Preliminary;
Comments
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Food Inflation: The Role of Monetary Policy in India

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The views expressed are those of the authors and do not represent those of the IMF or IMF policy.

Plan of presentation

A.   The importance of food inflation in India
- Motivation
- Related literature
- Why India differs ?
- How important are second-round effects in India?

B. Implications for monetary policy
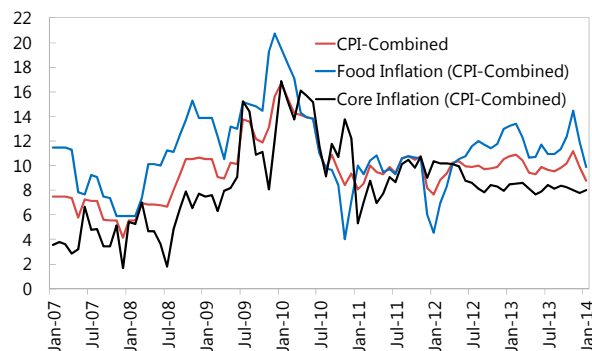- Modeling framework
- Key results

C. Conclusions and policy implications

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A. The importance of food inflation in India

Motivation: Food inflation is important

- The share of food in the household expenditure is high
- Inflation expectations are anchored by food inflation
- Inflation expectations feed into wages

Inflation
(In percent, yoy)

Sources: CEIC and IMF staff calculations.

Food Inflation, Inflation Expectations, and Wage Growth
(In percent, yoy)

Sources: CEIC and IMF staff calculations.

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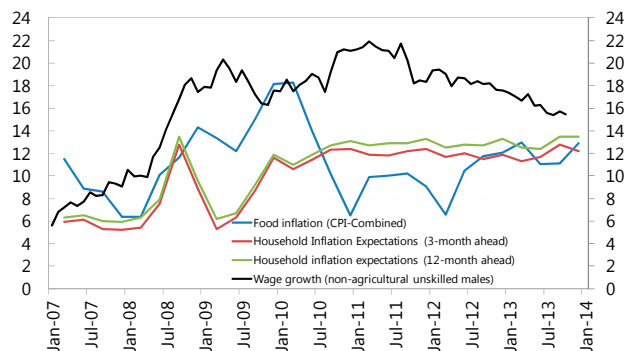
Relevant theoretical background

- Food prices:
  - Transitory and volatile
  - Supply side and non-monetary in nature

- Theoretical Basis
  - Goodfriend and King (1997)
  - Aoki (2001)

  - Major assumption: markets are complete – only aggregate shocks matter

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However, emerging market economies, including India, are different

- Food inflation is more persistent than non-food inflation in EMs and propagate strongly into non-food inflation(Walsh, 2011)

- Food inflation in India has demand component

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Why India differs?

- On theoretical grounds:
  - Markets are far from complete – consumers are credit-constrained
  - Idiosyncratic shocks matter for consumption choice
  - Income and expenditure of households depend on
    - Composition of household expenditure
    - Price elasticity of demand for goods

  - Share of food in households' consumption basket is large, and elasticity of substitution for food is low

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High share of expenditure on food in household expenditure in EMs

Emerging Markets		Advanced Economies	
Indonesia	53.0	Japan	14.7
Vietnam	49.8	Germany	11.5
India	48.8	Australia	10.8
China	36.7	Canada	9.3
Russia	33.2	United Kingdom	8.8
Malaysia	28.0	USA	5.7
Average	**41.6**	**Average**	**10.1**

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Share of population with access to formal finance

Emerging Markets	Percent with access	Advanced Economies	Percent with access
Argentina	28	Belgium	97
Brazil	43	Canada	96
Chile	60	Denmark	99
China	42	France	96
Egypt	41	Germany	97
India	48	Italy	75
Indonesia	40	Netherlands	100
Iran	31	Spain	95
Korea	63	Sweden	99
Malaysia	60	Switzerland	88
Mexico	25	United Kingdom	91
South Africa	46	United States	91
Average	44	Average	94

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Implications for emerging market economies:

- High persistence: ignoring them may lead to misspecification of inflation and result in policy mistakes (Walsh, 2011)

- Financial frictions, large share of food in households' consumption basket, low elasticity of substitution: Monetary policy can't ignore food price inflation if it aims at maximizing welfare (Anand and Prasad, 2010)

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How important are second-round effects in India?

Following Cecchetti and Moessner (2008) and Clark (2001) we focus on two questions:

1) Does headline inflation revert to core inflation?

2) Does core inflation revert to headline inflation?

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Q1: Does headline inflation revert to core inflation?

$$\pi_t^{headline} - \pi_{t-12}^{headline} = \alpha + \beta(\pi_{t-12}^{headline} - \pi_{t-12}^{core}) + \varepsilon_t$$

- Sample: 1997M1-2013M6
- Cannot reject that headline inflation does not revert to core ($\beta = 0$).
- But reject that headline inflation fully reverts to core within a year ($\beta = -1$; $\alpha = 0$ and $\beta = -1$)

Therefore, headline does not revert to core, suggesting that either food shocks are persistent or the second-round effects are large.

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Q2: Does core inflation revert to headline inflation?

$$\pi_t^{core} - \pi_{t-12}^{core} = \delta + \gamma \, (\pi_{t-12}^{core} - \pi_{t-12}^{headline}) + \varepsilon_t$$

- Sample: 1997M1-2013M6
- $\gamma = -0.8$ and highly statistically significant, which corresponds to a situation where core inflation reverts to headline.
- Cannot reject that core inflation fully reverts to headline within a year and allowing for sample biases in the direction of shocks to non-core inflation ($\gamma = -1$; and $\gamma = -1$ and $\delta = 0$)

Therefore, core inflation appears to revert to headline, suggesting that the second-round effects are large.

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B. Implications for Monetary Policy

Structure of the model

- Two-country small open economy model

- Forward-looking aggregate supply and demand curves

- Rest of the world output feeds directly into the small economy

- Changes in foreign inflation and/or interest rates affect the exchange rate and, subsequently, demand and inflation

- The model is set up in gap terms

- Core inflation equation with a pass-through from headline to core inflation

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And more formally

Five behavioral blocks:
1) An aggregate demand (IS curve)
2) A price setting (Phillips curve): core and food
3) A pass-through equation (from headline to core)
4) Uncovered interest parity
5) Monetary policy reaction function (Taylor rule)

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Key results:

- Inflation is backward looking and highly persistent
- Second round effect of food inflation is large
  - the gap between headline inflation and core inflation decreases by about three fourths in a year as core inflation catches up with headline inflation
- Confidence matters for economic activity
- Exchange rate impact on output gap small
- High interest rate persistence: in line with other EMs
- Monetary policy has output stabilization as an objective

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C. Conclusions

Conclusions

- Second-round pass-through from food and fuel to core is high: monetary policy should focus on headline inflation

- Inflation is persistent: monetary tightening needed to bring inflation down sustainably

- Burden of monetary policy could be reduced if supply bottlenecks are addressed

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