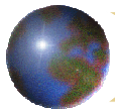


# Determinants of price level: the role of production cost and farm productivity

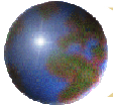
Steven Haggblade (MSU)

Presented at the Comesa training workshop  
"Food price variability: Causes, consequences, and policy options"  
On 28-29 January 2010 in Maputo, Mozambique  
under the Comesa-MSU-IFPRI African Agricultural Markets Project (AAMP)

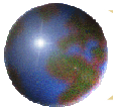
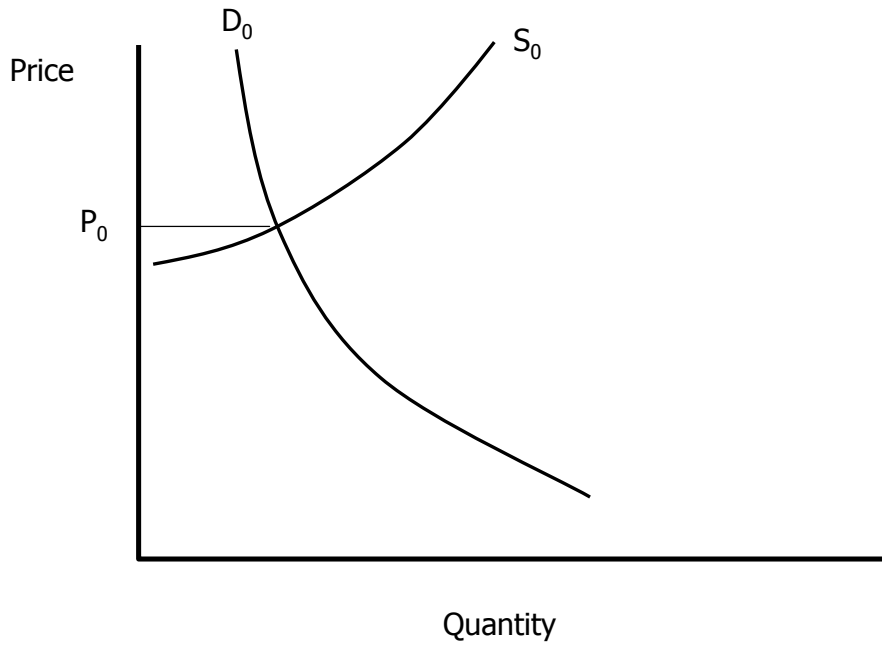


## Outline

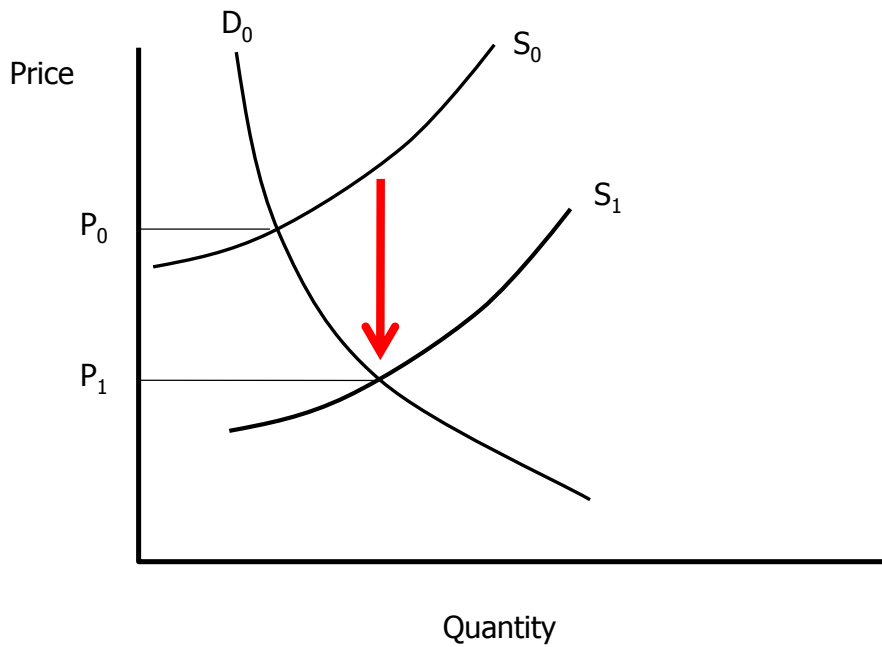
- Determinants of price level
- Exercise 1. What affects farm productivity? (estimate yield functions)
- Exercise 2. Compute plot-level cost of production

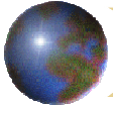


## Determinants of price



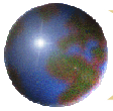
## Determinants of price





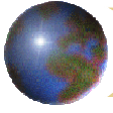
## What affects cost of supplying maize to the market?

- Farm-level cost of production
- Transport costs (distance to market)
- Marketing costs (handling, storage, profit, risk premium)



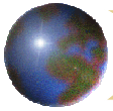
## What affects cost of supplying maize to the market?

- **Farm-level cost of production**
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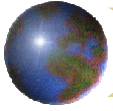
## Why does productivity vary?

- Among farmers?
- Across plots?

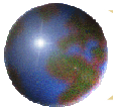


## Good farmer or bad farmer?



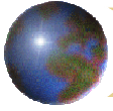


## Good farmer or bad farmer?

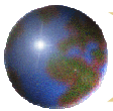


## Good farmer or bad farmer?



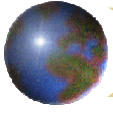


## Good farmer or bad farmer?

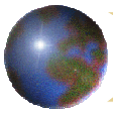


## Why does productivity vary?

- Among farmers?
- Across plots?

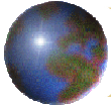


## Factors affecting plot-level yield:

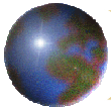
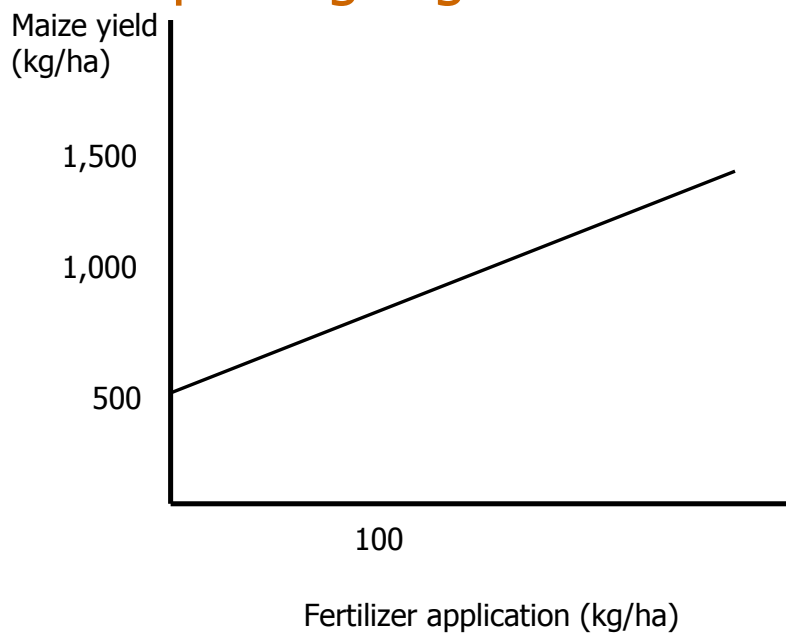


## Exercise 1. Estimating plot-level yield functions: Yield = function of:

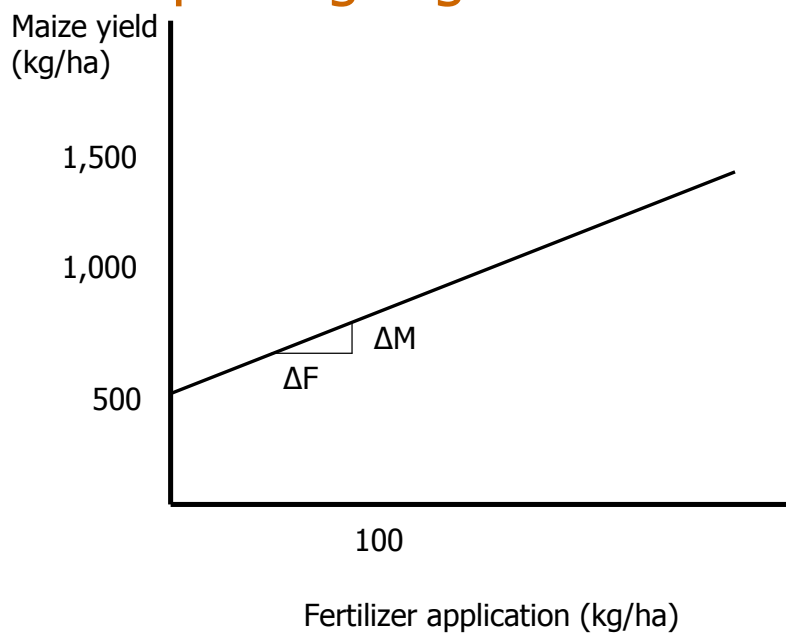
- Seed type (hyv vs. local)
- Fertilizer application (kg/ha)
- Time of planting (number of days after November 1)
- Tillage system (hand hoe, conservation farming basins, plowing, ripper)
- Number of years experience with CF
- Plot size
- Gender



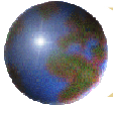
## Interpreting regression coefficients



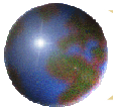
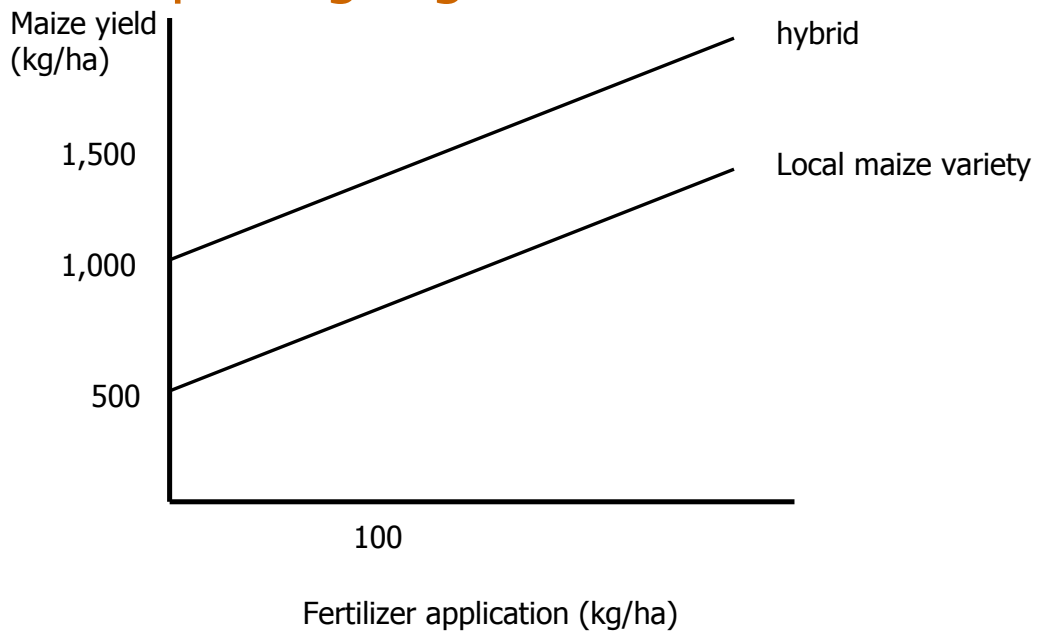
## Interpreting regression coefficients



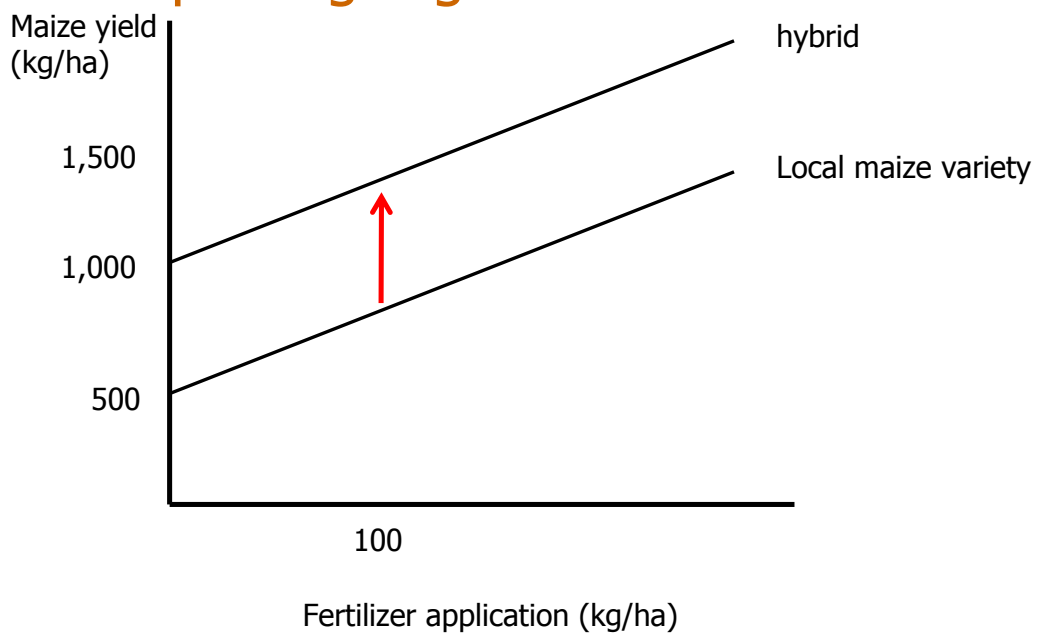


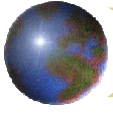


## Interpreting regression coefficients



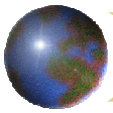
## Interpreting regression coefficients



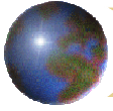


## Regression equation

$$\text{Yield} = a + b \text{ Fert} + c \text{ HYV} + \dots$$

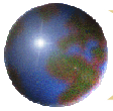


## Exercise 1. Results



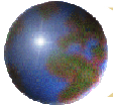
## Exercise 2. Compute plot-level cost of production

- Select a farmer
- Use "Cost" worksheet to compute production cost



## Exercise 2. Results

Farmer, plot	Cost of production (\$/ton)
Average	



## Conclusions:

- Cost of production differs across farms and plots
- Efficient farmers produce at lowest cost
- Policy instruments for lowering farmers' cost of production
  - Agricultural research (breeding, agronomic)
  - Extension (improves agronomic and management practices)