

# Indian Inflation 2008-2013 – What Happened ?

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# High Inflation in India – Past and Future

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## **This paper about the high inflation of the past:**

Record high inflation in India for the last six years , 2008 to 2013. This has averaged 9.8 % and nearly equal to the six-year average of 10.1 observed in 1975. Recall that the 1975 average was induced by a quadrupling of the price of oil in Oct. 1973.

**And about impending future inflation:** “There are consistent signs of inflation falling at a rate faster than that envisaged by the RBI. While 8 percent headline inflation is targeted for end-2014, all indications are that inflation will be below that level by May 2014.” Monthly GDP Report, Zyfin Research, Feb. 2014

# What determines inflation in India?

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## Model of Inflation:

CPI inflation is primarily dependent on administered food prices. These are the minimum support prices administered by the government for 24 crops; most importantly wheat and rice.

Administered prices also explain high rural wages (not MNREGA!), and high rural land prices (not monetary policy!)

If trade is restricted, then output price movements dictate movement in factor costs involved in production;

Hence, administered prices for wheat, rice, etc., determine prices of fruits, vegetables, milk - not protein

# Determinants of High CPI Inflation

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•What has caused this high inflation:

Is it the fiscal deficit – No.

Is it “embedded” inflationary expectations? No  
(This begs the question of what causes inflationary expectations?)

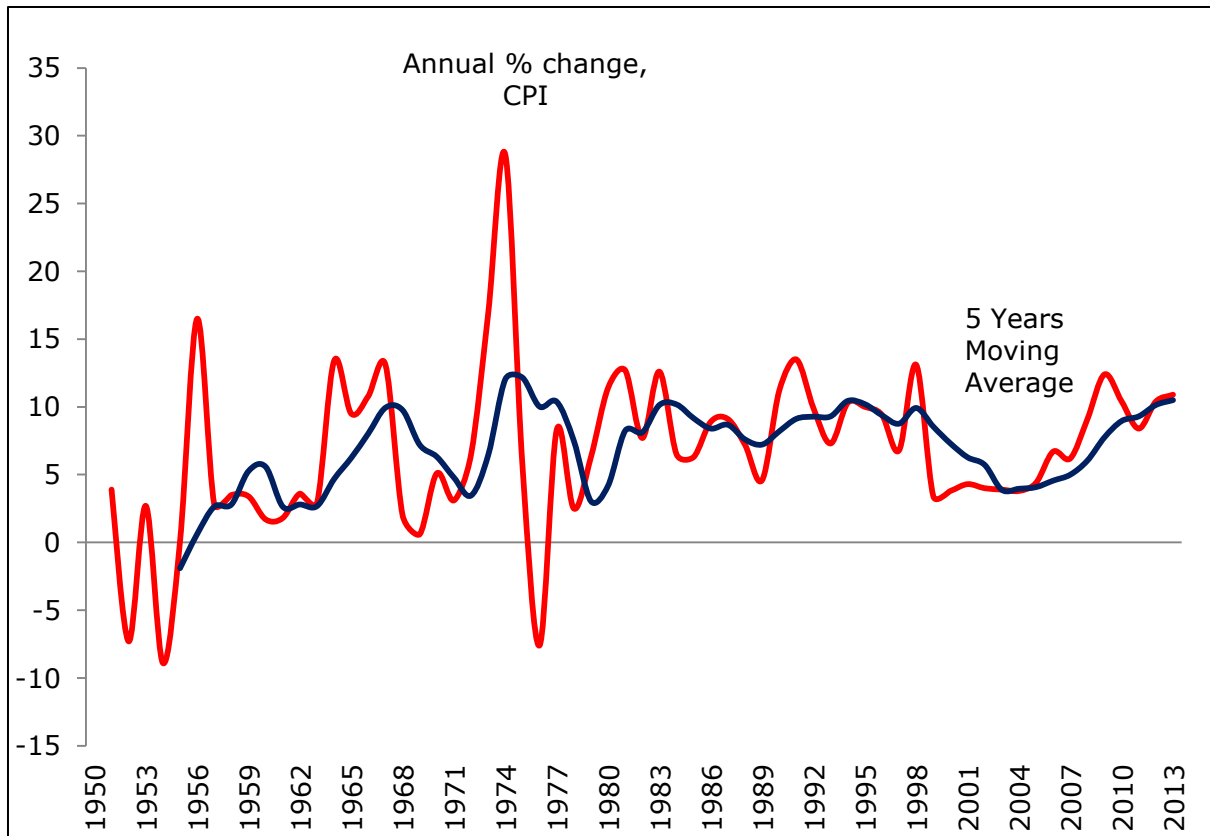
Is it excess agricultural or GDP growth ? No

It is government administered procurement prices; after rising at an average rate of 14 percent per year, 2007-2012, such prices increased by only 6 % in 2013

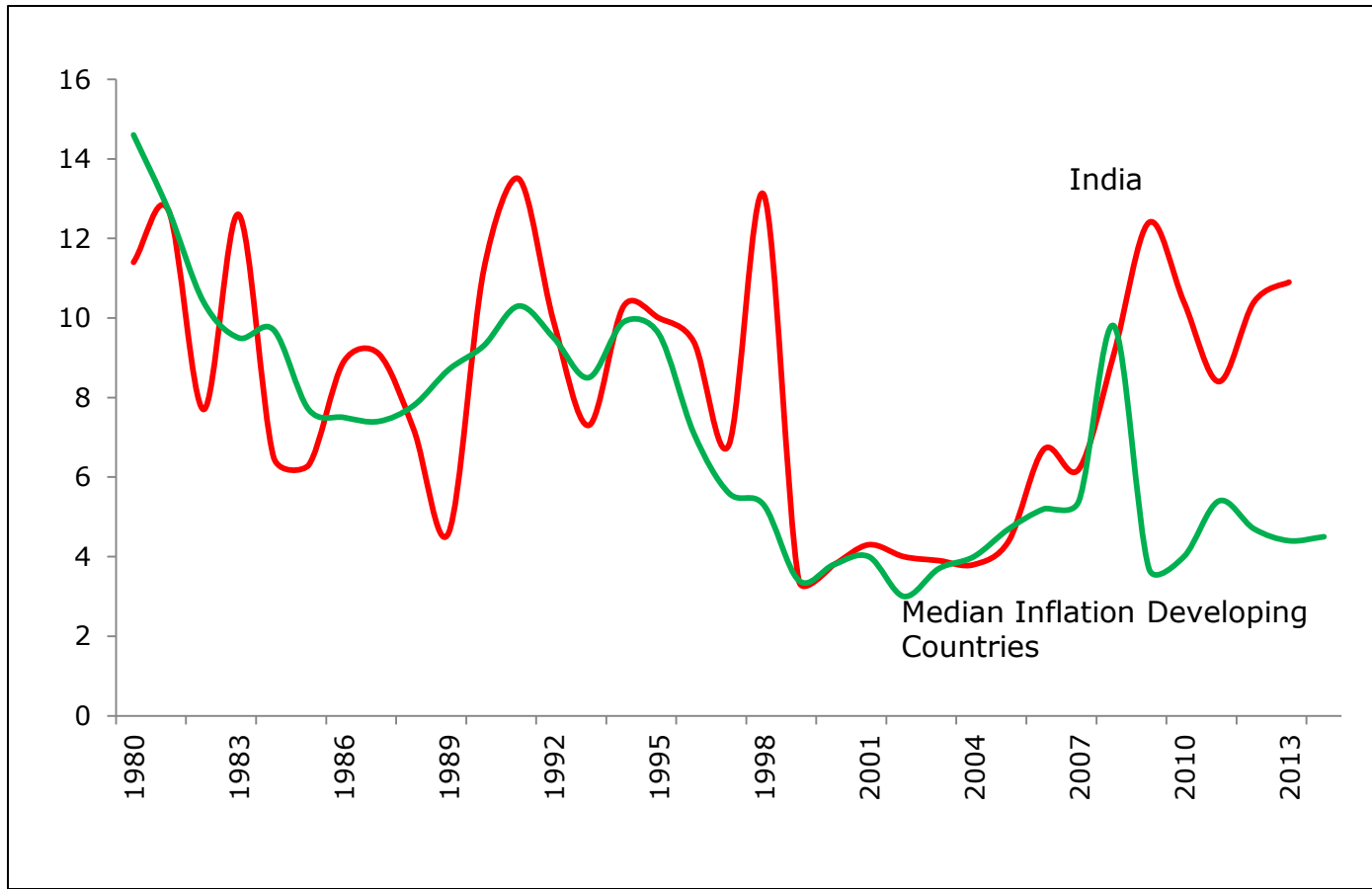
These prices act with a 1 year lag; this is why inflation is set to decline regardless of monetary policy!

***Model predicts a 3.5 percentage point decline in CPI inflation in 2014***

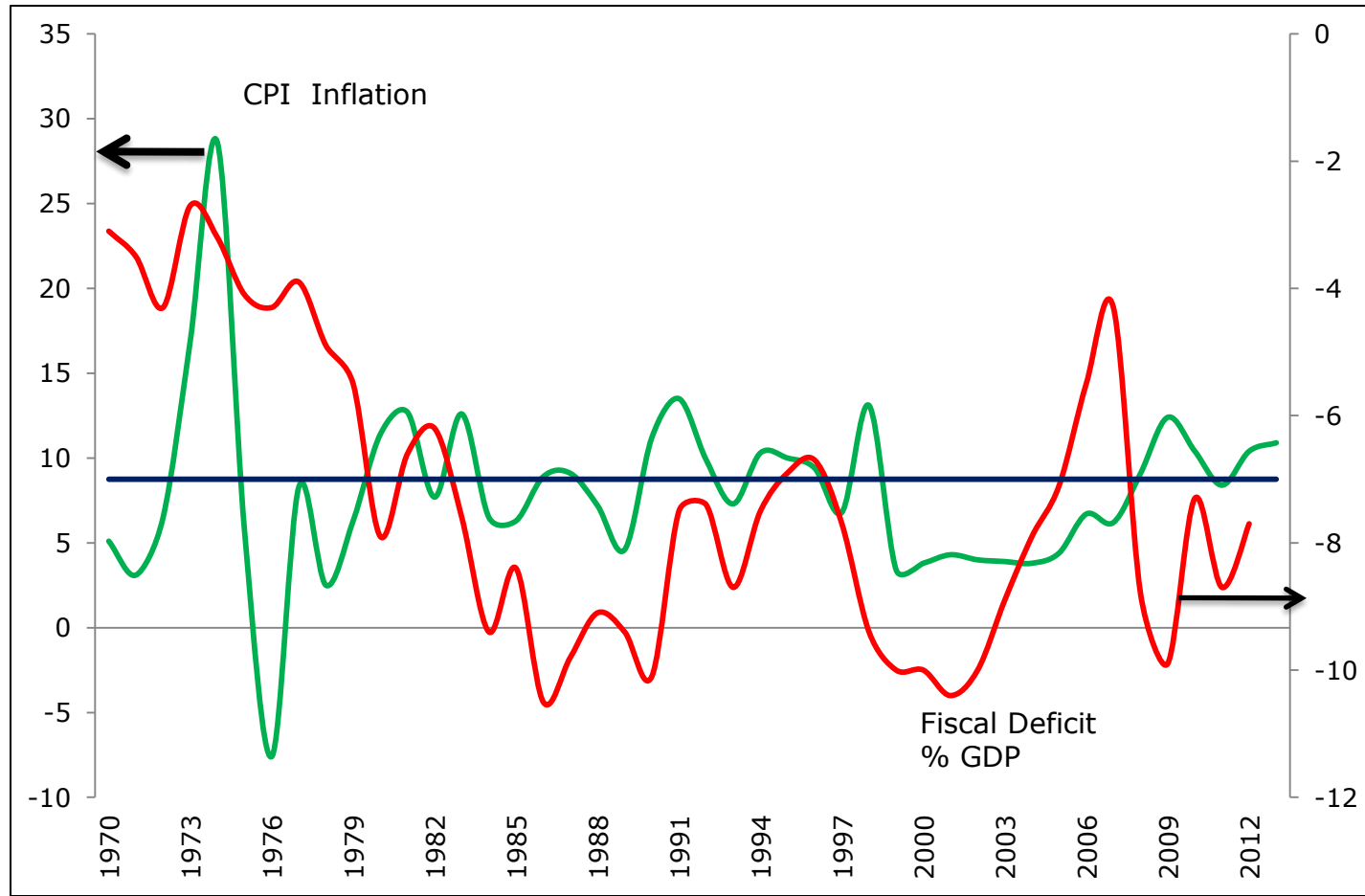
# Inflation (CPI) and its 5 year moving average



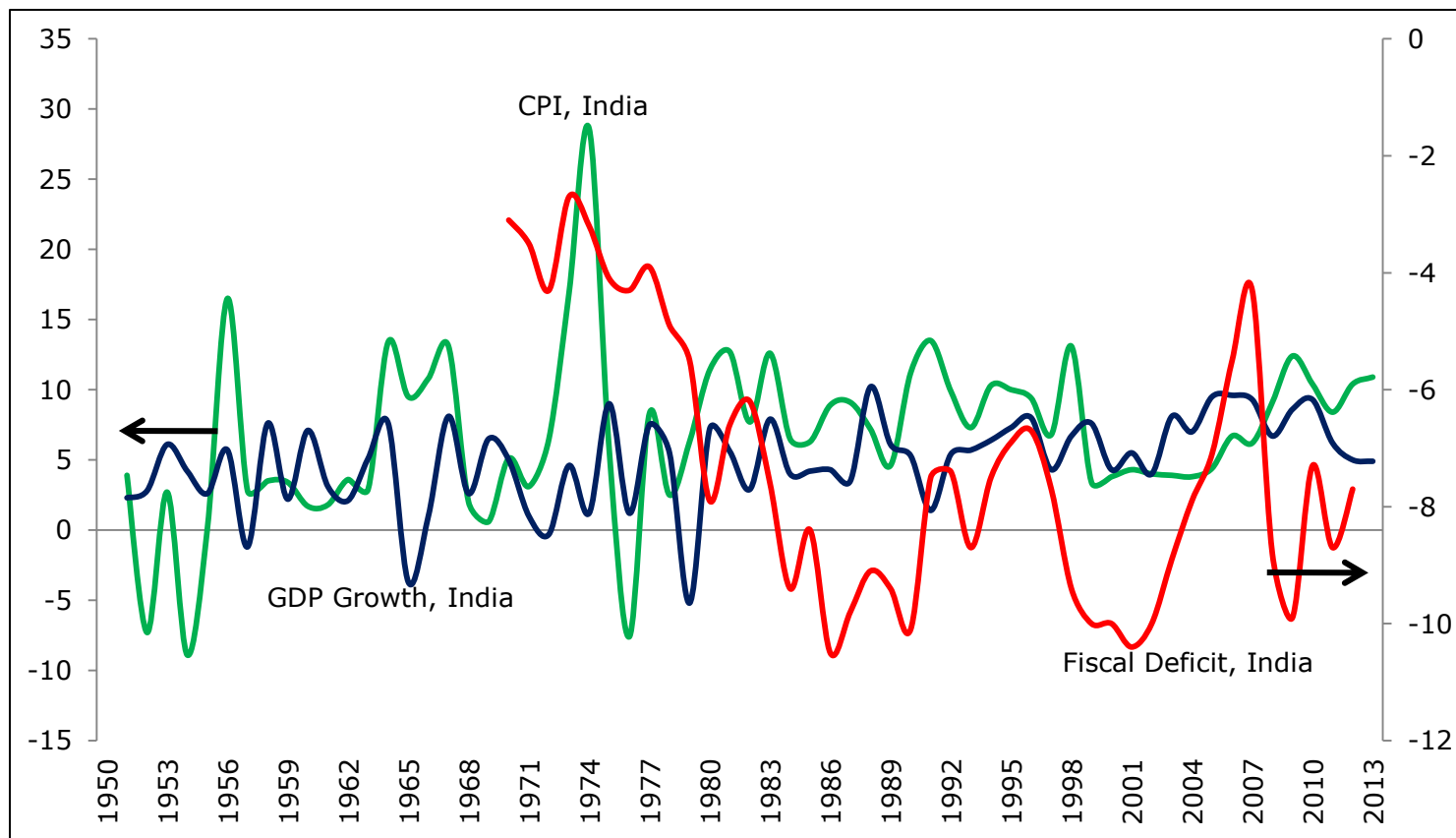
# Inflation: India Vs Developing Countries



# Inflation (CPI) and Fiscal Deficit of India



# GDP growth, inflation and fiscal deficit of India





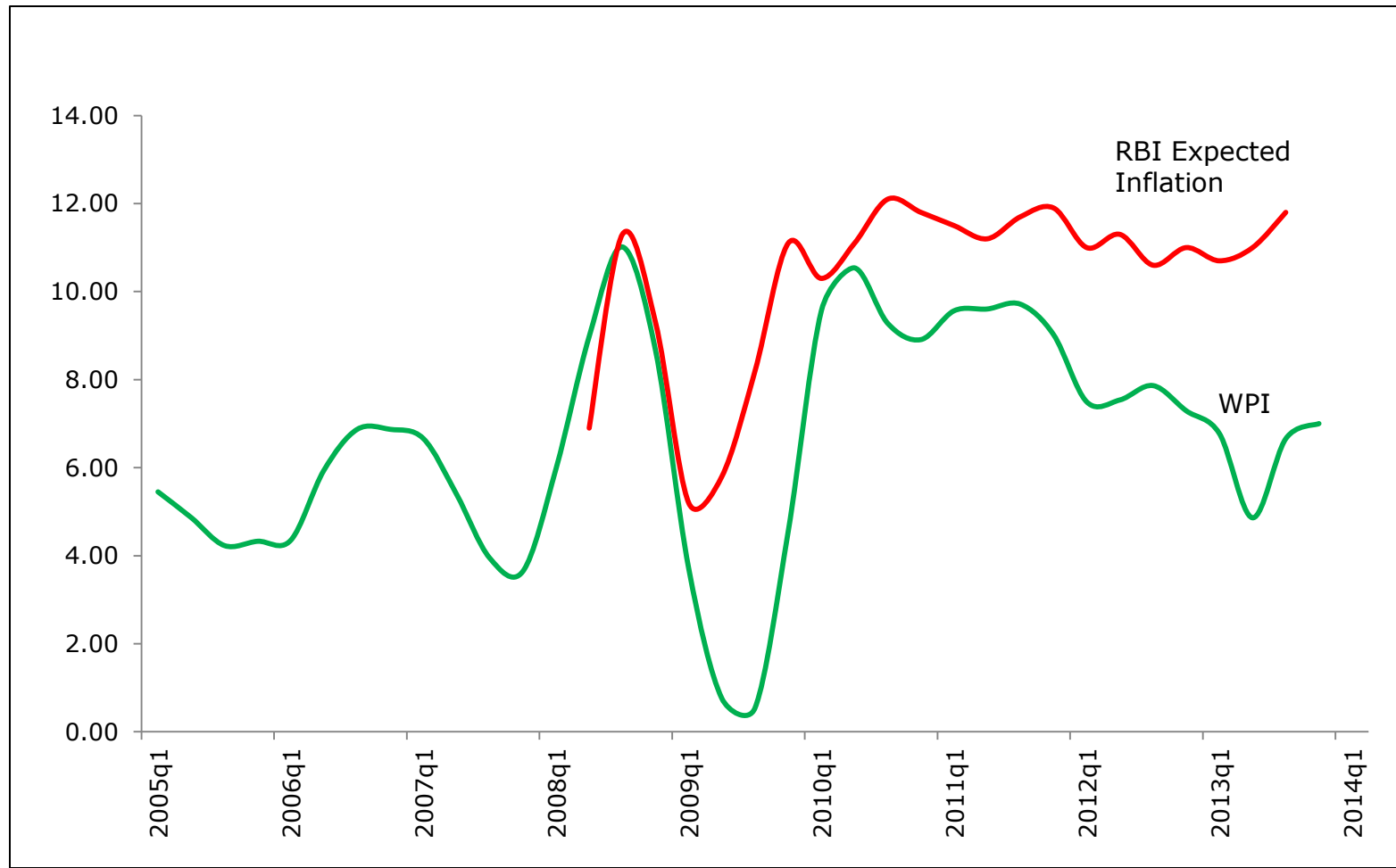
# RBI Inflation Expectations: Explained by What?

RBI Inflation Expectations: Random Noise?

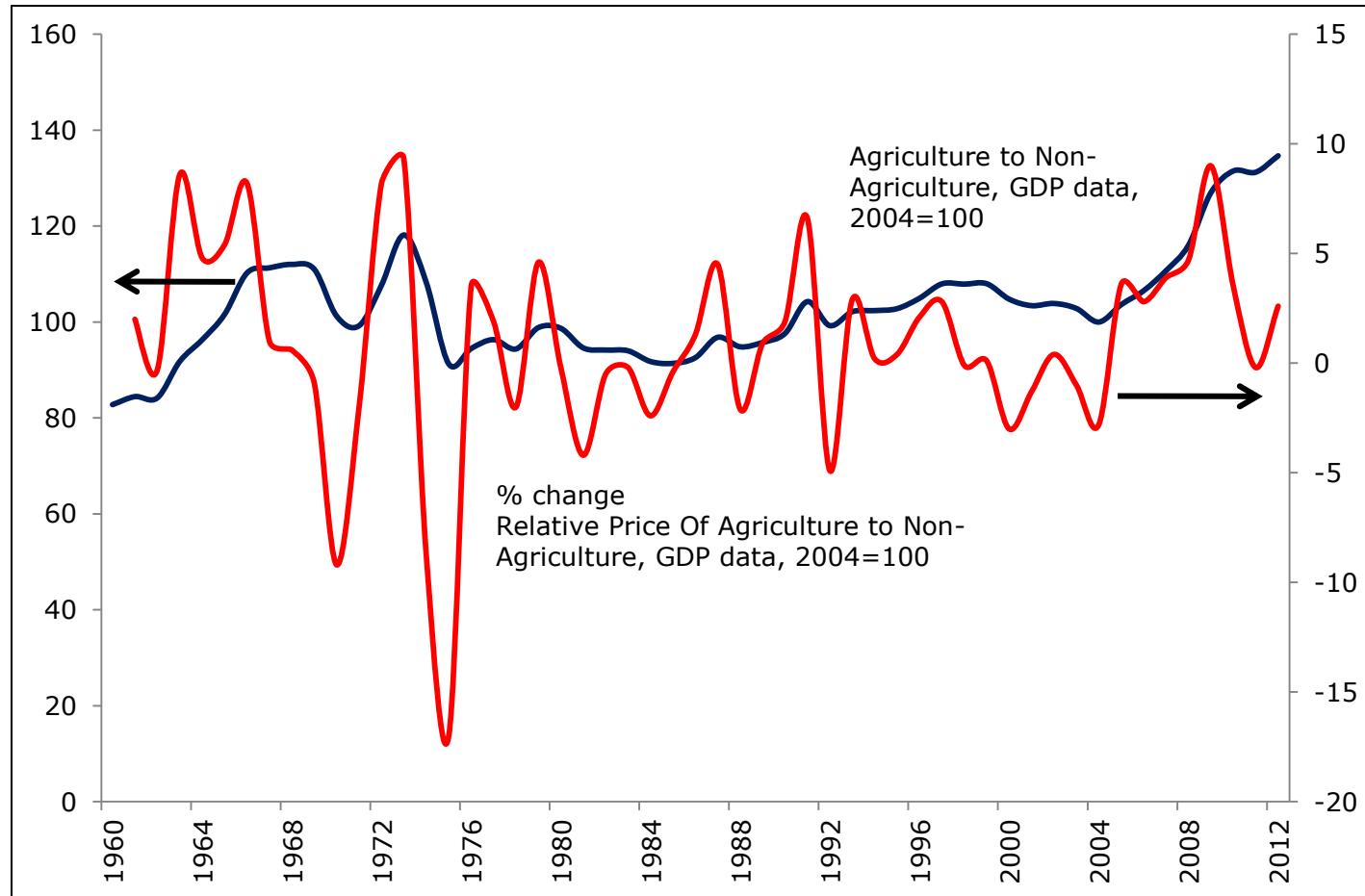
Variable	Expected Inflation	
	Annual	Quarter
Annual WPI	0.37***	
Annual CPI	0.06	
Quarter WPI (seasonally adjusted)		0.14*
Quarter CPI (seasonally adjusted)		-0.31***
R <sup>2</sup>	0.29	0.31
Number of Observations	22	22

\* p<0.1; \*\* p<0.05; \*\*\* p<0.01

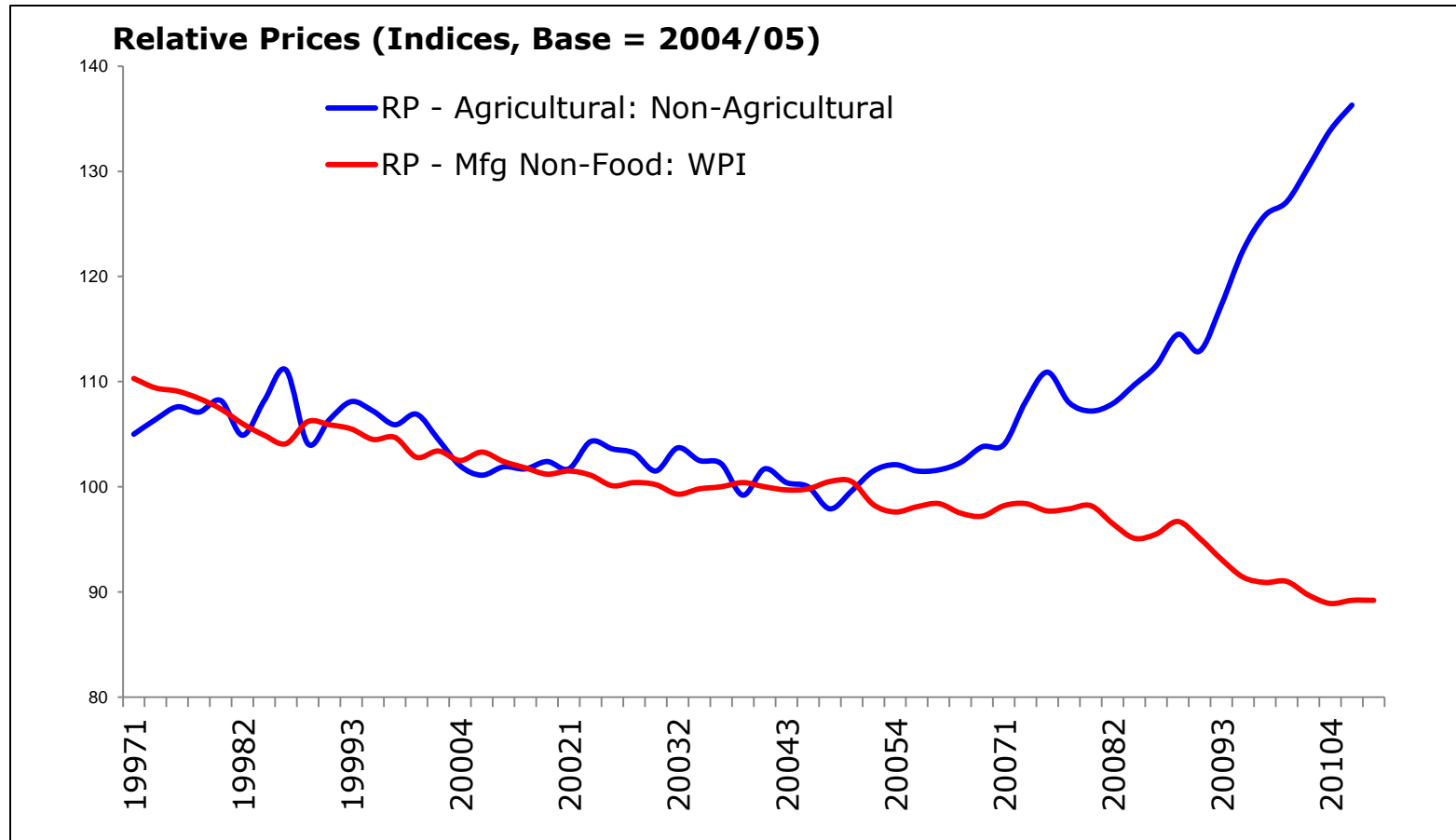
# RBI expected Inflation and current WPI – Related till 2013



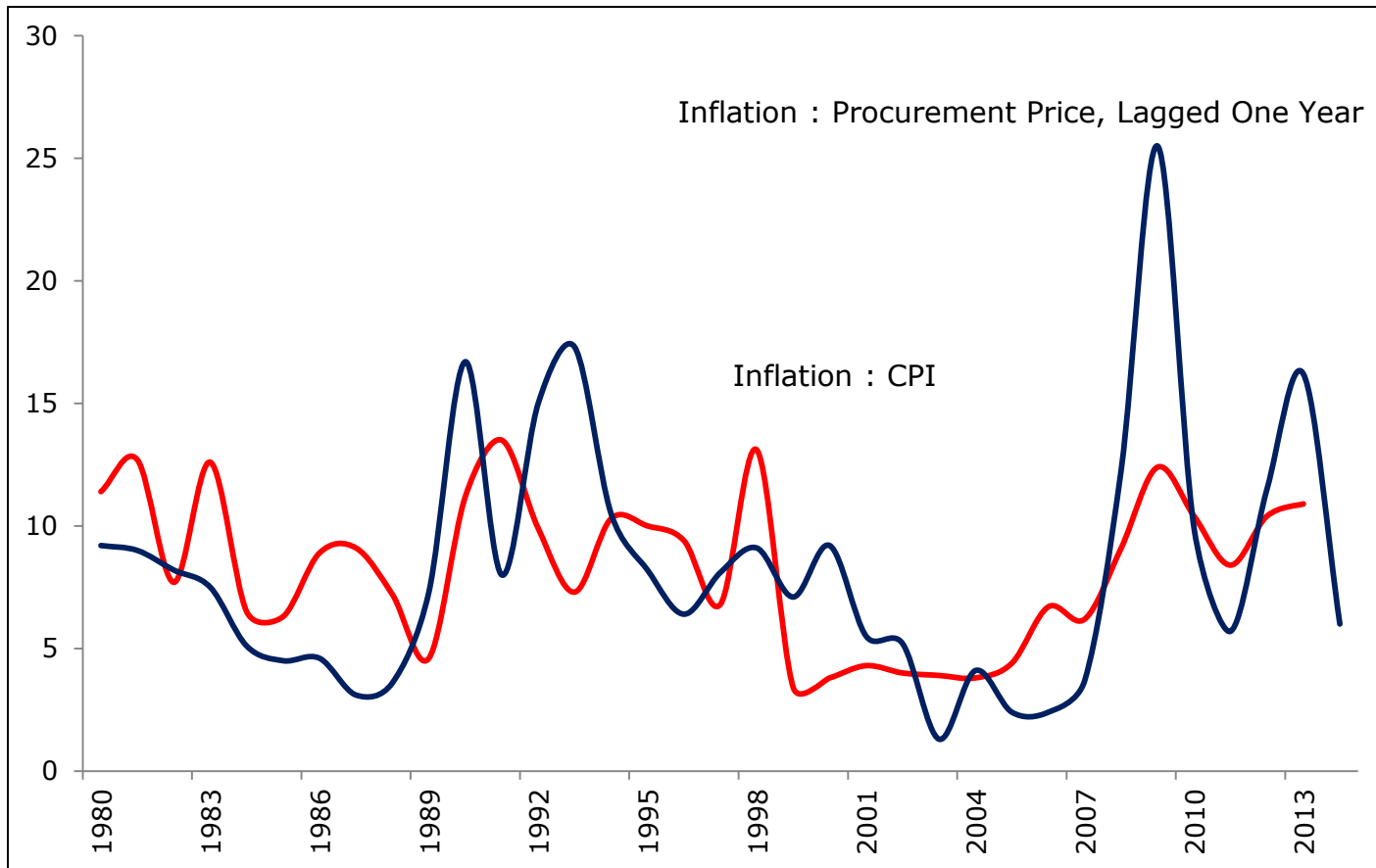
# UPA social engineering: Terms of trade: Agriculture to Non- Agriculture Prices



# Relative Price of Food: Up, Up and Away



# CPI And Procurement Prices



# Models of CPI inflation: Significance of Lagged Procurement Prices

CPI Inflation: Role of Procurement Prices

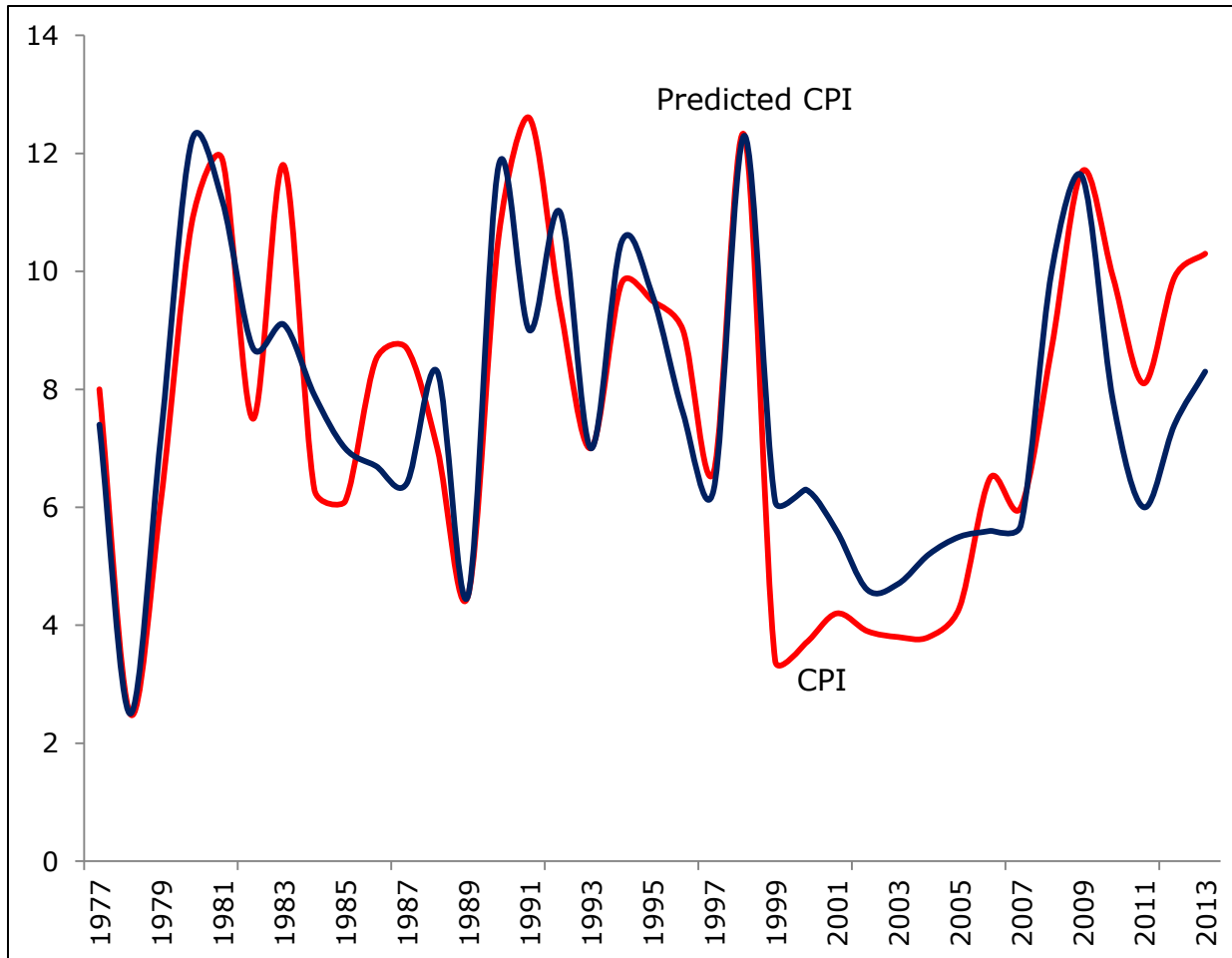
Variable	Model					
	<i>Dependent Variable: CPI Inflation</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
Government Deficit	0.12	0.28				
Lagged Government Deficit			0.14	-0.23	0.02	-0.15
GDP Growth			0.08	0.26**	-0.17	-0.11
Lagged Index of Procurement Prices			0.33***	0.33***		
Median Inflation in Developing Countries				0.63***	0.56***	0.67***
Lagged Relative Price of Food					0.73***	0.74***
Lagged Rural Wages						0.07
R <sup>2</sup>	0.00	0.02	0.28	0.71	0.76	0.773
Number of observations	44	21	37	37	43	41

\* p<0.1; \*\* p<0.05; \*\*\* p<0.01

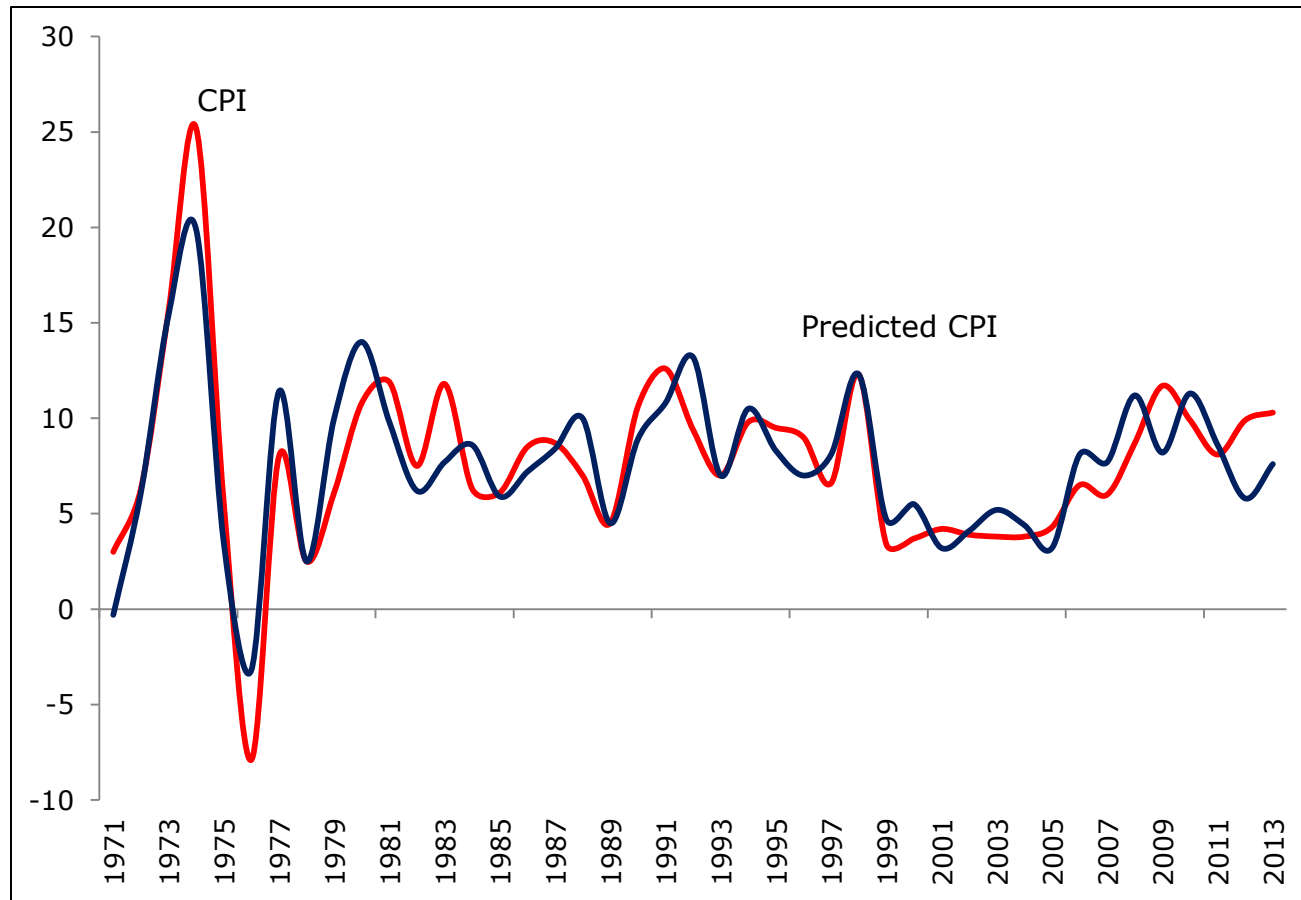
Note: 1. Model 2 is for the period 1993-2013.

2. In models 4, 5 and 6, dummies are included for the years - 1978, 1989, 1993, 1998.

# Actual and Forecast CPI inflation: Model 1



# Actual and Forecast CPI inflation: Model 2





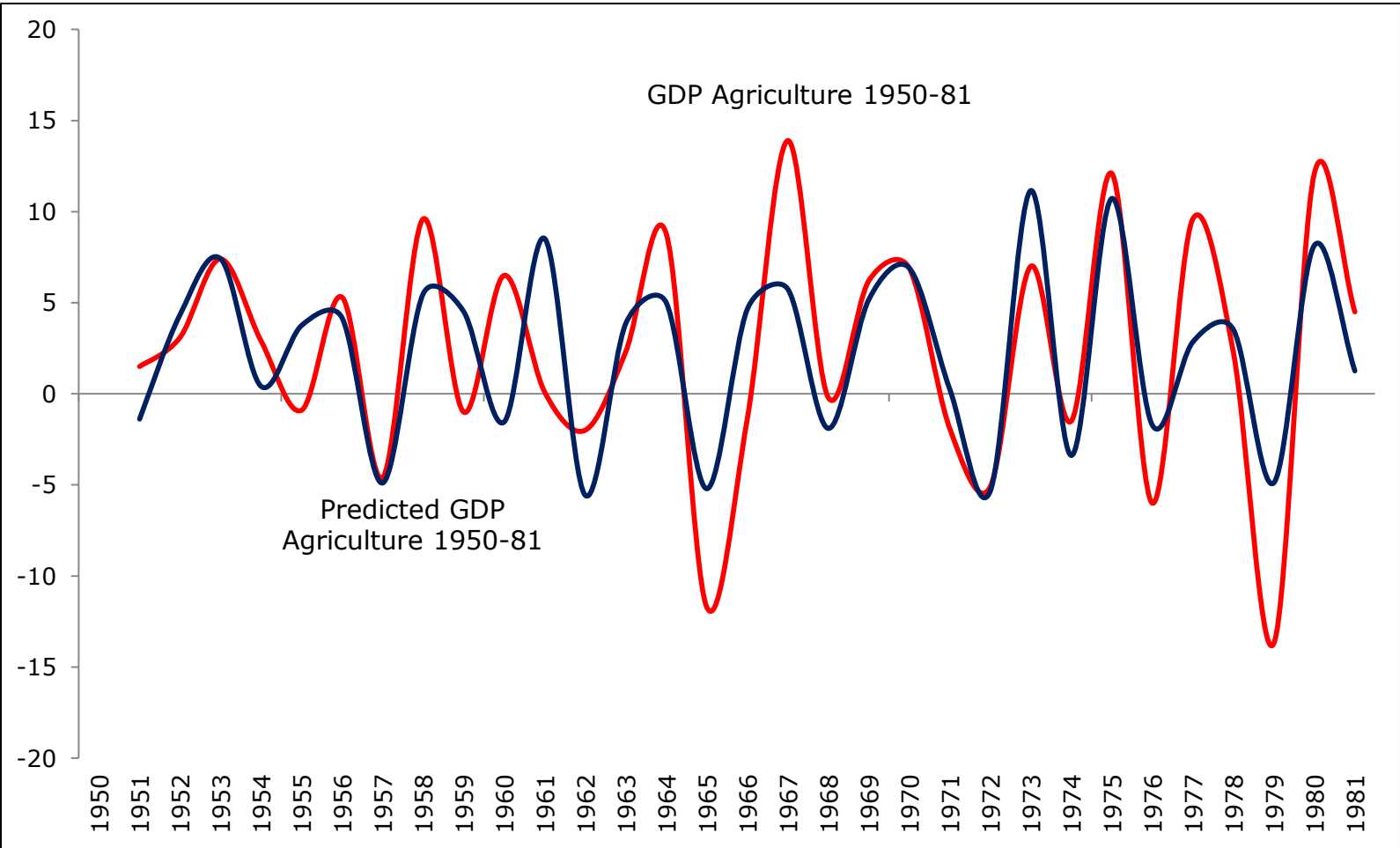
# Agricultural Growth: Role of Rainfall

Agricultural Output Growth: Rainfall

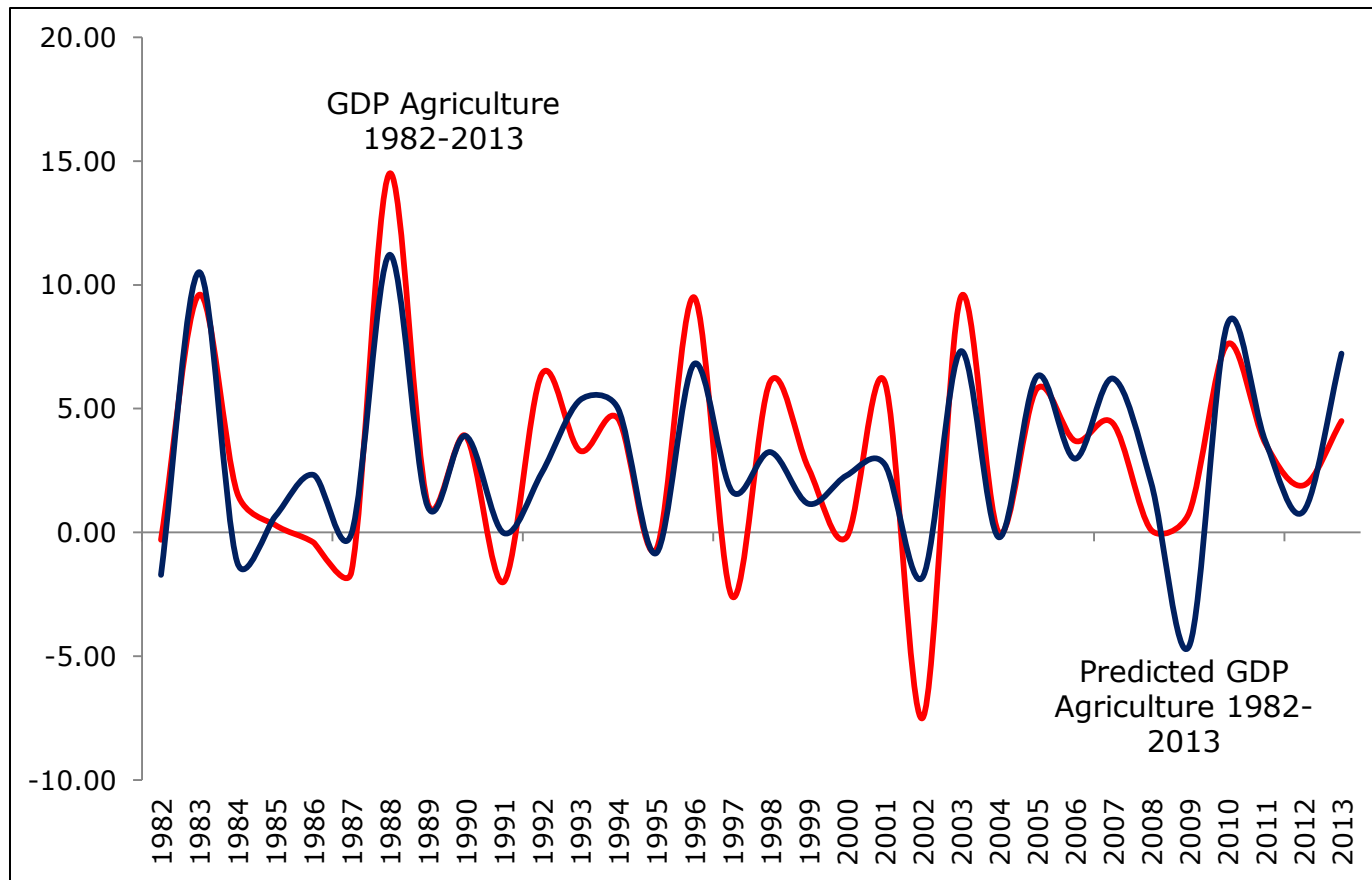
Variable	Model		
	<i>Dependent Variable: Growth in Agricultural Output</i>		
	1950 - 2013	1950 - 1981	1983 - 2013
Rainfall Index (June - September)	11.02***	11.13***	11.24***
Lagged Rainfall Index (June - September)	-10.88***	-12.35***	-8.88***
Constant	2.62***	2.33***	2.97***
R <sup>2</sup>	0.58	0.55	0.68
Number of observations	63	31	31

\* p<0.1; \*\* p<0.05; \*\*\* p<0.01

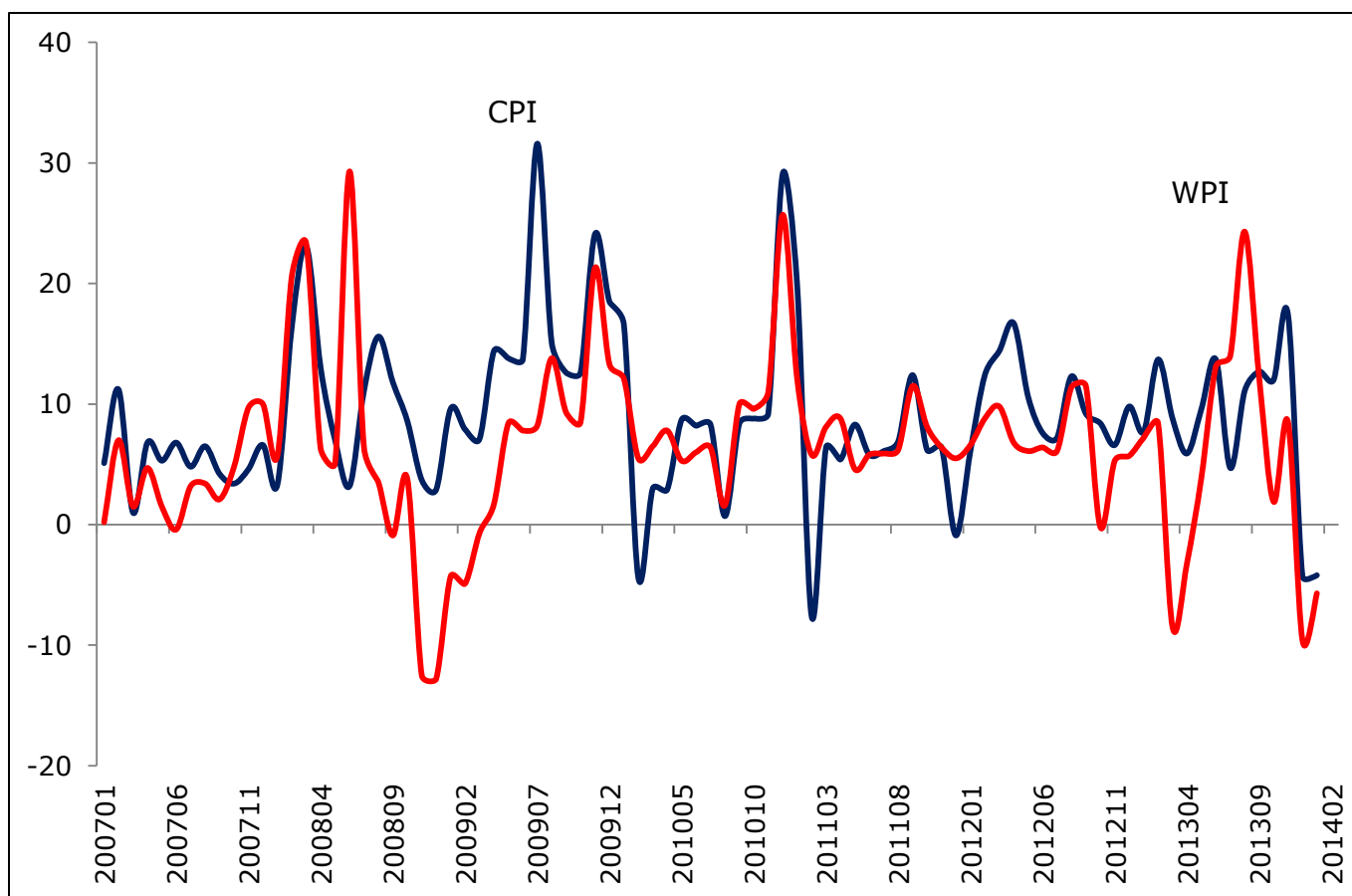
# Agricultural Growth explained by Rainfall, 1950-81



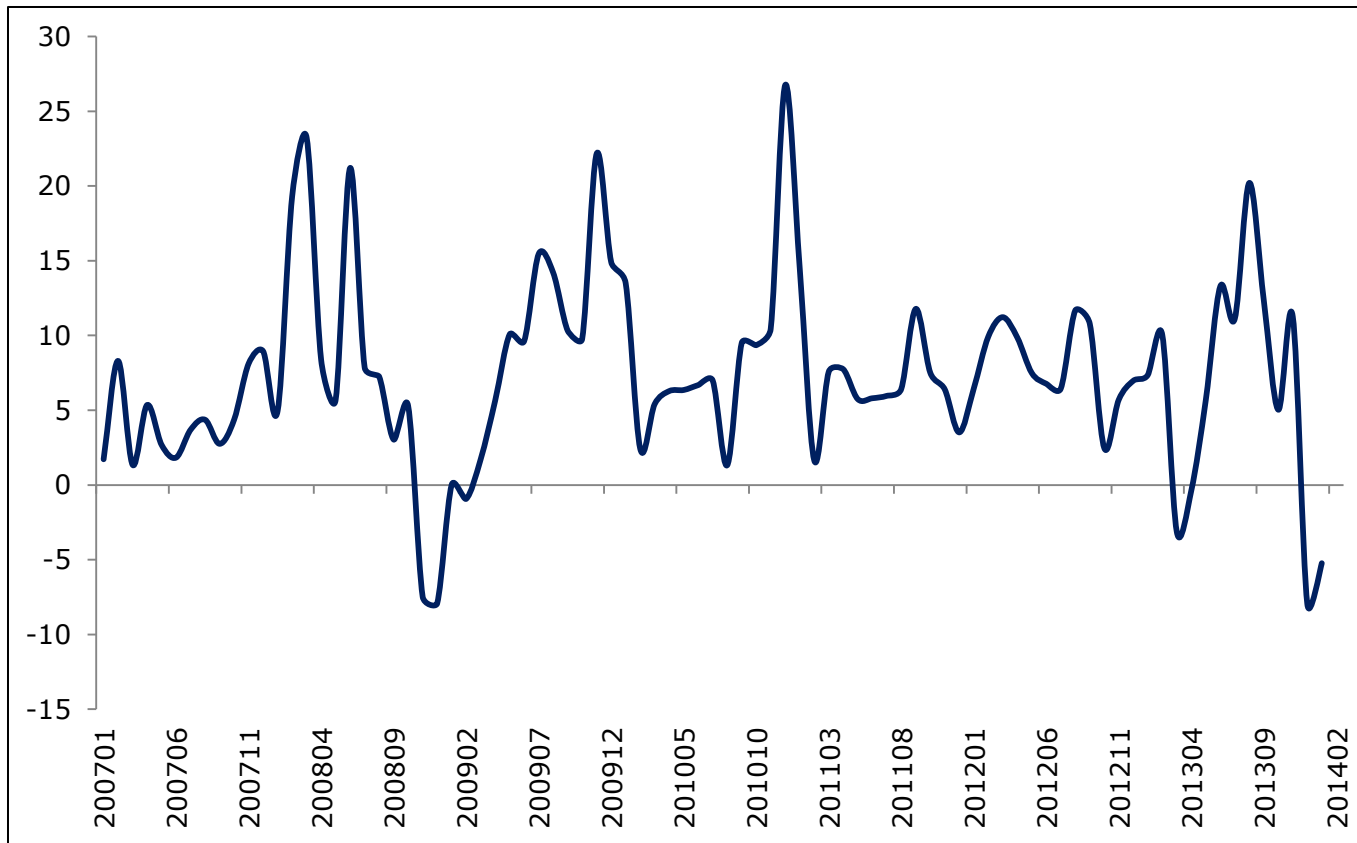
# Agricultural Growth explained by Rainfall, 1983-2013



## Impending Decline in Inflation: CPI and WPI: Monthly (saar) 2007-2014



# Impending decline in Inflation: "Predicted" GDP Deflator



Thank You