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US Crop Safety Net Policy since 1975 as a Margin Safety Net

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Considerable interest exists in margin farm safety net programs, where margin is return minus cost. This analysis however finds that the crop safety net has provided substantial margin protection since 1975. The largest market loss at harvest was -9% vs. -36% without crop safety net payments from producing, as a group, program crops for which USDA (US Department of Agriculture) reports cost of production (barley, corn, cotton, oats, peanuts, rice, sorghum, soybeans, and wheat). The current crop safety net's substantial margin protection prompts the question, "Why does interest exist in a crop margin safety net?" Potential answers and their different implications for policy are discussed in the summary section.

Procedures and Data

This article uses results first published in the *Journal of the American Society of Farm Managers and Rural Appraisers (ASFMRA)*. An important assumption in both articles is that average cost to produce a crop in the US is accurately measured by USDA. The authors think this assumption is reasonable but encourage readers to examine the extensive discussion in *ASFMRA* and make their own judgement. A brief discussion of key data and procedures follows.

The analysis uses data for the US as a whole starting with the 1975 crop year, the first year USDA reported cost of production (COP hereafter) data. Except for management, a cost is assigned to all inputs, with land and unpaid labor assigned an opportunity cost. Quantity of inputs is based on periodic

surveys of farms. Input prices are updated annually using prices collected by the National Agricultural Statistics Service. Net return is calculated using yield per planted acre and a harvest month price. It is a return to management and risk.

Total economic cost per planted acre and net return per planted acre for each COP crop and year were multiplied by US acres planted to the COP crop for the year. The resulting total US economic cost and net return for each COP crop for a year were summed to obtain US aggregate economic cost and net return for the nine COP crops as a group for the year.

COP returns and costs do not include returns and costs from storing a crop, government program payments (commodity, crop insurance, *ad hoc*, conservation, livestock, etc.), and farm-paid crop insurance premiums. Commodity payments, crop insurance indemnities minus farm paid premiums, and *ad hoc* payments if available by crop were collected for the COP crops. Most *ad hoc* payments are not available by crop and thus are not included. *Ad hoc* program payments available by crop were: (1) Market Loss payments for 1998-2001 crops; (2) Oilseed payments for 1999 and 2000 crops; (3) Market Facilitation (MFP) payments for 2018 and 2019 crops, and (4) Coronavirus Food Assistance (CFAP) payments for 2019 and 2020 crops. Commodity program payments are by calendar year prior to 1996 but by crop year thereafter.

Net Return

Figure 1 presents by year for the nine COP crops as a group (1) aggregate net return from the market at harvest relative to aggregate economic cost of production (hereafter, market net return) and (2) aggregate net return including crop safety net payments relative to aggregate economic cost of production. Market net return for the COP crops as a group was positive in 13 crop years, averaging +12%/year, and negative in 33 crop years, averaging -15%/year. Crop safety net payments reduced the average loss in the latter 33 crop years to -1%/year. For all 46 years since 1975, safety net payments turned a -7% average market net return into a +4% profit.

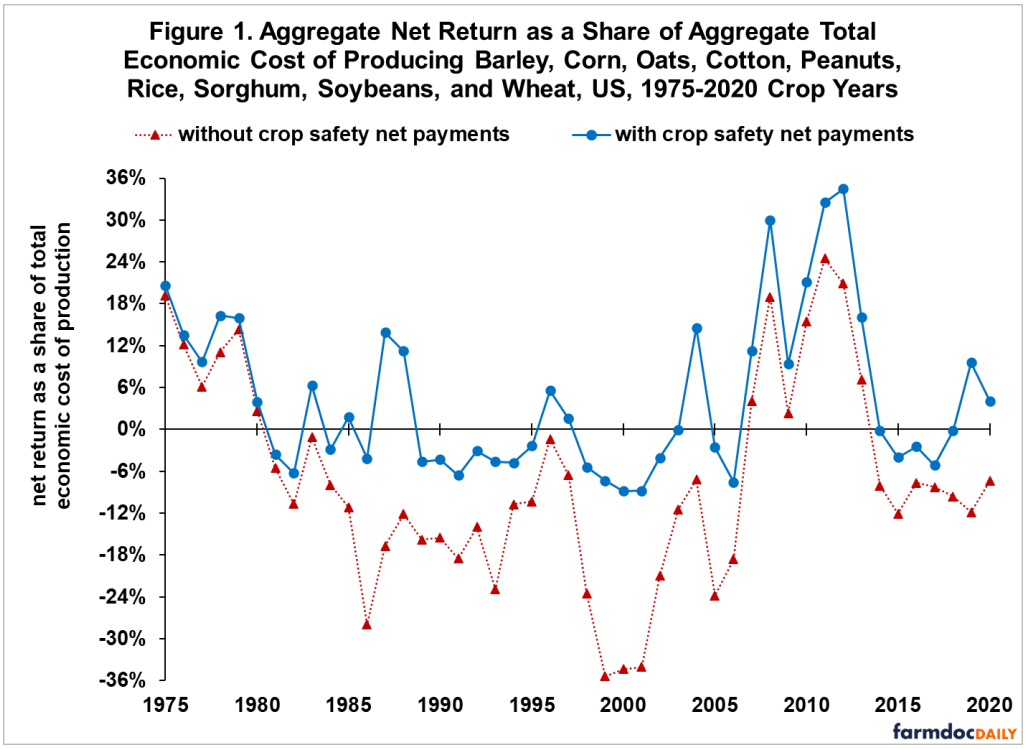


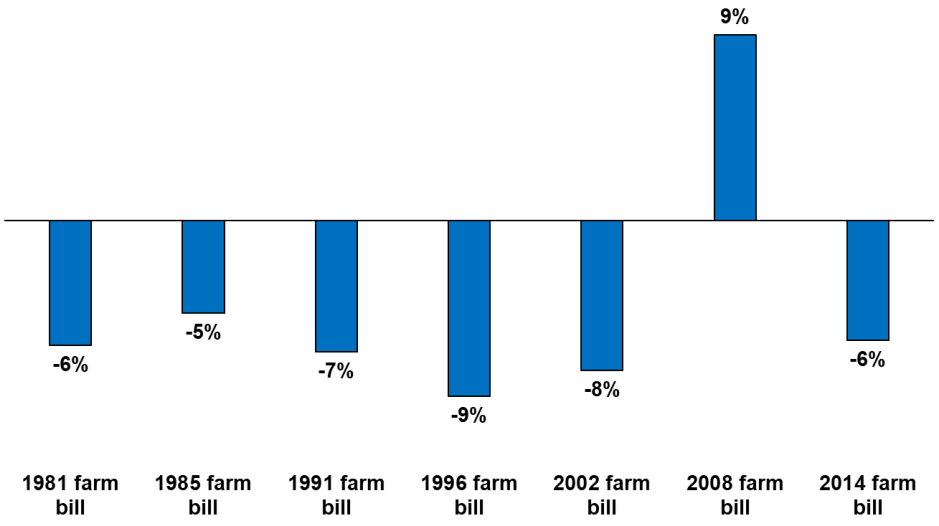
Figure 1. Aggregate Net Return as a Share of Aggregate Total Economic Cost of Producing Barley, Corn, Oats, Cotton, Peanuts, Rice, Sorghum, Soybeans, and Wheat, US, 1975-2020 Crop Years

Floor on Loss

The largest market loss at harvest was -36% without safety net payments vs. -9% with safety net payments (see Figure 1). A loss of -9% was smaller than 23 of the 33 losses at harvest calculated using only market returns. Moreover, the largest market loss with safety net payments was similar across six of

the seven farm bills since 1980, ranging from -5% to -9% (see Figure 2). The exception was the 2008 farm bill period when market net return at harvest was never negative.

Figure 2. Lowest Aggregate Net Return Including Crop Safety Net Payments as a Share of Aggregate Total Economic Cost of Producing Barley, Corn, Oats, Cotton, Peanuts, Rice, Sorghum, Soybeans, and Wheat, 1981-2014 US Farm Bill Periods



Correlation of Losses With Type of Program Payment

Figure 1 clearly implies crop safety net payments were highest in years when aggregate market loss for the COP crops was highest. For the 33 years with a harvest market loss, the correlation between payments and market loss is -0.74, which is statistically significant with 99% confidence. This correlation primarily reflects commodity program payments, whose correlation with market loss is -0.66.

Net crop insurance indemnities had a 0.00 correlation with harvest market loss during the 33 years of negative returns at harvest. Crop insurance payments are primarily for production losses at the individual farm level (see *farmdoc daily* September 14, 2022). Individual farm production losses most often occur for a limited subset of US farms and thus are not usually related to crop sector economic losses. A zero correlation is not a surprise.

The correlation for *ad hoc* payments may be misleading because they were available for only 7 years (1998-2001 and 2018-2020). Nevertheless, comparing these two periods is instructive. Market loss at harvest during 1998-2001 averaged -32%, the highest market loss observed. In contrast, market loss at harvest during 2018-2020 was close to normal, averaging -8%. This comparison suggests that, while *ad hoc* payments are likely when crop sector losses are large, they also are made for other reasons.

Conclusions and Implications

The US crop safety net has, in essence, operated as a margin protection program for farm program crops as a whole.

Since 1975, the most US farmers as a group have lost from growing farm program crops was -9% when safety net payments are included. A loss of -9% was smaller than 23 of the 33 losses at harvest calculated when using only market returns. The -9% floor also has held across farm bills authorizing different, often notably different, policy instruments.

The considerable margin protection provided by the current US crop safety net prompts the following key question, “Why does the current interest in crop margin protection exist?” It is not clear to us what the answer to this question is. Potential answers are numerous and include

concern that the recent increase in costs will lead to an ineffective crop safety net,

incomplete understanding of the margin protection provided by the current crop safety net,

the historical -9% floor of the current crop safety net is considered too low,

a desire to use margin to calculate crop safety net payments,

a desire for margin protection at the individual crop level, or

a desire for margin protection at the individual farm level.

These policy motivations have different implications for the current crop safety net:

the first two can be addressed in part by improving the understanding of the higher revenue support and reference prices provided by the current Agriculture Risk Coverage (ARC) and Price Loss Coverage (PLC) programs when prices are above the statutory reference prices (see *farmdoc daily* June 29 2022 and July 6, 2022). A lack of understanding of current farm bill programs is not a surprise since *ad hoc* payments have dominated in recent years,

the third can be addressed by increasing current commodity program support levels,

the fourth can be addressed by using margin, not price or revenue, to calculate payments,

the fifth can be addressed by creating margin programs for individual program crops, and

the sixth can be addressed by creating a crop insurance margin product that farmers find more acceptable than current crop insurance margin products.

The policy response could be any combination of the above individual policy responses.

This historical analysis also suggests that a strong argument exists for a margin crop safety net: non-trivial budget savings from (a) not making payments when program crops are profitable, such as 2007-2013, and (b) avoiding payments that exceed losses, such as 2019 and 2020.

References

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