IMPLICATIONS OF FOOD PRICE CHANGES FOR THE POOR

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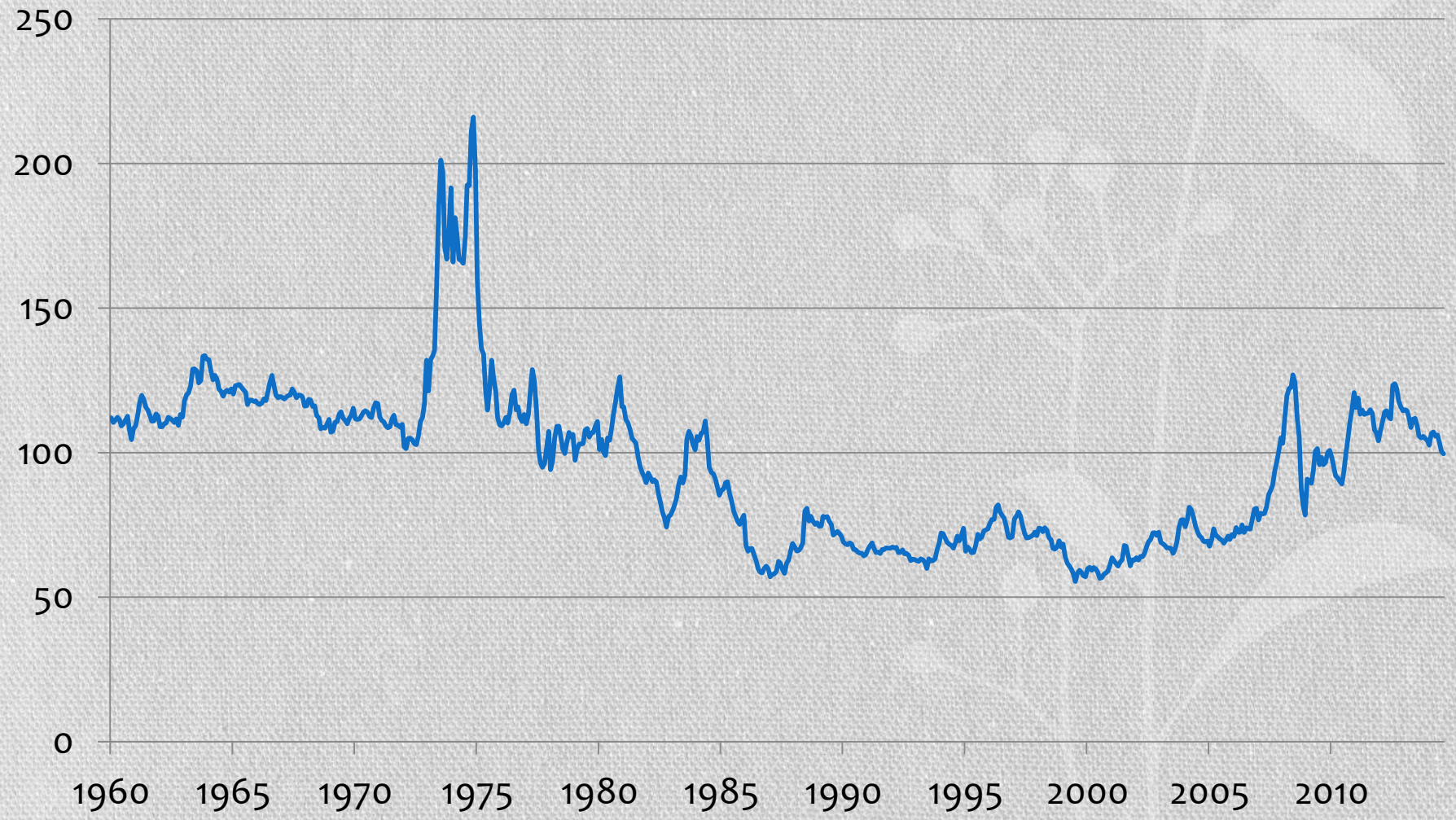
Why worry about high food prices?

- Low global food prices due to developed countries' subsidies considered harmful to the poor before 2007
  - Difficult for poor farmers to earn a living
- During the food crisis of 2007–2008 food prices rose suddenly and sharply, raising worries about the poor
  - Most of the poor are net food buyers (even farmers)
  - No quick way to raise output and benefit from the price spike
- After the second crisis in 2010 prices remained high shifting worries to the long-run impacts of high food prices
- Evidence of declining poverty despite high food prices between 2006–2012
  - Strong economic growth: e.g. China's GDP PPP doubled between 2006–2013
  - Rising agricultural output & wages to counteract food prices
  - We now have more evidence to unravel the complex relationship between food prices and poverty

Overview of food prices



World Bank Food Price Index in constant prices; source: Global Economic Monitor

Food prices since 2000

World Bank Food Price Index in constant prices; source: Global Economic Monitor

Time frames for welfare impacts

- Short run
  - Welfare roughly determined by net-selling position of households
  - Allow substitution in consumption
- Medium run
  - Add wage changes but leave capital and land sectorally immobile: labor can be adjusted
- Long-run
  - Allow capital and land to move between sectors: farmers have some ability to move land from different crop production, capital and labor can be moved freely

Measure of household welfare changes

- Welfare determined as profits and wage income less cost of consumption
  - $W = \pi(\boldsymbol{p}, w) - e(\boldsymbol{p}, w, u)$
- We evaluate changes in welfare following changes in consumer and output prices $\boldsymbol{p}$ and wages w
- $$\Delta \mathrm{W} = [\pi_p \quad \pi_w]\begin{bmatrix}\Delta \boldsymbol{p} \\ \Delta w\end{bmatrix} + \frac{1}{2}[\Delta \boldsymbol{p} \quad \Delta w]\begin{bmatrix}\pi_{pp} & \pi_{pw} \\ \pi_{wp} & \pi_{ww}\end{bmatrix}\begin{bmatrix}\Delta \boldsymbol{p} \\ \Delta w\end{bmatrix}$$
  $$-[\mathrm{e}_p \quad \mathrm{e}_w]\begin{bmatrix}\Delta \boldsymbol{p} \\ \Delta w\end{bmatrix} - \frac{1}{2}[\Delta \boldsymbol{p} \quad \Delta w]\begin{bmatrix}\mathrm{e}_{pp} & \mathrm{e}_{pw} \\ \mathrm{e}_{wp} & \mathrm{e}_{ww}\end{bmatrix}\begin{bmatrix}\Delta \boldsymbol{p} \\ \Delta w\end{bmatrix}$$
- Short run
  - First- and second-order impacts for consumers, $\Delta w = 0$
- Medium run
  - Wages change, some second-order profit changes
- Long run
  - Wages changes and output adjusts

Assumptions on prices and wages

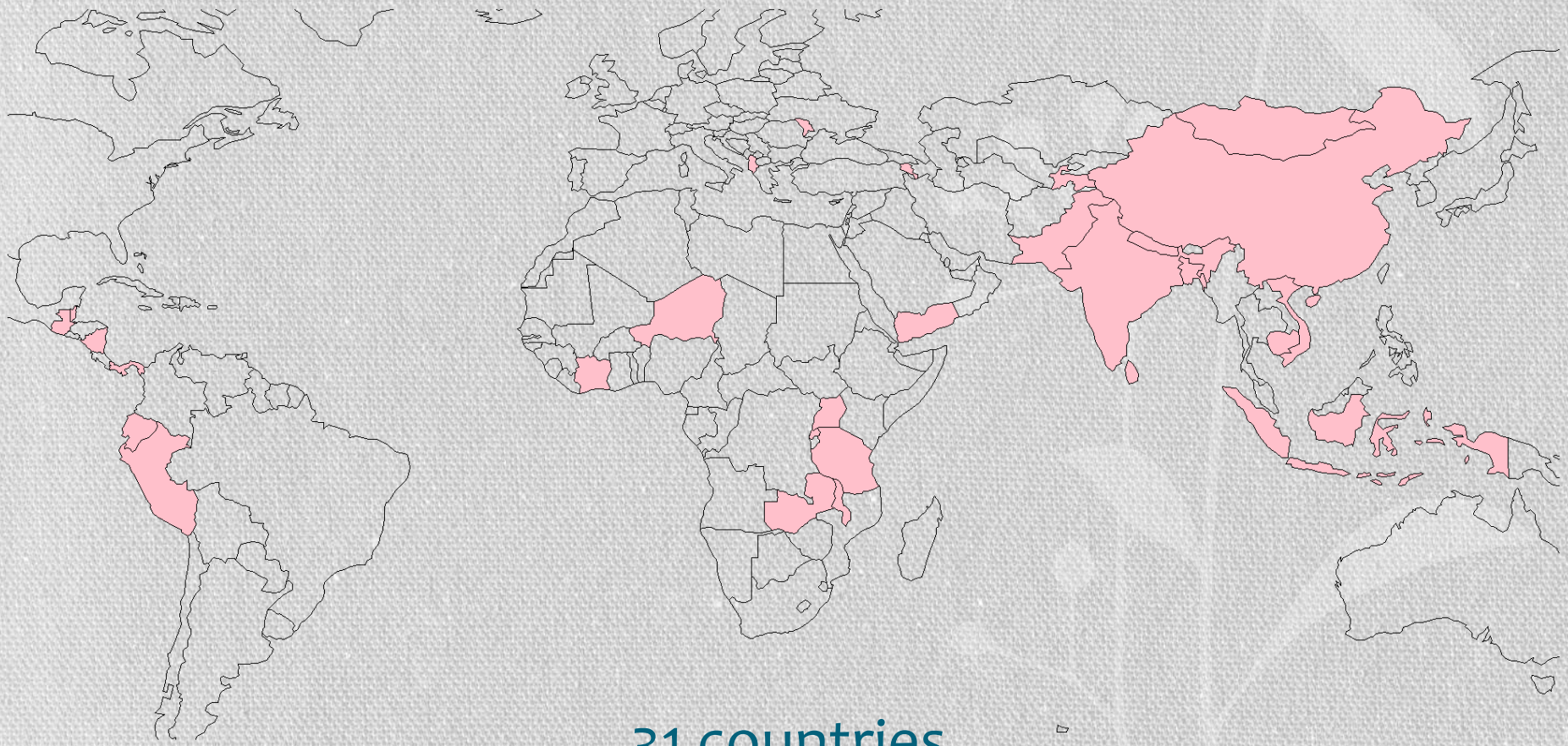
- Recent food price changes appear to have arisen outside low income countries
  - Biofuel growth
  - Black Sea basin droughts
  - Low stocks
  - Speculation?
- Specify wages as responding to changes in food prices
  - Assume no structural changes in developing countries
- Calculate wage-price elasticities using national GTAP models
  - How much does the price of each crop (or a group of crops) affect the domestic wage?

Estimated wage-price elasticities (medium run)

	Main commodity	Elasticity value	Second commodity	Elasticity value	Total elasticity
Bangladesh	Rice	0.6	Sugar	0.2	**1.2**
China	Other proc. foods	0.3	Oils and fats	0.1	**0.6**
India	Other proc. foods	0.3	Rice	0.2	**1.0**
Nigeria	Cassava	0.5	Other vegetables	0.2	**1.2**
Pakistan	Milk	0.2	Sugar	0.2	**1.1**

- Total estimates comparable with those in the literature ≈ 1 (e.g. Ravallion 1991, Jacoby, 2013)

Countries included in our sample



31 countries
315,000 households

Poverty headcount : 10% food price change

Country	Short run	Short run + wages	Medium run	Long run
Bangladesh	1.4	0	-0.4	-0.6
China	-1.3	-1.9	-2.1	-2.2
India	2.6	-1.1	-1.2	-1.4
Indonesia	1.7	0.8	0.8	1
Vietnam	-0.4	-2.1	-2.2	-1.9
Zambia	1.1	-0.4	-0.4	-0.9
Global	**0.8**	**-1.1**	**-1.2**	**-1.4**

Implications of food price changes for poverty

All households

Food price change	Short run	Short run + wages	Medium run	Long run
10%	0.8	-1.1	-1.2	-1.4
50%	5.8	-3.9	-4.8	-5.8
100%	13	-5.7	-7.6	-8.7

Farm households

Food price change	Short run	Short run + wages	Medium run	Long run
10%	-0.5	-2.1	-2.3	-2.5
50%	-0.8	-8.6	-9.6	-10.9
100%	0.1	-13.8	-15.2	-16.8

- Large price jumps are a concern
  - Even poor farm households benefit little
- Sustained low food prices may increase poverty

Implications of food price changes for poverty

Rural households

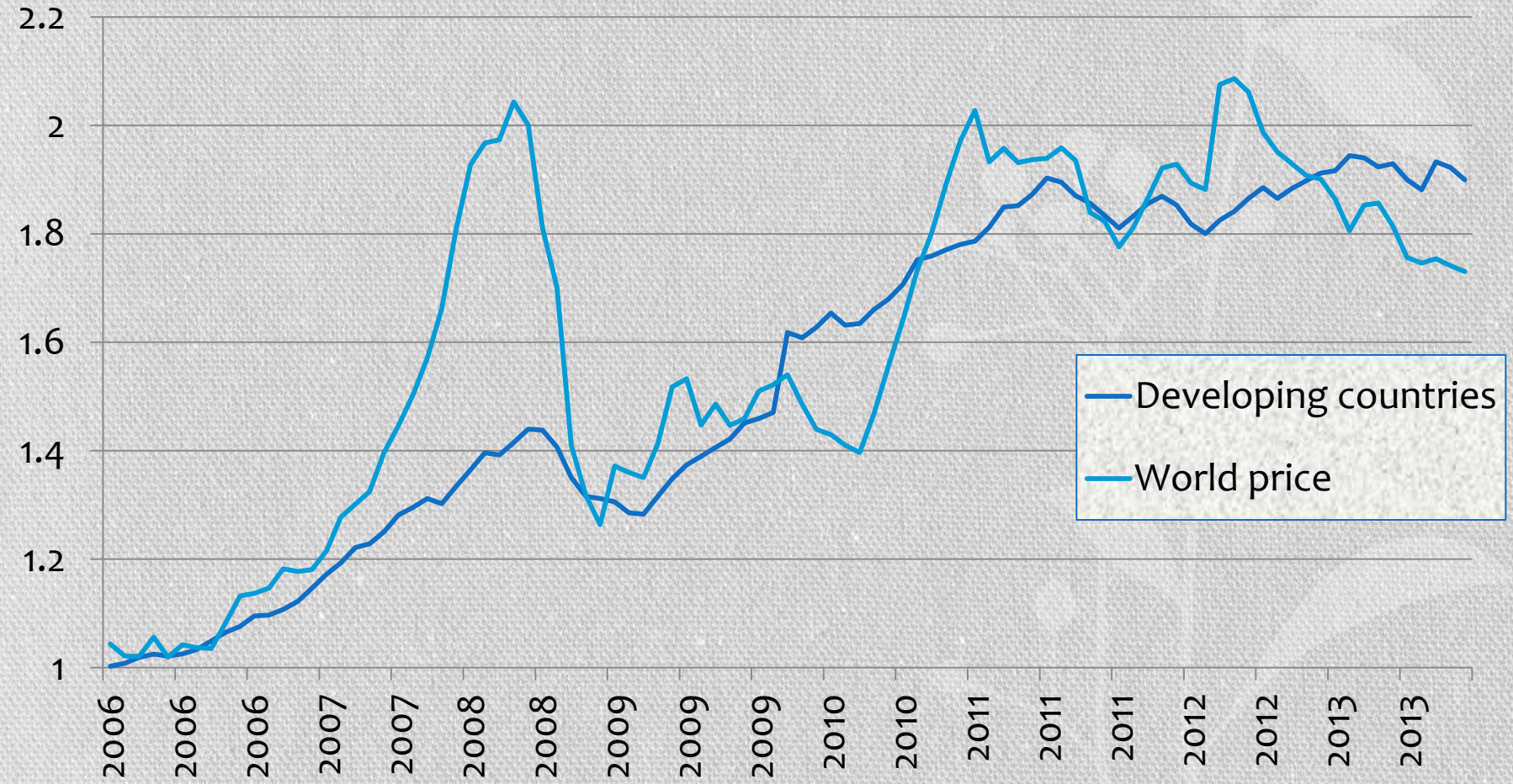
Food price change	Short run	Short run + wages	Medium run	Long run
10%	0.5	-1.4	-1.6	-1.8
50%	4.3	-5.7	-6.7	-8
100%	8.9	-9.5	-11.4	-13

Urban households

Food price change	Short run	Short run + wages	Medium run	Long run
10%	1.5	-0.3	-0.4	-0.4
50%	9.2	0.2	-0.4	-0.6
100%	22.5	3.2	1.1	0.9

- Rural households benefit in the long run more than urban
- Wage impacts important for urban and rural households

Developments in food prices

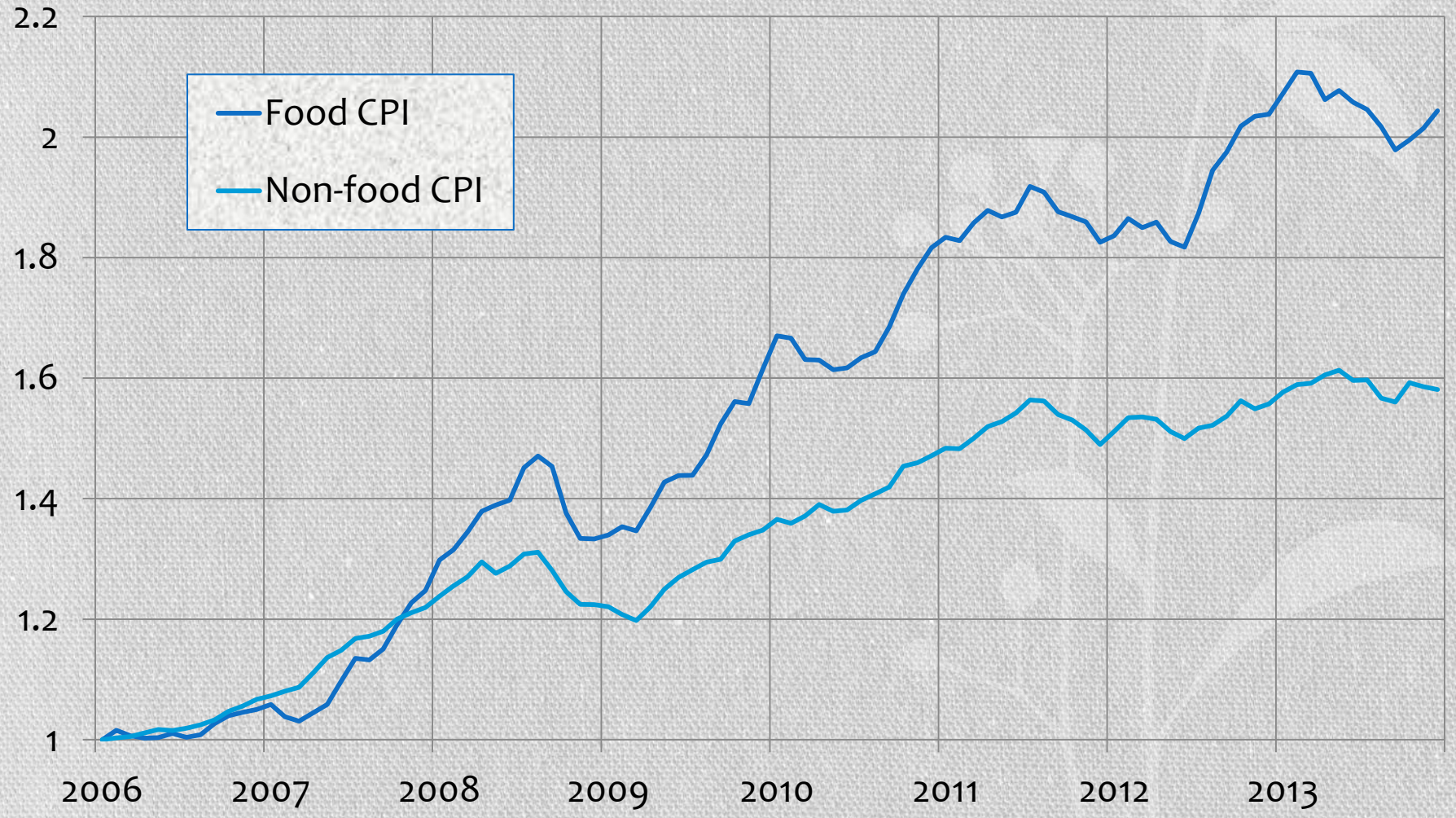


Source: GEM and FAO

Poverty impacts of recent price changes

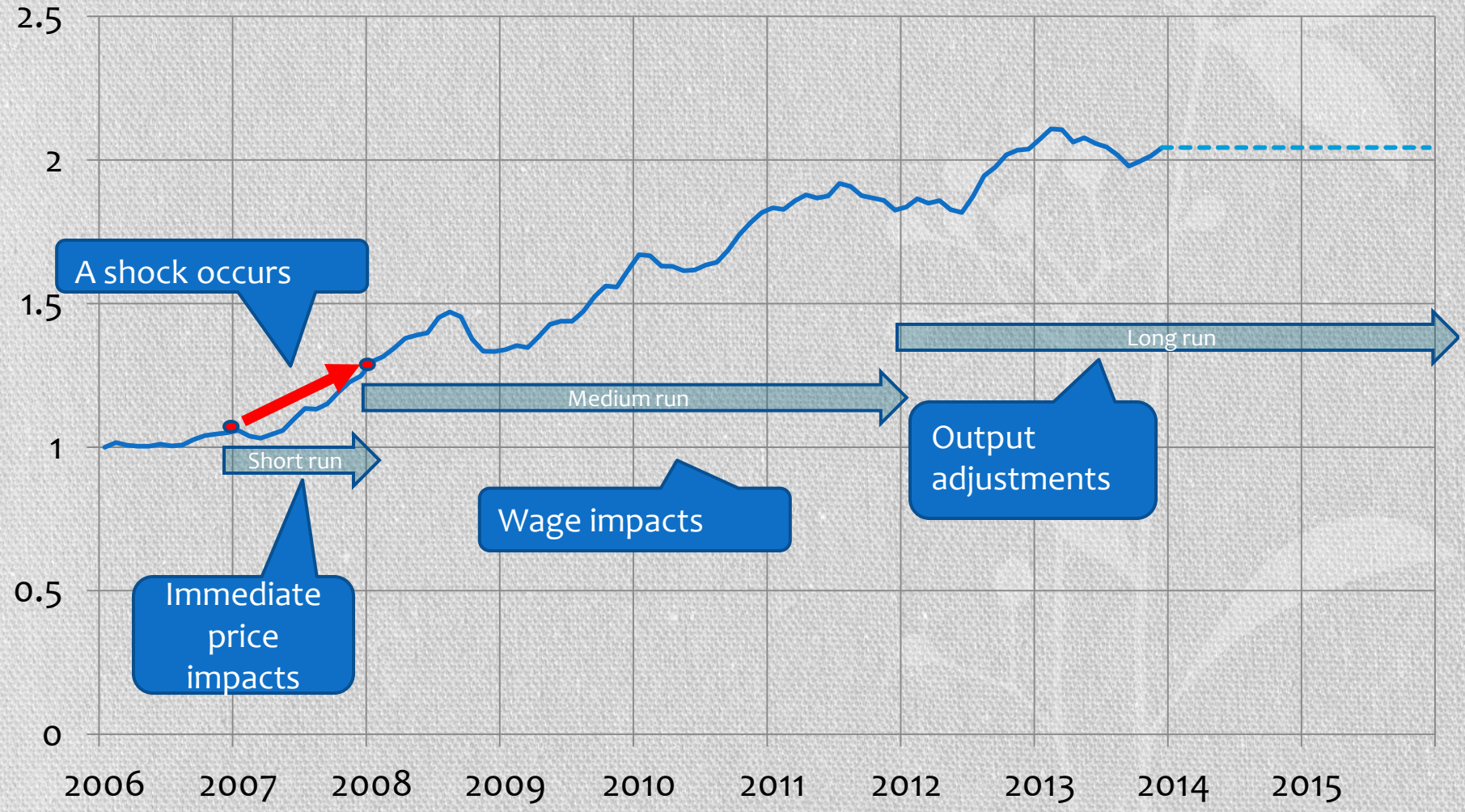
- Food price changes between 2006 and 2012
  - Annual average prices from the FAO
  - FAO's food CPI indices
    - IMF's exchange rates to transform domestic CPI's into USD valued
  - Deflate by non-food CPI in USD
- Evaluate poverty impacts
  - Same year impacts → short-run assumptions
  - 2–4 years → medium-run assumptions
  - 5+ years → long-run assumptions
- Weight and aggregate poverty impacts by country into global impacts

Observed domestic food prices in developing countries



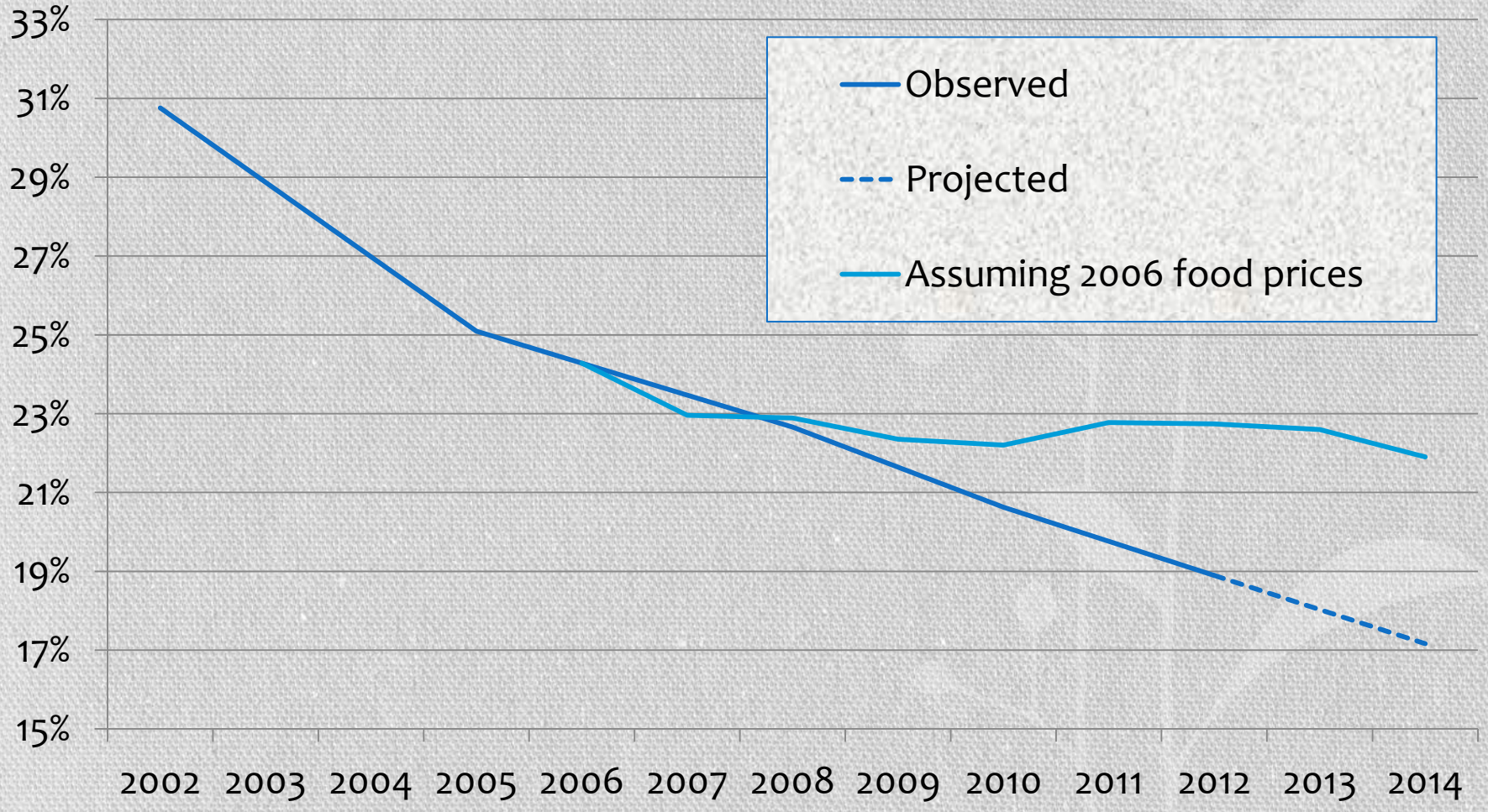
Source: GEM and FAO

Applying price shocks over time



Source: FAO

Partial impact of food prices on global poverty



Source: Ravallion 2013, authors' own calculations

Conclusions

- Food prices have major implications for the poor
  - The sign and magnitude of these implications change over time
- Short-run price spikes raise poverty
  - Not enough poor households are net sellers , cannot raise agricultural output; little benefit from rising wages
- Most negative implications are reversed in the longer run
  - Wages respond to rising food prices benefiting net sellers of labor
  - Farmers raise output
- While the initial jump in food prices was a threat to the poor, their sustained level appears to be poverty reducing