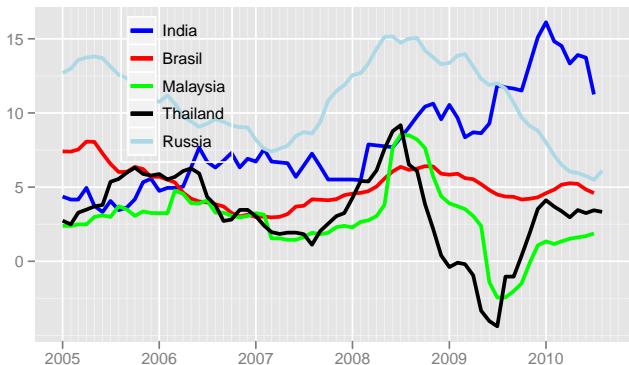
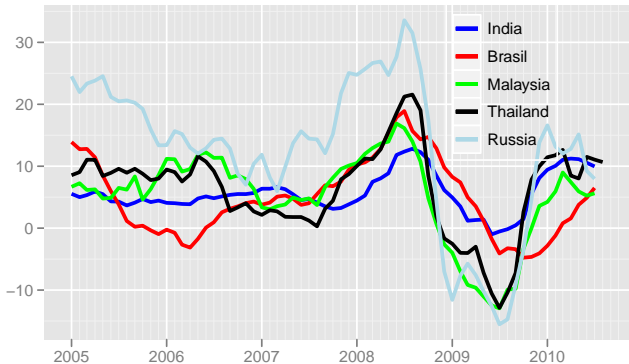


CPI growth in emerging markets



PPI/WPI growth in emerging markets



1 Is India different?

2 Current trends

- WPI
- CPI
- What about services prices?
- Expectations

3 Measurement

- Multiple (weak) indicators
- Which target population?
- Outdated expenditure baskets
- A look into food

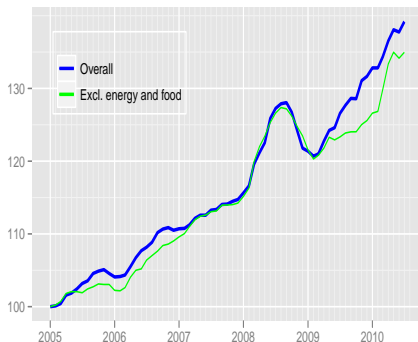
4 Policy implications

- A temporary phenomenon?
- Anchoring expectations
- Investing in the statistical infrastructure

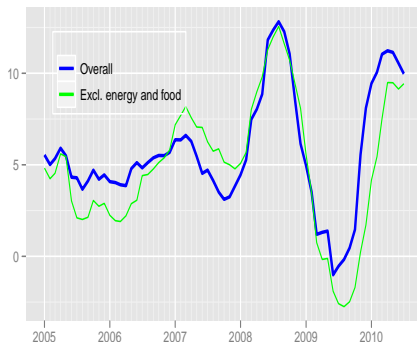
5 Conclusions

WPI: overall and excluding energy and food

Levels (Jan. 2005=100)

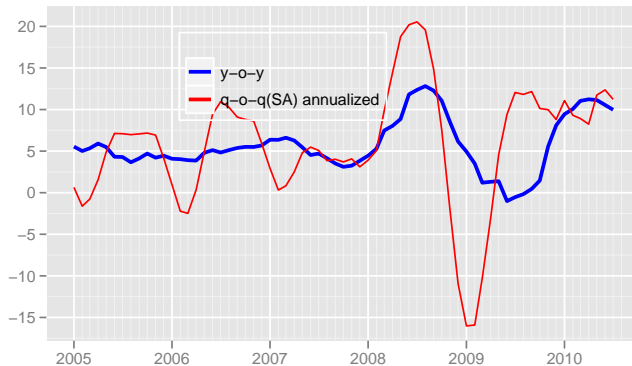


Growth rates (y-o-y)

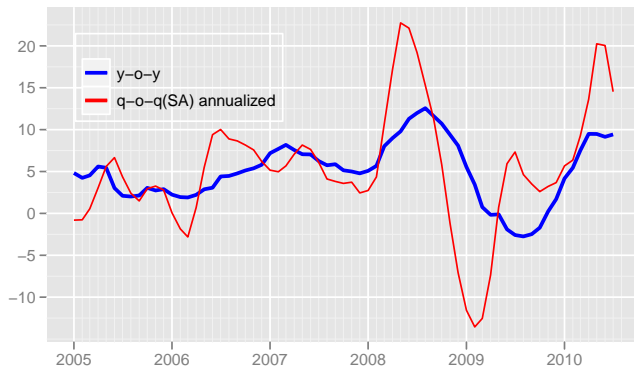


- From the graph of the levels: there is little or no seasonality
- y-o-y is probably too much. We are lagging the signal
- We can look at shorter run dynamics, e.g. growth of Jan-Mar. 2010 over Oct-Dec. 2009
- q-o-q growth rate at an annual rate (in scale with y-o-y) leads by approx 1.5 quarters the y-o-y

WPI short run dynamics: q-o-q at an annual rate

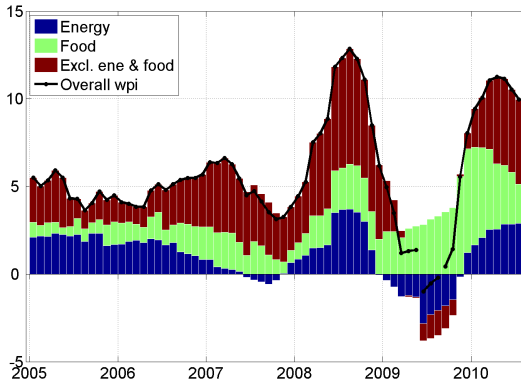


Excl. energy and food: q-o-q at an annual rate



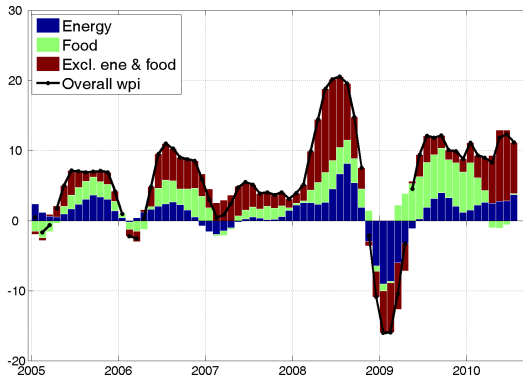
WPI

The (yoy) story behind these WPI numbers



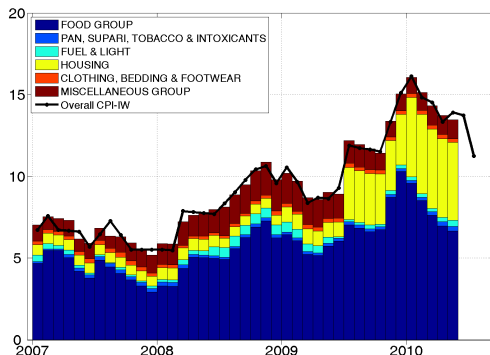
WPI

Shorter run story behind the same WPI numbers



The yoy story behind the CPI numbers

Using the officially available breakdown

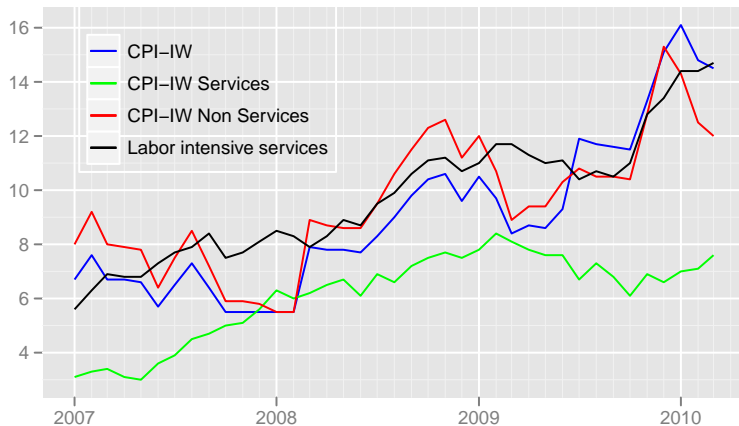


Not only food, but also housing: (VI^{th} Pay Commission)

What about services prices?

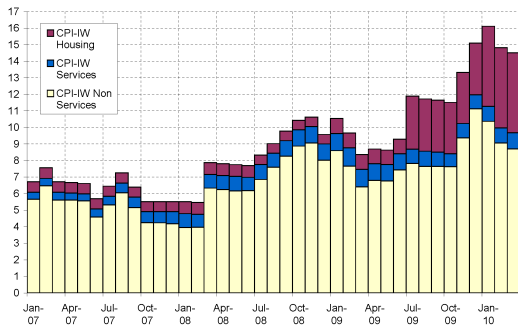
The yoy of CPI-IW

Using a more interesting breakdown:



What about services prices?

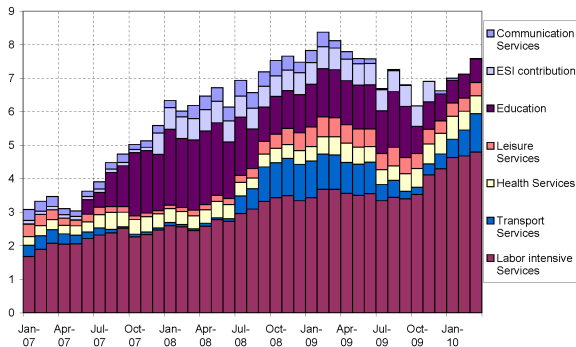
The yoy story behind the CPI numbers



Not only food, but also housing, services weight is small.

What about services prices?

Focus on services in CPI-IW

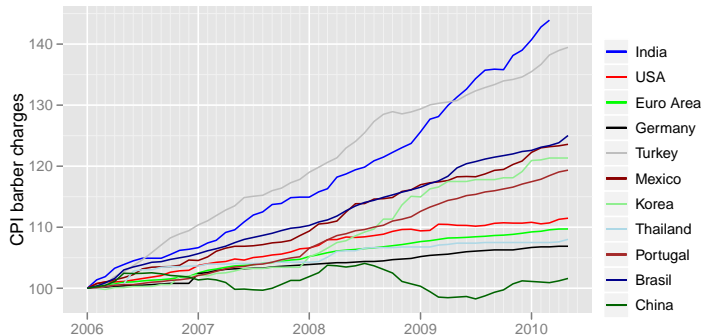


Labor intensive services are the key driver of this subgroup.

What about services prices?

Labor intensive services

Barber prices: good proxy for wage dynamics in the informal economy?



Do they respond to food developments? What is the a link?

Little information on π expectations

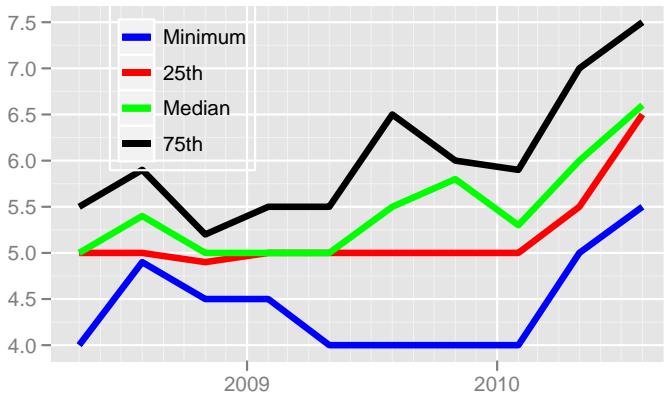
- π linked bonds allow to infer $\pi^e = RY_{nominal} - RY_{real}$
not available in India.
- Consensus Forecasts: long history and many questions
- RBI survey of professional forecasters
(micro data not available)
- Survey data: RBI first released survey of inflation
expectations among consumer in April 2010
Very high inflation expectations numbers

Consensus Forecasts

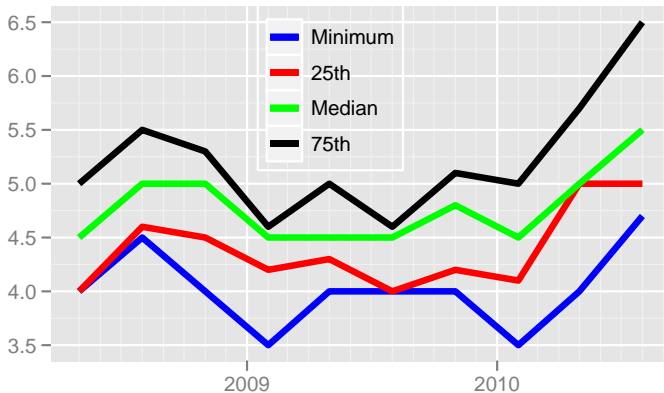
Look at inflation expected, in april of each year, for the **next** fiscal year. It is a fully out of sample forecast, no impact from today's observed level of P_t

survey in	Reference year	CPI-IW			WPI		
		Mean	High	Low	Mean	High	Low
Apr-00	2001/02	6.2	8.0	4.4	6.0	8.0	4.8
Apr-01	2002/03	4.9	5.9	3.7	5.5	7.0	4.2
Apr-02	2003/04	4.6	6.5	2.5	4.1	5.5	2.0
Apr-03	2004/05	5.0	6.2	3.0	4.7	6.0	3.6
Apr-04	2005/06	4.6	5.5	3.5	4.9	6.5	3.7
Apr-05	2006/07	5.0	5.5	4.5	5.6	6.0	5.0
Apr-06	2007/08	4.6	5.5	4.2	5.1	5.6	4.8
Apr-07	2008/09	5.4	8.5	4.3	4.9	6.1	4.0
Apr-08	2009/10	5.4	6.9	4.5	4.6	6.0	3.5
Apr-09	2010/11	5.2	6.6	3.9	4.7	6.0	2.8
Apr-10	2011/12	6.1	8.0	4.5	5.6	7.3	4.0

SPF from RBI: 10 years ahead CPI inflation



SPF from RBI: 10 years ahead WPI inflation



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Inflation indicators

Many indicators in every country

Distribution stage	India	USA	UK	Italy
Importer	na	Import price index	PPI-imp	PPI-imp
Exporter	na	Export price index	PPI-exp	PPI-exp
Producer	na	PPI	PPI	CPI-NIC
Wholesaler	WPI	na	na	na
	CPI-IW	CPI-W	RPI	CPI-FOI
Retailer	CPI-AL	CPI-U	CPI	HICP
	CPI-RW	C-CPI-U		
Deflator	PCEPI	PCEPI	PCEPI	PCEPI

India actually lacks some

Multiple (weak) indicators

The price indices in India: a comparison

	CPI-IW	CPI-AW	CPI-RW	CPI-UNME	WPI
Source	Bureau of Labor	Bureau of Labor	Bureau of Labor	Central Statistical Office	Ministry of Commerce and Industry
Base	2001=100	1986/87=100	1986/87=100	1984/85=100	1993/94=100
Data collection	monthly and weekly	monthly and weekly	monthly and weekly	monthly and weekly	monthly and weekly (food)
Frequency of published data	monthly	monthly	monthly	monthly	monthly and weekly (food)
Publication delay (weeks)	4	3	3	2	2
# elementary items	310	260	260	146-345	435/1918
% food products	48.5	69.15	66.77	45.67	26.9
% energy	7.43	8.35	7.9	5.5	14.2
% services	12.18	7.04	7.09	NA	0
Target population	70% non agric. workers	agricultural workers	rural workers	urban non manual employees	Gross output value and market surplus ratio
Underlying consumer survey	Working Class Family Income and Expenditure Survey 1999/2000	National Sample Survey Organisation 1983	National Sample Survey Organisation 1983	Middle class family living survey 1982/83	IIP and agriculture production survey
Geographical coverage and data collection	78 urban centers	600 rural villages	600 rural villages	59 urban centers	Centralized collection

Deficiency in price measurement

Well known issue among policy makers and applied economists:

- poverty line estimation: Deaton and Tarozzi (2006)
- monetary policy: unlike in other countries disregard CPIs and rather focus on WPI

Lacunae related to:

- target population
- distribution of weights
- prices

Which target population?

whose prices?

- Difficult to address aggregation into an All-India CPI from existing indices (hope lies in the future)
- current WPI is far from being easily referred to a well defined population:
new one being released. Will see.

The WPI, 1993/94=100

Primary Food Article	15.40
Non-Food Articles	6.10
Minerals	0.50
Food manufactured products	11.50
Beverages, Tobacco and Tobbaco products	1.30
Textiles	9.80
Wood and wood products	0.20
Paper and paper products	2.00
Leather and Leather products	1.00
Rubber and Plastic products	2.40
Chemicals and Chemical products	11.90
Non-metallic mineral products	2.50
Basic metals alloys and metal products	8.30
Machinery and Machinery tools	8.40
Transport, equipment and parts	4.30
Fuel, power and lubricant products	14.20
Food	26.90
Energy	14.20
Excluding food and energy	58.80

Since then dramatic changes occurred in the economy

Not clear how weights were derived, and how to interpret them

towards a new WPI index: 2004/05=100

	weights: 2004-05	weights: 1993-94
I. Primary articles	20.1	22.0
(A) Food Articles	14.3	15.4
(B) Non-Food Articles	4.3	6.1
(C) Minerals	1.5	0.5
II. Fuel & power	14.9	14.2
(A) Coal	2.1	1.8
(B) Mineral Oils	9.4	7.0
(C) Electricity	3.5	5.5
III. Manufactured products	65.0	63.7
(A) Food Products	10.0	11.5
(B) Beverages, Tobacco	1.8	1.3
(C) Textiles	7.3	9.8
(D) Wood & Wood Products	0.6	0.2
(E) Paper & Paper Products	2.0	2.0
(F) Leather & Leather Products	0.8	1.0
(G) Rubber & Plastic Products	3.0	2.4
(H) Chemicals & Chemical Products	12.0	11.9
(I) Non-Metallic Mineral Products	2.6	2.5
(J) Basic Metals, Alloys & Metal products	10.7	8.3
(K) Machinery & Machine Tools	8.9	8.4
(L) Transport, Equipment & Parts	5.2	4.3

- food weight in WPI, down to 24% from 26.9%
- but agriculture share in GDP \approx 15%, from $> 25\%$ in 1993
- How should we then read the WPI?

Is India's inflation a serious problem?

A look into food

Food weights

Expenditure shares according to NSSO rounds

NSSO round	43rd	50th	55th	61st	62nd	63rd
Rural population	1981/82	1986/87	1991/92	1996/97	2001/02	2006/07
cereals	26.1	23.8	22.2	17.4	17.0	16.5
gram	0.2	0.2	0.1	0.1	0.2	0.2
cereal substitutes	0.1	0.1	0.1	0.1	0.1	0.1
pulses & their products	4.0	3.7	3.8	3.0	3.2	3.3
milk & milk products	8.6	9.3	8.8	8.2	8.2	8.1
edible oil	5.0	4.4	3.7	4.4	4.1	3.9
egg, fish & meat	3.2	3.3	3.3	3.2	3.9	3.5
vegetables	5.2	5.9	6.2	5.9	6.1	6.2
fruits & nuts	1.6	1.7	1.7	1.8	1.9	1.8
sugar	2.9	3.0	2.4	2.3	2.4	2.0
salt & spices	2.9	2.6	3.0	2.4	2.1	2.3
beverages etc.	3.9	4.1	4.2	4.4	4.2	4.4
food total	63.8	62.1	59.4	53.1	53.3	52.3
pan,tobacco & intoxicants	3.2	3.1	2.9	2.6	2.5	2.5
fuel & light	7.4	7.2	7.5	9.8	9.7	9.5
clothing	6.7	7.4	6.8	6.7	6.3	6.1
footwear	1.0	1.0	1.1	1.0	1.0	0.9
misc. goods & services	14.4	16.8	19.6	23.0	23.7	24.9
durable goods	3.6	2.3	2.6	3.8	3.5	3.8
non-food total	36.2	37.9	40.6	46.9	46.7	47.7

UNSSO round	43rd	50th	55th	61st	62nd	63rd
Urban population	1981/82	1986/87	1991/92	1996/97	2001/02	2006/07
cereals	14.8	13.8	12.3	9.6	9.4	9.1
gram	0.2	0.2	0.1	0.1	0.1	0.1
cereal substitutes	0.1	0.1	0.0	0.0	0.0	0.0
pulses & their products	3.4	3.0	2.8	2.0	2.2	2.3
milk & milk products	9.5	9.7	8.7	7.5	7.3	7.4
edible oil	5.3	4.3	3.1	3.3	3.0	2.9
egg, fish & meat	3.5	3.3	3.1	2.6	2.8	2.6
vegetables	5.2	5.4	5.1	4.2	4.2	4.3
fruits & nuts	2.5	2.6	2.4	2.1	2.2	2.1
sugar	2.3	2.3	1.6	1.4	1.5	1.3
salt & spices	2.3	2.0	2.2	1.6	1.5	1.6
beverages etc.	6.7	7.1	6.3	5.9	5.8	5.7
food total	55.9	53.9	48.1	40.5	40.0	39.4
pan,tobacco & intoxicants	2.6	2.3	1.9	1.5	1.5	1.4
fuel & light	6.7	6.5	7.8	9.5	9.4	8.9
clothing	6.0	7.0	6.1	5.6	5.4	5.4
footwea	1.1	1.2	1.2	1.0	1.0	1.0
misc. goods & services	23.5	26.4	31.5	37.6	38.7	39.4
durable goods	4.2	2.6	3.6	4.3	4.0	4.5
non-food total	44.1	46.1	51.9	59.5	60.0	60.6

Still very large weight. Have things changed more recently?
Look at CMIE pyramid dataset which provides evidence
orthogonal to NSSO

A look into food

Food in CPI-IW and CMIE household survey

CPI-IW		CMIE- Sep 2009, all India	
Food	shares in food	shares in food	Label
Cereals & Pulses	29.4	29.2	Cereals & Pulses
Edible Oils	7.3	7.0	Oils and Fats
Spices etc.	3.7	5.5	Condiments and spices
Potatoes & onions	5.8	1.56	Potato and onions
Vegetables & Fruits	14.4	13.1	Vegetables and fruit
Milk	13.2	13.9	Milk various kinds
Milk Products	2.5	1.9	other milk products
Biscuit	1.3	1.02	Biscuit
Salty Snacks	1.1	1.65	Snack-Saltish
Noodles/flakes	0.4	0	NA
Confectionery	0.4	0.95	Snack-Sweet
Juices/jams	0.6	0.13	Cold drink/Aerated Water
Health supplements	0.8	0	NA
Meat/Eggs/Fish	8.1	8.6	Meat, Fish and Eggs
Ready to Eat Food	1.8	0	NA
Tea	2.3	6.2	Tea
Coffee	0.2	0.3	Coffee Powder
Sugar, Gur etc.	4.5	3.3	Sugar and Gur
Beverages (Soft drinks)	0.6	0.1	Green Coconut
Bottled Water	0.1	0.13	Cold drink/Aerated Water
Other food	1.4	1.73	Other food

Not too dissimilar distribution *within* food categories, but substitution may have occurred at

Conclusions

Ila Patnaik, Ajay Shah, Giovanni Veronese

Is India's inflation a serious problem?

looking elsewhere for food prices

We investigate developments in top “inflation culprits”, using data from multiple sources:

- Ministry of Agriculture prices (retail and wholesale). The latter underlie WPI.
- NCDEX commodity prices
- Labour Bureau (LB): price level data underlying the CPI-IW
- MSP prices

Intensive cleaning of the raw data of the price levels needed to obtain “reasonable” price series

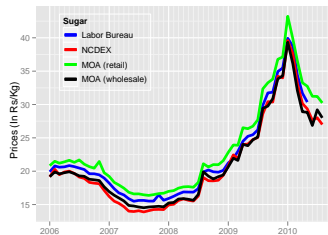
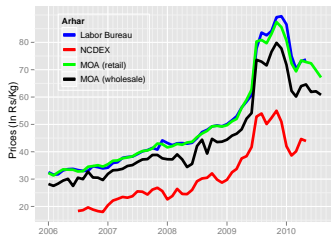
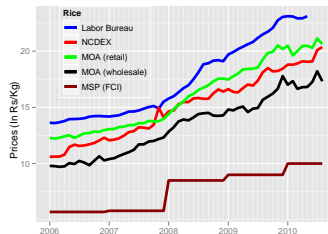
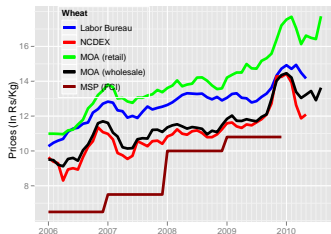
- Substantial geographical heterogeneity in price levels
- Some discrepancies in price levels across sources
- Problems of non response, outliers in MoA and LB data: needs to be addressed
- NCDEX provides high quality leading information on agricultural prices

Also,

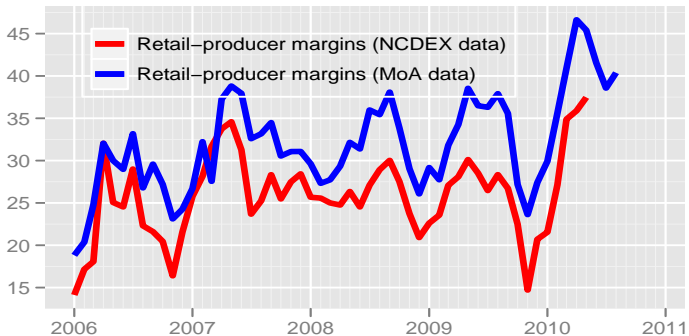
- Compare official dynamics in WPI and CPI for these items
- Investigate behavior of *retail-producer margins*

A look into food

Looking at price levels from many sources



Evidence of hoarders/speculators



Margins = $100 * \left(\frac{\text{Price}_{\text{consumer}}}{\text{Price}_{\text{producer}}} - 1 \right)$ What series you use matters, but no evidence of an “abnormal” behavior

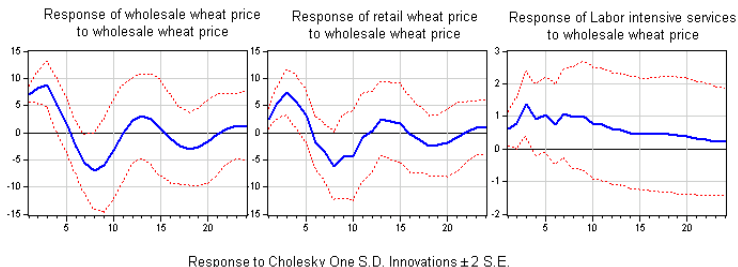
From RBI Macroeconomic and Monetary Developments, Jul 26, 2010

Wage revisions to offset the impact of inflation on purchasing power, and use of higher mark ups with return of pricing power of firms, could strengthen the interactions between inflation expectations and actual inflation. This suggests a need to continue the process of normalisation of monetary policy to anchor inflation expectations.

On balance, keeping in view domestic demand-supply balance and the global trend in commodity prices, the baseline projection for WPI inflation for March 2011 is placed at 5.5 per cent. ... We expect four major outcomes from the above policy action: i) Inflation will be contained and inflationary expectations will be anchored.... from RBI Annual policy statement for the year 2010-11, press statement 20 April 2010

Wages and food price inflation

A first look into the food-wages nexus



The future looks brighter: we are hopeful

- New WPI: 2004/05 will be released today
- New CPI: sometimes soon
- More coordinated effort by the statistical agencies

