HK | 53.6 | 56.5 | 41.2 | 3.0 | 31.9 |
| Other Asia | 59.4 | 76.2 | 52.8 | 13.5 | 51.0 |
| Rest of World | 39.7 | 70.7 | 46.0 | 9.2 | 42.2 |

- ❑ Results highlight China's role as a conduit
- ❑ 68 percent of the region's exports to China are MPC compared with less than half to the ROW



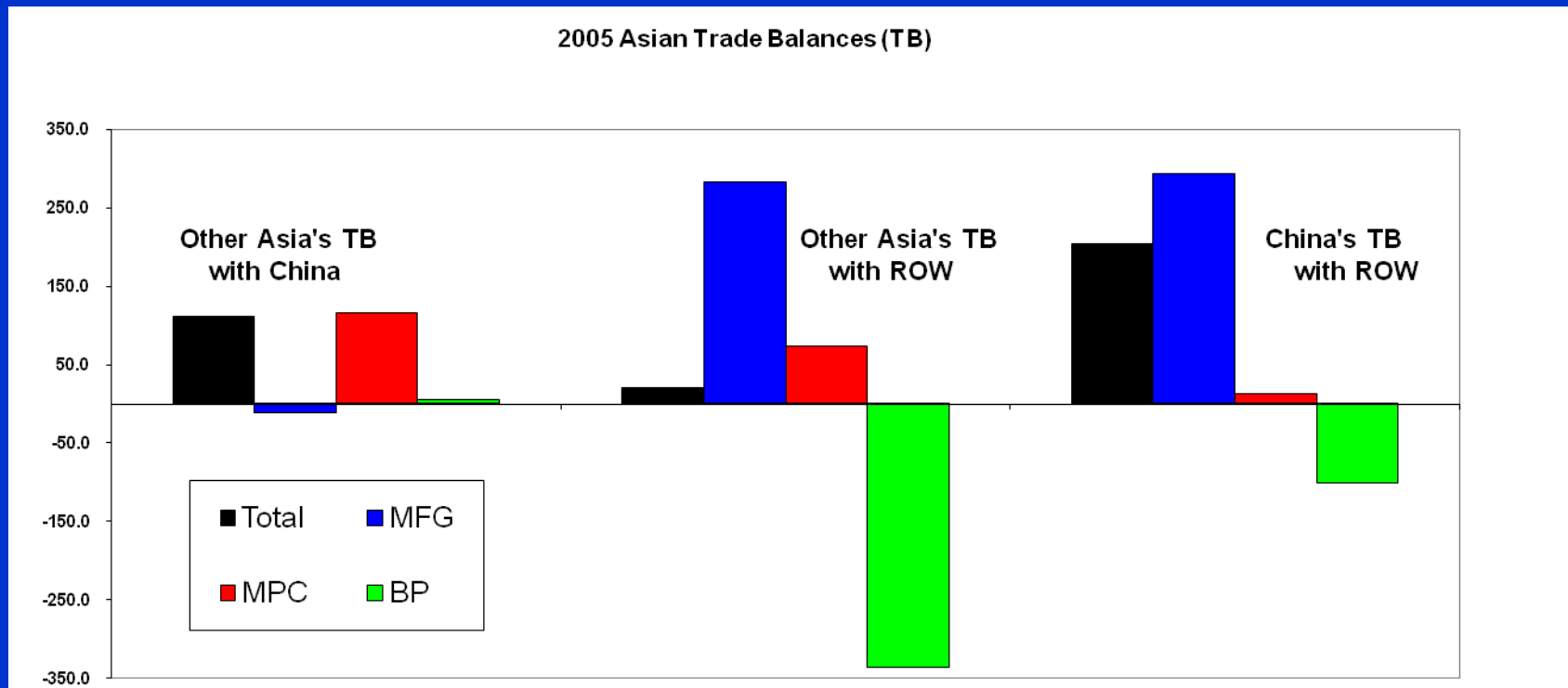
- ❑ Comparing the proportion of parts and components in exports with that of imports further highlights China's role as assembler
- ❑ Difference is largest for China, but sizable for some others, notably Philippines, Malaysia, and Thailand

Parts and Components as a Percent of Trade in Manufactured Goods



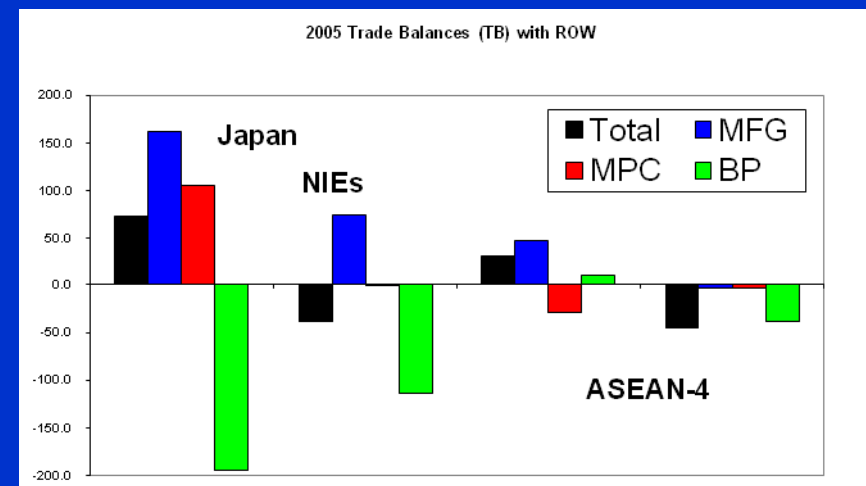
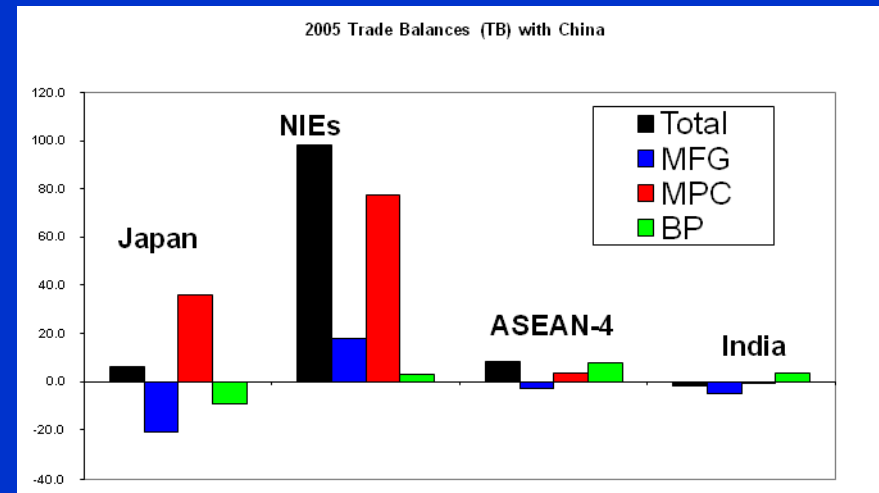
China's conduit role evident in trade balances

- ❑ Other Asia's trade surplus with China is nearly all in MPC
- ❑ Accounts for nearly all of overall trade surplus; trade with ROW balanced, with large MFG surplus and BP deficit
- ❑ In contrast, China has a large surplus with ROW, mostly in MFG, as well as a large deficit in BP.



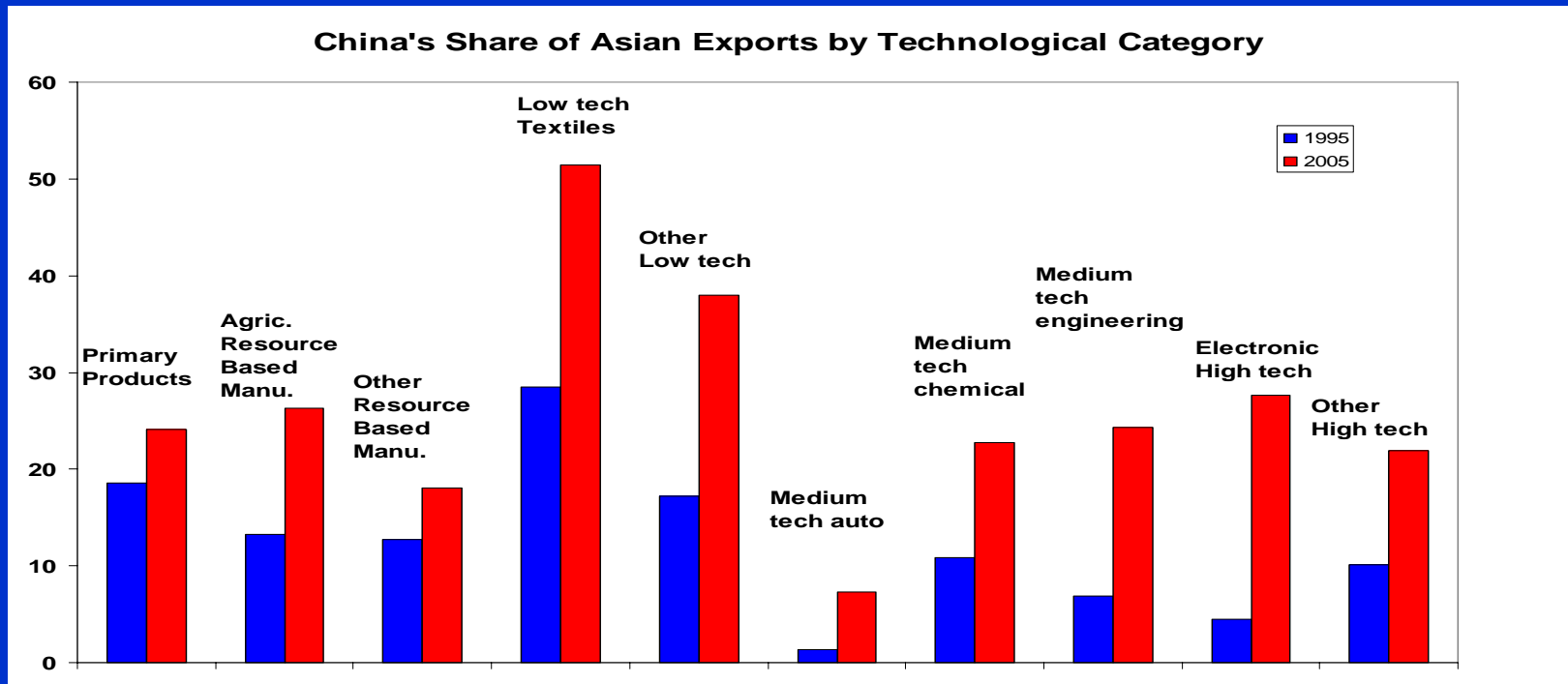
Trade Patterns Vary Widely by Country

- ❑ Surplus with China is mostly in the NIES
- ❑ Most of MPC surplus (the conduit role) is in NIES and Japan
- ❑ The NIES also have a surplus in MFG (possible incipient engine role?)
- ❑ Pattern of trade with ROW generally different than with China
- ❑ MFG trade more important; except for Japan, MPC less



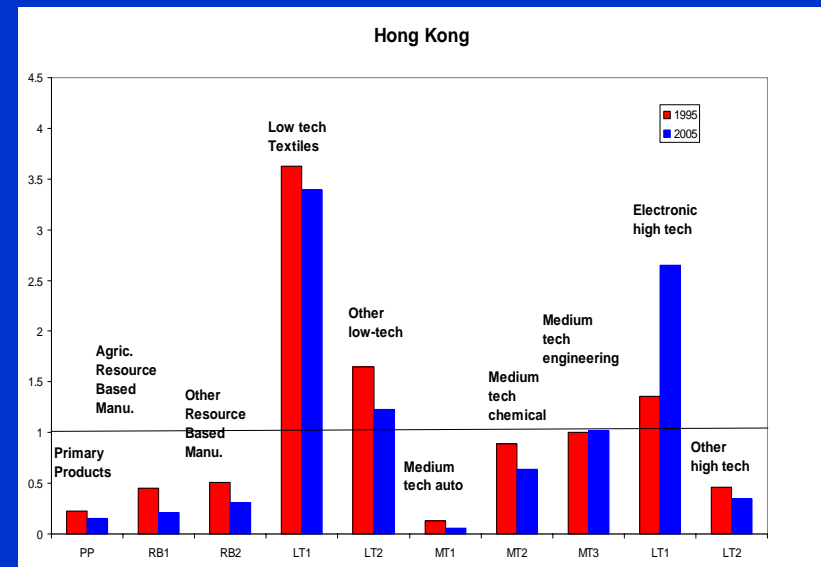
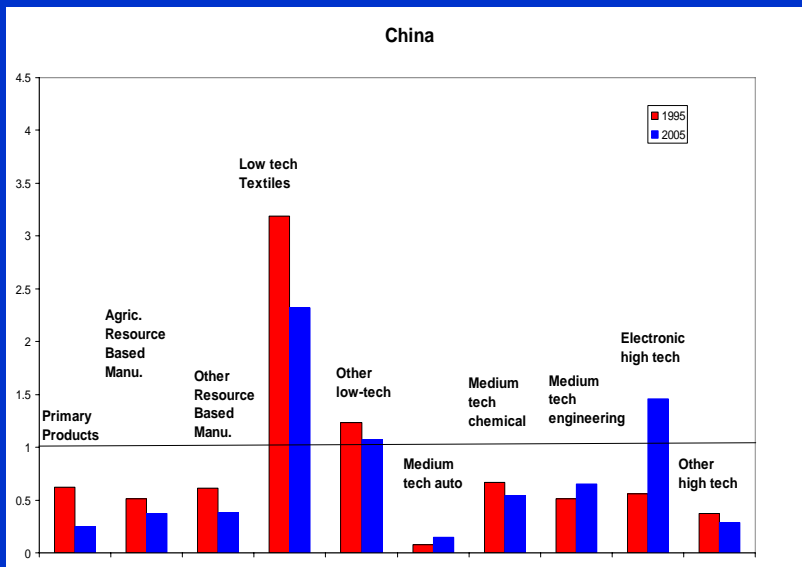
Micro Trade Flows II: Changes by Technological Category

- Between 1995 and 2005 China increased its share of Asian exports in all categories,
- How have other countries responded?

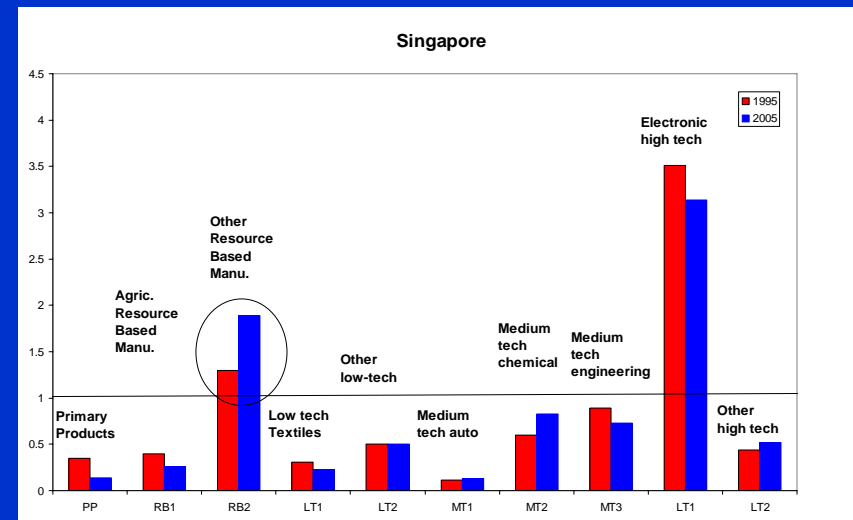
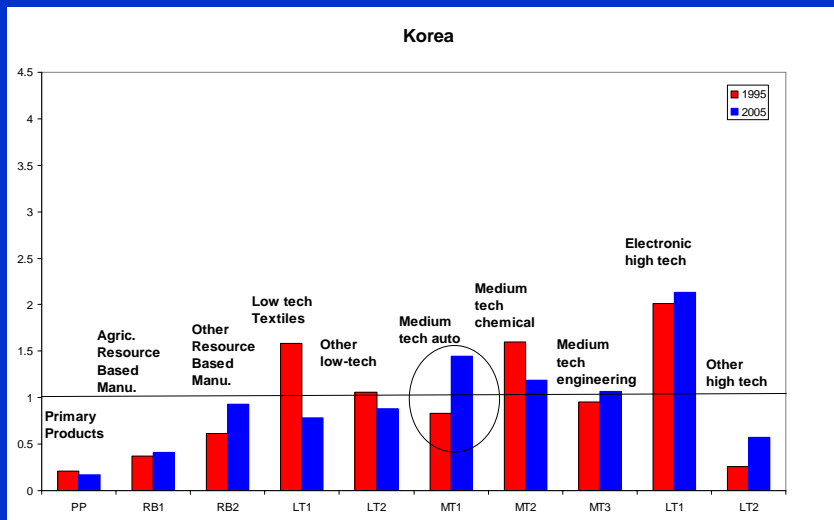
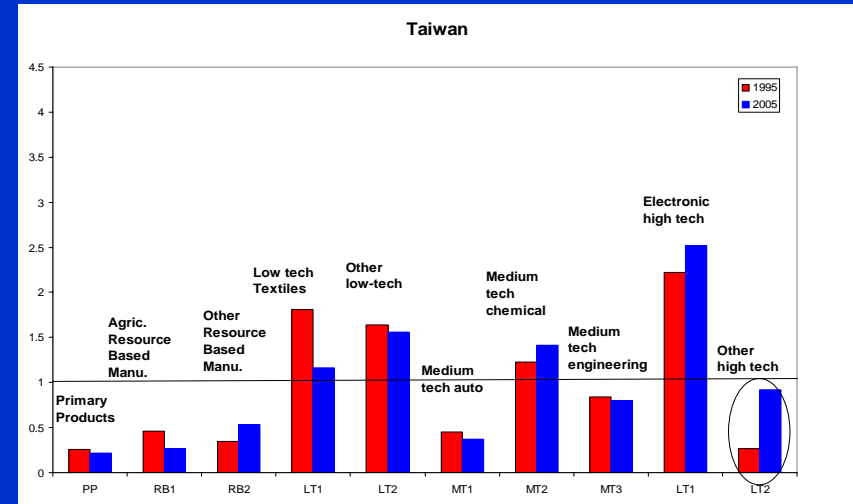
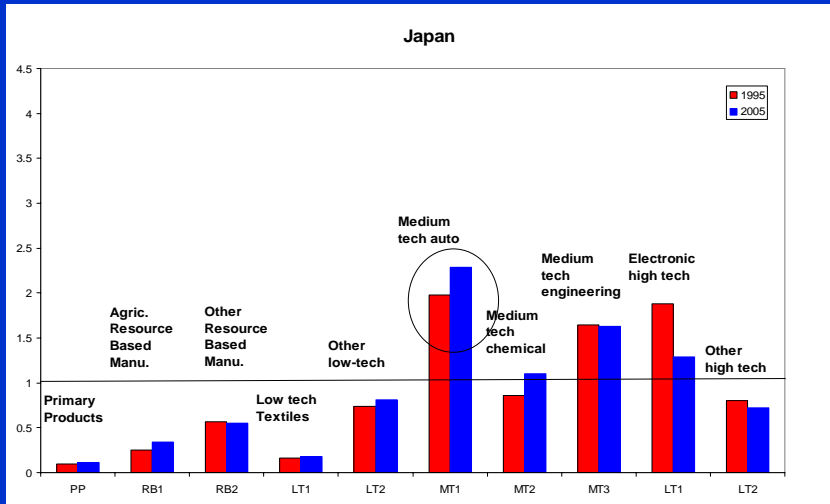


Revealed Comparative Advantage

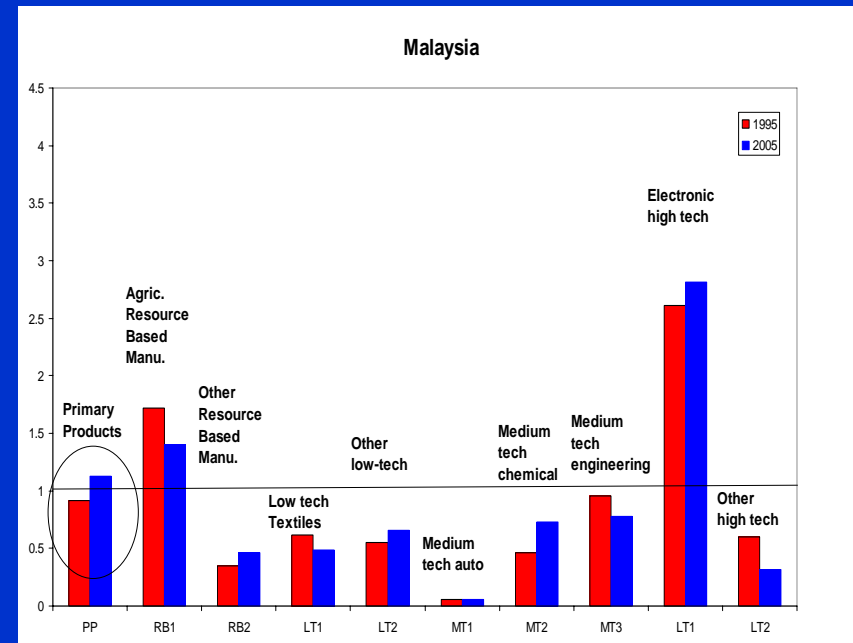
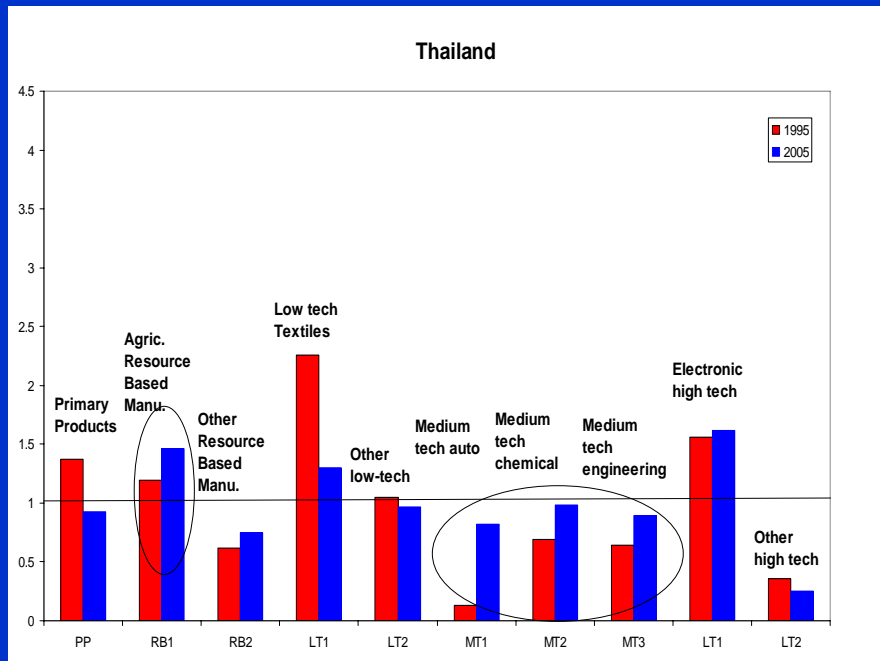
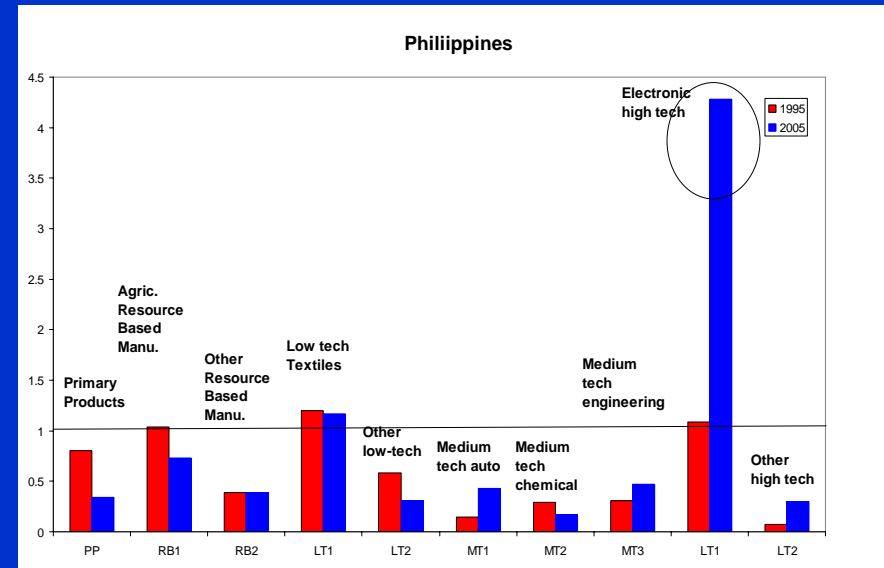
- ❑ China has RCA above 1 in only 2 categories, low-tech textiles and electronic high-tech
- ❑ Has fallen in low-tech, while rising in electronic high-tech (EHT)
- ❑ Hong Kong has similar areas of specialization



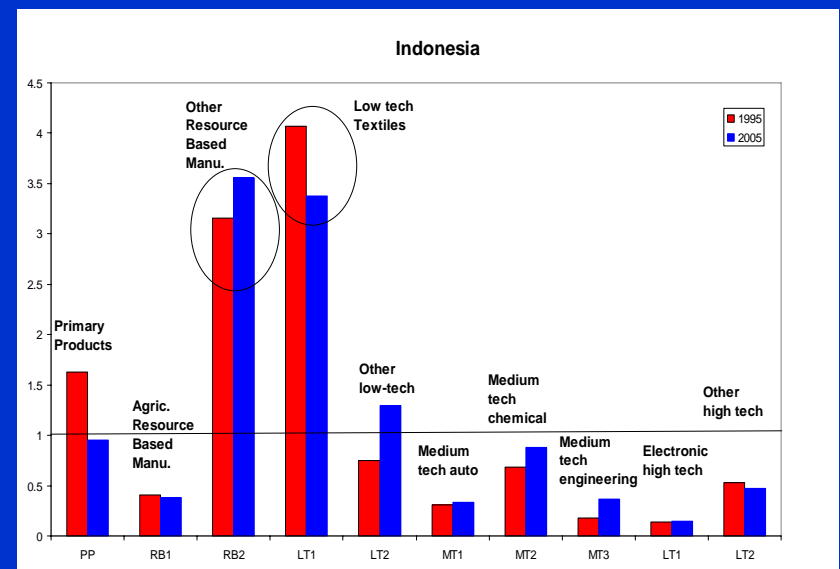
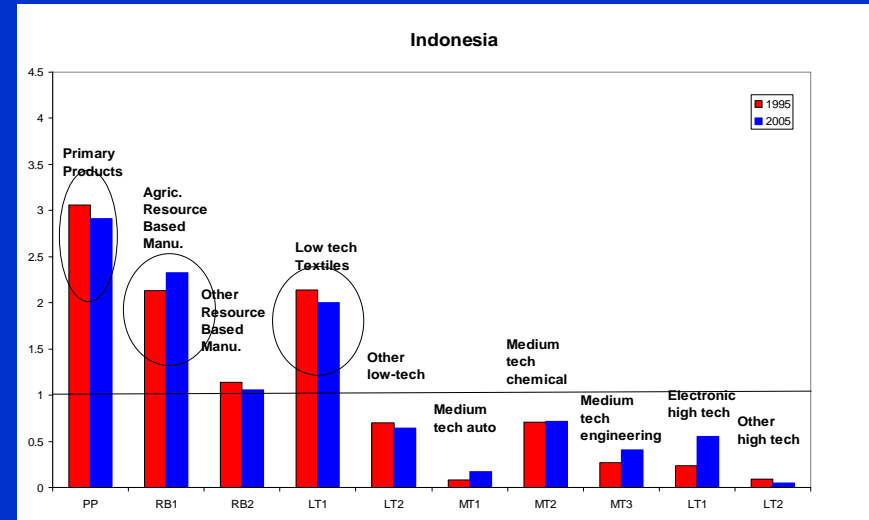
Other advanced economies have increased RCA in at least one area where China is not dominant, while maintaining high RCS in EHT



- ❑ Other countries also have high RCAs in EHT
- ❑ Philippines has the highest RCA in EHT in the region
- ❑ Thailand's RCA in medium-tech and agric. resource-based and Malaysia's RCA in primary products have risen



❑ Exports of both India and Indonesia are at the lower end of the technological scale, although they both compete with China in low-tech textiles



- In sum, responses of RCA to China's increased presence have varied widely**
- Both EHT as well as low-tech textiles remain important to a number of other countries**
- But has also been shift to areas where China is less dominant, particularly for more-advanced economies**
- Next step is to better quantify extent to which China has contributed to observed changes in RCAs**

Micro Trade Flows III: Trade Displacement

- **Is China displacing the exports of other Asian economies?**
 - **Estimate regression by product category by country: regress export growth on China's world export share (a proxy for competition), V_p**

$$\Delta \ln X_{pt+1} = \alpha_0 + \sum \alpha_{1t} year_t + \alpha_2 \ln X_{pt-1} + \alpha_3 V_{pt-1} + \varepsilon_{pt}$$

- **A negative and significant α_3 would suggest displacement**

- ❑ Rise in China's export share appears to negatively affect other countries' exports, mainly for low- and medium-tech goods
- ❑ Does not necessarily mean these countries are losing out, on net
- ❑ Consistent with more cooperation in high-tech

Estimates of Effect of Chinese Competition (α_3)

| Sector | India | Indonesia | Japan | Malaysia | Philippines | Korea | Singapore | Taiwan | Thailand |
|-------------------------------------|---------------------|-----------|---------|----------|-------------|---------|-----------|---------|----------|
| | (Percentage points) | | | | | | | | |
| Total | -0.16** | 0.04 | -0.23** | -0.25** | 0.10 | -0.37** | -0.18** | -0.28** | 0.05 |
| HT1 (Electronics and Electrical) | -0.20 | -0.08 | -0.12 | 0.03 | 0.08 | -0.16 | 0.02 | -0.16 | -0.18 |
| HT2 (Other High-Tech) | -0.02 | -0.50 | -0.24 | -0.42** | -0.02 | -0.32 | -0.09 | -0.04 | -1.02** |
| MT1 (Automotive) | 0.15 | 0.96* | -0.45** | -0.12 | 0.34 | -0.43* | -0.76 | 0.71 | 0.04 |
| MT2 (Chemicals and Basic Metals) | -0.32** | -0.51** | -0.10 | -0.45** | 0.01 | -0.51** | -0.35** | -0.27** | -0.11 |
| MT3 (Engineering Products) | -0.29** | -0.23** | -0.18** | -0.13** | -0.53** | -0.35** | -0.08 | -0.21** | -0.04 |
| LT1 (Textile, Garment and Footwear) | 0.09 | 0.42** | -0.02 | -0.19 | 0.18 | n.a. | 0.24** | n.a. | n.a. |
| LT2 (Other Low-Tech Manuf.) | -0.23** | 0.06 | -0.20** | -0.20** | -0.02 | -0.38** | -0.17** | -0.35** | 0.02 |

Annual data from 1990 through 2005. n.a. indicates no coefficient due to insufficient data.

*, ** indicate significance at the 10 and 5 percent levels, respectively.

Year-dummy coefficients were all negative and significant. Adjusted-R2 generally varied between 0.03 and 0.20.

Conclusions

- ❑ **China's rise as an economic power offers both opportunities and challenges for its neighbors**
- ❑ **External demand still important source of growth for region, more so for more-advanced economies (NIES and Japan) than for others**
- ❑ **Macro evidence hints that China's role as an engine of growth is rising**
- ❑ **However, micro evidence suggests that China is still more of a conduit, especially for the more-advanced**
- ❑ **As China has moved up the value chain, there have been shifts in production**
- ❑ **However, analysis of product displacement suggests a negative effect of China in low and medium-tech industries, not in high-tech**