

ROBIN M. CROSS

Assistant Professor, Senior Researcher, Applied Economics, Oregon State University

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RESEARCH AREAS

Cognitive & Behavioral Analysis, Evolutionary Computing, Machine Learning, Wine Economics

RESEARCH SUMMARY

My current research develops data systems and computational models that help researchers convert the terabytes of streaming information into better ecological, economic, and health policies. My work matches high-frequency behavioral data with an individual's location-specific experience and environment, including local climactic and economic conditions, demographics, and media exposure. This approach enables research into consumer behavior as well as human and animal neurological and physiological systems. New understanding of physiological and environmental constraints that determine behavioral response leads to better human and environmental health outcomes and more effective policy design.

EDUCATION

Ph.D., Agricultural and Resource Economics, Oregon State University, December 2004

B.S., Agricultural and Resource Economics, Oregon State University, Summa cum Laude, April 1997

ARTICLES IN JOURNALS

Cross, R., A.J. Plantinga, and R. Stavins. New World Terroir. *Journal of Wine Economics*, forthcoming. [A-12]

Cross, R. and R. Färe. Value Data and the Fisher Index. *Theoretical Economics Letters*, 5, 2015, 262-267. doi:10.4236/tel.2015.52031. [A-11]

Austin, D., R.M. Cross, P. Jacobs, H.H. Dodge, and J. Kaye. A Home Monitoring Approach to Mild Cognitive Impairment Severity for Improved Clinical Trials. *Alzheimer's & Dementia*, 11(7), 2015, 289-290. doi: dx.doi.org/10.1016/j.jalz.2015.07.393. [A-10]

Austin, D., R.M. Cross, P. Jacobs, N.C. Mattek, J. Peterson, K. Wild, and J. Kaye. Predicting Transitions to Higher Levels of Care among Elderly: A Behavioral Approach. *Gerontologist*, 52(2), 2014, 9-10. [A-9]

Austin, D., R.M. Cross, T. Hayes, and J. Kaye. Regularity and Predictability of Human Mobility in Personal Space. *PLoS ONE*, 9(2), 2014: e90256. doi:10.1371/journal.pone.0090256. [A-8]

Cross, R., R. Färe, S. Grosskopf, and W.L. Weber. Valuing Vineyards: A Directional Distance Function Approach. *Journal of Wine Economics*, 8(1), 2013, 69-82. [A-7]

Cross, R., A.J. Plantinga, and R. Stavins. The Value of Terroir: Hedonic Estimation of Vineyard Sale Prices. *Journal of Wine Economics*, 6(1), 2011, 1-14. [A-6]

- Cross, R., A.J. Plantinga, and R. Stavins. What Is the Value of Terroir? *American Economic Review: Papers and Proceedings*, 101(3), 2011, 152-156. [A-5]
- Cross, R., S.T. Buccola, and E.A. Thomann. Cooperative Liquidation under Competitive Stress. *European Review of Agricultural Economics*, 36, 2009, 369-393. [A-4]
- Cross, R. and R. Färe. Value Data and the Bennet Price and Quantity Indicators. *Economics Letters*, 102(29), 2009, 19-21. [A-3]
- Cross, R. and R. Färe. Farrell Efficiency under Value and Quantity Data. *Journal of Productivity Analysis*, 29(3), 2008, 193-199. [A-2]
- Cross, R. and S.T. Buccola. Adapting Cooperative Structure to the New Global Environment. *American Journal of Agricultural Economics*, 86(5), 2004, 1254-1261. [A-1]

CONFERENCE PAPERS

- Value Data and the Consumer Price Index. XXI European Workshop on Efficiency and Productivity Analysis, Verona, Italy, 2011. With R. Färe.
- Measuring and Comparing the Effects of Demand Constraints on Welfare. XXI European Workshop on Efficiency and Productivity Analysis, Verona, Italy, 2011. With R.W. Siegel.
- Cooperation and Cheating. American Agricultural Economics Association Annual Meetings, Long Beach, California, 2006. With S.T. Buccola, and Thomann, E.A.
- Contrasting Structures: Cooperative Advantage in Illiquid Markets. Agricultural and Food Cooperatives in Rural Development: Implications of Business Dynamics for Public Policy, ERS, USDA, Washington, DC, 2004. With S.T. Buccola.
- Adapting Cooperative Structure to the New Global Environment. American Agricultural Economics Association Annual Meetings, Denver, Colorado, 2004. With S.T. Buccola.
- DEA and the Law of One Price. VIII European Workshop on Efficiency and Productivity, Oviedo, Spain, 2003. With R. Färe.
- Food Manufacturing Cooperatives under Stress: Licit and Illicit Behavior. Paper presented at American Agricultural Economics Association Annual Meetings, Montreal, Quebec, 2003. With S.T. Buccola.

PATENTS AND PATENT APPLICATIONS

- Austin, D., R.M. Cross, T. Hayes, and J. Kaye. Methods and Systems Used in Tracking Mobility in a Dwelling. US Patent Application Number 20160249178, August 25, 2016.

BOOK CHAPTERS AND OTHER PUBLICATIONS

- Cross, R., A.J. Plantinga, and R. Stavins. The Value of Terroir: Hedonic Estimation of Vineyard Sale Prices. *Handbook of Wine Economics [Volume 1]*. Ashenfelter, O., O. Gergaud, K. Storchmann, and W. Ziemba, eds. World Scientific, *forthcoming*.
- Jaeger, B., R.M. Cross, and T. Egelkraut. Biofuel Potential in Oregon: Background and Evaluation of Options. Special Report 1078, Oregon State University Extension Service, 2007.

- Oregon Nursery Economics Undergraduate Working Paper Series. Cross, R.M., *ed.* Agricultural and Resource Economics Dept., Oregon State University, Corvallis, Oregon, 2007.
- Vega, E.H., R.M. Cross, and C. Durham. Wine Production Costs and Returns. *Oregon Viticulture*. Hellman, E., *ed.* Corvallis, Oregon State University Press. June 2003.
- Wine. *Atlas of Oregon*. Loy, W. G., S. Allan, A.R. Buckley, J.E. Meacham, *eds.* Eugene, University of Oregon Press, October 2001. With L. Burgess, M. Davis, D. Marousek, and R.E. Sogge.
- Wine Industry Study. Cross, R., J. Allen, V. Celaya, K. Hanson, R. Hendershot, *eds.* Northwest Farm Credit Services, ACA. Spokane, Washington. December 1999.
- Nursery Industry Study. Boyle, B., K. Wittman, R.M. Cross, J. McCarthy, *eds.* Northwest Farm Credit Services, ACA. Spokane, Washington. September 1998.

WORKING PAPERS

- Are Buyers Warming Up to Cooler Locations? An Empirical Review of Vineyard Pricing, Climate Forecasts, and the Media. Dept. of Applied Economics, Oregon State University, Corvallis, OR. With W.J. Beasley [W-10]
- Concat2Vec: Increasing Information Content in both Word and Non-Word Embeddings. With D. Sewell [W-9]
- Voting to Control Population Parameters in Genetic Programming. [W-8]
- A New Closed-Form Solution to Samuelson's Multiconstraint Equilibrium. Dept. of Applied Economics, Oregon State University, Corvallis, OR. With R.W. Siegel. [W-7]
- Standing in a Store Isle Shopping Online: Omni-channel Demand with Inventory Constraints. Dept. of Applied Economics, Oregon State University, Corvallis, OR. With R.W. Siegel. [W-6]
- Behavioral Biomarkers for Mild Cognitive Impairment (MCI). Dept. of Neurology, Oregon Health Sciences University, Portland, OR. With D. Austin. [W-5]
- Temperature's Tipping Point and the Effect of Climate Change on Consumer Demand. Dept. of Applied Economics, Oregon State University, Corvallis, OR. With R.W. Siegel. [W-4]
- Consumer Welfare under Time Constraints. Dept. of Applied Economics, Oregon State University, Corvallis, OR. With R.W. Siegel. [W-3]
- Temperature Effects on Induced Fertility Outcomes in Anestrus Breeding Ewes. Dept. of Animal Science, Oregon State University, Corvallis, OR. With F. Stormshak and L. Cross. [W-2]
- Cooperation and Cheating. Dept. of Applied Economics, Oregon State University, Corvallis, OR. With S.T. Buccola, and E.A. Thomann. [W-1]

COURSES

- Lecturer*; AEC 513 Micro Economic Theory (Monopoly)
- Instructor*; AREC 481 - Asset Pricing
- AREC 447 - Price and Market Analysis
- AREC 473/573 - Risk Management
- AREC 472 - Competitive Strategies

AREC 471/581 - Entrepreneurial Skills
 AREC 465/565 - Financial Reporting and Analysis

GRADUATE STUDENT ADVISING

<u>Role</u>	<u>Student</u>	<u>Degree</u>	<u>Graduation Year</u>
<i>Committee member</i>	Jason Beasley	Ph.D.	2019 (est.)
<i>Major Professor</i>	Ryan Siegel	Ph.D.	2012
<i>Committee member</i>	Cheng Li	Ph.D.	2012

SERVICE

Reviewer, Economics Letters, Journal of Productivity Analysis, Agricultural and Resource Economics, Journal of Environmental Horticulture, Agribusiness: An International Journal, and Financial Counseling and Planning Journal

Undergraduate Committee Member, September 2004 - June 2005

Job Shadow Program Coordinator, September 2004 – June 2005

Undergraduate Club Advisor, September 2003 – June 2005

MAJOR PROJECTS & AWARDS

Demand and Supply in the Oregon Wine Industry

Capalbo, Cross, Durham, Sterns (Co-PIs)

09/01/15 – 08/31/18

This study examines how geological, climactic, and human contributions interact with collective investment in branding over time. We ask how each feature contributes to vineyard value and what these relationships suggest about building value in the future.

Oregon State Behavioral Data Clearinghouse – Phase II

Cross (PI)

06/08/11 – 09/30/17

Consumer behavior

This project expands the core of OSU's national behavioral data clearinghouse to capture and disseminate pervasive data on a broader range of economic goods and media, including mobile and web data. The clearinghouse matches 2 million omni-channel behavioral observations each day with localized longitudinal covariates, including climactic and demographic conditions and retail store prices and inventories. The database currently contains 4 billion transactions from 9 thousand physical locations covering 600 thousand goods over 8 years. The project's Phase II goal is to foster new technologies in behavioral analysis through collaboration between OSU and its public and private collaborators, including Harvard University, Oregon Health Sciences University, University of Maryland, Amazon, Home Depot, Lowe's, and Wal-Mart.

Winery and vineyard

The west coast wine database is a comprehensive, spatial database of all vineyard and winery sales in California, Washington, and Oregon, over the 23-year period from 1991-2014. It includes 300 thousand acres in vineyard transactions worth over \$4.2 billion. Parcel and sales transaction data were donated by western banking, appraisal, and governmental institutions, geo-coded at Oregon State, and disseminated to researchers at OSU, UC Santa Barbara, Missouri State University, and Harvard University. Resulting publications have appeared in *Journal of Wine Economics* and *American Economic Review*, with additional work in progress.

Human mobility

The mobility database is a longitudinal study of non-invasively collected, in-home mobility data, economic and climactic covariates, and clinical neurological outcomes. The database contains 300 million observations from 150 households over a 42-month period. The first publication appeared in *PLoS ONE* in 2014, with additional work in progress.

Pervasive computing for predicting individuals' wellness from behavioral measures

Austin and Cross (Co-PIs)

09/30/14 – 05/31/15

This project utilized recent advances in pervasive computing and in-home sensing to study the longitudinal relationship between an individuals' wellness and aspects of everyday behavior measured in the home setting. We developed a continuous characterization of mobility in the home setting with a predictive model that fuses multiple behavioral measures with contextual and other factors to provide precise prediction of an individual's mobility patterns.

Oregon State Nursery Economics Project

Cross (PI)

10/01/08 – 09/30/11

This project established a national horticultural data clearinghouse. The clearinghouse receives, processes, and disseminates terabytes of consumer transaction data. The data are geocoded and matched to local real-time climatic, demographic, and economic covariates, to be "research ready." The project's Phase I goal is to foster collaborative behavioral research and data sharing between OSU and other public and private institutions, such as Texas A&M, Missouri State University, Lowe's, Target, and Wal-Mart.

PROFESSIONAL EXPERIENCE

Assistant Professor, Senior Researcher, Oregon State University, Corvallis, OR, Sept. 2014 – Present

Research Director (co-founder), DemandLink, Salem, OR, May 2008 - Present

Faculty Research Associate, Oregon State University, Corvallis, OR, January 2005 – August 2014

Chief Financial Officer, Kraemer's Nursery, Inc., Mt. Angel, OR, April 2005 – May 2008

Graduate Research Assistant, Oregon State University, Corvallis, OR, Sept. 2000 - December 2004

Branch Manager (Interim), NW Farm Credit Services, Hillsboro, OR, June 1999 - August 1999

Senior Credit Officer/Credit Officer, NW Farm Credit Services, Salem, OR, August 1996 - Sept. 2000