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Minnesota *Applied* Economist

No. 714 Winter 2005

A Newsletter for Alumni and Friends of the Department of Applied Economics University of Minnesota

Department Head's Notes



Serageldin

On March 23rd I attended a remarkable presentation on "Agricultural Science & Technology: A World Divided?" by Dr. Ismail Serageldin, Director of the Library of Alexandria in Egypt. Dr. Serageldin's visit to the University was organized by the Freeman Forum. In his short two-day visit, this

true renaissance man also received an honorary doctoral degree and made presentations on the global effects of the revolution in communications and information technology, the history of the Library of Alexandria, and the reform movement in the Arab world.

The essential message of Dr. Serageldin's presentation on agricultural science and technology was that the challenge of bringing food security to all people in the world is a global problem that we have a moral obligation to address. This is not just a problem of production but also one of access; not just a problem of output but also one of process; not just a problem of technology but also one of policy; not just a problem of amount but also one of content. Above all, the problem of hunger is one that can be addressed if only we have the will to do so. To learn more about Dr. Serageldin and his visit to the University of Minnesota, go to www.freemanforum.org.

Our department has a long history of work on the world hunger problem, and this is a vital area of work for us now. Last August, faculty members

Ford Runge, Ben Senauer, and Phil Pardey, and Mark Rosegrant, a colleague at the International Food Policy Research Institute, won the American Agricultural Economics Association Quality of Communication Award for their book *Ending Hunger in Our Lifetime: Food Security and Globalization*, which documents the origin and scope of world hunger problems and proposes workable strategies for overcoming these problems. On the early April day I am writing these notes, I have just returned from a presentation by Phil Pardey based on his recent book, *Saving Seeds*, which lays out the case for the recently established Global Crop Diversity Trust (www.startwithaseed.org), an international organization founded to establish a \$260 million endowment that will

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help address the world food problem by providing a permanent source of funding for conserving crop varietal diversity in collections around the world.

This issue of *Minnesota Applied Economist* has two articles that describe our ongoing commitment to work on hunger and economic development.

- The first describes our upcoming International Economics Development Conference. This two-day event, on April 29-30, is sponsored by the Center for International Food and Agricultural Policy and being organized by Paul Glewwe. It will bring together outstanding scholars from around the world for presentations and discussions on topics ranging from poverty, gender, and education to economic growth, international trade, and the environment.

- The second describes our newest center, the Center for International Science and Technology Practice and Policy (InSTePP). Directed by Phil Pardey, InSTePP will be undertaking an ambitious research and outreach program on strategic science and technology policy issues related not only to agriculture but also to the health sciences.

Dr. Serageldin's presentation on agricultural science and technology ended with the familiar "whole earth" photograph taken by astronauts on the moon. Our many cultures, climates, and economies are, in fact, all part of a single global system. Our department has made - and will continue to make - important contributions in working toward solutions to global development problems of concern to us all.

Second Annual Minnesota International Economic Development Conference

The Department of Applied Economics and the Center for International Food and Agricultural Policy are organizing a second conference on international economic development. The conference will be held on April 29 and 30, 2005 (Friday and Saturday) at the McNamara Alumni Center. There will be 10 sessions at the conference, each lasting about two hours. In each session three papers will be presented on a particular topic. The 10 topics are as follows.

- Labor markets
- Gender and intrahousehold allocation
- Poverty
- Environment
- Education
- Education and household structure
- Agriculture
- Trade
- Economic growth
- Models of economic development

The 30 papers will be presented by researchers from many universities in the U.S. and abroad as well as researchers from the World Bank and other development organizations. To see the list of presenters, visit the conference website at <http://www.apec.umn.edu/faculty/pglewwe/Minnconf/prelim-program.pdf>.

On Friday evening, Professor Mark Rozenzweig of Harvard University's Kennedy School of Government will be the keynote speaker. The title of his talk is "Globalization and Poverty Reduction in the Long and Short Run." Mark was a professor in the Department of Economics at the University of Minnesota from 1979 to 1990.

All sessions and Professor Rosenzweig's talk are open to the public but all attendees must register. The registration fee is \$75, which includes five meals—from breakfast on April 29 to lunch on April 30. Additional information are available at the conference website at <http://www.apec.umn.edu/faculty/pglewwe/Minnconf/>.

Tom Stinson Receives Outstanding Community Service Award



We are pleased to announce that Associate Professor Tom Stinson has been selected as one of six honorees to receive the 2005 University of Minnesota Outstanding Community Service Award. This award is given in recognition of significant contributions to community service and public engagement on behalf of the University of Minnesota.

Tom holds a tenured teaching, research and extension appointment in the Department of Applied Economics. In addition to his University responsibilities he has served as State Economist in the Minnesota Department of Finance for 18 years. His job description emphasizes the responsibility for preparing the twice-yearly state revenue forecasts that provide the starting points for state budget decisions, but Tom has gone well beyond the simple requirements of that difficult and politically sensitive task. He has used the visibility and access afforded him as state economist to teach state policy makers (including four different governors from three political parties) and the general public about economic policy and to provide information on factors affecting the current and future performance of the Minnesota economy.

The award nomination included letters of support from prominent state and community leaders, all with glowing compliments of Tom's contributions. Former Commissioner of Finance Pamela Wheelock stated that he, "is a teacher, but not just of those enrolled in the classroom – the Capitol and the community are his classrooms and he is able to instructively influence those with whom he has contact." Jon Pratt and Marcia Avner of the Minnesota Council of Non-Profits conclude their letter by saying, "Minnesota is fortunate among states to have this extraordinary individual working at the University and as state economist." We agree and congratulate Tom on this well-deserved recognition.

Donald Liu Named Digital Media Center Faculty Fellow

Associate Professor Donald Liu has been awarded a Faculty Fellowship from the University of Minnesota's Digital Media Center. Since its inception six years ago, the fellowship has provided support to faculty who exhibit an interest in and commitment to technology-enhanced learning.

Donald certainly fits into this profile. In his classes, he currently uses a mix of animated PowerPoint presentations, WebCT utilities, and the Personal Response System (PRS), a classroom technology which enables students to respond privately to a question posed by the instructor who then has the option of accessing the responses immediately. Donald uses the PRS to conduct daily quizzes and solicit feedback to gauge the students' understanding of the material being presented. (A feature article on Donald's use of this system was included in the Winter 2004 issue of *MAE*.)

Donald's fellowship project is titled, "Active Versus Passive Adoption of Classroom Technology: The Case of the Personal Response System." There are three objectives: (1) to create ten learning modules of PRS-facilitated classroom activities which actively take advantage of the technology in such a way that the experiential learning component of a student's learning experience is brought to the forefront, (2) to implement the identified PRS-facilitated experiential learning activities in an introductory economic theory class, and (3) to evaluate the pedagogical effectiveness of the proposed active adoption of the PRS technology vis-à-vis the effectiveness of a mere passive use of the tool. Through an active and well thought-out adoption of the PRS technology, it is the vision of the project that the classroom can be transformed in a fundamental way that provides students ample opportunities for experiential learning.

If his findings and feedback from evaluators are positive, Donald plans to publish research articles and create a teacher-to-teacher technical manual to demonstrate to his colleagues the many different uses of the system. We can think of no one more appropriate to take on this project and look forward to viewing his results.

International Science and Technology Practice and Policy (InSTePP) Center, University of Minnesota

Philip Pardey, Director

Public and private decisions shaping science and technology increasingly involve international dimensions. Investments in research in one locale have spillover consequences in other locations and other areas of science. International agreements and policy initiatives and the actions of governments and multinational firms regarding trade, regulatory and intellectual property concerns are also impinging on and being affected by innovation processes. At the InSTePP center we undertake economic research on strategic science and technology policies, emphasizing the incentives facing and behavior of private entities as well as government actions that affect the conduct, performance and economic consequences of R&D worldwide.

As part of the Department of Applied Economics and the University of Minnesota, the InSTePP Center is well placed to study the international aspects of science and technology policy. The University is at the forefront in many areas of science and technology, making it an ideal location for the Center. In addition, InSTePP's economic emphasis complements other on-going science policy initiatives at the University of Minnesota.

Research Programs

Activities at the Center are just beginning. The center's operations are organized around specific research themes—each with its own set of collaborating institutions and individuals, funding sources, and specific research and outreach objectives. The Center's research initially will focus on a range of policy issues concerning the life sciences. The early emphasis is on research policy and innovation issues dealing with agricultural biotechnologies but will soon broaden to encompass the biosciences more generally.

The Center's research is carried out by on-campus researchers and affiliates, with the active collaboration of individuals and institutions elsewhere in the world. Collaborative research agreements are already in place with

the International Rice Research Institute, Los Baños, the Philippines; the International Food Policy Research Institute, Washington D.C.; and the Center for the Application of Molecular Biology to International Agriculture, Canberra, Australia. Research at the Center will support graduate students working on specific research topics and the Center will also sponsor a visiting-scholars program to maintain a lively, outwardly-oriented, international work environment.

The three main research themes at the Center are currently:

- Agricultural genetic resources—their international flows and economic consequences.
- Intellectual property policies and practices in the life sciences—international aspects and implications.
- Food futures—global assessments of strategic investment options in agricultural technologies and biotechnologies.

Communication and Outreach Efforts

The emphasis of the Center is research—in particular, research designed to have a policy impact. Each of the Center's research themes will produce professional articles and reports, and will endeavor to repackage its findings in paper and on-line formats to disseminate the Center's results as widely as possible. In addition, the Center will develop alliances with other agencies that provide policy advice or are involved in policy formulation. We envisage creating a series of science and technology policy dialogues designed to 1) focus attention on the research themes we are pursuing at the Center, 2) sharpen our policy focus, and 3) enhance debate about the way global science and technology policy is formulated.

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(InSTePP continued.)

Funding Sources

The Center was launched with seed funding from the University of Minnesota's Office of the Vice-President of Research and is currently approaching other units at the University to help underwrite our costs. We are also asking other corporations, foundations, and so forth to fund some of the Center's operating and outreach costs by providing us with multi-year support or long-term endowment funds. The lion's share of the funding for the Center, however, will be in the form of outside grants and contracts earmarked for particular research programs. For each of the Center's research themes, the intent is to secure sustained, multi-year funding—possibly involving a consortium of donors interested in underwriting sizable shares of each of the research themes.

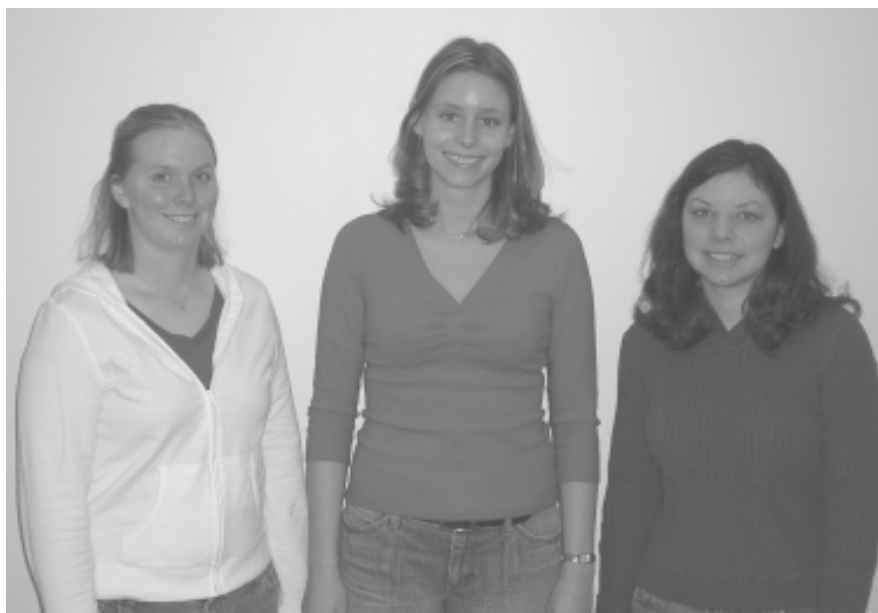
Some funding is already in place. In fall 2003, we secured funding from USDA, ARS and USDA, NRI to study agricultural genetic resources and their international economic consequences. A full-time research associate, Connie Chan-Kang, was hired and work on this project is already well under way. Detailed project proposals for the other two research themes mentioned above have been prepared and are presently under consideration by various donors.

In the coming years, we look forward to the work of the Center making important contributions to our economic understanding of science and technology practices and policies and to influence their formulation in this country and around the world.

AgStar Scholar Program

The AgStar Scholarship program has continued with funding provided by the AgStar Fund for Rural America through AgStar Financial Services Incorporated of Mankato. Each year AgStar Financial Services selects students for this unique scholarship program. Three students were selected as 2005–06 scholars. All three students are juniors majoring in agricultural and food-business management and were selected for their academic achievement, leadership, and involvement in the agricultural community. The winning AgStar scholars and their hometowns are as follows: Amanda Kirk (Eau Claire, WI); Rachel Murray (Blue Earth, MN); and Megan Kappers (Spring Valley, MN).

Each AgStar scholar receives \$2,000 in scholarship funds and the opportunity to participate in an internship with Agstar Financial Services. In addition, the AgStar scholars will attend a guest lecture series during the 2005–06 academic year, and each will prepare a research project (such as a detailed business plan for a farm or agribusiness) during his or her senior year. Professor Glenn Pederson is the faculty contact person and coordinator of the program.



2005–06 AgStar Scholars: Megan Kappers, Amanda Kirk, and Rachel Murray

Fostering Healthy School Food and Farm Connections: The Hopkins Project

Independent School District 270 in Hopkins, MN, has been the focus of much regional and national attention for its innovative school feeding program. In a major step forward, the superintendent, Michael L. Kremer, hired Bertrand Weber, an established and professionally trained chef, to direct the district's food service program. Weber has taken radical steps to revamp the way Hopkins operates its food service program (called "Royal Cuisine"), and is receiving much attention from the media as well as nutritionists and food service directors nationwide. Royal Cuisine, under Weber's direction, aims to provide quality, nutritious foods that are fresh and minimally processed.



Weber and the Hopkins schools have begun a complete reformulation of the Hopkins food service program based on

- healthy and nutritious food choices,
- sound business practices,
- student and faculty involvement in food preparation and nutrition education,
- expansion of food service to capture lost revenues, and
- outreach to local organic farmers and purveyors of healthy foods.

Current food service approaches in the public schools reflect a variety of problems and perverse incentives that contribute to unhealthy eating. These include budget constraints, commodity food options available from the USDA, and a focus on ease of preparation instead of health and nutrition.

Budget constraints force schools to purchase mass-produced, low-cost foods that are offered through large food distributors – foods such as pizza; breaded, frozen, and fried chicken fingers; frozen French fries; and fruit juices with very high levels of high-fructose corn syrup. Moreover, the same budget constraints have prompted schools to do deals with Coca-Cola, Pepsi, pizza distributors, and the snack food industry – including installing vending machines in return for the promise of additional revenue streams.

Beginning in April 2004, Applied Economics Professors C. Ford Runge and Benjamin Senauer began a collaboration with Bertrand Weber. Runge and Senauer began working with Weber in order to “analyze the economics of student food choices, the school budget environment, and the impact of state and federal programs on school feeding programs. The end goal is to demonstrate *an economically viable school lunch program that will reverse obesity in children (as measured by body mass index), encourage healthful eating habits, improve general health and nutrition, and increase local sourcing of nutritionally sound food.*”

Three graduate research assistants are involved with the project. At the microeconomic level, Corbett Grainger is analyzing students' demand for food. Data will be made available on food purchases as well as socioeconomic information on the students. Using this data, Grainger will analyze the consumption decisions made by students in the cafeteria. A better understanding of the microeconomic forces present in school cafeterias will be useful to food service directors as well as policymakers.

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(The Hopkins Project continued.)

Swati Agiwal will analyze the choices made by Royal Cuisine and the budgetary pressures under which it operates. For example, Hopkins – like most school districts – receives surplus “brown box” commodities from the federal government but Weber is working to establish relationships with local farmers for fresh fruits and vegetables. In addition, Agiwal will examine how Royal Cuisine supplies quality, nutritious food despite budgetary and availability constraints.

Barbara Wagner will analyze the impact of state and federal programs on school feeding programs. Government programs and laws have a dramatic impact on the way food service directors operate. Wagner will analyze the efficacy of these programs as well as possible changes that would change incentive structures and improve the quality of foods offered by school districts nationwide.

The ultimate role of this project is to document, explain, analyze and demonstrate the degree to which the Hopkins schools have met their program goals. Along the way, this work will inform and improve the Royal Cuisine effort. In the final analysis, the project could serve as a template or model for other school food programs and could be used in public policy education forums. This will allow for a nutrition-based response to the growing epidemic of childhood and adult obesity and associated diseases such as diabetes.

U and Your Economy Workshops

Minnesota community leaders, government officials, business owners, and anyone interested in Minnesota’s economic future will have an opportunity to visit with experts on the Minnesota economy and learn about University of Minnesota Extension programs that can strengthen local economies. The 2005 “U and Your Economy” workshops, which run from March 10 to April 14, 2005, are held in Marshall, Owatonna, Grand Rapids, Crookston, and St. Cloud.

Minnesota State Economist and Applied Economics Associate Professor Tom Stinson will begin each workshop by presenting, “Baby Boom Retirement: A Looming Fiscal Crisis?” A preview of his talk is given in the following article.

In addition to Tom Stinson’s presentation on the Minnesota economy, Applied Economics Assistant Professor Laura Kalambokidis will present, “Minnesota’s Approach to Business Taxation” at the Grand Rapids and St. Cloud sessions. Her talk will address what the future might hold for large and small companies that do business and pay taxes in Minnesota, and possible proposals to restructure the state’s business tax system. Steve Taff, Associate Professor in Applied Economics, will present, “Land Use, Development, and Your Changing Tax Base” at the Marshall, Owatonna, and Crookston sessions. In addition, he will discuss the powerful impact shifts in land use and development can have on local property taxes, and will talk about the Minnesota experience and how it addresses an individual’s situation.

At each workshop, the regional extension educator in community economics for the area will also present, “Is Your Community Capturing Your Retail Sales Potential?” For more information on these workshops, please visit the University of Minnesota Extension Service website at

<http://www.extension.umn.edu/uandeconomy> .

Baby Boom Retirement: A Looming Financial Crisis?

Preview of a talk by Tom Stinson

Everyone would like to see into the future. A single peek at our family's finances in 2015 would be helpful in planning to meet future personal needs. Similar community-based information would help local government officials as they establish spending plans for their community. In this year's "U and Your Economy" extension programs, Tom Stinson is providing audiences around the state with a glimpse of Minnesota's economy in 2015, as well as some insights on how state and local revenues are likely to fare.

While the economy in 2015 will be different than it is today, the general pattern is clear. Household incomes in Minnesota will grow. By 2015, according to Minnesota's national economic forecasting service, real (inflation adjusted) personal income per capita will be about 25 percent above today's levels. Prices will increase during the next decade, particularly for medical services, which are expected by 2015 to be more than 40 percent above today's levels. Higher incomes in 2015, however, will more than compensate for inflation and the standard of living in Minnesota will continue to improve. Thus, it appears our state's economy will generate sufficient resources to do anything—within reason—that we choose, even after the 2015 forecast is discounted to adjust for the uncertainty that accompanies all economic projections. However, we cannot afford to do everything.

At the local level, there are strong economic and demographic forces that make it unlikely that support for local services will increase. Minnesota's population is aging. And, as more households confront the vexing challenge of balancing desires for additional household goods against the need to increase retirement savings, lowering taxes is likely to remain a popular solution.

The aging of the baby boom generation also will have a direct impact. Health care is the fastest growing portion of the state budget, and much of those payments go to long-term care for the elderly. As Minnesota ages those costs are certain to grow. That means that all other sec-

tors of the state budget will face further financial pressures. Also, it may be optimistic to assume state revenues will keep pace with inflation and real income growth as the baby boom moves into retirement. Incomes fall in retirement, and the tax code offers special treatment for some types of income and additional tax breaks for senior citizens. Since senior citizens are unlikely to be frequent purchasers of the consumer durables that form much of our sales tax base state sales tax receipts are likely to be adversely affected as well.

In 2015 and beyond, it appears state and local governments should expect to face further budgetary challenges. Health care spending, especially for long term care, will go up as Minnesota ages, while state and local revenues are expected to grow more slowly.

Upcoming Seminars

For further information on these and future seminars, see the departmental website:
<http://www.apec.umn.edu/DeptEMS>

April 22 - David Wheeler, Policy Research Department at the World Bank, Title TBA.

April 25 - Erik Nelson, Applied Economics, Title TBA.

April 29 - Stephanie Lluis, Industrial Relations, University of Minnesota, "Should Workers Care About Firm Size."

May 2 - Mike Kilgore, Forest Resources, University of Minnesota, Title TBA.

May 6 - Maria Hanratty, Humphrey Institute of Public Affairs, University of Minnesota, "Has the Food Stamp Program Become More Accessible: Impacts of Recent Changes in Food Stamp Reporting Requirements and Asset Eligibility Limits on Food Stamp Participation."

University of Minnesota College in the Schools

College in the Schools (CIS) is a program that gives high-school students a jump-start on college by offering University of Minnesota courses for credit. In essence, the program delivers regular, introductory-level University courses to advanced high-school students who are typically in the top 20 percent of their class. CIS courses are taught in the high school during the regular school day by qualified, specially trained high-school teachers. Currently, CIS courses are offered in applied economics, composition, history, literature, political science, Chinese, French, German, Hebrew, and Latin. This article describes how the Department of Applied Economics helps both students *and* teachers in the CIS program excel in the field of applied economics.

High-School and Undergraduate Courses Are Identical

High-school students who study applied economics as part of the CIS program, study *exactly* the same material as undergraduate students in the Department of Applied Economics. For example, high-school and undergraduate students both take our “Principles of Microeconomics” and “Principles of Macroeconomics” courses. Because course content is identical, the CIS students receive academic credit from the University of Minnesota for completing these courses.

Students at Annual Field Day Study Public Policy Issues

Each January, every CIS Applied Economics student is invited to a Field Day at the University to meet other CIS students, get a taste of campus life, and meet graduate students and faculty. Students in the CIS applied economics program, for example, are invited to attend the “Department of Applied Economics Field Day for CIS Students.” This day-long program is designed to foster critical thinking about important public policy issues.

This year’s Field Day studied the public policy question, “Under what conditions, if any, should the U.S.

government move to reduce air pollution?” Over 130 students from 5 schools participated. To prepare for the event, students read a number of texts written from different environmental perspectives.

In the morning, students met with faculty members Jay Coggins and Rob King as well as with graduate students Steve Wishart and Jim West, and attended a comprehensive question-and-answer period on environmental policy with Jay and Steve. The students then broke into smaller groups to debate the issue and discuss their suggested policies in more detail. In the afternoon, the students presented their policy recommendations to Senator John Marty, who is chair of the Minnesota Senate Committee on Natural Resources and the Environment. The students enjoyed meeting Senator Marty and Senator Marty enjoyed meeting the students. Here is a sample of students’ comments about the Field Day and their meeting with Senator Marty.

“I liked that we were able to present our ideas to a public official.”

“There are many different perspectives to environmental issues.”

“I enjoyed meeting with students from other schools to discuss an important issue.”

“Our viewpoints were heard.”

High-School Teachers Attend CIS Workshops

As part of the CIS program, the Department of Applied Economics also holds professional development workshops for the high-school teachers who teach applied economics in the schools. These workshops are taught by Claudia Parliament, held three times during the academic year, and cover a range of top-

(Continued on page 10.)

ics related to economics, teaching strategies, and assessing student performance. Other faculty members from the Department—including Frances Homans, Laura Kalambokidis, Jean Kinsey, Jay Coggins, Terry Roe, and Ben Senauer—gave guest lectures at the workshops.

Currently, the CIS program in applied economics is offered at the following high schools; Andover, Anoka,

Blake, Champlin Park, Coon Rapids, Forest Lake, Shakopee, and Washburn. In fall 2005 the program may be expanded to Blaine, Burnsville, Minneapolis South, and the Agricultural and Food Sciences Academy in Little Canada.

To learn more about the CIS program in applied economics, please contact Claudia Parliament at cparliam@apex.umn.edu or visit the website www.cce.umn.edu/cis.

Minnesota Land Data at Your Fingertips

Minnesota Land Economics (MLE) is your one-stop source for—what else?—Minnesota land data. Farmland and timberland sales, estimated land values, conservation easements, property taxes—find them all at <http://www.apex.umn.edu/landeconomics>.

Here's a question of economic import that you can analyze yourself with MLE. *Do* try this at home!

How did the 2002 Minnesota property tax reform affect actual tax payments in my community? (Recall that the State took over some of the local school financing load and created a new state property tax levy against certain tax classes.)

1. In the MLE Property Taxes section, go to Location and pick the city, township, school district, or county (or any combination thereof) you want to analyze. (I've used all of southeast Minnesota in the illustration below.)
2. In Attributes, check Year 2000, Net Tax Rates, and Selected area.
3. In RUN, click on Generate Report.
4. Save or print the 2000 report that we build for you.
5. Now go back to Attributes and check year 2004. Leave everything else the same.

6. RUN/Generate Report/Save or Print the 2004 report.

You now have two summaries of property taxes, one from before the law changed and one from after. The key calculation here is Net Tax Rate. (See tables on opposite page.) This is the actual property tax paid by all of the properties in each tax class, divided by the market value of all these properties. So, for example, a 1.00% rate means that this class of properties paid one percent of their market value in property taxes that year.

Comparing Net Tax Rates between 2000 and 2004 tells us how the 2002 tax reform affected actual tax payments in the community. In our example for southeast Minnesota, homesteaded farms went from 0.75% to 0.69%, while industrial properties went from 3.93% to 6.04%.

Whether these changes are fair, or efficient, or desirable, is left as a challenge to you—the reader. As you work this challenge, just remember that the goal of MLE is to serve out data, not to serve out judgment.

**Minnesota
Land
Economics**

Farmland Sales
Timberland Sales
Land Values
Land Productivity
Soil Rental Rates
RIM Easements
Property Taxes

Property Tax Summary

Your results are listed below. No data showing? That means there were no tax data reported for your selection(s). To edit your selection, use the BACK button on your browser and then click on the appropriate tab. Please be patient as you selected a large geographic area for which to retrieve data; even machines need time to think.

2000 net taxes (after credits) on properties in: **Southeast District**

	Total Tax Before Credits	Estimated Credits	Net Tax After Credits	Net Tax Rate
Farm Homestead	34,905,255	6,882,153	28,023,102	0.75%
Farm Non Homestead	13,202,140	2,043,399	11,158,742	1.21%
Timber	65,146	10,347	54,799	1.16%
Noncommercial Seasonal Recreation	970,999	0	970,999	1.59%
Residential Homestead	334,099,918	56,351,502	277,748,416	1.33%
Residential Non Homestead	18,342,929	0	18,342,929	1.81%
Apartments	35,776,388	0	35,776,388	2.66%
Commercial Seasonal Recreation	478,001	0	478,001	1.96%
Commercial	134,755,267	0	134,755,267	3.90%
Industrial	43,598,978	0	43,598,978	3.93%
Utilities	28,109,916	0	28,109,916	4.29%
Railroads	968,618	0	968,618	4.04%
Other	0	0	0	0.00%
Personal	16,307,879	0	16,307,879	4.05%
Total	661,581,434	65,287,401	596,294,033	1.78%

**Minnesota
Land
Economics**

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2004 net taxes (after credits) on properties in: **Southeast District**

	Total Tax Before Credits	Estimated Credits	Net Tax After Credits	Net Tax Rate
Farm Homestead	38,963,874	3,107,727	35,856,147	0.69%
Farm Non Homestead	12,178,093	49,212	12,128,881	1.02%
Timber	67,027	0	67,027	1.02%
Noncommercial Seasonal Recreation	1,735,593	0	1,735,593	1.72%
Residential Homestead	398,134,046	42,706,918	355,427,128	1.06%
Residential Non Homestead	26,168,406	0	26,168,406	1.26%
Apartments	32,288,814	0	32,288,814	1.44%
Commercial Seasonal Recreation	675,736	0	675,736	1.57%
Commercial	110,318,830	0	110,318,830	2.12%
Industrial	72,753,624	0	72,753,624	6.04%
Utilities	24,369,869	0	24,369,869	3.90%
Railroads	1,785,520	0	1,785,520	5.05%
Other	0	0	0	0.00%
Personal	27,981,131	0	27,981,131	5.88%
Total	747,420,563	45,863,857	701,556,706	1.35%

Department Receives Endowment Bequest from Hannah Kellogg Dowell

Hannah Kellogg Dowell of Washington, D.C. has committed to provide funds in the form of a testamentary bequest to establish an endowed faculty position in memory of her father, Dr. Austin A. Dowell, a department alum and former faculty member.

Austin Allyn Dowell and his wife Isabel Dyer met when they were completing their undergraduate degrees at Iowa State University. Dr. Dowell went on to receive a Ph.D. in agricultural economics from the University of Minnesota in 1932. He began his long career at the University as superintendent of the Crookston School of Agriculture, where Dowell Hall is named in honor of his deep commitment to students and their education. In 1939, he transferred to the St. Paul campus as a professor in the Department of Agricultural Economics. His commitment to students and their academic experiences led to his appointment in 1952 as associate dean for residential instruction. Dr. Dowell retired in 1960 and established the Austin A. and Isabel D. Dowell Scholarship in 1974 for students studying on the St. Paul and Crookston campuses.

The Dowell legacy is a reflection of the family's devotion to education over 38 years of academic service to the University. All four Dowell daughters—Hannah, Margaret (Gravatt), Ruth (Myers), and Annette—earned degrees from the University of Minnesota. In total, the Austin and Isabel Dowell family holds nine degrees from the University of Minnesota.

In late February Applied Economics Department Head Robert King and his wife Jane enjoyed a delightful visit with Hannah Dowell in her Washington, D.C. apartment. She shared fond memories of the years her family lived in Crookston. She was already a student at the University when the family moved back to St. Paul in 1939. She received her B.A. in English in 1940 and went on to earn an M.A. degree in public administration in 1944. She then took a position in Washington as an intern with the U.S. De-

partment of Agriculture. That was the starting point for a distinguished career with USDA that included postings in New York, Atlanta, and San Francisco. Since her retirement she has lived in Washington and has enjoyed travels to many countries around the world. Ms. Dowell has two nieces and one nephew, all children of her sister, Ruth D. Myers. They are: Hannah Myers Chan, Ms. Austin Myers, and Professor Dowell Myers.

The Austin A. Dowell faculty position will be established in the Department of Applied Economics, College of Agricultural, Food, and Environmental Sciences. Dr. Dowell's particular interests were the American farmer and export markets. The endowment fund will provide incentives for outstanding scholars to join or to remain on the University faculty, or for encouraging junior faculty with outstanding potential to grow and develop their careers at the University of Minnesota. This endowment fund is intended to support a faculty position in the Department of Applied Economics at the prestigious chair level.

All of us in the Department of Applied Economics are very grateful to Ms. Dowell for her extremely generous gift, which will allow us to attract and retain outstanding scholars at the University of Minnesota.

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RECENT PUBLICATIONS

For information on locating a copy of a publication not available on the Internet, contact the underlined author at the department by calling 612-625-1222.

In previous issues of the *Minnesota Applied Economist* the publications in this section were organized according to whether the publication addressed international, national, or regional issues. Because the work performed by our department members tend to fall into five main subject areas, this section will now be divided into the following topics;

- consumption and household economics,
- production and marketing economics,
- public and community economics,
- resource and environmental economics, and
- trade and development economics.

For more information on these research topics, see the departmental website at

http://www.apec.umn.edu/re_ext.html .

CONSUMPTION AND HOUSEHOLD ECONOMICS

Affordable Childcare: Is There a Crisis? by Elizabeth Davis and NaiChia Li. Using methodology similar to that used to estimate the availability of affordable housing, in this study we analyzed the rates charged by child-care centers and family home providers in Minnesota. The study found that affordable child-care options are limited primarily to family child-care providers and affordability is an issue in both rural and urban Minnesota—particularly for families with incomes below the median. Even with government subsidies to help pay for child-care and tax credits, many Minnesota families find themselves paying more than 10 percent of their incomes on child care. *CURA Reporter*, v.34, no.3, summer 2004.

E-Commerce: A New Business Model for the Food Supply/Demand Chain by Jean Kinsey and Brian Buhr. This paper focuses on how the food and agricultural industries in the U.S. use electronic commerce to decrease costs and increase quality control. The food industry engages in three types of

e-commerce: 1) Internet shopping for consumers, called business-to-consumer (B2C) e-commerce; 2) business-to-business (B2B) Internet market discovery exchanges, which are used by food suppliers at any point in the supply chain; and 3) business-to-business (B2B) relationships that reduce costs and increase efficiencies in the procurement, storage, and delivery of food to retail stores or distribution centers. *The ICAFI Journal of Agricultural Economics*, v.1, no.2, July 2004.

The Growing Middle Class in Developing Countries and the Market for High-Value Food Products by Benjamin Senauer and Linde Goetz. The central hypothesis of this paper is that the largest global growth opportunity for high-value food products is the emerging middle class in many developing countries. *ICFAI Journal of Agricultural Economics*, v.1, no.2, July 2004.

It's Time for Whole-Grain Products in School Meals by Bernadett Ujszaszy, Teri Burgess-Champoux, Marla Reicks, William Lazarus, and Len Marquart. A growing concern about childhood obesity and the increased incidence of type 2 diabetes has placed pressure on school foodservice to serve foods that address these health issues. Recent studies indicate that eating whole-grain foods lowers the risk for heart disease and type 2 diabetes and may contribute to lower caloric intake. However, children are only consuming one-third of the recommended three daily servings of whole grains. The inclusion of whole-grain foods in school meals could substantially improve intake for school-aged children. *The Journal of Child Nutrition and Management*, v.28, no.2, fall 2004. <http://www.asfsa.org/childnutrition/jcnm/04fall/ujszaszy/index.asp>

PRODUCTION AND MARKETING ECONOMICS

Agriculture as a Producer of Energy by Vernon Eidman. The purpose of this chapter is to document the role of agriculture is playing as a supplier of energy for the U.S. economy and to discuss the potential contributions agriculture can make to the nation's

energy supply in the near future. Paper presented at the Agriculture as a Producer and Consumer of Energy Conference; June 24–25, 2004; Arlington, VA.

Assessing and Attributing the Benefits from Varietal Improvement Research in Brazil by Philip Pardey, et al. This report provides a detailed economic assessment of the magnitude and sources of the economic benefits to Brazil since the early 1980s from varietal improvements in upland rice, edible beans, and soybeans – crops that span a range of interests from domestic (or even more localized) food security concerns, as with rice grown in typically rainfed, upland production systems, to crops with important international trade implications such as soybeans. The authors pay particular attention to isolating the benefits from genetic improvement, distinct from other factors that change grain yield or quality. Washington, DC: International Food Policy Research Institute, 2004.

Decoupled Payments: A Dynamic, Economy-Wide Perspective by Terry Roe, Agapi Somwaru, and Xinshen Diao. Decoupled payments, introduced in the 1996 Farm Act and renewed in 2002, are lump-sum income transfers to farm operators independent of their current production, factor use, or commodity prices. This chapter considers whether decoupled payments may alter producers' resource allocation over time and lead to effects on production. In *Decoupled Payments in a Changing Policy Setting*, edited by Mary Burfisher and Jeffrey Hopkins. Washington, DC: U.S. Department of Agriculture, Economic Research Service, 2004. <http://www.ers.usda.gov/Publications/aer838/aer838c.pdf>

Dry-Grind Ethanol-Plant Economics and Sensitivity by Douglas Tiffany and Vernon Eidman. This study focuses on dry-grind ethanol-production plants for the following reasons. First, dry-grind ethanol plants are relatively small and are most likely to benefit from this type of analysis. Second, we expect there will be a substantial increase in dry-grind capacity in the future. And third, many dry-grind plants are owned by cooperatives (or limited-liability corporations comprised of cooperatives) that were will-

ing to share financial and technical data with us. Paper presented at the Agriculture as a Producer and Consumer of Energy Conference; June 24–25, 2004; Arlington, VA.

Estimating Investment Rigidity Within a Threshold Regression Framework: The Case of the U.S. Hog-Production Sector by Brenda Boetel, Ruben Hoffman, and Donald Liu. As the U.S. hog-production sector becomes ever more specialized, the importance of capital inputs has heightened. Given that it is costly to adjust the capital stock and that the associated adjustment-cost function may exhibit cost asymmetries between investment and disinvestment, profit-maximizing producers may find themselves trapped in a situation where it is neither profitable investing nor worthwhile disinvesting. This article addresses two issues related to the employment of quasi-fixed input in the U.S. hog-production sector: does an inaction or sluggish regime exist in the demand for quasi-fixed input, and, if so, to what extent has this impeded adjustment in quasi-fixed input stock, and, hence, hog-output supply toward the long-term equilibrium levels? Staff paper P04-12, 2004. <http://agecon.lib.umn.edu/mn/p04-12.pdf>

Estimating Site-Specific Nitrogen Crop Response Functions: A Conceptual Framework and Geostatistical Model by Terrance Hurley, G.L. Malzer, and B. Kilian. Confirming the precision agriculture hypothesis for variable-rate N applications (VRAs) is challenging. To confront this challenge, researchers have used increasingly sophisticated models to estimate and compare site-specific crop response functions (SSCRFs). While progress has been made, it has been hampered by the lack of a conceptual framework to guide the development of appropriate statistical models. This paper provides such a framework and demonstrates its utility by developing heteroskedasticity, fixed and random effects, and a geostatistical model to test whether VRA can increase N returns. *Agronomy Journal*, v.96, no.5, September-October 2004.

The Global Diffusion of Plant Biotechnology: International Adoption and Research in 2004 by **C. Ford Runge** and **Barry Ryan**. This study surveys the global diffusion of biotech crop varieties as of the end of 2004. It analyzes adoption, research and development by crop and by country, and aggregates these data by region. Part I analyzes market adoption and commercial value in countries producing biotech crops in 2003–2005 and focuses on the five countries and four crops that largely define today's agricultural biotech production. Part II summarizes the range of biotech activity during this technology's short life. Part III provides regional summaries and country-level profiles. And Part IV offers conclusions and a discussion of the prospects for further growth in plant biotech in the next decade and beyond. Unpublished, 2004. <http://www.apec.umn.edu/faculty/frunge/GlobalBiotech04.pdf>

Modeling Agricultural Production Considering Water Quality and Risk by **Jeffrey Apland**, **Corbett Grainger**, and **Jeffrey Stock**. Environmental goals often conflict with the economic goals of agricultural producers. The Cottonwood River in Minnesota is heavily polluted with nitrogen, phosphate and sediment from agricultural sources in the watershed. Goals of profit maximization for producers conflict with those of effluent alleviation. We incorporate water quality goals and risk into a mathematical programming framework to examine economically efficient means of pollution abatement while considering a wide range of alternative production practices. Staff Paper P04-13, 2004. <http://agecon.lib.umn.edu/mn/p04-13.pdf>

Profits from Manure Power? Economic Analysis of the Haubenschild Farms Anaerobic Digester by **William Lazarus** and **Margaretha Rudstrom**. Anaerobic digestion converts volatile organic substances in livestock wastes into methane, carbon dioxide, and water. The remaining material is stabilized, reducing odor during storage and land application. The need to more fully understand questions posed by digesters was spurred in Minnesota by the installation of a demonstration digester and electrical gen-

erator at the 800-cow Haubenschild Farms dairy farm north of Minneapolis/St. Paul in 1999. This fact sheet represents the economic evaluation of the digester and the related manure-handling and electricity-generating equipment. University of Minnesota Extension Service, The Minnesota Project, U.S. Department of Agriculture, Natural Resources Conservation Service, 2004.

Risk-Efficiency Criteria for Evaluating the Economics of Herbicide-Based Weed Management Systems in Corn by **Thomas Hoverstad**, **Jeffrey Gunsolus**, **Gregg Johnson**, and **Robert King**. Evaluating the economic outcome associated with a given weed-management system is an important component in the decision-making process in any crop-production system. The objective of this research was to investigate how risk-efficiency criteria could be used to improve the decision-making process in a herbicide-based weed-management system—assuming different risk preferences among growers. *Weed Technology*, v.18, no.3, July 2004.

Subadditivity Tests for Network Separation Using a Generalized McFadden Cost Function by **M. Ivaldi** and **Gerard McCullough**. The paper describes a pair of subadditivity tests for network costs that can be used to evaluate the technological feasibility of network separation with a Generalized McFadden cost function. The tests for orthogonal separation and operational complementarity are illustrated with an analysis of U.S. freight railroads for the period 1980–97. The methodological conclusion is that Baumol's 1977 test of subadditivity is relevant to the policy alternatives for a network natural monopoly. The empirical results support and extend an earlier finding that separated operations are technologically feasible but that freight operations on separated infrastructure would be cost subadditive. London, England: Centre for Economic Policy Research, 2004.

Supermarket Characteristics and Operating Costs in Low-Income Areas by **Robert King, Ephraim Leibtag, and Ajay Behl**. Whether the poor pay more for food than other income groups is an important question in food price policy research. Stores serving low-income shoppers differ in important ways from stores that receive less of their revenues from food stamp redemptions. Overall, operating costs for stores with high food stamp redemption rates are not significantly different from those for stores with moderate food stamp redemption rates. If the poor do pay more, factors other than operating costs are likely to be the reason. Washington, DC: U.S. Department of Agriculture, Economic Research Service, Agricultural Economic Report 839, 2004.
<http://www.ers.usda.gov/publications/aer839>

Trading Mechanisms for New-Generation Cooperative Stock: The Architecture of Organizational Formation and Demise by **Steven Holland and Robert King**. The new-generation cooperative (NGC) is a significant organizational innovation that has fostered a new wave of farmer cooperative investment in value-added processing facilities. This paper describes how the NGC's choice of stock trading rules and procedures affects NCG formation and takeover. *American Journal of Agricultural Economics*, v.86, no.5, 2004.

Welfare Tradeoffs in U.S. Rail Mergers by **Marc Ivaldi and Gerard McCullough**. Since the publication by Williamson (1968) of his seminal paper on antitrust, there has been a growing recognition by regulators of the need to assess tradeoffs between merger-related efficiency gains and merger-induced increases in market power. This paper addresses that need by presenting a structural econometric model of recent mergers in the U.S. rail industry. Paper presented at the London School of Economics STICERD Economics of Industry Seminar, 2004.

PUBLIC AND COMMUNITY ECONOMICS

The Compliance Costs of Maintaining Tax-Exempt Status by **Marsha Blumenthal and Laura Kalambokidis**. This paper estimates how much it costs a nonprofit organization to maintain its tax-exempt status at the state and federal level using measures such as size, level of activity, amount of expenditure in various categories, and whether the organization uses the Unified Registration Statement (URS)—a registration form that consolidates the requirements of all registration-requiring states into a single document. Our results will serve as a baseline for monitoring the costs and benefits of future policy changes. Paper prepared for the Internal Revenue Service Research Conference, Washington, DC; June 2, 2004.

Let's Get Minnesota's Tax System Off the Rollercoaster by **Thomas Stinson and Jeremy Prahm**. Over the years, changes in Minnesota's tax system and changes in the distribution of the tax base have made Minnesota's tax revenues more volatile. Our state's revenue system is now likely to be more volatile than we would choose were we starting from scratch. The increased volatility was acceptable during the good times, because it produced additional funding for state programs while leaving money for tax cuts. But, when economic growth slows, large declines in revenue create problems for state government and the yo-yo budgeting made necessary by this revenue system is not conducive to good financial management in the public sector. The tax rate uncertainty that accompanies a boom-bust revenue system also makes Minnesota a less attractive place to conduct business. Reducing the volatility in state revenues will involve trade-offs with provisions put in the tax law to meet other goals. Most tax system tune-ups are brought on by a need to make taxes fairer or easier to understand or administer. Responsible tax reformers also seek to minimize the distortions that taxes cause in individual consumption and investment decisions. The final result is always a compromise, but as we think about reshaping Minnesota's tax system for the future, revenue stability also should be included in the policy debate. *Minnesota Journal*, v.21, no.8; August 24, 2004.

RESOURCE AND ENVIRONMENTAL ECONOMICS

Assessing Alternative Futures for Agriculture in Iowa, U.S.A. by Stephen Polasky, et al. The contributions of current agricultural practices to environmental degradation and the social problems facing agricultural regions are well known. However, landscape-scale alternatives to current trends have not been fully explored nor their potential impacts quantified. To address this research need, our interdisciplinary team designed three alternative future scenarios for two watersheds in Iowa, USA, and used spatially-explicit models to evaluate the potential consequences of changes in farmland management. This paper, which summarizes and integrates the results of this interdisciplinary research project into an assessment of the designed alternatives intended to improve our understanding of landscape ecology in agricultural ecosystems, should inform agricultural policy. *Landscape Ecology*, v.19, no.4, 2004.

Decision-Making Scales, Social Adaptation, and Transboundary Water Conflict Resolution by Naomi Zeitouni and Mary Renwick. The dynamics of social adaptation to water scarcity has shifted in response to global policy reforms emphasizing devolution of natural resources management and public participation. These social changes have worked to increase the role of new actors who are influencing water policy decision-making at all social scales (local, regional, national, and transnational). Increased vertical interaction among actors at different social scales has provided a platform for local actors to “jump” scale and infuse local issues into international transboundary water negotiations. This paper explores how changing social dynamics influence the extent of social ability to adapt to water scarcity within a nation-state, and how this, in turn, influences the ability of the nation-state to cooperatively resolve transboundary water disputes with other riparian nations. Presented at the Second International Symposium on Transboundary Waters Management; Tucson, AZ; November 16–19, 2004.

Effects of Flood Hazards on Property Values: Evidence Before and After Hurricane Floyd by Okmyung Bin and Stephen Polasky. This study uses a hedonic property price function to estimate the effects of flood hazards on the value of residential property. Utilizing data from sales of 8,000 single-family residential homes between 1992 and 2002 in Pitt County, North Carolina, an area that experienced significant flooding from Hurricane Floyd in September 1999, we find that a house located within a floodplain has a lower market value than an equivalent house located outside the floodplain. Furthermore, the price discount from locating within a floodplain is significantly larger after Hurricane Floyd than before. *Land Economics*, v.80, no.4, November 2004.

Enclosure, Intellectual Property, and Life-Sciences Research by C. Ford Runge. This article explores a key foundation of private enterprise, the property rights which confer entitlements to individuals and firms to exclude others from a stream of benefits or rents. These entitlements take various forms in economics and law—such as patents, copyrights, and title to land and property. This paper also explores an alternative, sometimes neglected but equally important, set of rights to be included in such benefit streams—such as membership in a common group or club, shareholder status in a firm or corporation, and even citizenship. *The Journal of World Intellectual Property*, v.7, no.6, November 2004.

Evidence of a Market Effect from Conservation Easements by Steven Taff. Both federal income tax law and local property tax assessment practice are premised on the “theory” that permanent conservation restrictions reduce property values, while shorter-term restrictions do not. An analysis of 190 recent sales of Minnesota agricultural land with varying cropping rights restrictions supports only a portion of this theory. Both permanent and short-term restrictions were negatively and significantly associated with per-acre sales prices. The former effect is consistent with the theory and is statistically meaningful, but the dataset contained too few sales with permanent restrictions to warrant a strong conclusion. The latter effect is inconsistent with the theory but is strongly supported by data. Staff paper P04-9. <http://agecon.lib.umn.edu/mn/p04-09.pdf>

Implicit Prices of Wetland Easements in Areas of Production Agriculture by Steven Schultz and Steven Taff. Impacts of Fish and Wildlife Service wetland easements on agricultural land values in North Dakota were estimated by regressing sale prices on the physical and institutional characteristics of sold parcels. While easements on temporary wetlands did not influence prices, each additional acre of permanent wetland under easement decreased average prices by \$321 (-79%). Because non-eased permanent wetlands were shown to reduce land prices by \$161/acre, we can estimate the implicit price of a wetland easement per se to be \$160/acre, that is, 6% below historical easement payment levels in the study area. *Land Economics*, v.80, no.4, November 2004.

Introduction to the Special Section on Institutional Arrangements and the Effects on Water Resources by K. William Easter. This introductory article argues that as the international community begins to seriously address the problems created by growing water demands and water pollution, institutions and institutional arrangements will become increasingly critical. This is particularly important for water bodies shared by two or more states or countries in areas such as sub-Saharan Africa where 54 water bodies cross international boundaries. Equally important will be the rules or policies that establish the procedures and conditions for allocating and re-allocating water among different sectors of the economy—for example, from irrigation to urban uses in the U.S. and Asia. *Water Resources Research*, v. 40, no.10, November 2004.

<http://www.agu.org/journals/wr/wr0411/2004WR003653/2004WR003653.pdf>

Modeling the Joint Production of Wildlife and Timber by Stephen Polasky, et al. The production of marketed commodities and protecting natural systems often conflict. A focus on only one goal can result in large losses in other goals and may result in inefficient and unsustainable outcomes. In this paper, we develop a method that combines economic and ecological models in a dynamic and spatial analysis to evaluate land decisions and find cost-effective alternatives for which it is not possible to do better on

one objective without harming another objective. *Journal of Environmental Economics and Management*, v.48, no.3, November 2004.

On Trade, Land-Use, and Biodiversity by Stephen Polasky, Christopher Costello, and Carol McAusland. We combine a simple trade model with a species-area curve to derive the effect of trade on biodiversity conservation. Trade causes specialization in production that drives specialization in ecosystems and their associated biodiversity. When trading partners contain similar species in autarky, trade has little effect on global biodiversity. If preferences for biodiversity conservation are sufficiently high, overall utility may decline with a move toward free trade, unless a corrective conservation policy is instituted. *Journal of Environmental Economics and Management*, v.48, no.2, September 2004.

Optimal Extraction from a Renewable Groundwater Aquifer with Stochastic Recharge by Naomi Zeitouni. This work considers the management of an aquifer with stochastic recharge and finite boundaries. For a class of such models we show that there is a positive threshold of the water stock that the manager should aim at keeping. Thus, under the optimal extraction regime at a time when the water stock is lower than this threshold, there should be no pumping from the aquifer, while at times when the water stock is greater than the threshold, all water in excess of the threshold level should be pumped. The threshold level happens to coincide with the aquifer boundary for sufficiently high unit cost of pumping, in which case, only the runoff water of excess recharge should be collected. *Water Resources Research*, v.40, WO6S19, 2004. <http://www.agu.org/journals/wr/wr0406/2003WR002162/2003WR002162.pdf>

TRADE AND DEVELOPMENT ECONOMICS

Intellectual Property Rights for Plant Biotechnology: International Aspects by Philip Pardey, et al.

This chapter provides a brief overview of the different types of intellectual property rights that affect the creation and transactions of plant biotechnologies, and reviews the evolution of international arrangements for protecting plant-related intellectual property, including the Trade Related Aspects of Intellectual Property (TRIPS), the Convention on Biological Diversity (CBD), the International Treaty for Plant Genetic Resources for Food and Agriculture, and the International Union for the Protection of New Varieties of Plants (UPOV) Convention. The chapter concludes by reviewing the current international freedom to operate in plant biotechnologies. In *Handbook of Plant Biotechnology*, edited by Paul Christou and Harry Klee. Chichester, England: John Wiley and Sons, 2004.

International Trade in (Visual) Arts: Issues on the Academic and Policy Frontier by Pamela Smith. The presentation explores international trade in visual arts. Three questions are addressed. First, what issues concerning the visual arts have been neglected by economists and why are these issues important now? Second, what is the character of international trade in visual arts? And third, what international policies affect the visual arts, specifically in the areas of intellectual property rights and trade in services? In answering these questions, issues on the academic and policy frontier are identified. Paper presented at the University of Minnesota Freeman Center for International Economics, Hubert H. Humphrey Institute of Public Affairs, Workshop on International Economic Policy; Minneapolis, MN; March 23, 2004.

Plants and Intellectual Property: An International Appraisal by Bonwoo Koo, Carol Nottenburg, and Philip Pardey. The era of free and unencumbered access to new crop varieties appears to be passing. This has raised a chorus of concerns about the food production and human health implications of these intellectual property developments, especially throughout the de-

veloping world. Notwithstanding the downsides of intellectual property it is, in fact, an open question whether these changing intellectual property regimes (and their associated market and scientific realities) help or hinder efforts to develop and disseminate varietal technologies in the future, and especially the crop innovations required by the developing world. Much of the debate occurs absent an understanding of the specifics of the rights on offer in particular legal jurisdictions, a practical sense of the rights actually claimed or granted in each of these jurisdictions, and their evolution over time. What evidence does exist highlights rich-country developments with little if any attention to the developing-country details. In this paper the authors begin to redress this imbalance with an assessment of the policies and practices regarding plant-related intellectual property rights, emphasizing their international implications. *Science*, v.306, no.5700; November 19, 2004.

Saving Seeds: The Economics of Conserving Crop Genetic Resources ex situ in the Future Harvest Centres of the CGIAR by Philip Pardey, et al.

The conservation of genetic resources is vital to the maintenance of biodiversity and to the world's ability to feed its growing population. There are now more than a thousand genebanks worldwide involved in the ex situ (meaning "away from the source") storage of particular classes of crops. Since the 1970s, the eleven genebanks maintained by the centers of the Consultative Group on International Agricultural Research (CGIAR) have become pivotal to the global conservation effort. However, key policy and management issues—usually with economic dimensions—have largely been overlooked. This provided the impetus for a series of detailed economic studies of genebank operations in five CGIAR centers; CIAT (based in Colombia), CIMMYT (Mexico), ICARDA (Syria), ICRISAT (India), and IRRI (Philippines). This book reports these studies and discusses their wider implications. Cambridge, MA: CABI Publishing for International Food Policy Research Institute, 2004.



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Minnesota Applied Economist

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