Raising Price Supports Could Drive Up Government Spending and Distort Planting Decisions

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Raising Price Supports Could Drive Up Government Spending and Distort Planting Decisions

BY NICK PAULSON, ASSISTANT PROFESSOR, UNIVERSITY OF ILLINOIS

EXECUTIVE SUMMARY

The House and Senate versions of the pending farm bill are supposed to save $47 billion by repealing three subsidy programs: direct payments, counter-cyclical payments and the average crop revenue election. But both bills would then use almost three-quarters of those savings – about $35 billion – to fund a suite of new farm income support programs designed to put a higher floor under crop prices or guarantee average revenues from crop sales.

The House's "Price Loss Coverage" (PLC) program in particular is essentially a far more generous version of the program the bill repeals. It would:

- Increase the probability of large government outlays that would erase the predicted savings. If, for example, crop prices were 15 percent lower than expected, this study estimates that PLC would cost $2 billion a year more than current programs.
- Potentially distort producers' decisions of which crops to plant and how many acres of each.
- Threaten trade agreements that have helped U.S. growers expand their exports.

HOW THE HOUSE PROPOSAL WOULD WORK

The Price Loss Coverage proposal follows the basic formula of all farm subsidy programs that trigger payments to producers when market prices fall below a guaranteed level.

(Guaranteed price – market price) X (payment yield*) X (payment acres**) = payment to farmer
* a pre-set number of bushels or pounds per acre assigned by USDA for each farmer's crop
** a pre-set number of acres of each crop assigned by USDA

PLC, however, would make three important changes to the current subsidy program. It would:

- Guarantee a higher price (called the target price under the current program and the reference price under PLC).
- Allow a farmer to increase payment yield above the levels in the current program.
- Tie payments to a percentage of a farmer's actual planted acreage (payment acres are currently limited to a set percentage of the acres planted with subsidized crops in the past).

Taken together, these changes increase the risk of big government outlays and retreat from the reforms made to farm subsidy programs since the 1996 farm bill.

PRICE LOSS COVERAGE RISKS BIG GOVERNMENT PAYOUTS

The cost of PLC depends on whether actual crop prices fall below the guaranteed prices. This report analyzes two scenarios:

> 1)   actual prices are close to the baseline prices used in USDA's most recent long-term projections and the Congressional Budget Office's (CBO) cost estimates,
>
> 2)   actual prices are 15 percent lower than those baseline prices.

The closer the price floor to actual market prices, the greater the probability that payments will be triggered by even small changes in market prices, and PLC dramatically raises the price floor for most program crops (Figure E-1). Currently, the guaranteed prices (red bars) for corn and soybeans are set by law at less than 50 percent of the average market prices between 2008 and 2012; the guaranteed wheat price is less than 60 percent of its average market price. The House proposal (green bars) would raise the price floor to 85 percent of the USDA 2014 to 2018 projected average market price for corn, 79 percent for soybeans and 96 percent for wheat. The already very high prices guaranteed for cotton would increase to 99 percent of projected average market prices and peanuts would actually exceed projected market prices by 8 percent. The price floor for rice would rise from just over 56 percent to 91 percent of its projected average market price.

Figure E-1: PLC sets price floors close to projected market prices.
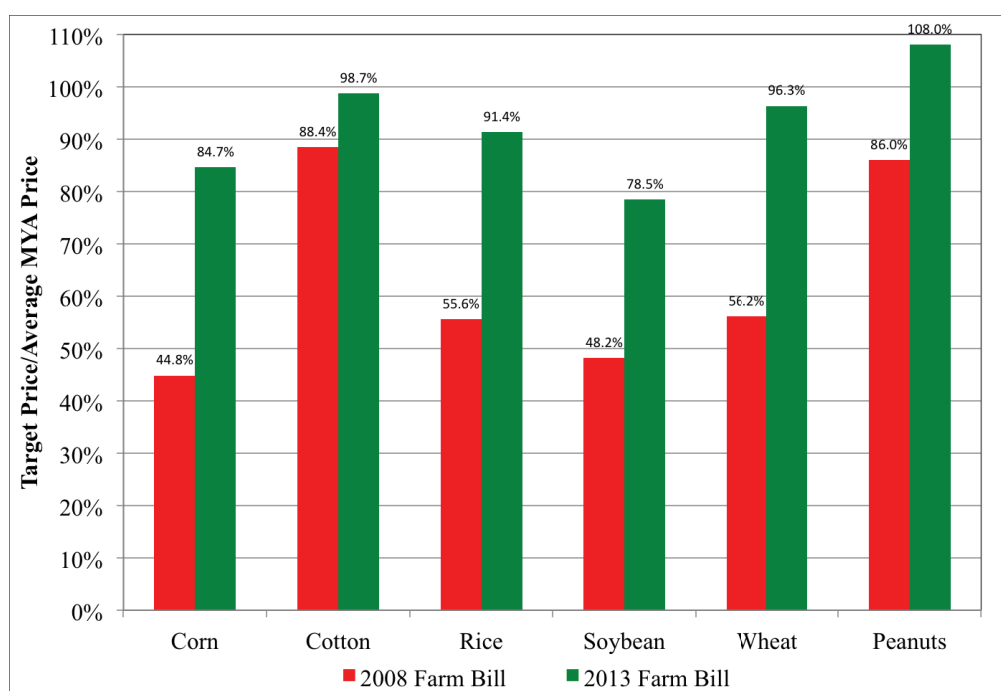
Guaranteeing higher prices increases both the likelihood that payments will be triggered and the size of the resulting payments.

Table E-1 (below) compares the percentage increase in the price guarantee to the concomitant increase in the maximum payment per bushel or per pound that could be triggered under the PLC proposal, compared to the current counter-cyclical program (CCP). Maximum payments for soybeans are five times higher, for corn and rice three times higher, and for wheat almost twice as high as under the current program. Already very high maximum payments for cotton and peanuts would rise by 30 percent and 80 percent, respectively.

Table E-1: PLC vs. CCP price guarantees and maximum payment levels

	Corn	Cotton*	Rice	Soybean	Wheat	Peanuts
Increase in guaranteed price/bushel	57%	6%	75%	51%	51%	17%
Increase in maximum payment/bushel	338%	31%	300%	507%	185%	80%

*Cotton would not be eligible for PLC but is included for comparison purposes. The reference price used for cotton is the minimum price support level outlined in the House STAX program.

Setting price floors so high relative to actual market prices means that even under the baseline price scenario, PLC payments could be larger than the payouts farmers currently receive from the direct payment program the House would repeal. PLC payments would exceed current direct payments 31 percent of the time for peanuts, 28 percent of the time for wheat and soybeans, 23 percent of the time for corn, 17 percent of the time for cotton and 4 percent of the time for rice. If crop prices fall 15 percent below baseline prices, the potential for PLC payments to exceed current direct payments rises dramatically, ranging from 5.8 percent of the time for rice to 51 percent of the time for peanuts.

Even under the baseline price scenario, estimated PLC payments per acre would exceed current direct payments per acre for peanuts, equal direct payments for wheat and be well above two-thirds of direct payments for corn and cotton. PLC payments would far exceed current direct payments for all crops except cotton if prices dipped below 15 percent of the baseline.

Table E-2: Direct and Expected PLC Payments Under Baseline and Low Price Scenarios

	Corn	Cotton	Rice	Soybean	Wheat	Peanuts
Current Direct Payments/ Payment Acre	$27.55	$38.39	$108.19	$13.03	$17.10	$51.79
Baseline Scenario						
$/payment acre	$18.15	$27.56	$35.10	$4.89	$17.10	$87.22
% direct payment/acre	66%	72%	32%	38%	100%	168%
Low Price Scenario						
$/payment acre	$43.99	$63.17	$93.31	$16.26	$33.55	$179.41
% direct payment/acre	160%	165%	86%	125%	196%	346%

PLC payments would total $1.9 billion a year less than current direct and counter-cyclical payments over the next five years *if* prices hew to the levels projected by CBO. If actual prices fall by as little as 15 percent below the projected prices, the cost of PLC would balloon to $6.9 billion a year, 140 percent more than under the baseline price scenario and 40 percent more than under current programs.

PLC DISTORTS MARKETS AND TRADE

The 1996 farm bill made a much-heralded advance in farm policy by decoupling farm subsidies from farmers' production decisions. Farmers could decide which crops and how many acres to plant based on price signals from the market, rather than on the level of government support. Farmers, in other words, would no

longer farm the government, instead of the market.

The House's PLC proposal marks a troubling retreat from that important farm policy reform. The higher price floor and payments tied to actual acres in production recouples farm income support to farmers' production decisions. Farmers will once again have incentives to farm the government as well as the market.

Because the United States is the largest exporter of several subsidized crops, PLC could have significant effects on global prices, production and trade and erode the much sought-after gains in export markets that U.S. producers have enjoyed under current trade agreements.

INTRODUCTION

Budget implications have been the primary focus during the current farm bill debate, as both the Senate and House Agriculture Committees must produce a bill that spends less than current programs. The Congressional Budget Office (CBO) estimates that the bills recently passed by the Senate and House committees would save $17.9 billion and $33.3 billion, respectively, over the next 10 years.

Both committee versions propose to eliminate the existing system of price and revenue supports, which include the direct and countercyclical programs (DCP) and the average crop revenue election (ACRE) option. Eliminating these programs alone would save $46.2 billion through 2023, but the committees seem poised to use most of the savings to introduce new subsidy programs that will increase price support levels in addition to offering revenue-based support. These new programs would increase costs by just over $35 billion.

Not only do the expected costs associated with these programs offset most of the savings achieved by eliminating current programs, they create the potential for far larger outlays if commodity prices fall below the levels guaranteed in the bills (called "reference" prices). The House Ag Committee's bill includes a fixed price support program, referred to as Price Loss Coverage (PLC). PLC would operate much like the existing counter-cyclical program (CCP) but with much higher reference prices. Payments would be triggered when market prices fall below those much higher reference prices, increasing the likelihood of that happening and triggering large government outlays.

In addition, the PLC program would make payments on 85 percent of the producer's actual planted acres, unlike the CCP, which makes payments based on the historical base acres established for each crop. Tying payments to currently planted acres has the potential to encourage producers to increase the acres planted with crops that enjoy the greatest government support.

The Senate Ag Committee's bill also includes a modified price support program, referred to as the Adverse Market Payment (AMP) program. With the exception of rice and peanuts, AMP bases each eligible commodity's reference price on a rolling five-year Olympic average of national marketing year average prices. Thus, the Senate's reference prices for most subsidized commodities will adjust to market prices over time. This adjustment somewhat reduces the potential of the Senate AMP to trigger large outlays and distort producers' planting decisions. Payment acreage would remain tied to historical base acreage and CCP program yields.

Rice and peanuts, however, receive more generous support in the Senate proposal. Reference prices for these two crops would be legislatively fixed at higher levels similar to those in the House proposal. Moreover, the rice and peanut payment yields used to determine payments can be increased from those established under the current CCP.

The modified price support programs from both the Senate and the House would result in initial reference prices above those currently in place for the largest eligible crops. Proponents argue that higher references prices are justified because of the general increase in commodity prices since 2005 as rapid demand growth increased the competition for acreage. Variable production and land costs have followed price levels, resulting in reductions in the relative support offered by the current reference prices for major program crops. Figure 1 illustrates this trend for corn, showing that the average corn price was low enough to trigger payments between 1996 and 2005 but since 2005 has been far higher than the reference price of $2.63 per bushel.

The public policy rationale used to support price guarantees for agricultural commodities in the United States is to ensure a steady and affordable food supply for all consumers by assuring farmers of a more stable income. However, the efficacy and appropriateness of price supports in achieving these goals is increasingly being called into question, especially in light of the budget concerns currently at the forefront of the public

policy debate.

Critics question the need for any form of agricultural price supports because there are large and well-functioning futures and options markets. Farmers can use these markets to manage the risk of low crop prices by directly trading futures and options or by forward-contracting relationships with larger grain merchandisers who take on the risk and transaction costs associated with commodity trading. Furthermore, farmers already have access to heavily subsidized crop revenue insurance policies that protect against drops in prices. The additional protection of guaranteeing prices at fixed levels results in duplicative or overlapping coverage for farmers and wasteful government spending.[1]

Figure 1. Marketing Year Average and Target Price for Corn, 1996-2012
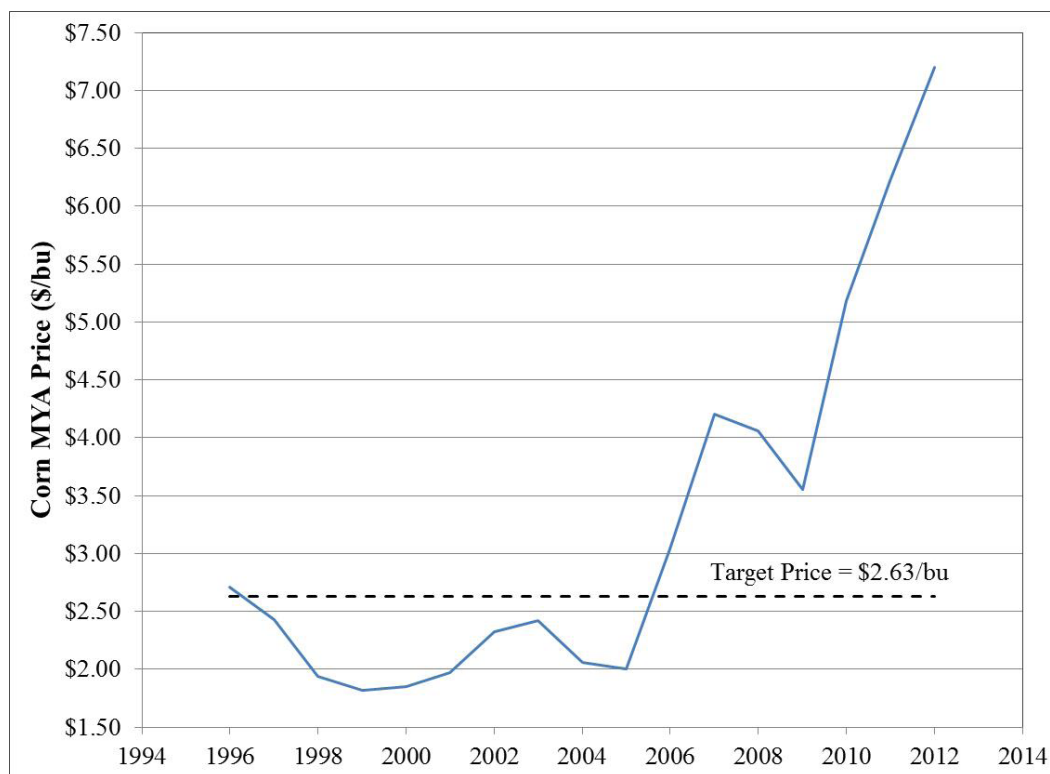
Proponents of fixed price guarantees argue that farmers need protection against persistently low prices over multiple crop years because of the highly cyclical nature of commodity prices. They claim that revenue insurance programs do not protect against long periods of low crop prices because the price guarantee is updated to current market levels each year and covers adverse price movement only during a single growing season. However, this ignores the fact that using private futures contracts and options to manage price risk over multiple growing seasons is an option for producers of the largest program crops such as corn, soybeans and wheat.

This report does not attempt to resolve the fundamental question of whether government should play a role in placing price supports under agricultural commodities. Instead, this analysis focuses on two important effects the more generous proposal put forward by the House Committee on Agriculture would produce:

    1)   triggering large government outlays in periods of low prices and

    2)   distorting producers' decisions about which crops to plant and how much to plant.

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1   While revenue insurance programs for peanut producers do not currently exist, both the Senate and House farm bills provide for the creation of peanut revenue insurance.

These two issues are highly important domestically because of the significant fiscal implications, and globally because of the impact of U.S. growers' production decisions on the global market for those crops. Enacting programs that distort global markets and trade flows has serious implications for World Trade Organization agreements to which the U.S. is a party. While the appropriateness of providing government agricultural price supports is subject to debate, the potential budgetary and distortionary effects of changes to these and other subsidy programs should be carefully considered before proposed changes become reality in the next farm bill.

HOUSE PROPOSAL IS MORE GENEROUS THAN CURRENT PROGRAMS

Currently, the U.S. Department of Agriculture (USDA) operates a three-tiered system that supports farm income and puts a floor under crop prices. All three tiers are based on Congressionally mandated prices or payment rates for each commodity (Table 1).

Producers of eligible commodities get annual fixed payments through the direct payment program based on a so-called payment rate that varies by commodity. Countercyclical program (CCP) payments are triggered if the marketing year average price of the crop falls below the crop's CCP trigger price. The House version of the new farm bill would replace it with a new price support program called Price Loss Coverage (PLC) designed to provide similar fixed price protection.

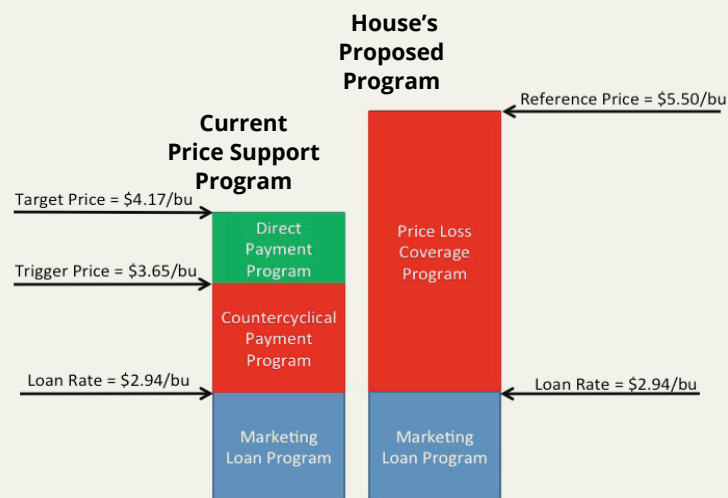### Table 1. Current DCP Prices and Loan Rates for Selected Commodities

	Corn ($/bu)	Cotton ($/lb)	Rice ($/lb)	Soybean ($/bu)	Wheat ($/bu)	Peanuts ($/lb)
Target Price	$2.63	$0.71	$0.11	$6.00	$4.17	$0.25
Direct Payment Rate	$0.28	$0.07	$0.02	$0.44	$0.52	$0.02
CCP Trigger	$2.35	$0.65	$0.08	$5.56	$3.65	$0.23
Loan Rate	$1.95	$0.52	$0.07	$5.00	$2.94	$0.18
Max CCP Payment*	$0.40	$0.13	$0.02	$0.56	$0.71	$0.05

*Difference between the CCP trigger and the loan rate

HOW PRICE SUPPORT PROGRAMS WORK

Price support programs put a floor under the prices that farmers receive for a select set of crops. Congress sets the price guarantee for each crop in the farm bill. A government payment to the farmer is triggered when market prices fall below the established price floor. The figure below shows how the current price support program and the version proposed by the House committee work.

The current price support program combines three programs designed around a guaranteed price for each eligible commodity. For example, the existing price floor, or "target price," established by Congress

Current Price Support Program

Target Price = $4.17/bu
Trigger Price = $3.65/bu
Loan Rate = $2.94/bu

- Direct Payment Program
- Countercyclical Payment Program
- Marketing Loan Program

House's Proposed Program

Reference Price = $5.50/bu
Loan Rate = $2.94/bu

- Price Loss Coverage Program
- Marketing Loan Program

for wheat is $4.17 per bushel. Producers receive a portion of the target price each year in the form of fixed direct payments. For wheat, the direct payment amount is $0.52 per bushel. These direct payments go out to farmers even if market prices are above the target price.

The Counter-Cyclical Program (CCP) payments are triggered if market prices fall below the so-called "trigger price." The trigger price for wheat is $3.65 per bushel, calculated by subtracting the direct payment rate for wheat ($0.52 per bushel) from the target price ($4.17 per bushel). The maximum payment per bushel a farmer can receive from the CCP is the difference between the CCP trigger price and the so-called "loan rate" established under the Marketing Loan Program – the third price support program. In

this example, the maximum CCP payment is $0.71 per bushel ($3.65 - $2.94). If market prices fall below the loan rate, producers receive payments from both the CCP and the Marketing Loan Program.

The amount a farmer receives from a price support program is determined by multiplying the difference between the guaranteed price and the actual market price times the producer's so-called payment yield times the producer's so-called payment acres.

In this example, a wheat farmer with a payment yield of 40 bushels per acre and 500 payment acres would receive a CCP payment equal to $3,000 if actual wheat market prices were $3.50 per bushel – $0.15 lower than the $3.65 CCP trigger price.

CCP Payment = $0.15 ($3.65 trigger price – $3.50 actual price) X 40 bushels per acre (payment yield) X 500 acres (payment acres) = $3,000.

This wheat farmer would also get direct payment equal to $10,400.

Direct Payment = $0.52 (direct payment rate) X 40 bushels per acre (payment yield) X 500 acres (payment acres) = $10,400.

The total government payment received by the farmer in this example is $13,400 ($3,000 + $10,400).

The price support program proposed by the House Committee on Agriculture, called Price Loss Coverage (PLC) operates in the same way but eliminates the direct payment portion. However, the price floor, called the reference price, is set much higher than the current price floor – $5.50 per bushel for wheat in this example. The maximum PLC payment is much higher as well – $2.76 per bushel ($5.50 reference price - $2.94 loan rate).

As a result, the wheat farmer above who received a total of $10,400 under the current program would receive $40,000 from PLC if the actual price of wheat were $3.50.

$2.00 ($5.50 reference price - $3.50 actual price) X 40 bushels per acre (payment yield) X 500 acres = $40,000

The PLC makes other important changes in the current price support programs, which are discussed at length in this paper.

The House's PLC proposal makes three important changes to CCP:

1) PLC reference prices are set much higher than the CCP target prices;

2) payments are based on the amount of acres actually *planted* with the subsidized crop,[2] rather than on the producers' often smaller historic "base" acres; and

3) producers are provided a one-time opportunity to adjust their payment yields to 90 percent of the average yield of the crop they achieved between 2008 and 2012.

PLC payments would be triggered if the midseason price (season average price over the first five months of the marketing year) falls below the legislatively fixed reference price (called target price in the CCP program) for each crop. Similar to the CCP program, the maximum PLC payment rate is the difference between the reference price and the crop's loan rate. If the mid-season price falls below the loan rate, the producer will receive payments from both the PLC program and the Marketing Loan Program. Reference prices and loan rates for some of the major program crops are shown in Table 2. Total support under the PLC program is subject to a $125,000 payment limit per farm entity.

The proposed PLC program eliminates the fixed direct payment component of the current system, triggering support only if prices fall between the commodity-specific reference price and its loan rate. Table 2 compares the PLC reference prices and maximum potential payment rates to the current CCP trigger prices and maximum payment rates. All proposed reference prices have been increased above the current CCP trigger price levels, but the proposed loan rates would be left unchanged. As a result, the maximum potential support from the PLC program is far higher than under the current CCP program's. PLC would, for example, produce a five-fold increase in maximum potential support for soybean growers and a three-fold increase for corn and rice growers.

Table 2. Proposed PLC Reference Prices and Loan Rates for Selected Commodities

	Corn ($/bu)	Cotton* ($/lb)	Rice ($/lb)	Soybean ($/bu)	Wheat ($/bu)	Peanuts ($/lb)
PLC Reference Price	$3.70	$0.6861	$0.14	$8.40	$5.50	$0.27
CCP Trigger Price	$2.35	$0.65	$0.08	$5.56	$3.65	$0.23
Percent Increase	57%	6%	75%	51%	51%	17%
Max PLC Payment	$1.75	$0.17	$0.08	$3.40	$2.56	$0.09
Max CCP Payment	$0.40	$0.13	$0.02	$0.56	$0.71	$0.05
Percent Increase	338%	31%	300%	507%	185%	80%

*Cotton is not eligible for PLC but is included for comparison purposes. The reference price used for cotton is the minimum price support level outlined in the House STAX program. The proposed loan rate for cotton is the average of the previous two years MYA prices with a minimum of $0.47/lb and maximum of $0.52/lb.

Figure 1 shows why the changes proposed in PLC are likely to trigger payments far more frequently than the current CCP program. The first bar presents the ratio between the current CCP trigger prices and the mid-year average over the 2008 to 2012 period for each crop. A ratio of 100 percent means the trigger price and the average market price were equal, on average, over that period. A ratio greater than 100 percent means that

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2 Total payment acres are capped so they cannot exceed the farm's total base acreage.

the average market price was above the level that would trigger CCP payments. As the ratio approaches 100 percent the probability that a payment would occur increases, because a smaller variation from the mean or expected price would trigger payments. The ratios for all crops except cotton and peanuts were well below 100 percent under the CCP program. The ratios for corn and soybeans were below 50 percent, while the ratio for wheat was below 60 percent.

The second bar shows the same ratio for the proposed PLC program using USDA's official estimates of crop prices between 2014 and 2018.[3] The ratios increase to 79 percent for soybeans, 85 percent for corn, over 90 percent for cotton, rice and wheat and actually exceed100 percent for peanuts. The proposed increases in the reference prices would adjust relative price support up to or above expected market price levels over the 2013 farm bill period, especially for cotton, rice, wheat and peanuts.

Figure 1. Current and Proposed Price Supports Relative to Market Prices
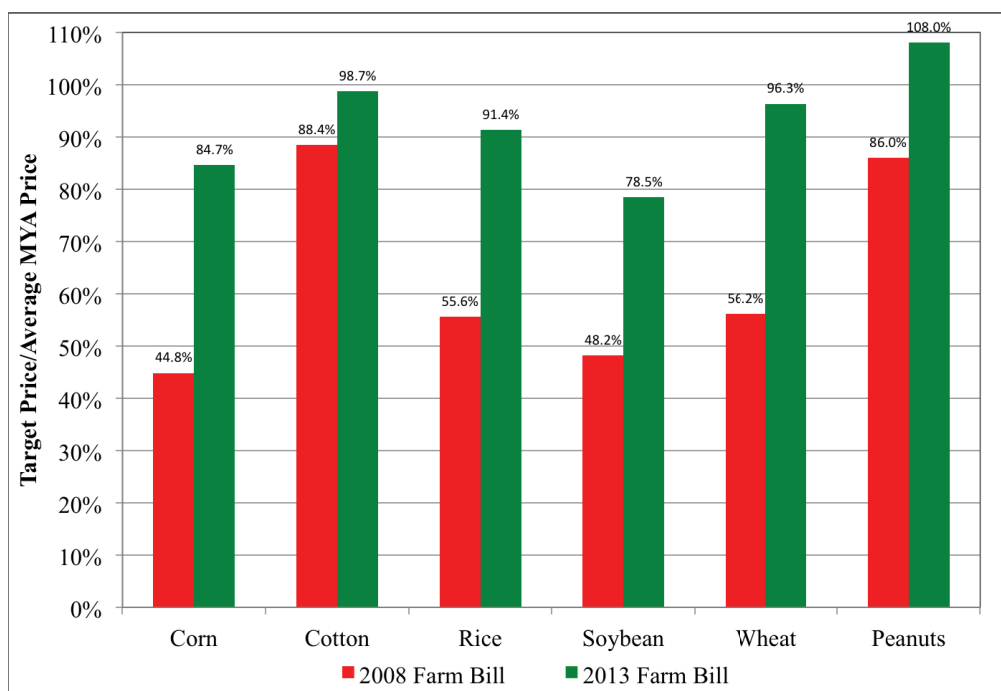
HOUSE PROPOSAL MAY COST FAR MORE THAN CURRENT PROGRAMS

Together, the increased reference prices and maximum potential price support payments of the House proposal increase the probability that the PLC program, if enacted, would result in large government outlays if prices fall below expected levels.

The PLC payment estimates shown here were derived using Monte Carlo simulation methods. Commodity prices were assumed to follow a lognormal distribution, and five sets of price draws were simulated for each commodity, with the distributional parameters calibrated to expected price levels and observed marketing year average price volatility. The five sets of random price draws for each crop represent the next five-year farm bill period. Expected PLC program costs were estimated for a baseline scenario using 2013 USDA Outlook price levels for 2014 through 2018 marketing years (Table 3). The expected costs of PLC under an alternative scenario in which price levels drop below these baseline levels was also estimated. For a more complete explanation of the methodology used, please see the Appendix.

3   Peanut prices were taken from CBO's baseline projections for USDA programs.

Table 3. Baseline Scenario Prices by Commodity, 2014-2018

	2014	2015	2016	2017	2018	Average
Corn	$4.10	$4.30	$4.40	$4.50	$4.55	$4.37
Cotton	$0.69	$0.69	$0.70	$0.70	$0.71	$0.70
Rice	$14.80	$15.10	$15.30	$15.60	$15.80	$15.32
Soybean	$10.35	$10.65	$10.75	$10.85	$10.90	$10.70
Wheat	$5.40	$5.65	$5.75	$5.85	$5.90	$5.71
Peanuts	$0.25	$0.25	$0.25	$0.25	$0.25	$0.25

Note: Based on the March 2013 USDA Outlook and CBO 2013 Baseline for USDA programs

BASELINE SCENARIO

Corn producers can expect to receive $18.15 per acre from the PLC program, resulting in $1.367 billion in expected annual payments over the next five years. Expected annual PLC payments for other commodities range from $94 million for rice producers to $749 million for wheat producers (Table 4). At baseline price levels, this suggests that PLC payments would be less than the payments producers would receive from the direct payment program and the current CCP combined. Payments to rice producers would decline by more than $300 million to roughly 75 percent of the current level of direct payments. Soybean and wheat producers are estimated to lose more than $240 million and $320 million in price support per year, respectively, from 2014 to 2018. Peanut producers are estimated to receive an increase in net expected payments, with expected PLC outlays totaling $104 million compared with the $76 million in expected support under the current DCP programs.

These estimated reductions in expected payments relative to current programs are consistent with the CBO projection that enacting PLC while eliminating direct payments and CCP would save money.

Table 4. Comparison of Expected Annual PLC and DCP Support for Selected Commodities, Baseline Price Scenario

	Corn	Cotton*	Rice	Soybean	Wheat	Peanuts
PLC Payments ($/acre)	$18.15	$27.56	$35.10	$4.89	$17.10	$87.22
Planted Acres (million)	88.60	10.90	3.14	75.20	51.50	1.40
PLC Payments ($ million)	$1,367	$255	$94	$313	$749	$104
DCP Payments ($ million)	$1,971	$688	$405	$557	$1,072	$76

Note: Planted acres and DCP payments are taken from the 2013 USDA Baseline, averaged over the 2014 to 2018 period. PLC payments are based on author estimates. DCP payments include direct and CCP payments.

Repealing direct payments is by far the largest source of savings associated with commodity program cuts in the both the House and Senate versions of the farm bill. Direct payments would total nearly $5 billion per year over the next farm bill period if the program were left in place. The amount of direct payments is fixed each year, which means the savings from repealing the program are known with certainty. The amount of payments

triggered by the PLC, however, is not certain. While expected support from the proposed PLC program is estimated to be lower than what currently flows to producers as direct payments – implying a net savings from the combination of the repeal of current programs and introduction of PLC – actual support from the program could exceed direct payment expenditures if commodity prices fall below their baseline levels.

Table 5 shows estimates of the probability, expressed as percentages, that PLC payments would exceed current direct payments under the baseline scenario. The higher the percentage, the more likely it is that PLC payments would exceed direct payments. The probability that PLC payments to corn producers could exceed direct payments is nearly 23 percent. It is even more likely that soybean and wheat farmers would get greater payments from PLC than they would from direct payments (28 percent probability). PLC payments to peanut growers are estimated to exceed direct payments with a 31.2 percent probability. Strikingly, the probabilities that farmers would receive PLC payments that are 1.5 times as high as their direct payments ranges from 5.8 percent for cotton to 17.4 percent for wheat.

The likelihood that PLC payments for rice producers would exceed current direct payment support is lower than for other crops for two reasons. First and most important, farmers have shifted planted acreage from rice to other program crops such as corn and soybeans. Second, the marketing year average price for rice tends to be less volatile than for other crops. The same factors would apply to cotton if PLC were offered to cotton growers.

Cotton prices have also been less volatile than for most of the other program crops, and planted acreage has declined relative to total base acres. The historic volatility of peanut prices has also been lower than of crops such as corn, soybeans and wheat. However, because the reference price set for peanuts is very high relative to expected market price levels, peanuts have the largest probability of triggering large PLC payments.

Table 5. Direct Payments vs. Potential PLC Support – Baseline Price Scenario

	Corn	Cotton*	Rice	Soybean	Wheat	Peanuts
Direct Payments (million)	$1,970	$576	$404	$555	$1,072	$65
Likelihood that PLC support:						
Exceeds direct payments	22.9%	17.2%	4.1%	28.0%	28.1%	31.2%
Exceeds 150% of direct payments	17%	5.8%	1.0%	26.7%	17.4%	13.6%

LOW PRICE SCENARIO

To further investigate the potential of PLC to generate large government payouts, this analysis also modeled an alternative scenario with expected price levels 15 percent lower than the baseline prices (Table 3). Estimates of PLC payments under the low-price scenario are shown in Table 6. The estimated PLC payments per acre are compared to current fixed direct payments per acre, and total PLC payments are compared to total payments that would be made under the current direct payment and CCP programs. Estimated CCP payments were adjusted to the 15 percent lower crop prices, which increased expected CCP payments.

PLC program payments increase significantly for all the modeled crops. The 15 percent reduction in corn prices, for example, causes annual outlays from PLC to increase by 140 percent, from $1.367 billion to more than $3.3 billion. The cost of the PLC program exceeds the cost of the combined direct payment and CCP programs for corn, soybean, wheat and peanuts. Switching from direct payments and CCP to PLC would still reduce expected payments to cotton and rice, generating expected savings of $561 million. Growers of these two crops fare better under current programs because payments under the CCP program are much larger in the low-price scenario and because more cotton and rice base acres are eligible for CCP than PLC payments in the alternative scenario. Total expected PLC payments across all crops would still exceed total DCP payments by more than $1.5 billion.

Table 6. Expected Annual PLC vs. DCP Payments for Selected Commodities, Low-Price Scenario

	Corn	Cotton*	Rice	Soybean	Wheat	Peanuts
PLC Payments ($/planted acre)	$43.99	$63.17	$93.31	$16.26	$33.55	$179.41
Direct Payments ($/base acre)	$27.55	$38.39	$108.19	$13.03	$17.10	$51.79
Planted Acres (million)	88.60	10.90	3.14	75.20	51.50	1.40
PLC Payments ($ million)	$3,313	$585	$249	$1,039	$1,469	$213
DCP Payments ($ million)	$2,048	$990	$405	$567	$1,165	$146

Note: Planted acres and direct program payments are taken from the 2013 USDA Baseline, averaged over the 2014 to 2018 period. PLC and CCP payments are based on author estimates. DCP payments include direct and estimated CCP payments.

The probabilities that PLC payments would exceed current direct payments also increase dramatically under the low price scenario (Table 7). If prices fall by 15 percent relative to baseline prices, the probability that expected PLC outlays would exceed current direct payments ranges from 23.2 percent for rice to 74.3 percent for peanuts. Remarkably, the probabilities that PLC payments would exceed direct payments by 150 percent range from 5.8 percent for rice to 51 percent for peanuts.

Table 7. Annual Direct Payments vs. Potential Annual PLC Payments, Low-Price Scenario

	Corn	Cotton*	Rice	Soybean	Wheat	Peanuts
Direct Payments ($ million)	$1,970	$576	$404	$555	$1,072	$65
Likelihood PLC Support: Exceeds Direct Payments	50.1%	52.5%	23.2%	42.2%	57.2%	74.3%
Exceeds 150% of Direct Payments	41.8%	29.1%	5.8%	36.5%	41.8%	51.0%

PLC MAY DISTORT MARKETS

The current counter-cyclical program ties support levels to a farm's historical base acreage, which has been frozen at levels set prior to either the 1996 or 2002 farm bills. This means the current CCP program has little effect on a producer's decisions on how many acres to plant with which crops. For example, a farm may have established base cotton acreage that is generating direct and, potentially, countercyclical payments even when the farmer is actually planting and producing corn instead. This decoupling of base acres from currently planted acres encourages growers to base acreage decisions on current market returns rather than on the potential gains or losses from farm subsidy programs. Decoupling farmers' production decisions from the varying levels of subsidy support for different crops is touted as a major accomplishment of the 1996 Freedom to Farm Act, which made a major shift away from the more direct supply management tactics used in U.S. agricultural policy for more than 60 years.

The impact of this decoupling since 1996 is apparent in the acreage numbers shown in Table 8. Acres actually planted with corn and soybeans exceed the established base acres for those crops by 5 million and 26 million acres, respectively.[4] In contrast, acres actually planted with cotton, rice and wheat are well below the base historical acreage for those crops. These shifts in acreage illustrate the impact of decoupling price supports from production decisions over the past 15 years as producers shifted planted acreage to respond to evolving market conditions and relative crop returns.

Table 8. Historical Base and Planted Acreage for Major Program Crops

	Corn	Cotton	Rice	Soybean	Wheat	Peanuts	Total
				Million acres			
Historical Base	84.1	18.0	4.4	50.1	73.8	1.5	231.8
Planted Acres (2008-2012 avg.)	89.0	10.7	2.9	76.3	56.1	1.3	236.4
Planted Acres (2014-2018 avg.)	88.6	10.9	3.1	75.2	51.5	1.4	230.7

Basing PLC support on current planted acreage recouples farmers' production decisions to the level of government subsidies, effectively reversing the reforms touted in the 1996 farm bill. The varying levels of PLC support among crops will once again influence acreage and production decisions. The influence of PLC on growers' decisions will be most pronounced in a low-price environment as the potential size and likelihood of receiving PLC payments increases.

Recent estimates indicate that the proposed PLC, RLC and STAX programs in the House farm bill could lead to a more than 4 percent increase in cotton acreage at price levels near current baseline projections, and increases in cotton and wheat acreage of 13 percent and 6 percent, respectively, if prices fall below baseline projections (Babcock and Paulson, 2012). With the U.S. being the world's largest exporter of both crops, these acreage effects could have significant effects on global prices, production and trade.

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4   The large difference between base and planted acreage for soybeans is also related to the fact that soybeans were not an eligible program crop in the 1996 farm bill. Base acreage for soybeans did not begin to be established until the 2002 farm bill.

PLC INTERACTIONS WITH OTHER NEW SUBSIDY PROPOSALS

The 2013 House Agriculture Committee farm bill offers crop producers a "farm risk management election" choice between price supports (PLC) or shallow loss revenue protection through the Revenue Loss Coverage (RLC) program. Producers must choose between the two subsidy options; they cannot participate in both.

The estimates of expected PLC payments and potential costs in this paper assume that nearly all producers will decide to participate in the PLC program.[5] There are two reasons to think this assumption is accurate:

1) few farmers have participated in an existing program that is quite similar to the proposed RLC; and
2) a new crop insurance proposal creates incentives to choose PLC over RLC.

The proposed RLC program is quite similar to the existing Average Crop Revenue Election (ACRE) program authorized in the 2008 farm bill. Despite the consensus view that farmers would come out ahead by participating in ACRE, participation rates in the program over the past five years have been surprisingly low. A number of factors have been linked to the low participation, including the relative complexity of the program and the availability of revenue protection through existing crop insurance programs.

These same factors apply to a producer's choice between RLC and PLC programs. Moreover, participation in the standard direct and counter-cyclical payment programs were the default option for producers choosing between ACRE and the standard programs, just as participating in PLC would be the default option for producers deciding between PLC and RLC. It is likely, therefore, that the majority of farmers would choose PLC – the default option – and benefit from substantially increased price support levels.

The current House and Senate versions of the farm bill also introduce a new crop insurance program called the Supplemental Coverage Option (SCO). Fundamentally, SCO is similar to both the RLC and ARC revenue guarantee programs in that it can be used to cover so-called "shallow losses" of revenue – losses too small to trigger a payout from a crop insurance policy. Taxpayers will pay 65 percent of the cost of a farmer's SCO policy premium – a subsidy rate that exceeds current crop insurance subsidy rates, particularly at higher coverage levels.[6] Growers will have powerful incentives to purchase an SCO policy and reduce the more expensive coverage on their standard crop insurance policy, thereby maximizing the total expected payouts from their crop insurance policies.

Moreover, a producer who chooses to participate in RLC cannot take advantage of the new SCO insurance program, while a producer participating in PLC can also participate in SCO. Combining PLC, SCO and a standard insurance policy will be a good choice for farmers trying to get the greatest government support under of a new farm bill.

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5   Note that while the aggregate cost estimates would be reduced at lower PLC enrollment rates, the comparison of per-acre costs between PLC and the current DCP program remains valid.

6   Current subsidy rates range from 59 percent at lower insurance coverage levels (i.e. 65 percent coverage) to a 38 percent subsidy at the highest coverage levels available for individual yield and insurance coverage.

CONCLUSIONS

Congress is once again taking up reauthorization of the farm bill. Both the House and the Senate Agriculture Committees have reported out bills. The full Senate has passed its version, and floor action on the House bill is imminent. Both versions are credited with achieving significant savings by repealing three current subsidy programs: the direct payment program, the counter-cyclical payment program and the ACRE program. Both bills, however, use most of these savings to create a suite of new subsidy programs designed to protect growers against low crop prices and revenues.

The House version of the farm bill places particular emphasis on a more generous form of the current counter-cyclical program called Price Loss Coverage (PLC). PLC fixes crop prices at levels high enough to trigger more frequent and larger payments than the current counter-cyclical program it replaces.

The savings from replacing direct and counter-cyclical payments with PLC may disappear if crop prices fall below the prices used by the Congressional Budget Office to estimate the cost of PLC. A 15 percent drop in prices will wipe out any savings by triggering PLC payments that are 62 percent higher than current programs for corn producers, 83 percent higher for soybean producers, 26 percent higher for wheat producers and 67 percent higher for peanut producers. Instead of saving money, the switch from current programs to PLC could end up increasing overall costs by 23 percent.

Even at the baseline prices used to estimate the cost of PLC, there is a significant probability that normal variation of crop prices will be enough to trigger PLC payments that exceed the cost of the current farm subsidy programs.

This is true for all six of the major program crops considered in this analysis, and in particular for peanuts, cotton rice and wheat, because the proposed reference prices for those crops would be set very close to, or above, expected market price levels. PLC payments for corn and soybean producers could also be large if prices fall, although their relatively lower reference prices reduce the likelihood of payments compared to peanuts, rice and wheat growers.

The appropriate level of support for program crop producers is open to debate, but the need to reduce the federal deficit is very much a reality. Given the estimated potential for large PLC expenditures, it is unclear whether the changes to farm subsidies proposed in the current versions of the new farm bill will actually save money.

Furthermore, the proposed increase in price support levels and the recoupling of price supports to planted acreage represents a retreat from the important reforms made in the 1996 farm bill. Once again, farmers may be led to make production decisions with an eye to which crops get the most generous government support, rather than on the signals the market is sending. The resulting distortions in markets and trade flows could have negative implications for U.S. crop producers under existing trade agreements.

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APPENDIX

The PLC payment estimates shown here were derived using Monte Carlo simulation methods. Commodity prices were assumed to follow a lognormal distribution, and five sets of price draws were simulated for each commodity, with the distributional parameters calibrated to expected price levels and observed marketing year average price volatility. Expected price levels were set equal to the 2013 USDA Outlook levels for the 2014 through 2018 marketing years, aligning the period of study to the expected 2013 farm bill period. Peanut prices were taken from the 2013 CBO baseline for USDA programs, because peanuts are not included separately in USDA's long-term projections. The baseline price levels for each commodity are reported in Table A-1.

Table A-1. Baseline Scenario Prices by Commodity, 2014-2018

	2014	2015	2016	2017	2018	Average
Corn	$4.10	$4.30	$4.40	$4.50	$4.55	$4.37
Cotton	$0.69	$0.69	$0.70	$0.70	$0.71	$0.70
Rice	$14.80	$15.10	$15.30	$15.60	$15.80	$15.32
Soybean	$10.35	$10.65	$10.75	$10.85	$10.90	$10.70
Wheat	$5.40	$5.65	$5.75	$5.85	$5.90	$5.71
Peanuts	$0.25	$0.25	$0.25	$0.25	$0.25	$0.25

Note: Based on the March 2013 USDA Outlook and CBO 2013 Baseline for USDA programs

Data on midseason prices from 1960 through 2012 were collected for the five largest program crops – corn, cotton, rice, soybeans and wheat – from the National Agricultural Statistics Service of the USDA. Annual volatility levels were set equal to levels observed historically in each of the commodity's price series. Finally, the historical temporal correlation structure among midseason prices was imposed for each commodity. The annual volatility levels and correlation structures used for each commodity are provided in Table A-2. Annual volatilities are based on historical volatility observed in each commodity's marketing year average price series from 1960 through 2011. Correlations are based on the historical inter-temporal correlation structure for each commodity's marketing year average price series from 1960 through 2011

Table A-2. Volatilities and Inter-temporal Correlations by Commodity

Commodity	Volatility	Inter-temporal Correlations			
		t-1	t-2	t-3	t-4
Corn	25%	0.88	0.72	0.62	0.61
Cotton	18%	0.83	0.74	0.67	0.57
Rice	20%	0.76	0.55	0.41	0.32
Soybean	22%	0.86	0.77	0.70	0.62
Wheat	25%	0.85	0.63	0.61	0.59
Peanuts	15%	0.9	0.87	0.84	0.79

State-level yield data from 2008 to 2012 was also collected to estimate the impact of the potential for

PLC program yield updating. Current average CCP payment yields at the state level were compared with 90 percent of the average 2008 to 2012 yield, taking the larger of the two values as the average PLC payment yield for each commodity and state. A weighted average national payment yield was then computed for each commodity using 2010 state-level planted acreage for the weighting scheme. Table A-3 shows the national averages for current CCP payment yields and estimated payment yields after updating, based on the PLC program updating rules.

Table A-3. Current CCP and Estimate PLC Payment Yields by Commodity

	Unit	CCP Payment Yield	PLC Payment Yield
Corn	Bu/acre	114.4	122.2
Cotton	Lb/acre	632	633
Rice	Cwt/acre	51.3	56.8
Soybean	Bu/acre	34.1	35.1
Wheat	Bu/acre	36.1	37.9
Peanuts	Lb/acre	2,996	3,183

The estimated PLC program yields, simulated price draws and projected planted acreage from the 2013 USDA Outlook were then used to generate a distribution of PLC program payments for each year during the 2013 farm bill period. Expected PLC payments were estimated by taking the mean across each year's payment distribution and across the five years in the analysis.