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**Arkansas Representative Panel Farm Analysis of Loan Rates and Target Prices for the
2012 Farm Bill**

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ABSTRACT

The 2008 Farm Bill expires in 2012 and the need to draft a new legislation has emerged. Modification of the 2008 Act will be heavily influenced by reduced funding to address the federal budget deficit. Hence, this study is an analysis of the impacts of alternative (or modified) safety net programs. In light of the currently high crop market prices and record United States net farm income in 2011, the general public and most farm interest groups have endorsed the removal of direct payments. However, direct payments have historically been important in providing a safety net for Arkansas producers, who are particularly affected by volatility in crop prices and energy based input prices such as fuel and fertilizers. The goal of this study is to assist Arkansas farmers and policy makers in understanding the effects of alternative commodity program modification and in helping to develop positions regarding formulation of the 2012 Farm Bill. The objective is to estimate the effects of fully removing direct payments during 2012-2016 on Arkansas farmers and to determine what size of adjustment in loan rates and target

prices would be meaningful in maintaining a safety net for Arkansas producers during this period. Five Arkansas representative panel farms provide the framework for the analysis. Ten-year historical data is used to develop national and world crop price, as well as farm-specific yield and expense empirical distributions by using multivariate empirical probability distributions. Stochastic baseline projections for 2012-2016 with 500 random draws annually/variable are simulated in Simetar. The results suggest that removing direct payments in the 2012 Farm Bill would negatively affect all five representative panel farms. Rice growers would be particularly negatively affected by such a policy. To remedy the potential loss of direct payments and to maintain a safety net for producers in Arkansas based on loan deficiency payments and/or counter-cyclical payments, considerable adjustments in loan rates and target prices across all crops during the 2012 Farm Bill would be required.

INTRODUCTION

The 2008 Food, Conservation, and Energy Act (better known as the 2008 Farm Bill) is set to expire in 2012. In November 2011, the by-partisan “Super Committee” failed to reach a Federal deficit reduction agreement in which the 2012 Farm Bill would have been included based on a proposal drafted by the House and Senate agricultural committees. As a result, the need to draft new legislation in 2012 has emerged. Such an Act is destined to be a result of a much more open process with proposed agricultural programs facing added public scrutiny as well as congressional amendments through floor debates.

The debate is underway on how to modify the 2008 Act, given the prospects of reduced funding for the 2012 legislation due to large Federal budget deficits, relatively high crop prices and incomes in agriculture, and WTO constraints while maintaining a safety net for producers. Increasing farm input costs, crop losses due to floods and lobbying by interest groups are factors

that are also likely to shape the way in which the 2012 Farm Bill will be written. As a result, there is a need to examine the impacts of alternative (or modified) safety net programs.

In light of the current policy environment, most interest groups have endorsed a removal of direct payments (DPs). However, DPs historically have played a prominent role in providing a safety net for Arkansas producers. In addition, under the current market price environment, Arkansas producers do not receive any loan deficiency payments (LDPs) and counter-cyclical payments (CCPs) (with rare exceptions for cotton) while participation rates in the Average Crop Revenue Election (ACRE) program have remained low rendering DPs as the only farm program that has provided some stability to Arkansas crop farm incomes.

The goal of this study is to assist Arkansas farmers and policy makers in understanding the impact of removing DPs and in developing their positions regarding the 2012 Farm Bill. The objective is to examine the impacts of alternative proposals that would modify the 2008 Farm Bill. To achieve the main goal, four scenarios are considered:

[1.] A full continuation of 2008 Farm Bill commodity programs. Farmers do not choose to participate in ACRE (Baseline)

[2.] A complete removal of DPs

[3.] What is the minimum level at which loan rates can be raised to trigger LDPs during 2012-2016?

[4.] Assuming DP rates remain at 2012 levels, what is the minimum level at which target prices can be raised to trigger CCPs during 2012-2016?

PROCEDURES

This study employs the Arkansas representative panel farms framework. Representative farms are developed based on information jointly collected by extension economists from the

Arkansas Cooperative Extension Service and Texas A&M University's Agricultural Food and Policy Center. Every two to three years, these professionals work closely with panels of farmers to update (or construct new) representative farms sharing common features with farms of a certain geographical location. During this process, information such as (but not limited to) planted acreage, crop mix, land tenure arrangements, participation in Federal farm programs, base acreage, historical yields, location-specific price wedges relative to the mean national prices, assets, costs, loan interest rates, and depreciation method is collected (Hignight, 2007).

Table 1 shows characteristics for five eastern Arkansas representative panel farms providing the framework for this analysis. Farm names start with AR, Arkansas' two-letter State label, and end with a number representing the total planted cropland acres specific to each farm. For example, ARHR3000 is a 3,000 acre rice, soybean, and corn farm located in Hoxie, and ARNC5000 is a 5,000 acre cotton farm in Leachville.

Following Richardson, Klose and Gray (2000), a procedure for developing multivariate empirical (MVE) probability distributions for farm-related variables is employed. Specifically, ten-year historical data are used to develop empirical distributions for national and world crop prices, as well as farm-specific yields and expenses (diesel fuel, fertilizer and electricity). Simetar is used to simulate stochastic baseline five-year projections for the period 2012-2016 with 500 iterations/variable/year.

Historical national and adjusted world prices are obtained from the United States Department of Agriculture's National Agricultural Statistics Service (USDA/NASS),¹ the USDA's Economic Research Service (ERS) Rice Yearbook,² and the USDA/ERS Rice Outlook.³ Actual historical farm-specific yields, on the other hand, are obtained during the panel farm

¹ Available online at: <http://www.nass.usda.gov/>

² Available online at: <http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1229>

³ Available online at: <http://usda.mannlib.cornell.edu/MannUsda/viewDocumentInfo.do?documentID=1285>

interview process. 2008 Farm Bill policy variables such as crop-specific direct payment rates, loan rates and target prices are obtained from the USDA/ERS Side-By-Side Comparison.⁴ Finally, historical farm expense data are obtained from USDA/NASS (diesel fuel, potash, nitrogen, and phosphate) and personal communication with Mr. Phil Tacker (electricity).⁵

The “February 2011 Baseline Update for United States Agricultural Markets” by the Food and Agriculture Policy Research Institute (FAPRI)-University of Missouri is used to obtain projected crop prices.⁶ An earlier version of the same publication (March 2011), on the other hand, is used to obtain projected indices of prices paid by farmers. Finally, projected farm-specific crop yields are calculated by the authors by assuming farm and crop-specific growth trends.

RESULTS AND DISCUSSION

Table 2.1 provides baseline estimates for a continuation of the 2008 commodity program parameters in the 2012 Farm Bill. As Table 2.1 illustrates, results from the first scenario suggest that a full continuation of 2008 Farm Bill commodity programs during 2012-2016 results in four of the five farms having a positive net income on a per acre basis as an annual average during this period. Relatively high depreciation costs for the smaller sized Wynne farm results in negative net income per acre. As Table 2.2 shows, on a per acre basis, most DPs as an annual average for the years 2012-2016 are received for rice (e.g., \$98/acre for long-grain rice for the Hoxie farm) with cotton being a distant second (e.g., \$48 and \$20/acre for irrigated cotton for the McGehee and Leachville farm, respectively).

Table 3 summarizes the results from the second scenario. A complete removal of DPs for the years 2012-2016 results in two of the five farms (Wynne and Hoxie) having a negative net

⁴ Available online at: <http://www.ers.usda.gov/FarmBill/2008/>

⁵ Mr. Tacker is currently an Irrigation Specialist with Delta Plastics.

⁶ The latest version of the report is available online at: http://www.fapri.missouri.edu/index.asp?current_page=home

income on a per acre basis as an annual average during this period. Across all farms, net income changes relative to the baseline range from -567 percent (Hoxie) to -12 percent (Leachville).

Results from the third scenario are presented in Table 4. The analysis for rice and cotton applies to all farms since the calculation of LDPs for these two crops is based on the respective adjusted world prices, unlike other crops for which the posted county prices (PCPs) are employed. In 2012, the rice loan rate can be raised to \$12.23/cwt (an 88 percent increase relative to the current loan rate) before any LDPs are triggered. By 2016, the rice loan rate could potentially be raised up to \$13.03/cwt without triggering LDPs for any rice producer. On the other hand, analysis at the specific farm-level suggests that the soybeans loan rate can be increased to \$11.14/bu in 2012 (a 123 percent increase relative to the current loan rate) before any LDPs are received by the Stuttgart farm.

Table 5 shows the results from the final scenario. This analysis is not farm-specific since across all sample crops the CCPs (and effective prices) calculation is based on national loan rates and national average farm prices. The results indicate that in 2012 the rice target price can be raised to \$14.51/cwt before any CCPs are triggered for long-grain rice (a 38 percent increase relative to the current rice target price). By 2016, the rice target price could potentially be raised to \$15.37/cwt without triggering CCPs for any rice producer. For medium-grain rice, on the other hand, the rice target price can be increased from as low as \$18.16/cwt (in 2012) to as high as \$18.78/cwt (in 2016) before any CCPs are triggered.

SIGNIFICANCE OF FINDINGS

Historically, DPs have played a significant role in providing a safety net for farmers in Arkansas. This study finds that a removal of the DPs program in the 2012 Farm Bill negatively impacts Arkansas producers with rice growers being particularly affected. Such findings are

especially alarming under the current market price environment in which farmers do not receive any LDPs and CCPs (with cotton being a rare exception). Moreover, ACRE participation rates have remained low since 2009. To maintain a safety net for Arkansas rice farmers, a significant adjustment in target prices and particularly in loan rates during the 2012 legislation is needed.

ACKNOWLEDGMENTS

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LITERATURE CITED

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- Richardson, J. W., S. L. Klose and A. W. Gray. 2000. "An Applied Procedure for Estimating and Simulating Multivariate Empirical (MVE) Probability Distributions in Farm-Level Risk Assessment and Policy Analysis." *Journal of Agricultural and Applied Economics* 32 (2): 299-315.

TABLES AND FIGURES

Table 1: Arkansas Representative Panel Farm Characteristics

Farm Name	ARHR3000	ARNC5000	ARC7500	ARHR3240	ARWR1400
Location	Hoxie	Leachville	McGehee	Stuttgart	Wynne
County	Lawrence	Mississippi	Desha	Arkansas	Cross
Acres Owned	1,000	1,000	1,200	648	420
Acres Under Crop Share Lease	1,500	3,200	5,985	1,552	490
Acres Under Cash Lease	500	800	315	1,040	490
Cash Rent for Land (\$/acre)	100	125	130	100	100
Planted Acres	3,000	5,000	7,500	3,240	1,400
Medium Grain Rice	150	0	0	0	0
Long Grain Rice	1,300	0	1,875	1,620	700
Irrigated Soybeans	1,125	0	1,625	1,296	650
<i>Full-Season Irrigated Soybeans</i>	0	0	1,625	0	0
<i>Double-Crop Irrigated Soybeans</i>	0	0	750	0	0
Dryland Soybeans	125	0	0	0	50
Corn	300	0	1,500	0	0
Irrigated Cotton	0	4,750	1,500	0	0
Dryland Cotton	0	250	0	0	0
Wheat	0	0	1,000	324	0
Base Acres					
Medium Grain Rice	175	0	0	0	0
Long Grain Rice	1,575	0	2,375	1,620	700
Irrigated Soybeans	1,125	0	2,585	1,296	650
<i>Full Season Irrigated Soybeans</i>	0	0	2,585	0	0
<i>Double Crop Irrigated Soybeans</i>	0	0	0	0	0
Dryland Soybeans	125	0	0	0	50
Corn	0	0	0	0	0
Irrigated Cotton	0	4,250	2,375	0	0
Dryland Cotton	0	225	0	0	0
Wheat	0	0	0	235	0

Table 2.1: 2012-2016 Annual Average Net Farm Income, in \$/Acre (by Farm)

Farm Location	Wynne	Hoxie	Stuttgart	Leachville	McGehee
	Annual Average (2012-2016), in \$/acre				
Market Receipts	638	656	539	935	721
DPs	53	51	47	20	35
LDPs	0	0	0	4	1
CCPs	0	0	0	1	1
Total Government Payments	53	51	47	26	36
Total Receipts	691	707	586	961	757
Total Cash Expenses	672	649	469	737	642
Depreciation	167	49	61	60	61
Net Farm Income	-148	9	56	164	54

Table 2.2: 2012-2016 Annual Average Direct Payments, in \$/Acre (by Farm and Crop)

Farm Location	Wynne	Hoxie	Stuttgart	Leachville	McGehee
Annual Average (2012-2016), in \$/acre, by Crop					
DPs	53	51	47	20	35
Long-Grain Rice	95	98	84	_____	91
Medium-Grain Rice	_____	94	_____	_____	_____
Irrigated Soybeans	11	10	9	_____	10
Dry Soybeans	11	10	_____	_____	0
Irrigated Cotton	_____	_____	_____	20	48
Dry Cotton	_____	_____	_____	21	_____
Corn	_____	0	_____	_____	0
Wheat	_____	_____	12	_____	0

Table 3: 2012-2016 Annual Average Net Farm Income, in \$/Acre (by Farm)

Farm Location	Wynne	Hoxie	Stuttgart	Leachville	McGehee
Annual Average (2012-2016), in \$/acre					
Market Receipts	638	656	539	935	721
DPs	0	0	0	0	0
LDPs	0	0	0	4	1
CCPs	0	0	0	1	1
Total Government Payments	0	0	0	5	2
Total Receipts	638	656	539	941	722
Total Cash Expenses	672	649	469	737	642
Depreciation	167	49	61	60	61
Net Farm Income (Scenario 2)	-201	-42	9	144	19
Net Farm Income (Scenario 1)	-148	9	56	164	54
<i>Difference (Scenario 2-Scenario 1)</i>	<i>-53</i>	<i>-51</i>	<i>-47</i>	<i>-20</i>	<i>-35</i>

Table 4: Highest Potential Loan Rate Level Increases Without Triggering Loan-Deficiency Payments (2012-2016), by Crop, Farm and Year

Crop	Unit	Loan Rate 2012	Farm	2012	2013	2014	2015	2016
Rice	\$/cwt	6.50	All	12.23	12.11	12.29	12.73	13.03
Cotton	\$/lbs	0.52	All	0.73	0.77	0.79	0.82	0.85
Soybeans	\$/bu	5.00	Stuttgart	11.14	11.14	11.08	11.18	11.32
Wheat	\$/bu	2.94	Stuttgart	6.07	5.62	5.78	6.03	6.13
Soybeans	\$/bu	5.00	Wynne	11.32	11.32	11.26	11.36	11.50
Soybeans	\$/bu	5.00	Hoxie	11.51	11.51	11.45	11.55	11.69
Corn	\$/bu	1.95	Hoxie	4.81	4.75	4.83	4.92	4.89
Soybeans	\$/bu	5.00	McGehee	11.28	11.28	11.22	11.32	11.46
Corn	\$/bu	1.95	McGehee	4.81	4.75	4.83	4.92	4.89
Wheat	\$/bu	2.94	McGehee	6.07	5.62	5.78	6.03	6.13

Table 5: Highest Potential Target Price Level Increases Without Triggering Counter-Cyclical Payments (2012-2016), by Crop and Year

Crop	Unit	Target Price (2012)	2012	2013	2014	2015	2016
Long-Grain Rice	\$/cwt	10.50	14.51	14.31	14.58	15.02	15.37
Medium-Grain Rice	\$/cwt	10.50	18.16	17.77	18.32	18.50	18.78
Cotton	\$/lbs	0.7125	0.8249	0.8446	0.8649	0.8796	0.8908
Soybeans	\$/bu	6.00	11.72	11.72	11.66	11.76	11.90
Wheat	\$/bu	4.17	6.59	6.14	6.30	6.55	6.65
Corn	\$/bu	2.63	5.09	5.03	5.11	5.20	5.17