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Abstracts

Contributed Papers

Opening Address

"Political and Economic Situation in the 1980s for the Western States." Richard Courtney (Bank of America, San Francisco)

Three themes are of importance to the Western states in the decade of the 1980s: (1) Both the Western region and individual Western states will play a more important role relative to their role in the past and relative to the role of the federal government. (2) Increased industry diversification is likely to be the hallmark characteristic of the economies of the Western states. (3) Both in terms of population growth and growth in employment, the Western region will grow faster than will the nation as a whole.

Agricultural Economics under Budget Retrenchment. Chairman, Russ Withers (University of Idaho)

"Agricultural Economics under Budget Stress: A University Perspective." Bruce R. Beattie (Montana State University)

There is some justification for the impression that agricultural economics has entered an era of relatively greater budget stress than that of the recent past. However, optimal strategies for sustaining or enhancing departmental productivity in research, teaching and Extension are invariant to the budget level. These "strategies" are discussed in the form of "ten commandments" to department heads.

"Agricultural Economics in Hard Times: A View from USDA." John E. Lee (USDA ERS, Washington, D.C.)

Budget constraints in recent years, combined with pressures for accountability, concerns about roles of publicly employed agricultural economists, and the challenge to deal with nontraditional problems, have placed agricultural economists and their institutions under stress. The Economic Research Service has responded to these challenges by shifting the emphasis of its program to a higher level of aggregation, broadening the mix of its program activities, tightening program management and accountability, and examining means for more effective relationships with other institutions. Agricultural economics will become less well-defined as a subdiscipline.

Production Economics and Farm Management. Chairman, Art Stoecker (Texas Tech University)

"Entry into Farming: The Effects of Leasing and Leverage on Firm Survival." Catharine M. Lemieux (USDA ERS), James W. Richardson and Clair J. Nixon (Texas A&M University)

A whole-farm simulation model was used to analyze the effects of machinery leasing and debt financing on the survival of new entrants into agriculture. Results of the analysis indicate that investing beginning capital in debt financed cropland and leasing machinery increases the chances of survival more than the usual method of entry, namely, leasing cropland and debt-financing machinery.

"Declining Aquifers, Increasing Electricity Prices, and Center Pivot Irrigation in Southeastern Wyoming." Kevin J. Lindemer and James Jacob (University of Wyoming) and Douglas Franklin (Visiting Assistant Professor, University of Wyoming)

The sensitivity of center pivot irrigation on a typical farm in Laramie County, Wyoming to a single rate of decline in groundwater levels and six rates of increase in electricity prices is examined under high and low pressure center pivots and three crop price scenarios from 1982 through 2002.

"Economic Implications of Developing New Cropland in the Texas Winter Garden." George E. Muncief (Houston Community College), Ronald D. Lacewell and John Ellis (Texas A&M University)

There are over 2.7 million acres of range and brushland in the Winter Garden Region of Texas suitable for cultivation. Analysis indicates there is economic incentive to convert 960,000 of these acres to crops and increase expected regional net returns from \$42.9 million to \$69.2 million. If a new crop, guayule, is included, over 1.6 million acres are converted to cropland producing \$93.3 million. There are institutional and infrastructure constraints to massive conversions in a short period but land is currently being developed into cropland.

"An Economic Analysis of Alternative Management Responses to Grasshopper Infestation on Rangeland." Roger Mann, James J. Jacobs, and Jeff P. Downer (University of Wyoming)

Mathematical models are developed to estimate forage losses, stocking rates, and changes in ranch income and organization in response to grasshopper infestation. The models consider various alternatives to grasshopper infestations such as control measures, reduced stocking rates, early cattle sales, cattle relocation, and changing feeding regimes, in estimating changes in ranch management and income.

Community and Rural Development. Chairman, Jay Leitch (North Dakota State University)

"The Impact of Structural Change on Regional Economic Instability: A Portfolio Variance Approach." Gary W. Smith (Washington State University) and Bruce A. Weber (Oregon State University)

The portfolio variance measure of economic instability developed by Conroy (1975) is extended to permit assessment of both the effect of secular trends in sectoral composition on overall economic instability and the contribution of individual sectors to overall instability. Application of this measure to constructed annual estimates of Oregon's real gross state product for 30 sectors during 1960-79 suggests that Oregon's economy has changed its structure over this period in a way which increases the overall instability of the economy. Results also indicate that the countercyclical relationship between the agricultural sector and the other sectors makes it unique in its potential as a stabilizing force in the economy.

"Consolidation: A Viable Option for Improving Operational and Financial Stability of Rural Water Systems." H. L. Goodwin, Jr. (Texas A&M University) and Gerald A. Doeksen (Oklahoma State University)

The objective of the study on which this paper is based was to develop guidelines for evaluating the potential effects of consolidation on rural water systems. Results of a case study analysis of seven consolidated rural water districts are presented and discussed. From this, a generalized method which allows local decision makers to examine effects of consolidation is outlined. The method is then demonstrated by evaluating a potential consolidation project involving three rural water districts. This method can be used by community leaders, Extension professionals and others who work with the local decision making process.

"Impacts of Energy Development on Secondary Labor Markets: A Case Study." John M. Halstead and F. Larry Leistritz (North Dakota State University)

Impacts of energy development on the secondary business sector of development-impacted counties are examined in a survey of Mercer County, North Dakota. Problems experienced by businesses in attracting and retaining qualified employees and in ex-

panding to take advantage of growing markets are evaluated. Characteristics of private and public sector employees and their implications for community planning are discussed. Regression analysis is also used to identify determinants of wage levels in the study area.

"An Application of a Community Impact Model—Transfer and Adaptation of an Existing Model." Mike D. Woods and Lonnie E. Jones (Texas A&M University)

A community impact model is presented which analyzes economic, demographic, fiscal, and community service factors in a community and county. The model provides estimates of employment, income, population, and community service requirements for health care, fire, water, and solid waste. The model is adapted from previous work in another state. Considerations of model transfer are discussed as a part of this paper.

Methodology in Agricultural Economics. Chairman, Richard Adams (Oregon State University)

"Testing Empirical Restrictions of the Multivariate Flexible Accelerator in a Model of U.S. Agricultural Investment." Utpal Vasavada, (University of Maryland), Robert G. Chambers (Visiting Associate Professor, Oregon State University)

A set of aggregate investment equations which are consistent with the modern theory of the intertemporal optimizing firm is specified and estimated. A functional form that permits testing of the empirical restrictions is developed. The hypothesis of symmetry of the adjustment nature as well as instantaneous adjustment of land stocks could not be rejected. Also, the hypothesis of convexity of the value function could not be rejected. Technical change has tended to enhance investment in capital while inducing disinvestment in land stocks.

"An Application of the Household Production Function Approach to the Oregon Steelhead Sport Fishery." Elizabeth J. Strong and Darrell L. Hueth (Oregon State University)

This paper presents the results of an application of the Bockstael-McConnell (1980) household production function framework to steelhead sport fishing at 29 Oregon rivers. Estimates of compensating variation and equivalent variation for fishing trips and fish caught are presented assuming Cobb-Douglas technology and preferences. Implicit commodity prices are estimated for trips and fish under constant returns to scale.

"Characteristics of Stochastic Dominance Efficient Farms." Bryan Schurle, Jeffrey R. Williams and Hee Mock Noh (Kansas State University)

First and second-degree stochastic dominance criteria were applied to historical net farm incomes to rank farms after a clustering procedure was used to categorize farms by size. Examination of the resulting rankings indicated that farms with lower interest expense and large swine operations were preferable based on stochastic dominance criteria.

"Financial Futures: Their Effects on Agricultural Banks." Mark Drabenstott and Anne McDonley (Federal Reserve Bank of Kansas City)

Financial futures can be valuable risk management tools for agricultural banks. A quadratic programming bank model provides an empirical framework for measuring the effects of hedging. Hedging improves bank performance—as measured by net income, return on equity, and total assets—markedly when interest rates are volatile and rising.

Marketing. Chairman, James Cornelius (Oregon State University)

"Estimated Harvested Wheat Acreage Response to Selected Rail Rate Hikes Among Oklahoma Crop Districts." Nelson J. Updaw (Oklahoma State University)

The purpose of this paper is to provide estimates of the extent to which increased marketing costs for Oklahoma wheat will alter production in the major wheat-producing regions of the state. The source of the increased marketing costs is the higher rail rates expected to be charged on export-bound wheat once carriers have been allowed greater flexibility in setting rates. The economic model incorporates the effects of wheat prices, alternative crop prices, factor costs, grazeout income, government policy variables, and precipitation on harvesting activities. The results indicate that those regions of the state that are likely to experience the largest rail rate hikes also appear to have the least ability to reduce wheat production in response to lower local prices.

"An Empirical Study of Price Discovery and Competition for Slaughter Lambs." Clement E. Ward (Oklahoma State University)

Live lamb prices were significantly affected by carcass lamb and pelt prices. Competition among packers increased prices paid, decreased buyer gross margins, and increased price differences between teleauction and public market prices. Buyer market shares had no effect on prices paid but were positively related to gross margins.

"Efficiency and Dynamic Relationships of Cash and Futures Cotton Prices." B. Wade Brorsen (Purdue University) and DeeVon Bailey (Utah State University)

The dynamic relationship between daily cash and

futures prices is investigated using time series analysis and causality tests. The results indicate cash markets adjust slowly to information while futures markets overreact. Futures markets are more efficient in the sense that futures prices adjust faster than cash prices.

"Unequal Agricultural Motor Carrier Regulation and Its Impact on Marketing System Efficiency." Stephen Fuller and Larry Makus (Texas A&M University)

Interstate for-hire motor carriage of unmanufactured agricultural products is exempt from economic regulation whereas some states stringently regulate this carriage. In Texas, this dichotomy in regulation has yielded unequal rate structures for comparable intrastate and interstate hauls. It is shown that the unequal rate structures adversely impact in-state agricultural firms and unnecessarily increase marketing system cost.

"Intraregional Cattle Price Dispersions: Information and Competition." Donald L. Snyder (Utah State University)

The variance of a price distribution at a point in time, as well as over time, the kurtosis of a distribution, and the skewness of a distribution all have some implication regarding the flow or use of information and the competitive structure of a market. The higher priced markets generally have distribution characteristics consistent with efficient informational flows and a more competitive economic environment. However, the existence of efficient informational flows in low price primary markets raises some serious questions about the relationship between a competitive environment and informational efficiency.

Natural Resources. Chairman, James Johnson (Montana State University)

"Estimated Value of Deer and Elk Taken by Oregon Hunters Via the Travel Cost Method." Faisal Shalloof and William G. Brown (Oregon State University)

A linearly homogeneous relation between hunter benefits and deer and elk harvest was found. Estimated consumer surplus values were about \$90 per deer and \$300 per elk in 1968 dollars. If hunting benefits are a linearly homogeneous function of harvest, computation of benefits or losses from various policies is simplified.

"A Bioeconomic Approach to Analyzing Wildlife Habitat/Land Management Conflicts." Scott C. Matulich and Jeffrey E. Hanson (Washington State University)

A bioeconomic modeling framework is developed to

incorporate biological planning into the Garrison Diversion Irrigation Project, North Dakota. A plan for mitigating multi-species wildlife habitat losses attending drainage in the Prairie Potholes region illustrates this non-linear programming framework. The essential character of interdisciplinary planning within well-defined political constraints is highlighted.

"A Study of the Value of Precipitation Modification to the Crop and Livestock Industries of Utah." Gregory M. Perry (Texas A&M University) and Terrance F. Glover (Utah State University)

The impacts of the 1934 and 1977 droughts in the 7 climatological regions of Utah were examined using a linear programming model with simulated crop livestock production in Utah for 1979. Crop and range production equations were developed to predict changes in production of feed and food crops during the drought before and after cloud seeding was implemented. The simulations indicated that the costs of both droughts fell largely on the livestock industry statewide and the crop industry in northwestern and southwestern Utah. Cloud seeding was most beneficial in these latter two regions.

"The Effects of Electricity Rates and Rate Structures on Pump Irrigation in Eastern Colorado: An Example of Discount Pricing under Decreasing Demand." Richard L. Gardner and Robert A. Young (Colorado State University)

Electricity rate structures for pump irrigation were evaluated by criteria of revenue requirements, economic efficiency, and fairness. Empirical demand curves for electricity are estimated using real average and 1982 crop prices. Seven alternative rate structures are tested with an LP model simulating a typical well. While commodity price levels are found to overshadow rate structures, with 1982 crop prices the choice of rate structure affects crop mix, water and electricity consumption and utility revenue.

"The Economic Value of Wildlife Resources in Texas." C. Arden Pope, III, Clarke E. Adams and John K. Thomas (Texas A&M University)

The economic value of wildlife is partly reflected in the Texas hunt lease and rural land markets. The results of an extensive survey of Texas hunters, and land valuation model are utilized to develop estimates of the value of wildlife in Texas. Although the value of wildlife cannot be precisely calculated, these estimates clearly indicate that wildlife is an enormously valuable natural resource.

Policy. Chairman, Richard Simunek (USDA, Washington, D.C.)

"Comparing State and National Impacts of a

Change in U.S. Beef Imports: The Case of Hawaii." Roland K. Roberts (University of Hawaii at Manoa) and Will Martin (Bureau of Agricultural Economics, Canberra City, Australia)

Interest has grown in analyzing the impacts of national imports on state agricultural sectors. Simulation of an interfaced Hawaii-national model demonstrates that state and national impacts of these import policies can be substantially different. The usefulness of state models is emphasized for situations where the state impacts of national policies are of interest.

"The Impact of Differential Assessment on Agricultural Land Use in Texas." Robert S. Kao and Rod F. Ziemer (Texas A&M University)

In this study, we evaluate the effect of differential assessment legislation on agricultural land use in Texas. An analysis of eligible land uses under the 1966 Texas law indicated that of the general eligible land categories, only cropland appeared significantly affected by differential assessment legislation.

"Dynamics in U.S. Wheat Acreage Response." Won W. Koo (North Dakota State University)

A dynamic wheat supply response model is developed to evaluate the effectiveness of farm commodity programs and farmers' response to market prices. The basic structure of the wheat supply response model is a second order difference equation with season average wheat price lagged one year. The study reveals that farmers are sensitive to government programs and to price. However, the degree of sensitivity is different between winter and spring wheat because of the different production characteristics.

"Consumer Benefits from Vegetable and Fruit Production from Public Development of Irrigation: Some Refinements." Holly Tyan, Wesley N. Musser, and James E. Epperson (University of Georgia) and K. William Easter (University of Minnesota)

This paper considers the use of consumer surplus benefits from fruit and vegetable production as a justification for public irrigation development. Earlier research was reviewed and it was demonstrated that gains were overestimated by 34.97 percent because supply response in other areas was not considered.

"Do Acreage Diversion Programs Encourage Farming Erodible Land?" Dana Hoag and Douglas Young (Washington State University)

Steep, erodible class IVe land has the most erosion and the lowest yields in the Washington-Idaho Palouse region, but this land still generally covers variable production costs. Incentives to continue farming

this land were only modestly altered by consideration of ASCS program benefits. Crop share renters in less productive subregions would be most likely to have an incentive to retire class IVE land to a conservation cover crop.

Farm Management: Risk. Chairman, Mike Wirth (Washington State University)

"Considering Returns and Risk in the Design of Sprinkler Irrigation Systems," Kim C. Nielsen and A. Gene Nelson (Oregon State University)

This simulation analysis of wheat production at Hermiston, Oregon, found that designing sprinkler irrigation systems for maximum yields is not consistent with maximizing utility or average net returns. The simulation model used 19 years of daily weather data to estimate wheat yields, net returns and risk (standard deviation of net returns) associated with alternative side-roll sprinkler systems. Optimal irrigation systems were those with relatively lower capital investments and that initiated irrigation at lower levels of soil moisture depletion. The level of risk aversion makes little difference in the rankings of the irrigation system alternatives.

"Farm Firm Programming Models Using Risk and Annual Income Targets." Glenn A. Helmers (University of Nebraska), Larry J. Held (University of Wyoming) and Myles J. Watts (Montana State University)

Three alternative risk-income programming models are examined as applied to an eastern Wyoming setting. Each emphasizes annual income levels. The first includes such annual income levels as constraints with the annual income levels treated as targets in Models B and C. Model A minimizes deviations while Models B and C maximize expected income and also provide for deviation targets. The results conform to expected model behavior. An advantage of the three models is the inclusion of annual income levels. The disadvantage of Models B and C relate to the subjectiveness involved with target levels and penalties.

"An Economic Assessment of Brush Control Practices in South Texas." J. R. Conner, C. A. Pope, G. L. McBryde, W. T. Hamilton, and C. J. Scifres (Texas A&M University)

Two procedures for analyzing the economic feasibility of range improvement practices are compared using two common brush control practices in south Texas as examples. The two procedures differ in their treatment of risk associated with variation in annual

productivity levels. The results show that the procedure which does not include risk overestimates returns to investments in the brush control practices considered and provides less information to producers regarding annual variation in cash flows.

"Stochastic Dominance with Respect to a Function as an Approach to Evaluate the Rationality of Farmer Variety Choices." Margaret Flood, Francis McCamley and Kenneth Schneeberger (University of Missouri)

Stochastic dominance with respect to a function was used to determine efficient wheat and soybean varieties at five Missouri variety trial locations. In each of the corresponding crop reporting districts, except the southeast, the efficient varieties were also the most popular. The results suggests that farmers make rational variety choices.

"Financial Risks and Stochastic Aquaculture Production Processes: The Case of Freshwater Prawn Farming in Hawaii." Karl C. Samples and Ping Sun Leung (University of Hawaii)

To explore the relationship between yield variability and financial risks in aquaculture, a conceptual model of a stochastic production process is proposed which illuminates the business perils associated with shortfalls in yields of aquacultured freshwater prawns (*Marcobrachium rosenbergii*). Historical commercial production data are then analyzed within the context of the model to illustrate the extent to which yield variability engenders financial risks for prawn producers in Hawaii.

Awards Banquet Address

"The Changing Emphasis of AID Technical Assistance: The Role of Universities and Agricultural Economists." Frank Conklin (Oregon State University)

The paper treats the increased emphasis for AID technical assistance in third world countries upon U.S. universities. Recent policy changes will permit universities to serve as full partners in the complete process of project planning, design, implementation, operation and evaluation of AID's bilateral rural development programs overseas. Implementation mechanisms will include the Memorandum of Understanding with individual universities, the Joint Career Corp concept with individual faculty members and the Joint Enterprise Contracting Mode to link two or more universities in joint contracting arrangements with AID.