

Proposed Approach to Analyzing World Food Program LRP Effects

David Tschirley

Bob Myers

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Outline

- Potential LRP effects
- Analytical approach
- Case studies
- Modeling
 - Structural approaches
 - VAR approaches

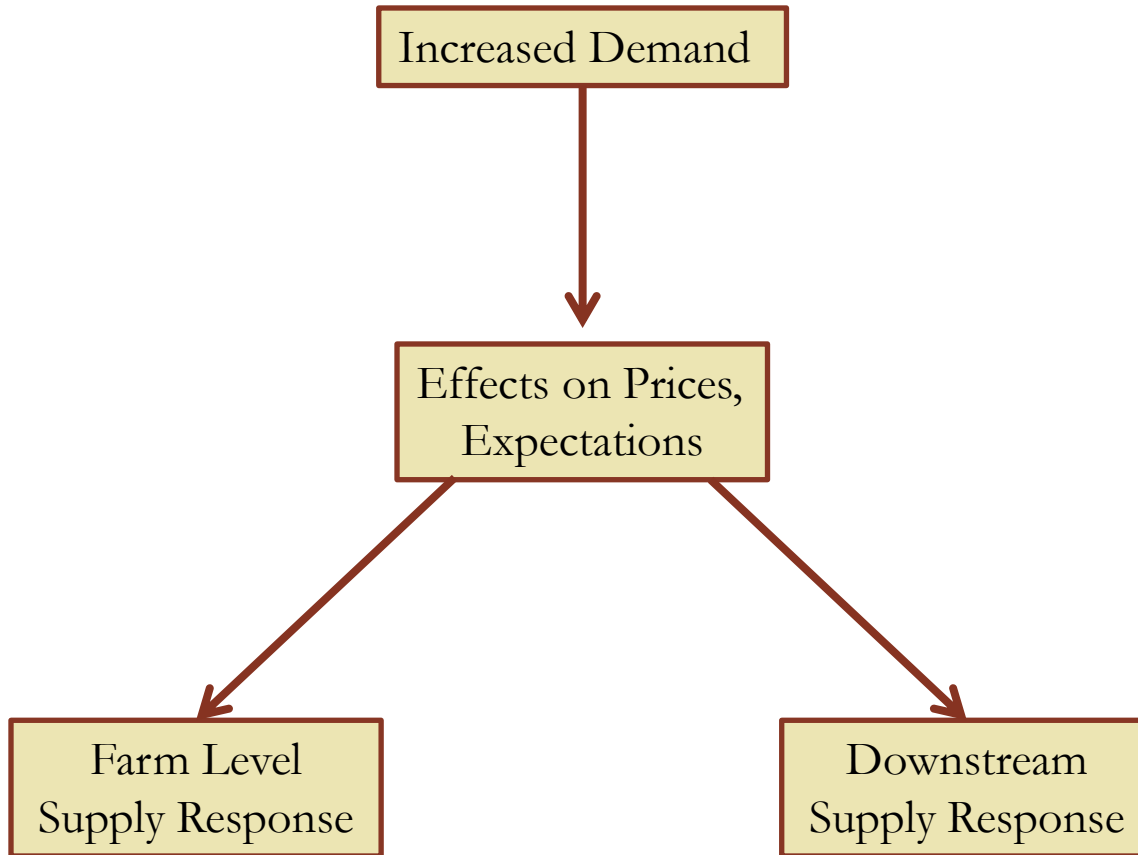
Potential LRP Effects

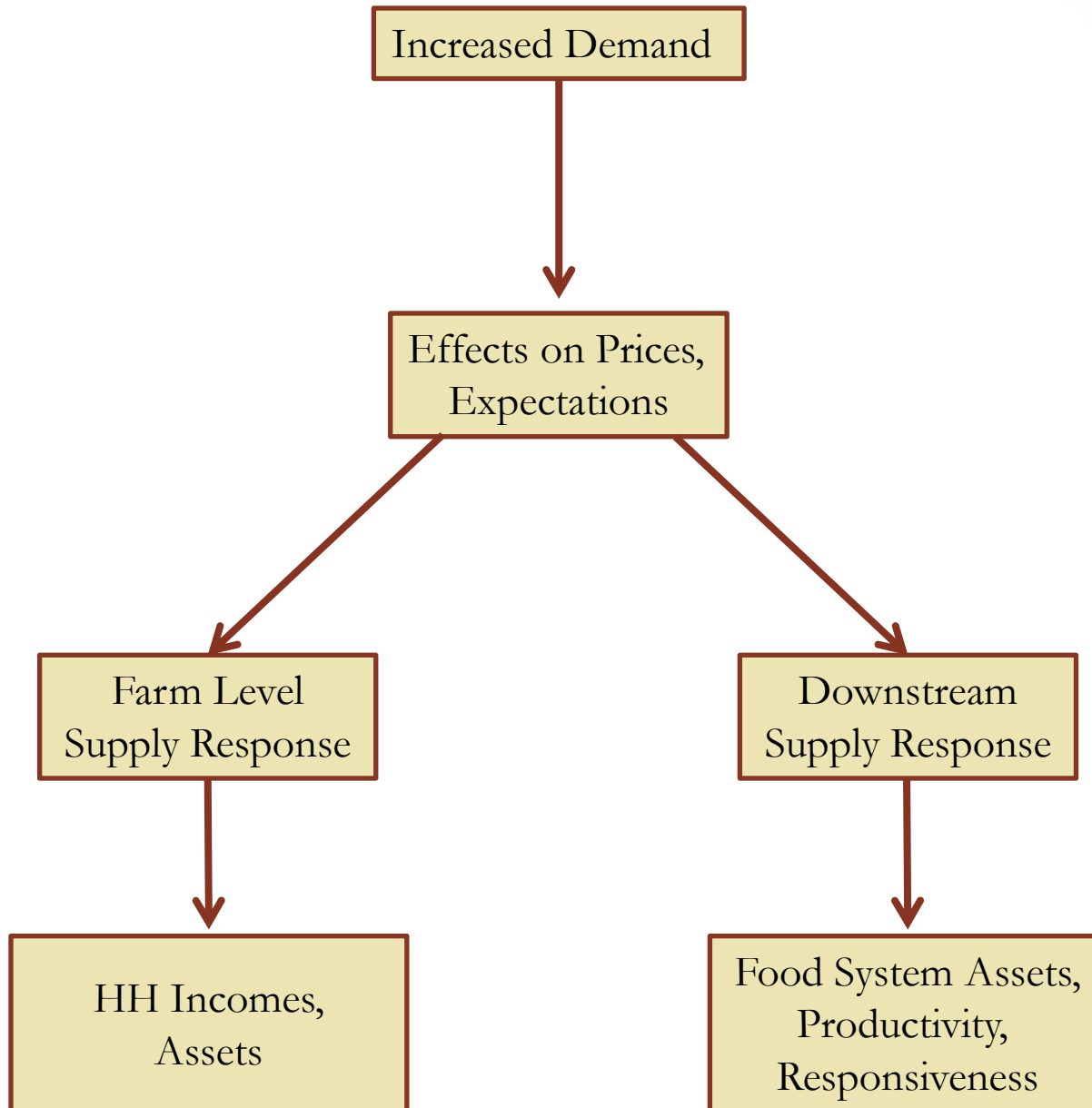
Increased Demand

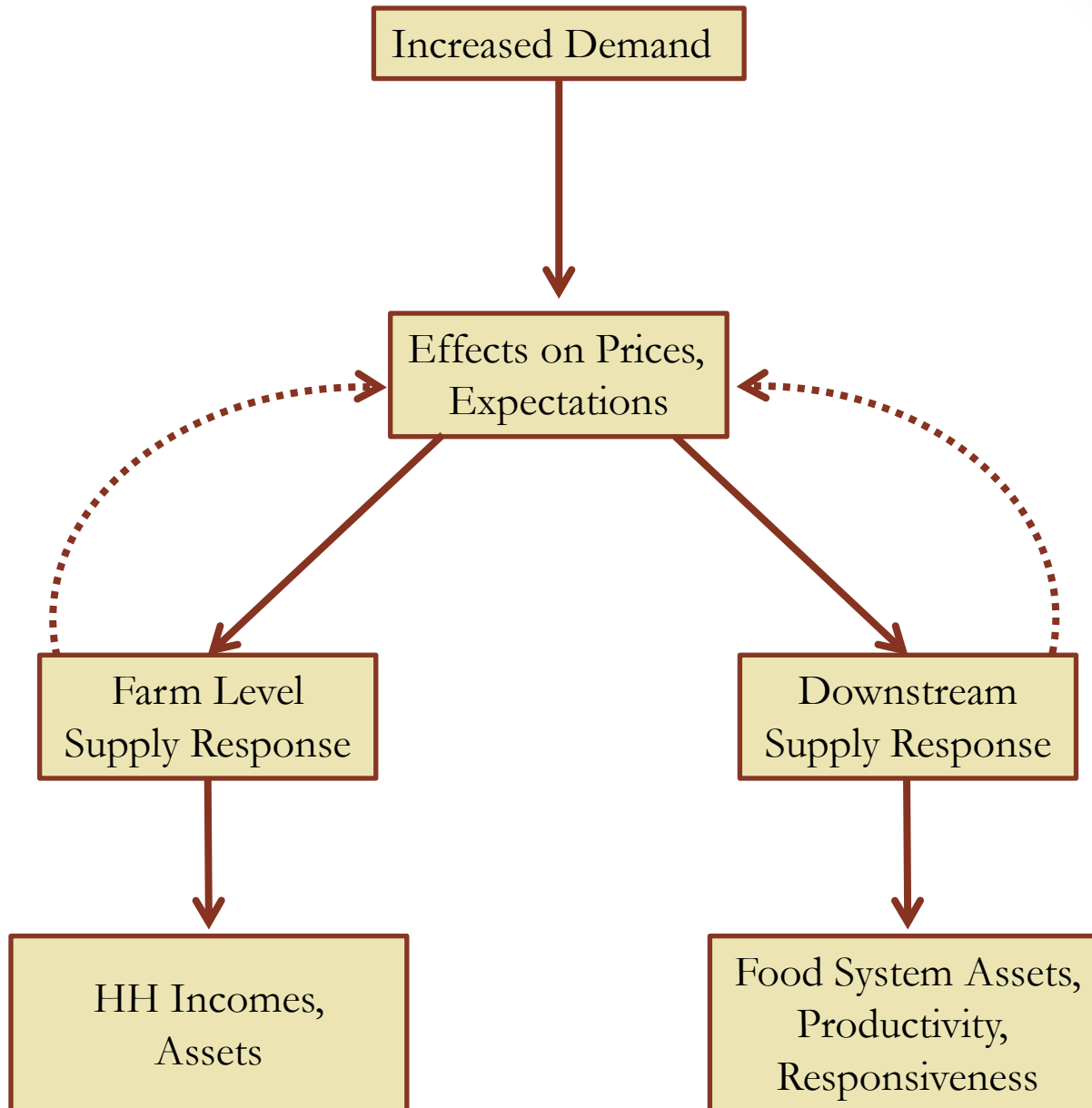
Increased Demand

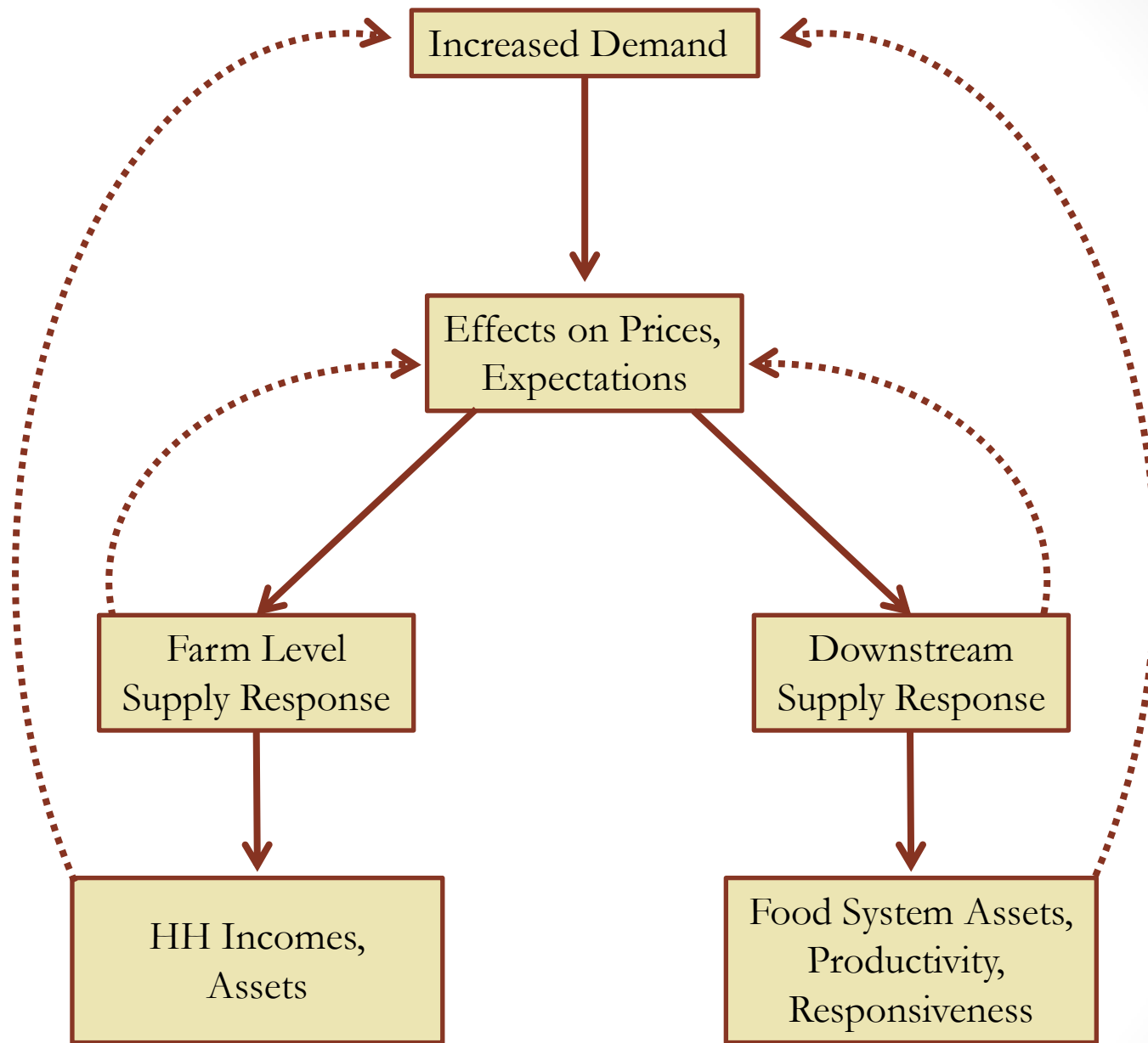


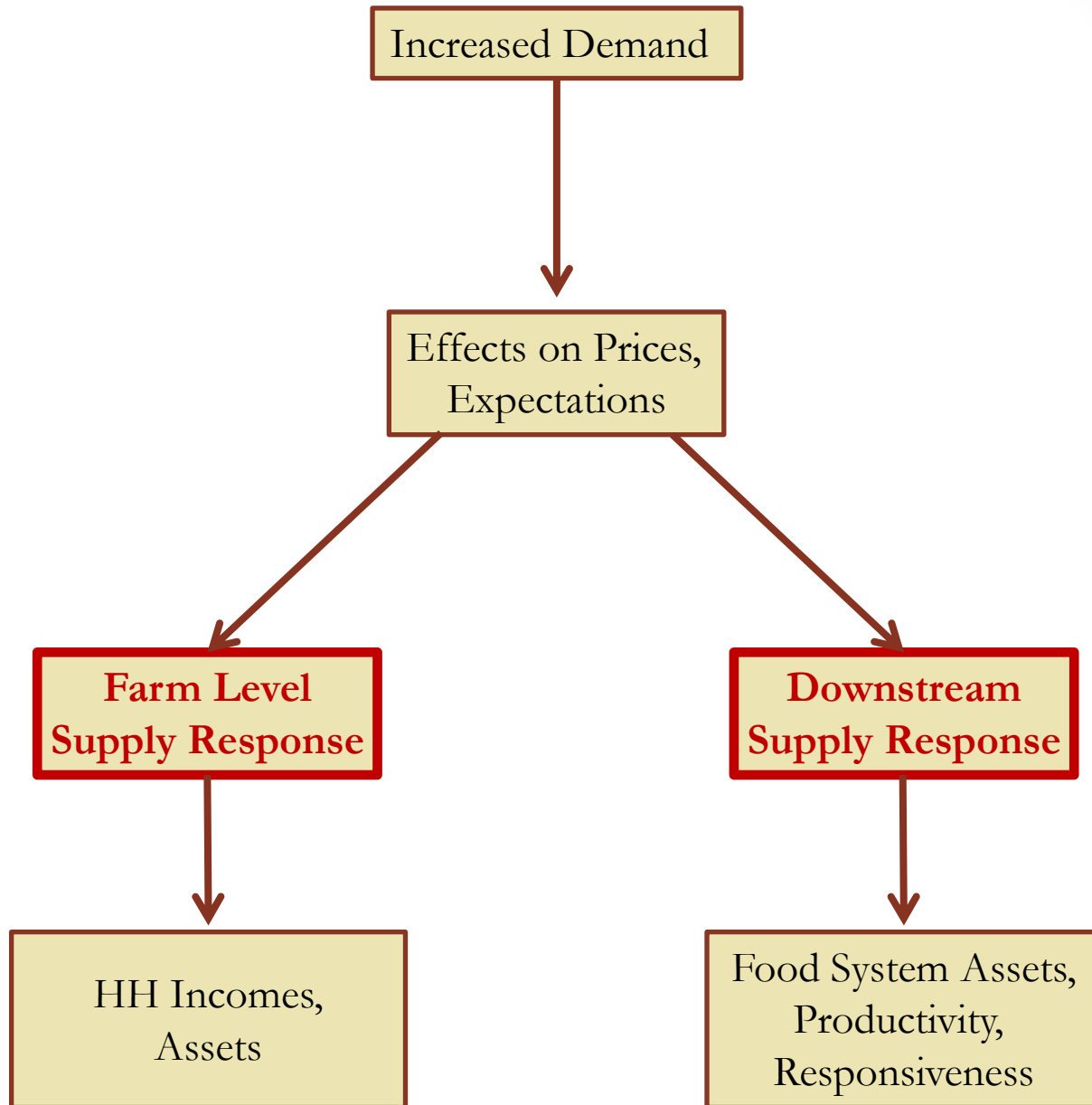
Effects on Prices,
Expectations

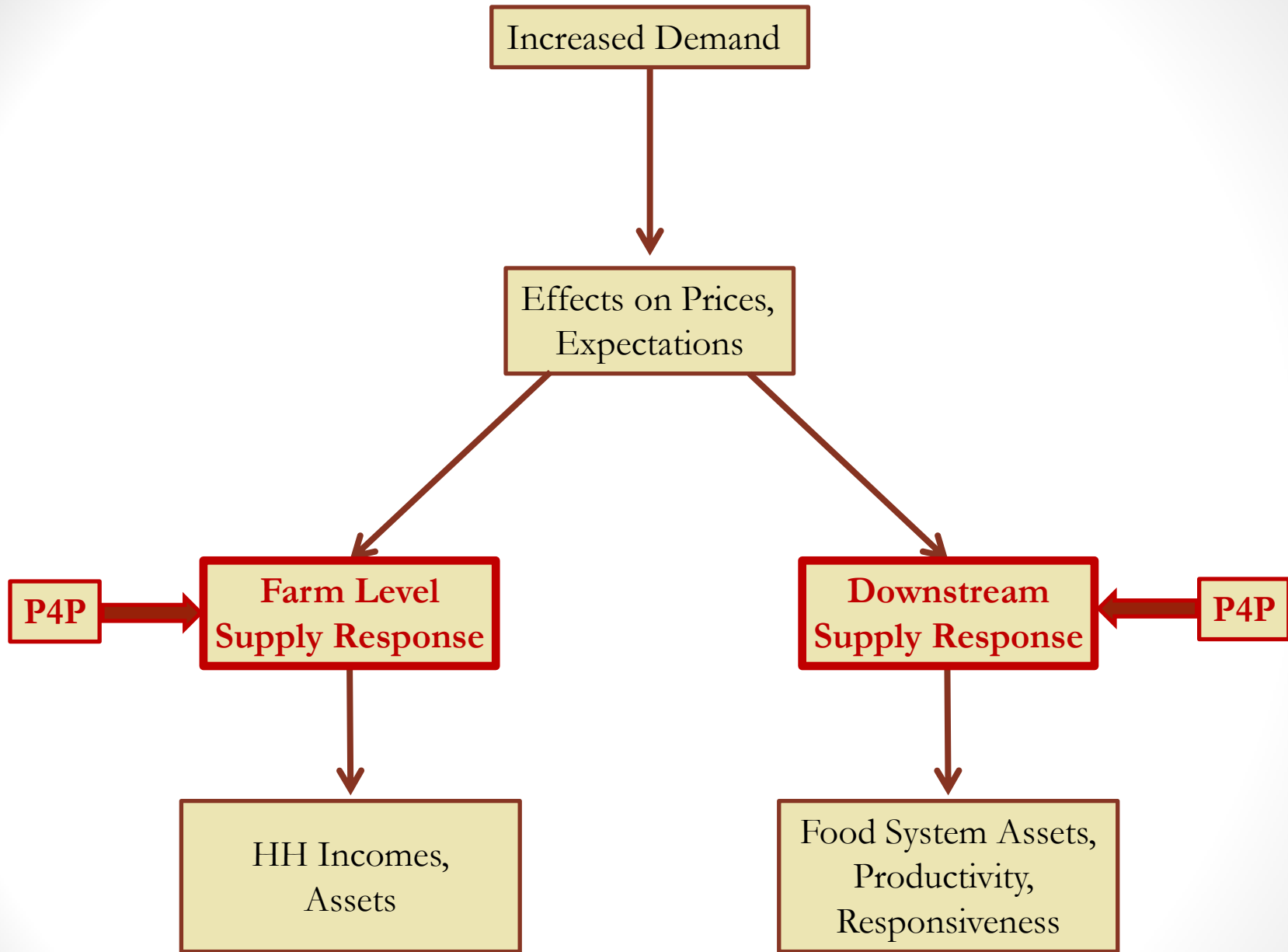










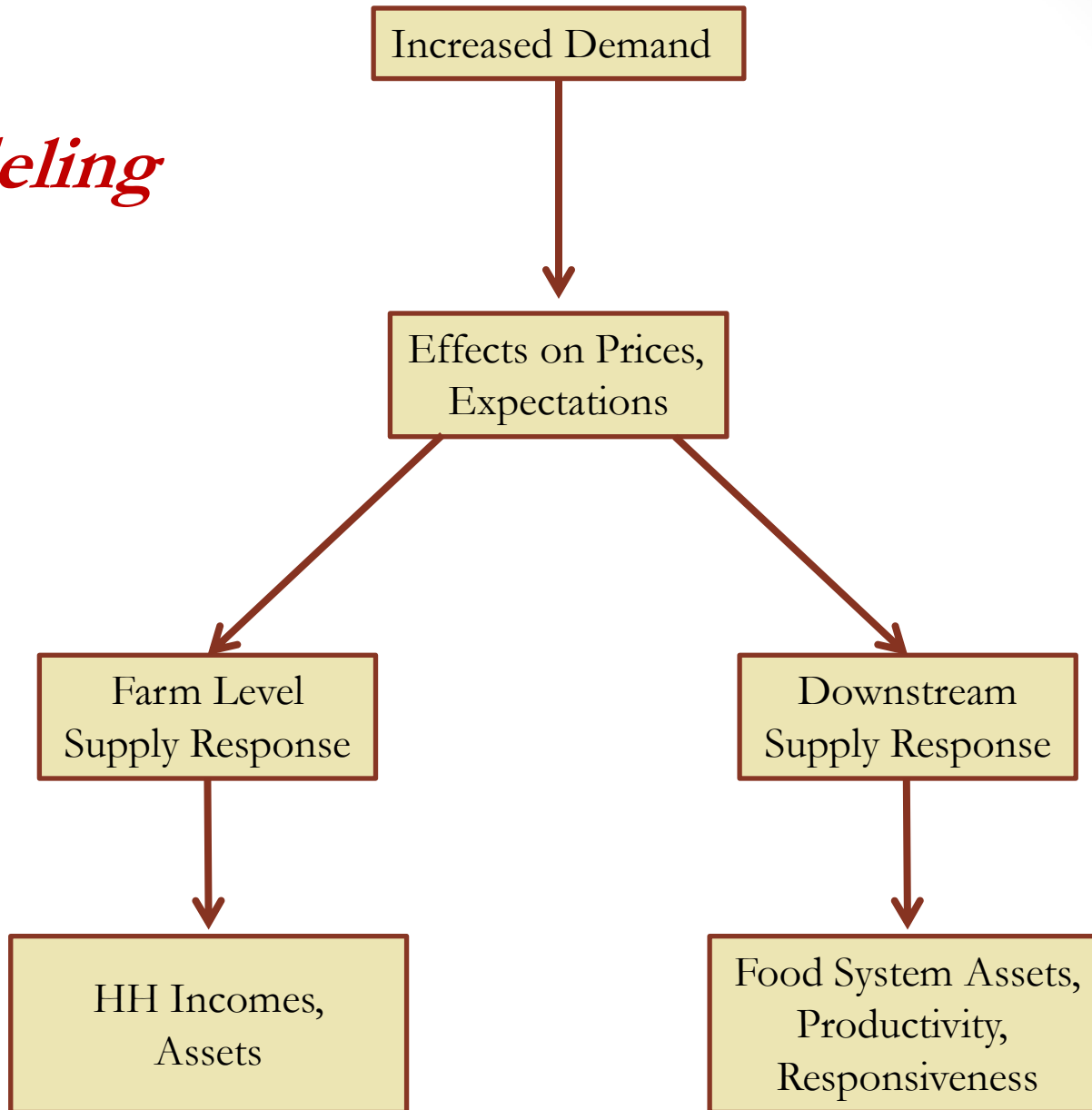


P4P and LRP

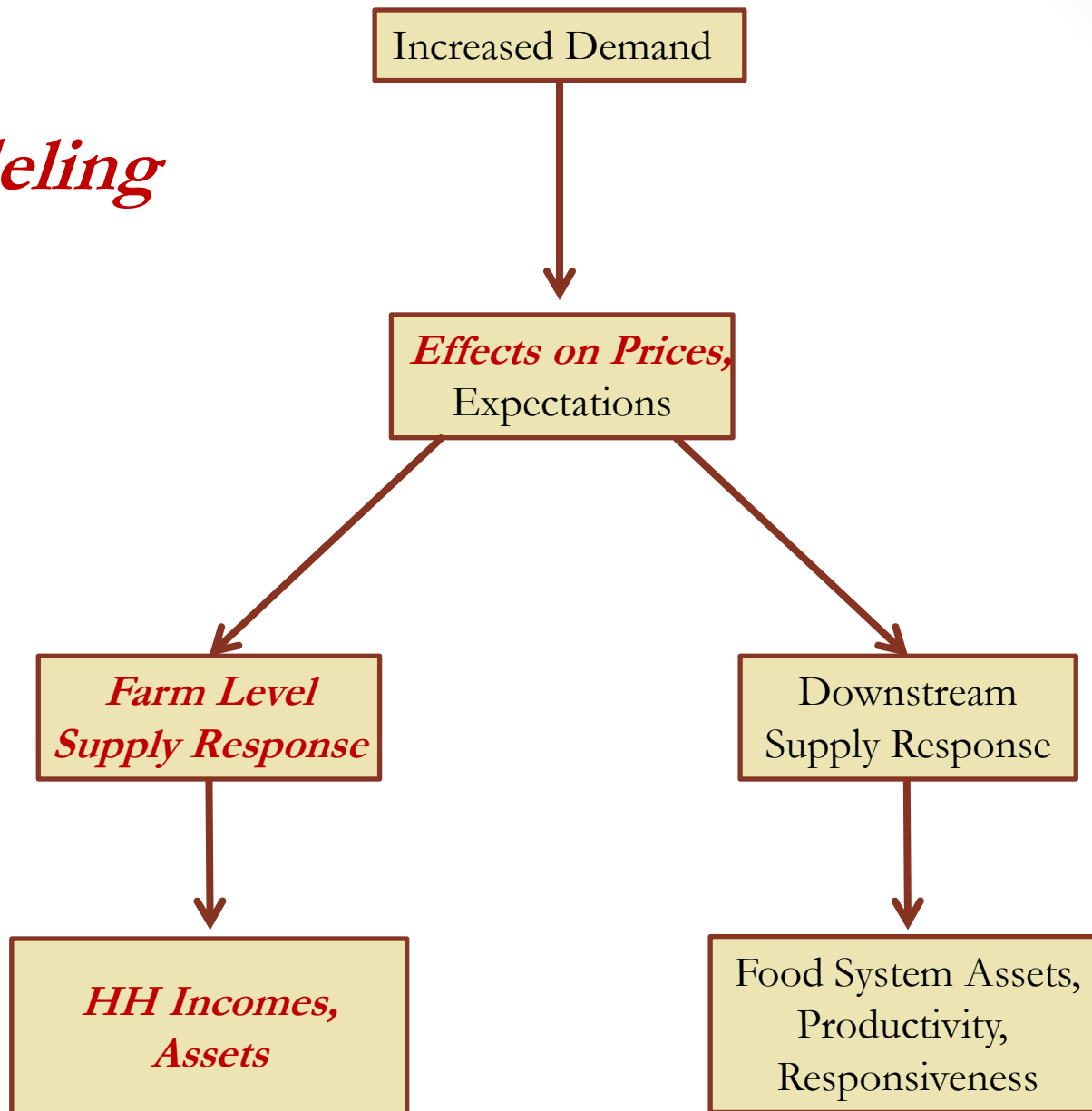
- To what extent have these supply responses to LRP been taking place without P4P?
- Depends on ability to increase productivity
 - Policy environment
 - Input & output market performance
 - Orientation and capacity of farmers
 - Extension systems
 - Access to credit
 - Access to productive assets
 - Other development programs/projects

Analytical Approach

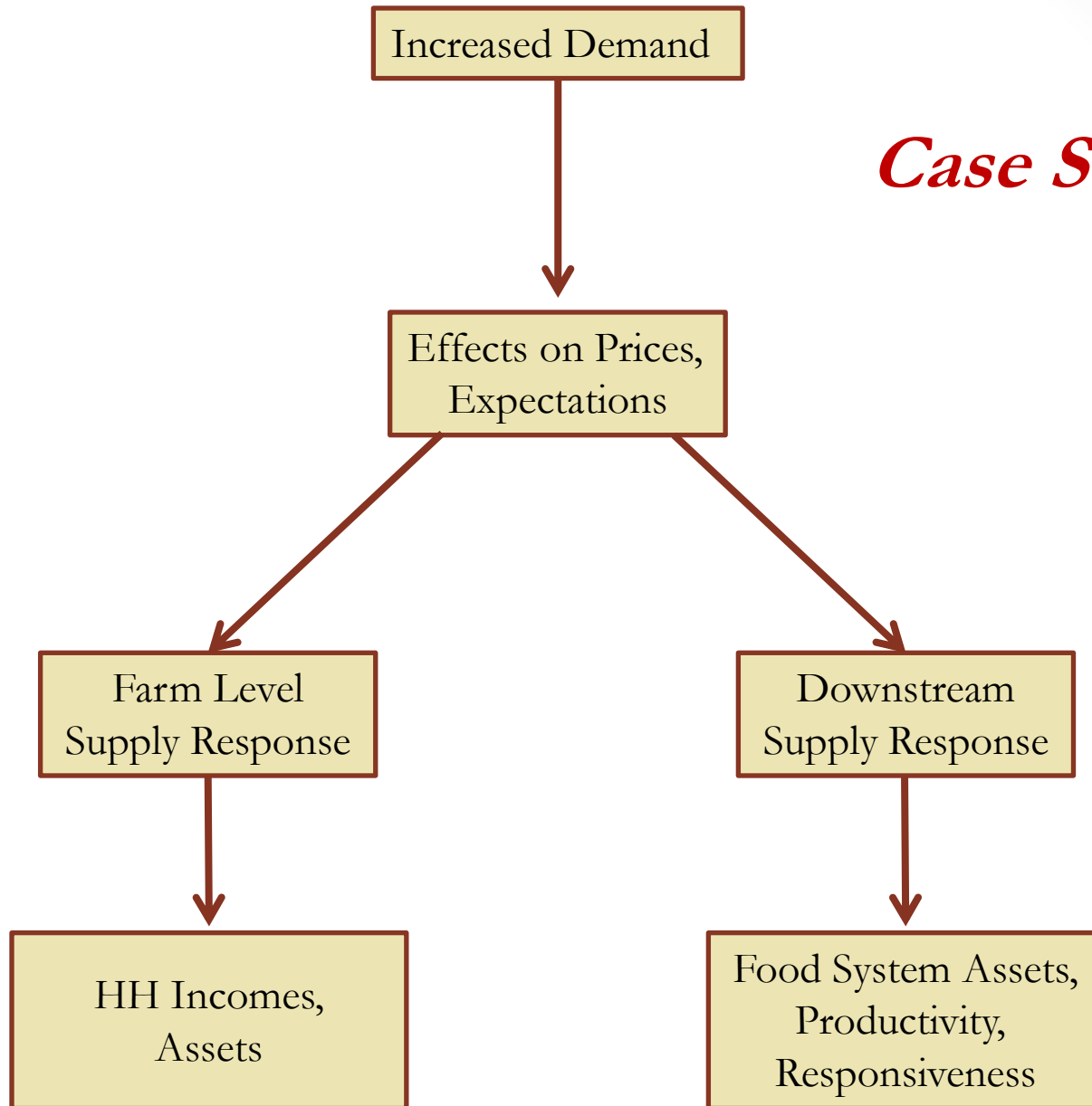
Modeling



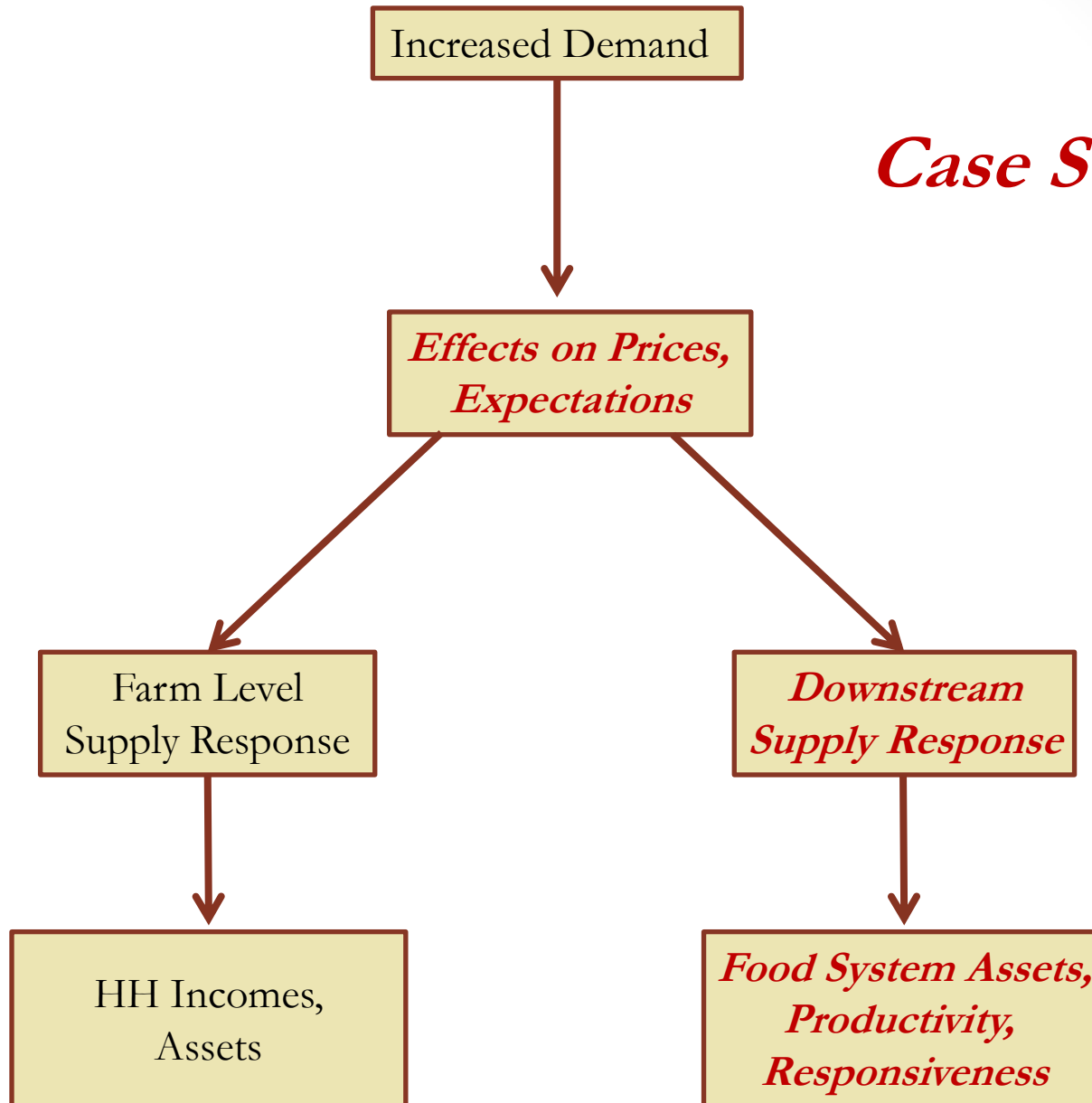
Modeling



Case Studies



Case Studies



Case Studies

Case Studies

- Use quantitative LRP time series data to set the context along with data on
 - Production
 - Prices
 - Food aid imports
- Examine developmental effects
 - Has LRP affected expectations of farmers (?), traders, and processors?
 - Has LRP moved to a more counter-seasonal purchasing pattern?
 - Quantifiable impacts on investment in processing
 - Contribution to development of modern market institutions

Case Studies (2)

- Examine performance on first order risks
 - Update analysis from Tschirley and Del Castillo on pricing performance
 - Closer examination of periods of potential adverse price impacts
 - Record on trader default
 - Record on food quality
 - Can we have access to all testing results – on accepted and rejected tenders – for aflatoxin?
 - This will help define the dimension of the food quality challenge in SSA

Case Studies (3)

- Key issue: how to select the countries?
 - Those where we can put together an analytical package?
 - Macro VAR on prices + household models + case studies
 - Requires data
 - Zambia, Mozambique, Kenya ... others?
 - Very rich insights, but ...
 - Those in which specific issues are of special importance
 - Suspicion of adverse price impacts
 - Concern with quality
 - Promotion of processing
 - ... where data may not be all available to do the full package

Modeling

Macro (Market) Level Analysis

Objective:

Evaluate the effects of instrument variables:

- LRP purchases
- Food aid distributions

On performance variables:

- Maize price levels
- Maize price stability (including seasonality)
- Maize production
- Total crop production

Alternative Methodologies

1. Structural Modeling

- Specify and estimate multi-market supply and demand model (incorporating effects of LRP and food aid)
- Simulate effects of LRP
- Requires data on many variables not readily available
- Results tend to be driven by specification and assumptions

2. Reduced Form (VAR) Modeling

- Specify and estimate reduced form VAR model
- Simulate effects of LRP (and food aid distributions)
- Requires fewer variables
- Results more data driven

VAR Approach

We propose a VAR approach to help overcome data limitations and provide a more data-based estimate of LRP effects

Examples in the Literature:

- Jayne, Myers, and Nyoro, *Agricultural Economics*, 2005 (Effects of NCPB maize marketing policies on the level and stability of Kenyan maize prices)
- Abdulai, Barrett, and Hoddinott, *World Development*, 2005 (Effects of food aid on food production in Sub-Saharan Africa)

Two VAR Model Types

We suggest two separate VAR model types will be needed

- One using monthly data to examine the relationship between LRP and maize price levels and variability (separate country models)
- One using annual data to examine the relationship between LRP and the supply of maize, and of aggregate crop production, (possibly separate country models, possibly panel)

Micro (Household) Level Analysis

Objective:

Evaluate the effects of instrument variables:

- Price effects of LRP
- Food aid distributions

On performance variables:

- Household maize supply
- Household welfare and poverty
- Possibly household maize consumption
 - would require different data sets

Methodology

Structural household supply/factor demand and possibly consumption model

- Cross-sectional/panel data based on rural household surveys
- Investigate distribution of effects across household types
- Macro price effect results will be used as input

Examples of HH Modeling Approach

- Mghenyi, Myers, and Jayne, *Agricultural Economics*, 2010
(Effects of maize price increase on household welfare and poverty in Kenya)
- Abdulai, Barrett, and Hoddinott, *World Development*, 2005
(Effects of food aid on household input use in Ethiopia)

Country Coverage

We propose a three-pronged approach of:

- Prices VAR
- Household structural model
- Supply chain case studies

Applied to each of three countries for which we know required data are available (Zambia, Mozambique, Kenya)

The production VAR will also be applied to each of the three countries separately if possible, but data limitations will probably require a single panel (cross-country) study