



Measuring Equity in Farm Support Levels

Randy Schnepf
Specialist in Agricultural Policy

July 20, 2010

Congressional Research Service

7-5700

www.crs.gov

RL34053

Summary

Federal farm law mandates support for, among others, 21 “covered commodities.” Support for these agricultural commodities, as specified in the 2008 farm bill (P.L. 110-246) includes direct payments, counter-cyclical payments, and marketing loan benefits. Since 1996 a handful of these program commodities—feed grains (corn, sorghum, barley, and oats), cotton, wheat, rice, soybeans, and peanuts (hereafter referred to as the major program crops)—have received over \$160 billion or 72% of all U.S. farm program payments, primarily in the form of commodity price and income support benefits.

Large disparities in the relative levels of benefit among these commodities have led to questions of equity. This report looks at available data for the major program crops and compares support rates per unit, total payments, payments per harvested acre, payments as a share of the value of production, and payments as a share of the total cost of production. In addition, price and income support levels are compared to market prices. By all of these measures there has been little equity across commodities. However, farmers often have argued for equity based on cost of production. Economists, on the other hand, would use trend (or a moving average of) market prices as the basis for setting support prices in order to avoid market distortions and resource misallocations.

There is little or no practical or theoretical justification for equalizing support rates, total payments, or payments per harvested acre. In fact, some critics say the subsidies themselves are not justified. However, to the extent that farm support is a political reality, equity is a consideration. There are times when market prices drop substantially, but temporarily, below trend levels. At these times support may be justified to prevent unnecessary and undesirable resource adjustments. This builds on the concept of a market-based “safety net” that uses market price trends as the key factor in setting support levels.

During the past 13 years (1997-2009), monthly average market prices for the major “covered commodities” have been below loan rates 30% of the time, and below effective target prices 58% of the time. However, this frequency has varied substantially across crops. This report calculates adjustments to policy parameters that would put each of the commodities “in the money” an arbitrary 30% of the time with regard to the price guarantee inherent in marketing loans, and an arbitrary 50% of the time with regard to adjusted target prices used by the counter-cyclical payments program.

Compared to market price trends from 1997 through 2009, upland cotton and rice have disproportionately high effective target prices and marketing loan rates relative to the other major covered commodities. Barley and soybeans have disproportionately lower adjusted target prices and marketing loan rates. The situation is mixed for most of the other crops; however, wheat, corn, sorghum, and oats are within +/-5% of the parity value for both loan rates and target prices, suggesting that they are the closest to achieving policy equity under this somewhat ad hoc analysis.

Contents

Introduction	1
U.S. Agricultural Sector Overview	1
Farm Commodity Price and Income Support Programs Dominate CCC Outlays	2
Major Program Crop Comparisons	4
Support Prices	5
Program Payments by Commodity	5
Program Payments Per Acre	6
Program Payments as a Share of Crop Market Values	7
Program Expenditures Compared to Cost of Production	8
Support Levels Compared to Market Prices	10
Comparison of Loan Rates	11
Comparison of CCP Support	13
Summary	14

Figures

Figure 1. U.S. Government Farm Support, CCC Outlays by Program Function, FY1996 to FY2010F.....	3
Figure 2. U.S. Government Farm Support, CCC Outlays by Major Commodity, FY1996 to FY2010F.....	4
Figure 3. Commodity Payment Shares, Yearly Average FY2003-FY2009	6
Figure 4. Commodity Payments Per Harvested Acre, Yearly Average FY2003-FY2009	7
Figure 5. Commodity Payments as Share of Crop Market Values, FY2003-FY2009.....	8
Figure 6. Effective Target Price as Share of Total Cost of Production.....	9
Figure 7. Per-Unit Commodity Payments as Share of Total Cost of Production	10
Figure 8. Frequency Selected Covered Commodities Are “In the Money” Due to Low Market Prices, January 1997-May 2010.....	12
Figure 9. Adjustments Needed to Equalize Loan Rates for Selected Covered Commodities Based on Market Prices, January 1997-May 2010	13
Figure 10. Adjustments Needed to Equalize Target Prices for Selected Covered Commodities Based on Market Prices, January 1997-May 2010	14

Tables

Table 1. U.S. Farm Sector Cash Receipts from Sales of Agricultural Commodities	2
Table 2. Covered Commodity Support Levels for Crop Year 2010	5
Table A-1. “Covered Commodity” Payments, Harvested Acres, and Crop Values.....	16
Table A-2. Subsidy Rates and Effective Target Prices Compared to Cost-of-Production Data for Selected “Covered Commodities”	16

Table A-3. Policy Comparison Based on Monthly Market Price Data^a 17

Table A-4. Loan Rate Adjustments from Crop-Year 2010 Program Values Needed to
Equalize Policy Outcomes Across Commodities..... 17

Table A-5. Target Price Adjustments from Crop-Year 2010 Program Values Needed to
Equalize Policy Outcomes Across Commodities..... 18

Appendixes

Appendix. Data Tables 16

Contacts

Author Contact Information 18

Acknowledgments 18

Introduction

Since farm support was first authorized in the 1930s, the U.S. Department of Agriculture's (USDA's) Commodity Credit Corporation (CCC)¹ has paid out an estimated \$415 billion in taxpayer dollars in support of farm programs.² Nearly \$223 billion (or about 52%) of total CCC payments have occurred in the 15 years since the "Freedom to Farm Act" (1996 farm bill; P.L. 104-127) was signed into law in 1996, including over \$160 billion in commodity price and income support payments to a handful of major field crops—feed grains (corn, sorghum, barley, and oats), cotton, wheat, rice, soybeans, and peanuts.³

The levels of support under each type of farm program are specified in U.S. farm legislation.⁴ Questions have been raised as to whether U.S. farm commodities have been treated equitably. Differing support levels across commodities raise the question of whether federal policy provides equal incentives for producing different agricultural products and imposes equal costs on taxpayers for achieving various policy goals. For example, some farm-subsidy critics make the claim that, by focusing federal farm support primarily on feedstuffs (feed grains and protein meals), U.S. farm policy has had the effect of lowering the cost for American consumers of meat relative to fruits and vegetables—which have been essentially unsubsidized. If true, this would suggest that current farm price and income support programs have important nutritional consequences.⁵

This report provides some statistical context for evaluating the relative equity across major farm subsidy recipient crops. It does not assess the merit or fairness of this distribution, nor does it judge the ensuing social welfare outcome of federal farm payments.

U.S. Agricultural Sector Overview

Since 2002, field crop production has represented approximately 28% of the value of total U.S. agricultural production (**Table 1**). The primary federal farm subsidy target crops cited above are the principal subset of the field crop sector, with a 26% share of the total value of U.S. agricultural production. In contrast, livestock production activities account for nearly half (49%) of all U.S. agricultural production value, while all other crops (including fruits, vegetables, tree nuts, greenhouse and nursery crops, and other miscellaneous crops) account for the remaining 23%.

¹ The CCC is a U.S. government-owned and -operated corporation, created in 1933, with broad powers to support farm income and prices and to assist in the export of U.S. agricultural products. Toward this end, the CCC finances USDA's domestic price and income support programs and its export programs using its permanent authority to borrow up to \$30 billion at any one time from the U.S. Treasury.

² CRS calculations based on farm income data through 2009 from the Economic Research Service, USDA, available at <http://www.ers.usda.gov/data/FarmIncome/FinfidmuXls.htm>.

³ The \$214 billion total represents all CCC functions including various conservation payments, export programs, operating expenses, etc., in addition to the commodity price and income support programs.

⁴ For more information, see CRS Report RS22131, *What Is the "Farm Bill"?*, by Renée Johnson, and CRS Report RL34696, *The 2008 Farm Bill: Major Provisions and Legislative Action*, coordinated by Renée Johnson.

⁵ CRS neither endorses nor refutes this viewpoint, but merely references the claim to highlight the potential for both disparity and unintended consequences of policy outcomes.

Table 1. U.S. Farm Sector Cash Receipts from Sales of Agricultural Commodities
(crop year data for 2002-2008)

Agricultural Production Activity	Average Annual Market Value (\$ billions)	Share (%)
Total Crop Production	128.2	51.5
Field Crops	70.3	28.2
<i>Major Program Crops^a</i>	64.3	25.8
Fruits, Tree Nuts, & Vegetables	34.1	13.7
Greenhouse & Nursery	16.3	6.6
All Other Crop Production	7.2	2.9
Total Livestock Production	120.9	48.5
Cattle & Calves	46.8	18.8
Poultry & Eggs	28.5	11.4
Dairy	27.1	10.9
Hogs	13.5	5.4
Miscellaneous Livestock	5.1	2.0
Total Agricultural Production	249.0	100

Source: “Farm Income and Costs” data base, Economic Research Service, USDA.

a. Includes feed grains (corn, sorghum, barley, oats), wheat, rice, soybeans, cotton, and peanuts.

Farm Commodity Price and Income Support Programs Dominate CCC Outlays

CCC payments are made across a range of programs including conservation, crop and livestock disaster assistance, export promotion, and marketing programs.⁶ However, the core of CCC farm payments are directed at commodity price and income support programs—often referred to as the farm safety net programs (**Figure 1**).⁷ Farm commodity and income support is mandated for about two dozen farm commodities—so-called “covered commodities”—through direct payments, counter-cyclical payments, and marketing loans (**Figure 2**).⁸

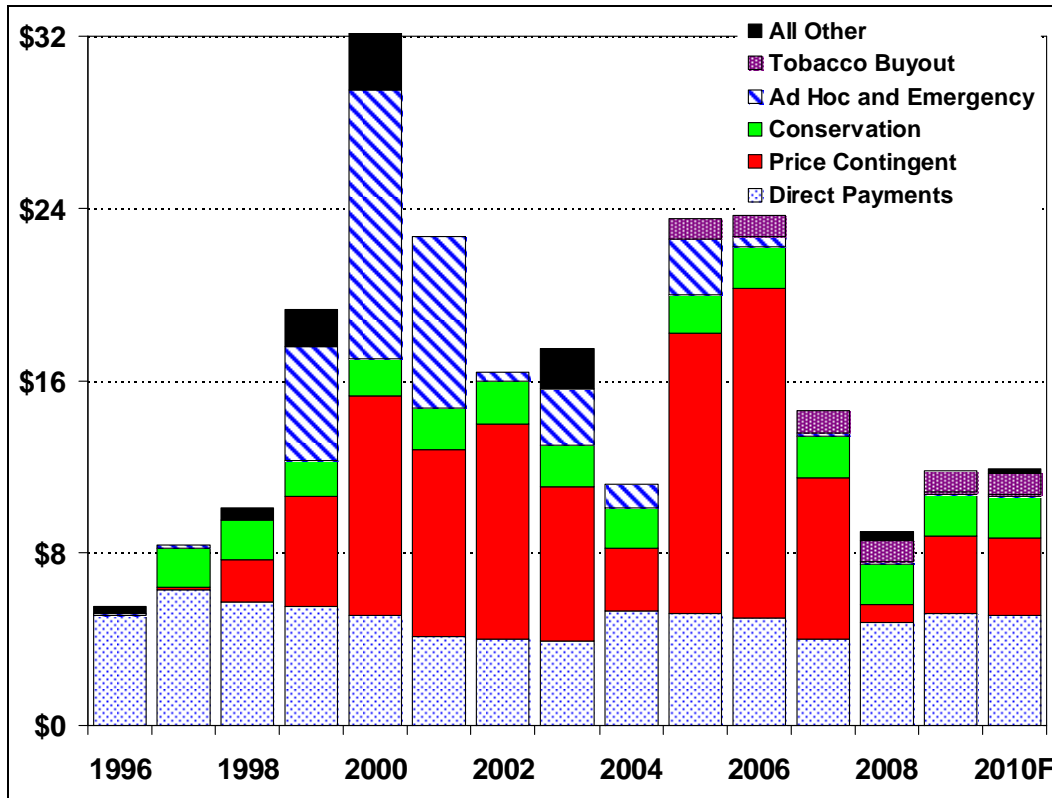
⁶ For more information on USDA farm programs, see CRS Report RL34594, *Farm Commodity Programs in the 2008 Farm Bill*, by Jim Monke.

⁷ For a discussion of the so-called “farm safety net” programs see CRS Report R41317, *Farm Safety Net Programs: Issues for the Next Farm Bill*, by Dennis A. Shields, Jim Monke, and Randy Schnepf.

⁸ Sec. 1001(4) of P.L. 110-246 (the 2008 farm bill) defines covered commodities to include wheat, corn, grain sorghum, barley, oats, upland cotton, long grain rice, medium grain rice, pulse crops (dry peas, lentils, small chickpeas, and large chickpeas), soybeans, and other oilseeds. Other oilseeds include sunflower seed, rapeseed, canola, safflower, flaxseed, mustard seed, crambe, and sesame seed. Peanuts are not designated as a covered commodity, but are treated like a covered commodity in terms of the support framework and are included in this analysis as a covered commodity. In addition to the “covered commodities,” different support systems are mandated for other major commodities including sugar, milk, wool, mohair, and honey. These commodities are not included in this analysis. A complete explanation of support program operations is available in CRS Report RL34594, *Farm Commodity Programs in the 2008 Farm Bill* by Jim Monke.

Figure I. U.S. Government Farm Support, CCC Outlays by Program Function, FY1996 to FY2010F

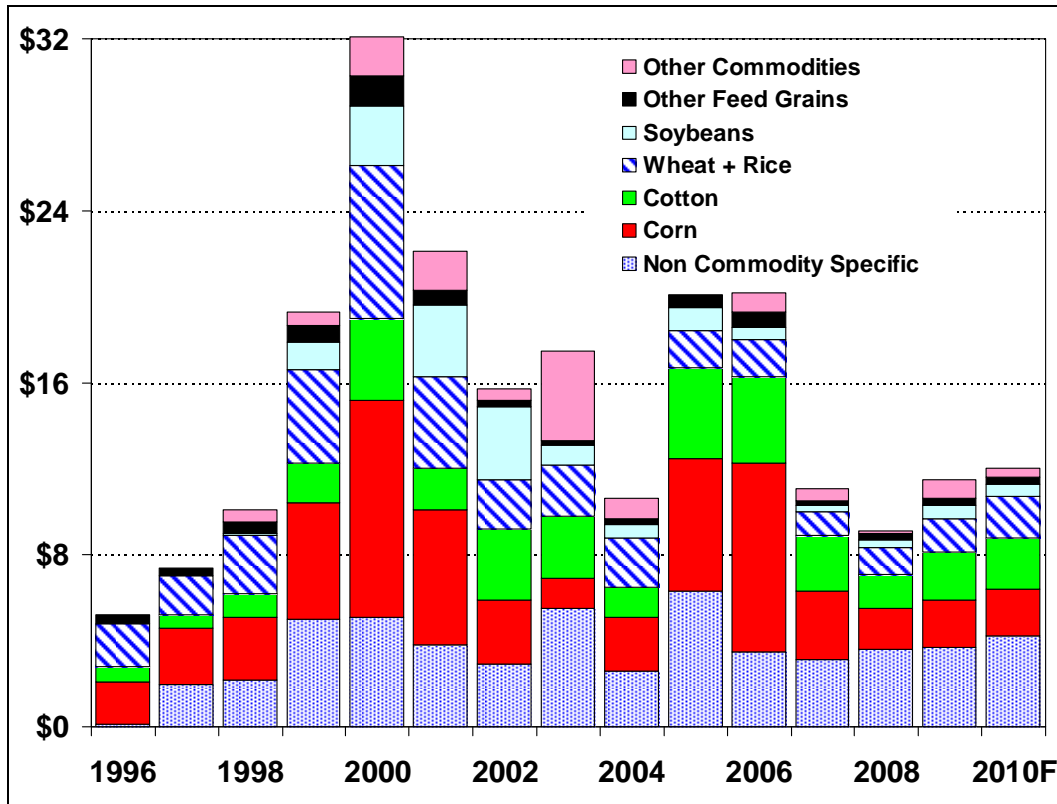
(\$ billions)



Source: USDA, Farm Service Agency, Table 35. CCC Net Outlays by Commodity and Function, Feb. 1, 2010.

Notes: Data are on a fiscal year basis and may not correspond exactly with the crop or calendar year; 2009 is preliminary, 2010 is forecast. Direct payments include production flexibility contract payments enacted under the 1996 farm bill and fixed direct payments of the 2002 and 2008 farm bills; price-contingent outlays include loan deficiency payments, marketing loan gains, counter-cyclical payments, and cotton competitiveness payments; conservation outlays include Conservation Reserve Program payments along with other conservation program outlays; ad hoc and emergency outlays include emergency supplemental crop and livestock disaster payments and market loss assistance payments for relief of low commodity prices; and “all other” outlays include peanut quota buyout payments, milk income loss payments, tobacco transition payments, and other miscellaneous expenditures. Gains from USDA sales of purchased items, fees paid in, and other positive values are not shown in this chart, thus overstating some of the values (i.e., 2005 and 2006).

Figure 2. U.S. Government Farm Support, CCC Outlays by Major Commodity, FY1996 to FY2010F
(\$ billions)



Source: USDA, Farm Service Agency, Table 35. CCC Net Outlays by Commodity and Function, Feb. 1, 2010.

Notes: Data are on a fiscal year basis and may not correspond exactly with the crop or calendar year; 2009 is preliminary, 2010 is forecast. Totals may not correspond with the CCC function-specific outlay chart because program gains are not included in the function-specific chart, thus overstating some of the values (i.e., 2005 and 2006).

Major Program Crop Comparisons

With respect to commodity price and income support payments, this report focuses its equity analysis on the covered commodities since they are the primary beneficiaries. The author recognizes that fruits, vegetables, tree nuts, ornamental plants, and other minor crops account for nearly half of the value of U.S. crop production but do not receive any direct subsidies. Whether the lack of support for nearly 50% of crop production is equitable is beyond the scope of this analysis.

With the benefit of hindsight it is possible to compare support prices and actual payments against several standards to address questions of equity. Across these commodities, this report compares (1) support levels in the law, (2) yearly average program payments, (3) program payments per acre, (4) payments as a share of crop market values, (5) payments as a share of production costs, and (6) support levels with market price trends.

Support Prices

The prescribed levels of commodity support in current law (specifically for crop year 2010) are shown in **Table 2**. They are not equal either as specified in the law (on a volume basis for some and weight basis for others) or when converted to a common one-hundred pound (cwt) standard. However, equality in absolute price would not be a reasonable standard for equity because the commodities have widely different end uses and market values. For example, there is little reason to expect wheat used to make bread to be supported at the same price as cotton for fabric.

Table 2. Covered Commodity Support Levels for Crop Year 2010

Commodity & Unit of Support	Direct Payment Rate		Counter-cyclical Target Price		Marketing Loan Price	
	\$/unit	\$/cwt	\$/unit	\$/cwt	\$/unit	\$/cwt
Wheat, bu	0.52	0.87	4.17	6.95	2.94	4.90
Corn, bu	0.28	0.50	2.63	4.70	1.95	3.48
Sorghum, bu	0.35	0.63	2.63	4.70	1.95	3.48
Barley, bu	0.24	0.50	2.63	5.48	1.95	4.06
Oats, bu	0.024	0.08	1.79	5.59	1.39	4.16
Cotton, lb	0.0667	6.67	0.7125	71.25	0.52	52.00
Rice, cwt	2.35	2.35	10.50	10.50	6.50	6.50
Soybeans, bu	0.44	0.73	6.00	10.00	5.00	8.33
Other Oilseeds, lb	0.008	0.80	0.1268	12.68	0.1009	10.09
Peanuts, ton	36.00	1.80	495.00	24.75	355.00	17.75
Pulses: Large Chickpeas, Lentils, cwt	na	na	12.81	12.81	11.28	11.28
Pulses: Small Chickpeas, cwt	na	na	10.36	10.36	7.43	7.43
Pulses: Dry Peas, cwt	na	na	8.32	8.32	5.40	5.40

Source: CRS, crop year 2010 program parameters compiled from the Farm Security and Rural Investment Act of 2008 (P.L. 110-246). For a more complete list of program parameters across all crop years 2008-2012 related to the 2008 farm bill, see Table I from CRS Report RL34594, *Farm Commodity Programs in the 2008 Farm Bill*, by Jim Monke.

Note: na = not applicable. Cotton includes only upland cotton. Minor oilseeds include sunflower seed, rapeseed, canola, safflower, flaxseed, mustard seed, crambe, and sesame seed. Peanuts are not designated a covered commodity, but are treated like a covered commodity in terms of the support framework. Support levels are specified in the law by differing unit measures that have been converted to a uniform hundredweight (cwt) to facilitate comparison.

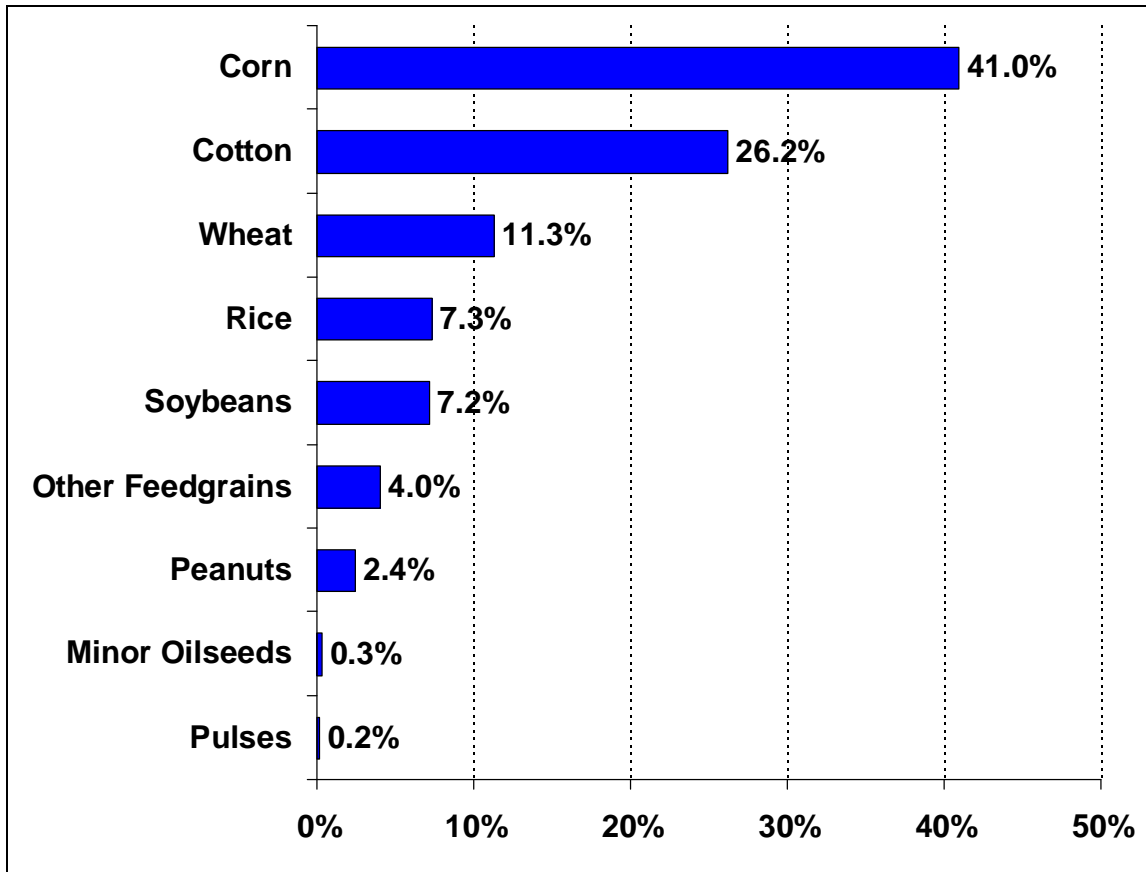
Program Payments by Commodity

For the FY2003-FY2009 time period, yearly program support payments to farmers for the major program crops averaged \$9.118 billion.⁹ The largest share went to corn (41%), while pulses

⁹ Official government outlays are measured on a fiscal year basis. Crop years and fiscal years do not overlap exactly for all crops; however, crop years 2002-2008 correspond most closely with fiscal years 2003-2009. For example, the corn crop year 2002 is September 2002 through August 2003, while the corresponding fiscal year 2003 is October 2002 (continued...)

received 0.2% of the total (**Figure 3**). Again, few would argue that equity would be achieved by dividing the total payments equally among commodities. The allocation of payments among commodities largely is based on historical or current output, which means that harvested acreage is a major factor. In 2002-2008, farmers annually harvested about 2.4 million acres of pulses, while the corn harvest averaged 75.0 million acres (see **Appendix**).

Figure 3. Commodity Payment Shares, Yearly Average FY2003-FY2009



Source: Primary data are from USDA, FSA.

Note: Other feedgrains includes sorghum, barley, and oats.

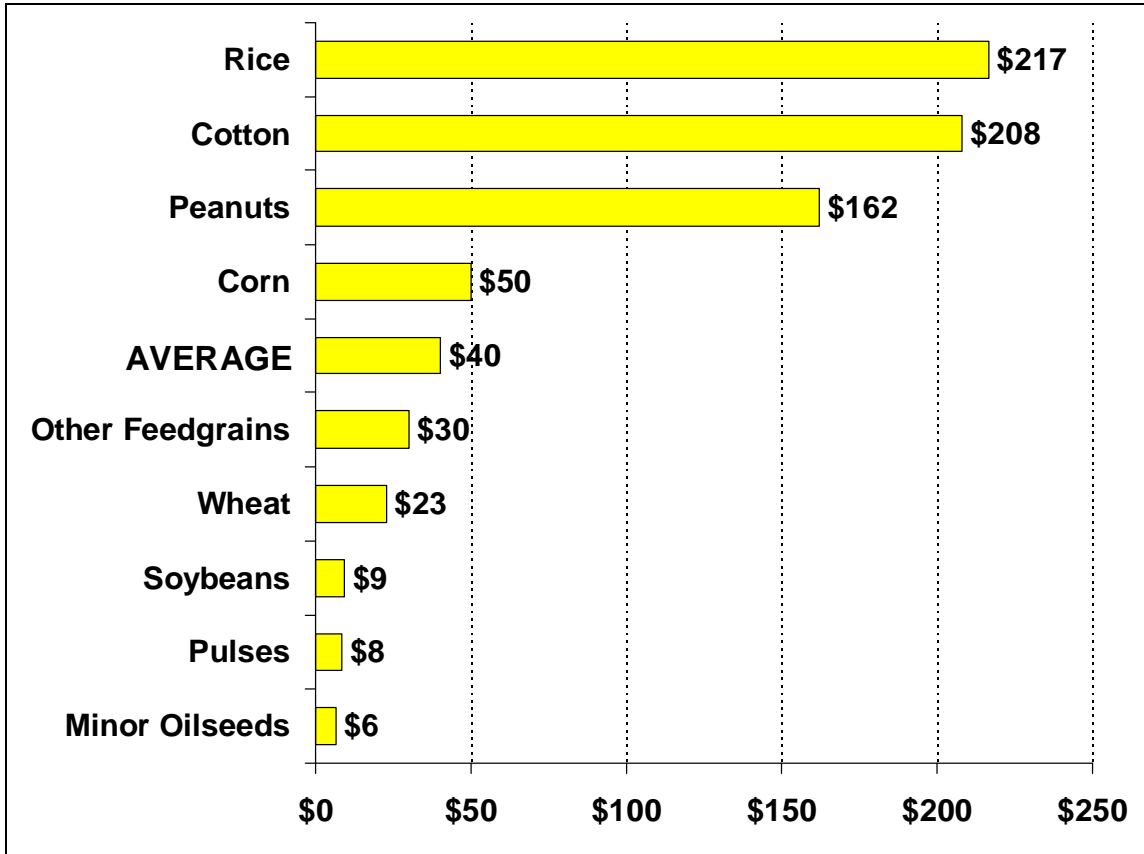
Program Payments Per Acre

With land being a common base for crop production, one might ask how support payments compare on a per acre basis. **Figure 4** shows actual yearly average commodity support spending for the FY2003-FY2009 time frame per harvested acre. Yearly support spending for the major program crops averaged \$9.118 billion. If this had been distributed equally over all acreage, the payments would have been about \$40 per acre. Payments actually ranged from a high of about

(...continued)
through September 2003.

\$217 per acre for rice to a low of about \$6 per acre for the other oilseeds. Overlooked by this comparison is the fact that an acre of rice had a market value of about \$648 compared to corn at \$434 or wheat at \$208. Therefore, few farmers, economists, or policy makers contend that equal payments per acre would be an equitable distribution of support benefits.

Figure 4. Commodity Payments Per Harvested Acre, Yearly Average FY2003-FY2009



Source: Primary data are from USDA, FSA and NASS. Harvest period is crop years 2002-2008.

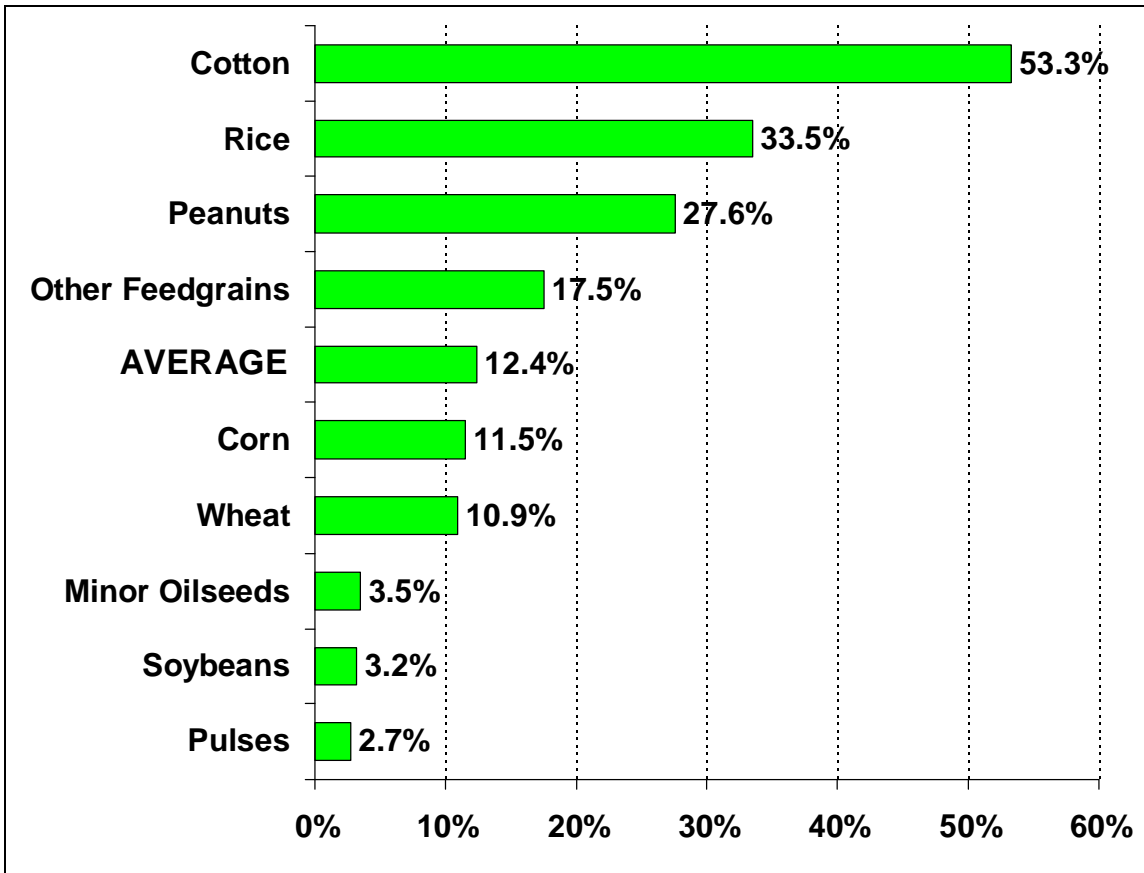
Note: Other feedgrains includes sorghum, barley, and oats.

Program Payments as a Share of Crop Market Values

Some might expect that support payments for each crop measured as a share of each crop’s market value would be similar over time if the support rates were set equitably. This outcome would be expected if the forces that cause variation in market prices equally impacted all of the commodities, and if the price and income support programs were designed to provide the same relative level of safety net protection.

Examination of **Figure 5** shows that, at one extreme, support payments for cotton amounted to 53% of the value of production for the FY2003-FY2009 period. In contrast, payments for pulses amounted to less than 3% of the crop value. On average, commodity payments represented slightly more than 12% of crop market value.

Figure 5. Commodity Payments as Share of Crop Market Values, FY2003-FY2009



Source: Primary data are from USDA, FSA and NASS. Crop market-value period is crop years 2002-2008.

Note: Other feedgrains includes sorghum, barley, and oats

Program Expenditures Compared to Cost of Production

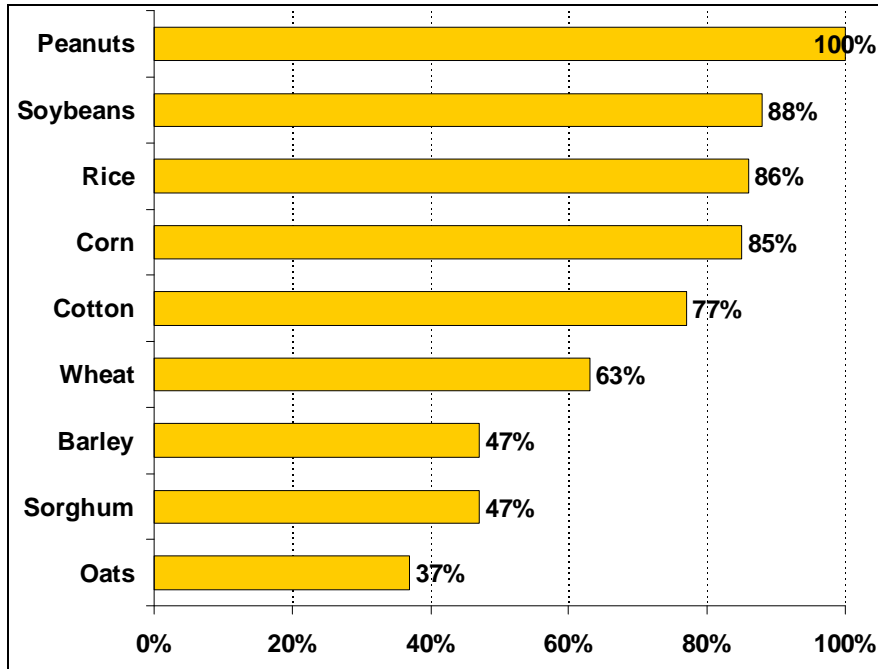
Farmers have long endorsed the concept of basing support on the cost of production because costs have to be covered to stay in business. In fact, the permanent legislative authority for commodity support programs, the Agricultural Adjustment Act of 1938 (P.L. 75-430), used prices paid for production inputs as a key determinant of support prices. As recently as the 1977 farm bill, costs of production were built into the formula for annually adjusting target prices. No longer is cost of production explicitly included as a determinant of support. Economists argue against basing support on production costs, first because they contend it is economically indefensible and second because there is no single cost of production (production costs are different for every farmer). The indefensibility argument arises because the specialized nature of some farm inputs (particularly land, buildings, machinery) makes their cost dependent on the value of the farm output. This means that when earnings are above market levels because of a subsidy, the gains will be capitalized into the prices of the specialized inputs, thereby raising the subsequent cost of production and leading to calls for additional subsidies.¹⁰ Then there is the problem of choosing

¹⁰ This argument was explained by E.C. Pasour, "Cost of Production: A Defensible Basis for Agricultural Price Supports?" *American Journal of Agricultural Economics*, May 1980, pp. 244-248.

which cost categories and levels should be covered—only variable costs and only at a level of the low-cost highly efficient farmers, national average variable costs, or total costs for all farmers.

In spite of the theoretical opposition of economists, farmers make a politically appealing argument to policy makers when they plead for support to cover their costs of production. How do current levels of support compare to production costs across commodities. **Figure 6** shows effective target prices (the target price minus the direct payment)¹¹ as a share of national average per unit costs of production (for FY2003-FY2009, as available) . At the high end, the effective target price for peanuts amounts to 100% of the total cost of production. At the low end, the effective target price for oats amounts to 37% of the total cost of production. Economists Groenewegen and Clayton argued in a professional journal that the “rationale for price support prices should be to allow immediate, or cash, expenditures to be met.... Price supports should not provide owners of fixed agricultural resources the opportunity costs of those resources.”¹² Following this line of economic reasoning, total costs of production may not be a sound basis for designing support, but they do facilitate a comparison that shows a wide disparity of support between effective target prices for some commodities.

Figure 6. Effective Target Price as Share of Total Cost of Production



Source: Shares are based on annual average per-unit values as calculated by CRS using program values for FY2010, and total cost of production data from the cost of production database of the Economic Research Service, USDA. Primary data are from USDA, FSA and USDA, ERS.

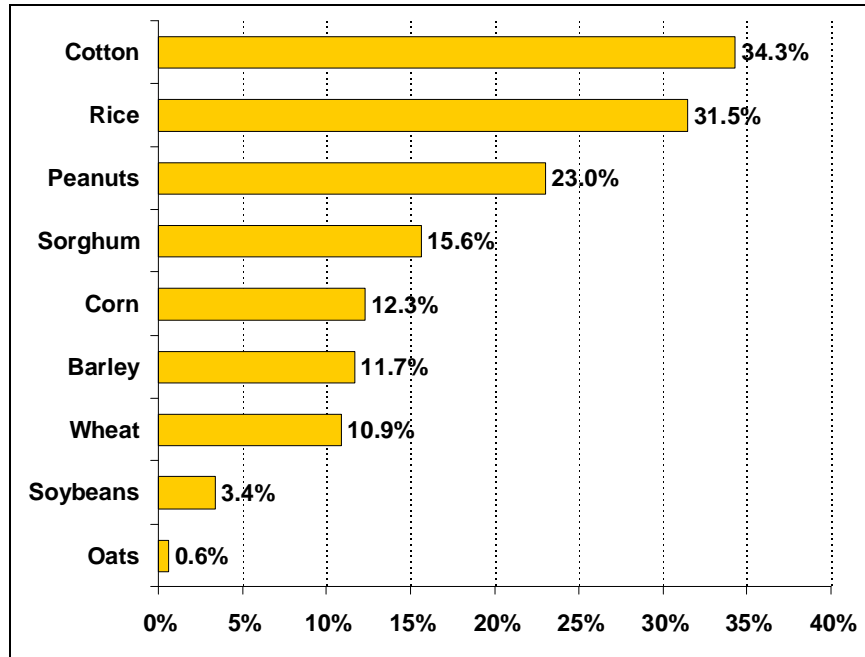
Notes: The effective target price is the actual target price minus the per-unit direct payment.

¹¹ The maximum counter-cyclical payment made to farmers when market prices are below target prices is the difference between the higher target price and the lower sum of the loan rate and direct payment rate. Therefore, the target price less the direct payment rate yields what is called the effective target price.

¹² John R. Groenewegen and Kenneth C. Clayton, “Agricultural Price Supports and Cost of Production”, *American Journal of Agricultural Economics*, May 1982, p.271.

Market conditions will ultimately determine whether payments are made under various target or price support levels, no matter what their relative share of the costs of production is. To examine this same cost-of-production concept, but from a different angle that considers market conditions relative to commodity support levels, the per-unit commodity payments are compared as a share of the per-unit total cost of production (**Figure 7**). Cotton and rice per-unit payment shares (34.3% and 31.5%, respectively) are significantly higher than subsidy-to-cost shares for the other major program crops—corn, wheat, and soybeans had shares of 12.3%, 10.9%, and 3.4%, respectively.

Figure 7. Per-Unit Commodity Payments as Share of Total Cost of Production



Source: Shares are based on annual average per-unit values as calculated by CRS using program values for FY2010, and total cost of production data from the cost of production database of the Economic Research Service, USDA. Primary data are from USDA, FSA and USDA, ERS.

Support Levels Compared to Market Prices

The argument that Groenewegen and Clayton made in 1982 seems equally valid today that “... the level of price support should be established below trend market prices.”¹³ One can think of the trend market price as reflecting the long-run equilibrium market price. The logic of providing a “safety net” may be used to set support prices at some level below the long-run equilibrium price. Currently, the law specifies fixed support levels without consideration for market price trends (and questionable economic equity by the previous analysis in this report).

Paraphrasing from Groenewegen and Clayton, trend market prices as a reference point should not cause the support program to attract additional resources into the sector but will provide a cash flow to farmers when market prices deviate substantially and temporarily below trend levels.

¹³ Ibid.

Possibly in recognition of this logic, the USDA's farm bill proposal to the Congress in January 2007 suggested that marketing assistance loan rates be set "at 85% of the five-year Olympic average with maximum loan rates as established in the House-passed version of the 2002 farm bill."¹⁴ The World Trade Organization (WTO) dispute settlement ruling against U.S. cotton programs in 2005 further suggested that by giving price support levels a market context, as suggested by the formulation of a moving average, they would be more likely to be found in compliance with WTO rules.¹⁵

How do current support prices vary across commodities in comparison to market price trends? One approach is to evaluate the relative equality of current (i.e., crop year 2010) commodity loan prices and target prices against benchmark market prices. Commodity loan prices are the basis for making loan deficiency payments (LDPs) and target prices are the basis for making counter-cyclical payments (CCPs). Market price trends for grain and oilseed crops in this analysis are monthly average farm prices (MAFP). Market price trends for cotton and rice are the monthly averages of adjusted world prices (AWP).¹⁶ These market price data are used, first, to examine the current level of price and income "safety-net" support; and second, to evaluate the degree of adjustment to current policy parameters (i.e., loan rates and target prices) needed to obtain equal levels of "safety-net" price and income protection across program crops.

Comparison of Loan Rates

A comparison, by commodity, of monthly average market prices with the crop-year 2010 marketing loan rate provides a general sense of the level of relative price support across program crops.¹⁷ The frequency market prices fall below the loan rate suggests how often a particular commodity is "in the money" (i.e., eligible for loan deficiency payments to offset low market prices). When such market conditions occur, the marketing loan rate is above the equilibrium market price and acts as a floor or support price. Using a monthly average price smooths out daily and regional variation from grain and oilseed data (these crops rely on daily posted county prices for determining actual loan repayment rates), and provides only a general approximation for how often a commodity actually has been "in the money." Since cotton and rice both use a calculated weekly adjusted world price, only temporal smoothing occurs under monthly averaging for their price data.

¹⁴ USDA, *2007 Farm Bill Proposals*, undated but released January 2007.

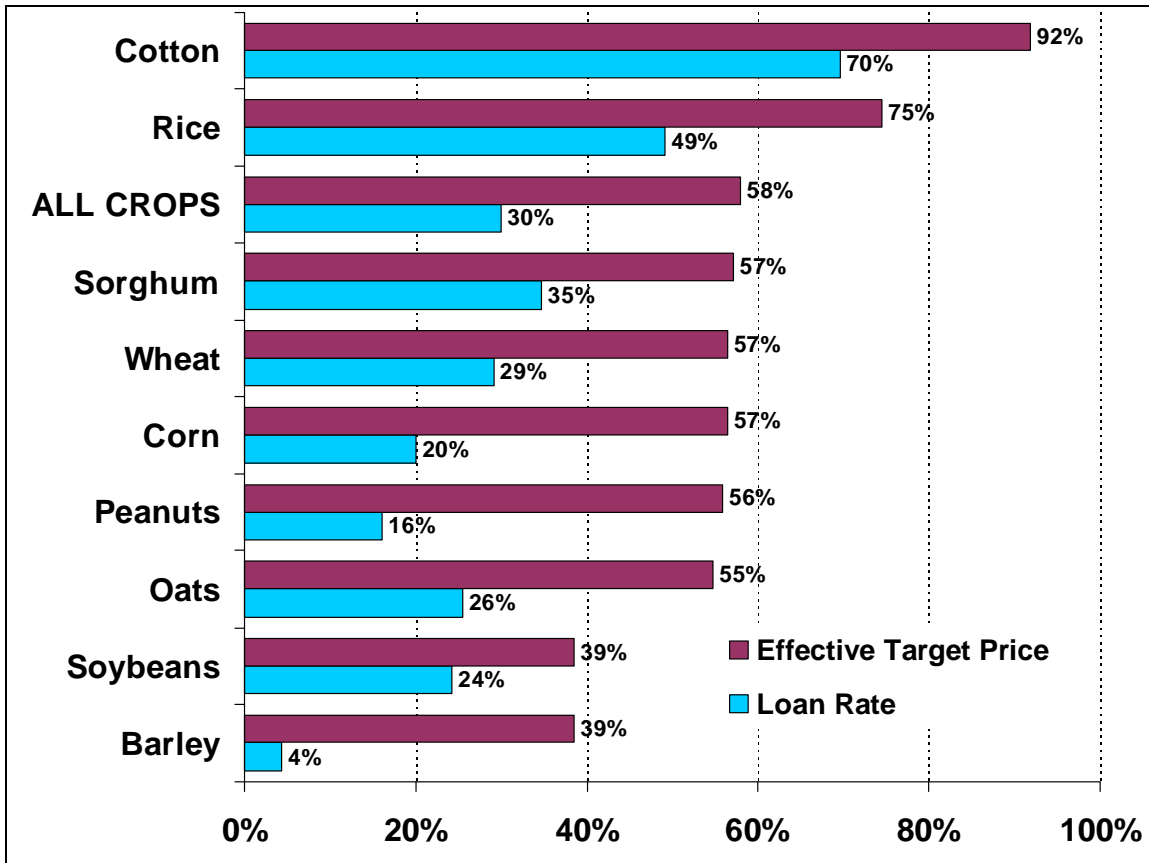
¹⁵ For more information, see CRS Report RS22522, *Potential Challenges to U.S. Farm Subsidies in the WTO: A Brief Overview*, by Randy Schnepf.

¹⁶ A comparison based on market prices necessarily assumes that the markets for these commodities are efficient and fully reflect all of the market information embodied in both the U.S. and international marketplaces. The United States is generally viewed as having a global comparative and competitive advantage in grain and oilseed production. As a result, U.S. grain and oilseed prices are generally viewed as representative of world market prices. USDA recognizes this by using posted county prices (terminal prices adjusted for transportation costs from the county to the terminal) as reference prices for operating its grain and oilseed marketing loan repayment provisions. The situation is very different for cotton and rice. In their case, world prices are determined in markets outside the United States. Therefore, to operate the marketing loan repayment provisions for cotton and rice, USDA first converts their international reference prices to a U.S. location by adjusting for transportation costs. Then, these "adjusted world prices" (AWPs) for cotton and for rice are used for operating the cotton and rice marketing loan repayment provisions.

¹⁷ MAFPs are used for grains and oilseeds; AWP are used for cotton and rice. The analytical results based on cotton and rice MAFPs are included for comparative purposes.

During the January 1997 through May 2010 period, market prices dropped below their corresponding loan rates more than 30% of the time for three program commodities—cotton (70%), rice (49%), and sorghum (35%) (Figure 8). Wide variation appeared across commodities with a range extending from a low of 4% for barley (i.e., the barley market price was below the barley loan rate 4% of the time) to a high of 70% for upland cotton.

Figure 8. Frequency Selected Covered Commodities Are “In the Money” Due to Low Market Prices, January 1997-May 2010
 (% of months the market price is less than the loan rate or the effective target price)



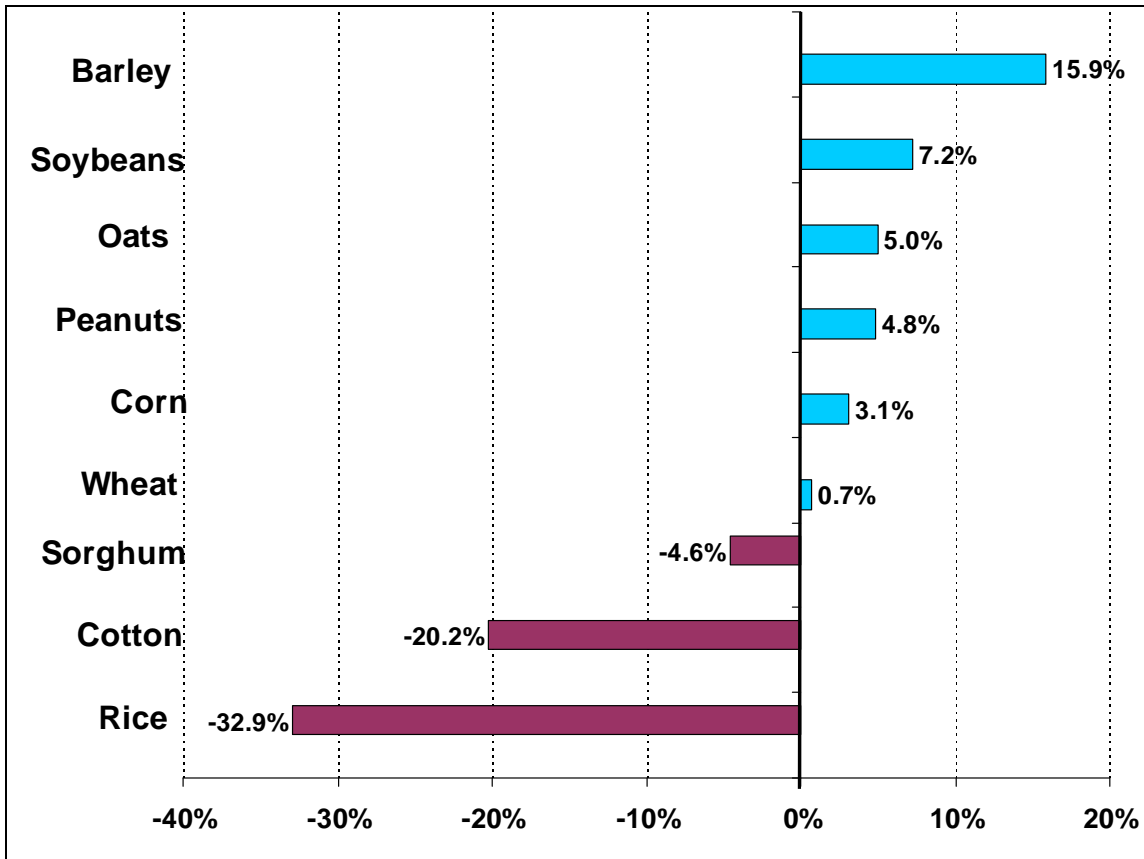
Source: Monthly farm-prices received data are from USDA, NASS; policy parameters are from the 2008 farm bill (P.L. 110-246).

Note: Comparisons are based on crop-year 2010 program parameter values.

The average instance of market prices falling below loan rates across all major program crops was 30%. Suppose this 30% level was adopted as the standard for safety net price supports. Then a simple approach to equalizing the level of loan support across crops would be to adjust each commodity’s loan rates so that not more than 30% of the observed market prices for the period fall below the loan rate (Figure 9).

To achieve a 30% price-safety-net policy goal, loan rates for rice, cotton, and sorghum would have to be lowered substantially: rice by 33% from \$6.50 to \$4.36 per cwt., cotton by 20% from 52¢ to 41.5¢ per lb., and sorghum by 5% \$1.95 to \$1.86 per bushel. In contrast, loan rates for the other major program crops (Table 2) would have to be raised to achieve a 30% safety net parity rate: barley by 16%, soybeans by 7%, oats and peanuts by 5%, corn by about 3%, and wheat by a small uptick of less than 1%.

Figure 9. Adjustments Needed to Equalize Loan Rates for Selected Covered Commodities Based on Market Prices, January 1997-May 2010
 (% change in loan rate needed to equalize across commodities)



Source: Monthly farm-prices received data is from USDA, NASS; policy parameters are from the 2008 farm bill [P.L. 110-246].

Note: The percent value shown in the chart reflects the adjustment to each commodity’s crop-year 2010 loan rate needed until the market price falls below the loan rate not more than 30% of the months during January 1997 to May 2010.

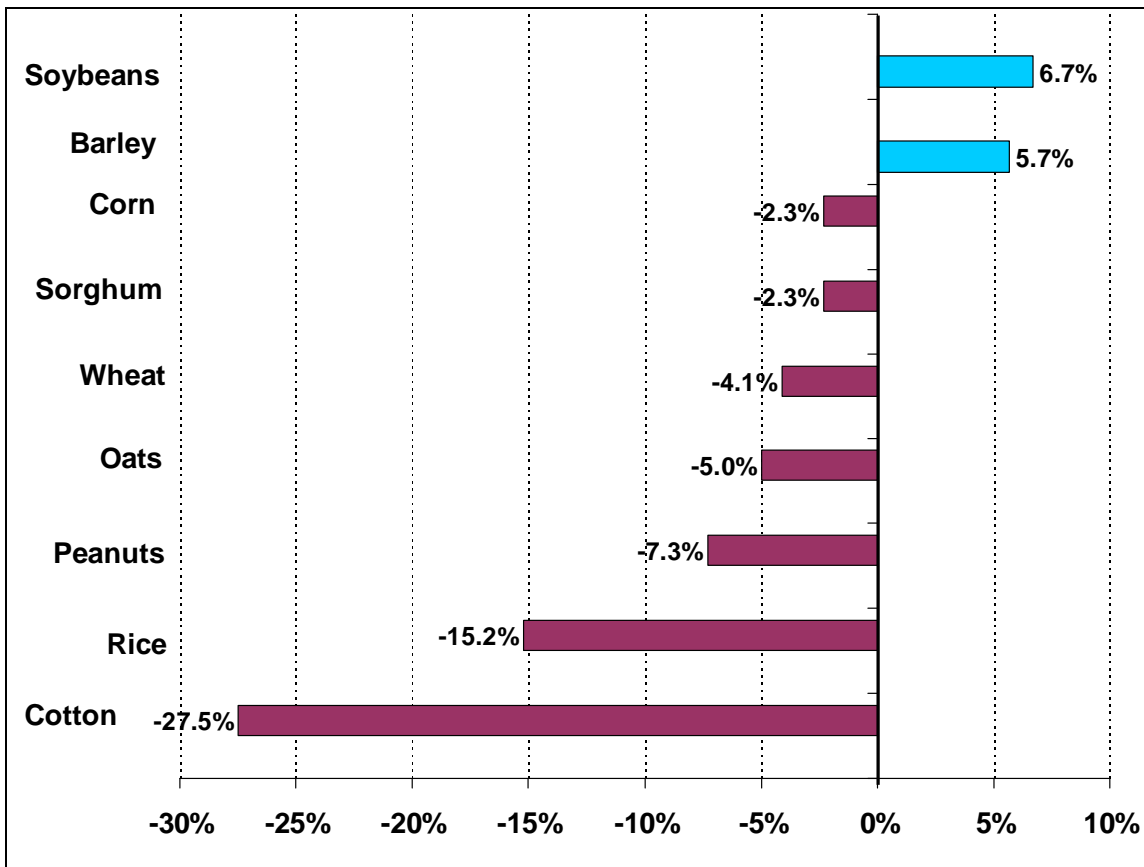
Comparison of CCP Support

Counter-cyclical payments (CCPs) are based on national annual average prices, rather than monthly prices. As a result, a comparison of the monthly market price with the current (i.e., crop-year 2010) effective target price for each commodity provides a stylized representation of counter-cyclical income support provided across program crops. A comparison and hypothetical adjustment is used to evaluate the relative levels of CCP support across major program crops, again using monthly price data for the January 1997 through May 2010 period.

Seven of the nine commodities included in this analysis experienced monthly market prices below effective target price levels in over 50% of the period. For all commodities, market prices were below their corresponding effective target prices 58% of the time (**Figure 8**). The range included a low of 39% for barley and a high of 92% for upland cotton.

CCP support levels can be equalized by adjusting target prices or direct payments (Table 2) upward or downward until the observed market prices for the period fall below their respective effective target prices not more than an arbitrary 50% of the time (Figure 10). The largest adjustment to achieve parity would be needed for upland cotton. The cotton target price would have to be lowered by 27.5% from 71¢ to 50.05¢ per lb. to achieve the threshold of market prices falling below the effective target price in not more than 50% of the observed months. Target prices would also have to be lowered for rice (-15%), peanuts (-7%), oats (-5%), wheat (-4%), sorghum (-2%), and corn (-2%) to achieve equity. In contrast, target prices for barley and soybeans would have to be raised by 6% and 7%, respectively.

Figure 10. Adjustments Needed to Equalize Target Prices for Selected Covered Commodities Based on Market Prices, January 1997-May 2010
 (% change in target price needed to equalize across commodities)



Source: Monthly farm-prices received data is from USDA, NASS; policy parameters are from the 2008 farm bill [P.L. 110-246].

Note: The percent value shown in the chart reflects the adjustment to each commodity’s crop-year 2010 target price needed until the market price is less than the effective target price no more than 50% of the months during January 1997 to May 2010.

Summary

To the extent that the January 1997 through May 2010 time period reflects long-run market conditions, this exercise suggests that upland cotton and rice growers receive a disproportionately

high level of both CCP and marketing loan support relative to the other major covered commodities. Barley and soybeans receive disproportionately lower CCP and marketing loan support. The situation is mixed for most of the other crops; however, wheat, corn, sorghum, and oats are within +/- 5% of the parity value for both loan rates and target prices, suggesting that they are the closest to achieving policy equity under this somewhat ad hoc analysis.

The choices of loan rate and target price levels used in this analysis that would put the commodities in the money 30% of the time for loan deficiency payments and 50% of the time for counter-cyclical payments are arbitrary. However, the relative outcome remains the same under other choices. Furthermore, the levels used in this analysis are roughly the in-the-money averages for all crops under current law.

Appendix. Data Tables

Table A-1. “Covered Commodity” Payments, Harvested Acres, and Crop Values

Covered Commodity	Commodity Payments, Yearly Average FY2003-FY2009		Harvested Acres, Crop Year Average 2002-2008		Payments Per Harvested Acre	Value of Crop Production, Annual Average 2002-2008	
	\$ million	% of total	mil. acres	% of total	\$/acre	\$ billion	% of total
Corn	\$3,739	41.0%	75.0	33.0%	\$49.89	\$32.533	44.2%
Cotton	\$2,389	26.2%	11.5	5.1%	\$208.16	\$4.479	6.1%
Wheat	\$1,033	11.3%	45.4	20.0%	\$22.75	\$9.452	12.8%
Rice	\$664	7.3%	3.1	1.3%	\$216.76	\$1.982	2.7%
Soybeans	\$662	7.3%	71.9	31.7%	\$9.19	\$20.814	28.3%
Other Feedgrains	\$364	4.0%	12.1	5.3%	\$30.06	\$2.082	2.8%
Peanuts	\$221	2.4%	1.4	0.6%	\$162.30	\$0.801	1.1%
Other Oilseeds	\$26	0.3%	4.1	1.8%	\$6.45	\$0.743	1.0%
Pulses	\$20	0.2%	2.4	1.1%	\$8.34	\$0.743	1.0%
Total	\$9,118	100%	226.8	100%	\$40.20	\$73.629	100%

Source: Primary data are from USDA, FSA, NASS, and ERS. Calculations are by the author.

Table A-2. Subsidy Rates and Effective Target Prices Compared to Cost-of-Production Data for Selected “Covered Commodities”

Commodity	Unit	Variable COP (VC)	Total COP (TC)	Effective Target Price		Subsidy Rate		
		\$/unit	\$/unit	\$/unit	% of TC	\$/unit	% of VC	% of TC
Rice	Cwt.	5.00	9.47	8.15	86.0	3.17	63.5	33.5
Cotton	Cwt.	48.11	84.00	64.33	76.6	26.46	55.0	31.5
Peanuts	Cwt.	12.17	23.06	22.95	100.0	5.35	44.0	23.2
Sorghum	Bu.	2.09	4.83	2.28	47.2	0.63	30.0	13.0
Corn	Bu.	1.37	2.78	2.35	84.6	0.34	24.6	12.1
Barley	Bu.	1.86	5.05	2.39	47.3	0.45	24.0	8.8
Wheat	Bu.	2.22	5.78	3.65	63.2	0.50	22.3	8.6
Soybeans	Bu.	2.17	6.32	5.56	87.9	0.23	10.6	3.6
Oats	Bu.	1.52	4.79	1.77	36.9	0.03	1.9	0.6

Source: Calculations are by CRS based on cost of production data from USDA, ERS. Cost-of-production data are averaged over the 2002-2008 time frame (as available). The effective target price is calculated as the target price less the direct payment, based on program parameters for crop year 2010 as enacted in P.L. 110-246.

Notes: COP = Cost of production; Cwt = hundred pounds or hundred weight.

Table A-3. Policy Comparison Based on Monthly Market Price Data^a

Average	All		Sorghum	All		Upland Cotton		Rice		Soybeans	Peanuts
	Wheat	Corn		Barley	Oats	MAFP	AWP	MAFP	AWP		
Percent of Observations where: (MAFP or AWP) < Loan Rate^b											
30%	29%	20%	35%	4%	25%	56%	70%	30%	49%	24%	16%
Percent of Observations where: (MAFP or AWP) < Effective Target Price^b											
58%	57%	57%	57%	39%	55%	86%	92%	45%	75%	39%	56%

- a. The data period covers January 1997 through May 2010 for a total of 161 months. MAFP = monthly average farm prices received; AWP = adjusted world price.
- b. Monthly market prices are compared with current (i.e., crop-year 2010) loan rates and target prices for major program crops as compiled from Title I of the 2008 farm bill (P.L. 110-246). For more information, see CRS Report RL34594, *Farm Commodity Programs in the 2008 Farm Bill*, by Jim Monke.

Table A-4. Loan Rate Adjustments from Crop-Year 2010 Program Values Needed to Equalize Policy Outcomes Across Commodities

	All		Sorghum	All		Upland Cotton		Rice		Soybeans	Peanuts
	Wheat	Corn		Barley	Oats	MAFP	AWP	MAFP	AWP		
	\$/bu.	\$/bu.	\$/bu.	\$/bu.	\$/bu.	¢/lb.	¢/lb.	\$/cwt.	\$/cwt.	\$/bu.	¢/lb.
Loan Rate (LR)	2.94	1.95	1.95	1.95	1.39	52.00	52.00	6.50	6.50	5.00	17.75
Equalized Loan Rate ^a	2.96	2.01	1.86	2.26	1.46	45.60	41.5	6.09	4.36	5.36	18.61
Percent change	0.7%	3.1%	-4.6%	15.9%	5.0%	-12.3%	-20.2%	-6.3%	-32.9%	7.2%	4.8%

- a. Loan rates are equalized by adjusting crop-year 2010 value until the MAFP (or AWP for cotton and rice) falls below the LR in not more than 30% of monthly observations. The Loan Rate (LR) is adjusted to obtain this result and is referred to as the Equalized Loan Rate. The data period covers January 1997 through May 2010 for a total of 161 months. MAFP = monthly average farm prices received; AWP = adjusted world price.

Table A-5. Target Price Adjustments from Crop-Year 2010 Program Values Needed to Equalize Policy Outcomes Across Commodities

	All Wheat	Corn	Sorghum	All Barley	Oats	Upland Cotton		Rice		Soybeans	Peanuts
						MAFP	AWP	MAFP	AWP		
	\$/bu.	\$/bu.	\$/bu.	\$/bu.	\$/bu.	¢/lb.	¢/lb.	\$/cwt.	\$/cwt.	\$/bu.	¢/lb.
Target Price (TP)	4.17	2.63	2.63	2.63	1.79	71.25	71.25	10.50	10.50	6.00	24.75
Equalized Target Price ^a	4.00	2.57	2.57	2.78	1.70	55.50	51.50	10.82	8.90	6.40	22.95
Percent Change Needed to Equalize Target Prices	-4.1%	-2.3%	-2.3%	5.7%	-5.0%	-21.8%	-27.5%	3.0%	-15.2%	6.7%	-7.3%

a. Equalization is defined as setting the effective target price at a level where the monthly average farm price (MAFP) for grains, soybeans and peanuts and the adjusted world price (AWP) for cotton and rice fall below it in more than 50% of the monthly observations. The crop-year 2010 target price (TP) is adjusted to obtain this result and is referred to as the Equalized Target Price. The data period covers January 1997 through May 2010, for a total of 161 months.

Author Contact Information

Randy Schnepf
 Specialist in Agricultural Policy
 rschnepf@crs.loc.gov, 7-4277

Acknowledgments

The original version of this report was completed in 2007 with the assistance of Jasper Womach, who has since retired from the Congressional Research Service.