

India's Economy: Performances and Challenges

Essays in Honour of Montek Singh Ahluwalia

Indian Economic Growth: Three Puzzles

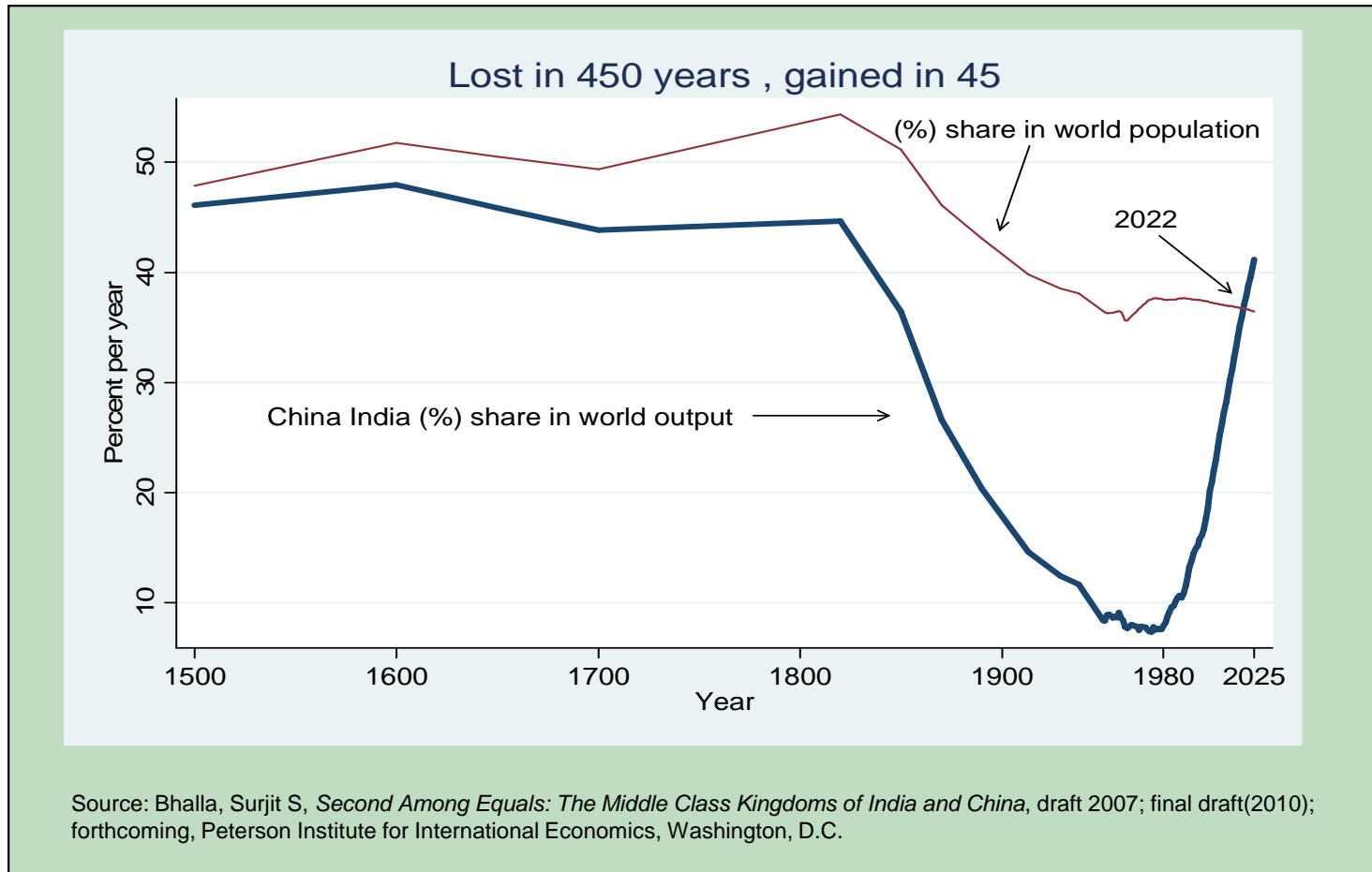
Presented by

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The China-India Story – 1500 - 2025



Indian Economic Growth: Three Puzzles

- Three factors of growth, three major determinants – Capital, labour and productivity
 - Real Interest Rates (price of capital)
 - Currency Undervaluation (price of labour)
 - Middle Class (productivity)

- Some background facts about Indian economic growth
 - Constancy of agricultural growth
 - For most variables, constancy in various macro variables (until 2003/2004)

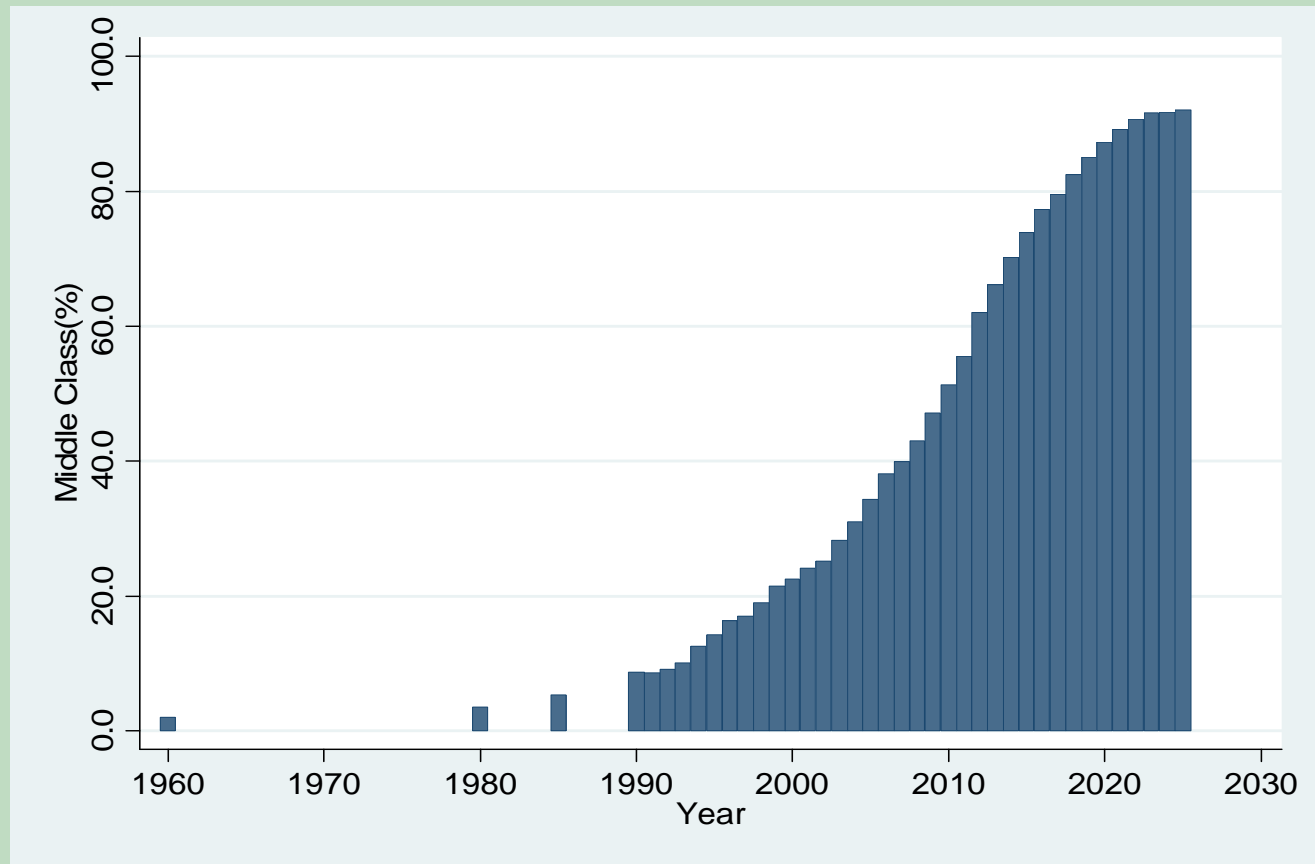
Indian Growth Performance, 1980-2009

Year	Average(5 years)		Average (20 years)	
	Growth	Rank	Growth	Rank
1980	3.2	56	3.7	60
1985	5.4	19	4.1	35
1990	6.0	12	4.3	27
1995	5.2	28	4.9	17
2000	6.3	11	5.7	11
2005	7.0	7	6.1	6
2009	8.5	4	6.5	4

Total Factor Productivity Growth, India-China, 1950-2007

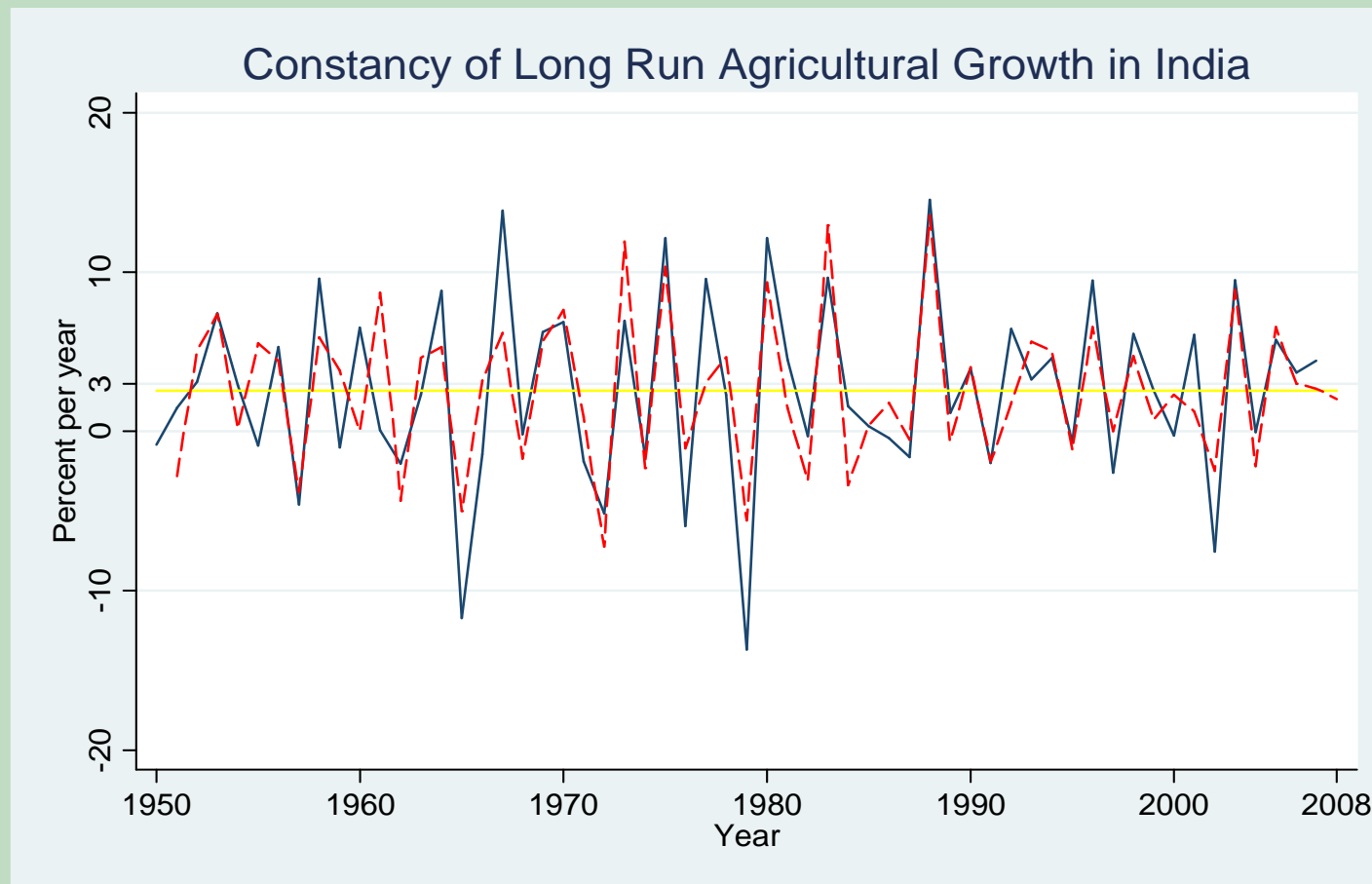
	<i>China</i>	<i>India</i>
1950-1980	1.96	1.23
1980-2002	2.4	3.04
1950-2002	2.2	1.98
2003-2007	5.34	3.84
1950-2007	2.56	2.14

Evolution of Middle Class in India



Note: Middle class line defined to be the weighted poverty line in the developed world; in 2010 rupees, this line is Rs. 150,000 for a family of four.

Agricultural Growth – Constant at 3 percent



Hindu Constants and the Constancy of growth rate 1980-2002

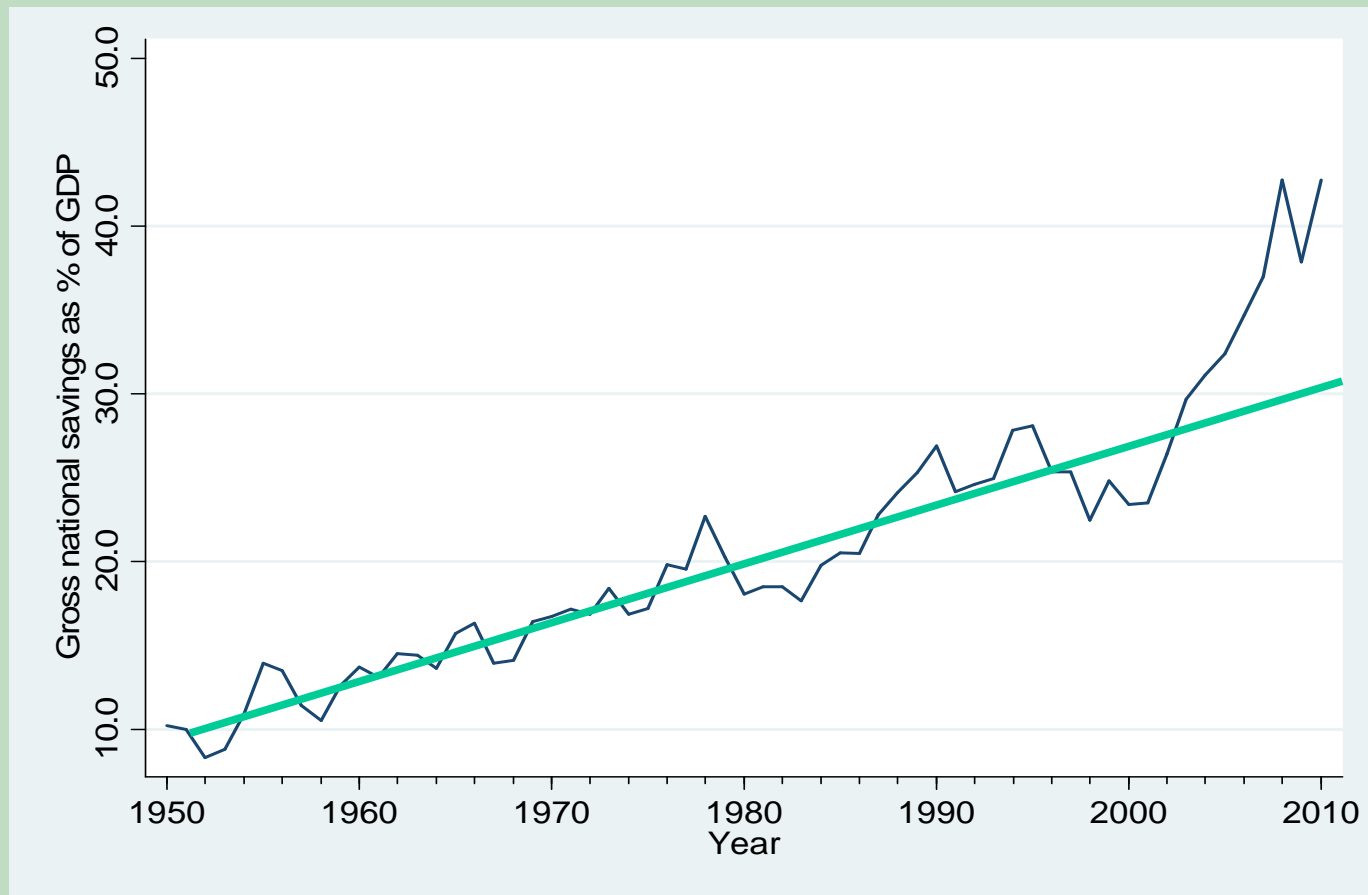
	<i>Growth in</i>			<i>Share of Fiscal Deficit/GDP</i>	<i>Real Interest Rates*</i>
	<i>GDP</i>	<i>Industrial Production</i>	<i>M3</i>		
Decades					
1950-59	3.3				
1960-69	4.4		8.8		
1970-79	2.9	4.0	17.4	-3.8	
3 Year Averages					
1980-82	5.6	4.6	16.1	-5.5	-3.3
1983-85	5.6	8.0	17.5	-6.9	1.5
1986-88	6.4	8.4	17.4	-7.8	3.9
1989-92	4.3	5.6	17.6	-6.9	2.7
1993-95	5.9	5.1	17.4	-6.0	2.0
1996-98	6.1	8.6	16.2	-5.2	5.0
Data after the "India Decade" article					
1999-01	5.9	5.2	17.8	-5.8	5.7
2001-03	5.8	5.2	15.4	-5.5	5.8
2004-07	9.1	9.1	17.9	-3.7	2.1
1992-95	6.2	7.1	17.0	-5.7	2.3
1997-03	5.3	4.8	17.3	-5.9	6.1
2003-07	8.9	8.7	17.0	-3.8	2.6

Note: * Defined as the difference between the weighted government securities rate and inflation as measured by the GDP deflator.

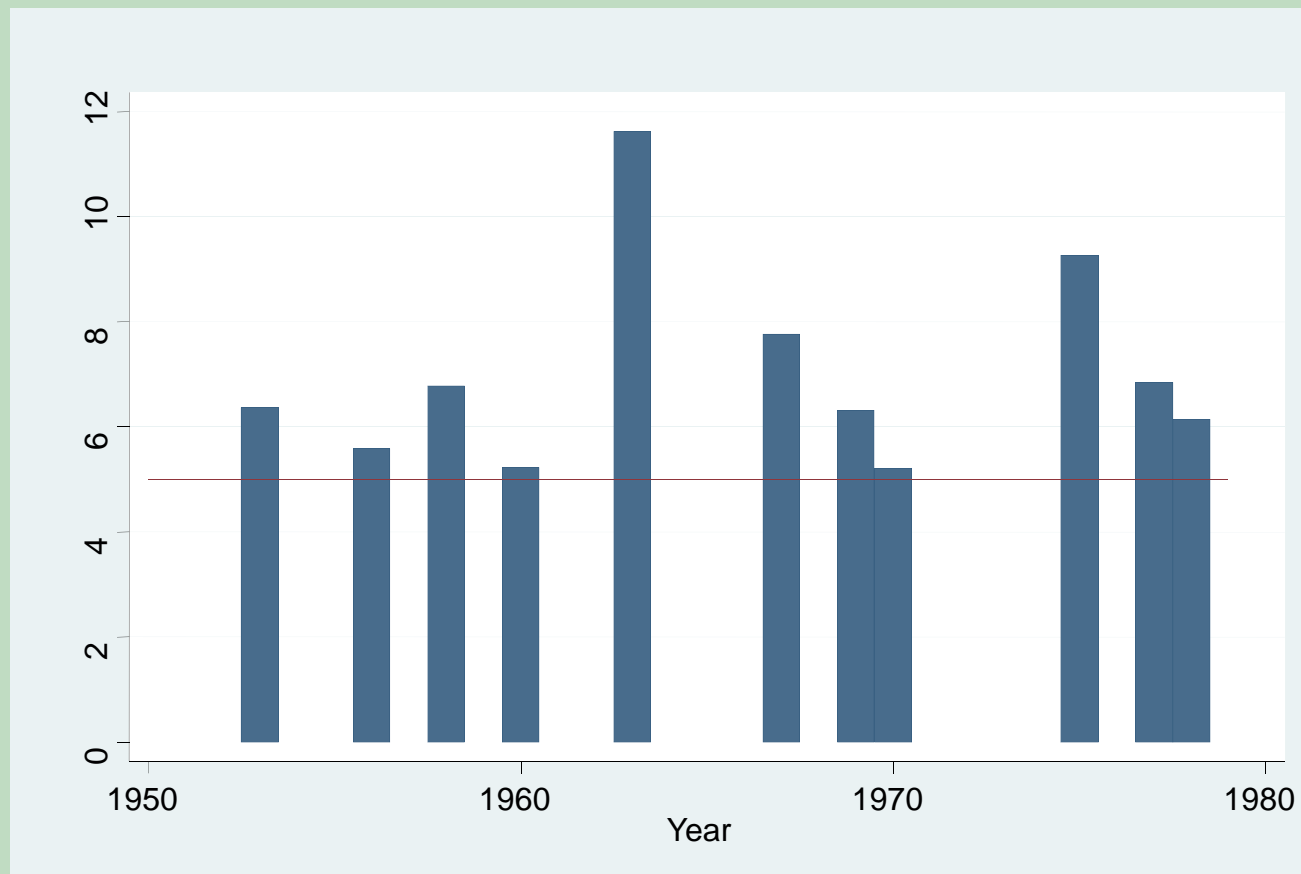
Puzzle 1: What caused India's GDP growth to accelerate in the early 1980s?

- Conventional explanations:
 - Bank nationalization led to higher savings rates
 - Indira Gandhi winked at the industrialists and growth took off
- These explanations cannot be found in most economic text books; plus, in reality, there *wasn't* any acceleration.
- But there *was* an *appearance* of acceleration - the whole world had seen a stagflation downturn in the 1970s, and India was not much different.
- Evidence:
 - Reallocation of labor from agriculture to industry – movement from lower to higher productivity
 - Several instances when Indian GDP growth had exceeded 5 percent

National Savings Rate of India (1950-2009)

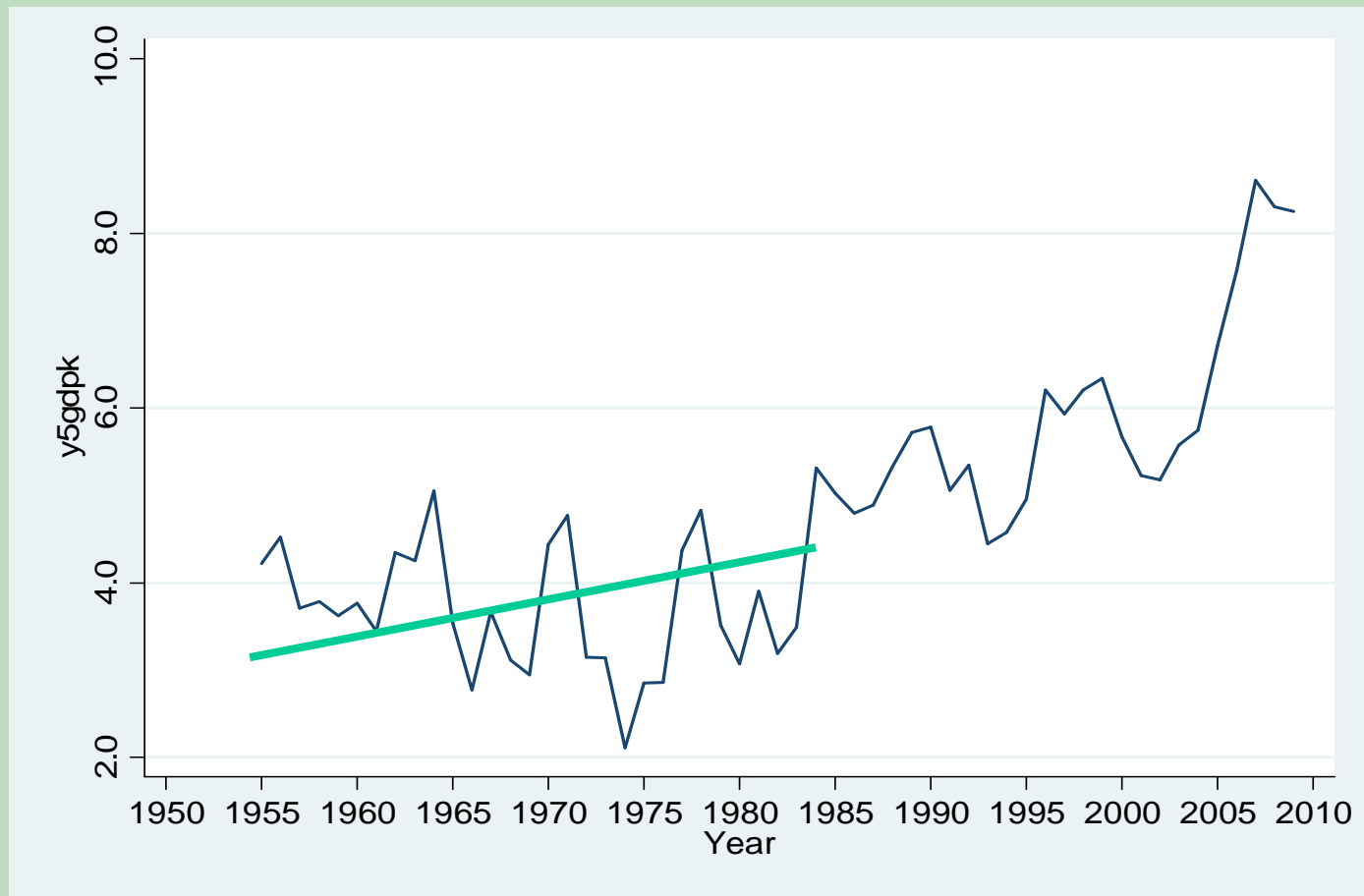


GDP growth above 5% - Not that unusual



Note: Bars are shown for the years between 1950 and 1979 when GDP growth was above 5 percent.

Real GDP growth 1950-2009



Puzzle 2: How come India had big reforms and no growth acceleration?

- There *was* a significant 2 percentage point acceleration for 3 years soon after the reforms – growth averaged above 7 percent 1994/95 – 1996/97.
- The post-reform decade from 1992-2002 witnessed only a 5.5 percent average growth rate, no different than the 11 years from 1980-1990.
- *Competing explanation:* Indian potential growth rate had already reached its potential of around 5.5 percent in the mid 1980s; so we shouldn't expect much acceleration in the 1990s.

Puzzle 3: What caused the growth rate to really accelerate from 2003/4 onwards to an average of 8.2 percent for the last seven years?

▪ Several explanations:

1. Rising tide lifts all boats
2. Indian industry so decimated by the tightening of the mid 1990s that they regrouped and became superior
3. Reforms of the early 1990s finally had an effect more than a decade later

▪ Problems with each interpretation

1. No other country has had such a large expansion in investment rates
2. Post hoc, ergo propter hoc
3. Possible, but then India will have the record for the longest gradualism lag

So what really happened?

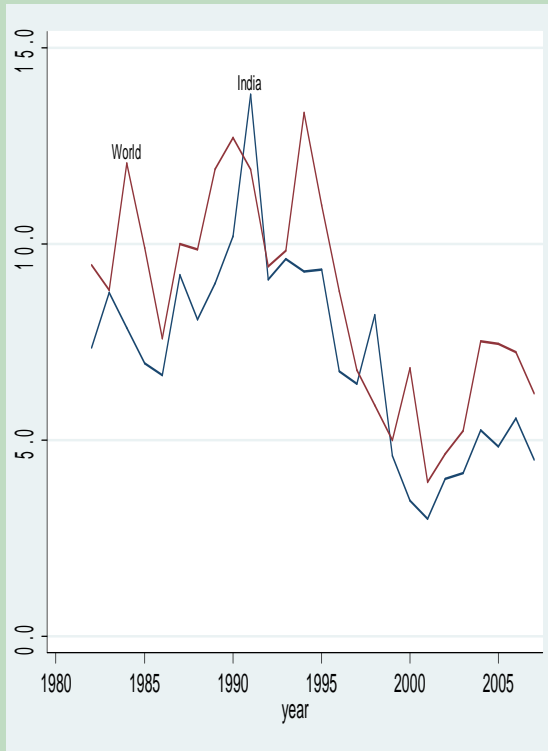
- Going back to the determinants
 - Currency undervaluation – consistent policy of maintaining a constant real exchange rate, which because of higher productivity growth in India, meant a slowly increasing currency undervaluation; so no extra effect
 - Middle class – this has long term impact and each 10 percent increase in the size of the (lagged) middle class adds about 0.4 percent to GDP growth rate – so this factor accounts for little
 - Cost of capital – *yes* – each 1 % decline in the lagged real interest rate adds about 0.35 percent to GDP growth
- Real interest rates declined because nominal rates declined; inflation stayed low at around 4 percent.
- Small savings rates which were 12.5 percent in 1999 were brought down to 8 percent by 2003/4.
- Real rates on government securities were 7.3 percent in 1999, and averaged 2.6 percent between 2002 and 2007; a decline of 500 basis points or close to 2 percent extra GDP growth.

Money Supply and Fiscal Deficits: (non)-Effects on Growth and Inflation

<i>Coefficient</i>	<i>1950-72</i>	<i>1980-07</i>	<i>1950-07</i>
Dependent variable: GDP Growth			
M3 Growth (lagged)	-0.03	-0.08	0.20**
Inflation	-0.06	-0.20	-0.24**
R ²	0.45	0.53	0.46
Dependent variable: Inflation (GDP deflator)			
M3 Growth (lagged)	-0.20	0.32	0.48**
GDP Growth	0.48	-0.64*	-0.60**
R ²	0.26	0.31	
	<i>1980-03</i>	<i>1980-03</i>	<i>1980-07</i>
Dependent variable: GDP growth			
Fiscal Deficit lagged (% of GDP)	-0.23	-0.38*	-.24
Real Interest Rate (lagged)		-0.25***	-.38***
Currency Undervaluation (lagged)		-.01*	-.024***
R ²	0.71	0.79	0.76

Notes: (1) *Stars indicate the level of statistical significance; 1, 2, and 3 stars indicate significance at the 10%, 5%, and 1% level of significance, respectively. (2) Other variables in the equation are rainfall, rainfall lagged and in growth equations, a dummy variable for 1991, when applicable.

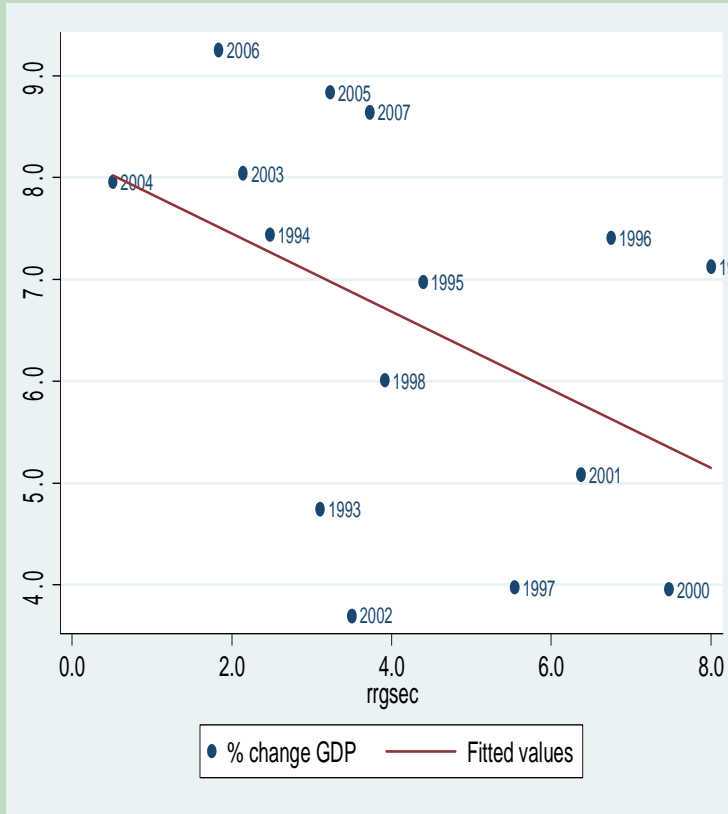
Domestic and World Inflation



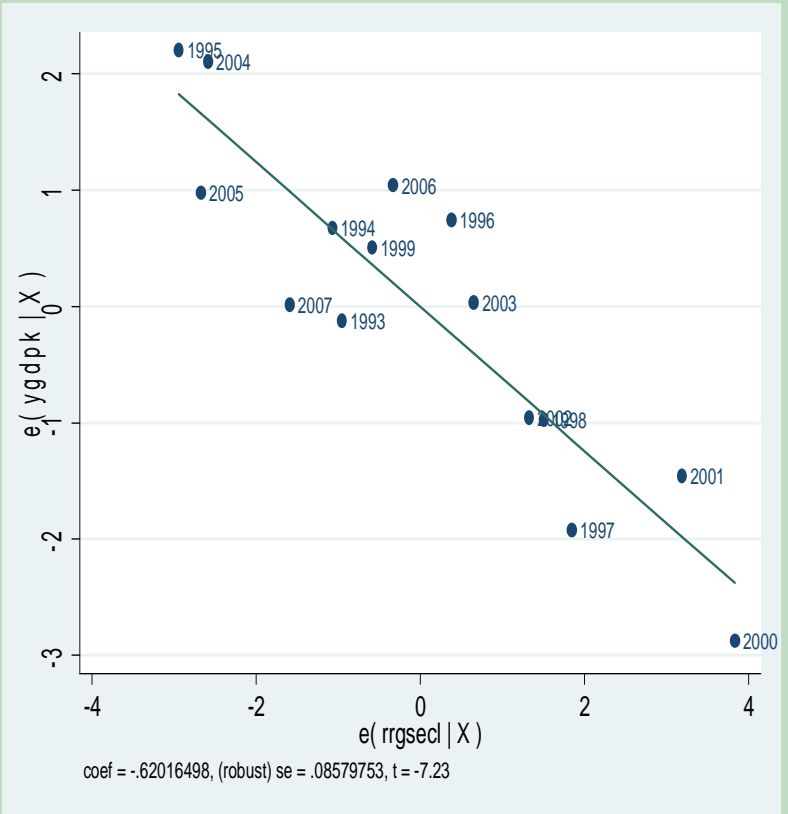
Variables	Dependent Variables: Inflation (GDP deflator)				
	1950-80		1980-07		
	1	2	1	2	3
World Inflation	0.32*	0.38**	0.68***	0.35***	0.28***
Undervaluation USA		0.12		-	-
Undervaluation India		-0.05		0.013** *	0.014** *
R ²	0.14	0.27	0.69	0.77	0.87

*Stars indicate the level of statistical significance; 1, 2, and 3 stars indicate significance at the 10%, 5%, and 1% level of significance, respectively. Note: Model 3, 1980-07 has a dummy variable for crisis year 1991.

Relationship between interest rates and GDP growth

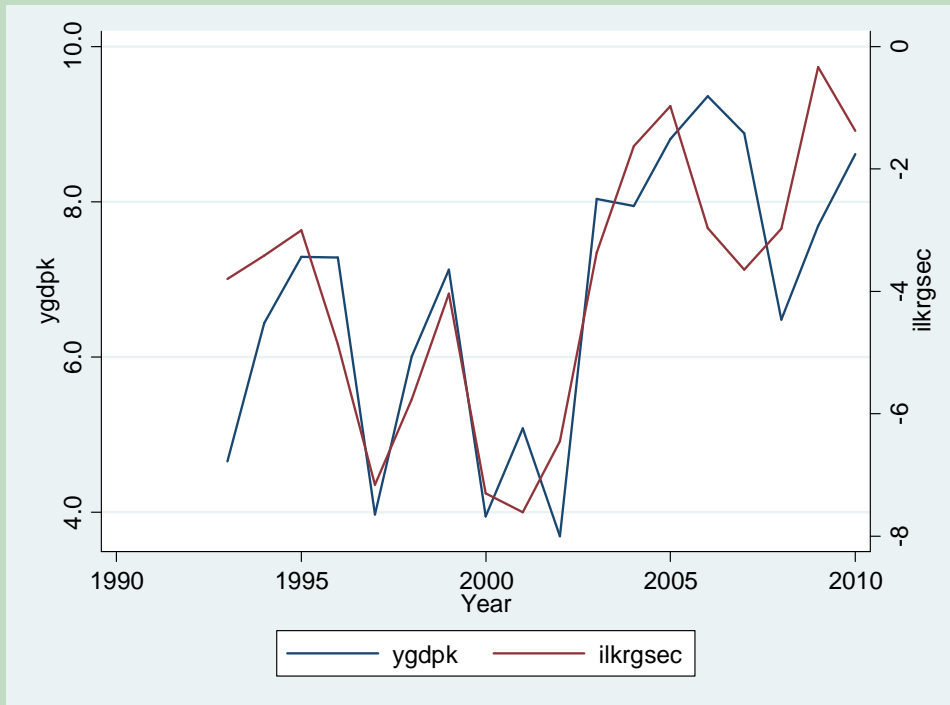


Notes: The X axis is the real interest rate on government securities and the Y axis GDP growth. This chart does not account for the presence of other determinants in the model



Notes: The graph outlines the close *partial* relationship between real interest rates and growth; The X axis is the real interest rate on government securities and the Y axis GDP growth. Note that the model estimated includes other factors, including currency undervaluation. Hence, the relationship shown is a partial relationship i.e. one which exists after controlling for the impact of other determinants.

GDP growth and lagged real interest rate – Are they related?



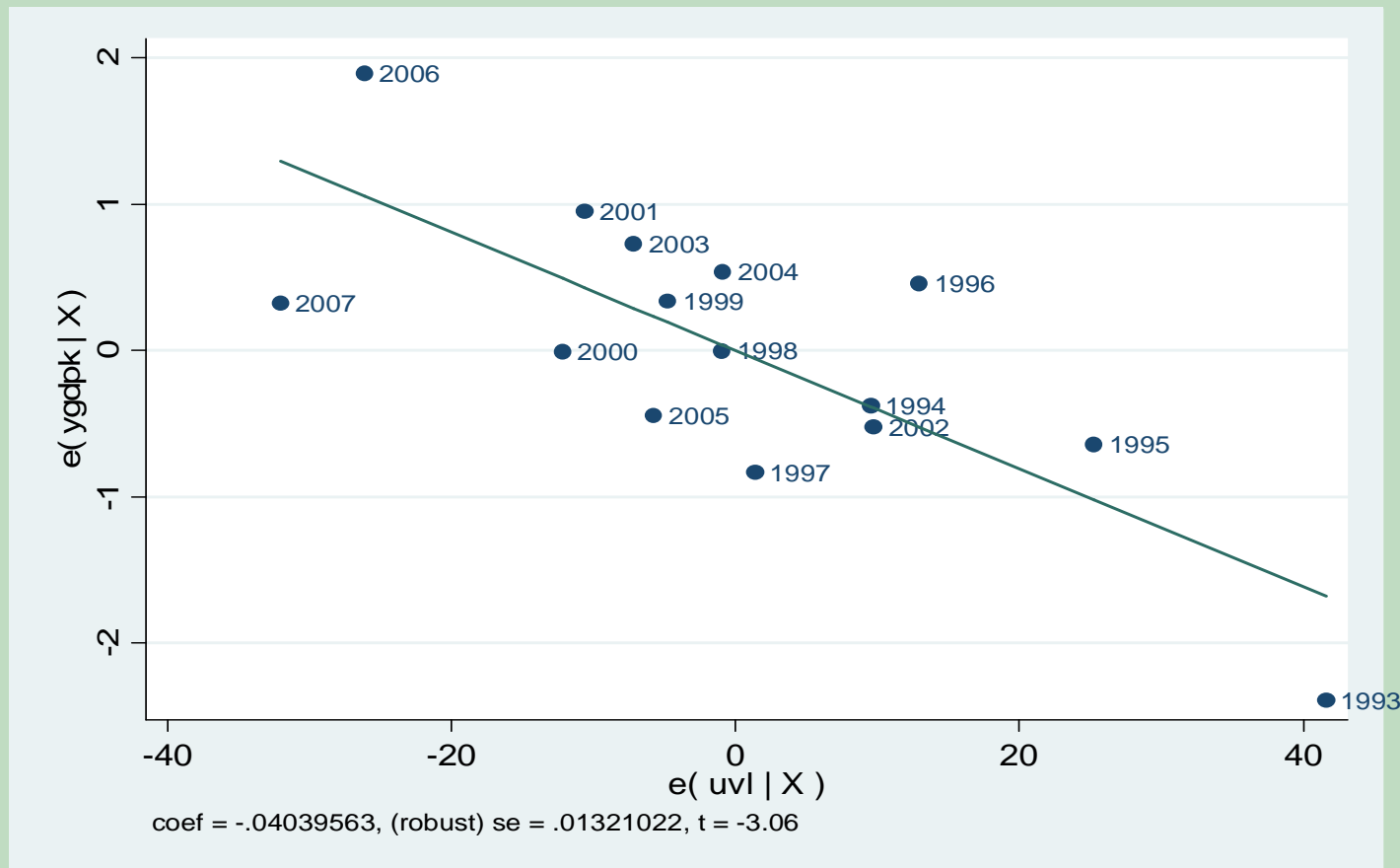
Decade	GDP Growth	Real G	Real P
1960s	3.9		
1970s	2.8		5.6
1980s	5.5	1.6	8.3
1990s	5.5	4.0	7.2
2000s	7.0	3.1	7.3
2010s	8.6	2.6	7.6

Real G= real government securities rate

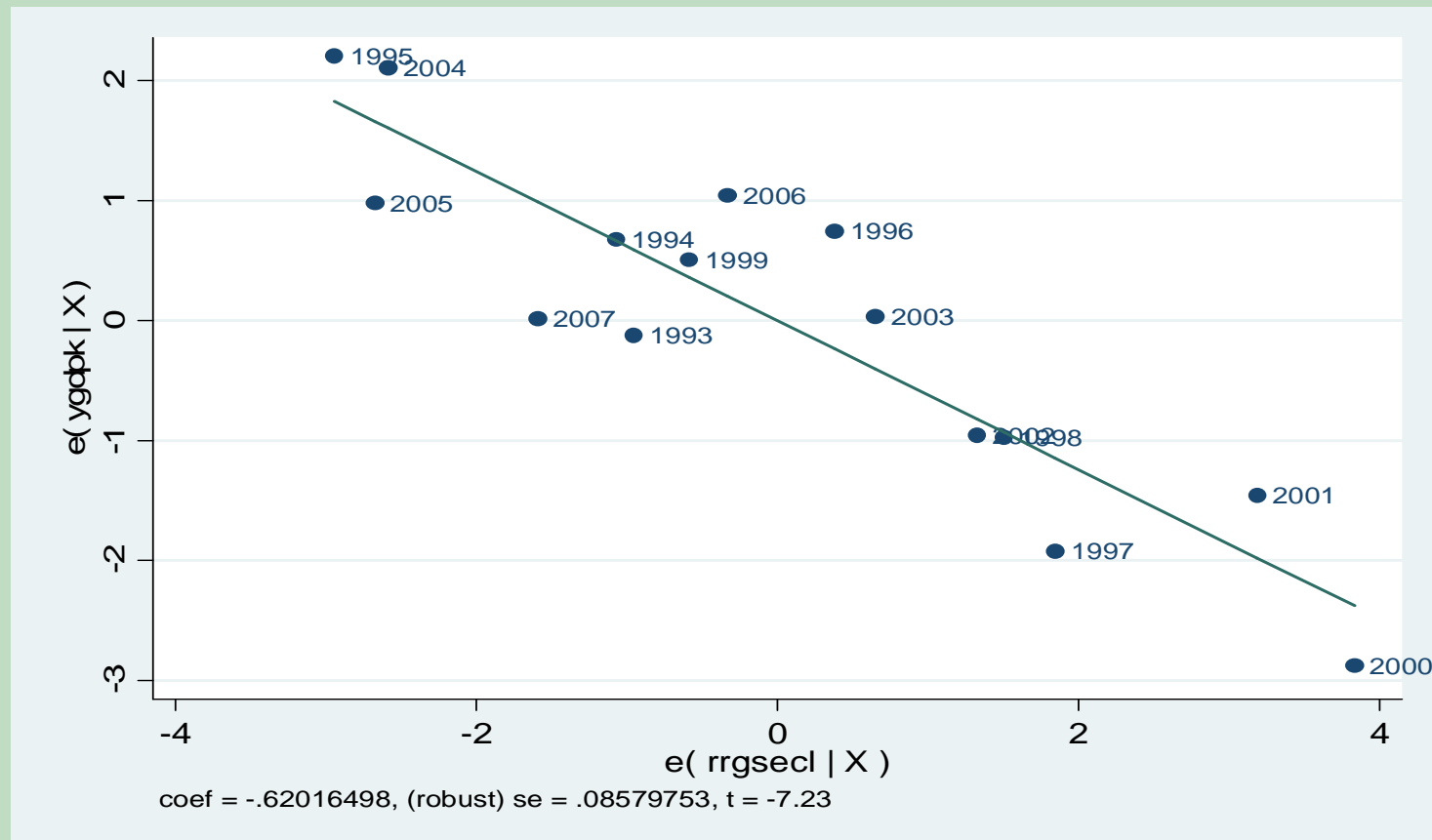
Real P = real prime lending rate

Correlation between GDP growth and lagged real government securities rate from 1993 – 2008 is **0.79**.

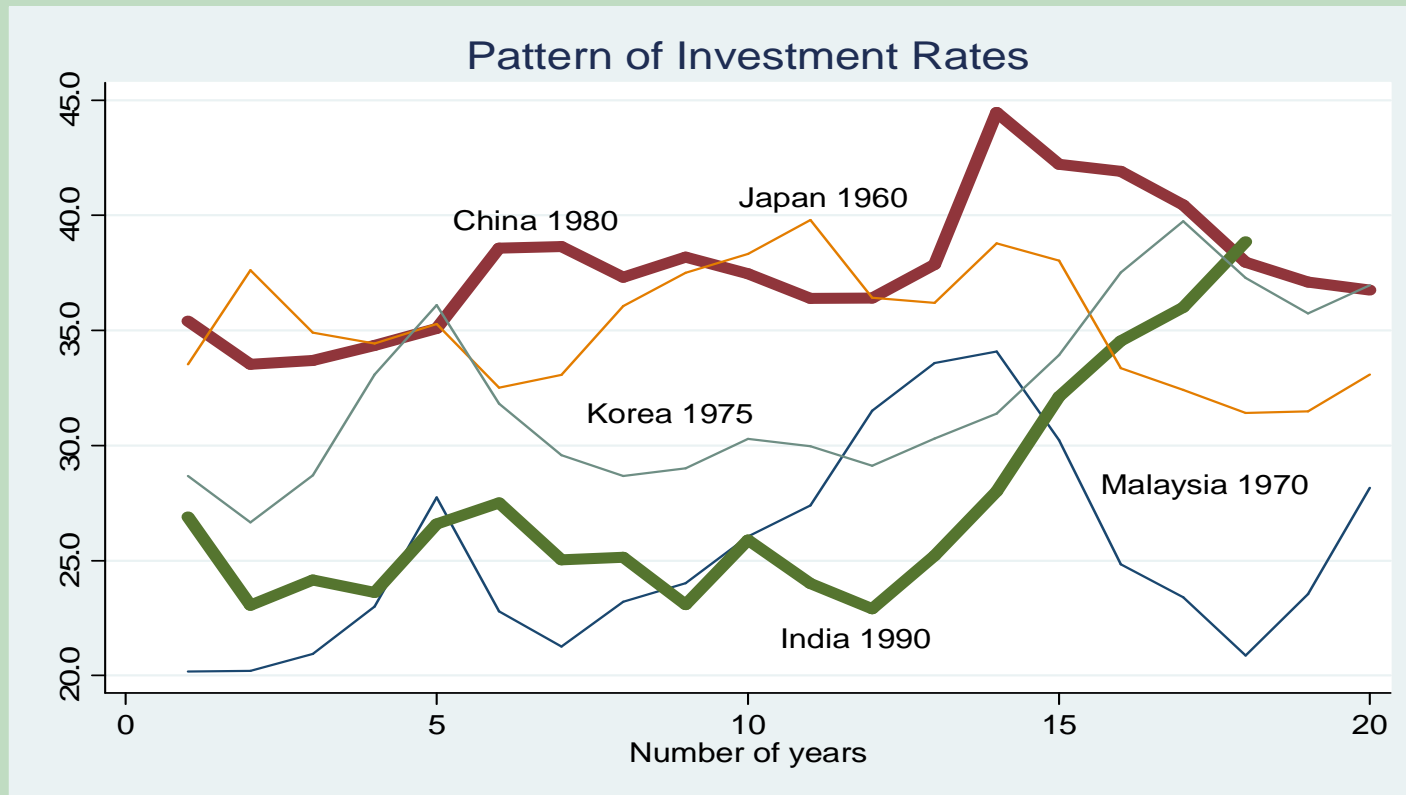
Partial regression plot of (lagged) currency undervaluation and GDP growth, 1993-2007



Partial regression plot of (lagged) real interest rates and GDP growth, 1993-2007



Investment Rates – A comparison



Note: Each country's investment rate in the 0th year is the year indicated next to that country's line e.g. 1990 for India, 1975 for Korea. The X axis measures the number of years elapsed since the start date. Note that for the last seven years, India's increase is the steepest.

Potential GDP Growth in India ≥ 8.5 percent

