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Optimal Licensing of Agricultural Patents: Fees versus Royalties

Di Fang, Timothy J. Richards, and Bradley J. Rickard

We develop a theoretical model of optimal licensing schemes for quality-improving innovations. We consider an oligopolistic market where two downstream firms compete in price and the upstream innovator holds a technology that may create differentiation between the products. Our results show that non-exclusive licensing performs better than exclusive licensing under both fixed fees and royalties and that the preferred contract consists of fixed fees only. We also find that the innovator's license revenue depends on the magnitude of the innovation so there is a greater reward to the innovator's institution if the innovation is large.

On-Farm Reservoir Adoption in the Presence of Spatially Explicit Groundwater Use and Recharge

Kent Kovacs, Michael Popp, Kristofor Brye, and Grant West

Groundwater management is conducted in spatial aquifers where well pumping results in localized cones of depression. This is in contrast to the single-cell aquifer used in most economic analyses that assumes groundwater depletion occurs uniformly over a study area. We address two aspects of the optimal management of groundwater: a spatially explicit representation of the aquifer and the potential of on-farm reservoirs to recharge the underlying aquifer. A spatial-dynamic model of the optimal control of groundwater use and on-farm reservoir adoption is developed. Results suggest that a single-cell aquifer overestimates groundwater use and farm net returns over thirty years.

Welfare Estimates of Avoided Ocean Acidification in the U.S. Mollusk Market

Chris Moore

Ocean acidification has the potential to adversely affect a number of valuable marine ecosystem services by making it more difficult, and eventually impossible, for many marine organisms to form shells and skeletons. Reef-forming corals, commercially valuable shellfish, and primary producers that form the base of the marine food web are among the affected organisms. Despite the range and magnitude of likely impacts, very few economic analyses of ocean acidification's consequences have been conducted. This paper adds to the emerging body of literature by taking a distance function approach to estimating the benefits of avoided ocean acidification in the U.S. mollusk market. A nonlinear inverse almost ideal demand system estimates the utility parameters needed to calculate the exact consumer welfare measures compensating and equivalent surplus for two hypothetical policies that would reduce global greenhouse gas emissions relative to a business-as-usual scenario.

An Economic Analysis of Risk, Management, and Agricultural Technology

Jean-Paul Chavas and Guanming Shi

This paper uses conditional quantile regression to analyze the effects of genetically modified (GM) seed technology and management on production risk in agriculture, with an application to the distribution of corn yield in Wisconsin. Using the certainty equivalent (CE) as a welfare measure, our analysis decomposes the welfare effects of risk, management, and agricultural technology into two parts: mean effects and risk premium (measuring the cost of risk). We document how biotechnology and management interact to improve agricultural productivity and reduce farm risk exposure. For corn, we find that GM European Corn Borer (GM-ECB) technology consistently increases CE (the increase ranging from +4.6% to +11.8%) and that a significant part of this increase can come from risk reduction. We also show that the benefits of the GMECB biotechnology are heterogeneous: they vary significantly across regions as well as across management schemes.

The Tangled Web of Agricultural Insurance: Evaluating the Impacts of Government Policy

Jason Percy and Vincent Smith

This paper examines how changes in major elements of the U.S. federal crop insurance program affect the structure of the agricultural insurance industry. We model interactions between farmers, insurance agents and insurance companies. Marginal changes in government policy (premium subsidy rate, A&O subsidy rate, and loading factor) affect the insurance premium rate, agent compensation rates, agent effort levels, and market demand for crop insurance. Farmers prefer a marginal increase in the premium subsidy rate, but the insurance companies' most preferred policy is a marginal increase in the A&O subsidy rate. We also evaluate the consequences of changes in crop prices.

The Influence of Market Power and Market Trends on Grid Market Signals

Scott W. Fausti, Matthew A. Diersen, Bashir A. Qasmi, and Bill Adamson

This article investigates the premium and discount incentive mechanisms in the fed cattle grid pricing system. A pooled cross-sectional dataset containing carcass information on 598 fed steers evaluated weekly on the AMS publically reported price grid was constructed for the years 2001 to 2008 (226,000 observations). Empirical evidence suggests that premiums and discounts associated with specific carcass-quality attributes have been adjusting over time and that the market value of carcass quality declined by \$0.50/cwt during periods of packer cooperative behavior in the fed cattle market. Additionally, the average market value of carcasses meeting industry quality standards exhibited a positive time trend.

A Nonparametric Search for Information Effects from USDA Reports

Jeffrey H. Dorfman and Berna Karali

Two nonparametric tests are employed to investigate the potential information value of USDA crop and livestock reports. If daily returns on days that reports are released (announcement days) differ when compared to non-announcement days for a sizeable number of commodities from a set of seven futures markets studied, we deem the report to contain market-moving information. The question of report value has been unsettled in the literature with results varying somewhat across studies and across reports. This study finds market-moving value in five of the USDA reports investigated, with six other reports showing little or no market-moving value in the markets examined. While most of our results confirm and add robustness to earlier results, there are some differences both for certain reports and certain commodities.

Assessing the Impact of SPS Regulations on U.S. Fresh Fruit and Vegetable Exports

Jason H. Grant, Everett Peterson, and Radu Ramniceanu

Sanitary and phytosanitary (SPS) measures are not new, but their significance in international agrifood trade continues to grow. Much less is known about the trade-restricting potential of these measures because of the difficulty in identifying when SPS regulations exist and how and to what extent they are applied. We develop a novel database of SPS treatments affecting United States exports of nine fresh fruits and vegetables and a formal econometric model to investigate the traderestricting nature of these measures. The results suggest that SPS treatments generally reduce trade, but the actual restrictiveness of these measures diminishes as U.S. exporters accumulate treatment experience and vanishes when exporters reach a certain threshold.

Imperfect Competition between Florida and São Paulo (Brazil) Orange Juice Producers in the U.S. and European Markets

Jeff Luckstead, Stephen Devadoss, and Ron C. Mittelhammer

We develop a strategic trade model to analyze the oligopolistic competition between Florida and São Paulo processors in the U.S. orange juice market and São Paulo processors in the European orange juice market. We obtain analytical results of the effects of changes in trade liberalization. A structural econometric model is derived from the theoretical model, and the new empirical industrial organization literature is used to estimate the market power of Florida and São Paulo producers. We simulate the effects of U.S. and European tariff reductions on prices, quantities, and trade volume.