Saving and Demographic Change: The Global Dimension

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Bernanke: Excess Global Saving

- Increased global supply of saving
  - "global saving glut"
  - Linked to demographic change in major industrial countries.
  - Falling real interest rates.
- Two perspectives on U.S external deficit
  - Why do Americans save so little?
  - Why does the rest-of-world save so much?
  - Bernanke focused on second.

Current Account by Region

(Percent of World GDP)

Region	1980-89	1990-94	1995-99	2000-04	2005p
U.S.	-0.45	-0.22	-0.51	-1.37	-1.81
Japan	0.26	0.40	0.34	0.35	0.39
Europe	-0.04	-0.13	0.28	0.17	0.16
Emerging Asia	0.02	0.01	0.14	0.38	0.55
Emerging Latin America	-0.11	-0.11	-0.17	-0.04	0.08
Middle East	0.08	-0.09	0.01	0.17	0.44

Objective

- Explore linkages between demographic change and national rates of saving and investment.
  - Changes in child and aged-dependency rates
  - Distinguish between effects on public budgets and private sector saving.
  - Regional variations
  - Future Implications

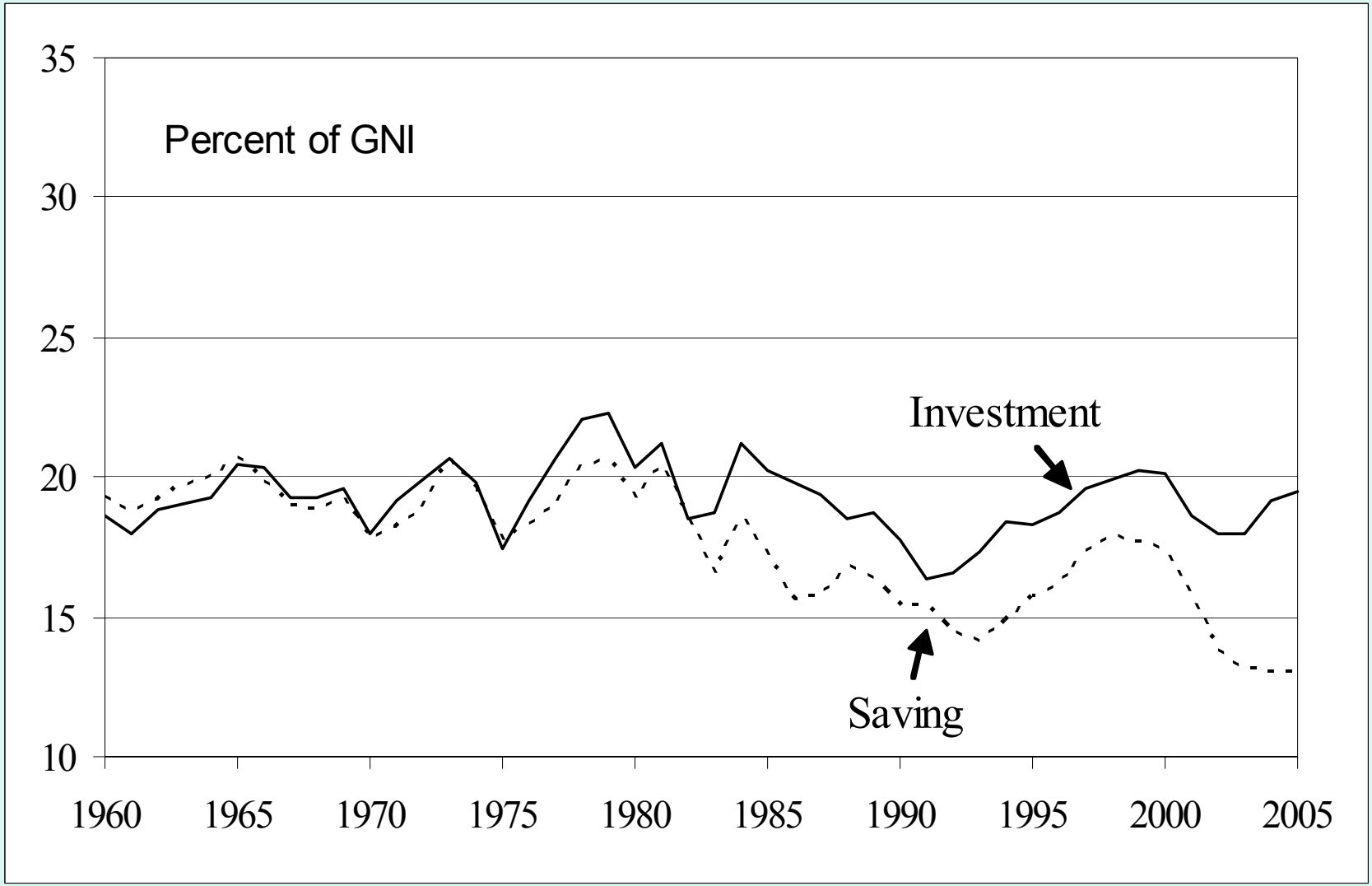
Dataset

- 85 Countries (95% of World GDP) Covering 1960-2004
- 40 Countries (91% of World GDP) with Public and Private Saving
- Sources: OECD, World Bank, IMF, and country statistical offices
- United Nations, *World Population Prospects*
- All data converted to 5 year averages

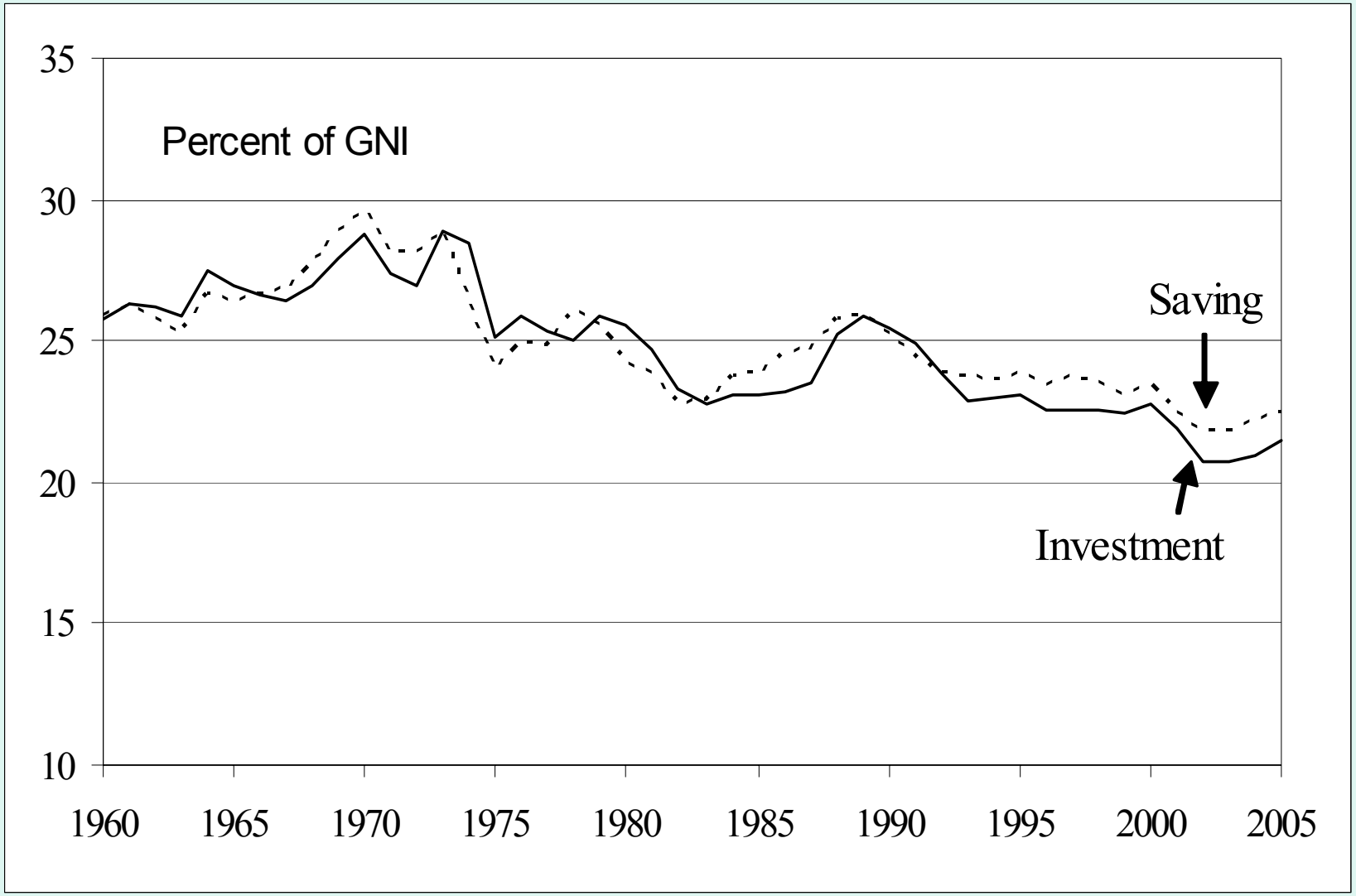
Recent Trends

- Offset to US deficit is in Asia and OPEC
- Global change is concentrated on investment side
  - Declining saving and investment in other industrial countries
  - No investment decline in US
  - Sharp drop in investment in Asia

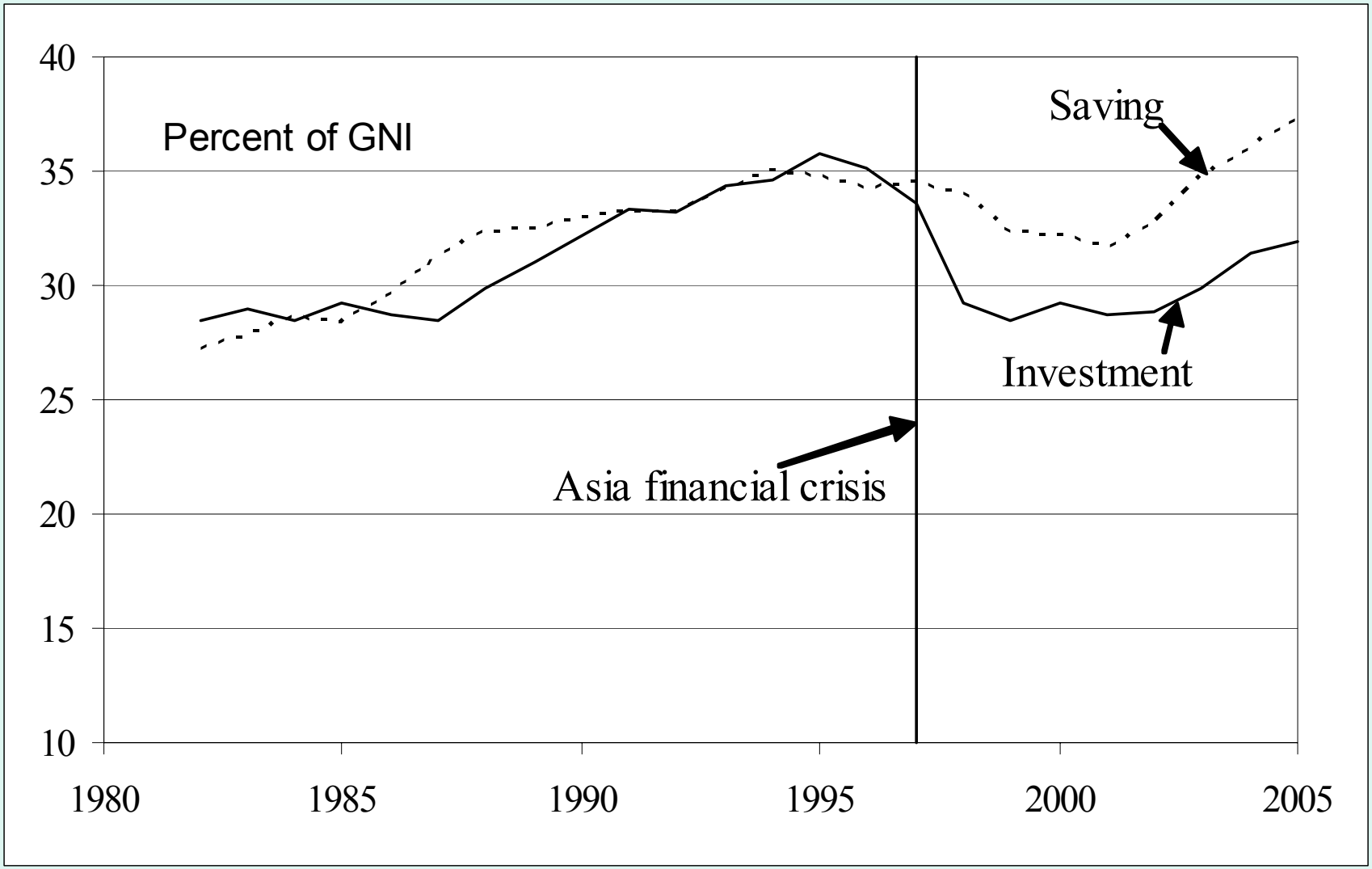
United States



Industrial Countries Excluding U.S.



Emerging Asia



The Fixed Effects Model

$$S_{it} = F_1(X_{it}, C_i, P_{it}) + u_{it}$$

Where S_{it} is saving in country i at time t;

X_{it} are a set of country-specific economic factors that change over time;

C_i are factors that are largely time-invariant but vary across countries;

P_{it} capture the age structure of the population;

And u_{it} is an uncorrelated error term.

$$Saving_{it} = \beta_1 * dgdp_{it} + \beta_2 * dgdp_{it-1} + \beta_3 * C_i + \mathbf{\beta_4 * D_{it}} + u_{it}$$

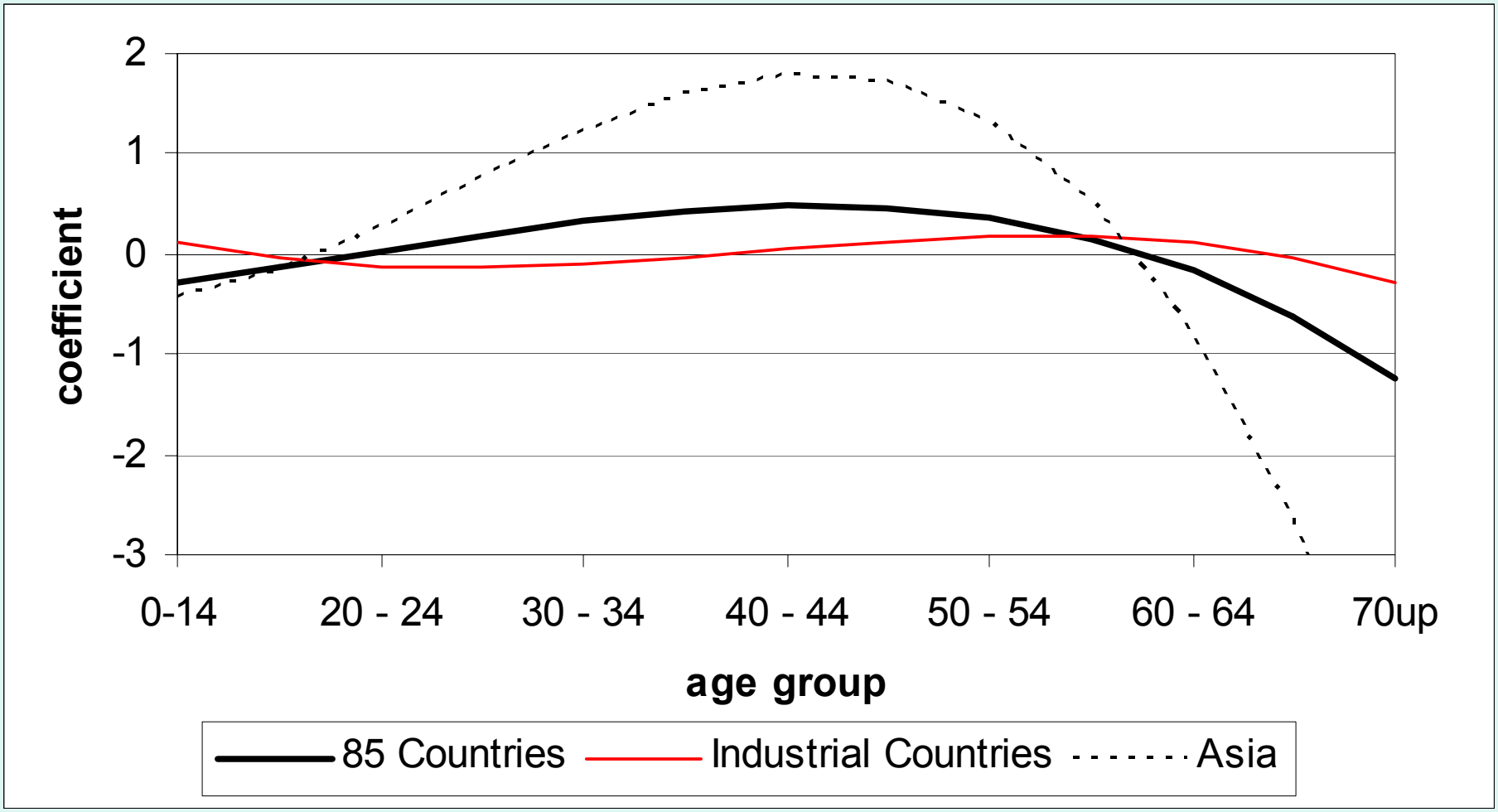
$dgdp_{it}$ is growth of real GDP;

$dgdp_{it-1}$ is 5-year lag of real GDP growth;

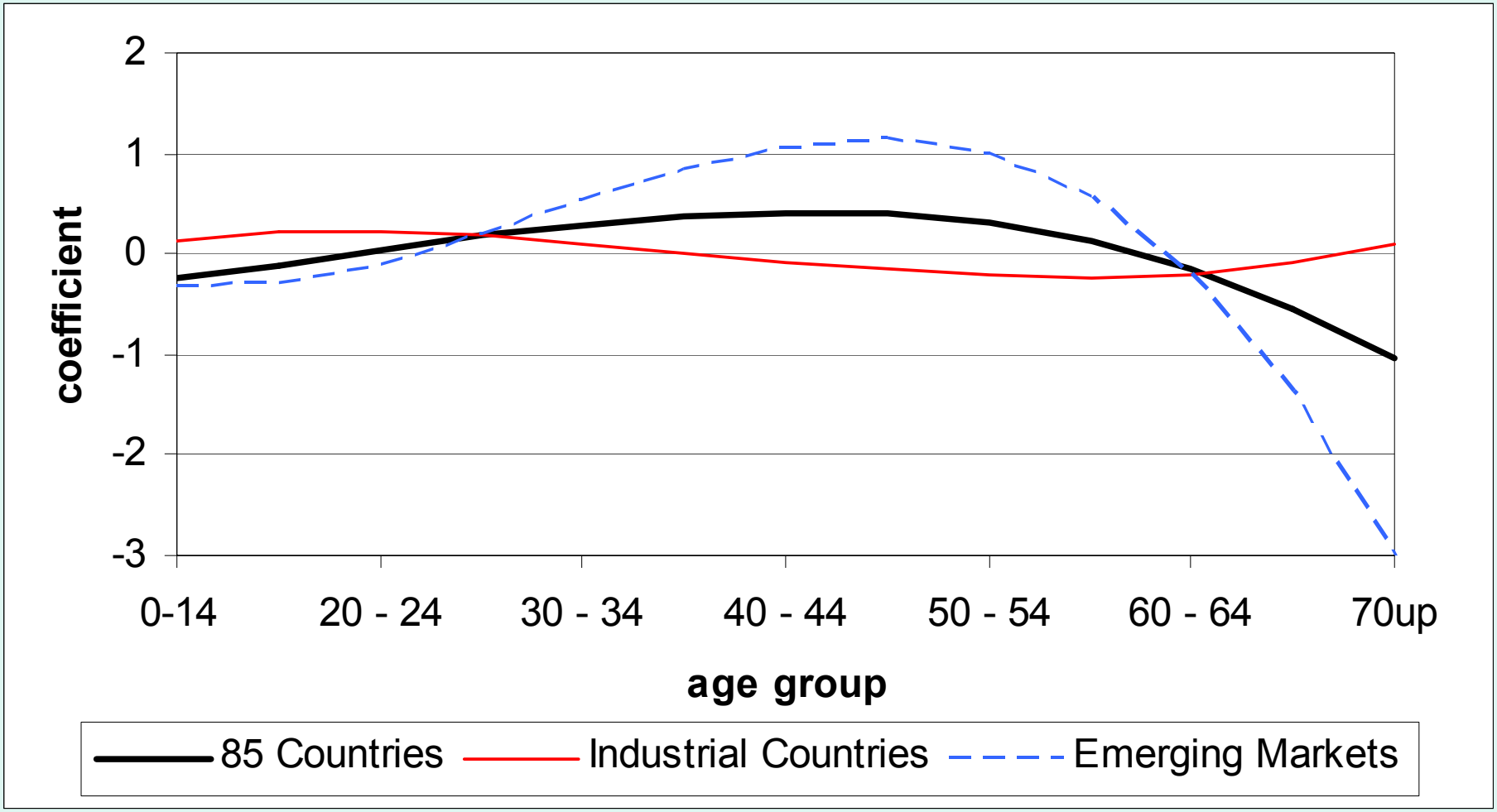
C_i is country-specific categorical variable;

D_{it} is third-degree polynomial approximation of age profile, as used by Higgins (1998)

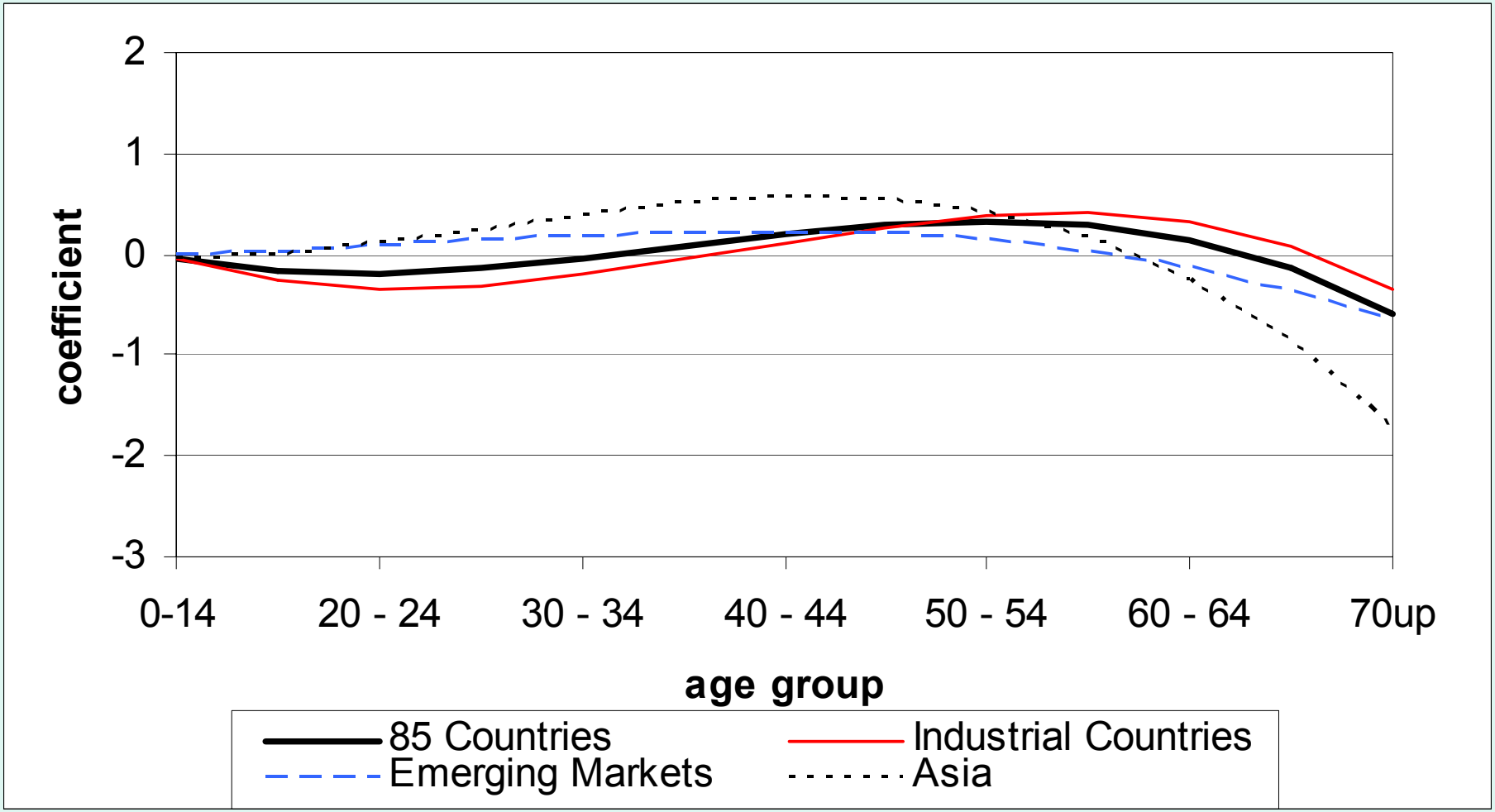
Coefficients on National Saving



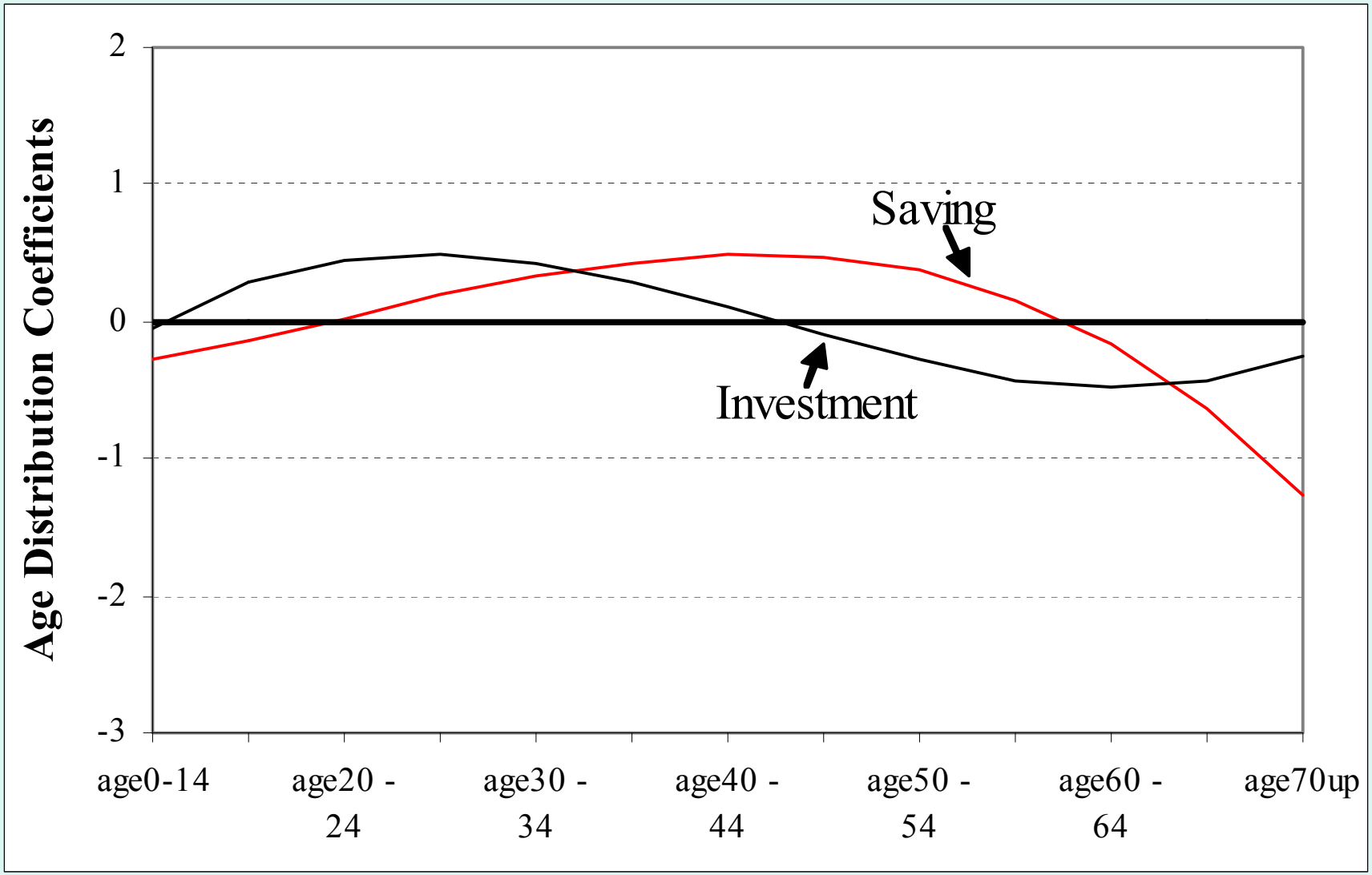
Coefficients on Private Saving



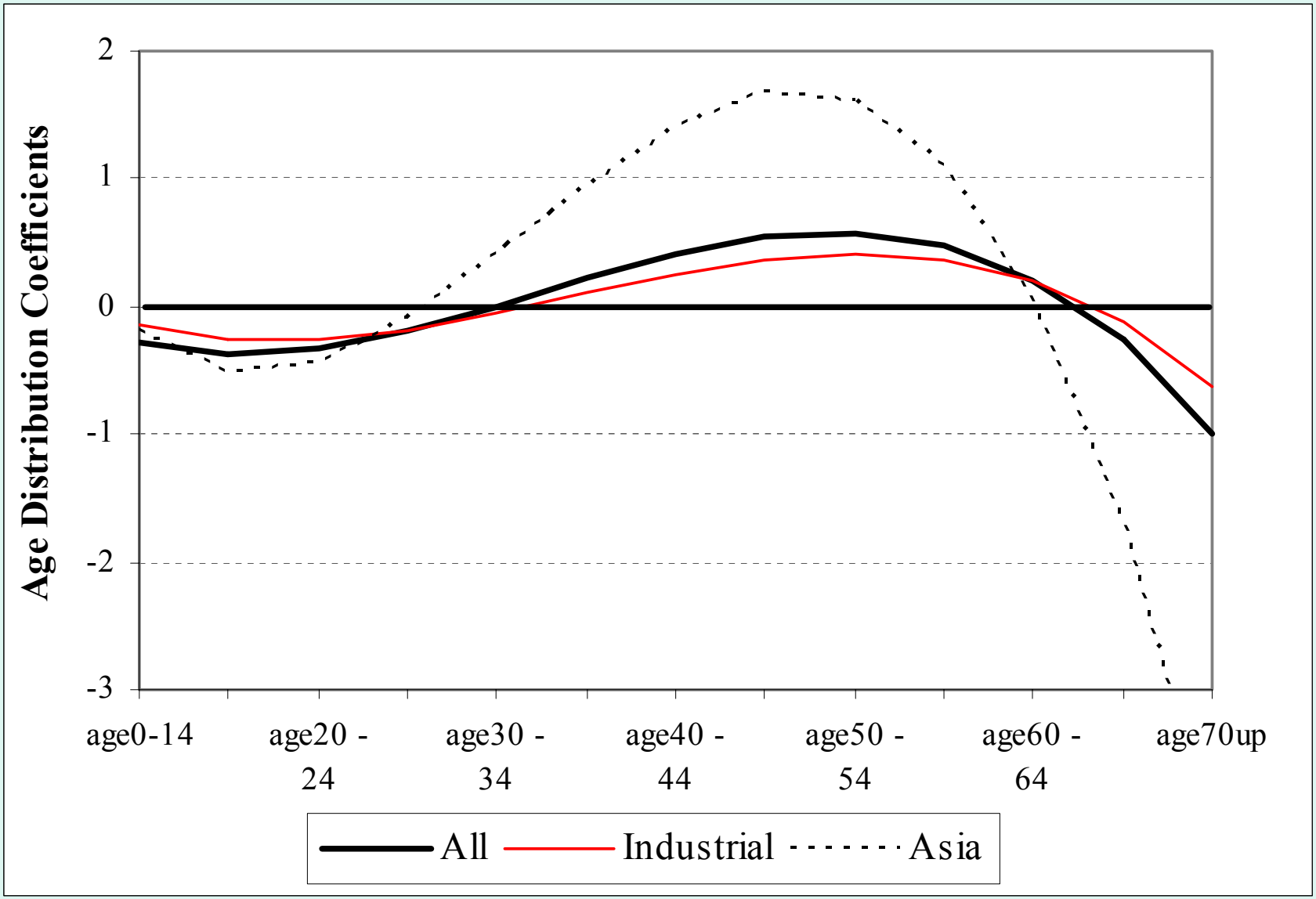
Coefficients on Government Saving



Coefficients on Saving and Investment, 85 Countries



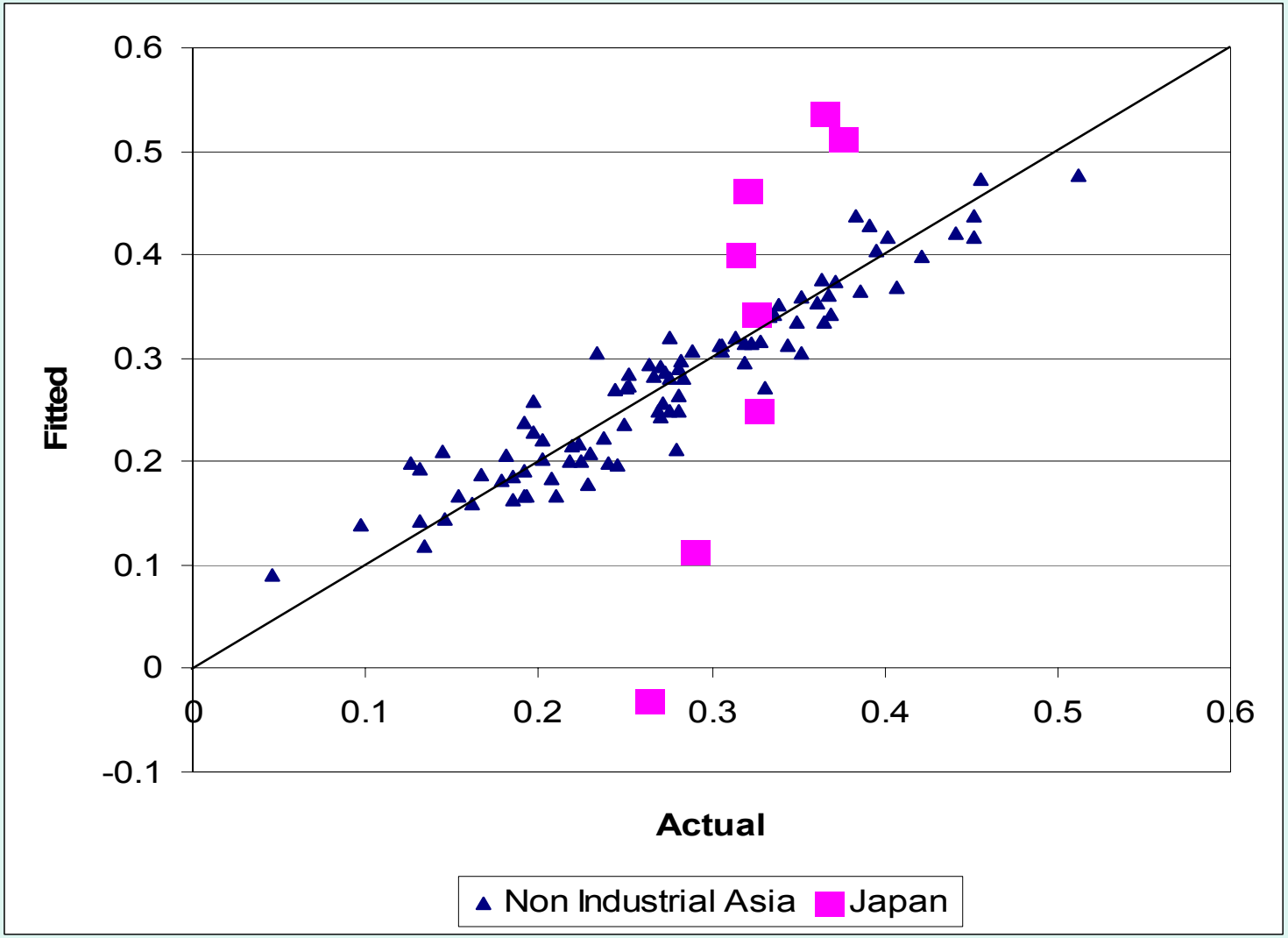
Coefficients on Current Account



Asian Puzzle

- Why are demographic effects so large?
  - Decline in child dependency,
    - but coefficients on aged dependency are also large.
  - Dynastic saving and cultural factors
  - Lack of social safety net.
  - Repressed financial markets.
- Japan: Industrial or Asian?
  - Extensive social safety net
  - Does not fit with Asian model.

Actual and Predicted Saving, Asia Coefficients



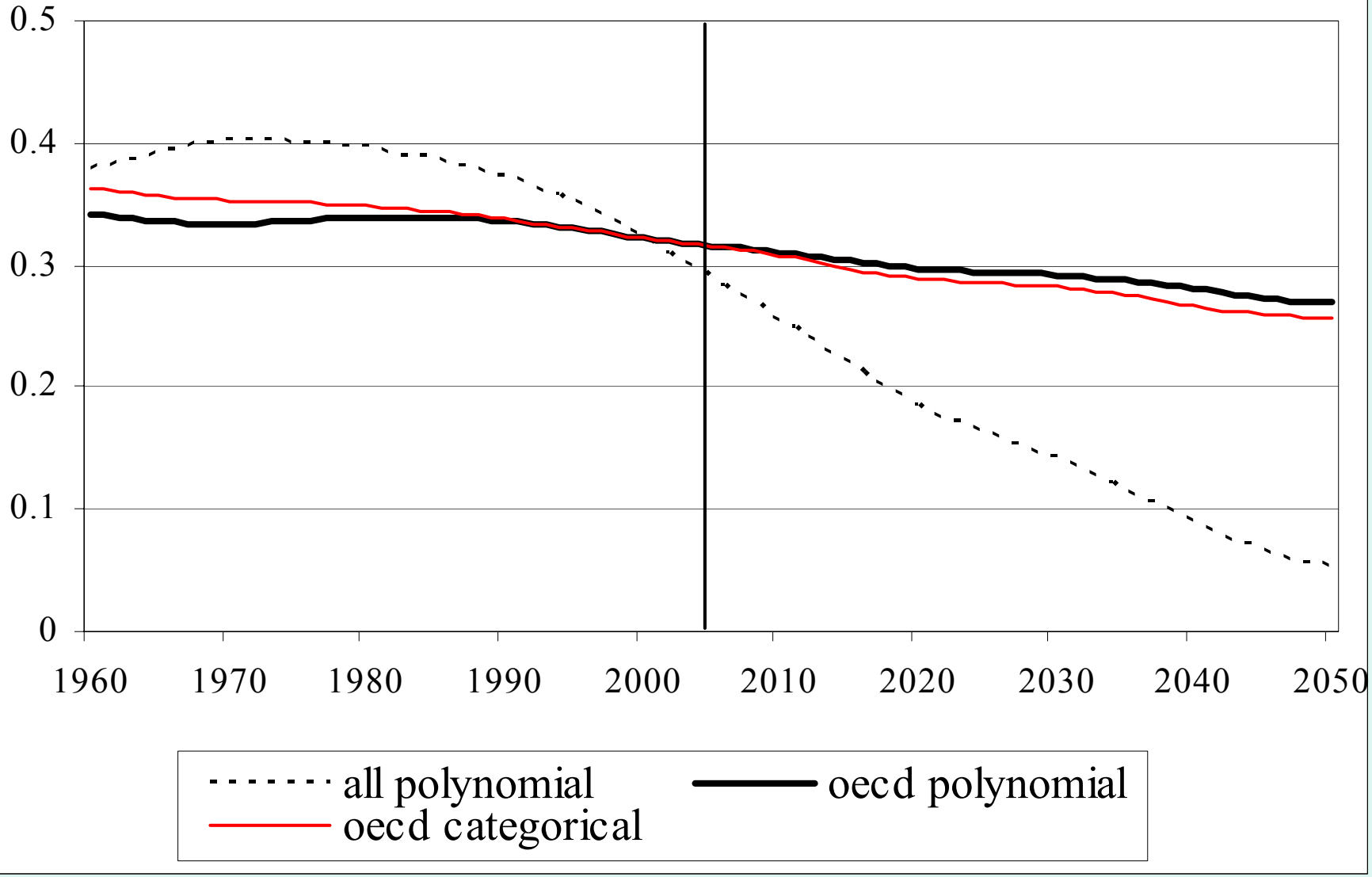
Asia (2)

- Weighted Regressions
  - GDP, population, and square root of population as weights
  - Greater weight assigned to China and India
  - Demographic coefficients remain statistically significant, but much smaller
  - Asia much more similar to other regions

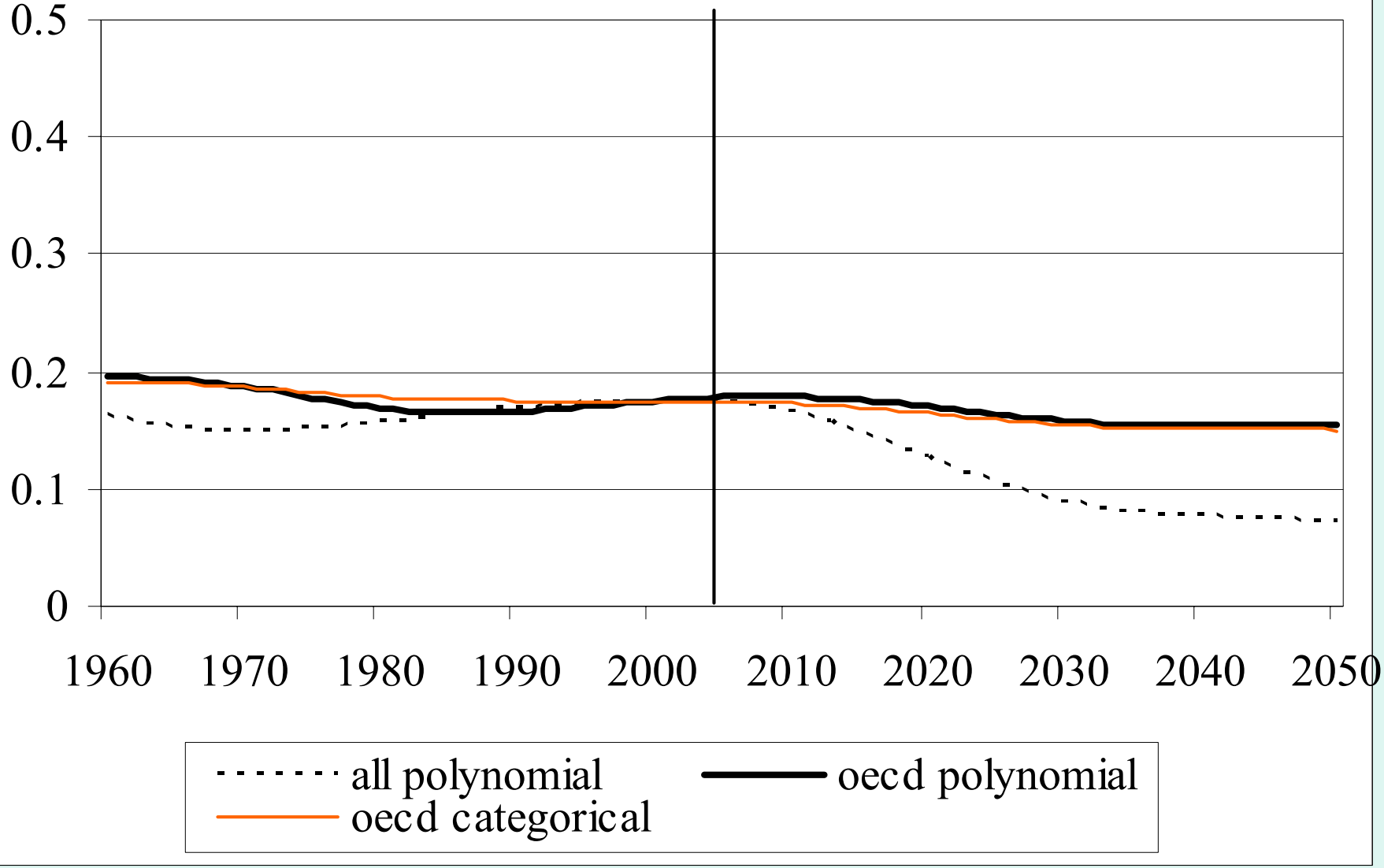
Future Implications

- Demographic effect on saving is already negative in industrial countries
  - But effects are small relative to future projections
- Large uncertainty about demographic impact
  - Industrial countries versus Asian experience

Expected Saving, Japan, Various Specifications, 1960-2050



Expected Saving, United States, Various Specifications, 1960-2050

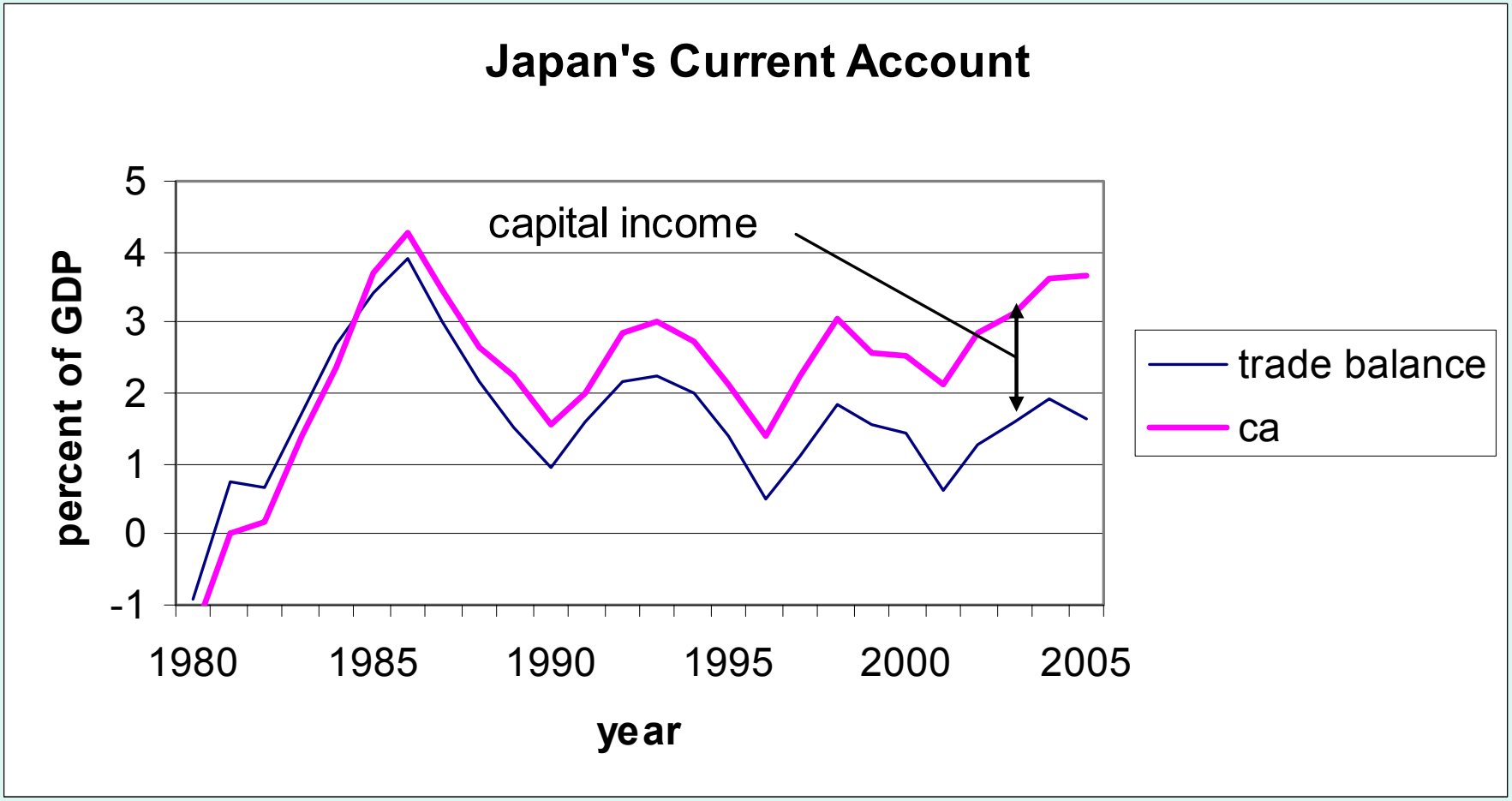


Summary of Demographic Effects

- Statistically significant effects on saving
  - Wide variations across regions
  - Dominated by Asia
  - Weak impact in industrial countries
- Significant for both government and private saving
- Parallel but smaller effects on investment
- Most pronounced for current account balance.

Global Perspective

- Large global capital market with disparate demographic trends among nations.
- Shifts in S-I balances spill over to current account.
- Accumulate foreign assets when population is young and sell-off assets when population ages.
  - Example of Japan
  - United States is opposite case.


Japan's Current Account
percent of GDP
5
4
3
2
1
0
-1
capital income
1980
1985
1990
1995
2000
2005
year
trade balance
ca