

## The accuracy and informativeness of agricultural baselines

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The United States Department of Agriculture (USDA) and Food and Agricultural Policy Research Institute (FAPRI) have recently released baseline projections about the US agricultural sector for the next ten years to 2030 (FAPRI, 2021; USDA Office of the Chief Economist, 2021). The baseline reports contain several projection tables that describe several important aspects influencing agricultural markets, including projections of commodity prices, production, global agricultural trade, and aggregate indicators such as farm income. These projections provide insight into the market forces that may shape the US farm sector in the next decade, and help policymakers make informed decisions.

USDA and FAPRI baseline reports have been the principal sources of long-run agricultural projections about the US farm economy for the last three decades. The baselines provide a neutral conditional scenario against which alternative policies can be evaluated, and they have been widely used in formulating policy. For example, the commodity projections in the USDA baseline serve as an important input to estimate farm program costs while preparing the President's budget (USDA ERS, 2021). In addition, the global projections in the baseline help in analyzing the relationship between US agricultural trade and the economies of other countries. This year's baselines are very important in the context of recovery from the ongoing Covid pandemic and the trade wars during the previous years as policymakers weigh their policy options.

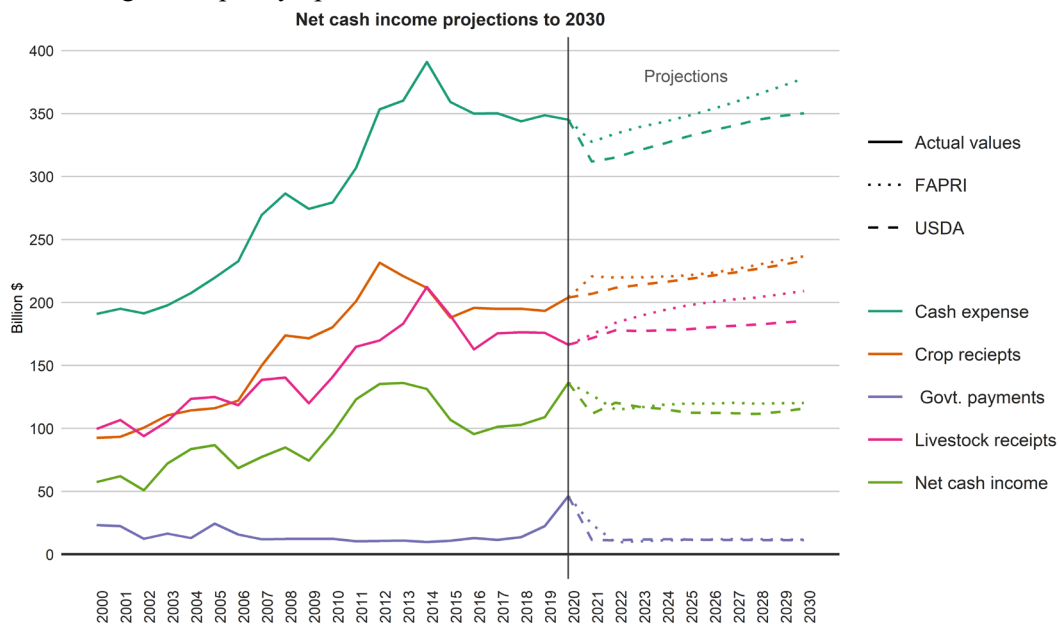


Figure 1 Projections of net cash income and its components to 2030 and historical actual values

USDA released its baseline report in mid-February while FAPRI followed up with its own report in early March. The baseline reports project a cautiously optimistic picture of economic recovery in the agricultural sector. Figure 1 shows the projections of bottom-line net cash income by USDA and FAPRI and its components for 2021-2030, and historical actual values post 2000. The bottom-line net cash income is expected to decrease in 2021 and expected to show a steady growth thereafter. Much of the decline in net cash income in 2021 can be attributed to a decline in direct government payments which are not expected to continue at 2020 levels. After an initial dip, crop receipts and livestock receipts show steady growth throughout the decade, but cash expenses increase too, keeping the growth in net cash income modest. Projections for average farm prices of major fields crops (corn, soybeans, and wheat) also remain steady over the decade as shown in Figure 2.

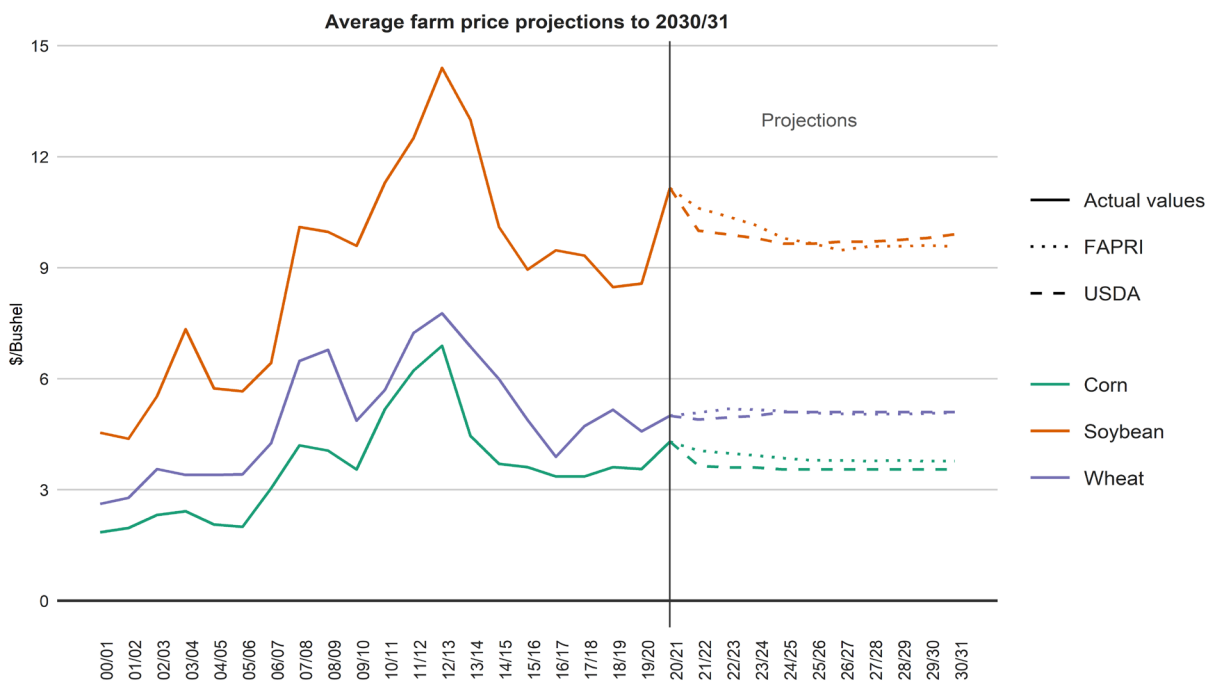


Figure 2 Projections of average farm price of major crops to 2030/31 and historical actual values

Despite their importance to policy, agricultural baselines have not been evaluated rigorously in the literature. We evaluate the accuracy and informativeness of the USDA and FAPRI baseline projections of major field crops (corn, soybean and wheat) and net cash income components (Bora et al., 2021). Using a novel testing framework based on the encompassing principle, we show that the predictive content of most variables diminishes after 4-5 years from the current year. In addition, we also compare the USDA and FAPRI baselines models using a multi-horizon framework that takes all projections horizons together. Our results show that while the FAPRI model seems to project well for the initial horizons, the USDA and FAPRI models do not outperform one another when the entire projection path is considered. In a previous study, we show that the short-term projections from USDA baseline reports in February can add additional information to ERS farm income forecasts released in the same month (Kueth et al., 2021).

## References

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