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You are here: [Home](#) / [Amber Waves](#) / [2014 - October](#) / [The Importance of Federal Crop Insurance Premium Subsidies](#)

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Feature: [Crops](#)

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The Importance of Federal Crop Insurance Premium Subsidies

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Enrollment in Crop Insurance Grows as Premium Subsidies Increase

Federal Crop Insurance (FCI) began with the Federal Crop Insurance Act of 1938 and was passed when producers faced low farm income due to both the Great Depression and the Dust Bowl. However, enrollment and use of crop insurance remained low as producers used other tools to manage risk. It was not until 1980, when the Government re-appraised its involvement with crop insurance, that adoption of FCI policies began to grow—this

growth has generally been attributed to the increase in premium subsidies.

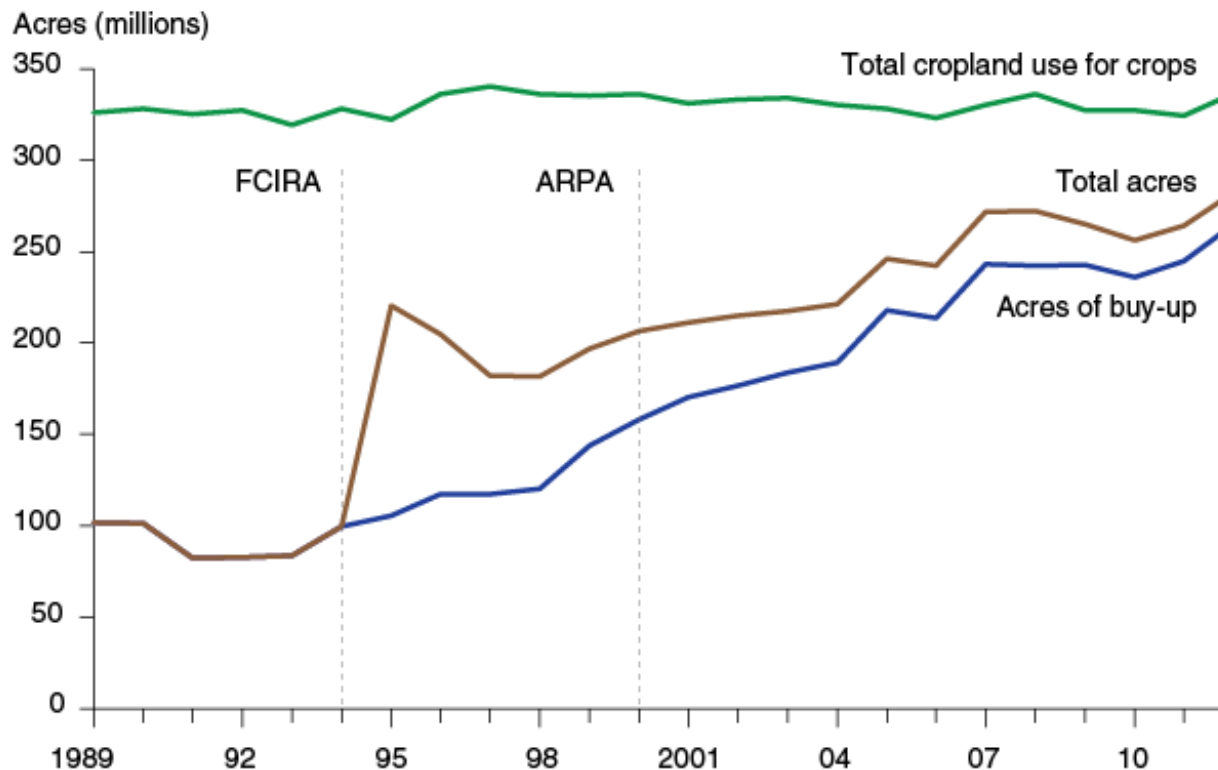
In 1980, the Government expanded FCI to include coverage for more crops and areas and introduced premium subsidies. However, despite these efforts, fewer than 100 million acres were enrolled in the program by 1994, even though farmers sustained large losses during this time. Consequently, Congress passed the Federal Crop Insurance Reform Act (FCIRA) in 1994, which increased premium subsidies and required producers to obtain coverage in order to receive support from other Government programs.

When FCIRA went into effect, participation in FCI immediately jumped—enrolled acres doubled from roughly 100 million acres in 1994 to more than 220 million acres in 1995. Producers enrolled the majority of these new acres under a fully subsidized new policy called Catastrophic Risk Protection Endorsement (CAT) which provides low level coverage. In 1995, fewer than 48 percent of all acres were enrolled in buy-up policies (those policies that are not fully subsidized by the Government because they have coverage levels above CAT).

Highlights:

- Given the increased reliance on and producers' adoption of FCI, crop insurance subsidies have outpaced ad hoc disaster assistance payments since 2003.
- ERS research suggests that the increased premium subsidies introduced through the 2000 Agricultural Risk Protection Act did not appear to draw new acreage into the FCI program, but did appear to induce farmers to select higher levels of coverage.
- Results suggest that subsidy increases would likely encourage greater use of the FCI program, but at a relatively high cost since premium subsidy changes would affect the price of crop insurance for all producers, including those already enrolled. For example, for producers in Linn County, IA, a 5-percent rate increase would cause a 10-percent increase in demand but a 21-percent increase in program costs.

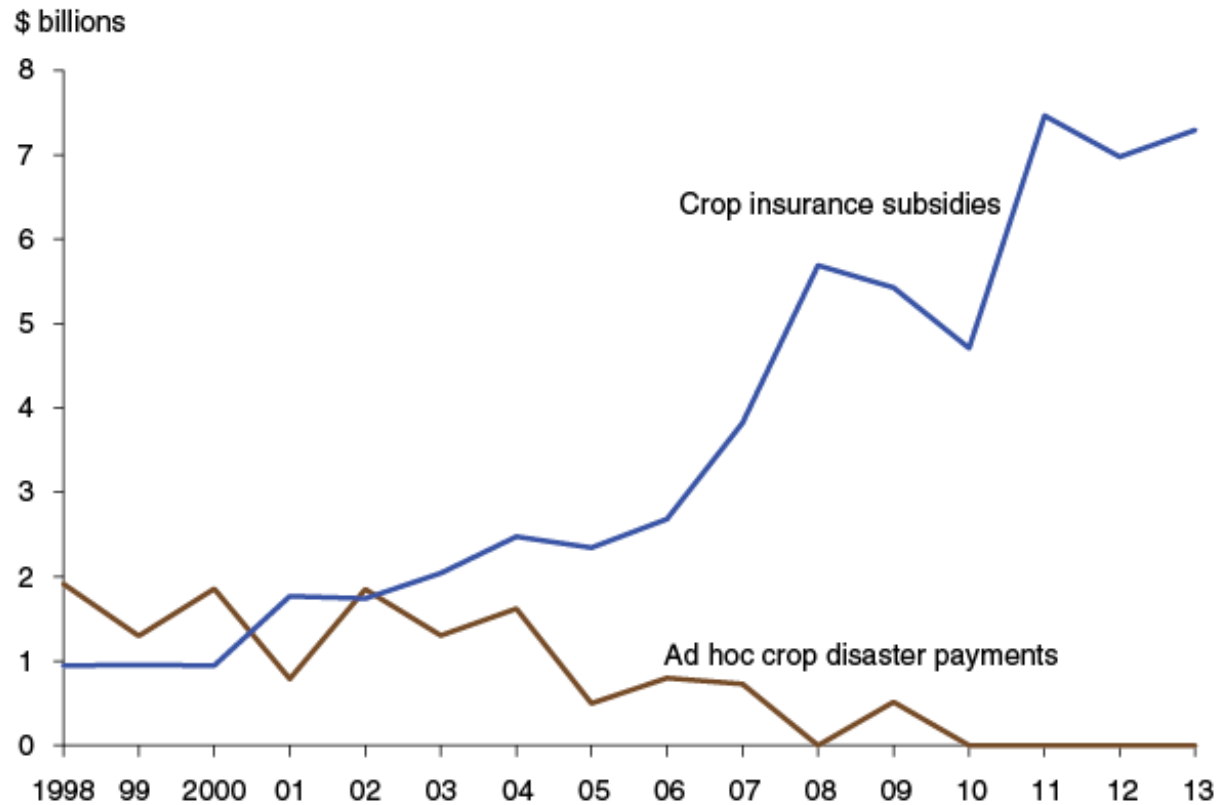
Crop insurance participation grows



Note: FCIRA stands for the Federal Crop Insurance Reform Act, ARPA stands for the Agricultural Risk Protection Act, and buy-up refers to policies that are not fully subsidized by the Government because they have coverage levels above the Catastrophic Risk Protection Endorsement program.
Source: USDA, Economic Research Service and USDA, Risk Management Agency, Summary of Business 1989-2012.

Despite the availability of crop insurance for producers, Congress also passed several ad hoc disaster assistance bills starting in the late 1990s. These payments provided support to producers beyond what was then available in the current Farm Act. These bills proved costly, and policymakers continued to make crop insurance more attractive.

Ad hoc crop disaster payments compared with crop insurance subsidies



Source: Risk Management Agency, Summary of Business, 1998-2013 - combined business; Economic Research Service, Crop year ad hoc disaster program payments as notified to World Trade Organization 1998-2011; OECD Producer and Consumer Support Estimates database, Crop year ad hoc disaster program payments 2012-2013 - all in nominal dollars.

In 2000, Congress passed the Agricultural Risk Protection Act (ARPA) which introduced further premium subsidies—particularly at the higher levels of coverage. By 2002, total acres enrolled had jumped to 215 million, with nearly 85 percent covered by buy-up policies. In 2012, Congress did not provide any ad hoc disaster assistance despite the major drought that hit the United States that year.

Early enrollment difficulties associated with FCI—combined with its surge in growth after the introduction of various subsidies—led researchers to theorize that significant demand for crop insurance products depends upon the existence of subsidies.

Premium subsidies' effect on demand

Premium subsidies alter the price of crop insurance; consequently, they are likely to affect the demand for crop insurance. The magnitude of the change in demand may depend on the type of crop being grown and the location of the producers. ERS research explores how the 2000 ARPA legislation affected the demand for crop insurance for corn, soybean, and wheat producers in different regions in the United States.

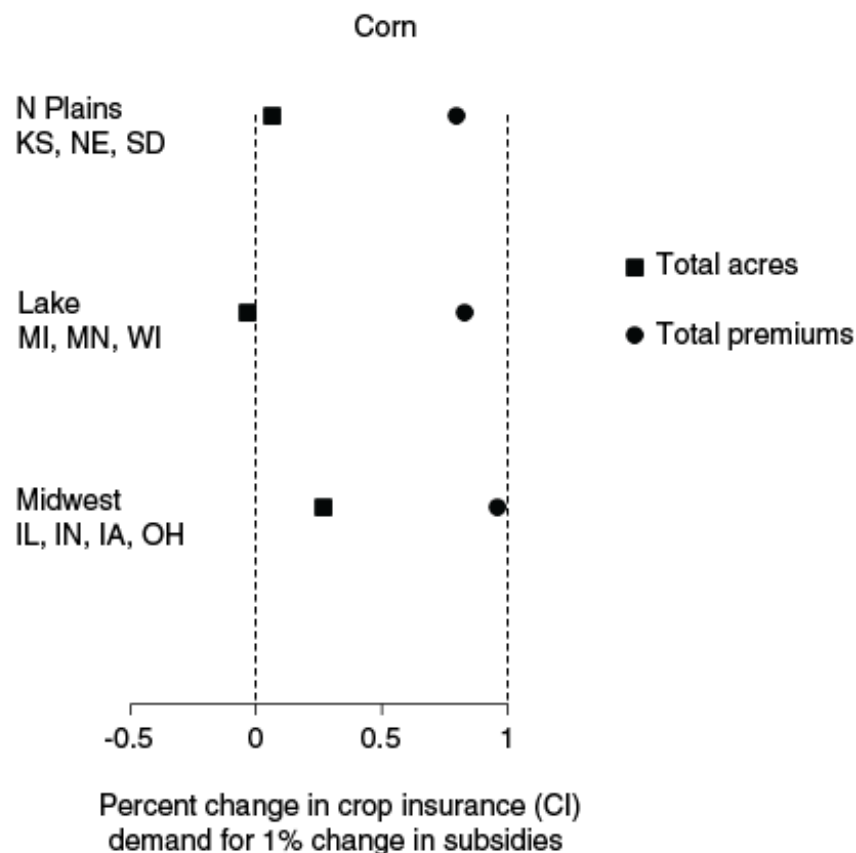
ERS researchers used multiple measures of demand to explore the impacts that premium subsidies may have had on participation in FCI. Two of the measures were based on the number of acres insured—however, insured acreage cannot capture the intensity of use of crop insurance. For example, an acre insured under an 85-percent revenue insurance policy would be treated the same as an acre insured under a 50-percent yield insurance policy, despite the fact that the revenue policy provides a much greater degree of coverage. Furthermore, because the acre measures only capture the number of acres enrolled and not land quality, an acre of marginal land (characterized by lower yields and a higher probability of losses) would count the same as an acre of very productive land (with higher yields and a lower probability of crop losses). Both would simply count as an acre enrolled, even though each may have very different probabilities of generating losses and therefore may cost different amounts to insure. While understanding acre enrollment decisions are important, other measures were also employed to capture whether producers used the program more intensely (for example, by increasing the coverage level of the policy) when subsidies increased, including the total premium.

Congress legislated that, in the long run, total premiums (the cost to the producer) should cover total indemnities (the cost to the insurance provider). This means that if producers paid the total premiums into FCI, if priced correctly, that amount would cover the cost of all the indemnities that would need to be paid out to producers to cover crop losses. To achieve this outcome, the price of each policy would, on average, have to cover the risk of losses for that policy. For example, for any given coverage level, a yield-based policy would be cheaper than a revenue-based policy since it is more likely that a producer covered by a revenue policy would sustain losses that would qualify them for an indemnity payment (since they are covering both price and yield risk as opposed to just yield risk). When priced correctly, the total insurance premium would reflect the amount of risk being covered.

Using the acreage and total premium (an intensity of use measure) together, ERS was able to explore how FCI is used and how demand shifts with changes in the price of crop insurance. For example, if total acreage remained constant while total premiums increased, the results would suggest that producers used the program more intensely (i.e., elect higher levels of coverage) on the land that was already enrolled. If total acres increased while total premiums remained constant, then results would suggest that new land was being drawn into FCI due to the lower costs to the producers. Results suggest that producers responded by increasing their levels

of coverage while maintaining roughly the same number of acres enrolled in crop insurance.

Crop insurance subsidies affect total premiums more than acres enrolled



USDA, Economic Research Service calculations based on regression analysis.

For a 1-percent increase in premium subsidies in the Midwest, Lake States, and Northern Plains regions, total premiums for producers growing corn increased by nearly 1 percent. Meanwhile, total acres enrolled in crop insurance and acres enrolled in buy-up policies exhibited a response close to zero percent for a 1-percent change in premium subsidies—total acres remained fairly constant despite increases in premium subsidies. Similar responses held for soybean and wheat producers. Producers appear to have responded to an increase in the premium subsidies by increasing their level of coverage while keeping the number of acres enrolled relatively constant.

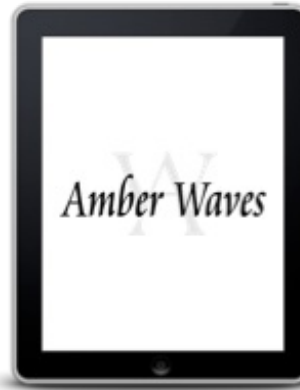
What accounts for the differences in estimates among crops and regions? One possibility is that those crops and regions that started with higher levels of initial crop insurance enrollment are less likely to be affected by crop insurance premium changes. If corn producers in the Northern Plains had a higher enrollment level in 1999 (before ARPA was passed) than those in the Midwest, then producers in the Northern Plains may have had less room to alter their choices than those in the Midwest since they may already be enrolled heavily in FCI. This could result in a lower estimated effect for those in the Northern Plains.

One relatively rough measure of enrollment in FCI is the number of acres enrolled in crop insurance as a share of the total planted acres of the crop in a region in 1999. While this does not capture the intensity of use, it does provide a view of how widespread enrollment is in a region for a particular crop. For example, in the Northern Plains, 83 percent of corn acres were covered by a crop insurance policy in 1999. The Midwest, in contrast, had 66 percent of its corn acres enrolled. Producers in the Midwest had more room for increasing their enrollment than those in the Northern Plains, and this may be at least part of the reason ERS found demand-effect estimates exceeding 0.8 percent (for a 1-percent change in premium subsidies per acre) for the Midwest while it was under 0.5 percent for the Northern Plains. However, while current ERS analysis shows different response levels by growers of different crops in different regions, statistically, the estimated results are not significantly different from each other (using county-level data prevents sufficient precision of the estimates); the results do indicate a consistently significant and close to 1-percent change in crop insurance demand measured by total premiums for a 1-percent change in the premium subsidy.

How costly would it be to increase subsidies? Because an increase in the subsidy rate increases the Government's cost of providing insurance for all existing policies while it lowers the cost of policies for producers, providing incentives to demand more insurance at the cheaper rates, subsidy rate increases can cause relatively large increases in costs to the Government. Results suggest that raising premium subsidy rates by 5 percentage points could lead to a 21-percent increase in the subsidy per acre that the Government has to cover for corn producers in Linn County, IA. While the magnitude of these results may not hold for all crops in all locations, it does appear that relatively small changes in the subsidy rate can generate large changes in Government costs. If policymakers wish to change demand for FCI, changing subsidies would be one way to do so. Alternatively, if policymakers wish to lower budget expenditures, this research helps provide an understanding of how a reduction in premium subsidies might affect the program.

This article is drawn from...

The Effects of Premium Subsidies on Demand for Crop Insurance, by Erik O'Donoghue, USDA, Economic Research Service, July 2014



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