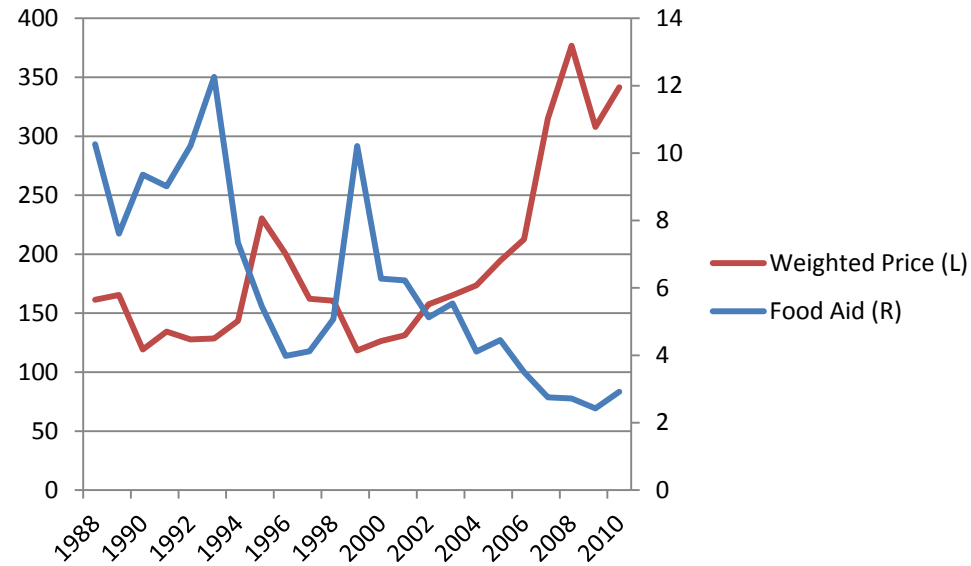


# High Food Prices and International Food Assistance

CATPRN Annual Workshop  
September 29, 2012  
Toronto

Food Assistance Flows and Commodity Prices (\$US/mt; grain equivalent millions of mt)



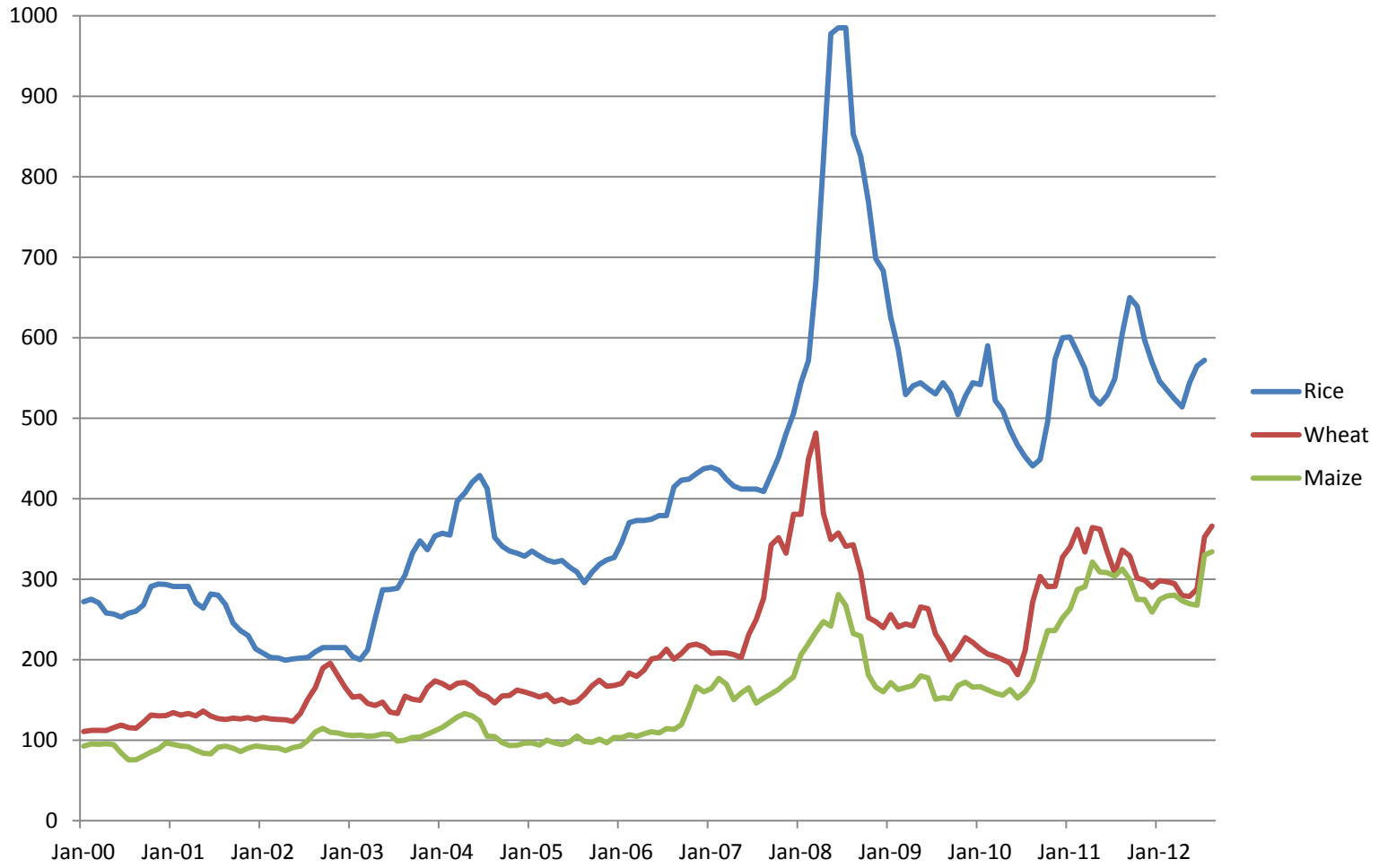
Sources: WFP Interfais, OECD-FAO Agricultural Outlook Database

◦ volume decreases. *Q.E.D.*

1. Food prices
2. Dealing with high prices
3. Summing up

# 1. Food prices

## Grain Prices (\$US/mt)



Source: FAO GIEWS database

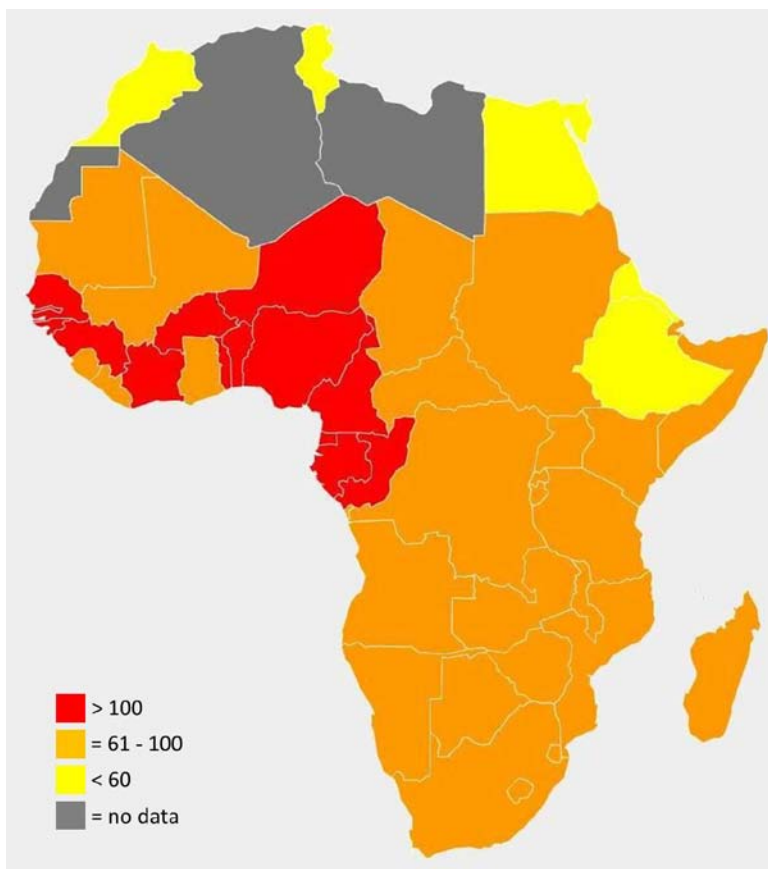
# 1. Food prices

“high food prices are...the biggest challenge that WFP has faced in its 45-year history”

WFP, 2008

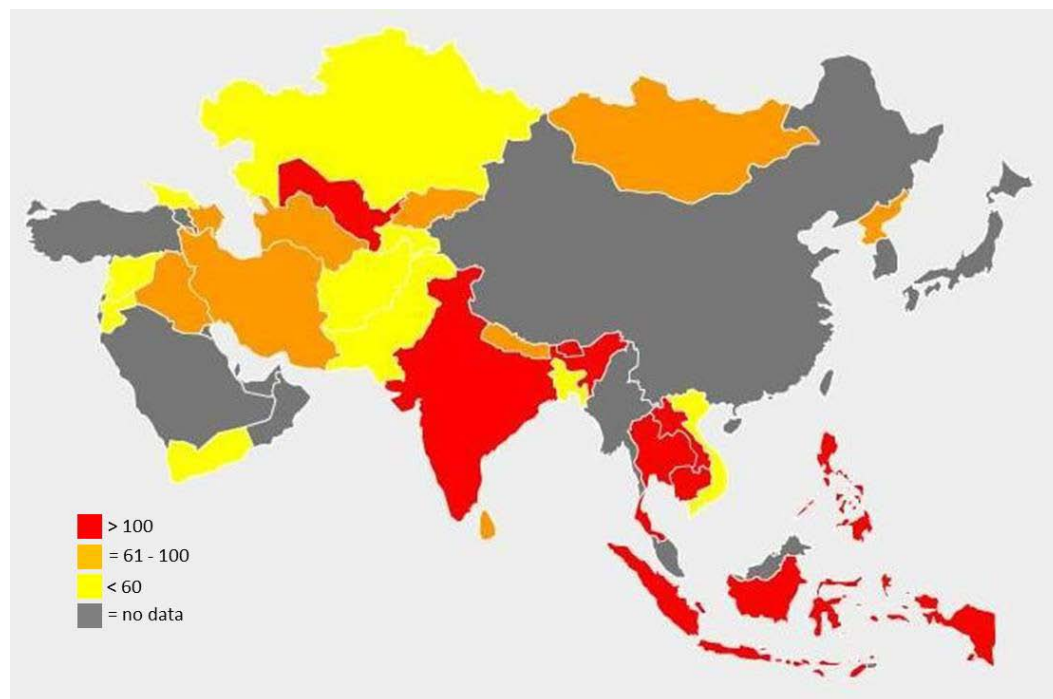
Comparative Static - change in cost of food assistance baskets, 2007-2008

Africa



Sources: WFP Interfais, OECD-FAO Agricultural Outlook Database, authors' calculations

Asia

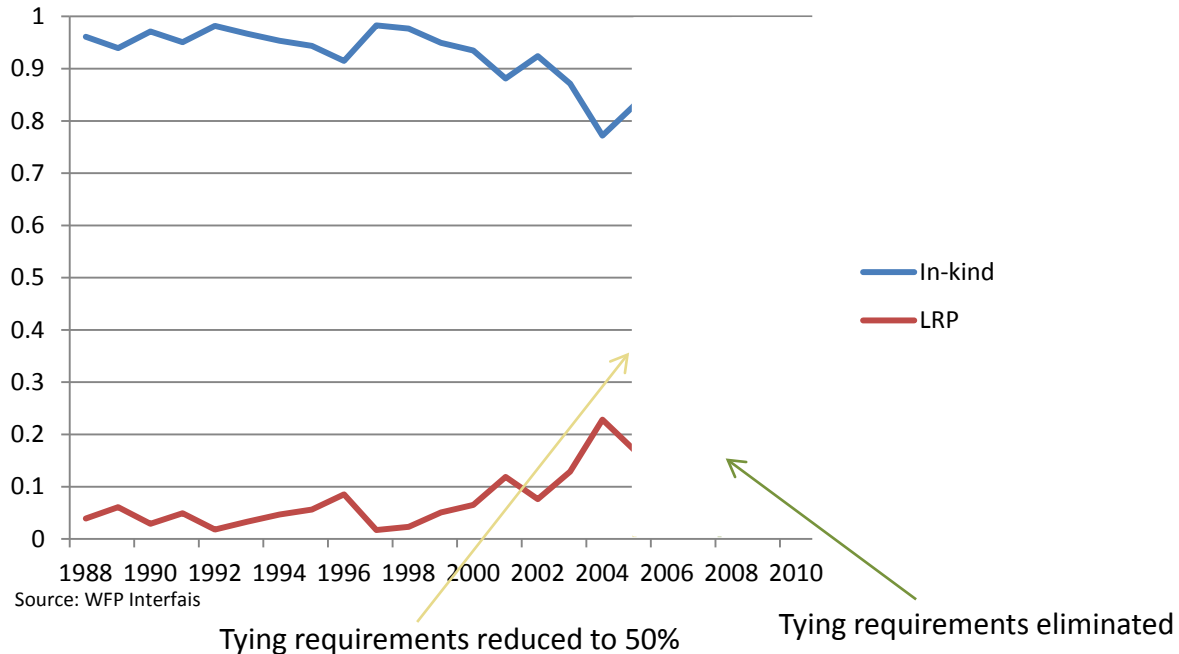


Sources: WFP Interfais, OECD-FAO Agricultural Outlook Database, authors' calculations

## 2. Dealing with high prices

### A. Local and Regional Procurement (LRP)

Shares of Canadian Food Assistance Delivered In-Kind and Purchased Abroad (LRP)



- does the movement towards LRP insulate food assistance from international price shocks?
- rates of price pass-through into LRP markets depend on
  - trade policies
  - domestic price policies
  - trade costs
  - exchange rate movements

## 2. Dealing with high prices

### A. Local and Regional Procurement (LRP)

- case studies of Canadian Foodgrains Bank programmes

#### Location and Commodity Matches for Price Transmission Tests

Commodity	CFGB Procurement Source	GIEWS survey location
Maize	South Africa	Randfontein
Rice	Pakistan	Peshawar
Wheat	Ethiopia	Addis Ababa

Sources: CFGB, FAO GIEWS

- VEC model to estimate speed at which prices in LRP locations respond to world price shocks

speed-of-adjustment coefficients

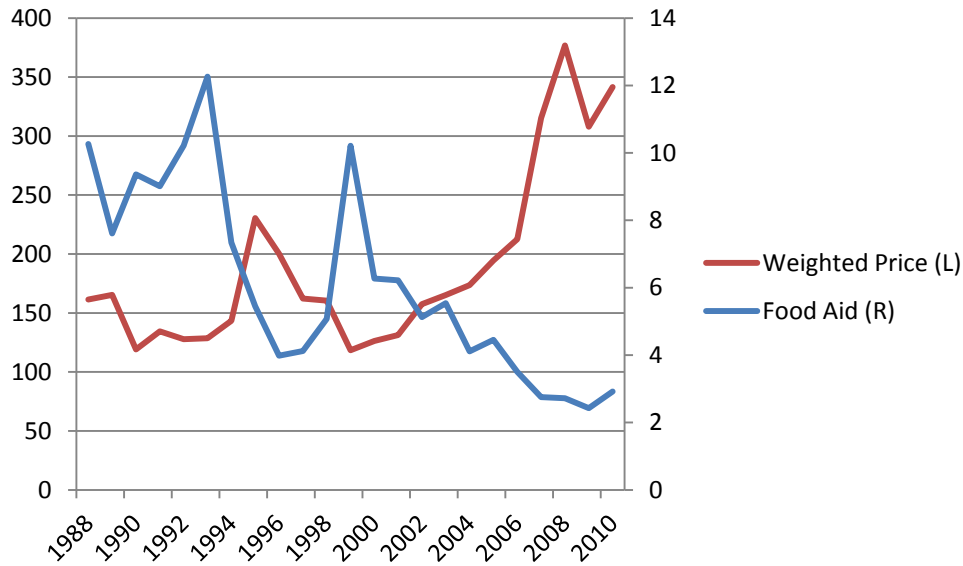
$$\begin{pmatrix} \Delta p_{w,t} \\ \Delta p_{i,t} \end{pmatrix} = \begin{pmatrix} \mu_w \\ \mu_i \end{pmatrix} + \begin{pmatrix} \alpha_w \\ \alpha_i \end{pmatrix} \underbrace{(p_{w,t-1} - \beta p_{i,t-1})}_{\text{lagged disequilibrium from price shock}} + \sum_{k=1}^n A_k \begin{pmatrix} \Delta p_{w,t-k} \\ \Delta p_{i,t-k} \end{pmatrix} + \begin{pmatrix} u_{w,t} \\ u_{i,t} \end{pmatrix}$$

- ... variable transmission speeds

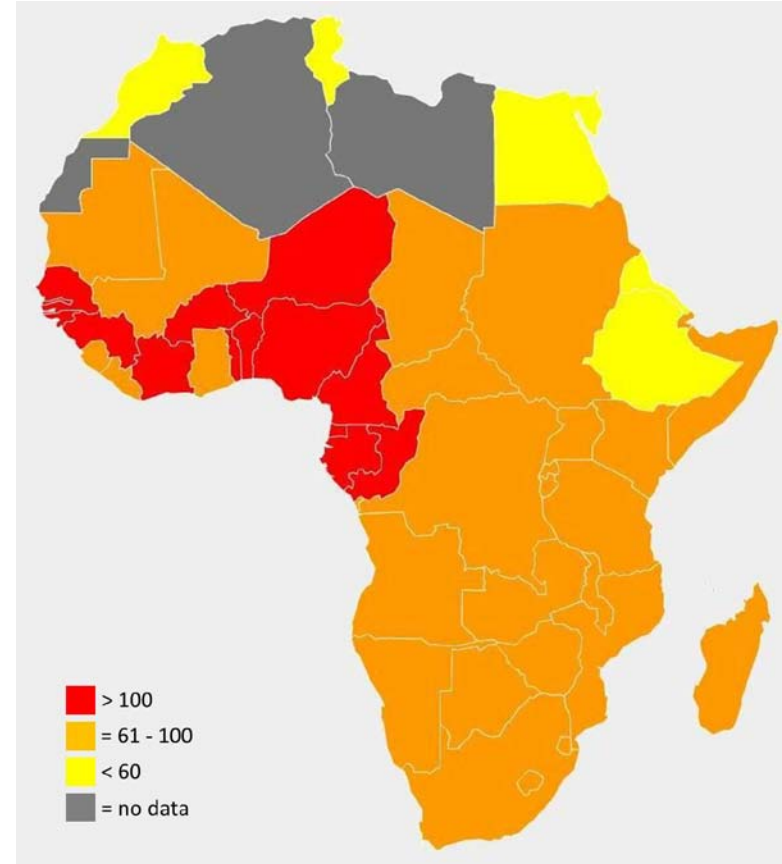
## 2. Dealing with high prices

### B. Commodity substitutability

Food Assistance Flows and Commodity Prices (\$US/mt; grain equivalent millions of mt)



Sources: WFP Interfaiss, OECD-FAO Agricultural Outlook Database



Sources: WFP Interfaiss, OECD-FAO Agricultural Outlook Database, authors' calculations

## 2. Dealing with high prices

### B. Commodity substitutability



CFGB

- do donors substitute between commodities (within component groups) when relative prices change?

% change in P, 2007-2008

Maize	70
Rice	139
Wheat	55

Sources: FAO GIEWS

- “culturally-appropriate” food (WFP, CFGB, CRS, ...)
- tied, in-kind donations (Japan)



## 2. Dealing with high prices

### B. Commodity substitutability

- modelling food assistance shipments
  - double hurdle/selection models → bilateral volumes of aggregated commodities
  - Nunn and Qian (2010); Langlois (2010); Neumayer (2005)
  - donors' decisions on “why”/“how much”, not “what commodity”
- what happens to composition of baskets when relative prices change?

◦ identification strategy  $Q_{ki,t}^{cereals} = f(P_{i,t}, P_{j,t}, \dots, P_{n,t}, ?)$

-      +      +

- identify price effects without modeling decision “when” to donate, or “how much” to donate
- who “demands” FA commodities?
- model recipients' commodity shares within baskets (treating basket size as exogenous)

$$S_{ki,t} = \alpha_{ki} + \sum_{j=1}^n \gamma_{ij} P_{j,t} + \beta_{ki} X_{k,t} + \varepsilon_{ki,t} \quad \begin{array}{l} k = \text{country} \\ i = \text{commodity (in grain equiv. mt)} \end{array}$$

- shipment size ( $X_{k,t}$ ) is exogenous
- commodity share of food assistance basket =  $f(P, X)$

## 2. Dealing with high prices

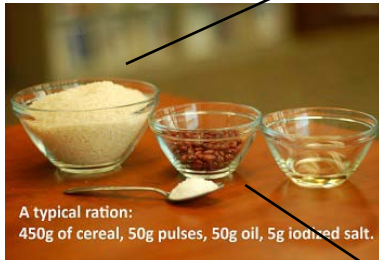
### B. Commodity substitutability

- Data
  - WFP INTERFAIS, FAO GIEWS
  - panel with 114 countries, 1988 - 2010

Share Elasticities - Cereals (country FE)

	Wheat	Rice	Maize
p <sub>wheat</sub>	-0.275	0.322 <sup>b</sup>	-0.235
p <sub>price</sub>	-0.193	0.125 <sup>c</sup>	0.068
p <sub>maize</sub>	0.060	-0.238	0.109
Total	0.040 <sup>a</sup>	-0.054 <sup>a</sup>	0.048 <sup>a</sup>

Note: Superscripts "a", "b", and "c" denote significance at the 1%, 5% and 10% levels, respectively.



Share Elasticities - Beans (country FE)

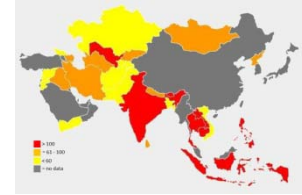
	Beans	Lentils	Peas	Soybeans
p <sub>beans</sub>	0.035	0.047	-0.122	0.163
p <sub>lentils</sub>	-0.062	-0.719 <sup>a</sup>	0.738 <sup>c</sup>	-1.043 <sup>c</sup>
p <sub>peas</sub>	0.091	0.789 <sup>a</sup>	-0.612 <sup>c</sup>	-0.551
p <sub>soybeans</sub>	-0.495	0.372	0.433	1.997 <sup>b</sup>
Total	-0.035 <sup>a</sup>	-0.022	-0.007	0.618 <sup>a</sup>

Note: Superscripts "a", "b", and "c" denote significance at the 1%, 5% and 10% levels, respectively.

## 2. Dealing with high prices

### B. Commodity substitutability - robustness

#### i. regional variation in diets may impact donors' willingness to substitute



◦ disaggregate panel into 7 regions (central Asia, east Asia, south Asia, eastern Europe, Latin America, Middle East & North Africa, sub-Saharan Africa)

◦ baseline results very robust (except LAC)

#### Share Elasticities - Cereals (LAC, country FE)

	Wheat	Rice	Maize
$p_{wheat}$	-1.800 <sup>b</sup>	0.650	1.789 <sup>b</sup>
$p_{rice}$	-0.213	0.197	-0.063
$p_{maize}$	0.624 <sup>b</sup>	-0.185	-0.721 <sup>b</sup>
Total	0.168 <sup>a</sup>	-0.158 <sup>a</sup>	0.0522 <sup>c</sup>

Note: Superscripts "a", "b", and "c" denote significance at the 1%, 5% and 10% levels, respectively.

#### ii. assistance categories (Emergency vs. Programme & Project)

◦ baseline results robust for Emergency, not for P&P

#### iii. delivery modes (in-kind vs. LRP) - "Japan" effect

### 3. Summing Up

#### A. Local and Regional Procurement

- donors moving towards LRP
- degree of insulation from price shocks is variable
  - spectre of export restrictions...

#### B. Commodity substitutability

- cereals
  - no significant substitution effects
  - rice share declines with increasing basket size
- beans
  - significant substitution effects
  - bean share declines with increasing basket size
- price volatility can be good for food consumers (Barrett & Bellemare, 2011)
  - depends on
    - storage ✓
    - substitution ✗

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