

# Monetary Policy with Subsistence Levels of Consumption

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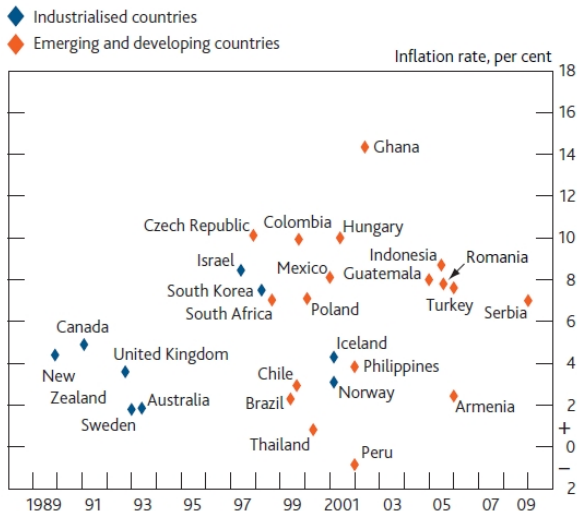
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- More mixed evidence for emerging and low-income/developing economies



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- Target can be set by the central bank, the government, or jointly (15 out of 27 countries do it jointly)

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- An important one is the share of the "food sector (agriculture)" in aggregate activity: around 2% in the U.S., around 30% in Sub-Saharan African countries.

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## Share of Food Consumption

- Also large differences in the share of food consumption (over total consumption): for the 2001-2010 period

	Food	Share		
Bangladesh	0.62	Singapore	0.2	
Philippines	0.60	Taiwan	0.23	
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  - average food share in Sub-Saharan countries is 42%

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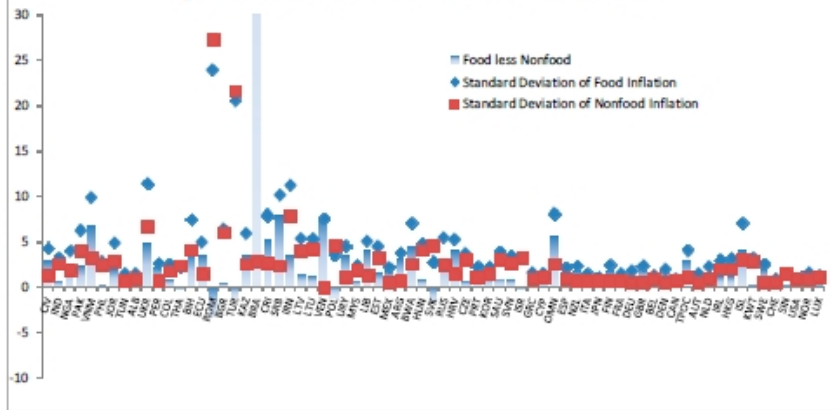
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  - As they develop (higher aggregate productivity), smaller share of income/consumption goes to food, other sectors become more important
- Since the food sector tends to be a flexible price sector (while service/manufacturing display nominal rigidities), economic development affects the aggregate importance of "sticky prices" in the economy

# Background

## Volatile Food Prices

Figure 2. Standard Deviation of Food and Nonfood Inflation, 1985-2008



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  - How does the presence of subsistence consumption levels affect the stabilizing properties of instrumental Taylor rules?
  - From an OMP perspective, what measure of inflation should the central bank target (core vs headline)?
  - What about the inflation-output stabilization trade-off?

# The Model

## Household

- A representative consumer with utility:

$$E_0 \sum_{t=0}^{\infty} \beta^t \left[ \ln c_t^* - \frac{n_t^{1+\psi}}{1+\psi} \right]$$

subject to

$$P_{F,t}c_{F,t} + P_{N,t}c_{N,t} + B_{t+1} = W_t n_t + R_{t-1}B_{t-1} + \Delta_{F,t} + \Delta_{N,t}$$

$$c_t^* = (c_{F,t} - \bar{c}_F)^{\alpha^F} (c_{N,t})^{1-\alpha^F}$$

$$\bar{c}_F > 0 \text{ (subsistence level of food consumption)}$$



- Aggregate consumption and CPI inflation:

$$P_t = \frac{P_F c_F}{P_C} P_{F,t} + \frac{P_N c_N}{P_C} P_{N,t} \text{ (measured CPI)}$$

$$c_t = \frac{P_{F,t}}{P_t} c_{F,t} + \frac{P_{N,t}}{P_t} c_{N,t} \text{ (measured aggregate consumption)}$$

$$\Pi_t = \frac{P_t}{P_{t-1}}, \quad w_t = \frac{W_t}{P_t}$$

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Firms: Food and Non-Food

- Food production occurs under perfect competition and flexible prices:

$$y_{F,t} = F(A n_{F,t}, K_{F,t})$$

$A$  = economy-wide labor-augmenting productivity

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- Non-Food sector subject to price rigidities

# Steady State and Food Consumption Share

- The food share in total consumption (which also equals the share of the food sector in GDP) is

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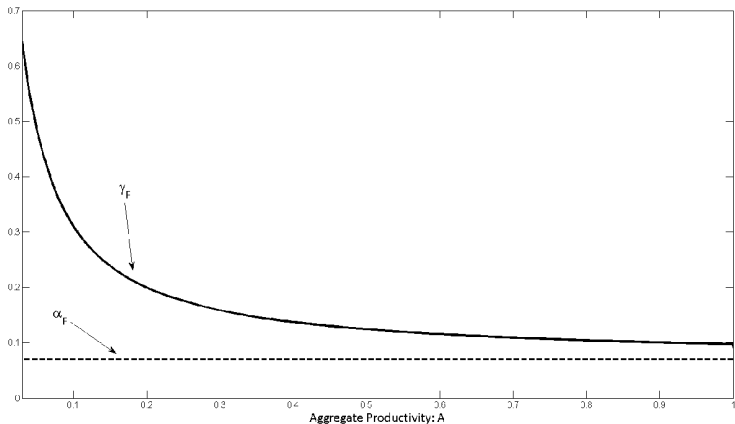
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- As the economy develops (higher labor productivity), the food share declines:

$$\frac{\partial c}{\partial A} > 0 \implies \frac{\partial \gamma_F}{\partial A} < 0$$

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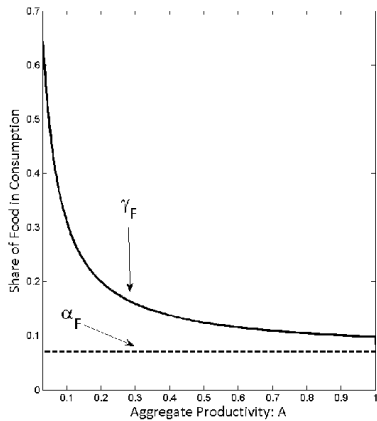
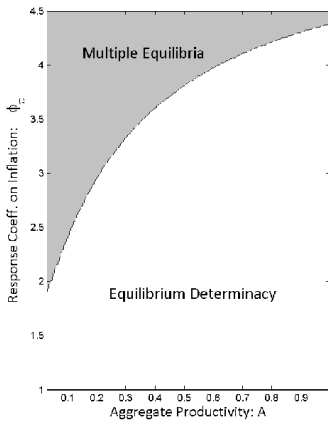
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  - marginal costs decline, and so does inflation: expectation is not self-fulfilled!



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  - ② "Flexible price" fluctuations are efficient
  - ③ "Flexible price" inflation strongly pro-cyclical
- As the economy develops (higher  $A$ ), the weight  $\gamma_F$  decreases  
→ lower response to flexible price food inflation: "target" measure is more "core"

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- Letting  $\alpha_\pi \equiv \frac{1}{\omega}$ :

higher price rigidity  $\rightarrow$  higher  $\alpha_\pi$

larger food sector  $\rightarrow$  lower  $\alpha_\pi$



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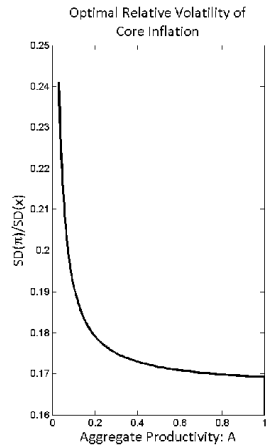
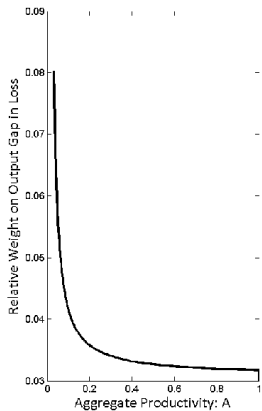
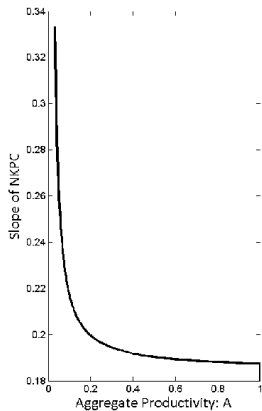
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- How does food subsistence affect ORV?

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Benefit of Inflation Stabilization w.r.t. Development



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- With a large share of flexible price food in consumption (due to subsistence and low productivity), the target measure is rather volatile and far from "core"
- Targeting/responding to CPI inflation can lead to aggregate instability (self-fulfilling prophecy)

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- But optimal degree of price stability depends on importance of subsistence and development