



Crop Forecasting Accuracy and Price Instability



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Objectives

- This conference is dedicated to identifying options for managing food price risks
- This presentation
 1. shows how the functioning of the crop forecasting system affects the degree of food price unpredictability and risk
 2. Shows how inaccurate crop forecasts can raise the possibility of food crises
 3. discusses the pros and cons of alternative methods of crop forecast systems
 4. recommends specific actions for strengthening national crop forecast systems



Issue #1

How does the functioning of the crop forecasting system affect food price unpredictability and risk?



- Both public and private marketing agents make decisions on the basis of available information
 - Annual grain production estimate is perhaps the single most important source of information to guide public and private decisions
- If the information is inaccurate, their marketing decisions in the aggregate lead to “surprise outcomes”



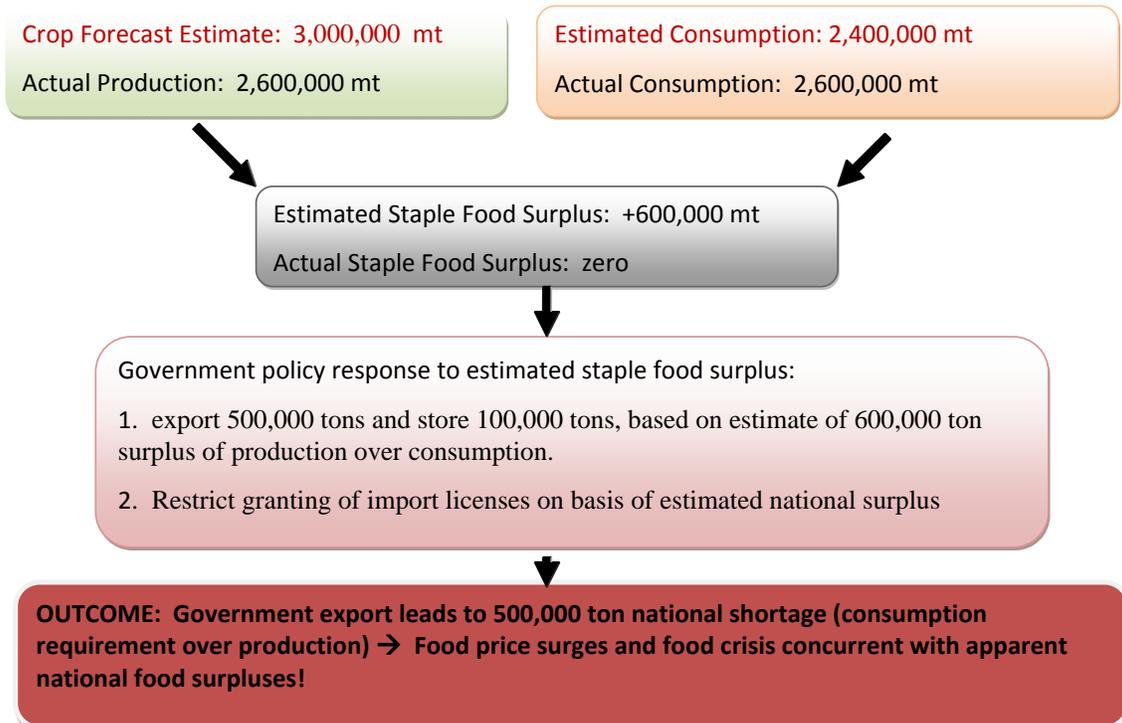
- Confidence in public crop production and balance sheet estimates are necessary for the functioning of
 - Commodity exchanges
 - hedging, call options
 - most other tools for managing food price risks
- Crop forecasts and balance sheets influence government decisions on marketing board purchases, export decisions, etc.



Issue #2

How can inaccurate crop forecasts contribute to food crises?

How inaccurate crop forecasts can lead to national food crisis: An illustrative example



Conclusions so far:

- Inaccurate crop forecasts
 - lead to decisions that cause national supply-demand imbalances
 - exacerbate price volatility
 - jeopardize the functioning of food security programs
- All these raise the possibility of food crises



Issue #3

Pros and cons of alternative crop forecasting methods



Two types of crop forecasting systems in the region

1. Crop assessments by Ministry of Agriculture (MOA)
2. Statistical survey-based production estimates by Central Statistical Office (CSO)



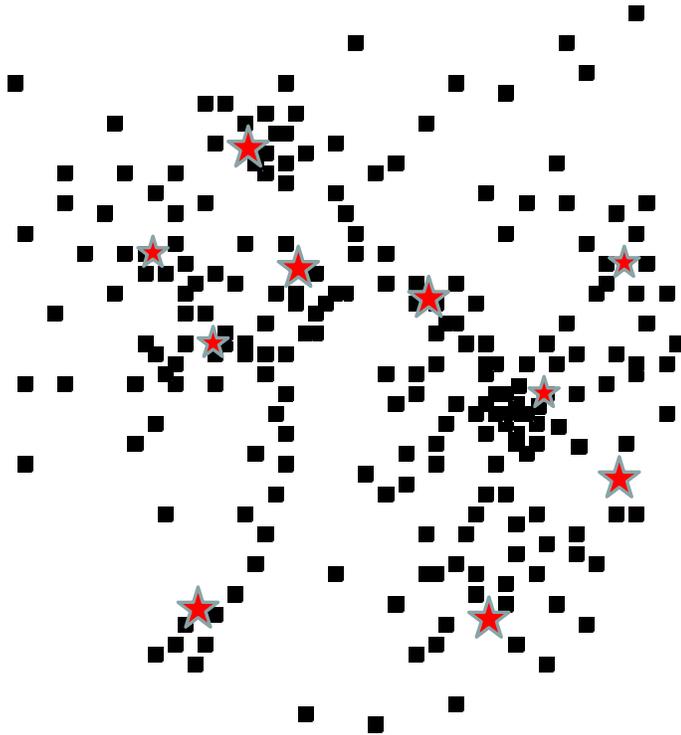
MOA crop forecasts

1. Relies on vast network of extension workers
2. Yields often based on yield sub-plot measurement – relatively good
3. Area estimates more problematic
 - Better at detecting changes between this year and last year, but scientific area estimates are problematic
 - Often discrepancies regarding the number of agricultural households
 - How to distinguish between area under monocrop vs. intercrop



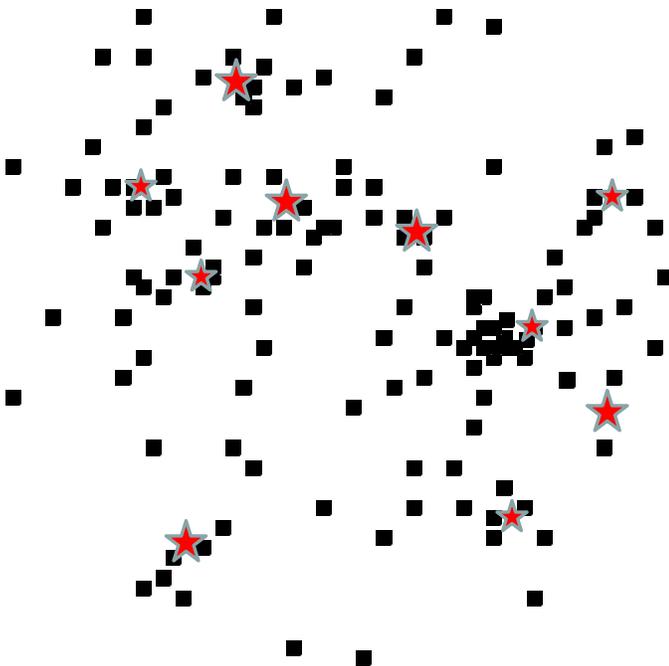
CSO crop forecasts

1. Nationally representative insights can be obtained if various stages are implemented well
2. Vulnerable to errors at several stages that can seriously distort national production estimates
 - Requires knowledge of the number of agricultural households in an area through “listing” stage



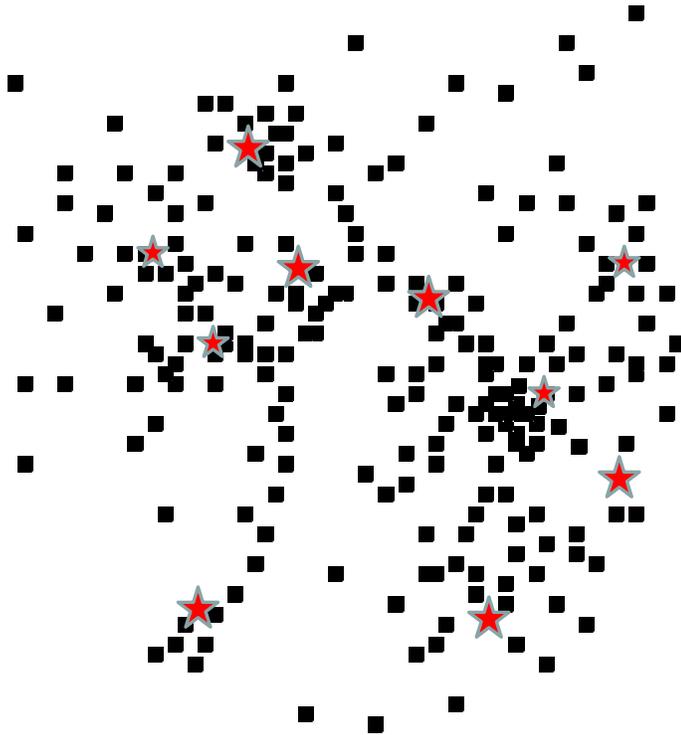
1,000 households in standard enumeration area

- randomly interview 10 farm households
- weighting factor=100 to expand sample production to the population of the SEA
- now, if CSO only lists 500 households, then it would use a weighting factor of 50 to convert crop production of the sample to the SEA level.



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CSO crop forecasts

1. Can obtain nationally representative insights if various stages are implemented well
2. Vulnerable to errors at several stages that can seriously distort national production estimates
 - Requires knowledge of the number of ag households in an area through “listing” stage
 - Inadequate attention to data entry errors – CSOs often need to get on to the next survey without having time to properly clean the one they just implemented



Issue #4

Recommendations for improving crop forecasting systems



Recommendations for more accurate crop forecasting

1. With sufficient resources for proper execution, statistical survey-based methods have the potential to provide reasonably accurate production estimates
2. Work out reasonable budgets to implement surveys and issue monitorable performance contracts to CSO
3. Accuracy at “listing” stage is particularly crucial
4. Capacity building for CSO statisticians, enumerators and data entry staff



Recommendations for accurate crop forecasting

5. More consideration needed on what is the right information to monitor: production is not enough
 - Need more attention to forecasting marketed supply and demand, since these are what determine food prices
 - If government wants to know how much grain can be exported to relieve a surplus, it needs estimates of marketed supplies as function of various price levels
 - Market demand heavily influenced by weather, local prices, world/regional market conditions, and market conditions of other food commodities
 - Currently, consumption requirements are estimated as:
kgs per person requirement * population
-- but of course actual consumption is influenced by price levels



Summary Conclusions

1. Crop forecasting -- not just for balance sheets
2. Accurate crop forecasts – and other public information – would help state and private marketing actors to make decisions that reduce the chances of
 - huge supply-demand imbalances and
 - associated price volatility



Summary Conclusions

3. More accurate estimates and an expanded set of public information (e.g., marketable supplies at various price levels) to help policy makers make informed trade policy decisions

