Taylor K McKenzie

U.S. Citizen, DOE Q Clearance

Address: 404 Solano Dr SE, Albuquerque, NM 87108

E-mail: tmcken@sandia.gov / **Cell Phone:** +1 (509) 430-0031

Education

Ph.D. Economics *June 2017*

University of Oregon, Eugene, OR

Dissertation: Railroads, Regulation, Efficiency, and Competition

Committee: Wesley W. Wilson, Van Kolpin, Jeremy Piger, Diane Del Guercio, Keaton Miller

M.S. Economics *December 2013*

University of Oregon, Eugene, OR

Advisor: Dr. Wesley W. Wilson

B.A. Mathematics and Economics *May 2012*

Willamette University, Salem, OR *Summa Cum Laude*

Advisors: Dr. Raechelle Mascarenhas and Dr. Peter Otto

Relevant Work

Sandia National Laboratories *August 2017 - Present*

Senior Cybersecurity Researcher

- Experience structuring and performing quantitative statistical analyses for a variety of applications using classical, Bayesian, and uncertainty quantification methods.
- Designed statistical analyses with an emphasis on reproducibility, accounting for atypical statistical properties of data as appropriate.
- Involved with projects across a variety of disciplines and groups at Sandia, including **INSERT GROUPS HERE**.
- Leading tasking

University of Oregon *Fall-Spring 2012-2017*

Graduate Teaching Fellow

Department of Economics

- Served as teaching assistant to both undergraduate and graduate courses.
- Developed curriculum and acted as independent instructor of five courses covering intermediate microeconomic theory, industrial organization, and development economics.

Relevant Skills

- Development and implementation of classical and Bayesian statistical and econometric models in R, Python, Matlab, and Stata.
- Formal training and practical experience in cybersecurity, ranging from studies of mission and capability resilience of cyber-dependent systems to investigating impacts of specific cyber vulnerabilities.
- Experience working with diverse teams and developing models that synthesize theories and results from a multitude of disciplines

Notable Results and Accomplishments

- Performed review of statistical methodology in risk assessment of Mars 2020 rover launch. Developed alternative methodology that more accurately described physical phenomenology of crash events. Worked closely with NASA and risk assessment team to demonstrate improvements provided by alternative methodology, eventually leading to that methodology being adopted for current and future missions.

- Involved with developing theory of uncertainty quantification for experiments that quantify risk posed to and resilience of cyber systems. Developing framework to address often unusual statistical properties of outcomes from cyber experiments and applying those methods to existing simulations to inform customer decisions.
-

Publications

- Färe, Rolf, Taylor McKenzie, Wesley Wilson, and Wenfeng Yang (2017). Mergers, efficiency, and productivity in the railroad industry: An attribute-incorporated data envelopment analysis approach. Transportation Policy and Economic Regulation: Essays in Honor of Theodore Keeler.
- Corley, C.D., C. Dowling, S.J. Rose, and T. McKenzie (2013). SociAL Sensor Analytics: Measuring Phenomenology at Scale. *2013 IEEE International Conference on Intelligence and Security Informatics*, 61-66.
- Corley, C.D., et al, including T. McKenzie (2012). Assessing the Continuum of Event-Based Biosurveillance Through an Operational Lens. *Biosecurity and Bioterrorism 10(1)*, 131-41.

Working Papers

- McKenzie, Taylor. Markups and Scale Elasticities for Differentiated Railroad Networks (with Wesley W. Wilson).
- McKenzie, Taylor. Decomposing Changes in Productivity Using Bayesian Methods.
- McKenzie, Taylor. General Bayesian Marginal Likelihood Estimation Using Iterative Density Estimation.

Works in Progress

- McKenzie, Taylor. Estimation of Allocative Inefficiency Using Smooth Non-Parametric Frontier Analysis.

Developed Software

- R package: Smooth Non-Parametric Frontier Analysis.

Awards and Recognitions

- Best Dissertation Award from American Economic Association's Transportation and Public Utilities Group. *Dec. 2017*
- Ph.D. Research Paper Award from the University of Oregon for "Markups and Scale Elasticities for Differentiated Railroad Networks." *May 2016*
- Achievement Award from Pacific Northwest National Laboratory for work on empirical game-theoretic modeling. *Aug. 2014*
- Best Paper Award at Institute of Electrical and Electronics Engineers Intelligence and Security Informatics Conference for "SociAL Sensor Analytics: Measuring Phenomenology at Scale." *June 2013*
- Best First-Year Econometrics Performance Award from the University of Oregon. *June 2013*
- National Security Directorate Outstanding Performance Award from Pacific Northwest National Laboratory for work on predictive disease modeling. *Sept. 2011*
- The Chester F. Luther Mathematics Scholarship from Willamette University. *May 2011*
- Phi Beta Kappa Member, Junior Inductee. *May 2011*