



US Farm Policy and Risk Assistance



The Competing Senate and House Agriculture
Committee Bills of July 2012

By Carl Zulauf, Ohio State University
David Orden, VirginiaTech and the International Food Policy Research Institute



International Centre for Trade
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FOREWORD

Budgetary pressures in the United States may result in legislators changing key aspects of agricultural spending in the upcoming farm bill. In an environment of high farm incomes recipients of government funds are finding it increasingly difficult to justify the status quo. Trading partners of the US have long voiced their opposition to trade distorting elements of its agricultural policy. The confluence of these factors may lay the groundwork for significant change.

Those close to the debate on U.S. agricultural policy in Washington D.C. have noted a near absence of discussion on WTO compliance. As one of the biggest agriculture spenders in absolute and per capita terms, the US has an impact on producers and consumers in other countries. The distortion caused to global trade by government policy may have been lower in recent years due, at least in part, to high international prices for key goods. However, many payments under proposed legislation are likely to remain and will perhaps be incorporated into a strengthened crop and revenue insurance programme. The crop prices used under such programmes will determine future budgetary outlays and may affect farmers' decisions. The structure of payments under these programmes, especially for cotton, rice, dairy and sugar, could shift production and prices abroad. Moreover, if current prices face a downward revision, US subsidies could increase sharply, nearing their WTO ceilings or fiscal limits.

The WTO Doha Round trade negotiations included limits on domestic support for agriculture as a key element. Although the round is currently at an impasse, the domestic support elements of the negotiating document, or draft modalities, have stabilized. In this context, national policies enacted independently of discussions in Geneva are likely to have significant impact in both setting the tone of talks when they resume and farm output in the interim. A proposed move away from direct payments to more trade distorting 'amber' and 'blue' box spending would backpedal on important reforms enacted in the US since the 1990s.

American agricultural policy, particularly where it concerns trade, is arguably a compromise between the producers and law makers, even in the context of reform. Many law makers, their constituents and the Obama Administration have focused on the importance of improved nutritional outcomes from subsidies, environmentally sound agricultural management and reducing waste. These are welcome steps in the right direction. However, as one of the most important traders of farm goods, US domestic policy plays an outsize role in global food security prospects, and the fate of large portion of vulnerable people in developing countries. A policy shift in the country often helps set the agenda elsewhere. An environment of fiscal accountability may be the right time for reform.

In the paper that follows, Carl Zulauf and David Orden, leading experts on crop insurance and domestic support, offer an analysis of the policy options available for managing risk to crops and revenue, and try to establish the extent to which these may distort markets by affecting trade or production. They find fertile ground in the nature of agricultural risk for detailed discussions at the WTO and caution US policy makers that the pending farm bill will make it harder than before for the US to negotiate new limits on agricultural spending. We hope that you find the paper as fruitful a contribution to the debate and the quest for solutions.



Ricardo Meléndez-Ortiz
Chief Executive, ICTSD

EXECUTIVE SUMMARY

The United States Congress is writing a new five-year farm bill in 2012. The Senate passed a version in July that significantly changes the US farm programs. The Senate Farm Bill eliminates annual fixed direct payments to farmers, strengthens existing crop insurance programs, and replaces the fixed price countercyclical support program with a new revenue risk assistance program whose targets move with the market. The Agriculture Committee of the House of Representatives also passed a bill in July that ends direct payments and strengthens crop insurance. However, the House Committee Bill retains the traditional fixed price countercyclical support program that the Senate bill eliminates. Moreover, it couples the countercyclical program closely to current production by increasing the fixed target prices, allowing farms to update yields to the 2008-2012 period, and making payments generally available on annual planted acres not fixed historical base acres.

While this legislative process unfolded, the U.S. entered a near-record summer drought that brought the systemic uncertainties of farming into sharp relief. The full House of Representatives passed an emergency disaster assistance bill, but failed to act on the Agriculture Committee Farm Bill. As we went to press, any short-term disaster assistance and resolution of the differences in the July 2012 Senate and House Committee farm bills awaited further legislative negotiations, either before or after the November elections.

To inform discussion around the pending US farm bill, this paper addresses several topics. First, the farm assistance policy of the US is characterized as evolutionary with well-defined historical trends. These trends are not fully consistent with the path envisioned in the WTO. It is easy for the rest of the world to chastise the US, while domestic farm groups equally easily defend US farm programs.

Farm policy in the US is trending away from price-based programs with fixed targets and toward programs that require a revenue loss. Reflecting this trend, individual farm crop insurance for within-year losses (during the crop production season) has emerged as the most important US farm program. For the 2011 crop year, insurance payments to farmers of \$5.6 billion will be the largest source of US farm assistance.

The next farm bill appears likely to strengthen the role of individual farm crop insurance and to complement it with a new “shallow loss” program that covers part of the insurance deductible loss. Unless the policy environment changes dramatically, the main question about the shallow loss program is which of several alternative approaches will be chosen, or if Congress will give farms a choice between the approaches.

One approach is to cover a fixed range of loss that is specified in legislation. This approach is embodied in the Agriculture Risk Coverage (ARC) option in the Senate Farm Bill and the Revenue Loss Coverage (RLC) option in the House Committee Farm Bill. The second shallow loss approach allows farms to buy a modified county insurance product to cover county-wide losses that are between the deductible loss elected for individual farm coverage and 10 percent. The new programs of this type in both bills are the Supplemental Coverage Option (SCO) and the Stacked Income Protection Plan (STAX), which is specific to upland cotton. By including programs of both types the two farm bills provide farmers with a choice subject to some restrictions.

A historic concern of US farm policy has been multiple-year declines in either price or revenue. A program to address these downturns will also likely be included in the next US farm bill. At present, it is less clear how this program will be structured since the Senate Farm Bill and House Committee Farm Bill differ substantively in their approaches. The different alternatives will likely

result in a different distribution of payments among the supported crops. Thus, while US policy is trending toward targets that move with the market, strong support remains among some US farm groups and policy makers for fixed targets.

The elimination of fixed direct payments and increased reliance on risk management programs in the Senate and House Committee farm bills moves the US away from WTO green box and toward amber box measures. This movement will exacerbate concerns by its trade partners that the US often skirts the WTO rules. Under cost expectations of the Congressional Budget Office (CBO), the US will lower its total support under the pending farm bill compared to continuation of the 2008 Farm Bill. Eliminating direct payments reduces expenditures by \$45 billion over ten years, but the proposed new insurance and revenue programs are projected to require nearly 60 percent of this saving. Higher amber box expenditures could hit constraints if WTO limits were tightened beyond those under the Agreement on Agriculture. The pending US farm bill thus will make it harder for tighter constraints to be negotiated.

Considerations about the efficacy of the WTO rules are raised by the evolution of US policy and the pending US farm bill. How the design issue for the US multiple-year program is resolved will have important implications for trade distortions. In the absence of congressional intervention, market adjusted targets will adjust downward when prices decline, especially if the decline is sustained over multiple years and is large in magnitude. In contrast, fixed targets can result in farms not needing to adjust to lower prices. This situation has been common for US farmers in the past, implying that farmers in other countries may have to adjust even more to lower prices. In short, under a low price scenario, market adjusted targets will distort production incentives and international trade less than fixed targets. Currently, the WTO does not distinguish between fixed target and market adjusted targets. It might be useful for WTO members to address this issue in a way that encourages adjustment to markets.

The current WTO classification criteria for the green box and AMS also do not draw a distinction between systemic and idiosyncratic risk. This is a shortcoming. The green box includes, and proscribes disciplines on, various policies with a social or economic justification that can be balanced against any impacts the policies have on trade. We examine risk as a rationale for farm policy. It is difficult to make an economic-based argument for public assistance for idiosyncratic risk, or risk that is specific to an individual farm. Private insurance can handle this risk, especially once yield data exists for individual farms and fields. Thus, at most, temporary public assistance may be needed to help develop the data set for private insurance for idiosyncratic risk.

Systemic risk might be a rationale for more permanent publically subsidized insurance due to an incomplete market argument. While disagreements exist over the currently available evidence, it is reasonable at present to treat systemic risk as a rationale for publically subsidized insurance. But, justification of public subsidies for systemic risk does not justify providing public subsidies for all risk. Evidence presented in this paper, while expository, suggests that current US crop insurance is over subsidized from the perspective of systemic risk coverage.

The issue of systemic versus idiosyncratic risk raises a question for the WTO concerning how large of a subsidy for insurance is justified, if any. If WTO members were to reconsider its green box criteria, it would be important to consider rules that allow an appropriate level of subsidies related to systemic risk while effectively precluding coverage of idiosyncratic risk that the private market can provide.

The US is often portrayed as attempting to circumvent the intent if not the actual limits of its WTO obligations by finding new, creative ways to subsidize farms and notify that support. Critics will

likely view the next US farm bill in this light. An alternative view is that the evolution of US farm policy and by extension the debate over the next US farm bill illuminates important policy issues that the WTO has not fully considered in its classification of farm assistance programs. This paper strikes a balance between these two views. The balance rests on assessment of the pending US farm bill, placing the issues it raises in context, and making some suggestions about issues that the WTO has not fully considered.

1. INTRODUCTION

As the United States Congress engages in writing a new farm bill in 2012, crop prices and farm incomes have been at or near record levels for the past five years while federal budget deficits have soared. Thus, it might seem a propitious time for substantial reforms to lessen the role and reduce the fiscal cost of US farm policy. Nevertheless, maintaining public assistance remains an objective of US farmers, as well as other key stakeholders and their congressional allies. Production costs have increased and the price of farmland has risen along with the higher crop prices and farm incomes. Uncertainty remains about the future of the farm sector's prosperity, recognizing that past farm booms have ended in collapses. Moreover, the focus of US farm policy has shifted from public assistance in times of low crop prices to public assistance for within-year and multiple-year revenue risks. Reflecting this trend, the 2011 crop year is the first in which insurance will be the largest source of farm assistance payments, exceeding even the annual fixed direct payments of nearly \$5 billion first enacted in 1996. In this environment, it is certain that farm assistance of some form will continue in the US, with implications internationally.

To inform discussions around the pending US farm bill, this paper is organized around four topics:

- 1) A brief history of US farm policy, with a focus on evolutionary trends important for the debate over the next farm bill. Two key trends have been movements away from policies that address low prices to policies that address revenue loss and away from policy targets fixed by Congress to policy targets that move with the market.
- 2) An examination of risk as a rationale for farm policy. Specific attention is on moral hazard and adverse selection as reasons for temporary public support of data collection necessary for private insurance markets to operate successfully and on systemic risk as a basis for continuous public subsidies.
- 3) Observations related to the debate over the next US Farm Bill. Three points of policy focus are the payment distribution implications of the potential elimination of fixed direct payments, what type of program should address the historic US concern about widespread yield or revenue loss within a production year, and what type of program should address the historic US concern about multiple-year price declines or periods of low prices.
- 4) World Trade Organization (WTO) considerations. The focus is on shift of the US toward amber box policies, notification of its insurance programs to the WTO and short-fallings of the existing WTO rules that is underscored by issues arising from the evolution of US farm policy.

The final section of the paper provides concluding remarks about the direction of US farm policy, the benefits and costs associated with the design of US farm risk programs and their implications for the agricultural domestic support rules of the WTO. The information and arguments presented throughout the paper draw extensively on and extend a series of shorter papers prepared by the lead author over the past year (Zulauf, 2011a,b, 2012a,b,c; Zulauf, Schnitkey and Langemeier, 2012; Schnitkey and Zulauf, 2012).

As we go to press in August 2012, the US Congress was adjourned for six weeks. The Senate passed a farm bill in July, the *Agriculture Reform, Food, and Jobs Act of 2012*, S. 3240, (Senate Farm Bill) that eliminates direct payments and the countercyclical support program, increases crop insurance subsidies and adds new revenue assistance programs. The Agriculture Committee of the House of Representatives passed a bill in July, the *Federal Agriculture Reform and Risk Management Act (FARRM)*, H.R. 6088, (House Committee Farm Bill) with bipartisan support that also ends direct payments and includes new crop insurance options, but maintains the traditional price-based countercyclical support

program that the Senate Bill eliminates. While this legislative process unfolded, the US entered a near-record severe drought in the summer of 2012. World prices for corn, soybeans and other crops soared. Concern arose over the impact of these higher prices, particularly for livestock producers, as the systemic uncertainties of farming were brought into sharp relief. The full House in early August passed only an emergency disaster assistance bill (HR 6233) targeted principally at livestock losses. This left negotiation of a final 2012 or 2013 Farm Bill to occur before or after national elections in November.

At this juncture with the final Farm Bill taking shape but the specific outcome still uncertain, a number of findings emerge from our review. Of particular relevance are:

- Fixed direct payments to farmers are eliminated in both the Senate and House Agriculture Committee Farm Bills. Total expected assistance to farmers is reduced. However, the elimination of direct payments and an increased reliance on risk management programs to assist farmers move the US away from WTO green box and toward amber box measures. Higher amber box expenditures could hit constraints if limits were tightened beyond those under the Agreement on Agriculture. The pending US farm bill thus will make it harder for tighter limits to be negotiated.
- The next farm bill appears likely to strengthen the role of individual farm crop insurance and to complement it with new “shallow loss” programs covering part of the insurance deductibles. Systemic risk might be a rationale for publically subsidized insurance due to an incomplete market argument. However, justification of public subsidies for systemic risk does not justify providing public subsidies for all risk. Evidence presented in this paper, while expository, suggests that current US crop insurance is over subsidized from the perspective of systemic risk coverage.
- A program to address multiple-year declines in either price or revenue will also likely be included in the next US farm bill. At present it is less clear how this program will be structured since the Senate Farm Bill and House Agriculture Committee Farm Bill differ substantively in their approaches. The Senate Bill uses revenue targets that adjust with the market while the primary option in the House Bill uses price targets that are fixed. Moreover, it couples the countercyclical program closely to current production by increasing the fixed target prices, allowing farms to update yields to the 2008-2012 period, and making payments generally on annual planted acres not fixed historical base acres. The different alternatives to address multiple-year risk affect the expected distribution of payments among the supported crops.
- There are considerations about trade distortions and the efficacy of the WTO rules that arise from the evolution of US policy and the pending US farm bill. Currently, the WTO does not distinguish between fixed target and market adjusted targets. If concern over low prices remains the predominant concern going forward, then market adjusted targets will likely distort trade less than fixed targets.
- The current WTO classification criteria for the green box and AMS also do not draw a distinction between systemic and idiosyncratic risk. If WTO members were to reconsider the green box criteria, it would be important to consider rules that allow an appropriate level of subsidies related to systemic risk while effectively precluding coverage of idiosyncratic risk that the private market can provide.

These and related themes are developed in the sections that follow. An epilogue to the paper will revisit these themes and the future of US farm policy after the new Farm Bill is enacted.

2. THE EVOLUTION OF US FARM POLICY

The use of price to provide assistance to US farms emerged as public policy during the 1920s and 1930s.¹ Basic features of this policy were a floor on prices achieved by limits on production or marketing and by accumulation of public stocks at the support price. However, in the late 1940s US farm policy began evolving away from this initial policy framework. For example, most public storage programs and acreage control programs ended with the *Federal Agriculture Improvement and Reform Act of 1996* (1996 Farm Bill).

Two evolutionary trends are particularly important to understanding the next US farm bill. One is the evolutionary trend away from programs that provide support tied to low prices and toward programs that require a revenue (yield times price) loss. During Fiscal Years (FY) 1961 through 1973, all farm assistance programs were based on low prices (see Table 1).² The trend away from low price programs began with the enactment of disaster assistance programs in the mid-1970s, followed by the decision in the early 1980s to increase the role of within-year (planting to harvest period) crop insurance. The trend continued with the enactment in the 1996 Farm Bill of fixed direct income payments. During the most recent period (FY2007-FY2011 in Table 1), only 18 percent of total farm program payments were based on low prices. While this small share in part is due to the high market prices of this period; the downward trend in the role of low price programs is also evident in the earlier periods. The primary farm programs in each of the four periods used in Table 1 are listed in Box 1.

The increasing importance of crop insurance among US farm programs also coincides with

a trend from yield loss insurance to revenue loss insurance (see Figure 1). Revenue insurance was not offered until the 1996 crop year, but now accounts for almost two-thirds of all insured acres. In addition, two new revenue loss programs were included in the *Food, Conservation, and Energy Act of 2008* (2008 Farm Bill): the Supplemental Revenue Assistance (SURE) program, which is often described as a disaster assistance program, and an optional Average Crop Revenue Election (ACRE) program. These two programs, along with the other crop assistance programs in the 2008 Farm Bill, are briefly described in Box 2.

The second evolutionary trend in US farm programs is the movement away from fixed support targets set by Congress to targets that adjust with the market. This trend began with decisions that occurred at three key points in the history of US farm policy. Each decision adjusted price supports downward to reflect market conditions and introduced flexibility in the determination of some farm policy parameters:

- 1) In the late 1940s debate began over whether to continue the high, fixed price supports implemented during World War II to encourage production. After intense debate that continued throughout the 1950s, Congress decided to replace the high, fixed supports with supports that could vary within a range and could vary somewhat by crop. In addition, support levels, which had been benchmarked to a fixed 1910-1914 period, were benchmarked to the most recent ten years. These decisions resulted in lower support rates. For example, corn's price support rate was \$1.06 in 1960 compared to \$1.60 in 1952.

Box 1: Primary Farm Program by Period

FY1961-FY1973	Primary programs were annual acreage set-asides to control surplus production and public stocks accumulated by government as a result of the nonrecourse loan rate price support program.
FY1974-FY1995	Primary programs were target price deficiency payments, annual acreage set-asides, public stocks, payment in kind (PIK) to reduce planted acreage, and marketing loans. Disaster assistance began and crop insurance began to grow.
FY1996-FY2006	Primary programs were fixed payment, marketing loan, market loss, oilseed payment, price counter-cyclical, disaster assistance, and crop yield and revenue insurance.
FY2007-FY2011	Primary programs were fixed payments, marketing loan, price countercyclical, insurance, and disaster assistance.

Table 1. Types of US Farm Program, 1961 - 2011

Measure by Time Period	Low Price Required	Fixed Payment	Yield or Revenue Decline Required		Total
			Disaster	Insurance	
Billion \$ (annual averages)					
1961 - 1973	\$1.7	\$0.0	\$0.0	\$0.0	\$1.7
1974 - 1995	\$7.0	\$0.0	\$0.6	\$0.3	\$8.0
1996 - 2006	\$7.9	\$5.2	\$1.1	\$1.4	\$15.6
2007 - 2011	\$2.0	\$5.7	\$1.3	\$2.4	\$11.5
Share of Total					
1961 - 1973	100%	0%	0%	0%	100%
1974 - 1995	88%	0%	8%	4%	100%
1996 - 2006	51%	33%	7%	9%	100%
2007 - 2011	18%	50%	12%	21%	100%

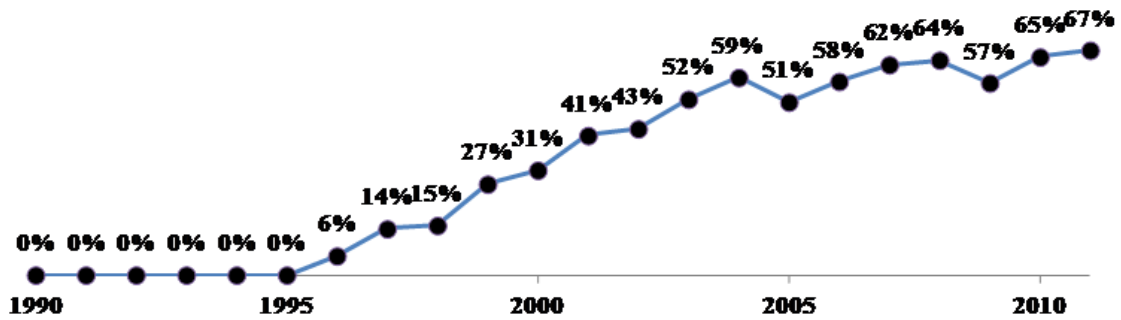
NOTES: Fixed payments do not vary with market conditions. They are based on a fixed per unit rate, plus historical yields and acres. They include production flexibility contracts and direct payments.

Price based program provide assistance against low price. These programs include the nonrecourse loan, target price deficiency payment, payment-in-kind, marketing loan, market loss, oilseed payment, and countercyclical programs; as well as net purchases by the Commodity Credit Corporation.

Disaster programs include ad hoc disaster assistance enacted by Congress to address losses from specific weather events and the Agricultural Disaster Relief Trust Fund enacted in the 2008 Farm Bill.

Insurance net payments equal indemnities paid to farmers for losses minus premiums paid by farmers. ACRE payments of \$0.12 billion are included in FY2011 insurance payments.

SOURCES: Various annual budget reports of US government; Economic Report of the President; USDA, ERS, March 2012; USDA, RMA

Figure 1. Share of US Insured Acres in Revenue Insurance Contracts^A, 1990-2011

NOTE: (A) Revenue insurance is primarily CRC (Crop Revenue Coverage), IP (Income Protection), GRIP (Group Risk Income Protection), and RA (Revenue Insurance) before 2011 and RP (Revenue Protection) in 2011

SOURCE: original calculation using data from USDA, RMA, March 2012

- 2) Despite lower support prices, government-held stocks continued to build due to rapid yield increases that exceeded the growth in demand even at the lower price supports. The debate over how to control stocks and their costs centered on two options: either high price supports with mandatory acreage controls or lower price supports with voluntary acreage controls. The debate was resolved when the *Agricultural Act of 1964* and the *Food and Agriculture Act of 1965* extended the lower price, voluntary acreage control program that had evolved for corn since World War II to wheat and cotton.

Box 2: Brief Description of 2008 Farm Bill Farm Programs

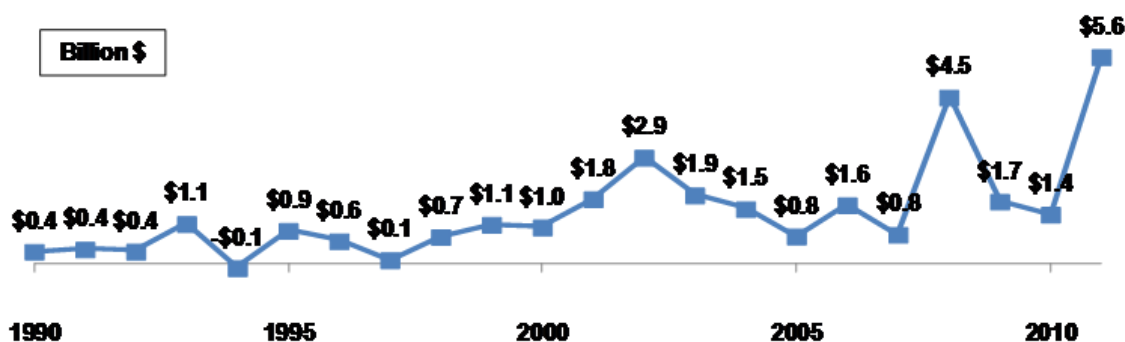
ACRE (Average Crop Revenue Election):	Makes payment if state revenue is below 90% of state's benchmark revenue and farm's revenue is below farm's benchmark revenue. Benchmarks change with past yields and market prices. Participation in ACRE is optional and involves a loss of 20% of direct payments.
Ag Disaster Trust Fund	Five disaster assistance programs, including SURE (Supplemental Revenue Assistance). SURE requires the purchase of insurance. It essentially increases the insurance coverage level by 15%.
Crop Yield and Revenue Insurance	Farms pay part of the actuarially fair premium based on indemnities; the public subsidizes the remainder and administrative and reinsurance costs. Farms receive insurance indemnity payments when yield or revenue is below the coverage level elected. Programs exist at the individual farm and county level.
Countercyclical	Payment made if price is below target price fixed by Congress. Because payments are only made on fixed acreage and yields, the target price does not provide price support for output at the margin.
Direct Payment	Fixed payment made on historical base acres and yield. Payment remains the same irrespective of market price and revenue.
Marketing Loan	Payment made on current output if price is below marketing loan rate fixed by Congress. The marketing loan rate provides price support that applies to output at the margin.

Table 2. Share of Farm Crop Revenue Loss That Coincides with County, State, and US Losses, Selected Loss Levels, Illinois and Kansas Farm Management Association Farms, 1978-2008

State by Loss Level	Share of Farm Loss That Coincides with		
	Count Loss	State Loss	US loss
Illinois Corn, Soybeans, Wheat			
Losses of 0% - 15%	73%	65%	58%
Losses > 15%	46%	24%	21%
Losses > 25%	31%	8%	13%
Losses > 35%	15%	1%	0%
Kansas Corn, Sorghum, Soybeans, Wheat			
Losses of 0% - 15%	70%	57%	48%
Losses > 15%	52%	21%	9%
Losses > 25%	47%	12%	3%
Losses > 35%	42%	6%	0%

SOURCE: Original calculations using data from Illinois Farm Business Farm Management program, Kansas Farm Management Association, and USDA, NASS, accessed January 2010

Figure 2. Net Farm Payments from US Crop Insurance, 1990 - 2011



SOURCE: original calculation using data from USDA, RMA, March 2012

- 3) Surpluses emerged again in the early 1980s because of large crops and slower economic growth around the world, and because of the appreciation of the US dollar. Even though it meant reducing the higher support prices that had been enacted during the price increases of the 1970s, price supports were reduced in the *Food Security Act of 1985*. The Secretary of Agriculture also was allowed to vary acreage set asides by crop within a range established by Congress. For example, set-asides for the 1987 crops ranged from 20 percent for corn (feed grains) to 35 percent for rice.

Box 3: Parameter Fixity among US Farm Assistance Programs, 2008 Farm Bill

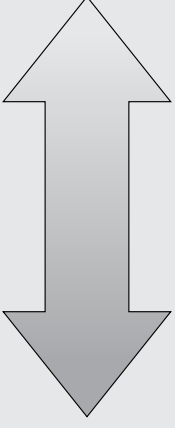
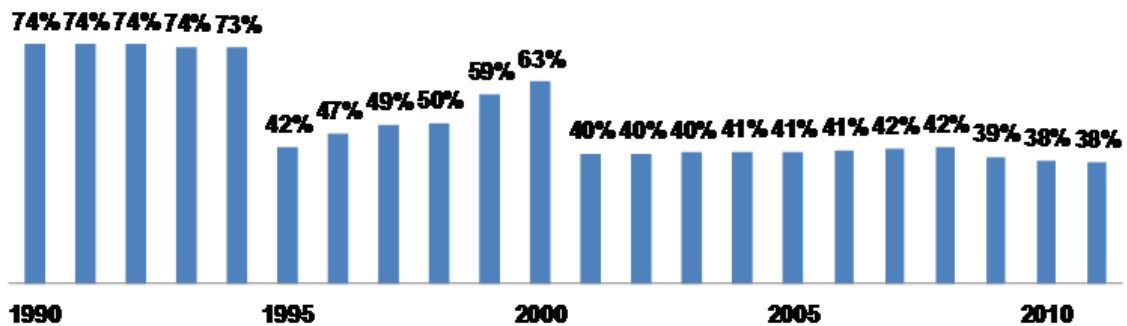
<p style="text-align: center;">Most Fixed</p>  <p style="text-align: center;">Most Flexible and Market Oriented</p>	Program	Fixed Parameter
	Direct Payment	Payment rate per acre fixed by crop Payment yield fixed at a historical time period Payment acres fixed at crop's historical base acres
	Countercyclical	Target price fixed by crop Payment yield fixed at a historical time period Payment acres fixed at crop's historical base acres
	Marketing Loan	Loan rate (price) fixed by crop
	ACRE (Average Crop Revenue Election)	State revenue benchmark cannot adjust more than 10 percent/year Farm's payment acres cannot exceed its base acres
	SURE (Supplemental Revenue Assistance)	Farm's payment yield cannot exceed its fixed counter-cyclical yield
Crop Insurance	None	

Figure 3. Share of US Crop Insurance Premiums Paid by Farms, 1990 - 2011

SOURCE: original calculation using data from USDA, RMA, March 2012 SOURCE: original calculation using data from USDA, RMA, March 2012

The trend toward market orientation that began with these three decisions has increasingly involved programs that adjust assistance targets with changes in the market. These programs include crop insurance and the two new 2008 Farm Bill programs, SURE and ACRE. Despite this trend, fixed parameters remain a feature of several current US crop programs. The degree of fixity varies notably across program, with direct payments being the most fixed program and crop insurance the most market oriented (see Box 3).

One aspect of US farm policy that has not shown a trend change is the relationship between crop insurance programs and disaster relief extended in specific years. Despite repeated discussion of replacing disaster programs with insurance, assistance provided by these two programs has continued to move together over time (see Table 1). Congress thus appears to treat them as complements. Moreover, repeated passage of disaster assistance (including for livestock producers who lack insurance programs) can be interpreted not only as desire to help farms during a period of stress but also as a Congressional determination that insurance programs have shortcomings when providing the desired assistance for farms during years when crop production disasters occur.

2.1 Increased Role of Crop Insurance

Public subsidies cover a large part of insurance premiums and payments for insured crop losses have exceeded the premiums paid by farms in every year since 1990 except 1994 (see Figure 2). Net insurance payments are trending higher. They exceeded \$1 billion in eight of the last ten years and \$4.5 billion in two of the last four years. For the 2011 crop year, net insurance payments of \$5.6 billion will, for the first time, exceed direct payments to US farms.³

Higher net insurance payments reflect in part higher public subsidy rates. The share of premiums paid by farms declined from 74 percent in the early 1990s to 38 percent in the 2010 and 2011 crop years (see Figure 3). Major changes in subsidy rates occurred in the

Agricultural Risk Protection Act of 2000 and the 2008 Farm Bill. The latter made the subsidy rate as high as 80 percent on some coverage levels for enterprise insurance (an enterprise is all acres of a crop in a county).

The higher public subsidy rates, in combination with an expansion in eligible crops and the types of insurance provided, have resulted in more farms buying insurance on more acres. Total insured acres have increased from 100 million in the early 1990s to over 250 million during recent years, resulting in increases in net insurance payments.

A third reason for higher net insurance payments is that payments are correlated with the higher prices of recent years. When crop prices are higher, expected revenue is higher and, thus, a given percent loss in revenue is higher in nominal terms.

Net insurance payments to farms are only part of the cost to the public of the insurance programs. Additional costs arise from government reinsurance provided to private insurance companies and from government reimbursement to the private companies for administrative and operating delivery costs. Reinsurance costs averaged \$1.4 billion from 2005 to 2009, while the delivery cost subsidies averaged \$1.3 billion annually.

2.2 Changed Program Mix Reflects a Changed Farm Sector

As described above, US farm policy has been dynamic and evolutionary, with distinct trends. In particular, US farm policy is evolving away from policy to address low prices with targets fixed by Congress toward policies that address revenue loss with targets that move with the market. As a result of these trends, crop insurance has supplanted traditional farm assistance programs as the core US farm policy.

Part of the explanation for the observed evolution lies with changes in the economic condition of US farms and farmers. The following were cited as rationales for creating price-based farm policy in the 1930s:

- 1) The importance of the US farm sector to the US recovery from the Great Economic Depression that began in 1929. Over 20 percent of all gainfully employed Americans worked on farms at that time (US Bureau of the Census, 1954).
 - 2) The dire economic situation of farm families. In 1934, per capita farm income was only 33 percent of nonfarm per capita income (USDA, ERS, September 1984).
 - 3) Food security. The Great Economic Depression and droughts of the 1930s raised concerns about access to adequate food for many Americans, which led to public stocks being a component of farm assistance policy.
 - 4) Risk in farming with limited availability of private insurance for crop production. This was an issue also highlighted by the droughts of the 1930s, notably in 1934 and 1936.
- In comparison to the 1930s, for contemporary US agriculture:
- 1) Farms now employ less than two percent of Americans (data ends in 2002) (USDA, ERS, accessed December 20, 2010).
 - 2) Average farm family income exceeds 110 percent of average nonfarm family income (USDA, ERS, accessed January 11, 2011).
 - 3) Food security is addressed by food nutrition programs, which currently exceed approximately \$75 billion annually (USDA, Fiscal Year 2011).
- Thus, of the original rationales, only risk remains as a reason that still resonates as a potential basis for US farms receiving support from the public.

3. RISK AS A RATIONALE FOR FARM ASSISTANCE

Risk is an inherent factor in all businesses, including farming. Most farms use a variety of tools to mitigate and manage risk, such as choice of production technologies, diversification, forward contracting and savings. Publically-subsidized insurance and farm programs are thus additions to a farm's private risk management toolkit.

Risk can be divided into two types: 1) idiosyncratic risk, or risk that has little correlation across firms in the same business sector and 2) systemic risk, or risk held in common across those firms. Because idiosyncratic risk is uncorrelated among individuals, the law of large numbers can be invoked, allowing an actuarially fair premium to be determined and charged. In short, private companies can potentially offer insurance for idiosyncratic risk, provided the important issues of moral hazard and adverse selection can be managed.

Moral hazard occurs when a risk management option alters decisions of the insured in a way that increases the probability of collecting a payment. Adverse selection occurs when potential users of the risk management option know more about their losses than does the provider of the option. This asymmetric information allows potential users to choose a risk management option only when its payout ratio is favorable. Thus, moral hazard and adverse selection increase the cost of insurance and other potential private market services for managing risk. Moreover, if moral hazard and adverse selection costs are large enough it may affect both the type and even the availability of private market risk management options.

Moral hazard and adverse selection are especially likely in a complex process such as crop production. Farmers make numerous managerial decisions from planting through harvest that includes consideration of risk. Thus, the potential is high that participation in publically-subsidized risk management program could influence farmers' decisions and that

farmers will know more about their risks than administrators of these programs.

The impact of moral hazard and adverse selection are less when the cause of payments by risk management programs is outside the control of the individual business (Halcrow, 1949; and Miranda, 1991). Hence, area-wide insurance, such as county insurance, is often championed as a way to reduce moral hazard and adverse selection. However, according to data from USDA's Risk Management Agency (RMA), county insurance products accounted for only two percent of the total net acres covered by US crop insurance during the 2011 crop year.

In addition to idiosyncratic risk, farming is subject to considerable systemic risk. In terms of yield, this risk arises from widespread natural events such as frost, drought, and excess moisture affecting contiguous geographic regions. In terms of price, systemic risk arises from major demand-side factors as well as national and international weather conditions affecting yields.

Because systemic risk is correlated across individuals, large insurance payments can result. This raises the possibility that private insurance companies will go bankrupt in an adverse year. Private reinsurance markets potentially can be used to manage these systemic losses, but reinsurance can be expensive and may not be available. Currently, the US government provides a considerable share of reinsurance for crop insurance companies. Moreover, experiences from around the world reveal that, except for fire and hail crop insurance, private companies have not provided insurance against farm yield and revenue losses unless public assistance is provided (Wright and Hewitt, 1994; Tweeten and Zulauf, 1997).

In the US, publically-subsidized yield and revenue loss insurance addresses both idiosyncratic and systemic risk within a crop

year. Other US farm programs address systemic risk across years, such as a period of low prices.

Two alternative circumstances are consistent with the observed presence of the US government in providing insurance for farming. One is that the existence of government support for insurance preempts the development of private insurance. The other explanation is that private insurance would not exist due to the presence of considerable systemic risk or the presence of considerable moral hazard and adverse selection. The second explanation implies that farm insurance is an incomplete private market.

The existence of an incomplete market is often accepted in economics as a rationale for enacting a policy to address the market failure. However, an incomplete market is not a full rationale for adopting policy. Adoption rests upon the consideration of the costs and benefits of the policy chosen.⁴ Public policy to subsidize the management of farm risk not only has budgetary costs but also costs in terms of its impacts on production and the environment.

3.1 Production and the Environmental Impacts of Subsidized Crop Insurance

Publically-subsidized insurance can affect production in three ways (Sumner and Zulauf, 2012):

- 1) The subsidies raise net revenue per acre, thereby increasing the incentive to plant eligible crops, especially crops with higher subsidy rates. The effect is similar to that of a price subsidy.
- 2) The availability of crop insurance encourages planting insured crops in areas subject to significant losses by reducing the size of those losses.
- 3) Subsidized insurance reduces the incentives for growers to use other risk mitigating practices, such as crop diversification and risk-reducing production practices.

Several studies have found that insurance has a small, positive impact on production (Young, Vandever, and Schnepf, 2001; Goodwin, Vandever and Deal, 2004; Lubowski, et al., 2006). To illustrate the estimated production impacts, Lubowski, et al. found that cultivated cropland in the 48 contiguous US states increased by 0.8 percent in 1997. In that year, farmers were paying about 50 percent of the insurance premiums, around 200 million acres were insured and net insurance payments were \$100 million. Lubowski, et al. also found that subsidized crop insurance changed the mix of some crops produced and increased wind and water erosion by an estimated 1.4 and 0.9 percent in 1997.⁵

Two explanations exist for finding a relatively small impact of crop insurance on production. One is that the existing studies date to years when crop insurance was a smaller program with lower subsidies. The second explanation is the limited ability to expand cropland in the US Midwest, a large production area. In addition, crop rotational considerations and availability of crop insurance for most relevant alternative crops in many part of the US also likely limit the impact of crop insurance. The first explanation implies that the current US crop insurance program may have larger impacts on production and the environment than estimated in previous studies while the second explanation implies that any such potential impacts are mitigated by production-related constraints.

3.2 Over Subsidization of Crop Insurance?

The lack of a functioning private market for a product in the absence of government assistance, which is often referred to as the incomplete market argument, is not a *carte blanche* argument for public subsidies for crop insurance. The incomplete market argument rests upon two potential rationales. One is that government programs are needed to overcome the high cost of moral hazard and adverse selection. However, moral hazard and adverse selection in crop insurance can

be managed by having information about the riskiness of production on individual fields and by individual farmers. Thus, the rationale for public subsidies on this basis is only temporary to establish the database on yields needed to manage moral hazard and adverse selection. It is not certain what length of observation is needed, but data for many fields and farmers in the US is now approaching 10 observed years. This number of observations might allow the use of statistical techniques to combine county and farm specific data to appropriately calculate field and farmer specific insurance rates.

The potentially more permanent rationale for an incomplete insurance market rests upon the existence of systemic risk. This rationale implies that public subsidies should be attached only to the share of risk that is systemic, not to all farm risk and, in particular, not to idiosyncratic risk.

To illustrate the distinction between systemic risk and all risk, we calculated the share of farm crop revenue losses that were coincident with the revenue losses at the county, state, and US levels. The data set was farms that participated in the Illinois and Kansas management associations during the thirty-year period 1978-2008. The losses were from yield and price risk that occurred between the months in which the plant and harvest insurance prices were determined. The formula used to calculate the revenue loss per acre for the farm as well as for the county and state in which the farm was located and for the US was:

$$(1) (\text{plant insurance price}_t \times 5\text{-year average of past yield}_{i,t} \times \text{coverage level}) - (\text{harvest insurance price}_t \times \text{yield}_{i,t})$$

where t = year, i = farm, county, state, or US, and the insurance coverage level is 65%, 75%, or 85%, so that insurance would cover

revenue losses larger than 35%, 25% and 15%, respectively. These calculations were made for corn, soybeans, and wheat in Illinois; and for corn, sorghum, soybeans, and wheat in Kansas.⁶ The coincident loss was calculated as the minimum of farm loss or area loss at the county, state or national level as a share of the farm loss.

Results of this analysis are shown in Table 2. The highest level of individual insurance that a farm can buy is 85 percent coverage or a minimum loss of 15 percent. For Illinois farms, the average share of farm loss that coincides with losses at the county level is 46 percent for farm losses greater than 15 percent (52 percent for Kansas farms). The share of coincident loss declines to 31 percent and 15 percent for farm losses greater than 25 percent, and 35 percent, respectively, in Illinois (47 percent and 42 percent in Kansas). The coincident shares are much lower at the state and US level. As a comparison, the current subsidy rates for enterprise insurance with a 15 percent, 25 percent, and 35 percent deductible is 53 percent, 77 percent, and 80 percent, respectively.

The comparison in the previous paragraph is just a simple one and needs refinement. However, the average share of farm level losses coincident with losses measured as being systemic because they occur at the county, state or national level is less than the current US subsidy rates for insurance. Thus, this comparison suggests that US crop insurance may be over subsidized relative to the systemic risk argument to justify publically-subsidized insurance from the standpoint of incomplete markets and economic efficiency. This consideration is significant given the increasing importance of crop insurance and the increased role for insurance envisioned in the current US Senate Farm Bill and House Agriculture Committee Farm Bill.

4. SENATE AND HOUSE 2012 FARM BILL PROPOSALS FOR SUPPORTED CROPS

Considerable agreement exists between the crop provisions in the 2012 farm bills passed by the full US Senate and by the US House of Representatives Committee on Agriculture in July 2012. The main crop support provisions of each bill are shown in Tables 3 and 4.

In a significant shift from the past 17 years, both bills eliminate annual fixed direct payments to farmers. In place of these payments, both bills further embrace risk management as the focus of US crop assistance programs. The coverage provided by existing farm insurance programs is enhanced in both bills. Both bills create new programs to cover part of the deductible associated with the insurance elected by individual farms. Both bills include a new revenue insurance program for cotton (Table 4). They both retain the current marketing loan programs. Neither bill changes loan prices, except to potentially lower the loan price for upland cotton. Crop loan rates remain well below prices that have prevailed in world markets since 2007.

Substantial differences exist between the Senate and House Committee bills in terms of programs to address a multiple-year decline in price or crop revenue when prices are above the loan rate. The Senate Bill eliminates fixed target prices and the countercyclical payment program, replacing them with a program that has revenue targets which adjust with the market, similar to ACRE. In contrast, the House Committee Bill not only retains the traditional price countercyclical program but also couples it more closely to current production by increasing the fixed target prices, allowing farms to update yields to the 2008-2012 period, and usually making payments on annual planted acres not fixed historical base acres.

The antecedents of the provisions in the Senate and House Committee bills are evident in a range of proposals put forward earlier in the farm bill debate. Ten policy proposals made by farm and industry groups, their congressional supporters and the Obama

Administration during late-2011 through early-2012 are summarized in Appendix Tables 1a and 1b. Nine of these proposals eliminated direct payments and continued the marketing loan program. All ten retained the crop insurance program. Nine introduced new risk management programs to complement crop insurance. The divergence between the two bills over the future program to address multiple-year price and revenue loss is also foreshadowed in the earlier proposals. While only three of the proposals retained the price countercyclical program, they were from members of Congress (Senators Conrad, Baucus, and Hoeven and Representative Neugebauer) and the Administration. Retention of the countercyclical program in these proposals suggested support for the program from advocates for at least some crops.

4.1 Changing the Central Crop Program from Direct Payments to Crop Insurance

Three reasons underpin the elimination of the direct payment program in both the Senate and House farm Bill. One is the need to meet budget cuts in farm programs. Related to this motivation is the difficulty in convincing nonfarm constituencies of the fairness of making nearly \$5 billion in annual direct income payments to farms with farm income as high as it has been in recent years. Eliminating direct payments reduces expenditures by close to \$45 billion over ten fiscal years (payments for the 2012 crop largely occur in FY2013, see Congressional Budget Office (CBO) 2012a,b).

The second reason for eliminating direct payments is a desire to enhance the risk assistance provided to crop producers. The CBO estimates that under its projections of market conditions and farmers' participation decisions, spending on the various new risk assistance programs in either the Senate or House Committee Farm Bill will equal nearly 60 percent of the savings from eliminating direct payments. Actual spending could be much lower or higher.

Table 3. Comparison of Crop Programs, House Agriculture Committee Bill and Senate Bill, July 2012

Crop Program	Description	House Agriculture Committee Bill	Senate Bill
Individual Farm Insurance (existing programs)	<ul style="list-style-type: none"> ▶ Covers revenue or yield risk based on Actual Production History (APH) yield for farm, 100% of plant acres, and up to 85% of pre-plant price ▶ Premium subsidy varies from 38% to 100% – highest at lowest coverage level 	Yes	Yes
County Insurance (existing programs)	<ul style="list-style-type: none"> ▶ Covers revenue or yield risk based on expected yield for county, 100% of plant acres, and up to 90% of expected pre-plant price. ▶ Premium subsidy ranges from 44% to 59% 	Yes	Yes
Supplemental Coverage Option (SCO) (new modified county insurance)	<ul style="list-style-type: none"> ▶ Covers revenue or yield risk at the county level over a range that is between the coverage level for individual farm insurance elected by the farm and 90%, or anywhere in between. ▶ Premium subsidy is 70%. 	Yes, if elect PLC No, if elect RLC	Yes, but maximum coverage is 80% if elect ARC
Marketing Loan Program	<ul style="list-style-type: none"> ▶ Fixed Price set by crop by Congress (same as in 2008 Farm Bill except cotton loan rate reduced to average of world price for the previous 2 years, but not less than \$0.47/pound nor more than \$0.52/pound. 	Yes	Yes
Target Price Program (House PLC)	<ul style="list-style-type: none"> ▶ Fixed Price set by crop by Congress (see Table 7) ▶ Payment yield usually will be 90% of 2008-2012 average farm yield A ▶ Payment usually on 85% of plant acres plus 30% of prevent plant acres B 	Yes (PLC)	No
Farm Revenue Program (Senate Farm ARC)	<ul style="list-style-type: none"> ▶ Coverage between 79% and 89% of (5-year Olympic average of farm yield times 5-year Olympic average of US crop year price) ▶ Payment usually on 65% of plant acres plus 45% of prevent plant acres B 	No	Yes (Farm ARC)

Table 3. Continued

Crop Program	Description	House Agriculture Committee Bill	Senate Bill
County Revenue Program (House RLCand Senate County ARC)	<p><u>House RLC Version</u></p> <ul style="list-style-type: none"> ▶ Coverage between 75% and 85% of (5-year Olympic average of county yield times 5-year Olympic average of US crop year price) • Minimum price use for any year when calculating the Olympic average is the fixed target price for the House PLC program (see Table 7) ▶ Payment usually on 85% of plant acres plus 30% of prevent plant acres B <p><u>Senate County ARC Version</u></p> <ul style="list-style-type: none"> ▶ Coverage between 79% and 89% of (5-year Olympic average of county yield times 5-year Olympic average of US crop year price) ▶ Payment usually on 80% of plant acres plus 45% of prevent plant acres B 	Yes (RLC)	Yes (County ARC)

NOTES: (A) Payment yield could be 1998-2001 counter-cyclical yield. (B) Total payment acres on a farm cannot exceed the farm's base acres.

Table 4. Comparison of Crop Insurance Provisions, House Agriculture Committee Bill and Senate Bill, July 2012

Insurance Provision	House Agriculture Committee Bill	Senate Bill
Makes permanent 2008 Farm Bill pilot program for enterprise crop insurance	Yes	Yes
Separate enterprise insurance for irrigated and non-irrigated acres	Yes	Yes
APH yield calculated using 70%, instead of 60%, of insurance transitional yield	Yes	Yes
STAX (Stacked Income Protection Plan) – separate insurance program for upland cotton. Farm elects coverage between the coverage level it elected for the individual farm and 90% of expected county revenue. If individual insurance is not bought, STAX coverage can be elected between 70% and 90%. A multiplier factor up to 120% is allowed. Premium subsidy is 80%. STAX is not available to upland cotton acres in the Supplemental Coverage Option.	Yes \$0.6861/pound minimum price	Yes no minimum price
Requires development of peanut revenue insurance product	Yes	Yes
Can use data from Risk Management Agency as well as National Agricultural Statistics Service to estimate county yields	Yes	Yes
Future Standard Reinsurance Agreements should be budget neutral	Yes	Yes

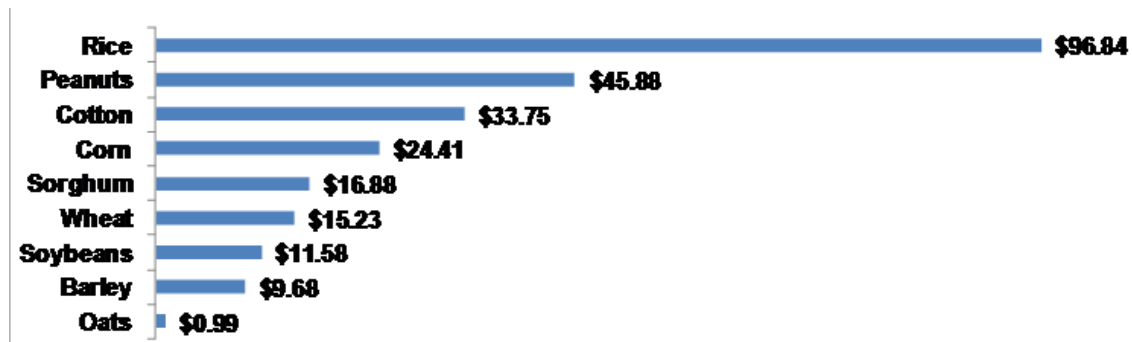
Eliminating direct payments while increasing reliance on insurance programs could notably alter the distribution of government assistance among the nine crops that receive direct payments. Basic features of the acreage of these crops are shown in Table 5. The average US direct payments ranged from \$0.99 per base acre for oats to \$96.84 per base acre for rice for the 2011 crop year (see Figure 4). In contrast, over the 2001-2011 crops, average annual net insurance payment per insured acre varied from \$4.89 for soybeans to \$30.17 for cotton (see Figure 5). While the average net insurance payment is less than the crop's average direct payments for all crops except oats, the ratio of net insurance payment to direct payment varies from 7 percent for rice and 24 percent for corn to 89 percent for cotton, 92 percent for barley, and 94 percent for sorghum (Figure 6). The potential redistribution of payments has caused considerable consternation, especially among rice and peanut producers. Resolution of this concern could be a key factor determining the design of crop programs in the pending farm bill.

4.2 The Debate over Production Season Shallow Losses

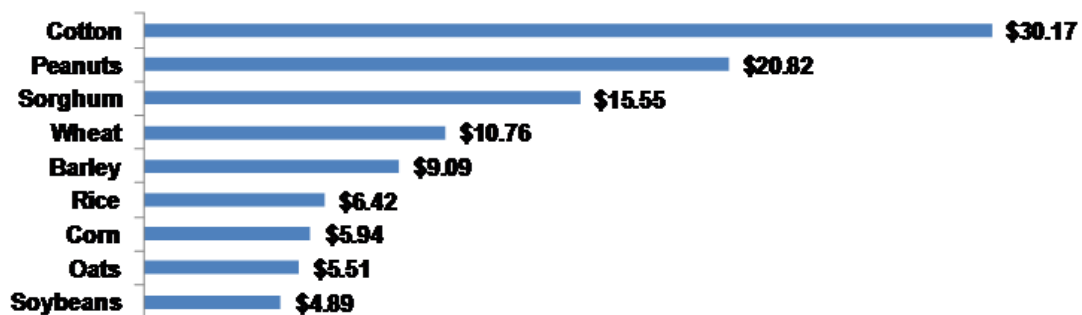
The programs to address the impact on farms of a systemic regional or national shortfall in production during the growing season are a key issue in the current US farm bill debate. Since the mid-1970s, concern over losses due mainly to adverse weather has manifested itself in the consistent, sometimes annual, passage of *ad hoc* disaster assistance. Often, the disaster payments covered severe events causing significant losses in cases where farmers had not purchased crop insurance or insurance was not available. Despite repeated discussion of replacing *ad hoc* disaster programs with insurance, assistance provided by these two programs has moved together over time, as noted above.

In the 2008 Farm Bill Congress took a related but different approach to within-year loss by including the SURE program. Commonly-referred to as permanent disaster assistance, SURE required the purchase of insurance and

Figure 4. Average US Direct Payment per Base Acre, by Crop, 2011



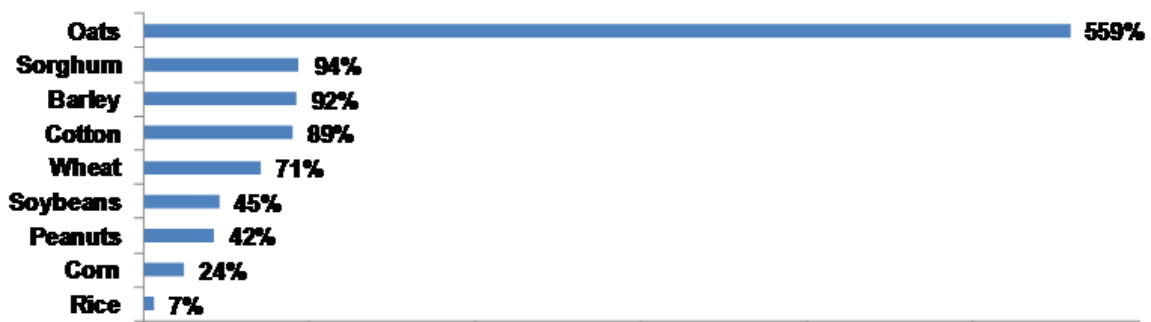
SOURCE: calculated using data from USDA, ERS, March 2012

Figure 5. Average US Annual Net Insurance Payment per Insured Acre^A, 2001 - 2011

NOTE: Net insurance payment per acre is somewhat lower because the calculation does not include the administrative fee paid by farms. This fee is currently \$30 per insured crop per county.

SOURCE: calculated using data from USDA, RMA, March 2012

Figure 6. Ratio of Average US Net Insurance Payment per Insured Acre to Average Direct Payment per Base Acre



NOTE: Net insurance payment per acre is somewhat lower because the calculation does not include the administrative fee paid by farms. This fee is currently \$30 per insured crop per county.

SOURCE: calculated using data from USDA, RMA, March 2012

essentially increased a farm's insured coverage level by 15 percent. Thus, SURE addressed losses smaller than the insurance deductible elected by the farm. Such losses are often referred to as shallow losses.

The Senate and House Committee farm bills also contain programs that address shallow losses.

Each bill contains two alternative programs from which farmers would be able to choose under certain specified restrictions.

The first approach to shallow losses is to cover across all participating farms a specific range of revenue loss that is specified in the bill. This approach is embodied in the Agriculture Risk

Table 5. Selected Characteristics of US Crops that Receive Direct Payments, 2011 Crop Year

Crop	Planted Acres (million)	Share of Principal Crop ^A Acres	Base Acres (million)	Share of Base Acres
Barley	2.6	0.8%	8.4	3.3%
Corn	91.9	29.2%	84.5	33.1%
Cotton (Upland)	14.7	4.7%	17.9	7.0%
Oats	2.5	0.8%	3.0	1.2%
Peanuts	1.1	0.4%	1.6	0.6%
Rice	2.7	0.9%	4.5	1.8%
Sorghum	5.5	1.7%	11.6	4.5%
Soybeans	75.0	23.8%	50.7	19.9%
Wheat	54.4	17.3%	72.8	28.6%

NOTE: (A) Principal crops total 315.0 million acres and include most crops except fruits, nuts, and vegetables.

SOURCES: Data from US Department of Agriculture, National Agriculture Statistics Service, accessed March 2012, and USDA, ERS, March 2012

Coverage (ARC) option in the Senate Bill and the Revenue Loss Coverage (RLC) option in the House Committee Bill. The Senate ARC option has an individual farm loss version of the program and a county level loss version of the program. Farmers would choose one of these two ARC options. RLC is a county loss program; it has no farm loss version. County shallow loss is more likely to be a systemic as opposed to idiosyncratic loss.

These proposed programs require no premium payment by the farm, but coverage is limited to a specified, fixed range of losses: 79 percent to 89 percent for ARC and 75 percent to 85 percent for RLC.⁷ The losses are relative to a revenue target that is calculated as the product of a 5-year Olympic average of U.S. crop year price and the 5-year Olympic average of the relevant yield for the program. Payments are made on a fixed percent of planted acres and acres prevented from being planted by weather conditions. For the farm ARC, county ARC, and RLC programs, respectively; payments are made on 65%, 80%, and 85% of planted acres and 45%, 45%, and 30 percent of prevent planted acres. Total payments that a farm can receive from these programs are subject to payment limits. For both ARC and RLC, loss is defined relative to a revenue target calculated using a 5-year Olympic average (removes low and high values) of yield and price.

The second shallow loss approach is to provide county-based yield or revenue coverage linked to the insurance coverage levels selected by individual farmers. The principal new program in both bills is the Supplemental Coverage Option (SCO). It allows farms to buy a modified county insurance product to cover losses between the deductible loss selected for their individual coverage and 10 percent, or any level in between.⁸ This also is the approach taken by the Stacked Income Protection Plan (STAX), which is specific to upland cotton. The premium subsidy is 70 percent for SCO and 80 percent for STAX, which means the farm pays 30 percent or 20 percent of the premium. SCO and STAX can be purchased for all acreage, can cover deeper losses than ARC or RLC, and are not subject to payment limitations.

The two approaches to coverage of shallow losses represented by ARC and RLC versus SCO and STAX are competitive in design. The Senate and House Committee Farm Bills each include both. Thus, each bill allows farmers to choose which approach they prefer, but subject to some restrictions. Under the Senate Bill, farmers can choose to enroll in ARC or not. Either way, they can purchase SCO for some or all of their acreage but the SCO loss coverage maximum is limited to 80 percent if the farm is enrolled in ARC. Under the House Committee Bill, farmers who enroll in RLC are not eligible to purchase any coverage under SCO.

Several additional issues arise around the new approaches to covering shallow losses that the Senate and House Committee have included in their farm bills. First, these shallow loss programs are likely to create the most benefits for different areas of the US than the existing insurance programs. This effect is illustrated from farm level data of the Illinois and Kansas farm management associations. The greater prevalence of smaller losses on Illinois farms (see Table 6) means Illinois farms will benefit more from shallow loss programs, particularly from ARC and RLC with the loss coverage range specified for these programs.⁹

Second, a general design principal of risk management programs is that any differences in the indemnity triggering parameters creates the potential for both overcompensation and undercompensation for a loss. By overcompensation or undercompensation, we refer simply to whether the farm receives a level of payment that just offsets a particular loss on the farm, not to a more theoretical notion of optimal insurance subsidies or indemnities. While undercompensation creates a risk management problem for the farm, overcompensation increases program costs to the government and potentially distorts production.

The overcompensation issue occurs particularly with ARC and RLC (as opposed to SCO) because they differ from individual farm insurance in

regard to how price and yield are determined. ARC and RLC use a 5-year Olympic moving average of price and yield to determine its revenue target. In contrast, individual farm insurance uses a longer period of time to determine the Average Production History (APH) yield. Price is determined using futures prices for specified futures contracts over a specified period of time, which is usually close to one month in length. In short, it is unlikely that that price and yield parameters will be the same for individual farm insurance and the ARC and RLC programs.¹⁰

In summary, both the Senate and House Agriculture Committee Farm Bill increase the share of within-year yield and revenue risk on farms that is covered by US risk management programs. The new programs in both bills cover part of shallow losses that occur during the production period. Both bills contain competing approaches. Coverage of county level shallow loss is more likely to reflect systemic risk than individual farm level coverage. While the ARC/RLC and SCO approaches create situations of overcompensation for losses resulting from the occurrence of risk, the SCO approach likely presents fewer such concerns. The reason is that SCO is a modified county insurance product and thus uses the same price as crop insurance and has a lower coverage level equal to the coverage level chosen by the farm for its individual insurance contract.

Table 6. Crop Revenue Loss between Planting and Harvest, Illinois and Kansas Farm Management Association Farms, 1978-2008r

State and Crop	Average Loss	Standard Deviation of Loss	Share of All Loss that is Losses of 15% or less
Illinois Corn	12%	16%	73%
Illinois Soybeans	15%	11%	70%
Illinois Wheat	22%	16%	56%
Kansas Corn	24%	21%	57%
Kansas Soybeans	31%	22%	45%
Kansas Wheat	28%	23%	43%

NOTE: Farm Loss is calculated as: [(plant insurance price times 5-year average of past yield times planted acres) minus (harvest insurance price times planted yield times planted acres)].

SOURCE: Original calculations using data from Illinois Farm Business Farm Management program, Kansas Farm Management Association, and USDA, NASS, accessed January 2010

4.3 The Debate over Multiple-Year Risk Assistance

A second key issue for the pending US farm bill is how to address multiple-year declines in national farm revenue for one or more crops. Substantially different approaches are taken in the Senate and House Committee bills. The Senate Bill provides assistance against multiple year declines in revenue through its ARC program. ARC's revenue targets are set using 5-year Olympic moving averages of prices and yield. Moving averages adjust more slowly than market prices because they use historic data. Hence, when prices decline over multiple years, ARC's revenue target will decline but the decline will be slower than the decline in market price. Thus, ARC provides farms with a period

of adjustment longer than the period provided by the market. However, the adjustment period will eventually end as ARC's revenue targets will decline to reflect the continued existence of lower prices.

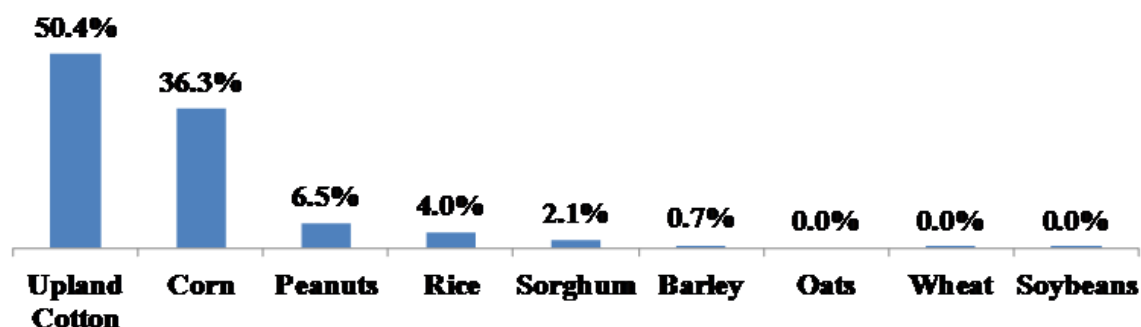
In contrast, the House Committee Farm Bill sets fixed minimum price targets through its Price Loss Coverage (PLC) program. Countercyclical Payments are made when prices fall below the fixed minimum price targets. Because payments are made when prices are low, these type of programs are often referred to as countercyclical programs. In other words, payments counter or offset low prices and disappear when prices are higher than the price targets. This is the default option, with farmers able to choose to enroll instead in the

Table 7. Comparison of Minimum Price Support in House Agriculture Committee Bill with 2012 Countercyclical Target Prices and Recent Average Market Prices

Crop	Unit	Counter-Cyclical Target Price, 2012	Price Loss Coverage (PLC) Fixed Price Support	Olympic Average Price, 2008-12 ^A
Barley	Bushel	\$2.63	\$4.95	\$5.14
Corn	Bushel	\$2.63	\$3.70	\$5.11
Cotton, Upland	Pound	\$0.724	\$0.6861 ^B	\$0.7847
Oats	Bushel	\$1.79	\$2.40	\$3.02
Peanuts	Pound	\$0.2475	\$0.27	\$0.245
Rice	Hundredweight	\$10.50	\$14.00	\$15.10
Sorghum	Bushel	\$2.63	\$3.95	\$4.75
Soybean	Bushel	\$6.00	\$8.40	\$11.21
Wheat	Bushel	\$4.17	\$5.50	\$6.59

NOTES: (A) Calculation assumes that the 2012 crop year price is the high price due to the current drought. This assumption means the Olympic average is its highest possible value. (B) This price is the minimum price in the upland cotton program.

Figure 7. Shares by Crop of US Countercyclical Payments, 2002/03 - 2010/11 Crop Years



SOURCE Original calculations using data from USDA, NASS, accessed March 2012

RLC as their support alternative for shallow and multiple-year losses. A minimum price is also included in the STAX upland cotton program of the House Committee Bill. The minimum prices in PLC and the House Committee STAX establish a fixed price floor for producers. Unless Congress intervened with new legislation, these price floors would remain in place over the length of the farm bill. The House Committee Bill also ties the countercyclical payments more closely to future production than under the 2002 and 2008 farm bills by allowing farms to update yields to the 2008-2012 period and in general basing payments on annual planted acres not fixed base acreages. In addition, under the House Committee Bill farms enrolled in PLC are eligible to sign up for the shallow loss SCO, while those enrolled in RLC are not.

Given the difficulty of predicting future prices and the lack of an automatic policy adjustment mechanism, fixed target price programs have often provided either no assistance or large, continuing assistance to certain crops. Since countercyclical programs were enacted in the *Farm Security and Rural Investment Act of 2002* (2002 Farm Bill), oats, soybeans, and wheat have received no counter-cyclical payments (see Figure 7). Conversely, cotton and peanuts received 50.4 percent and 6.5 percent, respectively, of all countercyclical payments, but accounted for only 7.0 percent and 0.6 percent of all base acres, respectively. Corn was the only crop that had a share of payments within ten percent of its share of base acres (36 percent vs. 33 percent). The number of years in which various crops received countercyclical payments has also differed. Between the 2002/03 and 2010/11 crop years, cotton and peanuts received payments in almost every year while corn, sorghum and barley received payments in only one fifth of the years.

For the nine crops that currently receive direct payments, the minimum prices in the House Agriculture Committee Farm Bill are higher than the countercyclical target prices for the 2012 crop year enacted in the 2008 Farm Bill (see Table 7). Reflecting some redress of past imbalances, the increase ranges from nine percent for peanuts and 32 percent for wheat

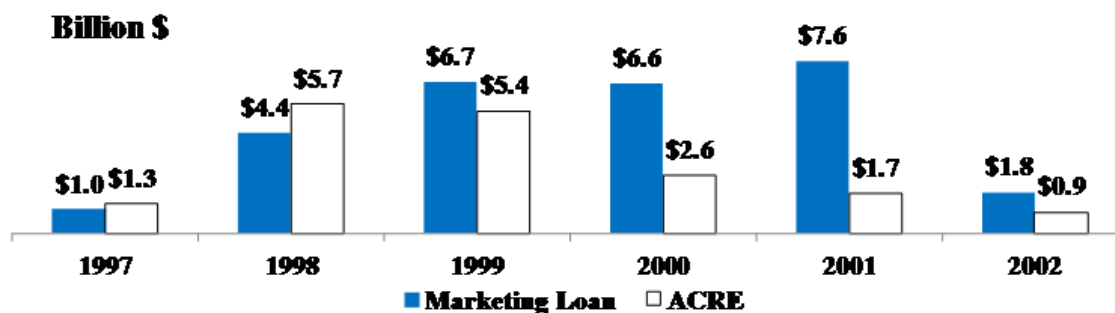
to 50 percent for sorghum and 88 percent for barley.

The ratio of the minimum price support in the House Committee Bill relative to the Olympic average of market prices for the 2008-2012 crop years also varies notably by crop (see Table 7). The ratio ranges from 72 percent for corn and 75 percent for soybeans to 96 percent for barley and 110 percent for peanuts. Thus, not only does the House Committee Bill raise the minimum price supports that currently exist differentially across crops, it also raised them differently relative to recent market values. These latter changes create the potential for the fixed price supports to distort the distribution of acres planted to US crops, even without a significant decline in price. The potential distortions increase in magnitude if prices decline.

In setting parameters for programs, Congress considers not only farm sector political considerations but also budget constraints. The expected cost of a program depends in part on the forecast of future market prices. As history has often demonstrated, predicting agricultural prices is difficult to do accurately. Moreover, the importance for budgetary purposes of Congress making accurate predictions increased when the 1996 Farm Bill eliminated acreage set asides. Acreage set asides could be used before 1996 to adjust the costs of farm programs on a year-to-year basis. In particular, if costs were higher than expected after a farm bill was enacted, set-aside could be increased to reduce supply and thus reduce the budgetary cost of the program, both in total and by individual crops.

Other determinants of a program's expected cost are its structure (such features as price versus revenue guarantees, fixed parameters versus parameters that move with market conditions and range of loss covered) and expected participation by farmers in the programs. Thus, evaluating the expected cost and cost variance across alternative programs requires complex economic forecasting simulations. We have not undertaken such simulations for the alternatives proposed in the Senate and House Committee farm bills. However, preliminary estimates of the relative expected cost of the proposed programs

Figure 8. Marketing Loan and Hypothetical ACRE Payments, 1997-2001



NOTES: ACRE revenue payments are original calculations using data from the USDA, NASS accessed on November 10, 2011. The crops included are barley, corn, upland cotton, oats, peanuts, rice, sorghum, soybeans, and wheat. The analysis assumes all acres of a crop are enrolled in the ACRE program and does not incorporate several features of ACRE that limit its cost, specifically an individual farm loss provision and a payment limit per beneficiary. Thus, the analysis most likely overstates payments by ACRE. The analysis also does not include ACRE's dryland-irrigated provision. Marketing loan payments are from the USDA, FSA accessed on November 14, 2011. They include loan deficiency payments, marketing loan write offs, and certificate gains.

over the ten fiscal years FY2013-FY2022 have been made by the CBO (2012a,b).

Given the known parameters of the program, assumptions about future prices and yields and their variances and covariances, and assumptions about the choices farmers will make between the program options in these bills, CBO estimated the expected cost of the Senate ARC at \$22.9 billion (\$28.5 billion of added cost less credit of \$5.6 billion for elimination of countercyclical payments and ACRE) and the House Committee PLC and RLC equivalently at \$18.9 billion. STAX expected costs are \$3.2 billion and \$3.8 billion, respectively. The SCO is scored as having an expected cost for within year losses of \$3.0 billion under the Senate Bill and \$4.0 billion under the House Committee Bill. These estimates are, of course, highly uncertain. Realized expenditures under any of these programs that are enacted will differ substantially from the CBO estimates. If market prices and revenue prove relatively higher than projected by CBO, expenditure will be less. If prices decline more than projected by CBO, expenditures will rise.

Market oriented targets, such as used by the Senate Farm Bill, can lead to high payments. In the CBO estimates, the expected cost of the ARC exceeds the expected cost of the House Committee PLC and RLC. However, if prices decline substantially and remain at lower levels

for a number of years, the payments under ARC eventually decline as the target follows the market lower. This is not the case for the PLC. We believe having the support parameters follow the market is a very important principle for limiting their distorting effects on production and trade.

Figure 8 illustrates the potential for the reduced impact of market-adjusted targets relative to fixed targets. It presents hypothetical payments estimated for the ACRE revenue program enacted in the 2008 Farm Bill had it been chosen by all eligible farmers with actual payments by the marketing loan program over the 1997 through 2002 crop years. ACRE uses a 5-year Olympic average of yield and 2-year average of price to calculate its revenue targets for a crop year. Thus, its revenue target moves with the market. During this period, price declined by 44 percent for corn (1995-1999), 40 percent for soybeans (1996-2001), and 45 percent for wheat (1995-1999). Estimated payments by ACRE were largest for the 1998 crop at \$5.7 billion, and then declined to \$1.7 billion for the 2001 crop. In contrast, actual marketing loan payments increased from \$4.4 billion in 1998 to \$7.5 billion in 2001. Over 1997-2002, marketing loan payments totaled \$28.1 billion while ACRE payments totaled \$17.6 billion. A comparison of ACRE payments to other fixed target programs over this period is available for corn, soybeans, and wheat in Zulauf and Orden (2010).

The advantages of flexible targets in making payments early in a downturn but then reducing payments to lessen distortions over time depends on Congress refraining from legislating additional interventions when a downturn persists. Additional congressional intervention happened in the late 1990s in response to a large decline in price and revenue. However, it can be even more difficult politically to change a fixed parameter program that is providing sizeable payments than it is to resist adding new payments. Lowering price support parameters has occurred historically at several times when existing farm policy became unsustainable, as we have described above. Yet, legislated adjustments are smaller, often much smaller, than desired by critics. For example, despite losing the WTO case on cotton, the US has made relatively small adjustments in its cotton marketing loan prices and countercyclical target prices. Had ACRE been the only support program for US cotton in place of marketing loans and countercyclical payments during the late 1990s and early 2000s, perhaps there would not have been need for a cotton dispute in the WTO.

In summary, the Senate Farm Bill and House Agriculture Committee Farm Bill take substantively different approaches to providing assis-

tance against the systemic risk of multiple-year declines in price and revenue. The Senate Bill provides temporary assistance using revenue targets that move with the market. In contrast, the House Bill provides as the default option fixed price targets that provide a floor under prices for the length of the farm bill. Assuming that Congress does not intervene in adjustments, these two approaches have substantively different implications for US and world producers. The multiple-year risk assistance program in the Senate Bill has been scored by CBO as having an expected cost exceeding that of the House Committee options. However, the Senate Bill, and the House Committee RLC option, would result in US farmers having to adjust to large declines in price and revenue. The fixed price targets in the House Committee Bill would continue the historic US policy of attempting to shield its producers from making adjustments to large declines in price. A secondary, but potentially important additional consideration is that fixed supports are likely to result in differential impacts across crops because of inaccurate forecasts of prices when establishing the fixed targets. This impact can further increase market distortions, especially since the US no longer has acreage set asides as an annual policy adjustment mechanism.

5. WTO AND INTERNATIONAL CONSIDERATIONS ABOUT US FARM ASSISTANCE POLICY

The preceding sections describe a process of evolution of US farm policy from programs that provide support tied to low prices toward programs that require revenue loss and from fixed price targets set by Congress to revenue targets that change with the market. These trends differ from the policy change path envisioned by the WTO Agreement on Agriculture. WTO disciplines on agricultural domestic support recognize a set of programs as green box agreed to have “no, or at most minimal trade-distorting effects or effects on production”, and a set of programs (often called the amber box) agreed to be trade distorting. Amber box subsidies are counted as product-specific or non-product-specific Aggregate Measurement of Support (AMS). By leaving no constraint on spending in the greenbox while imposing limits on AMS spending, the WTO implicitly encourages countries to move to greenbox programs.¹¹

The US preceded the EU in adopting fixed direct payments (in the 1996 Farm Bill) that it has argued qualify in the green box category of decoupled income support. But these payments have not grown. Instead, amber box programs that address yield and revenue risk have expanded. Moreover, US direct payments are eliminated in the Senate and House Committee farm bills. So the US policy path is not following the implicit WTO design of increased reliance on green box measures. In contrast, EU fixed direct payments now exceed 40 billion euro annually (see Orden, Blandford and Josling (2011) for a discussion of differences in US and EU policies relative to the WTO).

With US farm policy evolving in a direction counter to the implicit long-run objective of the WTO, critics will see the next farm bill as flouting commitments to limit agricultural domestic support outlined in the Doha negotiations through December 2008. What may be at stake is US leadership in pursuing freer trade and less support for agriculture worldwide. Other countries may feel little

motivation to limit their own support if the US adopts a new farm bill along the lines that seem likely.

Increased US spending on subsidies for insurance also has heightened scrutiny over how the US accounts for these programs in the WTO. The US has recognized that its crop insurance programs do not meet the criteria for classifying insurance programs in the green box. Instead, it has notified its insurance programs as non-product-specific AMS support even though almost all insurance contracts are written for a specific commodity, not for a whole farm. Through its 2007 notification, the US calculated its insurance subsidy as net indemnities paid to farmers less insurance premiums paid by farmers. Starting with an amended 2008 notification, the subsidy is now calculated as the public subsidy for insurance premiums. The new measure varies less from year-to-year, especially in years when large insurance indemnity payments are made. This technical measurement change could prove important in maintaining US compliance with its commitments in years of widespread, systemic weather disasters such as the severe drought of 2012. The change in measurement could be especially important if the US limit on bound AMS support is tightened or new WTO commitments such as a limit on overall trade-distorting support are reached through negotiations.

The cost of administering insurance contracts, which is provided by private agents reimbursed by the government, and government reinsurance, which is provided to the private insurance companies, were not reported to the WTO through 2007. Starting with 2008, they have been notified in the green box “General Services” category. Each of these costs averaged over \$1.6 billion annually in the 2008 and 2009 notifications. As a point of comparison, direct administrative costs of the Risk Management Agency were \$75 million annually.

As described above, net insurance payments have historically varied by crop both on a dollar per insured acre basis and as a share of gross income per acre. The observed variations reflect in part the agro-climate of a crop. Thus, the variation by crop is not likely to be explained by in-common random weather events but is inherently related to the riskiness of the climate in which the crop is grown. Hence, payments by the crop insurance program appear to be more consistent with a product-specific program than a non-product-specific program. In addition, as noted above, the history of crop insurance programs suggests that most US crop insurance contracts would not exist without government subsidies. This observation raises the question of whether government reinsurance provided to the private insurance companies is part of the farm subsidy. It is reasonable to hypothesize that government provided reinsurance likely results in lower premiums than if an equivalent amount of reinsurance had to be purchased in the private reinsurance market. While it is harder to argue that administrative costs of the insurance programs are crop specific because the administrative structure applies to all crops, inclusion of these costs in the green box might be questioned. Classifying subsidies to the private sector for delivery of crop insurance and reinsurance as general service expenditures stretches the WTO definition.¹² In short, current US classification of subsidies to its insurance program seems at least partially out of line with the payment outcomes of the program.

Payments under the existing ACRE program are tied to specific crop prices and yields. Thus, ACRE payments are notified in the product-

specific AMS category. Similarly, the new risk programs designed to complement existing individual farm crop insurance with payments proposed for shallow loss and multiple-year loss in the pending farm bill provide AMS support. Thus, they are likely to be classified as amber box, not green box support. Levels of these payments in adverse years might fit within the US binding of \$19.1 billion on AMS support exceeding *de minimis* levels under the Agreement on Agriculture. However, along with crop insurance, these programs could hit constraints under tighter or extended commitments, such as the reduced binding on AMS support of \$7.6 billion for the US under the 2008 Doha draft modalities, or the limits these modalities propose on Overall Trade-Distorting Support (\$14.5 billion for the US) or on product-specific AMSs. The pending US farm bill will make it harder than before for the US to negotiate over new limits on agricultural domestic support.

The WTO Agreement on Subsidies and Countervailing Measures (ASCM) also specifies that government subsidy programs may not significantly suppress world prices or otherwise significantly distort market conditions. If the set of US subsidies for a crop, including insurance, increases US production and thereby distorts trade or suppresses market prices, then other WTO members may have grounds to win a formal complaint. The market effects of US subsidies constituted a core complaint in the successful WTO challenge to US cotton subsidies. Crop insurance is increasingly vulnerable to potential challenge, given the size of subsidies for individual farm insurance and the potential addition of the SCO in the next farm bill.

6. SUMMARY AND CONCLUSIONS

The farm assistance policy of the US is evolutionary with well-defined historical trends. These trends are not fully consistent with the path envisioned in the WTO. It is easy for the rest of the world to chastise the US and easy for domestic farm groups to defend US farm assistance policy. This section attempts to balance these two perspectives.

Farm policy in the US is trending away from price-based programs with fixed targets and toward programs that require a revenue loss. Reflecting this evolutionary trend, individual farm crop insurance has emerged as the most important US farm program. The next farm bill appears likely to strengthen the role of individual farm crop insurance and to complement it with a new shallow loss program. Unless the policy environment changes dramatically, the main question about the shallow loss program is which of the alternative approaches will be chosen, or if Congress will give farms a choice between the approaches.

One approach is to cover a fixed range of loss that is specified in legislation. This approach is embodied in the ARC option in the Senate Bill and the RLC option in the House Agriculture Committee Bill. The second shallow loss approach is used by the SCO and the STAX. The second approach allows farms to buy a modified county insurance product to cover county-wide losses that are between the deductible loss elected for individual farm coverage and 10 percent.

A program to address multiple-year declines in either price or revenue will also likely be included in the next US farm bill, but at present it is less clear how this program will be structured. The Senate Farm Bill and House Committee Farm Bill differ substantively in their approach to multiple-year declines. The Senate Bill uses revenue targets that adjust with the market while the primary option in the House Bill uses price targets that are fixed. The different alternatives to address multiple-year risk affect the expected distribution of

payments among the supported crops. Thus, while US policy is trending toward targets that move with the market, strong support remains among some US farm groups and policy makers for fixed targets.

How this design issue is resolved will have important implications for trade distortions. In the absence of congressional intervention, market adjusted targets will adjust downward when prices decline, especially if the decline is sustained over multiple years and is large in magnitude. In contrast, fixed targets can result in farms not needing to adjust to lower prices. This situation has been common for US farmers in the past, implying that farmers in other countries may have to adjust even more to lower prices. In short, under a low price scenario, market adjusted targets will distort production incentives and international trade less than fixed targets.

In contrast, under stable prices and assuming prices are above the fixed targets, market adjusted targets are likely to result in more payments than a fixed target program. In particular, the market adjusted targets can move higher if prices or revenue increase. In addition, they are more likely to make payments for short term declines in prices or revenue. Thus, under scenarios of stable or higher prices, market adjusted targets are likely to make more payments and thus potentially distort trade more than fixed targets.

Elimination of fixed direct payments and the increased reliance on risk management programs to assist farmers in the Senate and House Committee farm bills moves the US away from green box and toward amber box measures. Together with the changed manner in which crop insurance subsidies have been notified, these movements will exacerbate concerns by its trade partners that the US often skirts the WTO rules. Under cost expectations of the CBO, the US will lower its total support under the pending farm bill compared to continuation of the 2008 Farm Bill. However, higher amber

box expenditures could hit constraints if WTO limits were tightened beyond those under the Agreement on Agriculture. The pending USfarm bill thus will make it harder for tighter constraints to be negotiated.

There are also considerations about efficacy of the WTO rules that arise from the evolution of US policy and the pending USfarm bill. Currently, the WTO does not distinguish between fixed target and market adjusted targets. It might be useful for WTO members to address this issue. During the last 100 years, concern over low farm prices has existed in more years than has concern over high farm prices. Consequently, the international community has been more concerned with countries using farm programs to protect their farms from needing to adjust to lower prices. If the concern over low prices remains the predominant concern going forward, then market adjusted targets will likely distort trade less than fixed targets.

The current WTO classification criteria for the green box and AMS also do not draw a distinction between systemic and idiosyncratic risk. This is a major shortcoming. The green box includes, and proscribes disciplines on, various policies with a social or economic justification that can be balanced against any impacts the policies have on trade. Examples include expenditures on research that raise productivity or subsidies that offset the cost of addressing environmental externalities. Thus, the green box includes programs that can materially impact production and trade, but this impact has to be justified by other policy considerations that improve the welfare of society.

It is difficult to make an economic-based argument for public assistance for idiosyncratic risk, or risk that is specific to an individual farm. Private insurance can handle this risk, especially once yield data exists for individual farms and fields. Thus, at most, temporary public assistance may be needed to help develop the data set for private insurance for idiosyncratic risk.

Systemic risk might be a rationale for more permanent publically subsidized insurance due to an incomplete market argument. While disagreements exist over the currently available evidence, it is reasonable at present to treat systemic risk as a rationale for publically subsidized insurance. But, justification of public subsidies for systemic risk does not justify providing public subsidies for all risk. Evidence presented in this paper, while expository, suggests that current US crop insurance is over subsidized from the perspective of systemic risk coverage.

The issue of systemic versus idiosyncratic risk raises a question for the WTO concerning how large of a subsidy for insurance is justified, if any. The current WTO criteria that risk management programs may fit in the green box if they are limited to covering losses greater than 30 percent has little grounds in economics, other than that farmers bear some of the risk. Thus, if WTO members were to reconsider its green box criteria, it would be important to consider rules that allow an appropriate level of subsidies related to systemic risk while effectively precluding coverage of idiosyncratic risk that the private market can provide. At a minimum, as crop insurance grows in importance among US support programs and possibly elsewhere these issues merit discussion at the international level.

To conclude, the US is often portrayed as attempting to circumvent the intent if not the actual limits of its WTO obligations by finding new, creative ways to subsidize farms and notify that support. An alternative view is that the evolution of US farm policy and by extension the debate over the next US farm bill illuminates important policy issues that the WTO has not fully considered in its classification of farm assistance programs. This paper suggests that a balance should exist between these two views. The balance rests on an assessment of the pending US farm bill, placing the issues it raises in context, and making some suggestions about issues that the WTO has not fully considered.

ENDNOTES

- 1 For historical discussions of US policy see US Department of Agriculture (USDA), Economic Research Service (ERS), December 1984; Robinson, 1989; Tweeten, 1989; and Orden, Paarlberg and Roe, 1999.
- 2 Table 1 begins with FY1961 because of a lack of consistent data prior to this year.
- 3 Even though insurance payments exceed farm-paid insurance premiums for all US farms, insurance payments do not exceed premiums paid for each US farm that purchased crop insurance. An individual farm does not receive an insurance payment unless it experiences a loss greater than its deductible.
- 4 Tangermann (2011) makes a similar point. He divides risk into three categories. His “catastrophic risks” which “can be considered the market failure level” corresponds most closely to what we describe as systemic risk. Tangermann, following OECD analysis, articulates three principles for risk management programs with which we generally agree: 1) that public policy should leave as much space as possible for private risk management activities (in particular, government programs should not absorb risks that farmers can manage themselves); 2) that a holistic approach should be taken to evaluating the efficacy of insurance programs within the full complex of farm support policies; and 3) that the distinction should be clear between providing risk management assistance versus providing support more generally. Tangermann concludes that “it is highly questionable whether subsidies to crop insurance are really appropriate” especially in the context of large direct income transfers as occur in the EU. The pending US farm bill encompasses a shift from direct income support to revenue insurance. This will intensify a debate over EU versus US forms of support and their effects on domestic producers and world markets.
- 5 In related studies, Wu (1999) also found an effect on crop mix. Horowitz and Lichtenberg (1993), Babcock and Hennessey (1996), Smith and Goodwin (1996), and Wu (1999) found that crop insurance altered the use of some farm inputs. Using simulation, LaFrance, Shimshack and Wu (2002) concluded that land use was unchanged only when insurance was unsubsidized and that subsidized insurance increased acres in crop production, especially less productive and more environmentally sensitive marginal land.
- 6 Due to data constraints, yields are per planted acre for the farm but per harvested acre for the county, state, and US. The use of both planted and harvested yields should not substantially affect the results since the change in yield during the insurance period is calculated using a consistent acreage measure for each entity in the analysis.
- 7 These two loss ranges exceed the typical deductible on individual farm insurance. According to data from the RMA for the 2011 crop year, only about 25 percent of insured acres had a coverage level greater than 75 percent.
- 8 SCO and STAX can be purchased with either farm or county traditional coverage. The existing county insurance products are designed to serve as an alternative to individual farm insurance but few farms utilize these county instruments. The existing county insurance covers all losses for the county greater than a level elected by the farm. The highest coverage level that can be elected is 90 percent, in which case all county losses greater than 10 percent would generate an insurance indemnity payment. Premium subsidy for county insurance ranges between 44 percent and 59 percent. In addition, a multiplier of 1.5 is used to calculate indemnities. In comparison, SCO county insurance would cover county losses up to between 10 percent and the farm’s insurance deductible. Thus, it does not

cover all losses at the county level. It is a truncated county insurance product and there is no multiplier.

- 9 Specifically, when loss at the individual farm level for a crop is calculated (using equation 1 above), average loss and variability of loss are notably greater for corn, soybeans, and wheat in Kansas than in Illinois (see Table 6). The different loss profiles reflect agro-climatic conditions. In particular, Kansas is subject to more weather and crop stress than Illinois. Over 70 percent of all losses incurred by Illinois farms for corn and soybeans are associated with losses that were less than 15 percent on the individual farm. In contrast, for Kansas soybeans and wheat, losses on individual farms of 15 percent or less accounted for only 43 percent to 45 percent of all losses.
- 10 To illustrate overcompensation under these differences, assume only price variability exists and, for specificity, that ARC has an Olympic average price of \$5.25 while crop insurance has a price of \$6.00 and the farm buys 75 percent individual insurance. In this situation, ARC makes payments when price is between \$4.15 (79 percent of \$5.25) and \$4.67 (89 percent of \$5.25) while insurance makes payments when price is less than \$4.50 (75 percent of \$6). Thus, both programs make payments when price is between \$4.15 and \$4.50. Of course, there are many scenarios when no overcompensation occurs.
- 11 See Melendez-Ortiz, Bellmann, and Hepburn (2009) for in-depth discussion of issues related to the green box.
- 12 In addition to meeting the general greenbox requirements, the WTO criteria for general services preclude “direct payments to producers or processors”. Were that description to also preclude payments to input suppliers it would be more evident that payments to insurance providers were excluded.

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ANNEX

Table 1a. Comparison of Selected Farm Assistance Proposals, as of February 1, 2012

Characteristic	ADAP (Corn Growers)	ARRM (Brown/Thune/Durbin/Lugar)	RMAF ^a (American Soybean)	CRGP (Conrad/Baucus/Hoeven)	STAX (for cotton only) (National Cotton Council)
Programs Eliminated	direct payment, counter-cyclical, ACRE, SURE	direct payment, counter-cyclical, ACRE, SURE for ARRM eligible crops	direct payment, counter-cyclical, ACRE, SURE	direct payment, ACRE, SURE but extends SURE to 2012 crops	direct payment, counter-cyclical, ACRE
Program Level	CRD	CRD	farm	farm	county
Revenue Program	yes	yes	yes	yes	yes
Yield Type for Benchmark	CRD yield; farm yield for farm loss condition	CRD yield; farm yield for farm loss condition	MAX [APH or 5-year OMA APH or 80% county yield]	MAX [APH or 5-year OMA APH or counter-cyclical yield]	expected county yield
Price Type for Benchmark	crop insurance harvest price	insurance harvest price (if not available, average of 1st 5-months of crop year)	5-year OMA of US crop year cash price	MAX [2012 target price or 5-year OMA crop year price]	MAX [insurance plant price or fixed reference price]
Price Type for Realized Revenue	crop insurance harvest price	same price type used for benchmark	1 st 4 months of US crop year cash price	MAX [1st 4 months of US crop year cash price or loan rate]	insurance harvest price
Range of Loss Covered	5% to 15%	10% to 25%	dryland: 10% to 25%; irrigated: 5% to 20%	12% to 25%	farm elects to enter program; non-specified MAX loss exist
Payment Factor	100%	85%	85%	65% on planted acres 45% on prevent planted acres	100%

Table 1a. Continued

Characteristic	ADAP (Corn Growers)	ARRM (Brown/Thune/Durbin/Lugar)	RMAF ^a (American Soybean)	CRGP (Conrad/Baucus/Hoeven)	STAX (for cotton only) (National Cotton Council)
Note on Program	benchmark = 5-year OMA of revenue computed for year	benchmark = 5-year OMA of revenue computed for year (10% cap & cap); elected annually	Payment factor could be reduced to make budget; calculation of payment includes net insurance payout	requires CAT/NAP; payment acres equal 90% of eligible acres but capped at total base acres; payment adjusted for other safety net payments and quality loss; farms can add county to farm coverage	insurance not required for STAX; farm co-pay possible
Program Payment Limit	does not discuss	\$65,000; 2008 Farm Bill AGI	maybe; 2008 Farm Bill AGI	\$105,000; single non-farm and AGI limit of \$999,000	not discussed
Marketing Loan	continue	continue	continue	continue	loan rate tied to 2-year average price but within \$0.47-\$0.52

Table 1b. Comparison of Selected Farm Assistance Proposals, as of February 1, 2012

ISRRP (American Farm Bureau)	FFSN (crop insurance company)	CROP (Neugebauer)	Administration (Obama)	FOR (National Farmers Union)
<p><u>Programs Eliminated:</u> direct payments, counter-cyclical, ACRE, catastrophic (CAT) insurance (does not mention SURE)</p> <p><u>Program Description</u></p> <ul style="list-style-type: none"> ▶ proposes a county revenue insurance program for county losses greater than 20% to 30% (in other words, a systemic loss program is proposed) ▶ Uses a 3 or 5 year moving average of US price to set the county benchmark ▶ administrative fee is charged ▶ envisions private insurance contracts designed to wrap around the county product ▶ uses planted acres ▶ program delivered through Risk Management Agency ▶ retains marketing loan program 	<p><u>Programs Eliminated:</u> direct payments, marketing loan benefits, counter-cyclical, SURE; maybe ACRE</p> <p><u>Program Description</u></p> <ul style="list-style-type: none"> ▶ program level is the farm ▶ crop insurance is the only farm assistance program ▶ to protect against multiple-year losses, minimum price is added to insurance equal to 80% of 5-year average of insurance plant price ▶ in computing APH, excludes some low-yield years if certain conditions are met ▶ to address shallow loss, adds 5 percentage points to coverage (e.g., 75% becomes 80%) ▶ limits farm-paid premiums to 15% of total dollars of enterpriseB coverage 	<p><u>Programs Eliminated:</u> None</p> <p><u>Program Description</u></p> <ul style="list-style-type: none"> ▶ allows producers to supplement individual insurance coverage with additional coverage via a county insurance product to cover shallow losses ▶ changes APH calculation from a 10-year average to a 7-year OMA. 	<p><u>Programs Eliminated:</u> direct payments</p> <p><u>Program Description</u></p> <ul style="list-style-type: none"> ▶ reduces spending over 10 years on farm assistance programs by \$30 billion, on conservation programs by \$2 billion, and on crop insurance by \$8 billion 	<p><u>Programs Eliminated:</u> direct payments, marketing loan benefits, counter-cyclical, SURE; ACRE</p> <p><u>Program Description</u></p> <ul style="list-style-type: none"> ▶ allows producers to put their crop into the crop's farmer owned reserve (FOR) when market price is below the crop's loan rate. ▶ producers paid a \$0.40/unit/year FOR storage fee ▶ Loan rates are pegged to the corn loan rate and are adjusted for changes in the chemical input price index. ▶ when FOR reaches its cap, a voluntary paid land set-aside is triggered; producers can bid acres into the set-aside program based on their whole-farm acres (not crop-by-crop acres)

NOTES: A. RMAF proposes (1) the same percent budget cut be used for conservation and farm programs, (2) crop insurance not be cut, and (3) Conservation Reserve Program acre cap be reduced. B. All acres of a crop in a county.

Key to Programs Acronyms: ADAP (Agriculture Disaster Assistance Program), ADMIN (Administration), ARRM (Aggregate Risk and Revenue Management), CRGP (Crop Revenue Guarantee Program), CROP (Crop Risk Options Plan), FFSN (Farm Financial Safety Net), FOR (Farmer-Owned Reserves), RMAF (Risk Management for America's Farmers), SRRP (Systemic Risk Reduction Program), and STAX (Stacked Income Protection Plan).

Key to Other Acronyms: AGI = aggregate gross income payment limit; APH = crop insurance average production history yield; CAT = catastrophic crop insurance product; CRD = crop reporting district; OMA = Olympic moving average (removes high and low value); NAP = noninsured crop disaster assistance program

SOURCE: Shields and Schnepf, 2011, supplemented by conversations with the proposals authors, and documents publicly released by the proposals' authors.

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