Summary of FAPRI CPI & Consumer Expenditure Models
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As the United States approaches the 21st century, the focus in agriculture is slightly
different than is was thirty or forty years ago. With the passage of the FAIR act and shift toward
a more market-oriented agricultural industry, the focus toward the consumer and retail facets has
increased, leaving less emphasis on production and the farm. The Food and Agricultural Policy
Research Institute (FAPRI) has earned a reputation for developing strong econometric models for
crop, livestock, and dairy commodities. Over the years, these models have been one of many
tools used to analyze farm policy and have played an active role in providing analysis for farm
bills.

In an effort to capture potential trends in the consumer and retail side, FAPRI has recently
developed an econometric model for food in the United States. This model contains both
consumer price index and consumer expenditure components. To complete the loop from
producer to consumer, FAPRI combines wholesale prices, retail prices, and consumption
information.

The consumer price index model is broken out into food at home and food away from
home. Food at home is further divided into cereal and bakery products, meats, dairy, fruits and
vegetables, and other prepared items including fats and oils, sugar and sweeteners, and
nonalcoholic beverages. This data series contains the same components as the Bureau of Labor
Statistics’ CPI model.

Each component of FAPRI’s consumer price index model is estimated Ordinary Least
Squares over a 1986 to 1995 time period. Historical data used in the estimation is obtained from
USDA and Bureau of Labor Statistics. Individual equations and identities are then combined into a system using dynamic simulation methods.

As the chart below indicates, the main driving forces for FAPRI’s consumer price index model are rice, wheat, sugar and soybean oil farm prices and high fructose corn syrup prices obtained from the FAPRI U.S. crops model. These variables are used in combination with wage rates and the producer price index for fuel and electric power to obtain price linkage equations for rice, bread, sugar, and margarine retail prices. Furthermore, several other factors provide additional impacts on the consumer price index model for food. These include beef, pork, broiler, turkey, and egg retail prices (obtained from the FAPRI livestock model), milk, cheese, and butter retail prices (obtained from the FAPRI dairy model), and the consumer price index for all items (obtained from Wharton Econometric Forecasting Associates--WEFA).

In developing the baseline, or forecast for the consumer price index for food, the model simulation results as outlined in FAPRI-UMC #14-96 are used in combination with the wholesale and retail prices and consumption generated from the overall FAPRI baseline. An additional component in this process is the use of ten year macro economic forecasts from Wharton Econometric Forecasting Associates (WEFA). From this point, a detailed and aggregate food outlook develops for consumer prices and expenditures for the next ten years.

This model was used in FAPRI’s U.S. Agricultural Outlook earlier this year and will continue to be a growing component of the FAPRI baseline process. For additional information, please see FAPRI-UMC #23-97 and FAPRI-UMC 14-96. As always, in an attempt to develop the best possible tool for policy analysis, we encourage your comments and feedback on this research performed at FAPRI.
CPI & Consumer Expenditure Models
Livestock Components of FAIR
Crop Components of FApri CPI &
Consumer Expenditure Models