The Effects of the Agricultural Act of 2014 on

Optimal Choice of Farm-level Insurance Coverage Levels

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Introduction

Due at least in part to premium subsidization and an increase in crop prices, federal crop

insurance now represents the major risk management and income support program for field crop

producers in the U.S. Under premium subsidy rates set by the Agricultural Risk Protection Act

(2000) and the 2008 farm bill, the Food, Conservation and Energy Act (2008), federal crop

insurance participation and program costs have reached record levels. In 2013 the federal crop

insurance program covered about 85 percent of the planted acres of corn, soybeans, wheat, and

cotton.[1] Crop insurance is an effective risk management tool and a means of producer support—

particularly during periods of high or increasing crop prices—because the dollar amount of

coverage (liability) adjusts with market prices (Dismukes and Young 2008). In 2012, high levels

of participation and relatively high prices lifted the total value of federal crop insurance coverage

to about $117 billion (USDA Risk Management Agency 2013); total government crop insurance

program costs were estimated to be about $12.5 billion, of which nearly $7 billion consisted of

premium subsidies paid on behalf of producers (Congressional Budget Office 2013).

However, the increased reliance on crop insurance by producers has led to concerns about

the losses they could incur that crop insurance does not cover. In the recent farm bill debate,

several proposals advanced by industry associations and members of Congress are designed to

cover a portion of producers' crop insurance deductibles, generally referred to as "shallow loss"

programs. In June 2013 the U.S. Senate passed a farm bill, S. 954, that contained choices for

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[1]Corn, soybeans, wheat and cotton are the top four crops in the federal crop insurance program. They account for
about 75 percent of the acres insured.

producers including a revenue program called Agriculture Risk Coverage (ARC), additional

revenue insurance coverage known as the Supplemental Coverage Option (SCO), and for cotton

production in place of ARC a revenue insurance product known as the Stacked Income

Protection Plan (STAX) (U.S. Congress, Senate 2012). In September 2013 the U.S. House of

Representatives passed bill H.R.2342 that allowed producers to choose between Revenue Loss

Coverage (RLC), a program similar to ARC, or Price Loss Coverage (PLC) (U.S. Congress,

House 2013). The U.S. Congress ultimately enacted versions of the ARC, SCO, and STAX

shallow loss programs in the Agricultural Act of 2014.

A common feature of the new programs includes using average revenue over an area,

usually a county, as the basis for the coverage. In contrast, by far the most popular plan of

insurance for corn, soybean, wheat, and cotton producers is revenue insurance based on yields of

an individual farm or a sub-unit of an individual farm.[2] This dichotomy leads to such questions

as, "Will an area-based shallow loss program affect producers' demand for crop insurance?" and

"Can area-based shallow-loss protection change the coverage levels these producers select at the

farm level under the subsidized crop insurance program?"

With these questions in mind, we analyze how shallow loss coverage modeled on the

proposed ARC, SCO, and STAX programs might affect optimal coverage levels of revenue

insurance for a moderately risk-averse producer. We develop an empirically-based simulation

model of revenue variability (yield multiplied by price) and use a certainty equivalent criterion to

evaluate combinations of area-based revenue coverage and farm-level revenue insurance.

Because revenue variability and policy preferences tend to vary by location and crop, our study

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[2]In 2013, individual farm Revenue Protection accounted for more than 80 percent of the insured acres of corn,

soybeans and wheat and for about for 75 percent of the insured acres of cotton.

examines how the proposed programs interact with revenue insurance for a wide range of counties and farms for corn, soybean, wheat, cotton, and rice (Dismukes, Arriola, and Coble 2010; Barnett and Coble 2012; Wailes et al. 2013).

In contrast with the study by Bulut and Collins (2013) that examines a small number of farms, we use an extensive set of representative farms. Like Cooper, Delbecq, and Davis (2012), we include all areas for which data are available, and while the former analyze changes in average payments and producers' downside risk relative to changes in the maximum coverage level of a shallow loss program, we focus on farm- or individual-level insurance choices in relation to several proposed shallow loss programs. While our methods are similar to those of Paulson, Woodard, and Babcock (2013), unlike their study our results directly address the impacts of the proposed programs on the demand for revenue insurance, including coverage levels.

Based on certainty equivalent analysis of farm simulations, changes in choices of coverage offered to producers by these proposed programs could significantly affect government costs as well as the returns of the companies that deliver crop insurance by changing the amount of insurance liability, and in subsidies based on insurance premium amounts.

Area revenue risk and therefore premium rates are generally lower for area-level products than for individual-level insurance policies. The area programs would be highly subsidized, in many instances more highly subsidized than individual-level basic and optional unit (sub-divisions of a farm's acreage for a crop) coverage. However, area proposals are never subsidized more than the individual enterprise unit individual coverage that has become increasingly popular. Thus, the relative subsidy levels of individual crop insurance and the proposed shallow loss area programs will be a key to the behavior of producers and government costs. Our results

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suggest many producers are willing to accept area-triggered programs in lieu of individual coverage at higher levels. But, the reduction in individual coverage level is likely relatively small. This result is based on objective data where no biases occur in the producer's perception of the risks he or she faces. Historically, area-triggered crop insurance generally has not captured a large share of the crop insurance market even when research suggests it should compete well against individual insurance coverage. Actual behavior may deviate from what our results suggest because of subjective perceptions of area revenue designs. In particular, we suspect producers fear that less-than-perfect correlation between farm and county revenues could result in indemnities paid out by area programs that do not match the losses of their farms. Thus, our results could represent an upper bound on the amount of coverage level reductions that may occur because producers have historically demonstrated an aversion to the basis risk in area-based coverage.

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