DIVISION OF AGRICULTURE
RESEARCH & EXTENSION
University of Arkansas System

Agriculture and Natural Resources

FSA74

Why Does the Federal Government Subsidize Crop Insurance?

Hunter D. Biram
Assistant Professor -
Agricultural Economics
and Agribusiness

Overview

This fact sheet continues to expound on the reasons the U.S. crop insurance program provides a subsidy for premiums paid by farmers. It focuses on five primary reasons Coble and Barnett (2013) argue crop insurance premiums are subsidized. First, the premium subsidy was introduced to incentivize more participation as charging a premium for risk coverage was difficult after years of providing coverage at a cost. Second, subsidies were introduced as an attempt to reduce ex post disaster assistance in programs which provided potentially less efficient risk protection as crop insurance. Third, farm organizations involved in the policymaking process have only become more interested in this program to support stakeholders and maintain benefits over time. Fourth, through increased participation, the loss history had an opportunity to increase, providing a way to better satisfy an important condition of an ideally insurable risk: having a large number of exposure units. Fifth, crop losses violate the independence of risks assumption with losses spanning a large area, sometimes multiple counties or entire states. The fact sheet concludes with a discussion of U.S. crop insurance premium subsidy rates faced by farmers today.

Increasing Participation

Crop insurance was first introduced as a federally sponsored program in 1938 (Biram and Coble, 2023). However, the amount of insurance purchased was little to none until the Federal Crop Insurance Act of 1980 (FCIA) when the first premium subsidy was introduced. This lack of participation leading up to the FCIA can be shown in Figure 1 which highlights the total dollar amount of liability across all crops in the U.S. While the subsidy per dollar of liability increased sharply, participation increased at a relatively slow rate and remained lower than was desired by supporters of the program (Coble and Barnett, 2013). In response, there were two more increases in the subsidy rate under the Federal Crop Insurance Reform Act of 1994 (FCIRA) and the Agricultural Risk Protection Act of 2000 (ARPA). Crop insurance liability nearly tripled as a result of these subsidy rate changes, increasing from $13.6 billion in liability in 1994 to $36.7 billion in 2001. See Figure 2 for a visual summary of the changes to the crop insurance premium subsidy rate for the U.S. Department of Agriculture Risk Management Agency (USDA-RMA) products since 1965.

[1]Liability is noted as total dollar amount of crop insurance coverage.

Arkansas Is Our Campus

Visit our website at:
http://www.uaex.uada.edu

Reducing Ex Post Disaster Assistance

In 2006 and 2007, the U.S. saw widespread drought (NOAA-NCEI). There were two avenues to consider in terms of providing financial assistance to farmers: ex post disaster assistance and incentivizing participation in crop insurance. While there was one ex post disaster program introduced in the 2008 farm bill, it had strict enrollment requirements and the conditions for receiving a payment were so specific it was considered an ineffective program. Rather than continuing to provide ex post disaster assistance programs, there was a push to increase participation in individual crop insurance plans by increasing the premium subsidy rates for the more longstanding crop insurance programs (i.e., Yield and Revenue Protection). Ex post in this context means creating a support program motivated by the fact that there have been a sufficient number of disasters to justify a program which only provides financial support when a disaster has been declared by the Secretary of Agriculture, or farm-level losses greater than 50% are incurred. Notably, there has been an observed correlation between the shifting away from ex post disaster assistance, increasing the premium subsidy rate, and a shifting toward crop insurance (Coble and Barnett, 2013).

Increased Stakeholder Support

With increased participation from farmers across the country came increased interest from general farm organizations and commodity interest groups. The initial increases of the premium subsidy rate in 1980 and 1994 successfully influenced the adoption of more crop insurance participation which led to more interest in how the products were designed and how affordable the products should be for the members represented by agricultural policy advocacy groups. Therefore, changes after the initial increases of the premium subsidy rate were influenced by general farm interest groups and will likely be influenced by these same groups in future legislation.

Figure 1. U.S. Crop Insurance Participation Measured by Total Liability and Subsidy per dollar of Liability Across All Program Crops (1948-2022) *Source: USDA-RMA Summary of Business (2023)*

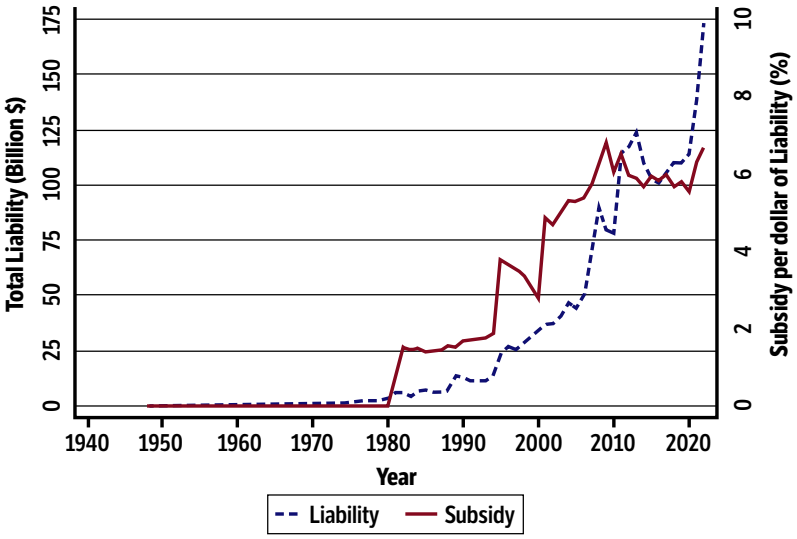
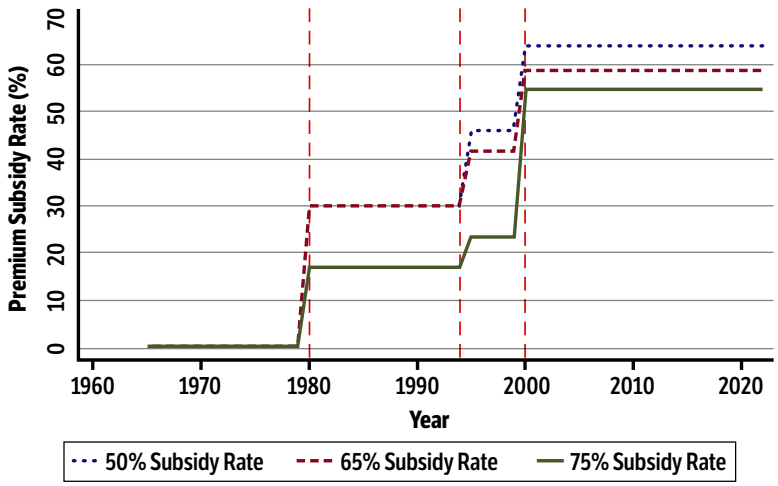


Figure 2. U.S. Crop Insurance Premium Subsidy Rates for the Basic and Optional Unit Structures (1965-2022) *Source: FCIA (1980), FCIRA (1994), ARPA (2000), Glauber (2004), FCEA (2008), Agricultural Act of 2014*



Increasing Exposure Units

One important condition of an insurable risk is having a large number of exposure units (Rejda and McNamara, 2017). In practice, it

[2] The Supplemental Revenue Assistance program (SURE), introduced under the Food, Conservation, and Energy Act of 2008 (i.e., 2008 farm bill), is one example of an ex post disaster assistance program. Notably, the SURE program was quite difficult to enroll in and to trigger a payment from which was another avenue to disincentivizing ex post disaster assistance programs.

is nearly impossible to assign an accurate risk profile with only one observation. Having more exposure units, or having longer insurance loss histories, tends to result in a more accurate representation of the true risk profile of a typical insured unit. The unit could be a car or house, and the unit could be a soybean or rice field. As more farmers enroll in products offered by the U.S. crop insurance program, the number of exposure units increases as there are now more observed outcomes which help to refine the appropriate risk profile for a given crop unit. This is another argument for providing premium subsidies since we have seen large increases in liability associated with large increases in the premium subsidy rate (see Figures 1 and 2).

Actuarial Impact of Widespread Losses

Another important condition of an insurable risk is the risk must not violate what is known as the independence of risks assumption. In essence, independence of risks means that losses across insurable units must not have any statistical relationship between them (i.e., insurable units must have zero correlation). Consider an insurance company insuring a car. When the company sells one policy to insure a car, they rest on the assumption that in the case of a car accident (i.e., the risk of losing a car), only one or two vehicles will be involved and hence will only cost the insurance company the indemnity paid to only a few cars per accident. The independence of risk assumption is violated when there is a high chance all the cars across a large region, be it a county or state, will be in the accident at the same time.

In the context of agriculture, this assumption is largely violated since the losses across counties, and occasionally states, tend to have a high degree of correlation driven by state and regional weather patterns. Unlike the car example in which there is essentially zero correlation across car accidents, there is a greater degree of all the fields of a given crop in a region facing losses at the same time. Because of this, there is a risk on the part of the insurer that there will not be enough premiums collected to satisfy the indemnities to be paid out. This is one primary motivation for the Federal Crop Insurance Corporation (FCIC) providing reinsurance, administrative, and operating expenses to Approved Insurance Providers (AIPs).

Premium Subsidy Rates Today

Crop insurance premium subsidy rates can be thought of as a government cost-share program. Crop insurance is not a zero-cost payment program where a producer receives financial support without paying for any of the protection like the Direct Payment program introduced in the 2008 farm bill. The FCIC will pay AIPs a portion of the actuarially fair premium (AFP), and the farmer will pay the other portion of the AFP. The amount of premium paid by both the FCIC and the farmer will vary by product, coverage level, and insurable unit structure. Generally, higher coverage levels will face a lower premium subsidy rate since there is a greater chance of a farmer receiving an indemnity at higher coverage levels. Crop insurance products with individual farm yield triggers will face a lower subsidy rate than those with area, or county, yield triggers. Lastly, insurable units which do not face a high level of risk aggregation (i.e., Basic and Optional Units) will face a lower subsidy rate than those with higher levels of aggregation (i.e., Enterprise Units). For a list of premium subsidy rates across popular crop insurance products see Table 1.

Table 1. Subsidy Rates for Crop Insurance Products Administered by USDA-RMA

Coverage Level	Basic & Optional Units	Enterprise Units	SCO	ECO-RP	STAX	Margin Protection
50%	67%	80%	65%			
55%	64%	80%	65%			
60%	64%	80%	65%			
65%	59%	80%	65%			
70%	59%	80%	65%			59%
75%	55%	77%	65%		80%	55%
80%	48%	68%	65%		80%	55%
85%	38%	53%	65%		80%	49%
90%				44%	80%	44%
95%				44%		44%

The percentages shown here indicate the portion of premium paid for by the government

[3] Importantly, there is no subsidy included in the rating of the AFP in U.S. crop insurance.

What is important to note here is that there are two components to the producer paid premium: the AFP and the premium subsidy rate. The AFP is the premium rate which is calculated to result in the same amount of dollars paid in (i.e., premiums) as there are dollars paid out to farmers (i.e., indemnities). In other words, under the AFP, the premiums paid by producers are to equal the indemnities paid to producers. For example, each of the coverage levels provided in Table 1 have their own AFP, and in some cases, have their own premium subsidy rate. Premium rates will be explained further in a subsequent fact sheet.

References

Biram, H.D. & Coble, K. H. (2023). A Brief History of Crop Insurance. *University of Arkansas System Division of Agriculture, Cooperative Extension Service Fact Sheet No. FSA70*. (Link)

Coble, K. H., & Barnett, B. J. (2013). Why do we subsidize crop insurance?. *American Journal of Agricultural Economics, 95*(2), 498-504.

National Oceanic and Atmospheric Administration, National Centers for Environmental Information (NOAA-NCEI). "Annual 2006 Drought Report." *Annual 2006 Drought Report | National Centers for Environmental Information (NCEI)*, LINK. Accessed 27 June 2023.

Rejda, G. E., M. J. McNamara, and W. R. Rabel. "Principles of Risk Management and Insurance, Hoboken." (2017).

Printed by University of Arkansas Cooperative Extension Service Printing Services.

HUNTER D. BIRAM is an assistant professor in agricultural economics and agricultural business with the University of Arkansas System Division of Agriculture Cooperative Extension, Little Rock.

FSA74-PD-08-2023N