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Identifying Overlap in the Farm Safety Net

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Abstract

Due to the sheer number and complex combinations of farm safety net programs, policymakers are wary of overlap in producer support programs. This report clarifies competing definitions of the farm safety net, offers a typology of potential duplication and overlap, and presents an analytical method for measuring overlap using a number of current risk management programs. This report focuses on the likelihood of overlap among ACRE, SURE, and crop revenue insurance using an ERS-developed analytical method that identifies and measures overlap among programs by using a calculation of farm revenue that includes government program payments as a benchmark for intended levels of compensation. Results from recent ERS research suggest that budgetary savings could be achieved if ACRE and crop insurance were formally integrated, although findings also suggest that altering the farm safety net may cause unintended production consequences.

Keywords

Farm Service Agency (FSA), Risk Management Agency (RMA), farm safety net, overlap, income support, risk management.

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Summary

What Is the Issue?

Recent public discussion of Federal farm programs has suggested that the current array of programs, constructed over time through successive farm acts and other legislation, has created the potential for overlap among programs. While the Government Accountability Office (GAO) has explored overlap with respect to fraud, it found little systematic evidence of such abuse. However, farmers often receive payments from multiple, similar programs, which suggests to some observers that overall payments from these multiple programs could exceed actual losses. Identifying and measuring overlap could help to trim Federal spending while maintaining a farm safety net capable of meeting the needs of farmers and the broader society.

What Does the Study Propose?

Because many U.S. farm programs are designed to prevent actual duplication of coverage, assessing overlap in programs depends largely on how overlap is defined. This report offers a conceptual framework for identifying program overlap in the farm safety net and an exploration of how to measure that overlap. We propose a typology of overlap as the basis for identifying program overlap and, within that framework, explore the interactions between the new Average Crop Revenue Election (ACRE) and Supplemental Revenue Assistance Payments (SURE) programs and crop revenue insurance, as well as avenues for further research into other forms of overlap.

- To identify the potential overlap of farm safety net programs, we classified overlap as falling into two broad categories:
    - **Type I**—Multiple types of support that together provide coverage above levels intended by any of the individual programs, including cases of actual duplication where, for example, multiple payments compensate for the same loss; and
    - **Type II**—Patterns of participation in multiple programs that may offer coverage of the same commodity and/or risk so that, even though coverage does not exceed intended levels for any individual program, total support still exceeds levels necessary to meet farm safety net goals of maintaining farm business viability.
- This report focuses on Type I overlap. To examine and measure Type I overlap, ERS researchers adopted the concept of considering Government program benefits as farm income, based on the model incorporated in the new SURE program. ERS researchers identified specific overlap of risk coverage among the ACRE, SURE, and crop insurance programs. For example, if the ACRE payment was integrated into a revenue-based crop insurance program to eliminate overlap between the two programs, premiums could decrease between 20 and 38 percent for a State-level ACRE program, depending on the farm/crop combination explored.

- Many risk management programs are designed to preclude overt duplication. However, overlap among them may occur because different programs may protect producers from similar risks at different points in time or under several different risk scenarios. For example, a crop yield insurance policy covers potential production losses for an individual crop on a farm without reference to prices, covering a pre-harvest risk. Meanwhile, SURE covers post-harvest, whole-farm revenue losses that reflect gains and losses for multiple commodities and for production- and/or price-based losses. The combination of risk management programs with income support programs may provide a more overt form of overlap, since precautions to prevent such duplication have not been incorporated into policy design.

How Was the Study Conducted?

The study is intended to provide a conceptual framework for considering the question of overlap in the U.S. farm safety net. The conceptual framework was developed from exploration of the economic literature and public debate on the U.S. farm safety net and potential overlap/duplication among programs, culminating in the proposed typology of farm program overlap to guide further research. The typology is explored through a review of recent and ongoing work that explores the operation of the new programs under the 2008 Farm Act—ACRE and SURE—and their interactions with Federal crop insurance and ad hoc disaster assistance programs. Additionally, we use USDA's Farm Service Agency (FSA) program administrative data, county-level USDA's Risk Management Agency (RMA) data, and individual payment data reported by FSA to the Internal Revenue Service (IRS) to illustrate the patterns of farmer participation in various programs.

Introduction

Federal policies have long been in place to provide U.S. farmers some form of economic safety net. The number and variety of these policies has increased over time as legislators address new economic contexts and technological change. Recent debates about the budget deficit and early discussions of the 2012 Farm Bill have cited the farm safety net as an essential component of U.S. agricultural policies. At the same time, debate participants contend that the sheer number and complex combinations of available farm programs must create some overlap in farmer support. Identifying and eliminating overlap could trim Federal spending on farm programs while maintaining a strong safety net for farmers in times of need.

Determining whether and how current farm safety net programs overlap is a complex task. We aim to lay the conceptual groundwork for making that assessment by identifying patterns of farm program participation that help to clarify the extent of overlap in support. We consider programs directly linked to the farm safety net, and patterns of program participation. We then present a typology of "farm safety net" programs that provides a framework for identifying overlap, specifically between two new 2008 Farm Act programs—Average Crop Revenue Election (ACRE) and Supplemental Revenue Assistance (SURE)—and crop revenue insurance and ad hoc disaster programs.

Defining the Farm Safety Net

In most cases, the term "farm safety net" refers to the combination of price support, income support, and risk management programs designed to support farm businesses and, through them, farm households.[1] A recent Congressional Research Service report (Shields et al., 2010) describes the farm safety net as composed of three types of programs—commodity programs, risk management programs, and supplemental disaster assistance—all of which focus on the viability of the farm business. In contrast, Gundersen et al. (2000) examined the potential effect on farm programs of considering the safety net in terms of farm household income or well-being. The farm household focus was motivated by observations that traditional farm program support was concentrated in certain regions and received by larger farm operations that often had wealth and incomes higher than the national average. Using several scenarios to examine potential changes in payment distribution, Gundersen et al. found that gearing the safety net to ensure a minimum income or earnings level for farm households would affect both the regional distribution of payments and their distribution by farm size.

Current discussion of farm safety net programs has not generally focused on defining minimum farm household well-being levels as the measure for need. Rather, current debate centers on the compilation of all currently operating programs linked to the farm business (see House Agriculture Committee hearings at http://agriculture.house.gov/farmbill/farmbill.aspx?GID=21). Still, issues about the unequal distribution of payments by farm size, commodity, and region continue to surface. Some observers continue to question the value of a "safety net" that provides little assistance to many U.S. farms, yet offers seemingly multiple layers of assistance to other farms (see,

[1]Conservation programs have sometimes been identified as part of the farm safety net, since they can involve direct transfers to producers for adoption of environmentally friendly production practices or retirement of environmentally fragile land. We have not included them in this study because they are not designed to directly address farm business viability and, in general, cover only costs and/or income foregone in adopting particular practices. Increasing interest in designing "green payments" that can address both safety net and environmental objectives has led to research examining the degree to which producers may receive both safety net and conservation payments. ERS research (Classen and Morehart, 2006; Claassen et al., 2007) indicates that only 15 percent of farms that receive Government payments receive both types of payments. However, these farms receive 40 percent of conservation payments. Future research may need to examine the extent to which conservation payments should be considered part of a farm's portfolio of safety net support, in addition to examining how these payments affect decisions about land use and production practices that interact with other farm programs.

for example, Environmental Working Group press releases at http://www.ewg.org/farming).

Consistent with some of these concerns, most current programs limit the amount of support producers can receive. Several programs restrict the level of receipts from individual programs, while other programs base eligibility for payments on household and farm income levels.

Since each producer support program is implemented differently, additional consideration of program details and participation is necessary for developing hypotheses regarding overlap and analytical methods to address the issue. Potentially significant program differences include whether programs offer insurance or income support; idiosyncratic or systemic risk protection;[2] price-, yield-, or revenue-based protection; crop-specific or whole-farm-based coverage; and whether or not a program is tied to production.

Patterns of Program Participation

Patterns of program participation can also affect how we conceptualize and address the issue of overlap. Federal farm safety net programs provide several different types of support that, while not mutually exclusive, can be divided broadly into three main categories: price support, income support, and risk management. Price support programs, used only for dairy and sugar, maintain domestic market prices above world market prices and therefore do not involve government payments provided directly to producers. Although they may raise market receipts for producers who also receive other forms of income support, price support programs are not easily linked to individual farms and/or producers, so we do not include them in our overlap analysis.

To aid the identification of overlap, we group farm safety net programs into two main categories based on whether benefits are triggered by income or production losses; one group is triggered by a loss, and the other is not. Income support programs provide benefits without reference to individual (or group) documented income or production losses. Risk management programs, in contrast, provide benefits when an individual (or group) can document an income or production loss. We differentiate the various farm programs between these two categories based on the presence (or absence) of individual or group loss triggers to facilitate analysis of programs with the potential to overlap through compensation for the same loss or coverage of the same risk. Categorizing the programs in this fashion does not necessarily imply any intended purposes of these programs—since policymakers rarely include legislative text that explicitly conveys program intent—but simply focuses on how the program functions.

Income support programs include both programs tied to the production of specific crops and those that allow producers to make production decisions independent of their payment receipts. Risk management programs include both commodity-specific insurance—which can protect against price, yield, or revenue losses—and whole-farm revenue protection. Additionally, policymakers have introduced a wide variety of disaster programs tied to the effects of specific natural events such as drought, flood, fire, and disease or pest outbreaks. We provide brief descriptions of these programs (see Appendix II).[3]

[2]Idiosyncratic risks, such as those related to a localized weather event or to farm management decisions, occur at the individual farm level. Systemic risk, such as a global fall in prices, occurs over a wide area or affects the entire market or market sector.

[3]Both current program details and provisions under the 2002 and 1996 Farm Acts are available on the ERS Farm and Commodity Briefing Room at: http://preview.ers.usda.gov/Briefing/FarmPolicy/ProgramProvisions.htm.

Agricultural producers have a wide array of support programs available to them. Programs can be tied to specific commodities or, more generally, to whole-farm revenues. Farm programs can provide support when individual losses are incurred, or may provide benefits irrespective of current production decisions or market conditions. And program expenditures can vary across space and time, depending on such factors as market conditions, weather patterns, and pest infestations (table 1).[4] Despite spanning three farm bills, data in table 1 show that the major drivers of changes in support came from payments directly linked to prices. In 2001, a year of low commodity prices, total Federal aid from income support and risk management programs came to $26.9 billion (in 2010 dollars). In the years 2007-2010, commodity prices were substantially higher, and support from these programs averaged $12.8 billion over those years; during the years of higher prices, producers averaged roughly $14 billion less from both income support and risk management programs—programs that did not change substantially over time. In 2001, producers received roughly $9.5 billion more from the marketing loan benefits program and approximately $6 billion more from the ad hoc market loss assistance program, a program similar to the countercyclical payments introduced in the 2002 Farm Act.

Because program designs and purposes vary, producers can be expected to participate in multiple programs on the same farm, depending on factors like the number and types of commodities the farmer produces (or has historically produced) and current market/production conditions (figs. 1a-1d). For example, farmers in central California received high levels of direct and countercyclical payments (DCP) and crop insurance (RMA) support in 2007, but lower levels of marketing loan benefits (MLB) and crop disaster payments. While cotton and rice dominated payments made to farmers in the center of the State, the bulk of those payments accrued to programs based on historical production through DCP base acres rather than to those based on current production of the crop such as MLBs or crop insurance. This suggests that farms with historical cotton and rice base may have taken advantage of planting flexibility to plant other crops on their base. Similar combinations of programs can be seen for Iowa, Kansas, and Texas (figs. 1b-d). Producers on these farms can receive both DCP payments for historical crop base along with payments for current production that may provide price protection, short-term credit, and coverage for crop and/or livestock losses.

Farm-level program data confirm this pattern of multiple program participation (table 2). For example, 99 percent of farms growing cotton in California in 2007 received direct payments, 98 percent received countercyclical payments, 17 percent received marketing loan benefits, and 10 percent received Milk Income Loss Contract payments and/or dairy disaster payments. The payments received by these cotton farms could be associated with any of the crops either currently or historically grown on the farm. Similar patterns of multiple payments hold for farms in the other States.

While program payment data show that farmers can, and often do, receive support from multiple sources, this in itself does not indicate the existence of overlapping payments within the farm safety net. Identifying overlap requires consensus definitions of overlap, accurate understanding of the interactions among programs, and a means to measure the level of any potential overlap.

[4]Data from various sources are used in this overview, including national, county and farm-level (aggregated to the county level) FSA administrative data and national and county-level Risk Management Agency program data. Due to structural lags in the timing of payments for post-harvest disasters and other losses, obtaining complete data for a particular crop year requires collecting data from several calendar years within the administrative data. For example, to obtain complete data for crop year 2007, data from calendar years 2007-2009 are required. Because data from calendar year 2010 were not available to us at the time of writing this report, we restrict all our data examples to the year 2007 or earlier for consistency, with the exception of national data shown in table 1. Note that this means that 2008 Farm Act programs such as ACRE and SURE are not included in the county and farm-level overview of program participation shown in figures 1a-d and table 2. National-level preliminary and estimated data for these programs are included in table 1, and we address these programs in more detail later in the report.

Table 1
Government programs, by program year, 2001 and 2007-2010

Program	2001	2007	2008	2009	2010
	$ million (2010)				
Income Support Programs					
DCP/PFC & MLA					
Total expenditures	**11,488**	**6,081**	**5,627**	**5,130**	**4,860**
Market Loss Assistance payments (MLA) (ad hoc)	6,485	--	--	--	--
Production Flexibility Contract payments (PFC)	5,003	--	--	--	--
Direct Payments (DP)	--	5,341	4,433	4,907	4,860
Countercyclical Payments (CCP)	--	740	1,194	223	0
MLB					
Total expenditures	**9,838**	**71**	**978**	**132**	**115**
Certificate Exchange Gains (CEGs)	2,308	64	843	4	--
Loan Deficiency Payments (LDP)	6,828	7	135	125	113
Marketing Loan Gains (MLGs)	702	0	0	3	2
Milk Income Loss Contracts (MILC)	**--**	**0**	**2,194**	**764**	**182**
Risk Management Programs					
Risk Management Agency (RMA)					
Total expenditures[1]	**2,165**	**3,980**	**5,799**	**5,478**	**4,710**
Total premiums (participation)	3,616	6,832	10,039	9,035	7,592
Premium subsidies (expenditures)	2,165	3,980	5,799	5,478	4,710
ACRE	**--**	**--**	**--**	**451**	**24**
Crop Disaster					
Total expenditures	**2,801**	**831**	**2,234**	**777**	**61**
Supplemental Revenue Assistance (SURE)	--	--	2,159	683	na
Non-insured Assistance Program (NAP)	219	71	70	91	58
2001 Crop Disaster Assistance (ad hoc)	982	--	--	--	--
2001/2002 Crop Disaster Assistance (ad hoc)	1,566	--	--	--	--
2005/2007 Crop Disaster Assistance (ad hoc)	--	760	--	--	--
Sugar diversion payment	33	--	--	--	--
Tree Assistance Program (TAP)	1	--	5	3	3
Livestock Disaster					
Total expenditures	**602**	**136**	**208**	**176**	**57**
2005/2007 Livestock Compensation Program (LCP)	--	117	--	--	--
2005/2007 Livestock Indemnity Program (LIP)	--	14	--	--	--
Dairy Disaster Program	--	5	0	0	

--continued

Table 1
Government programs, by program year, 2001 and 2007-2010 (continued)

Program	2001	2007	2008	2009	2010
			$ million (2010)		
Pasture Recovery Assistance	29	--	--	--	--
Flood Compensation Program	25	--	--	--	--
Lamb Meat Adjustment Program	26	--	--	--	--
Livestock Indemnity Program (LIP)[2]	0	--	28	64	17
Livestock Forage Disaster Program (LFP)	--	--	169	100	33
Emergency Livestock Assistance Program (ELAP)	--	--	11	12	7
Total expenditures	**26,894**	**11,099**	**17,040**	**12,908**	**10,009**

Sources: DCP/PFC & MLA, MLB, and MILC program data from 2012 President's Budget Commodity Credit Corporation (CCC) Commodity Estimates Book; crop insurance program data from USDA's Risk Management Agency online summary of business; disaster program data from USDA Office of Budget and Program Analysis (OBPA).

CCC data for 2009 and 2010 are estimates as of release of the 2012 President's Budget; crop insurance data for 2009 and 2010 are preliminary as of Oct 17, 2011; OBPA data for 2008-2010 are preliminary as of Oct 4, 2011.

All values are expressed in 2010 dollars using a GDP (gross domestic product) chain-type price index where 2005 = 100.

[1]Total expenditures for crop insurance are premium subsidies, since a share of total premiums is paid by producers.

[2]2008-2010 LIP payment data are for 2008 Farm Act authorized programs.

Figure 1a

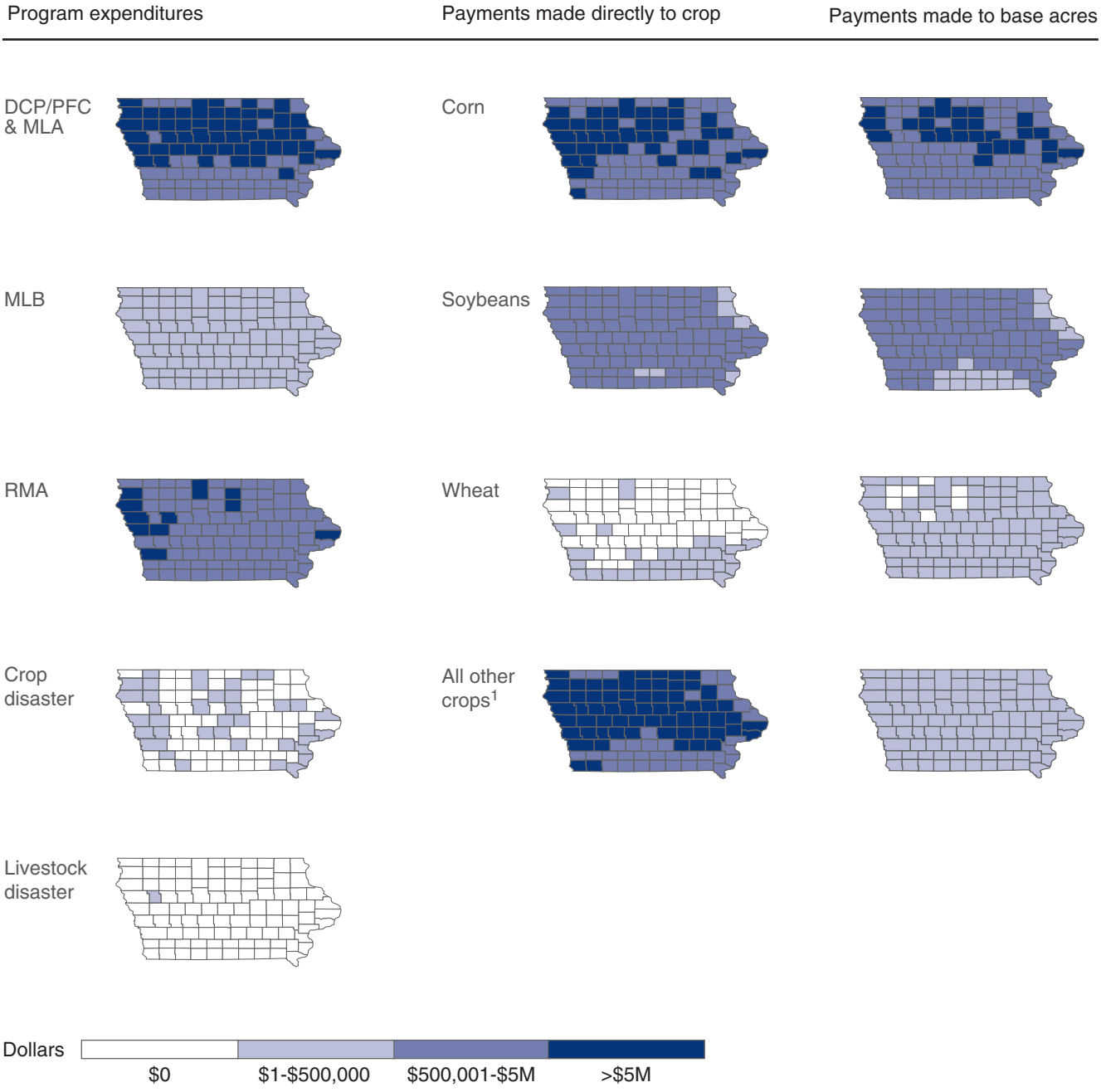
Program expenditures by program and crop, 2007: CA

[1]The category "All other crops" includes barley, mohair, payments for the Non-insured Assistance Program (NAP), oats, peanuts, safflower, sorghum, unshorn pelts, and wool.

Source: USDA, Economic Research Service, based on Farm Service Agency administrative records.

Figure 1b

Program expenditures by program and crop, 2007: IA

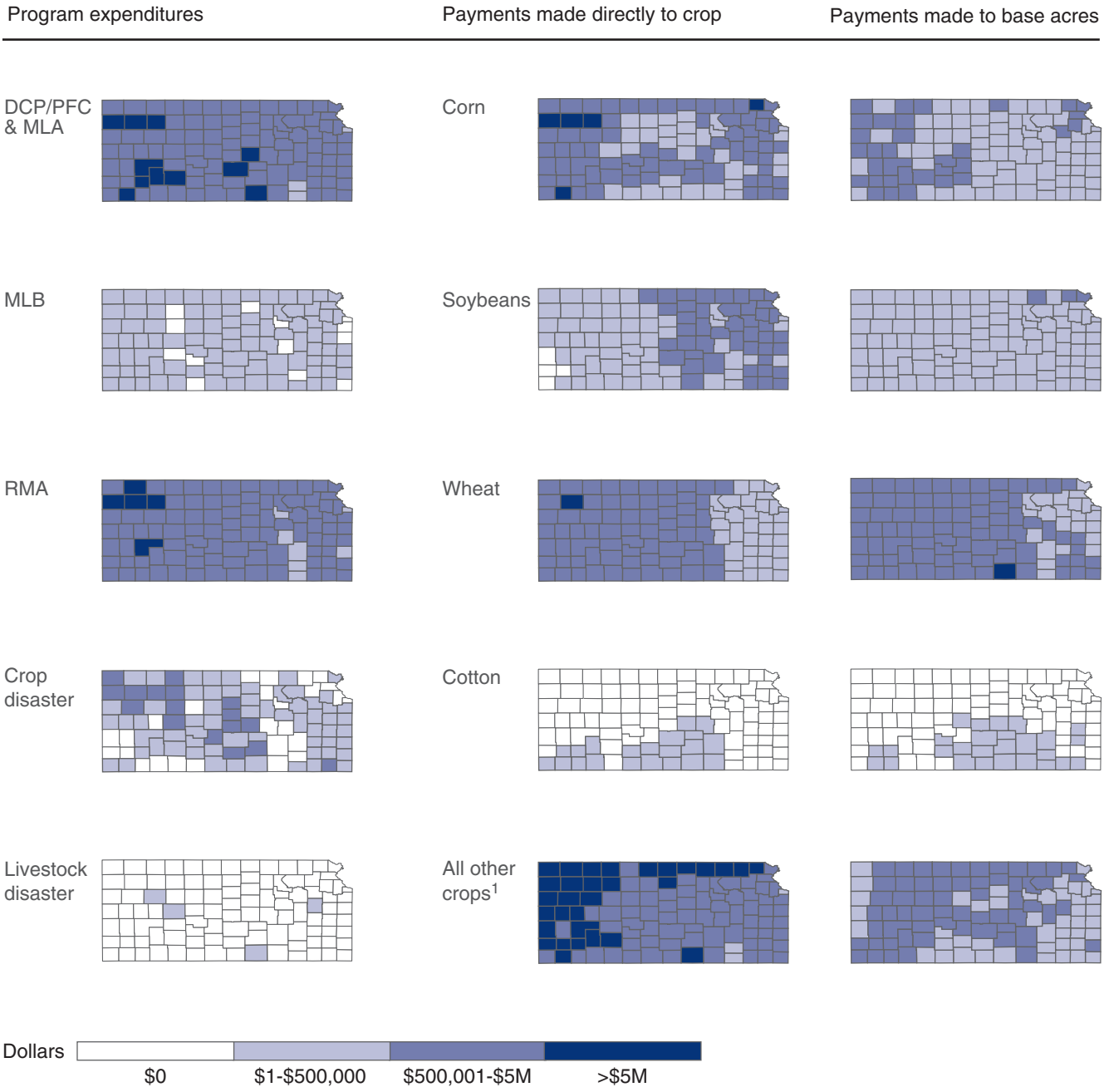


[1]The category "All other crops" includes barley, crambe seed, flax, mohair, payments for the Non-insured Assistance Program (NAP), oats, sorghum, sunflower, and unshorn pelts, and wool.

Source: USDA, Economic Research Service, based on Farm Service Agency administrative records.

Figure 1c

Program expenditures by program and crop, 2007: KS

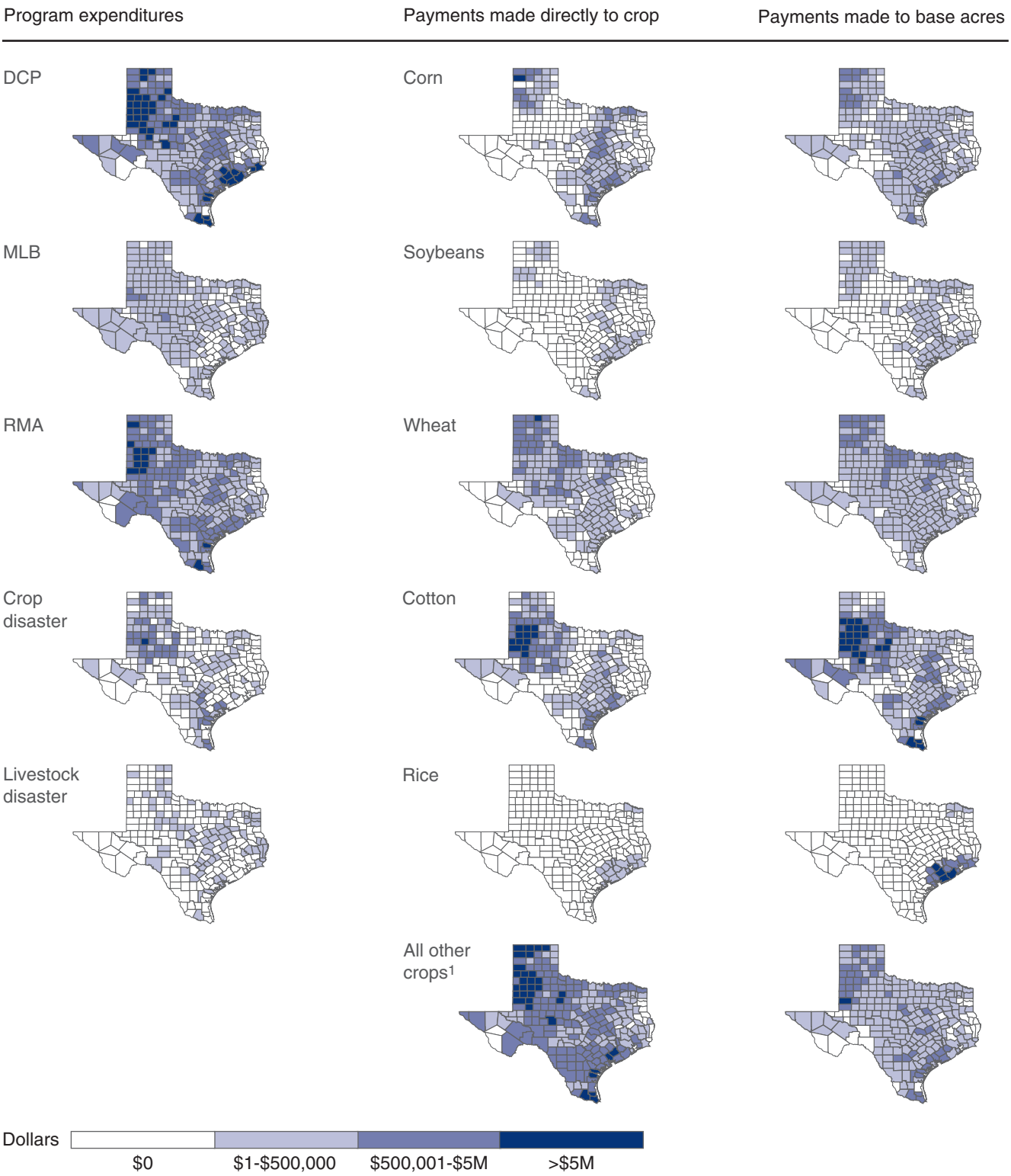


[1]The category "All other crops" includes barley, canola, flax, mustard, payments for the Non-insured Assistance Program (NAP), oats, peanuts, sesame, sorghum, sunflower, and unshorn pelts, and wool.

Source: USDA, Economic Research Service, based on Farm Service Agency administrative records.

Figure 1d

Program expenditures by program and crop, 2007: TX



[1]The category "All other crops" includes barley, mohair, payments for the Non-insured Assistance Program (NAP), oats, peanuts, sesame, sorghum, sunflower, and unshorn pelts, and wool.

Source: USDA, Economic Research Service, based on Farm Service Agency administrative records.

Table 2

Program stacking in California, Iowa, Kansas, and Texas farms, 2001 and 2007

	Crop grown on Farm Service Agency (FSA) farm:									
	Corn		Cotton		Rice		Soybeans		Wheat	
Program[1]	2001	2007	2001	2007	2001	2007	2001	2007	2001	2007
	Percent of FSA farms growing (crop) and receiving program payments in:									
					California					
PFC/DP	98	100	99	99	> 99	100	--	--	99	100
MLA/CCP	97	< 1	98	98	> 99	< 1	--	--	98	< 1
MLB	66	14	49	17	71	13	--	--	48	14
Dairy	2	8	2	10	< 1	2	--	--	2	8
Crop Disaster	4	3	< 1	< 1	< 1	< 1	--	--	4	3
Livestock Disaster	1	< 1	< 1	0	< 1	0	--	--	1	< 1
					Iowa					
PFC/DP	> 99	100	--	--	--	--	79	100	> 99	100
MLA/CCP	> 99	0	--	--	--	--	97	0	99	0
MLB	91	6	--	--	--	--	100	6	88	7
Dairy	2	3	--	--	--	--	0	2	1	2
Crop Disaster	< 1	1	--	--	--	--	0	1	< 1	3
Livestock Disaster	1	< 1	--	--	--	--	0	< 1	1	< 1
					Kansas					
PFC/DP	97	100	--	--	--	--	95	100	> 99	100
MLA/CCP	93	< 1	--	--	--	--	95	< 1	> 99	< 1
MLB	91	3	--	--	--	--	100	3	73	3
Dairy	< 1	2	--	--	--	--	0	1	1	1
Crop Disaster	< 1	12	--	--	--	--	0	13	3	14
Livestock Disaster	< 1	< 1	--	--	--	--	0	< 1	< 1	< 1
					Texas					
PFC/DP	> 99	100	> 99	> 99	> 99	100	--	--	> 99	100
MLA/CCP	99	< 1	> 99	99	> 99	< 1	--	--	> 99	< 1
MLB	56	7	46	13	59	2	--	--	39	8
Dairy	< 1	1	< 1	< 1	0	0	--	--	< 1	1
Crop Disaster	3	14	11	23	< 1	1	--	--	15	14
Livestock Disaster	2	3	1	2	< 1	1	--	--	5	4

[1] This table includes the following programs: Production Flexibility Contract (PFC); Direct payments (DP); Marketing Loss Assistance (MLA); Countercyclical Program (CCP); and Marketing Loan Benefits (MLB), along with Dairy, Crop Disaster, and Livestock Disaster programs.

Source: USDA, Farm Service Agency, Administrative Data, Program years 2001, 2007

Defining Overlap

Much of the debate on overlap in current farm programs suggests that commodity programs often provide payments beyond the level needed to sustain farm businesses, or possibly even pay twice for the same loss. Defining overlap is a fundamental first step in identifying how these shortcomings may occur among farm safety net programs.

If several programs operate in a similar fashion—protecting farm income or covering production risks, for example—quite different programs may create overlap if producers participate in a number of programs for a range of commodities without reference to their cumulative effect on producers' overall farm revenue. In other cases, farm programs may operate in different manners, one providing income support and another protecting against very specific market or weather-related losses, for example. Together, these programs could combine to provide what is perceived to be more than safety net support, even if neither provides support that exceeds the intended levels of the individual programs themselves.

One context for defining overlap is to consider the objectives of Federal agricultural support. For the most part, these objectives are not formally laid out in the text of agricultural legislation. Therefore, one can presume only the most general objective, which is to minimize total program costs subject to achieving a wide variety of goals (e.g., goals relating to farm and consumer safety nets, the environment, and equity issues). In this context, overlap then means any increases in budgetary costs over those needed to strictly satisfy a broad range of program goals. To be of value in the policy process, then, any overlap identified must be measurable.

A Typology of Overlapping Support

Because overlap may occur in various forms, and programs can vary dramatically, it may be most useful to consider more than one definition of overlap/duplication and analyze program combinations for evidence of:

(a) **Actual duplication**, such as compensation by more than one program for the same losses;

(b) **Overlap**, such as multiple types of insurance payments that together provide compensation **above levels intended by the individual programs**;

(c) **Overlap**, such as systematic participation in multiple programs (stacking) that may (or may not) offer similar coverage so that, together, programs may provide support that **exceeds what is necessary to maintain farm business viability**, even if producers never receive compensation above intended levels for each individual program; and/or

(d) **Cumulative support** to individual producers from multiple programs that may **exceed some defined minimum well-being goals**.

While these four types (a-d) present a conceptual overview of the kinds of overlap that may exist among farm safety net programs, measuring overlap presents a serious obstacle. For example, although types (a) and (b) can theoretically remain separate, in practice the distinction is less clear. Because different programs do not explicitly target the exact same event in exactly the same fashion, unless fraud takes place—which the GAO (2009) has found to be relatively rare— actual duplication appears unlikely. Moreover, even in cases where actual duplication may be taking place, risk coverage is complex and such duplication is difficult or impossible to prove. It is easier to show that together two programs are providing compensation above intended levels, assuming those levels can be specified. Therefore, although the first two classifications in the typology may help to make distinctions in conceptualizing overlap, when examining programs for overlap potential, we combine the two classifications (a and b) for measurement purposes. While it is arguable how best to measure the intended level of support, ERS researchers have developed a method to measure this concept based on the program design of the Supplemental Revenue Assistance Payments (SURE) program.

Type (c), or overlap through stacking, requires creating a benchmark level of revenues required to maintain farm business viability (across all sizes and types). While work in this area is preliminary, we follow similar lines of logic to determine an intended level of support as used for overlap types (a) and (b).

Finally, defining well-being—necessary for measuring type (d)—also presents a formidable challenge. Although payment eligibility and individual program payment limits suggest some consensus regarding limitations on support, there is no precedent or defined well-being goal that could be used to identify and measure type (d) overlap. Hence, we restrict our examination of overlap among various programs to those areas where we can quantify an intended level of support (e.g., programs like crop insurance, ACRE, and SURE stipulate guaranteed levels of support), rather than attempting to identify a measure of well-being that is a subjective concept.

Thus, we collapse our original typology into two classifications as the basis for quantitative analyses. Type I refers to the case where multiple types of payments together provide compensation above levels intended by the individual programs, including cases of actual duplication where, for example, multiple payments compensate for the same loss. Type II refers to the patterns of participation in multiple programs (stacking) that may offer coverage for the same commodity and/or risk so that program benefits exceed the levels necessary to maintain farm business viability, even though producers may not receive compensation above the intended levels for any particular program.

In this report, we focus on Type I overlap, exploring how multiple programs together might provide compensation above levels intended by any of the individual programs. In particular, we focus on the new programs introduced in the 2008 Farm Act—specifically the Average Crop Revenue Election Program (ACRE) and the Supplemental Revenue Assistance Payments Program (SURE)—and how these programs interact with crop revenue insurance and each other. While our focus remains on Type I overlap, we do consider the relevance of Type II overlap and how we might examine and measure it in future research on the impacts of farm safety net policies.

Applying the Typology To Identify Overlap

If certain conditions (e.g., market, weather, etc.) result in producers systematically receiving support from multiple programs, those programs can be considered correlated with each other. For example, if a farmer is enrolled in both a crop insurance program that insures against declines in revenue and in ACRE, the farmer may receive payments from both programs provided the revenue losses are substantial enough to trigger both programs. A correlation between the factors that trigger program payments suggests the potential for overlapping payments.

Previous Research on the Potential for Overlap

Past studies of previous farm bills explored the possibility for this kind of overlap between countercyclical payments (CCPs) and crop insurance (e.g., Hauser et al., 2004) and potential duplication by CCPs and marketing assistance loans (e.g., Hart and Babcock, 2005). The former found little overlap between the risk protection provided by CCPs and crop insurance, since CCPs cover inter-year risk while crop insurance covers intra-year risk. The latter study found the potential for price protection duplication between the loan program and CCPs due to the way the production incentives inherent in loan deficiency program payments (LDPs) interact with the combination of loan rate and target price in the CCP payment calculation. Exploring a broader range of farm income support safety net programs, Gray et al. (2004) found that these programs helped support farmers' incomes in a way that diminished the value of crop revenue insurance coverage, which may have prompted the large crop insurance subsidies required to induce farmers to adopt crop insurance.

2008 Farm Act Programs and Their Potential for Overlap

Two new programs—ACRE and SURE—became law under the 2008 Farm Act. ACRE provides payments to a farmer if a covered commodity's State- and farm-level revenues both fall below guarantees that are determined using recent prices and yields. SURE provides supplemental revenue insurance at the whole-farm level.[5] Because both of these programs insure revenues, the potential exists for them to interact with each other and with crop (revenue) insurance products to generate overlapping support within the farm safety net. As a result, some research has examined potential duplication and overlap in these programs.

At a House Agriculture Committee hearing in May 2010, Bruce Babcock, Director of the Center for Agriculture and Rural Development and Professor of Agricultural Economics at Iowa State University, testified that the ACRE program "duplicates coverage that is available from the crop insurance program" and questioned why taxpayers should be asked to fund both programs (Babcock, 2010a, b). Babcock made several suggestions about how to make ACRE a more effective and widely used program and proposed a simplified model of how ACRE might operate using county-level rather than State-level guarantees. He used historical yields and prices to estimate the average annual ACRE payments per acre for various crops and levels

[5]See http://preview.ers.usda.gov/Briefing/FarmPolicy/ProgramProvisions.htm for current program details and provisions under the 2002 and 1996 Farm Acts.

of coverage— and their associated yearly costs—if the county-level ACRE program had been in place from 1980 through 2008. To eliminate overlap in his modified ACRE program, Babcock suggested that, "[a]t a minimum, it would make sense for existing crop insurance policies to be modified to account for county ACRE payments." He estimated that reducing overlap with crop insurance could easily result in annual savings in excess of $4 billion (Babcock, 2010b).

While Babcock suggested that ACRE and crop insurance overlap to a large degree, others have countered that these programs cover different parts of producer price and revenue risks with minimal overlap. Zulauf et al. (2010) argue that ACRE, crop insurance, and SURE overlap minimally due to how each program focuses on a different aspect of risk: crop insurance covers idiosyncratic risk (individual farm-level crop risks); SURE supplements crop insurance but works at the whole-farm level; and ACRE focuses on systemic risk, the more widespread risk found at the State level. Additionally, coverage levels differ for the various programs. Together, this suggests that the different programs may be covering different parts of the revenue risk distribution and that payments do not result in substantial overlap.

For example, Zulauf et al. (2010) argue that because the ACRE State trigger operates at 90 percent of recent State revenues, the farmer should be insured for up to 90 percent of his losses. Furthermore, since ACRE payments are limited to 25 percent of the cap (the 90 percent), ACRE only protects the individual farmer from revenue losses between 67.5 (90 - 25 percent of 90) and 90 percent of the farm guaranteed revenue. In other words, ACRE does not cover any losses of revenues that fall below 67.5 percent of expected revenues. To extend this argument, suppose a producer purchases a crop insurance policy guaranteeing at least 70 percent of expected revenues. If that farmer experiences a bad crop year and incurs substantial losses, realizing only 50 percent of expected revenues from the market, the farmer's crop insurance will boost his revenues to 70 percent while ACRE (provided the State trigger is met) would pay for losses between 67.5 and 90 percent of expected revenues. This means that actual overlap would only be that 2.5 percent (between 67.5 and 70 percent) for which both programs pay.

Examining Kansas and Iowa farms using a counterfactual model of program support, Zulauf et al. (2010) found that, relative to crop receipts, adding ACRE increased farm revenue by 5 to 10 percent (depending on location) for farms with crop insurance and that overlap existed (i.e., ACRE and crop insurance paid out for the same portion of loss for at least part of the total losses). This overlap was minimal, however, amounting to less than 5 percent of ACRE payments. Zulauf et al. note that the overlap increases as insurance coverage increases. For instance, if the farmer adopts a crop insurance policy that insures up to 85 percent (versus up to 70 percent as in the previous example) of expected revenues, overlap is substantially larger, running from 67.5 up through 85 percent of expected revenues.

Clearly, overlap can mean different things to different people, as evidenced by the disparate conclusions drawn by Babcock (2010b) and Zulauf et al. (2010), leaving the existence of overlap among the programs an open question. In part, this is due to differences in program design. For instance, Federal crop insurance based on farm-specific losses addresses risk at the farm level, while

the scale of the revenue risk in the ACRE payment is calculated at the State level. Hence, crop insurance and ACRE address the same revenue risk only to the extent that farm and State revenue are correlated. Whether payments made under the two programs cover the same risk or are simply coincidental depends on the definition of "same risk."

Calculation of Potential Overlap

Rather than approaching overlap as duplicate coverage of the same percentages of the risk distribution as in Babcock (2010b) and Zulauf et al. (2010), our typology focuses on whether total support from multiple programs exceeds intended levels. While defining the "intended level" of support is a major hurdle to this approach, the SURE program rules provide a legislative precedent. Although the legislative text authorizing SURE does not explicitly address the intended level of support, it does identify what programs enter into the determination of farm income for the SURE payment calculation. In calculating actual whole-farm income to compare against the market revenue guarantee, the SURE program considers the broad suite of farm program support (ACRE revenue payments, MLBs, CCPs, a portion of direct payments, other Federal disaster payments that cover the same loss, and net insurance indemnities) to be part of actual farm income.

Based on the principles of the SURE payment calculation, total revenues (including those from a variety of farm programs) can then be compared to the guaranteed level of expected market revenue of the farm (or crop, depending on the program being examined) for any number of program scenarios (see box, "Calculating Potential Overlap"). If a farmer receives support from more than one program and total revenue (where total revenue is gross revenue plus government payments) exceeds the percentage coverage level of expected revenue, then overlap has occurred. Moreover, this approach allows us to determine the extent of overlap and which programs caused the overlap.

Figure 2 illustrates how overlapping support can occur between two programs. To simplify, we simulate the interaction using crop revenue insurance and an ad hoc loss compensation program. The crop revenue insurance prevents the farmer's revenue from dropping below 65 percent of expected revenue, while the ad hoc payment provides support to the farmer when the county revenue falls below 70 percent of expected county revenue. Since the programs together work to ensure that the farmer receives at most 70 percent of expected revenues, measuring the overlap would consist of summing up all revenues, including the crop insurance net indemnities and the ad hoc payments. If total revenues exceed 70 percent of expected revenues (the program guaranteed level of revenue), overlap has occurred. In the figure, the purple area represents the market revenues the farmer generated. The gray area represents the revenue coming from the crop insurance program while the light tan area shows the additional payments that the farmer receives from the ad hoc program. Since the farmer incurred a loss below 70 percent of expected revenues but, through the interaction of the two programs, ended up with revenues exceeding the guaranteed level, overlap occurred.

Calculating Potential Overlap: An Illustration for an Individual Producer

Overlap can occur when multiple programs together provide compensation above levels intended by the individual programs, defined here as the level of expected market revenue that the individual programs guarantee the producer will receive, regardless of market outcome.

For example, if a producer takes out a 65-percent crop revenue insurance policy and has expected market revenue (based on historical yields and prices) of $100, the policy guarantees that the producer will receive at least $65 in revenues. If the producer generates revenues of $65 or more, the crop policy will not provide any benefits; if revenues drop below $65 (say to $55), the policy ensures the producer receives $65 by providing $10 in benefits.

Now suppose that the farmer also benefits from an ad hoc loss compensation program that provides benefits when the average county revenue drops below 70 percent of expected county market revenue and ensures that the individual farmer receives at least 70 percent of expected market revenue. For expositional purposes, neither the ad hoc loss compensation program nor the crop insurance take into account the benefits the farmer receives from the other program.

Under this scenario, if the producer earned $55 in market revenues, he would receive $10 from crop insurance and $15 from the ad hoc loss compensation program. All together, the producer would then earn $55 + $10 + $15 = $80. Given that the producer was guaranteed to receive $70 at most (70 percent of expected market revenue), the two programs interacted to produce an overlap of $10 (see fig. 2).

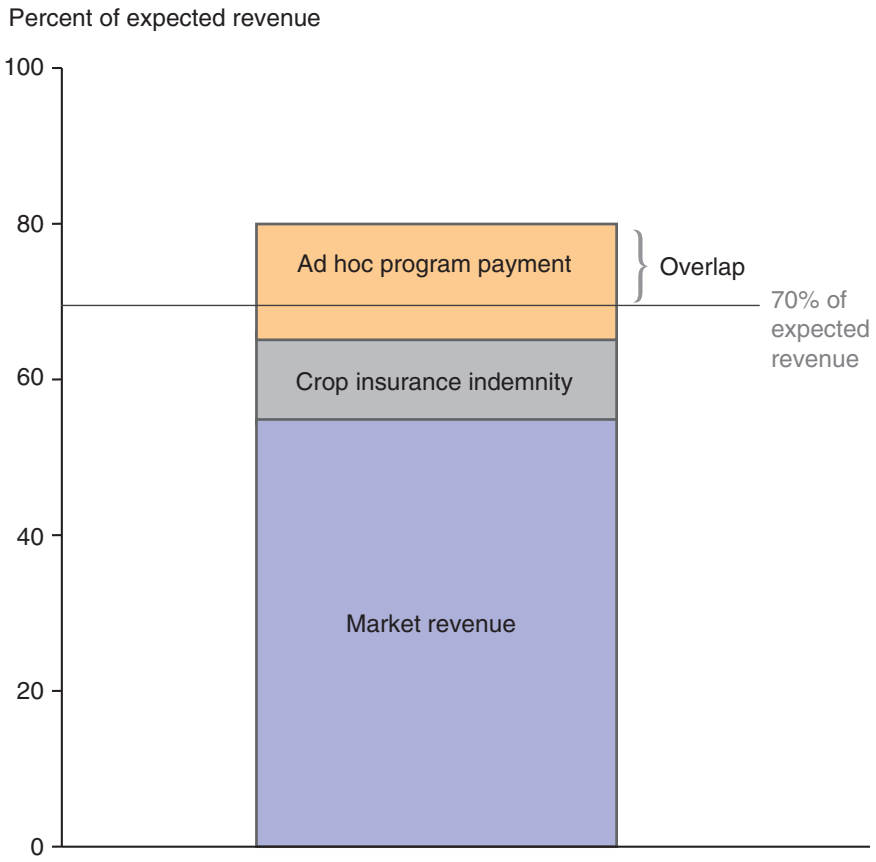
We use artificial programs (though similar to actual programs) in this example to demonstrate how overlap is determined and what programs contributed to the overlap. This approach enables us to explore how Federal spending might be reduced while maintaining a viable safety net for agricultural producers.

For instance, program administrators might design the ad hoc program to take into account the $10 in benefits the farmer already received from the crop insurance program. This would limit the producer's payment to $5, thereby trimming Federal spending. In fact, recent Farm Service Agency ad hoc programs have taken into account receipts from other risk management programs, such as crop insurance, thus limiting this potential type of overlap. However, this method of calculating overlap allows for examination of more complex interactions among multiple types of programs than provided in this example.

Overlap Implications for ACRE, SURE, Crop Insurance, and Disaster Payments

Using this approach to calculating overlap, a recent study by Cooper (2010) simulates the interaction between the current ACRE program design and revenue-based insurance for corn, soybean, and wheat farms in Illinois, Kansas, and North Dakota. The overlap calculations center around expected prices and yields for the 2009 crop year using yield data from the National Agricultural Statistics Service (NASS) from 1975 through 2008, futures

Figure 2
Overlap between hypothetical crop revenue insurance program and ad hoc county-level revenue program for an individual



Source: Economic Research Service, USDA.

price data at planting and harvest over the same period, and farm-level yield variability information derived from Risk Management Agency (RMA) crop insurance premiums. These data feed into the estimation of density functions for both prices and yields. Random, correlated draws of prices and yields are then made to generate simulated data sets for the representative farms used in the analysis. In turn, the simulated data sets provide the information necessary to calculate market revenues and support coming from both ACRE payments and crop insurance indemnities, assuming the producer selects a 70 percent revenue coverage rate.

Cooper finds that the ACRE program covers a significant portion of the farm-level revenue risk. Moreover, the cost of providing crop insurance could be lowered if the ACRE payment is included as part of the farmer's actual revenue when calculating the farmer's crop insurance indemnity payment, an approach consistent with the way the SURE payment is calculated.

Including the ACRE revenue payment as part of the farmer's crop revenue will lower the variability of the farmer's revenue from year to year, thus lowering the farmer's crop insurance premium. The level of impact will depend on the extent to which the farmer's revenue is correlated with the

State revenue. Cooper finds that integrating the ACRE payment into a revenue-based crop insurance program could lead to decreases of 10 to 41 percent in crop insurance premiums, depending on the farm/crop combination examined. However, while integrating the ACRE program into crop insurance would lower premiums and thus the premium subsidies paid by the government, practical issues in jointly administering such a program to make payments in a timely fashion would still need to be addressed.

Following Cooper's (2010) simulation methods, this report (and Cooper and O'Donoghue, 2011) analyze Illinois, Minnesota, and South Dakota corn, soybean, and wheat farms and examine how overlap changes when altering ACRE from a State-level program to either a national-level or a county-level program. We also explore whether receiving benefits from multiple programs affects farmers' business decisions. Like Cooper, we identify overlap between ACRE and a revenue-based crop insurance policy. For the set of locations and crops examined, if ACRE was formally integrated with crop insurance to account for the overlap between the two programs, we found that insurance premiums would drop between 6 and 29 percent for a national-level ACRE program, between 20 and 38 percent for a State-level ACRE program, and between 29 and 45 percent for a county-level ACRE program (for county- and crop-specific results, see the table in Appendix III).

In this report (and in Cooper and O'Donoghue, 2011), we also found that higher levels of overlap led to larger potential farm management responses (see Appendix IV for technical details of the model used for this report). For example, depending on the extent to which crop insurance premiums depart from actuarial fairness,[6] producers may alter their chosen levels of crop insurance coverage and their levels of planted acreage with changes in the availability of a crop revenue insurance program, SURE, and an ad hoc disaster program.[7] If the farmer started with crop insurance coverage that was actuarially fair net of the premium subsidy (that is, the premium the farmer actually paid, after the subsidy was applied, was actuarially fair), and was not allowed to alter land choice, adding ad hoc assistance lowered a farmer's demand for insurance coverage from 67 to 65 percent.[8] This is due to the fact that ad hoc disaster assistance, which is free to the producer, can be viewed as a partial substitute for crop insurance in covering farm risk. However, if the crop insurance premium the farmer sees was super-fair (that is, the premium is initially constructed to be actuarially fair but, due to government subsidies, results in an expected benefit to the farmer when the policy is purchased), then the crop insurance coverage level was unaffected when adding ad hoc assistance, remaining at 80 percent.

When the insurance premium was actuarially fair, adding SURE induced the farmer to select a higher level of coverage (from 67 to 75 percent coverage). In general, SURE should be expected to increase the demand for crop insurance given that by design the SURE payment increases with crop insurance coverage rates (in a nonlinear fashion); that is, buying more insurance induces larger SURE payments. However, if the insurance was actuarially super-fair, then adding SURE did not induce an increase in the already high insurance coverage rate of 80 percent. In addition, the insensitivity of insurance coverage rates to program mix is partly because insurance premium subsidy rates decrease as the farmer chooses higher insurance coverage rates. However, the relationship between the two varies at different levels of

[6]An insurance scheme is actuarially fair when the premium is equal to the expected value of the indemnity payments. If the premium is lower, then the insurance product is actuarially super-fair, resulting in net benefits to the producer.

[7]Because of the complexity in analyzing farmer decisions in the presence of these programs, the simulation of the farm decisionmaking was limited to one crop and a farmer in a location with high yield risk (a representative wheat farmer in Hyde County, South Dakota), which magnifies the impacts of the availability of disaster programs.

[8]In this analysis, ad hoc assistance is assumed to be available every year. Historically, although ad hoc disaster assistance for crop losses has been provided in most recent years, coverage has varied. In some cases, only specific crops or particular regions or disaster events have been included, and frequently producers have been required to accept coverage for losses in only one of a number of covered years.

coverage. Hence, chosen insurance coverage rates can be somewhat sticky around certain coverage rates.

The impacts of program selection on insurance coverage and acreage in the case where acreage was allowed to vary was conducted under the assumption that the crop insurance premium paid by the farmer (that is, net of the subsidy) was actuarially fair. When acreage was allowed to vary, the insurance coverage rate always stayed at 80 percent. Most likely, with the premium subsidy rate inducing some stickiness in the coverage rate, the farm decisions were manifested by more flexibility in setting acreage. In this scenario, making crop insurance available raised planted acreage while the availability of ad hoc disaster assistance further increased acreage and combining crop insurance with SURE led to the highest levels of planted acres. However, adding ad hoc disaster assistance on top of insurance and SURE caused a decrease in planted acreage (but still higher than under crop insurance alone). The likely reason is that because SURE payments decrease under the presence of ad hoc assistance—given that the latter are explicitly integrated into the SURE payment calculation—the farmer's incentive to plant more acres can fall under the presumption of ad hoc assistance.

For the farmer with a normal level of risk aversion whose only choice variable is planted acreage, the standard economic model suggests that planted acreage in a crop increases as revenue for the crop becomes less variable, whether due to the purchase of crop insurance (e.g., Goodwin et al., 2004; Glauber, 2004; Moschini and Hennessy, 2001) or the availability of ad hoc assistance (Glauber, 2004). Our results are consistent with this behavioral model with respect to these specific programs of interest.

However, these findings also suggest that interactions among programs are sufficiently complex that relative production impacts are not always evident beforehand. In particular, the relationships among the policy parameters, yield distributions, price distributions, input costs, and the specification of the farmer's decision model are sufficiently complicated that it is hard to say in advance what exactly will happen to planted acreage under a mix of government programs. Altering programs, such as integrating them to deal with potential overlap, may have unintended consequences.

Future Research: Exploring the Potential for Type II Overlap

In contrast to Type I overlap, where overlap produces benefits beyond intended levels of individual programs, Type II overlap leads to benefits within intended levels, but which exceed levels necessary to meet farm safety net goals in terms of farm business viability. This type of overlap is at the core of the public farm-safety-net debate, which is focused on the sheer number of programs available to farmers. But identifying and measuring overlap is a complex task, and this may be particularly so for examining Type II overlap wherein farm business viability may be a moving target.

Some studies of previous farm bills have explored the potential impacts of participation in multiple programs. Gray et al. (2004), in particular, found that the income support from a range of farm safety net programs—including

the historically based Production Flexibility Contract (PFC) and Market Loss Assistance (MLA) payments and marketing loan program benefits—may have prompted the offer of larger subsidies to entice participation in crop revenue insurance programs. Hauser et al. (2004) examined interactions between CCPs and MLBs, while Hart and Babcock (2005) examined interactions between CCPs and crop insurance, both focusing on the overlap in risk coverage between these two types of programs. All three studies focus on the risk management aspects of price-linked program designs in what we have categorized as income support, reflecting both the difficulty of categorizing programs and the multiple ways in which programs may interact.

Future research into Type II overlap may shed additional light on how these price-linked income support and risk management programs are combined and may overlap. These programs differ importantly in their design and implementation, and especially in their incorporation of rules precluding duplication of support from other programs. Because many risk management programs are designed to preclude overt duplication, overlap among them may occur because programs may protect producers from similar risks at different points in time or under different risk scenarios.

The combination of risk management programs with income support programs may provide a more overt form of overlap, since precautions to prevent such duplication have not been incorporated into policy design. Overlap of this kind, including income support not linked to prices (DPs), might occur within the context of a whole-farm revenue definition of farm business viability, where adding all program payments together—including payments based on historical production parameters—would be part of the analysis.

Analysis of Type II overlap within a whole-farm revenue context can even include examining the interaction of separate benefits from the same program for multiple commodities. One way for a farmer to manage risk is to diversify his portfolio by planting several different crops in a season or even adding other sources of income such as livestock operations. The goal is to reduce revenue volatility by engaging in multiple income-producing activities that do not have perfectly correlated revenue streams. Program support based on single crops runs counter to the farmer's traditional risk management practice of diversifying across several outputs, and it ignores the likelihood that losses in one output may be offset by gains, or at least smaller losses, in another. Hart et al. (2006) found that actuarially fair insurance premiums for hypothetical whole-farm revenue insurance on a well-diversified farm were significantly lower than the actuarially fair premiums for the individual outputs. Lower premiums may result in lower Government costs to subsidize the insurance. In principle, applying this result to commodity program support means that if a whole-farm-based revenue payment replaced current crop-specific revenue support, the Government could trim spending while still providing farmers with downside risk protection.

Conclusions

In this report, we have focused on the likelihood of overlap among ACRE, SURE, and crop revenue insurance using an ERS-developed analytical method that identifies and measures overlap among programs by using a calculation of farm revenue that includes Government program payments as a benchmark for intended levels of compensation. We have also considered a possible path for future research analyzing the potential for multiple programs to generate benefits that exceed farm safety net goals, even while each program, taken individually, does not provide support above intended levels.

Our purpose in this report has been to build a conceptual foundation for considering the problem of potential overlap and duplication among programs of the Federal farm safety net and to offer some initial analysis of potential overlap among these programs in the context of public debate surrounding the Federal deficit and the upcoming 2012 Farm Bill. We have clarified competing definitions of the farm safety net and offered a typology of potential duplication and overlap. Analytically, we have presented a method for measuring overlap and an application using a number of current risk management programs.

Occasionally there appears to be evidence of (1) overlap in support that actually duplicates coverage for the same losses and (2) support from multiple programs that provides compensation beyond that intended in individual programs (what we have termed Type I). Additionally, the availability of various programs can alter the incentives producers face. Production outcomes may be driven, at least in part, from the selection of farm safety net programs provided to support farmers in times of need. Indeed, in some cases, due to the complexity of both the programs and the interactions between the programs, perverse incentives may arise that have the potential to lead to unintended consequences. For example, in simulations where ad hoc disaster assistance was added to a crop revenue insurance policy and SURE, farmers decreased the number of acres they planted, likely due to the fact that SURE integrates the ad hoc payments into its revenue calculation and SURE payments decrease under the presence of ad hoc assistance.

In the current context of fiscal austerity, better understanding of the interactions among different programs should help policymakers anticipate and address the potential outcomes—both in budget savings and in unintended production consequences—from any changes in the farm safety net.

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Appendix I: Acronyms

Acronym	Full Name
ACRE	Average Crop Revenue Election Program
AGI	Adjusted gross income
CAT	Catastrophic loss coverage insurance policy
CEG	Certificate Exchange Gains
CCP	Countercyclical Payments
DP	Direct Payments
ELAP	Emergency Livestock Assistance Program
ERS	Economic Research Service
FSA	Farm Service Agency
IRS	Internal Revenue Service
LDP	Loan Deficiency Program
LFP	Livestock Forage Program
LIP	Livestock Indemnity Program
MILC	Milk Income Loss Contract
MLA	Market Loss Assistance
MLB	Marketing Loan Benefit
MLG	Marketing Loan Gain
NAP	Noninsured Assistance Program
PFC	Production Flexibility Contract
RMA	Risk Management Agency
SURE	Supplemental Revenue Assistance Payments Program
TAP	Tree Assistance Program for Orchardists and Nursery Tree Growers

Appendix II: Brief Overview of Farm Safety Net Programs

Income Support Programs

Although there are some elements of both income support and risk management in a number of programs, our approach places four of the major commodity programs in the income support category: (1) Direct Payments (DP), which succeeded Production Flexibility Contract (PFC) payments; (2) Countercyclical Payments (CCP), which replaced Market Loss Assistance (MLA) payments;[9] (3) Marketing Loan Benefits (MLB), which include Marketing Loan Gains (MLG), Certificate Exchange Gains (CEG), and Loan Deficiency Payments (LDP); and (4) the dairy Milk Income Loss Contract (MILC) program. All of these programs are administered by USDA's Farm Service Agency (FSA).

Policymakers introduced PFC payments in the 1996 Farm Act as non-market-distorting replacements for traditional target prices and deficiency payments. Unlike earlier programs, producers could grow any commodity (with some restrictions on fruits, vegetables, and wild rice),[10] or even leave their land fallow, and still receive payments that were based on the historical production on their land. PFC payments were supplemented in 1999-2001 with annually authorized ad hoc MLAs that distributed additional payments to holders of PFCs as a compensation for low commodity prices.

In the 2002 Farm Act, policymakers replaced the PFC payments with DPs, and CCPs formalized the MLAs with a statutory system of target prices that triggered supplemental payments to producers eligible for DPs when prices for their historically produced commodities dropped below targeted levels. Both programs continue under the 2008 Farm Act.

CCPs have been limited in recent years by high prices for most commodities, while DPs continue to be paid irrespective of market conditions. DPs thus make up a considerable share of the total payments currently made to producers each year (roughly $5 billion).

Farm operators can also obtain MLBs through the Marketing Assistance Loan Program, offering both price protection and short-term, low-interest non-recourse loans with benefits tied to actual production. Producers pledge harvested production as collateral for short-term loans to allow them to delay marketing and avoid selling into a flooded market immediately upon harvest. If prices fall below the rate at which the loan is taken, the producer can repay the loan at the market price, netting a benefit called an MLG (or CEG, which is an alternate method for repaying loans used frequently by cooperatives handling repayment for multiple members' loans).[11] Congress also provided an alternative means to benefit from this program for producers who did not wish to take out loans—they can receive LDPs, which are payments equivalent to the value of the MLG they would have received for their production had it been placed in the loan program. Recently, high commodity prices have resulted in few payments through this program, but the value of the low-interest loans keeps participation relatively high.

[9]We include programs under the 1996 Farm Act that are no longer operating because they are included in some of the analysis described in this report.

[10]Planting for harvest of fruits, vegetables (other than lentils, mung beans, large and small chickpeas, and dry peas), and wild rice was prohibited on base acres under the PFC program and continues under the DP program, except in the following situations: (1) Harvesting double-cropped fruits, vegetables, and wild rice on base acres is permitted, without loss of payments, in any region that has a history of double-cropping covered commodities with the otherwise prohibited crops. An individual farm need not have a double-cropping history, only the region. (2) Harvesting of any fruits, vegetables, or wild rice on base acres is permitted, with an acre-for-acre loss of direct and countercyclical payments for each base acre planted to the otherwise prohibited crop, if the Secretary determines that there is a history of planting those crops on the farm. (3) Harvesting a specific fruit, vegetable, or wild rice on base acres is permitted, with an acre-for-acre loss of direct and countercyclical payments for each base acre planted to the specific crop, if the Secretary determines that the producer has an established planting history of the specific crop. In such a case, the quantity harvested cannot exceed the producer's average annual planting history of the crop during the 1991-95 or 1998-2001 crop years, excluding any crop year with no acres planted to that crop.

[11]Certificate exchange gains were ended in 2009 under provisions of the 2008 Farm Act.

Dairy producers may also participate in a standing income support program, the Milk Income Loss Contract (MILC) program, which provides support on a limited share of production during periods of low prices.

Overall, income support programs have few, if any, limitations imposed upon them. The restrictions that do exist are either broad (e.g., income-based eligibility limits) or idiosyncratic (e.g., specific payment limits for peanuts) and generally do not take into account benefits received from other programs. The most common limitations for income support come in the form of adjusted gross income (AGI) limits—farmers with average AGI above a certain level are not eligible for benefits[12]—and payment limitations on the total amount of payments an individual may receive from particular individual programs. For example, under the 2002 Farm Act, eligibility for DPs requires that a producer's income fall below the maximum AGI limit ($2.5 million) and that an individual not collect more than $40,000 per crop year per base commodity, excluding peanuts, with an additional $40,000 limit for peanuts (if applicable).[13]

[12]Payments in a given year do not affect AGI eligibility for that year.

[13]Both current program details and provisions under the 2002 and 1996 Farm Acts are available at: http://preview.ers.usda.gov/Briefing/FarmPolicy/ProgramProvisions.htm.

Risk Management Programs

Included in our definition of risk management programs are (1) crop insurance, including yield and revenue policies; (2) all forms of disaster assistance; and (3) the new Average Crop Revenue Election (ACRE) program (which includes elements of both income support and risk management).[14]

USDA's Risk Management Agency (RMA) administers the crop insurance program and offers policies for a wide array of individual crops, as well as for some livestock forage operations. Producers may also elect to insure their whole-farm revenue with an Adjusted Gross Revenue (AGR) policy. The crop insurance program operates through a partnership with private crop insurance companies, whose agents work directly with individual producers. The Federal Government subsidizes policy premiums at different levels, depending on coverage and type of policy elected. Producers can choose only minimum, or catastrophic (CAT), loss coverage (frequently required for participation in other commodity loss programs) or coverage up to 85 percent of yield or revenue losses. Yield insurance policies compensate for losses due to below-average yields while revenue policies compensate for losses due to below-average revenues, based on either reduced yields or low prices. An FSA-administered program—the Noninsured Assistance Program (NAP)—provides catastrophic-level loss coverage for crops not covered by crop insurance.

[14]ACRE relies on a trigger mechanism whereby if a farmer can document an individual loss, he may be eligible for ACRE benefits—depending on whether the State trigger was also met. Due to the presence of the revenue loss triggers, we classify ACRE as a risk management program. However, ACRE also has income support characteristics. ACRE has a weak individual farm loss trigger, due to the farm benchmark revenue being valued at a 100-percent coverage rate, thereby allowing even a 1-cent-per-acre loss in revenue to be sufficient for triggering a farm revenue loss. Furthermore, the benchmark revenue includes the farmer's crop insurance premium (if any). Hence, it is possible for the program to trigger a farm income loss even when actual gross revenue exceeds expected gross revenue. Finally, even though the program only covers 85 percent of base acres, the program has no provisions to prevent the ACRE revenue payment from exceeding, or being less than, the farmer's actual loss in gross revenue.

Disaster programs prior to the 2008 Farm Act have been primarily ad hoc—authorized in response to ongoing or recent weather and other extreme conditions. Programs were authorized in most years since the 1996 Farm Act and the eligible areas, covered commodities, and compensation levels have varied over time. Most programs have been designed to compensate for crop loss or damage, livestock feed loss or damage, livestock casualty losses, and tree/nursery loss or damage. In some cases, loss programs have been authorized for individual commodities like sugar and dairy, among others.

Under the 2008 Farm Act, farmers may participate in a number of new standing disaster assistance programs. These programs follow a pattern

of implementation similar to previous ad hoc programs, addressing crop losses; livestock casualties and feed losses; and tree, vineyard, and nursery losses, as well as some new coverage for losses from disease outbreaks. The programs were authorized in the 2008 Farm Act under Supplemental Agricultural Disaster Assistance and include the Supplemental Revenue Assistance program (SURE), the Livestock Forage Disaster Program (LFP), the Livestock Indemnity Program (LIP), the Emergency Livestock Assistance Program (ELAP), and the Tree Assistance Program for Orchardists and Nursery Tree Growers (TAP).

Since 2009, producers have been offered an alternative revenue-based program, Average Crop Revenue Election (ACRE), which replaces CCPs and reduces DPs and potential MLBs. The ACRE program, new under the 2008 Farm Act, offers revenue guarantees based on State and farm-level revenue triggers tied to rolling average yields and prices, with limits on how much the guarantee can rise or fall from one year to the next.

In contrast to income support programs, risk management programs have more detailed limitations designed to preclude overt forms of overlap or duplication. These limitations often include requirements to enroll in, or account for, payments from other risk management programs. For example, to be eligible for the Noninsured Assistance Program (NAP), a farmer may not be enrolled in the crop insurance program for the same crop. Similarly, the Livestock Assistance Program benefits are reduced if the producer also received benefits from previous Livestock Compensation Programs and/or the Cattle Feed Program. AGI limitations also apply to many of these programs.[15]

[15]See http://preview.ers.usda.gov/Briefing/Farm Policy/ProgramProvisions.htm for current program details and provisions under the 2002 and 1996 Farm Acts.

Appendix III

Appendix table 1

Changes to Federal insurance premiums when integrated with a national, State-, and county-level ACRE payment (2009 crop year)

Location	Crop	APH yield	Full insurance premium (base)[1]	Full ins. premium integrated with national ACRE	*Percent decrease relative to base*	Full ins. premium integrated with State ACRE	*Percent decrease relative to base*	Full ins. premium integrated with county ACRE	*Percent decrease relative to base*
McLean, IL	Corn	183	23.69	20.86	*12%*	14.89	*37%*	13.14	*45%*
	Soybeans	54	14.84	10.60	*29%*	9.95	*33%*	8.22	*45%*
Hamlin, SD	Corn	131	39.31	36.88	*6%*	29.22	*26%*	27.52	*30%*
	Soybeans	38	23.89	20.25	*15%*	19.01	*20%*	15.61	*35%*
	S. Wheat	52	21.48	17.64	*18%*	13.52	*37%*	13.12	*39%*
McLeod, MN	Corn	162	29.55	26.79	*9%*	21.96	*26%*	20.97	*29%*
	Soybeans	44	17.03	12.96	*24%*	10.88	*36%*	9.99	*41%*
	S. Wheat	50	20.56	16.83	*18%*	12.79	*38%*	12.12	*41%*

ACRE = Average Crop Revenue Election.

APH = Actual production history.

[1]Revenue assurance with base price option, 70% coverage, for basic units (source, RMA/USDA). These are the full per acre premiums unsubsidized by the Federal Government, i.e., they are (1-0.41)*(farmer paid premium).

Source: USDA, Economic Research Service.

Appendix IV: Technical

The empirical analysis of the Average Crop Revenue Election (ACRE) and insurance interactions and of Supplemental Revenue Assistance (SURE) follow the procedures in Cooper (2010). The calculations center stochastically around expected prices and yields for the 2009 crop year. Data used for the analysis includes yield data from the National Agricultural Statistics Service (NASS) over 1975 to 2008, futures price data at planting and harvest over the same period, and farm-level yield variability information derived from USDA's Risk Management Agency (RMA) crop insurance premiums. These data feed into estimation of density functions for prices and yields. Random but correlated draws of prices and yields are made from these density functions to generate simulated data sets. Gross revenue, ACRE payments, crop insurance indemnities, and SURE payments are calculated for the simulated prices and yields.

Cooper (2010) estimates the insurance premium integrated with ACRE for the case of ACRE payments calculated at the State level of yield aggregation with this report and Cooper and O'Donoghue (2011), including estimates of the insurance premium integrated with ACRE when ACRE payments are calculated at the county and national levels of yield aggregation. The revenue insurance premiums assume the farmer chooses a 70-percent coverage rate.

This report and Cooper and O'Donoghue (2011) then expand on Cooper's 2010 analysis to examine how overlap in coverage between SURE and ad hoc can affect both insurance demand and planted acres. Provided that a farmer purchases crop insurance (or Noninsured Crop Disaster Assistance Program (NAP) for noninsured crops), the producer becomes eligible for SURE, a whole-farm revenue program. A farmer may only receive SURE payments if the farm operation is located in a county where a disaster has been declared, in a county contiguous to a disaster county, or if the farmer personally suffered production losses amounting to 50 percent or more of normal production levels. Additionally, a producer must suffer a 10-percent production loss to at least one crop of economic significance on the farm. For an individual, the SURE payment is:

$$SURE_t = D_t * \max(0.60(G_t - R_t^T), 0), \quad \text{(A.1)}$$

where G_t is the SURE guarantee and R_t^T is total farm revenue, and where D_t equals 1 if a farmer is eligible for SURE payments based on the county and farm loss criteria, and 0 otherwise.

The SURE guarantee (G_t) depends on the level of crop insurance coverage selected by the producer, expected prices, and the producer's actual production history (APH) yield, but is limited to no more than 90 percent of typical or expected revenue:

$$G_t = \min\left(1.2\sum_j (a_{jt}\theta p_{jt}^b \overline{y}_{jt}), 0.90\sum_j a_{jt} p_{jt}^b \max(\overline{y}_{jt}, y_{jt}^C)\right) \quad \text{(A.2)}$$

where a_{jt} is planted acreage of crop j (or acreage where planting was prevented) in period t, p_{jt}^b is the Revenue Assurance (RA) base price for the insured commodity, $\overline{y}_{jt}$ is the farmer's expected yield, y_{jt}^C is the producer's

counter-cyclical payment program yield or an "adjusted yield," and θ represents the farmer's chosen insurance coverage rate (a subscript denoting the farmer is dropped for clarity). Total farm revenue explicitly includes market revenue, commodity program payments, Federal disaster payments, and net crop insurance indemnities:

(A.3)

$$R_t^T = \left(\sum_j a_{jt} p_{jt}^N y_{jt} \right) + \left(\sum_j a_{jt} * \max\left[0, I(\theta, \overline{y}_{jt}) - PREM(\theta, \overline{y}_{jt}, p_{jt}^b) \right] \right) + MLB_t + 0.15DP_t + \left(CCP_t \; or \; ACRE_t \right) + AH_t$$

where $I(\theta, \overline{y}_{jt})$ denotes the indemnity paid to the producer (equal to zero if losses do not exceed the deductible), $PREM(\theta, \overline{y}_{jt}, p_{jt}^b)$ is the producer paid insurance premium per acre, MLB_t is the producer's (farm-level) total marketing loan benefits summed across all eligible crops produced by the farmer, DP_t is the producer's total direct payment, CCP_t is the producer's total counter-cyclical payment, $ACRE_t$ is the farmer's total revenue payments under the Average Crop Revenue Election program summed across all the farmer's eligible planted acres in all eligible crops, where CCP_t and $ACRE_t$ are mutually exclusive, and AH_t are other Federal disaster payments covering the same disaster.[16] The price p_{jt}^N is the "National Average Market Price" as determined by USDA's Deputy Administrator.

We assume that ad hoc disaster assistance comes from USDA Secretarial declarations, although it can come in a variety of forms (hence the ad hoc), including Congressional legislation written to cover specific disaster events. USDA Secretarial disaster declarations require a 30-percent or greater yield loss due to natural disaster in at least one crop in a county, and require that the State Governor make a request to the USDA for disaster assistance (e.g., FSA, 2009).

In the simple quantitative model of the political economy of the ad hoc process we assume that the ad hoc disaster program is available every year and that the State Governor makes the request with 100 percent probability whenever the yield loss criterion is met. We specify the farmer's ad hoc disaster payment rate that is tied to county losses and payable to the farmer's planted acreage in that crop as $AH_j = \phi * \left\{ \max\left(0, p_j^b\left(r\overline{y}_j^C - y_j^C\right)\right)\right\} * a_j$, where r is the disaster trigger rate (set at 0.70, per current USDA rules for Secretarial disaster assistance), and φ is the probability that the State Governor makes a request for assistance. We assume φ = 1 if $\max\left(0, p_j^b\left(r\overline{y}_j^C - y_j^C\right)\right) > 0$. To show the potential for payment overlap when ad hoc and the standing SURE program are not integrated, we consider a hypothetical SURE program (denoted as HSURE) that does not include ad hoc payments in the SURE payment calculation.

We use the generated price and yield date in the simulation of expected utility (EU) maximizing behavior by a representative farmer in a county where yield risk is relatively high (Hyde County, South Dakota) compared to the cornbelt. We further assume that the farmer has constant absolute risk aversion (CARA) and chooses acreage and insurance coverage to maximize

[16] If the eligible farmer chooses to be in enrolled in the Average Crop Revenue Election program (ACRE) rather than in the traditional commodity program, then the CCP payment in *t* is replaced by an ACRE revenue payment, DPs are reduced by 20% and the loan rate in the MLB by 30%.

the expected value of a negative exponential utility function over $G \cdot S$ = 1,000,000 simulated price and yield, and insurance combinations as

$$\text{(A.4)} \qquad \underset{a_1, a_2, \theta}{Max}\, EU(w) = \frac{1}{S \cdot G} \sum_{k=1}^{S \cdot G} \left[1 - e^{-\lambda w_k} \right],$$

where λ is the absolute risk aversion coefficient and w is wealth in this concave von Neumann Morgenstern utility function. Wealth w_k is w_o plus net returns under six risk reduction program alternatives: (a) no insurance coverage; (b) insurance coverage; (c) insurance coverage and ad hoc payments; (d) insurance coverage and HSURE payments (where SURE is the same as HSURE in the absence of ad hoc payments); (e) insurance coverage, HSURE, and ad hoc payments; and (f) insurance coverage, SURE, and ad hoc payments. Wealth w_k under each scenario includes direct payments for corn, soybeans, and wheat, with the share of payments for each crop based on the number of base acres in each crop in the county, valued at the base yield rates for that county, with the total value of these payments being DP = \$6.86 per acre for the farmer.[17]

[17]Note that these annual fixed payments do not require production of the crops; we therefore include the soybean and corn direct payments regardless of whether our farmer has decided to grow only spring wheat.

Wealth w_k for each price-yield realization k is defined (in multicrop format) as:

$$\text{(A.5)} \qquad w_k = w_o + DP + \left(\sum_j a_j p_{jk}^N y_{jk} \right) - \sum_j C_j + D_k + \left(\sum_j a_j I_{jk}(\theta) \right) - \left(\sum_j a_j PREM_{jk}(\theta) \right) + \sum_j AH_j ,$$

where C_j is the production cost for each crop j, D_k is the total HSURE payment (if applicable to the scenario), $I_{jk}(\theta)$ is the per acre insurance indemnity, $PREM_{jk}(\theta)$ is the insurance premium, and AH_j are ad hoc disaster payments.[18]

[18]Note that under current expected prices, the probability of marketing loan benefits and counter-cyclical payments being issued are zero for the crops in question, and as such, are not included in w_k.

We then assume the farmer has a moderate risk aversion premium of 20 percent (e.g., Hurley, Mitchell, and Rice, 2004; Mitchell, Gray, Steffey, 2004) to explore how production decisions with respect to land use might change with alternative program availability. The associated absolute risk aversion coefficient λ (as in Equation A.5) is scaled to the standard deviation of net revenue for a farm normalized to 1 acre in size at the end of the previous crop year using the approach in Babcock, Choi, and Feinerman (1993).[19] For the sake of transparency in the results, initial wealth is set high enough so that the farmer's budget constraint is never binding, and as such, relationships between marginal benefits and costs determine the activity levels.

[19]For the representative farmer, the baseline standard deviation is \$107.19 evaluated over our SxG simulated price and yield combinations, where θ=0.7, cost functions are quadratic, and no SURE or ad hoc payments. This base scenario yields a λ equal to 0.003835.

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