Mind the Gap: Interpretation of Agrifood Commodity Projections

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Why Projections Matter

With reoccurring price spikes and volatile markets, it is vital that policy reactions mitigate the problems without amplifying the negative effects.

- Short and medium term outlooks provide information to make better decisions. But what makes for a good forecast and what is the best way to interpret the projections?
Why Models Matter

Models formalize the process of forecasting the future and identifying potential pitfalls, by:
– making assumptions and the process transparent
– imposing discipline through an economic framework.

The benefits of the process include:
• The employment of a sound and consistent economic framework
• The development of human capital capable of in-depth analysis and reaction in a timely manner (side benefit is brainstorming process)
• Maintenance of an integrated database and other sources of market intelligence

Modeling is an art combines intimate knowledge of markets with technical and theoretical knowledge
Costs and Alternatives

In addition to benefits there are costs to this process

- Model maintenance is needed and costly
- Need to find staff with a particular skill set and need to retain them
- The challenge is marrying these forecasts with short term predictions which are based on expert opinion and price discovery processes
  - Need a convergence of results despite divergence of aims

Given these costs an alternative approach to the structural modeling involves time series methods (e.g. VAR, etc.)

- Tend to be more successful in the near term but are not informative in explaining alternative scenarios and does not fully utilize all the available information
- Performance advantage quickly dies out over longer periods
Those involved in developing and interpreting commodity projections have many factors to consider in gauging the value of forecasts and deciding how to project the future.

- Agri-food commodity projections (both short and medium term) assume normal climatic and macroeconomic conditions, no outbreaks of plant or animal diseases and no major policy changes.

- It is these complications: the complexity of economic interactions, the ability to deviate from normal conditions, and the degree to which commodities must be differentiated, that determine the best forecasting method.
Interpretation

Record of projecting food prices is mixed, agencies did not predict the price spikes of 2008 and 2010, because the convention of assuming normal conditions.

- alternative scenarios showed impacts for crop failures, crude oil price increases and the devaluation of the US$.
- consensus that there is a new higher price plateau
OECD/FAO AGLINK/COSIMO project

OECD saw the need for a model and a medium term outlook process in close collaboration with Member countries

• Build a consistent model with a standard set of commodities using reduced form equations and variables from member country models
• Capture *market intelligence* by distributing questionnaire to members
• OECD calibrates all endogenous variables of each country to the values in the questionnaire.
• FAO covers about 35 components composed of single developing country or of regional aggregations
• Merge into AGLINK/COSIMO model to get consistent projection

This outlook is submitted to the OECD Commodity committee for validation and discussion with delegates and representatives of specific commodity organizations

• Transparency of process through collaboration and sharing of model
Future Challenges

Large institutional models face a number of challenges

- Increasing product heterogeneity
- Industrialization of agriculture reduces the role of price as a market organizing tool and driver of resource allocation
- Industrial uses of ag products establishes a link between crude oil price, government policies cannot be ignored

- Strength of models is cross-commodity coverage but weakness is poor coverage of vertical links up and down the supply chain
- Volatility also has implications for supply response which are not always included.
- There are multiple mechanisms through which policy may affect decisions

Source: OECD 2011 Outlook
Future Challenges

These changes require new information

- Elasticities need to reflect these fundamental changes
- Data for new products/markets are limited and the need depends on level of disaggregation and appropriate periodicity to make rational decisions
- Validation has two meanings: model related and reality relevance

Stronger links among agriculture, energy and fisheries increase the need for inter-agency cooperation to reduce costs and capture synergies in projecting the future
Conclusions

Models
- Should be parsimonious but detailed enough to provide answers
- Should be validated by conducting sensitivity analysis of key parameters
- Should be supported with sufficient resources
- No one model is capable meeting all research needs

Process
- Collaboration necessary to economize on resources
  - synergies in scenario design and information sharing
- Selling the projection to clients/decision makers is also an art
  - Depends on timeliness and credibility

Interpretation
- A major purpose of outlooks is to reduce the risk associated with decisions
- Need to look at entire distribution not just central tendencies
- Understand what a baseline and what scenarios are for