

Summary of Research Interests

My recent research interests examine efficiency and regulation in insurance markets.

Three central predictions emerge from early models of insurance markets. Unobserved buyer heterogeneity causes adverse selection and reduces welfare. Then, welfare will increase if the buyer discloses information about his type. Second, an equilibrium with unobserved effort choice of the buyer, which is the source of the moral hazard problem, requires the insurer to enforce an exclusive contract. And, third, optimal insurance policies under moral hazard are characterized by deductibles and coinsurance.

Dissertation

For my dissertation, I study a crop yield insurance market, when the buyer can have a price insurance contract. In this context, a farmer is the relevant buyer and he faces risk to net revenue. Unit revenue is price times yield. Using a broader notion of non-exclusive contracts, we may consider the price insurance contract to be a supplementary revenue insurance tool, for a multiplicative source of risk.¹ I consider an insurance market with the seller facing unobserved heterogeneity in forward contracting by the buyer. I address 3 questions.

Endogenous Adverse Selection Cross-subsidized Equilibrium

Would it ever be optimal not to require disclosure (say, to have a disclosure ban) for this source of unobserved heterogeneity? I combine the models of Rothschild-Stiglitz (adverse selection separating equilibrium) and Arnott-Stiglitz (moral hazard equilibrium) to construct a model of endogenous adverse selection cross-subsidized equilibrium. I state a necessary condition under which disclosure bans are optimal.

Endogenous Adverse Selection: Evidence from U.S. Crop Insurance

Do non-exclusive insurance contracts (due to the supplementary forward contracts) cause inefficiency in the U.S. crop yield insurance market? I assess evidence for two predictions from a model of a zero-subsidy endogenous adverse selection equilibrium. The proposed framework additionally serves to offer a critique of standard tests of adverse selection in the tradition of Chiappori-Salanie, which can only detect whether unobserved heterogeneity creates the inefficiency. A framework that accounts for endogenous adverse selection motivates a test specification that delivers a precise policy prescription on how to remove the inefficiency problem. Using individual farm-level data on corn and soybean producers from the USDA's Agricultural Resources and Management Survey, I find evidence of this informational inefficiency for South Dakota. The market can move towards the first best outcome by rating South Dakota producers with a forward contract as a distinct, higher risk class.

¹ In the standard case there is one source of risk and non-exclusive contracts means purchase of multiple, additive levels of coverage bought from several firms for that one type of insurance.

Optimal Premium Under Self-protection and Insured Background Risk

When forward contracting and yield insurance decisions are jointly determined (and the yield insurer does not observe the insured's forward contracting choice), are deductible or coinsurance policies more effective at mitigating the moral hazard problem? It is well established that deductible and coinsurance (as opposed to full insurance) policies may be optimal under moral hazard or under background risk. Yet, U.S. government-sponsored crop insurance has relied on subsidies to provide greater coverage (reduced deductibles) at given premiums in order to increase participation and overcome welfare losses which emerge due to adverse selection. That is, policies that require coinsurance for losses in excess of the deductible have not been implemented. Using Raviv's framework, and accounting for the typical producer who faces both yield and price risk, and makes input and hedging decisions, I assess whether reforms in deductible or coinsurance policies are better able to mitigate the moral hazard problem. Additionally, I consider these questions by allowing for parameterizations that account for specific real-world details of US corn and soybean production, and of crop yield insurance.²

Beyond Dissertation

A study of optimal disclosure policy (information disclosure regulation) is relevant in situations where there is information asymmetry between a buyer and seller. In new technology markets, a buyer may face a seller who knows more about the quality or safety of the product. In an insurance market, the buyer (insured) knows more about his risk class than the seller (insurer). I further explore my interest in optimal disclosure policy in insurance markets with a study on recent credit-based homeowners insurance regulation.

Welfare Effects of Credit-Based Homeowners Insurance Scoring Regulation. Using household panel data for 1999 through 2003 from the Panel Study of Income Dynamics, I assess the effect of state level regulations that restrict or ban use of credit-scores for insurance underwriting (policy offers). The analytical framework accounts for the differential role of credit score for the mortgage and insurance contract. For the homeowners insurance policy, the credit-score informs the insurer about income risk and hence the willingness of the insured to incur expenditures for home maintenance. A credit score informs a mortgage lender about income risk and hence risk of default. In the event of default, the mortgage lender receives the value of the collateral. For a mortgage contract, the value of the collateral is determined by the value of the home. This value is random and depends upon macroeconomic and neighborhood factors, as well as maintenance undertaken by the homeowner. Mortgage based home purchases require both contracts. The mortgage and insurance contract are inter-linked. Insurance regulation potentially affects terms of mortgage contracts, and these together determine the home purchase decision. Preliminary evidence indicates that welfare (as measured by probability of first-time home ownership) is higher in unregulated states (where insurers make unrestricted use of credit-score information).

² For instance, I can account for the pure premium policy stipulated in the current farm bill that allows for a fixed percentage of loss. For FDIC insurance premiums, such a policy of *positive* losses has been shown by Boyd et al (J Monetary Economics, 2002) to be optimal under moral hazard.