

*Dear Fellow Members:*

*As you can see, WAEA is introducing a new journal called the **Western Economics Forum**. The Board of Directors approved this publication on a trial basis through the 2003, initial volume. Since the publication is experimental, we decided to save costs by printing it with simple technologies and to combine it with our newsletter. The WEF will accompany the newsletter in the Spring and Fall. In addition, a stand-alone newsletter will be delivered in the late summer, similar to the traditional format.*

*We hope that you enjoy this new publication and that you find it serves a needed niche. Details about the journal are provided below. Please feel free to write or email either of us with comments. Finally, we invite you to support WAEA and your western colleagues by submitting to Western Economics Forum in the future.*

*Sincerely from your Co-Editors*

*Dana L. Hoag*

*Dawn Thilmany*

#### Purpose

One of the consequences of regional associations nationalizing their journals is that professional agricultural economists in each region have lost one of their best forums for exchanging ideas unique to their area of the country. The purpose of this publication is to provide a forum for western issues. The target audience is professional agricultural economists with a Masters degree, Ph.D. or equivalent understanding of the field that are working on agricultural and resource economic, business or policy issues in the West.

#### Content

This publication is specifically targeted at informing professionals in the West about issues, methods, data, or other content addressing the following objectives:

- Summarize knowledge about issues of interest to Western professionals
- To convey ideas and analysis techniques to non-academic, professional economists working on agricultural or resource issues
- To demonstrate methods and applications that can be adapted across fields in economics (e.g. adapting conjoint analysis from marketing to environmental economics)
- To facilitate open debate on Western issues

#### Coverage

Initially, we only have room for four articles in each issue (for a total of 8 each year). Therefore, we will try to maximize the coverage across the western states and the following topics:

- Farm/ranch management and production
- Marketing and agribusiness
- Natural resources and the environment
- Institutions and policy
- Regional and community development

#### Submissions

Due to limited space and our desire to maximize coverage across states and topic areas, we will only accept one-page abstract proposals. Authors will be invited to write full papers based on our coverage objectives. Final manuscripts are subject to standard double-blind reviews.

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# Western Economics Forum

News from the Western Agricultural Economics Association

May 2002

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## PRESIDENTIAL NOTE

by Steve Blank

My, how time flies when you're having fun! It is hard to believe that the 2001-02 year is rapidly approaching its conclusion. The WAEA Executive Committee has been very busy (read as "having fun") this year because so many positive developments for the WAEA are in the works, as I reported in my last column. Now there are two important activities remaining before the year concludes: our election of officers and the annual meeting.

First, we need to elect a new slate of officers for the 2002-03 year. Information on those members standing for election is in this newsletter. I urge everyone to vote. Also, I encourage everyone to nominate people (or themselves) as possible candidates in future elections. An engaged membership is important for any association's health.



Next, the 2002 annual meeting will be held jointly with the AAEA July 28-31 in Long Beach, California. It will be big – offering lots of bang for your registration buck. We have a great program planned for you. The WAEA is offering its full program in addition to the AAEA program. Details will

be forthcoming from the AAEA, but I want to alert you to highlights of the WAEA program.

To begin, WAEA Vice President Dillon Feuz did a great job in chairing the Selected Papers process and reports a program of 21 sessions that cover the entire range of interests for our members. Next, in-coming President Ray Huffaker will be presenting his Presidential Address, "Many are Called, but Few are Chosen." Alex McCalla will give the Fellows Address, "Liberalizing Agricultural Trade: Will it Ever be a Reality?"

Finally, there will be two WAEA Invited Paper Sessions. The first session is "Coordinating Science and Technology in the Agricultural Biotechnology Revolution," *Organizer and Moderator*: Steven Buccola, Oregon State University. *Papers and authors*: "The Role of Patents in Inducing Research to Produce Science and Technology: Case Studies in Rice Genomics and Rice Transformation Technologies" by Carl E. Pray and Anwar Naseem, Rutgers University; "Do Synergies Exist Between Basic and Applied Ag Biotech in Universities?" by Jeremy D. Foltz, University of Connecticut; "Information Pathways in Biotechnological Innovation: Golden Rice and Virus-Resistant Papaya" by Steven Buccola, Yin Xia, and Terri Lomax, Oregon State University; and "A Clearinghouse to Improve the Productivity of Intellectual Property Rights" by Greg Graff and David Zilberman, University of California, Berkeley.

The second session is "Farmland Prices as an Indicator of Competitiveness in the New Global Economy: Prospects for California and Western U.S. Agriculture," *Organizers*: Kenneth W. Erickson (USDA-ERS) and Ashok K. Mishra (USDA-ERS), *Moderator*: Ashok K. Mishra. *Papers and authors*: "California Farmland Markets: What's Happening at the 'Ground Level'?" by Gary Rudolf, American Society of Farm Managers and Rural Appraisers and Steven Wiyatt, USDA National Agricultural Statistics Service; "Western U.S. Farmland Markets: A Farm Credit Perspective," by Allen Featherstone, Kansas State University; and "Estimating U.S. and Western Farmland Prices, Return on Assets, and Other Indicators of Agriculture's Financial Performance," by Charles Moss, University of Florida. *Discussant*: Jason Shogren, University of Wyoming.

I look forward to seeing everyone at the Long Beach meeting!

**WHY ARE SOME JOURNALS SO EXPENSIVE?**

Nearly all of us have noted the seemingly exorbitant rates some publishers charge institutions for journal subscriptions. The *Journal of Econometrics*, for example, charges libraries and other institutions \$2,152 for a yearly subscription. Yet *Econometrica* charges institutions a scant \$267/year. Why the discrepancies in institutional subscription rates?

Theodore C. Bergstrom, professor of Economics at the University of California, Santa Barbara, offers a plausible explanation for these discrepancies in a recent *Journal of Economic Perspectives* article titled "Free Labor for Costly Journals?" (You can download a copy gratis at Bergstrom's website:

<http://www.econ.ucsb.edu/~tedb/>).

Put tersely, Bergstrom's argument is that publishers of commercially owned journals are engaging in monopoly pricing of those journals. By contrast, journals owned by professional associations are priced more competitively or closer to production costs. One implication of the pricing scheme is that your institution's library must spend as much as 80% of its budget to acquire about one third of the 300 economics journals Bergstrom surveys. Conversely, only 10% of the budget would be needed to acquire about 60% of the more competitively priced journals.

The table below gives an idea of subscription rates for selected journals in agricultural economics.

Journal Title	Publisher	Annual Institutional Subscription Rate	Institutional Rate for Developing Countries	Total Number of SSCI Citations <sup>a</sup>
Agricultural Economics	Elsevier	\$634	\$634	87
European Rev. of Ag. Econ.	Oxford Univ. Press	\$255	\$255	144
Australian J. Ag. & Res. Econ.	Blackwell	\$234	\$215	19
Amer. J. of Ag. Economics	AAEA/Blackwell	\$225	\$112	1,812
Canadian J. of Ag. Econ.	Ag. Inst. of Canada	\$97	\$97	208
Review of Ag. Economics	Blackwell	\$83	\$24	58
J. of Ag. and Applied Econ.	S AEA	\$70	\$70	29
J. of Agricultural Economics	Ag. Econ. Society	\$60	\$60	220
J. of Ag. and Resource Econ.	WAEA.	\$44	\$44	N.A.
Ag. and Res. Econ. Review	Cornell Univ. Press	\$15	\$15	2

<sup>a</sup> SSCI citations are total numbers of citations in the *Social Science Citation Index* for 1998. Source: Bergstrom's spreadsheet accessed at <http://www.econ.ucsb.edu/~tedb/Journals/listkey.html>, March 6, 2002, and various publishers' websites.

Bergstrom's website contains more information on publishers of economics and other academic disciplines.

Gary D. Thompson, Editor, *JARE*



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## WHAT'S NEW

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### **The Western Forum by email!**

In addition to the new format and content of our newsletter. The Western Forum, we have decided to move to a new system of distribution and delivery for those of you interested. The 2002 membership form included an option to receive the newsletter by email. If you did not notice that option, or are interested in changing to email delivery, please send a message to Dawn Thilmany, Secretary-Treasurer at [thilmany@lamar.colostate.edu](mailto:thilmany@lamar.colostate.edu).

### **JARE Editors**

As mentioned in past newsletters, Gary Thompson and his editorial team at the University of Arizona will complete

their terms as editors with the December 2003 issue of JARE. That means it is time to select a new editor or team of editors for this important leadership role. Persons interested in serving as JARE Editor(s) should contact Ray Huffaker at [huffaker@wsu.edu](mailto:huffaker@wsu.edu) or Steve Blank at (530) 752-0823 or [sblank@primal.ucdavis.edu](mailto:sblank@primal.ucdavis.edu).

### **Membership**

As of March 31<sup>st</sup>, we have over 700 members. Thanks to each of you for your membership and support...we hope you promote your membership and the quality of our Journal to your colleagues, so that we can represent an even greater share of agricultural and resource economists.

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## OFFICER ELECTIONS

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The following people have been nominated and have agreed to stand for election. We appreciate the willingness of these individuals to serve the Association:

**President – E. Bruce Godfrey and Clement E. Ward**

**Vice President – Gary Brester and Rhonda Skaggs**

**Directors – Joe Parcell, Tom Marsh, Larry W. Van Tassell, and Larry Janssen**

**Enclosed is a ballot for all individuals that Dawn Thilmany has record of having paid dues for 2002.** If you believe this is an error please let her know. This is especially important for those individuals who may have paid WAEA dues through AAEA.

We welcome any suggestions or nominations for future President, Vice-President and Board of Directors candidates.

**You may cast your ballot via e-mail by sending Dawn your preference ([thilmany@lamar.colostate.edu](mailto:thilmany@lamar.colostate.edu)) with the number in the upper right-hand corner of your ballot. Ballots are due JUNE 15th.**

## Candidates for President:

### E. Bruce Godfrey

Bruce Godfrey is professor of Economics at Utah State University. He received his PhD from Oregon State University and was on the faculty at the University of Idaho before joining the faculty at USU. He has been a member of WAEA for more than 30 years. He has served as secretary-treasurer, been a member of the editorial council, a member of the WAEA council, selected papers chair and was in charge of local arrangements for the 2001 summer meeting. He has also served on several WAEA committees and has received teaching and extension awards from WAEA.

Bruce has taught, done research and conducted extension programs throughout his career. He has taught most of the ag and resource economics courses offered at USU. Extension programs and research in the areas of farm/ranch management and finance coupled with work in public land policy are currently his primary areas of focus.

### WAEA Direction

The financial position of WAEA and the professional reputation of JARE are two of the major strengths of WAEA at the present time. Past and present editors of JARE have done an excellent job of providing a journal that has a high professional reputation. Recruitment and selection of a new editor(s) is needed to maintain the high standards of the journal. The proposed project of digitizing past issues of JARE should receive high priority to make this product of the association more widely available via the web and/or on CD. I also believe the submission of more articles that focus on western issues should be encouraged. The initiation of the Western Economics Forum (an electronics and newsletter based publication) represents a new initiative that has my enthusiastic support.

The annual meeting is always a highlight. I have enjoyed meeting with the larger associations (AAEA and WEAI) but, some of the best meetings I remember have been when we have met independently. I believe an independent meeting should be held at least every third year. The presence of WAEA must also be very evident when we meet with a larger organization. Annual meetings that are not held with a larger group should be held at attractive sites that may not be able to accommodate larger groups such as AAEA. I also believe that WAEA sponsored activities should focus on issues that are of importance or are unique to the western states and provinces. I strongly favor a change in the constitution concerning the selection process for papers presented at the annual meetings. Reviewed abstracts were used in 2000-2002 instead of "finished papers" as outlined in the constitution. This has increased discussion of the papers

presented and should allow graduate students to be more actively involved in paper sessions. Some review and winnowing is needed but, I favor a high acceptance rate and policies that will encourage more people to participate. I also favor a proposal that would give an award at the annual meeting to members of the association who have made a lasting professional contribution. This might be a life time achievement or a WAEA fellow award. WAEA membership is dominated and past participation at the meetings has been primarily by those who are associated with an academic institution. Efforts should be encouraged to involve those employed by non academic organizations and firms.

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### Clement E. Ward

Clement E. Ward is a Professor and Extension Economist, Department of Agricultural Economics, Oklahoma State University. Education: B.S. Iowa State University 1966, M.S. Kansas State University 1971, Ph.D. Kansas State University 1974. Experience: Agricultural Economist, Farmer Cooperative Service, USDA 1974-78; Associate Professor, Professor, Oklahoma State University 1978-present, Interim Department Head, June-December 1999; Subject matter interest: Livestock-meat marketing and pricing; Refereed journal articles: 36 in 12 journals, including *American Journal of Agricultural Economics*, *Journal of Agricultural and Resource Economics*, *Review of Agricultural Economics*, *Agribusiness*, *Canadian Journal of Agricultural Economics*; Other publications: 1 book, 4 book chapters; >70 extension fact sheets and circulars, >40 conference proceedings; Papers presented: >60; Extension program: spoken at >20 national conventions/conferences, >50 regional/state conventions/conferences, and conducted >75 *Fed Cattle Market Simulator* workshops; Awards: Oklahoma State University, *Elmo Baumann Distinguished Professorship* 1999; Oklahoma Cooperative Extension Service, *Outstanding Team Award* 1987, 1988, 1997; American Agricultural Economics Association, *Distinguished Extension Program (Group) Award* 1997; Western Agricultural Economics Association, *Outstanding Extension Program (Group) Award* 2000, 1997, 1995; Southern Agricultural Economics Association, *Distinguished Extension Program* 1993; Significant professional service: Western Agricultural Economics Association Secretary-Treasurer 1992-95, Elected director 1986-88, Council member 1982-86.

### WAEA Vision

Our Association has a respected, quality journal, conducts worthwhile, varied meetings, is financially strong with relatively stable membership, and has several committed

leaders. My role will be to provide continued leadership in these areas. I support the Association meeting independently on occasion as well as periodically with the American and Canadian agricultural economics associations and the Western economics association. Our meetings should continue offering something to agricultural economists in various positions, teaching, extension, research, industry, and government. Two areas

in which we can improve are increased communication to members and an enhanced web site for members' use and information. The leadership team over the next couple years will need to select another quality team of *JARE* editors, establish guidelines for the WAEA Fellows program, and monitor our service contract with the AAEA for limited secretary-treasurer functions.

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### **Candidates for Vice President:**

#### **Gary Brester**

Gary Brester is a Professor in the Department of Agricultural Economics and Economics at Montana State University. He received his B.S. and M.S. degrees from Montana State University, and Ph.D. from North Carolina State University.

Dr. Brester co-chaired the 1997 *WAEA* Selected Papers Committee, served as a *WAEA* Director from 1999-2001, and is a member of the *JARE* Editorial Council and *Choices* Editorial Advisory Board.

#### **WAEA Direction**

"The *WAEA* must continue to make significant contributions to economic education of policy-makers, agricultural producers, agribusiness managers, and consumers. We must help these groups develop their economic thought processes so that they critically consider societal issues. The *WAEA* can contribute to this educational challenge by maintaining the high scholarly standards of the *JARE*, enhancing professional development, improving member teaching capabilities, extending research and outreach efforts to agribusinesses, and improving the quality of our communications with non-economists. The *WAEA* must continually evaluate and respond to societal economic education needs by using our comparative advantage of producing high-quality, unbiased, research-based output. Specifically, I believe that the *WAEA* will need to provide monetary compensation to future *JARE* editors/editorial teams if we are to successfully compete for critical scarce resources and maintain the high standards set by previous editors/editorial teams. I am in favor of a three-year cycle of annual meetings in which we share meeting venues with the *AAEA* and *WEAI* in two-out-of-three years. I would like to see the *WAEA* hold its own annual meeting every third year at a family-oriented, resort destination (e.g., Lake Tahoe, NV; Big Sky, MT; Aspen, CO; Coeur d'Alene, ID;

an Alaskan cruise ship). Finally, the *WAEA* should sponsor a low-cost, quasi-formal employment center at our own annual meetings and when we meet with the *WEAI* to encourage graduate student meeting participation and improve the efficiency of our labor markets."

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#### **Rhonda Skaggs**

Rhonda Skaggs is a Professor of Agricultural Economics and Agricultural Business at New Mexico State University. She received her B.S. and M.S. from Colorado State University, and her Ph.D. from Utah State University. She was employed as a Research Associate at the University of Wyoming, and has been with NMSU since Fall 1989. Dr. Skaggs has served the *WAEA* as a Council Member (since 1995), Director (1998 – 2000), Chair of the Awards Committee (1999), author of articles in the *JARE*, and reviewer for *WAEA* Selected Papers (2000).

#### **WAEA Direction**

The *WAEA* is my professional organization of choice. My association with the *WAEA* has been both personally and professionally rewarding. The *Journal of Agricultural and Resource Economics* has an excellent and well-deserved reputation, and I believe that the journal should continue to serve the interests of the western agricultural economics profession. Membership in the *WAEA* has declined over several years, largely due to reductions in faculty numbers at several departments in the region. Unfortunately, the *WAEA* is not the professional organization of choice for many agricultural economists at western universities. Many of our co-workers do not perceive the *WAEA* to be an organization of their peers. If elected, I will work to spark new interest in the organization among our non-member colleagues.

## Candidates for Director:

### Joe Parcell

Joe Parcell is currently an Assistant Professor in the Department of Agricultural Economics at the University of Missouri. He received his B.A. in Mathematics from the University of Northern Iowa, and his M.S. and PhD in Agricultural Economics from Kansas State University. Dr. Parcell's WAEA activities include publications in the *JARE*; serving as a *JARE* journal reviewer; selected paper reviewer for, moderator at, and presenter at WAEA meetings; and involvement with the Young Professionals in Agriculture Economics Conference. He has been a member of the WAEA since 1995.

### WAEA Direction

The WAEA and its two major functions, the *JARE* and WAEA annual meetings, possesses the institutional background and financial means to create opportunities for integrating academics, industry, and decision makers. The current membership of the WAEA includes numerous individuals that have been recognized nationally and internationally for their contribution to theory, advancement in the application of theory to address recognized problems, and for their delivery of credible and relevant information to clientele. Thus making the WAEA one of the most respected regional associations in the world. To take advantage of these member qualities the WAEA must identify new methods to disseminate knowledge to a broader constituent base, while minimizing the costs of these activities. First, the WAEA should look to establish a practical, peer-reviewed, web-based journal targeted at enabling the process for interaction of academics and constituents. To assess relevance, the web-based journal would provide for real-time discussion forums between the author and readers and evaluation of article content by readers. Second, as the number of faculty in individual departments decline and specialties develop, the opportunity to enhance one's social capital is limited. The WAEA can play a role in identifying interest areas, and mediating the formation of academic clusters for establishing low cost linkages to enhance social capital across locations on a national and international level. This will be especially important for the development of young faculty who enter the profession in a time when many departments face financial constraints, possibly straining their involvement in traditional types of interaction, i.e., professional meetings. I believe that by beginning to investigate these opportunities now the WAEA can develop a niche for which to expand the WAEA membership to include more industry persons and decision makers, as well as to academics looking for a means to interact through non-traditional modes.

### Tom Marsh

Tom Marsh is an Assistant Professor in the Department of Agricultural Economics at Kansas State University. He earned a BA from Carroll College (1985) and MS in Mathematics and Applied Economics from Montana State University (1991). From 1991-1994, he worked as a research economist for the Department of Energy's Pacific Northwest Laboratory. In 1998, he completed a PhD in Agricultural Economics from Washington State University. His activities include WAEA Executive Council (2001-2002), coauthor of *JARE* and selected papers, session chair, and reviewer of *JARE* and selected papers.

### WAEA Vision

The appeal of WAEA is its focus on agricultural and resource economics in the Western US and Canada. Individual contributions on these and other topics are effectively communicated in paper sessions at annual meetings and articles in the *JARE*. However, future success of the WAEA depends on - among other factors - attracting and retaining new professionals. To attract new members, it is important to provide means that successfully integrate students (undergraduate and graduate) and new professionals (industry, academia, and government) into the WAEA meetings, whether their interests are traditional (teaching, research, and extension) or less traditional (job searching, administrative, management, and accreditation). For instance, incorporating regional competitions for student academic bowls or case study teams may be an option. Also, I support alternatives that offer more opportunities for industry professional at annual meetings such as incorporating industry symposiums or workshops. Finally, I support holding periodic joint meetings of the WAEA with the AAEA, WEA, and other associations. This offers more opportunity and better exposure from which to add potential members to the WAEA and it provides WAEA members valuable interaction with other associations.

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### Larry W. Van Tassell

Larry Van Tassell is Department Head and Professor in Agricultural Economics and Rural Sociology at the University of Idaho. Larry was previously a faculty member at the University of Wyoming and the University of Tennessee. He received his Ph.D. in Agricultural Economics at Texas A&M University in 1987 and his M.S. in Agribusiness and B.S. in Animal Science from Brigham Young University. Larry has served the WAEA as a

Council Member 1992-1995; Thesis Awards Committee Member, 1994; Thesis Awards Committee Chairperson, 1995; *JARE* contributor and reviewer; Selected Paper contributor and reviewer; and Selected Papers Committee member, 2000.

The WAEA exists to serve its membership. Along with providing the organizational structure for publishing the *JARE*, the WAEA needs to provide ample opportunity for members to associate with one another and to create synergism among institutions. Members need to decide how to do this—by adding discussion or instructional sessions at the annual meetings, or through another venue. The WAEA council is the key for bringing the membership desires and needs to the association leadership. Council members need to actively solicit input from their department members to a common set of questions to be discussed at each council meeting. Graduate student participation, both M.S. and Ph.D., should also be encouraged by providing activities such as a graduate student paper competition. For example, graduate students could present papers during regular WAEA meeting sessions and be judged by committee members assigned to attend those sessions. Council members should also solicit information from graduate students to determine how the WAEA can best meet their needs and facilitate their integration into the association.

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**Larry Janssen**

Larry Janssen is a Professor in the Department of Economics at South Dakota State University. He received his BS and Ph.D. in agricultural economics at the University of Nebraska - Lincoln and MS in agricultural

economics from Oklahoma State University. He was recently a visiting professor to Chungnam National University in South Korea. He currently teaches classes in agricultural finance, economic development, and research methodology and conducts research on agricultural land market and agro-environmental policy topics. WAEA activities include prior service as a Director (1990-92) and Council member (1987 – 1990), author and reviewer of selected papers, session moderator, and article reviewer for the *JARE*, service on WAEA Outstanding Master's Thesis committee, and SDSU Econ Dept. planning committee for hosting the 1995 WAEA meetings in Rapid City, SD.

**WAEA Direction**

I have been a member of WAEA and AAEA for over 25 years and have participated in many annual meetings and activities of both Associations. The *JARE*, annual meetings and awards program continue as the major “products” of the WAEA. The *JARE* editors have performed a commendable job of increasing the number of articles published and maintaining a high quality journal. I always enjoy participating in the WAEA annual meetings but I am concerned about maintaining the viability of separate summer meetings in an era of rising meeting costs, declining travel budgets, and competition with the AAEA meetings. The WAEA meetings, when separate from AAEA meetings, should include regional topics and activities of interest to members that are distinctly different from the content of AAEA meetings. This should include a major focus on the many economic issues facing the western U.S. and Canada. I would like to obtain information from members of the key characteristics needed to boost attendance and participation in WAEA meetings.



## **Grass Roots Federal Land Management Is This Devolution Really the Solution?**

By John Loomis<sup>1</sup>

Federal land management policy is often portrayed as agencies being in the middle between environmentalists on one side and industry on the other. Agency officials sometimes feel they must be performing a balanced act, when **both** sides think the agency has not gone far enough in their direction. But this approach has frequently resulted in gridlock, with both sides appealing agency decisions and suing the agency.

One of the new institutional changes in federal land management designed to reduce this gridlock is allowing selected National Forests, Monuments and Preserves to be formally managed by local grass roots groups in one form or another rather than solely by federal agencies. There have been three recent legislative experiments in grass roots local control. The first discussed is the Quincy Library Group in northern California, which obtained a Congressional act to replace the U.S. Forest Service's Forest Plan with their community's plan for the Plumas National Forest. Second, is the Valles Caldera National Preserve (formerly the private Baca Ranch) in northern New Mexico. While federal taxpayers across the nation paid \$100 million for acquisition of the 89,000 acres, the long term direction and day-to-day management will be by a board of local trustees, rather than any of the federal land management agencies that manage the surrounding lands. Third, is the Steens Mountain Cooperative Management and Protected Area in eastern Oregon. Here twelve locals will serve on the Steens Mountain Advisory Council and formulate recommendations for the federal Bureau of Land Management to implement.

This essay will use the Quincy Library Group as a case study to provide some commentary as to the concerns regarding this institutional change to grass roots federal land management. The number of local management examples may double if President Bush's proposed "Charter Forests" are adopted and oversight is granted to local trusts rather than the federal U.S. Forest Service. One of the goals is to spare these charter forests from having to comply with environmental procedures such as the National Environmental Policy Act.

These shifts to local control run counter to another major trend in public land management—ecosystem management. Putting what were private lands purchased by U.S. taxpayers for the Valles Caldera National Preserve under local control, rather than transferring management to one of the federal land management agencies, makes ecosystem management more difficult.

That is, acquisition of private lands at the headwaters of the Jemez River was an opportunity to facilitate ecosystem management with the U.S. Forest Service and Bureau of Land Management lands. Despite public acquisition, the coordination task among landowners has not been simplified.

It is worth noting that what is at stake in these precedent setting experiments is a transition from accountability of federal land managers to all the publics (local and non local residents) of the nation to one of local control of a federal asset and the federal treasury. Federal agencies have had requirements since 1969 through the National Environmental Policy Act's (NEPA) requirements to prepare Environmental Impact Statements along with the associated requirements of public notification and public comment periods. The National Forest Management Act of 1976 and Federal Land Policy and Management Act of 1976 both require extensive public involvement in plan scoping, public comment on plan alternatives, and selection of the final management for the National Forest or BLM area. There have long been established avenues for local residents to directly participate in land management planning. Local residents have always had significant input in influencing National Forest and BLM plans and decisions due to their proximity to the federal land management offices in their towns and the fact that public meetings were frequently only held in these towns. However, the locals did not have a monopoly on public input, as letters from those living outside the area still have to be considered in a NEPA analysis. Often times hundreds of letters would be received from outside the area providing a formal voice to non-local residents. With these three grass roots experiments, locals have legally institutionalized their influence in calling the shots on these federal lands, but not in paying the bills. This essay attempts to shed some light on whether this institutional change will lead to more efficient public land management than current federal agency management.

### **Quincy Library Group's Rise from Local Stakeholders to De-facto National Forest Supervisors**

Like many National Forests, policy and legal gridlock was the state of affairs on the Plumas and Lassen National Forests in the late 1980's and early 1990's. Local environmentalists concerned about old growth forests and the California Spotted Owl were appealing U.S. Forest Service timber sales aimed at providing timber to local

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mills to support employment. As a result, timber production was falling. This state led Plumas County Supervisor Bill Coates to bring the two main adversaries (a local environmental attorney and the director of Sierra Pacific Industries) together directly (Davis and King, 2001). These three agreed it would be more productive to try and develop a compromise, rather than fight each other (Mann and Plummer, 1998). The name of the group arises from the fact that the Quincy public library was a neutral place all the groups could find to meet. The U.S. Forest Service personnel attended the meeting but only as observers.

It took nearly two years and dozens of meetings, but the participants agreed upon a forest management plan that accommodated environmental concerns, while providing some timber for industry. The U.S. Forest Service not only supported the ideas of the Quincy Library Group's plan but was willing to back it administratively by requesting funding from Congress for selected projects in the Group's plan (Davis and King, 2001). However, the agency would not support formally amending the National Forest Plans to include all the specific recommendations of the Quincy Library Group (Davis and King, 2001). Therefore, the Group sought Congressional endorsement of its management recommendations. In the House of Representatives the Quincy Library Group's Forest Recovery and Economic Stability Act was passed in 1998 by a nearly unanimous vote (U.S. House of Representatives, 1998). In May of 1998 the Senate version was attached as a rider to a federal spending bill by one of California's senators (Feinstein). With the help of California Representative Herger, the bill survived, was signed by President Clinton and became known as the Herger-Feinstein Quincy Library Group Forest Recovery Act.

The bill requires the U.S. Forest Service to manage 2.25 million acres of land in the two National Forests according to the Quincy Library Group's plan for a period of five years (Davis and King, 2001). The Act requires the U.S. Forest Service to follow all existing environmental laws. However the Group's plan departs from what had been the U.S. Forest Service standard timber practices of clearcutting in favor of single tree and group-selection (U.S. Senate, 1997). Timber production activities are to be coordinated with construction of fuel breaks on 40,000 to 60,000 acres of land to address concerns over fire hazards to forests and homeowners in the area (Davis, 2001). Clearing timber to create large swaths of bare ground to prevent the spread of wildfire is a nice example of joint production: meeting two land management objectives (fire prevention and timber volume) with one coordinated management action.

An important precedent set by the Quincy Library Group is to significantly rearrange the institutional pattern of federal land management. No longer would resource professionals formulate management practices to address the issues raised by the public and resource professionals with state and other federal agencies. No longer would

these agency plans be reviewed for consistency with national direction and then funds requested from Congress to implement the plan. The Quincy Library Group model starts with locals identifying the problem **and** formulating the alternative management plans. The locals then directly petition Congress to adopt their plan and ask the U.S. taxpayer to fund the U.S. Forest Service to implement their local plan.

### **Economic Concerns About Grass Roots Federal Land Management**

This new institutional rearrangement presents several concerns. While local residents of course have local knowledge of the area and resources, they may lack the multi-disciplinary and technical planning expertise to make sure their plans are feasible. Simply summing all the outputs that each group records on meeting flip charts does not provide any test of whether the land is capable of sustainably supplying these outputs. The U.S. Forest Service's previous Forest Plans involved use of a linear programming model that was designed to ensure that any alternative was within the sustained yield capability of the forest over a 50 year planning horizon.

The second concern is one of differences in accounting stances between those who live in Quincy and can repeatedly travel to local meetings and those who reside throughout California and the western U.S. Do local citizens of Quincy have the incentives to adequately represent all the citizens affected by management of the natural resources on this National Forest? While the local citizens in attendance represent those affected the most per person, aggregate effects require consideration of the total number of people affected. While the 10 million San Francisco Bay area and Central Valley residents may have less at stake per person, the *sum* of these small effects per person can potentially exceed that of the few local citizens seated in the Quincy Library.

One of the rationales for the federal management is that it would account for the public good benefits accruing to the nation (Loomis, 2002). An empirical example of the difference in benefits per person versus the aggregate can illustrate this important distinction. The Plumas and Lassen National Forests are habitat to the California Spotted Owl and therefore the concern about the management of these National Forests potentially has national implications. An empirical study by Loomis and Gonzalez-Caban (1997) found that households as far away as New England would pay \$46 (with a 90% confidence interval of \$41-50) per household each year for protection of the California Spotted Owl habitat. California households would pay \$79. While the amount that each California household would pay is nearly double that of a typical New England household and California is the most populous state in the nation, the state benefits of protecting the California Spotted Owl represent only 17% of the national benefits (Loomis, 2000). The omission of benefits of rare species would be even more pronounced if we calculated the

benefits just to Plumas County households. This pattern of greater national than local benefits for public goods compares with the local job benefits from timber production. The vast majority of these local timber production benefits accrue to Plumas County in the form of direct wages and indirect multiplier effects. Yet from the national viewpoint, such jobs are transfers of economic activity that would occur somewhere else in the nation if not in Plumas County. When the local economy captures nearly all the benefits from extraction of private goods, but would receive only a fraction of the public good benefits from habitat protection, it is not unexpected that extraction wins out over public goods.

Equally important is the fact that it is the 100 million taxpayers throughout the U.S. that will pay for the U.S. Forest Service's implementation of the Quincy Library Group's plan. Thus, members of the Quincy Library Group have incentives to act like any other special interest: maximize their concentrated benefits and spread the costs out over the general public such that the costs per taxpayer are so small, they are unnoticeable (Gardner, 1983, 1997; Stroup and Baden, 1983). Whether this is an improvement over industry special interests' concentration of benefits and spreading of cost is an empirical question.

#### **Some Final Observations**

While the old guard of the Sagebrush Rebellion might support these local control efforts, their intellectual supporters might not. That is, while one might suspect on the surface that free market economists might support these local control efforts, if they are true to their principles, I am not sure these efforts would be what free market economists had in mind. In particular, local control was to be the merging of authority with the economic responsibility for managing the lands. But these local control efforts have the authority, while the federal taxpayer still has the financial responsibility for paying for the variable costs of managing these lands (except in the case of the Valles Caldera where they are supposed to be financially self-sufficient in 15 years). With two of these local control efforts, there is still a divergence between the authority to determine what management practices occur on the land and the responsibility to bear the costs of those actions. Whether this divergence results in public land management actions that better maximize net benefits to the public than federal agency management is a testable hypothesis. Specifically, what is needed is a comparison of traditional federal land management and grass roots management on variables such as net benefits "to whomsoever they accrue", as well as environmental indicators such as water quality or population trends of threatened and endangered species. These three experiments in grass roots federal land management provide economists with three natural experiments that may provide the empirical data to test this hypothesis.

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## Dynamic Strategic Interaction: A Synthesis of Modeling Methods

by Timothy J. Richards<sup>1</sup>

Agribusiness in the western U.S. no longer consists only of atomistic producers selling into homogeneous commodity markets. Rather, marketing concepts such as value-added, differentiation, branding and supply-chain management are now as familiar to growers, grower cooperatives and marketing boards as they are to food processors and retailers downstream. From Pink Lady apples in Washington State to Shamrock foods in Arizona and Sunkist in California, "commodity" marketers are developing a level of sophistication on par with the most aggressive consumer good manufacturers. With this increased level of marketing sophistication, however, comes a new definition of "competition." Competition no longer implies passive acceptance of a market price, but rather active design of a marketing program intended to develop and exploit strategic pricing opportunities.

Economic analysis can help managers better understand the opportunities they may face. Indeed, much of the recent empirical research in both marketing and industrial organization focuses on the nature of strategic interaction among rival firms (Feichtinger, Hartl, and Sethi, 1994; Slade, 1995). However, economists tend to take a positive approach in testing whether market power or strategic behavior exists, while marketing researchers build normative models that make optimal use of limited marketing budgets. For both purposes, however, each must estimate parameters that describe strategic conduct. In theory, these two disparate approaches should yield identical results, but in practice their fundamentally different modeling techniques often leave this similarity in some doubt. While most researchers agree that marketing strategies based on advertising, promotion, pricing, product attributes or product line must be cast in a dynamic framework, that is where the agreement ends. Indeed, the heart of the discrepancy between the two modeling approaches lies in competing assumptions regarding how to treat the dynamic impacts of marketing investments. Essentially, there are two broad model types that appear in the industrial organization and strategic marketing literatures, respectively: (1) Nerlove-Arrow, or "goodwill" models, and (2) Lanchester, or "market share" models.

Among the first studies to incorporate advertising dynamics, Nerlove and Arrow (1962) maintain that advertising expenditures are in fact investments in a long-lived capital asset they termed "goodwill." Because goodwill is both slow to develop and depreciates (in an economic, rather than accounting sense) slowly over time once established, the impact of an investment made in one period can be felt for many periods into the future. As

a result, economic models that describe the effect of advertising on sales must be inherently dynamic. With this approach, goodwill becomes the single state variable. Examples include Roberts and Samuelson's (1988) dynamic conjectural variations model of strategic advertising interaction in the cigarette industry, Gasmi, Laffont and Vuong's (1992) treatment of marketing activities in the soft drink industry, or Slade's (1995) analysis of price and advertising rivalry among biscuit makers. On the other hand, authors in the strategic marketing field regard market share as the relevant state variable. Specifically, Vidale and Wolfe (1957) and Kimball (1957) develop a model of dynamic market share rivalry based on Lanchester's (1921) study of battlefield strategy. By assuming marketing activities by duopolists act directly on the rate of change of their respective market shares, Lanchester-type models reduce a potentially complex problem to one consisting of a single state variable. Examples of this approach include Deal (1979), Sorger (1989), Erickson (1992, 1997), and Chintagunta and Vilcassim (1992, 1994). While both require the estimation of strategic response parameters, it is perhaps surprising that neither has sought insight from the other on how to accomplish this.

Nonetheless, such a synthesis is possible and potentially desirable. Despite the compelling logic of either approach, each has its conceptual and empirical strengths and weaknesses. Whereas the notion of advertising contributing to a capital asset that has a lasting effect on sales is intuitively plausible, Nerlove - Arrow models are difficult to apply because goodwill is inherently latent or unobservable. Moreover, it is a depreciating asset, yet the rate of depreciation is typically underidentified in most empirical applications. Perhaps due to the fact that the objective in applying this type of model is usually only the estimation of response parameters and not the complete parameterization of an optimal control problem, they also tend to be very complex with many state and more control variables.

Although market-share state variables in Lanchester-type models are readily observable and result in very simple, elegant solutions, there are a number of reasons why this approach is perhaps overly restrictive. First, in order to retain the mathematical tractability of dealing with only one state variable, researchers tend to apply the Lanchester framework only to duopolies (Sorger, 1989; Chintagunta and Jain, 1995; and many others). Erickson (1997) recognizes this weakness by extending the model to include dynamic conjectural variation terms wherein several competitors respond to changes in market share

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with contingent advertising strategies, but he uses synthetic parameters to solve for the optimal path of advertising and does not estimate response parameters. In contrast, structural game theoretic models do not face the same restrictions on the number of potential rivals because they do not purport to solve for equilibrium control paths. For example, Slade (1995) employs a differential game approach similar to Karp and Perloff (1993) in analyzing both price and advertising competition among several rival brands of crackers in a local oligopolistic market. Roberts and Samuelson (1988), Gasmi and Vuong (1991) and Gasmi, Laffont, and Vuong (1992) adopt similar structural approaches, but restrict their analyses to duopolistic rivalry in order to focus on the problem of competing with multiple-tools. Their econometric models could, however, easily be extended to include more general oligopolistic rivalry at little cost.

Second, in considering only market-share rivalry, Lanchester models do not allow for aggregate market growth as a result of competitive advertising. Although this limitation also applies to conditional demand models, it is possible to incorporate aggregate market impacts through two-level demand systems (Richards, van Ispelen, and Kagan). Third, although notable exceptions exist, such as Chintagunta and Vilcassim's (1994) model of advertising and "detailing" by pharmaceutical marketers, studies in the Lanchester tradition typically include only one strategic variable. Clearly, this approach is not entirely realistic because most marketing managers now recognize the potential for complementarity among the tools at their disposal, such as promotion and advertising or merchandising and new product development. Fourth, while the differential equations describing the evolution of duopoly market share are mathematically plausible, they are *ad hoc* as they are not grounded in any theoretical model of consumer choice. Rather, because market share evolves as consumers respond to marketing variables in an optimal way, changes in market share should be fully consistent with constrained consumer optimization. Liang (1986), Chintagunta and Jain (1995), Chingtanunta and Rao (1996) and Cotterill and Putsis (2000) each present alternative ways to incorporate consumer demand into models of strategic rivalry, but none of these studies represents a fully dynamic approach to the problem at hand. By grounding a dynamic, strategic-marketing model in consumer theory, we may be able to estimate a system of equations that provides a more realistic description of the likely outcome of market share rivalry.

We propose a model that addresses each of these weaknesses by integrating features from both industrial organization and marketing research models of strategic rivalry. First, by treating each firm within an oligopoly as being in an "us versus them" battle for market share, we are able to condense a potentially intractable oligopoly problem into one that is mathematically manageable. This is a realistic approach in that oligopolistic firms rarely single-out particular rivals for a targeted price cut or

advertising campaign. Second, we explicitly account for the fact that marketing strategies can, and do, include choices over several marketing variables and that these choices are endogenous to market performance and rival strategies. Consequently, we specify a fully simultaneous model of product demand and strategic-response. This is again realistic as firms allocate marketing budgets among different functions according to their effectiveness in countering rival strategies and in working with other marketing activities. Third, we base the dynamics governing market share in a model of consumer optimization, so strategic interaction impacts firm performance not directly, but through demand for their product. This is a more realistic and plausible motivation for the evolution of market share as it goes to the *cause* of changes in share rather than the *symptoms* of rivals' actions. By incorporating these three features into a model of strategic rivalry, we hope to create a synthesis that performs better than existing models.

### An Empirical Comparison

To facilitate comparison, we first present a brief description of a typical Lanchester-type model and then offer an alternative. With a Lanchester approach, firms maximize the present value of future profits subject to the dynamic evolution of their market share, which is in turn determined by the nature of the strategic response of their rivals. In a duopoly, the single state variable is defined in terms of firm *l*'s market share ( $M_l$ ) so that rival market share is the simple complement of this:  $M_k = 1 - M_l$ . Market share growth is assumed to rise with the effectiveness of a firm's own marketing activities and the extent of the market not currently being served. Moreover, each marketing activity has a diminishing marginal impact on a firm's own market share as initial gains are, quite plausibly, easier than later ones. With these assumptions, the equation of motion for the market share of firm *l* is written as:

$$\dot{M}_l = M_{l,t} - \mathbf{f}_l M_{l,t-1} = ( \mathbf{b}_l A_l^{a_l} ) (1 - M_l) - ( \mathbf{b}_{-l} A_{-l}^{a_{-l}} ) M_l + \mathbf{e}_l,$$

where  $M_l$  is the change in market share of the  $i^{\text{th}}$  firm,  $A_i$ ,  $A_{-i}$  are a set of  $j$  marketing tools available to firm *l* and its rival, respectively, and  $\mathbf{e}_l$  is a random error. For example, this set of tools may consist of advertising, product development expenditure, number of distinct brands (product line length) or price. In this general form for firm *l*'s market share dynamics,  $\mathbf{b}_l$  measures the effectiveness of the particular strategic tool, whereas  $\mathbf{a}_l$  provides an estimate of its curvature. Further, we include the parameter  $N$  ( $0 < N < 1$ ) to account for the possibility that market share adjustment from one period to the next is costly, so it is not instantaneous if firms behave optimally. Equation (1) forms the basis of the Lanchester model of market share rivalry. Despite its simplicity, intuitive appeal,

and considerable empirical support, it nonetheless rests on an *ad hoc* specification for the evolution of market share.

On the other hand, if the equations of motion for market share represent a system of consumer demand functions, such as the Almost Ideal Demand System (AIDS) model of Deaton and Muellbauer (1980), then they can be consistent with optimal consumer behavior. More specifically, if prices are indeed endogenous (Liang, 1986; Cotterill and Putsis, 2000), then the demand system itself should be written in inverse, or *price-dependent* form with firm-level quantities as explanatory variables. This is the Inverse Almost Ideal Demand System (IAIDS) of Moschini and Vissa (1992) and Eales and Unnevehr (1993). Allowing for the fact that consumer learning, habits, costly search, and the formation of a stock of marketing goodwill all imply that demand is inherently dynamic, we write the IAIDS equations of motion as the system of inverse demand equations:

$$M_{it} = q_i M_{i,t-1} + \sum_j d_{ij} \ln A_{ij} + \sum_j d_{-ij} \ln A_{-ij} + g_i \ln q_i + g_{-i} \ln q_{-i} + h_i \ln Q + v_i,$$

for all  $I$  firms using  $J$  marketing tools, where  $\mathbf{z}_i$  is the rate of market-share adjustment,  $q_i$  is the unit volume sold by firm  $i$ ,  $Q$  is the total quantity index,  $v_i$  is a random error term and the other variables are as defined above. With this specification, average price levels for each rival firm are implicitly endogenous, so they are strategic variables in the IAIDS model, but not the Lanchester model. Note also that this model can generalize to multiple strategic variables and many firms. Next, with the competing market-share adjustment equations defined in (1) and (2), we derive equations for each model that define the optimal strategic response in each marketing mix variable from the first order conditions of the firm's dynamic optimization problem.

The details of this derivation for the IAIDS model are in Richards and Patterson, but we summarize the logic here. If we assume the firms play a non-cooperative game in each marketing tool in every time period, a closed-loop solution to the dynamic problem constitutes a Nash equilibrium where each decision variable is a function not only of time, but of the current state of the game. In this respect, we model a sub-game perfect solution. Clearly, solving this problem in more than two market shares i.e. in an oligopoly, or with multiple tools is analytically intractable. Therefore, we adopt a new approach by considering the oligopoly solution as simply a series of "us versus them" duopoly games. This approach, while unique, is valuable in two respects. First, it reduces the number of state variables, thus making what would otherwise be an intractable economic problem easily solvable with analytical methods. Second, it is intuitively preferable because firms do not single-out rivals for targeted advertising or pricing strategies as a complete,

multi-firm strategic response model would imply. Rather, they set policies conditional on the strategic environment they face, which may consist of any number of rivals. By optimizing their marketing decisions given the optimal reactions of the collection of other firms, the industry equilibrium is still Nash. Consequently, we estimate a demand system wherein the arguments are the own firm's marketing activities, all other firms' activities, the own firm's quantity, all other firms' quantities, and an aggregate sales index. Estimating this system in a fully simultaneous model that also includes supply, or conduct, equations for each quantity and marketing activity provides a consistent set of response-parameter estimates. Deriving an econometric model, however, does not guarantee that it provides a better fit to the data compared to the existing approach.

To examine whether it does, we estimate a similar simultaneous system of equations consisting of the equations of motion from a Lanchester model of market share rivalry along with the implied first order conditions for the optimal choice of each marketing activity. Because the IAIDS and Lanchester models are not nested in one another, we compare their empirical performance using a battery of non-nested tests consisting of: (1) the Jtest of Davidson and MacKinnon (1981), (2) the Likelihood Dominance criterion of Pollak and Wales (1991), and (3) two measures of predictive accuracy B the root mean square error and Theil's U (Theil 1961). The data for our comparison consist of 65 four-weekly observations of ready to eat cereal sales, prices and brand introduction data taken from the IRI Infoscane data base for the Baltimore / Washington, D.C. market. We combine these data with smoothed quarterly observations on advertising and product development expenditure for the top four cereal companies.

In this example, we find that all three methods of comparison favor the IAIDS over the Lanchester model. Perhaps more importantly, we also find that several important implications that arise from the IAIDS results are either absent in the Lanchester results, or the Lanchester model suggests an entirely different strategy. For example, the IAIDS results show that advertising expenditures and new product introductions are complementary, whereas the Lanchester model does not. Given that firms rarely introduce new products without advertising, and never without some prior commitment to significant investment in product development, the Lanchester results appear to be of little value. Beyond these, and similar, insights into the conduct of marketing rivalry, the approach illustrated here may be valuable to marketing researchers or managers in general in a wide variety of similar contexts.

In particular, recognizing that strategic variables affect firm performance only indirectly through consumer demand is more consistent with marketing practice than is a simple, mechanistic assessment of the tactical benefits of putting capital toward each marketing tool. Indeed, well-planned

marketing decisions are taken with customer-oriented goals in mind so gains on rivals are achieved by reaching the same set of customers in a more effective way. Further, this analysis shows that these strategic goals need not be couched in terms of a series of one-on-one interactions with rivals as in traditional oligopoly analysis, but rather as if each firm exists in a duopoly -- a duopoly consisting of itself and all other rivals. This perspective not only serves to make dynamic empirical analysis of oligopolistic rivalry mathematically solvable, but also provides more general recommendations as to the optimal policy of any one industry member. In light of these results, the path of future research in this area is clear. Namely, broadening the scope for integrating methods from marketing research into econometric orthodoxy.

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## **Industry Location Modeling: Extensions of the Plains Economic Targeting System**

By John Leatherman<sup>1</sup>

It has long been recognized that rural areas of the United States are diverse in character and prospects. In many areas, economic prosperity has led to rapid and, some contend, unrestrained growth. In these areas, there is increasing concern about sprawling and inefficient development, loss of farmland and open space, and the erosion of community character and rural culture. Nevertheless, many other rural areas have been bypassed, despite the recent robust performance of the national economy. Communities throughout the Great Plains continue to lose economic base and population. Similarly, many communities in western America continue to struggle with the transition from a traditionally extractive economic base as resource limitations are realized and rules governing resource use become more restrictive.

There are a number of local economic development strategies available to rural communities (Pulver). Among them is the notion of attracting new basic employers from outside the community. Many disparage a strategy of industrial recruitment as "smokestack chasing," indicative of an economic development mind-set of decades past. Rather, entrepreneurial strategies have been in vogue (Eisinger; Flora et al.). Clearly, much has been learned about the efficacy of various economic development strategies. For communities in many rural regions, however, the simple acknowledgment of constraints and the need for new employment opportunities keep all options on the table. Among them is targeted business recruitment and development.

Business recruitment tends to be among the most competitive, costly and risky economic development strategies. Despite the risks, new business recruitment remains among the most common local economic development strategies (Finsterbusch and Kuennen). This makes it all the more important to develop analytic tools

that may help local officials make better choices regarding targeting efforts.

The idea of building an industrial targeting system for rural communities has precedent. Notably, Goode and colleagues developed the Northeast Industrial Targeting (NIT) and Economic Development Database (EDD) System in the mid-1980's (Goode and Hastings 1989a, 1989b). The NIT system matched industry requirements with community characteristics for 69 aggregate manufacturing sectors for 730 non-metropolitan communities in the northeastern United States.

In response to continuing requests for analytical assistance, my colleagues and I (Leatherman, Howard and Kastens) built a location model that predicts the probability of various types of economic growth for 414 counties in six Great Plains' states (North and South Dakota, Nebraska, Kansas, Oklahoma, and northern Texas) for the period 1995 - 2003. Among the innovations incorporated into our Plains Economic Targeting System (PETS) was to expand the scope of industries modeled to recognize the greater variety of economic sectors representing growth potential for rural communities, including manufacturing, transportation, trade, services and finance. Further, we specified the model in a way that local officials could clearly see how local characteristics affected the probabilities of business location and how changing the community characteristics altered those probabilities.

We are currently constructing a new model for Kansas that will project growth probabilities between 2001 and 2008. I discuss the original PETS model and its implications below, and enhancements planned for the next version. With renewed interest in economic targeting strategies, it is hoped these ideas will help spur further development of industry location models.

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### **The PETS Model**

In the original PETS model, industry growth was conceptualized as being a function of community economic conditions, social climate, local infrastructure, labor force characteristics, market access, and prior industry growth history. Independent variables operationalizing these characteristics were selected based on previous research and economic theory (Kusmin; Kusmin, Redman and Sears). Twenty-four county-level variables were used to explain economic growth, and included local government revenue and expenditure patterns, the structure of the local economy (percentage of employment in agriculture, manufacturing, services), characteristics of the local population (population, population density, age, education, poverty and labor force participation rates, worker earnings, housing values), the presence of major infrastructure (airports, interstate highways), lagged industry growth, and state dummy variables. Data were gathered from the U.S. Census Bureau and other sources generally centering around 1980 and 1990.

The dependent variable was a binary variable taken from County Business Patterns. Data were collected for manufacturing, transportation, communication and public utilities (TCPU), wholesale trade, finance, insurance and real estate (FIRE), and business services. Sectors such as agriculture, mining, construction, retail trade and government were excluded because it was perceived there was little a community could do to attract more of these activities beyond that which either natural endowments or market forces would otherwise dictate. The number of establishments by four-digit Standard Industry Classification (SIC) were counted for 1977, 1985, 1986 and 1994, and coded 1 if the number of establishments increased between 1977-1985 and 1986-1994 or 0 if the number of establishments remained the same or decreased. Industries were aggregated within SIC industry groups to the final 78 sectors after reaching a variable threshold of activity.

Two models were then estimated. First, the 1980 county characteristics were used to explain economic growth that occurred between 1986 and 1994. The parameter estimates from the 1980 model were inserted into a predictive equation containing 1990 county characteristics to generate probabilities of industry growth between 1995 and 2003. Finally, the coefficients from the second model were used to derive the marginal impacts associated with each of the independent variables. A fuller description of the modeling procedures used is available elsewhere (Leatherman, Howard and Kastens).

### **Thomas County, Kansas**

The case of Thomas County, Kansas is used to illustrate the use of the PETS system. Thomas County is located in northwestern Kansas and had a 2000 population of 8,180.

Selected industry probabilities for the county are shown in Table 1.

In Thomas County, depository institutions and trucking services are the industry sectors with the highest probability of growth between 1995-2003, with about a 95 percent chance of an increase in the number of establishments. In general, business services, TCPU, wholesale trade, and FIRE activities had the highest probability of growth over the period. The first manufacturing activities to show up on the list are 12<sup>th</sup>, printing and publishing, and 15<sup>th</sup>, newspapers. It is fairly typical for manufacturing to grow relatively slowly across rural counties. The information serves to point out the need to look beyond a narrow set of traditionally desired targets, i.e. manufacturers.

Calculating the marginal impacts of independent variables can show local officials how community characteristics influence the probability of different outcomes, and suggest how changing those characteristics might influence future probabilities. Considering the trucking sector, for example, in addition to several of the state dummy variables, total population, level of poverty, education expenditures, and manufacturing employment are statistically significant factors influencing the level of trucking activity. In the case of Thomas County, a one percent increase in manufacturing employment would increase the probability of new trucking activity by three-tenths of one percent, while a one percent increase in the poverty rate would decrease the probability of trucking activity by four-tenths of one percent.

Clearly, the marginal impacts in this case are small, and one also might conclude somewhat meaningless insofar as communities have few means to increase manufacturing activity or decrease poverty. The benefit of this information is first to suggest that a host of local conditions influence the probability of economic activity, which broadens the debate about what can constitute an economic development program. Secondly, it is empowering to communities to understand that at least to some extent the future is within local control to influence for the better or worse. And, finally, even if something like poverty defies local control, attendant factors such as public safety, social services outreach, or worker transportation barriers certainly are within local control. As such, there may be opportunities to mitigate the negative or accentuate the positive that may be associated with factors seemingly beyond local control.

### **Future Refinements of the Targeting System**

A number of refinements are currently being incorporated into a new version of the industry location model. Currently, the model projects industry location probabilities between 1995 and 2003, a time period almost elapsed. Another shortcoming of the existing model is the high degree of sectoral aggregation resulting from County Business Patterns non-disclosure of data in many smaller counties.

Table 1. Probability of Industry Growth in Thomas County, Kansas, 1995-2003.

Rank Order	Probability of Growth	Industry SIC Code	Industry Sector Description	Type of Industry Sector
1	0.956	6000	Depository Institutions	FIRE
2	0.951	4210	Trucking and Courier Services	TCPU
3	0.871	4900	Electric, Gas and Sanitary Services	TCPU
4	0.784	6100	Nondepository Institutions	FIRE
5	0.760	7380	Miscellaneous Business Services	Business Services
6	0.709	6500	Real Estate	FIRE
7	0.694	5191	Farm Supplies	Wholesale Trade
8	0.652	5190	Miscellaneous Nondurable Goods	Wholesale Trade
9	0.649	7340	Services to Buildings	Business Services
10	0.641	6400	Insurance Agents and Brokers	FIRE
11	0.634	6200	Security and Commodity Brokers	FIRE
12	0.609	2700	Printing and Publishing	Nondurable Manufacturing
13	0.609	7330	Mailing, Reproduction, Stenographic Services	Business Services
14	0.585	5170	Petroleum and Petroleum Products	Wholesale Trade
15	0.578	2710	Newspapers	Nondurable Manufacturing

Highly aggregated probabilities limit the model's utility as a "rural" development tool because much of the rural detail was aggregated. It also results in such broad sectors as to provide little utility as a "targeting" tool, when detail is precisely what is needed to understand a sector's needs.

The next version of the model will focus on counties in Kansas. The source for data relating to changes in economic activity comes from fully-disclosed ES-202 unemployment compensation insurance tax files from the

Labor Market Information Services office in Kansas. This is firm-level data showing monthly employment and quarterly wages for the period 1988-2001. Employment information aggregated to a four-digit SIC will be converted into the IMPLAN social accounting matrix sectoring system (MIG). This will permit use of the IMPLAN input-output information in the construction of some of the independent variables. Based on the data available, the new model will estimate probabilities for the period 2001 to 2008.

The industry sectors in the model include all those present in the IMPLAN system except agriculture, mining, construction and government. Based on the IMPLAN model for the state of Kansas, this leaves 357 economic sectors theoretically eligible for inclusion. Sectors meeting a threshold criteria of 50 or more employees and a minimum of \$10 million annual sales will be included in the system. This will result in 271 economic sectors to be modeled.

Among the additional refinements of this version of the model will be the inclusion of variables representing the spatial interrelationships of industries and markets. Goode (1986) demonstrated the improved performance of the NIT and EDD system using spatial variables, which heretofore had been deemed too labor intensive to construct.

Industries consider two important types of spatial relationships that can be used to explain location decisions: the availability of input supply and market access for output demand. Spatial variables for each of the IMPLAN industry sectors will be constructed by examining the direct requirements coefficients and identifying all sectors with significant backward or forward linkages. For those inter-linked input/output sectors exceeding a threshold value of five percent input purchase for each IMPLAN sector, the input supply and market access variables will be constructed. The new modeling system will be available for use by fall 2002.

### **Conclusion**

The system described in this paper represents one potential tool to help community leaders utilize scarce local resources with greater effect. The inclusion of a wide number of economic sectors representing rural growth potential will help local officials appreciate the need to look beyond a narrow range of targeted prospects. Inclusion of the marginal impacts associated with significant independent variables suggests "policy levers" local officials can use to improve that which they can control or mitigate that which may be beyond their direct control.

Finally, even for those places with an over-abundance of economic growth, the system can be used to help set priorities that promote a desired "quality" of growth. While the system can not be used in isolation from other information needed for economic development policy formation, it can provide valuable additional input.

Clearly, a system such as the one presented here does not provide all of the information local policy makers need to make informed economic development decisions. Additional information related to specific sectors is needed to understand growth prospects and industry needs. Information relating to likely impacts associated with individual sectors also needs to be considered. Not all economic activity is desirable activity. There may be any number of positive or negative externalities that are not considered in this analysis. Nor are community

preferences explicitly incorporated into this system. Still, there is no claim that a location model is all that is needed. Indeed, supplementary information and assistance is strongly recommended. Tools to project likely impacts and community preference processes are readily available to add needed information.

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## **The 2002 Farm Bill: What Does It Mean for Western Agriculture?**

By James W. Richardson<sup>1</sup>

The 2002 farm bill is finally complete. The conferees worked long and hard to hammer out a farm bill from the House bill (H.R. 2646 -- Farm Security Act of 2001) and the Senate bill (S. 1731 -- Agriculture, Conservation, and Rural Enhancement Act of 2002). Both bills had provisions that would have directly and indirectly impacted western agriculture; some made it through, while some did not. There are similarities between the bills, but they are most noteworthy in their differences on issues such as payment base for crops, payment limitations, and conservation spending. It is interesting now to look back on the differences between the bills and the final bill to see how the West fared.

The Senate bill was a 5-year bill while the House bill was a ten-year bill. Both bills spent the full amount budgeted for agriculture; so they both would have cost the same. A major issue is how this expenditure is allocated. The House proposed to increase funding for conservation slightly while spending most of the increased budget allocation on traditional program crops. On the other hand, the Senate proposed spending considerably more of the increased budget allocation on conservation titles, so less new money was spent on traditional program crops. In the end Congress passed a seven-year bill that spent all it was authorized to and both traditional crops and conservation titles received more money.

Overall it appears that agriculture in the Western states was largely ignored in writing the farm bill. Problems faced by cotton and rice farmers in California, wheat and barley producers in Washington, Montana, and Colorado, sheep ranchers in the Mountain states, and sugar beet producers in Wyoming and Montana were directly addressed in the farm bill debate while most of the rest of the farmers and ranchers in the West were ignored. Some may agree with this statement, but it oversimplifies the farm bill. The farm bill is written for the whole country, not specifically for each region. Although the bill does not directly provide price and income supports for western cattle raisers it does affect their incomes through its affects on feed grain supplies and prices.

The purpose of this paper is to discuss how the House and Senate farm bills would likely have affected western agriculture and how the final bill will affect the West. Selected parts of the farm bill are described and their impacts on western producers and landowners are discussed. The paper is organized into three parts: resource issues, commodity programs, and livestock provisions.

### **Resource Issues**

#### **Conservation Security Program (CSP)**

The Senate bill proposed a conservation security program (CSP) that is not found in the old farm bill or in the House bill. The CSP provided incentive payments for farmers to undertake conservation practices on all agricultural lands. The final farm bill includes a CSP title that specifically names both farming and ranching operations. Conservation plans consistent with local needs would be developed between landowners and the local Natural Resource and Conservation Service (NRCS) offices. Annual payments to land owners for their conservation activities would depend on the types of actions proposed in the conservation plans.

Under the lowest level of participation (Tier I), producers implementing new conservation practices or expanding existing activities could receive five annual payments of up to \$20,000 per year. Under the highest level of participation (Tier III, up to \$45,000 per year) producers must fully implement conservation practices that enhance environmental quality, long-term sustainability, improve profitability and quality of life.

The CSP is available to all owners of private working lands, thus opening the door for ranchers in the West to participate in a new farm program. Cattle ranchers in the West who have not been eligible for income supports (e.g. deficiency payments) in past farm programs could benefit from this provision by filing a conservation plan to improve the environmental quality on their private lands. This

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seems well suited to Western landowners who could qualify for cost sharing to protect environmentally sensitive areas, streams, and threatened and endangered species.

### **Conservation Reserve Program (CRP)**

The Senate and House bills both proposed expanding the CRP. The Senate required that new CRP land must have been in crop production for three of the previous six years. The House would have allowed re-enrollment of CRP lands with erosion control, wildlife, and water quality having equal priority. The farm bill caps the CRP at 39.2 million acres and establishes a number of restrictions on eligible land. The CRP program has been widely used by western landowners. The final bill may make it easier for western landowners to re-enroll expiring contracts as well as enroll new acres under the wildlife and water quality protection provisions.

### **Water and Wetlands Policies**

One of the pilot programs in the Senate bill was the water benefits program (WBP). The WBP authorized funds to help farmers save irrigation water by changing crops and improving irrigation efficiencies, or leasing water rights to states. A ground and surface water conservation program was authorized in the final farm bill as part of the EQIP title. The Secretary shall provide cost sharing to landowners who take on practices to conserve water that will result in net water savings. Although the title is watered down from the Senate's original version, it does provide funds for producers who change their water delivery systems, crop mix, and increase their water efficiency. The bill earmarks special funds to the Klamath Basin, California, and Oregon.

The Senate proposed a wetlands reserve enhancement program to develop wetland restoration programs with state and local governments and with private organizations. The House would have permitted enrolled acres to increase 150,000 per year while the Senate bill permitted 250,000 additional acres to be enrolled annually. The Senate version won out on this issue with the Secretary being instructed to enroll 250,000 acres per year in the program. Western landowners who have qualified wetlands may benefit from expansion of this program.

### **Environmental Quality Incentives Program (EQIP)**

Past legislation permitted \$200 million per year to be spent on EQIP. The final farm bill contained a \$5.1 billion allocation over 2002-2007. The new funding level will result in a considerable increase in funds available to NRCS to help farmers and ranchers undertake EQIP activities all across the country. To the extent that EQIP allows states to deal with their own unique problems rather than fit under national standards, western landowners will

benefit from the program. Such a large increase in funding is likely to make NRCS even more short-handed and create long delays in approving and funding landowner requests.

NRCS is directed in the bill to allocate 60% of the funds to livestock producers and 40% to crop producers. EQIP funds can be used for cost sharing by livestock producers to construct facilities and structures used to manage animal wastes. These funds are limited to one \$450,000 EQIP contract per producer. Western rancher/feeder operations may find this program a source of funds for complying with new animal waste management guidelines. Smaller operations will likely benefit more from this program than large feedlots due to the rule limiting one contract per producer.

### **Grazing Lands**

Both the House and Senate bills authorized funds to better utilize local technical, educational, and related programs to conserve and enhance private grazing land in all states. The final farm bill recognizes the severe lack of technical assistance to farmers and ranchers who graze livestock yet grazing land constitutes nearly half of the non-federal lands in the country. A similar amount was authorized, but never appropriated under the past farm bill, to add a conservation of private grazing land program to NRCS. For the new farm bill, funds are again authorized as a line item in the NRCS budget. Western landowners could benefit from such a program if funds get appropriated and NRCS directs them to a grazing lands program.

The Senate's proposal to create a 2 million acre Grassland Reserve survived to the final bill. Grassland reserve lands can qualify for 10, 15, 20, and 30-year agreements/easements. Enrolled acres with approved NRCS conservation plans could qualify for haying and grazing after the normal nesting and chick-rearing season. Funds of \$245 million over the life of the bill are allocated to grassland reserve program. Many landowners in the western states could benefit from these programs while increasing the productive capacity of their grasslands.

### **Wildlife Habitat**

The past farm program authorized a wildlife habitat incentives program. Both the House and Senate bills would have increased funding for the program. In the final farm bill funds are earmarked (\$15 million in 2002 increasing to \$85 million per year in 2005-07) to cost share with landowners on plant and animal habitat protection programs of 15 years or longer. Landowners in the West faced with increased restrictions on land use due to wildlife encroachment should benefit by receiving payments to accommodate wildlife and possibly benefit from wildlife tourism.

## **Commodity Programs**

### **Return of Target Prices**

The 1996 farm bill eliminated target prices and deficiency payments and initiated production flexibility contract payments paid on frozen base acres and farm program yields. The 2002 farm bill will see the return of target prices but they will be called counter cyclical prices (CCP) with CCP payments. The CCP payments will be decoupled from current production so little increase in the supply of feed grains and wheat can be expected from this part of the farm bill. Grain and cotton farmers in the western states will receive a safety-net type of income support from this program.

The farm bill allows farmers to update their base acres using the average of planted and considered planted acres of program crops for 1998-2001, or they can update base acres just for oilseeds (soybeans and minor oilseeds), or they can retain their current base acres. The CCP payments will be paid based on their own farm program yields. Producers who have experienced yield increases since 1985 will likely benefit from the opportunity to update their program yields for the CCP payments. Program yields have been frozen at their 1985 levels since that date.

### **Marketing Loan Program**

The marketing loan program was extended to wheat and feed grains under the 1996 farm bill. Both the House and Senate extend the marketing loan provisions in their 2002 farm bills. The Senate bill offered higher loan rates than the House. Setting the marketing loan rates was an area of considerable negotiation. Cotton and rice are the only program crops that did not benefit from higher loan rates over the past farm bill. The marketing loan program provides an income safety net for producers, while allowing prices to seek their market clearing levels. This feature in the farm program has prevented the government from acquiring large stocks of grains and made US grains and fiber more competitive in international markets. For livestock producers in the West, this program has meant lower feed grain prices and cheaper costs of gain in the feedlot. Loan rates in the Senate bill could result in slightly larger increases in feed grain and oilseed supplies than the House.

### **Fixed or Direct Payments**

The 1996 farm bill introduced decoupled or production flexibility contract payments that declined over the life of the bill. Both the Senate and House proposed to continue these payments, renaming them "direct payments." The

House set the payment rates at levels higher than their 2001 values and held them constant over the life of the bill. The Senate started with a higher level and decreased the payment rate over time. In the final bill, all direct payment rates are higher than the old farm bill and remain constant over the seven-year life of the bill. Fixed payment rates are stated in \$/bu. or \$/lb. terms so they are the same for all regions.<sup>2</sup> To the extent that wheat yields are greater in parts of the West, these producers will receive larger payments per acre than producers in the Plains.

### **Extension to New Crops**

The marketing loan will be extended to sunflowers, dry peas, lentils, and small chickpeas. Pulse crop growers in the Great Plains and Pacific Northwest will directly benefit from these changes in the program. An expansion of acreages for these crops is likely given marketing loan rates higher than recent prices. Other program benefits such as CCP payments and direct payments are not extended to pulse crops.

### **Payment Limitations**

One of the most contentious issues between the House and Senate bills was the payment limitation provision proposed in the Senate bill. The House bill continued the use of the 3-entity rule, which allows a farmer and spouse to receive the equivalent of two payment limits. The Senate removed the 3-entity rule by proposing payments be limited by direct attribution to a single social security number plus \$50,000 for a qualified spouse.

Direct attribution would have resulted in the payment limitation adversely affecting producers of high valued crops such as, cotton and rice producers in California, and not significantly affecting payments for wheat and feed grain producers. Additionally cotton and rice are adversely affected by the Senate bill disallowing the use of generic marketing certificates to repay marketing loans. The final farm bill retained the three entity rule, allowed the use of generic certificates to repay marketing loans, and dropped the direct attribution requirement.

## **Livestock Provisions**

### **Wool and Mohair**

The farm bill reinstates wool and mohair as program commodities by establishing marketing loans for these commodities. The marketing loan for these commodities would provide western flocks an income safety net without the risk of the government accumulating large stocks of wool and mohair. The previous program for wool, a non-recourse loan, resulted in government accumulation of

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<sup>2</sup> Counter cyclical payment rates equal CCP minus fixed payment rate minus the higher of the loan rate or the market price, so the fixed payment rates are unaffected by the CCP payments.

large stocks after world prices became depressed. The final bill sets a payment limitation of \$40,000 per person for wool and mohair marketing loan gains and loan deficiency payments, which will reduce the benefits to large-scale producers in the West.

### **Dairy**

The Senate bill offered a market loss assistance payment to dairy farmers. The payment was based on the difference between average milk price for the quarter and the same quarter's average price for the past five years. In the final farm bill a national dairy market loss payment was extended to all dairy producers on their base production that was less than the 2.4 million pounds per year limit.

Large-scale producers would be made worse off by this program because lower milk prices resulting from increased supplies of milk, more than offset their limited milk deficiency payments. Smaller dairy farms across the country get the full benefit of the market loss payments inducing them to increase their production of milk.

### **Honey**

The 2002 farm bill reinstated the honey program by adding it to the commodities eligible for a marketing loan and loan deficiency payments. The honey program was beneficial

to western beekeepers in the past. The marketing loan for honey would provide producers an income safety net program without the potential problem of the government accumulating large stocks of honey.

### **Summary**

The 2002 farm bill expanded the number of stakeholders who benefit from the farm program, a stated objective of some policy makers in Washington. The inclusion of new crops (minor oilseeds and lentils), reinstatement of wool, mohair, and honey, and expansion of the conservation title helps Congress achieve that objective. Broadening the farm program base has not gone unnoticed by the traditional program commodity groups. Grain, rice, and cotton producer groups are concerned that their share of the federal expenditures for income supports would be cut.

Agricultural producers in the West could be net beneficiaries from the 2002 farm bill. Large rice and cotton farms in California will likely be hurt by the lower payment limits. Large dairy farms throughout the West will likely be made worse off by the dairy market loss payment for milk. However, benefits to land owners who have not traditionally benefited from farm programs will be eligible for payments and/or cost sharing to undertake conservation and water quality programs being mandated on them. Depending upon the magnitude of these programs it is likely that Western agricultural producers will be net gainers from the 2002 farm bill.