

**Project/Activity Number:** NE1749

**Project/Activity Title:** Enhancing Rural Economic Opportunities, Community Resilience, and Entrepreneurship

**Period Covered:** 01/01/2019 - 12/31/2019

**Date of This Report:** 5/30/20

**Annual Meeting Date(s):** April 30<sup>th</sup>, 2020

**List of attendees:**

Phil Watson (U. of Idaho)

Heather Stephens (West Virginia University)

Tom Harris (U. of Nevada)

Liz Davis (U. of Minnesota)

Stephan Goetz (Penn State)

Mitch Renkow (NC State)

Yong Chen (Oregon State)

John Halstead (U. of New Hampshire)

Siew Hoon Lim (ND State)

Sarah Low (U. of Missouri)

Dan Rainey (U. of Arkansas)

Brian Whitacre (Oklahoma State)

Mallory Rahe (U. of Missouri)

Dayton Lambert (Oklahoma State)

Dawn Thilmany McFadden (Colorado State)

Peggy Brennan (Rutgers - Administrative Advisor)

**Brief Summary of Minutes of Annual Meeting:**

**Station reports:**

Phil Watson (U of Idaho)- Working on project to develop multiregional social and trade flows for every county in the U.S. Current work includes creating unsuppression algorithms for QCEW etc. and is looking for collaborators. Ultimately, the project will be open source allowing parts of the model to be traded out.

Tom Harris (U of Nevada). Working on an input-output model related to automation. Ag is especially threatened by automation. He is also working on projects related to public lands and regional economies. And, on a project related to an expansion of assisted living across the state of Nevada.

Heather Stephens (WVU). Working on a project on entrepreneurship and self-employed and regional economic growth with a focus on Appalachia, especially interested in industry-level self-employment. Retooling the project to consider industries affected by the current crisis. Also, finished a paper on life expectancy with folks from Penn State (Stephan Goetz) and Michigan State (Mark Skidmore), and working on a new project with Steve Deller from Wisconsin on labor force participation and the factors that make vary regionally.

Stephan Goetz (Penn State). Recently finished a project showing a link between religiosity and resilience. Working on a project with folks from UNH. Also, a project with people from Maryland, Tennessee and Delaware on ag food systems and community development. One project is on hold with the Census research center shut down. But, also considering latent innovation. Leading the charge with other rural development centers on a statement on rural broadband. And, is also being pulled into a new project on vegetable processing and the risks related to COVID.

Mike Betz (Ohio State). Continuing work on oil and gas development and the impact on economic and demographic outcomes. Also, on opioids both on the regional impacts on opioids and the impacts of the opioid crisis on other demographic outcomes.

Yong Chen (Oregon State). Continuing to work on issues related to demographics and the response to disasters as well as the effects of disasters on local government revenues.

John Halstead (UNH). Worked on a project related to the installation of filtration systems to address arsenic in drinking water in NH. Also, working on a project related to restaurants and local producers. Finally finishing a paper on social capital with Steve Deller from Wisconsin, using stuff from Phil Watson (Idaho) and Stephan Goetz (PSU). New potential project to look at NH communities and resilience in Covid (will find out next week about funding). He is also interested in pursuing something related to PFOA (another water contaminant).

Dayton Lambert (Oklahoma State). Conducting an impact analysis on an inland port in Oklahoma of the disruption of the navigation system from the flood. This is being expanded across the state and broader. Also, working on an ag sector model for Oklahoma from the ground up. He also announced that beginning of the Southern Regional Science Association (SRSA) seminar series starting this Friday.

Brian Whitacre (Oklahoma State). Mostly continuing to work on broadband, especially linked to state policies. He is also partnering with Alison Davis (Kentucky) and the Center for Economic Analysis of Rural Health related to broadband and rural health.

Liz Davis (Minnesota). Focused on examining the variation in access to child care in Minnesota and the supply and demand forces leading to the decline in child care in some places. With the pandemic, some factors have changed and there may be even more concerns about supply and sustainability coming out of this. There may be an opportunity to work with folks from Wisconsin or Colorado State on this...

Steve Deller (Wisconsin). Is continuing to focus on broadband through work with Oklahoma State and Missouri (Brian Whitacre and Sarah Low). Also looking at entrepreneurship (business survival rates), social capital (with John Halstead at UNH) – for this may want to incorporate religion and will look at work by Stephan Goetz at Penn State) and follow up on resiliency work with Phil Watson (Idaho). Has been doing health care analysis for WI hospital association (access to rural health care, health outcomes, and economic outcomes) and is trying to broaden it with work with Kentucky (Alison Davis). Finally, exploring what having UW Extension back on the Madison (main) Campus means for Extension scholarship at U of Wisconsin.

Sarah Low (Missouri). Big changes at Missouri with Tom Johnson and Judy Stallman having both now retired from the University of Missouri. Sarah and Mallory Rahe are now leading the charge. Sarah is working on the nexus between broadband and entrepreneurship with Tessa Conroy at Wisconsin with both research and extension outputs. Sarah and Mallory and their team are also focused value-added agriculture opportunities in the state, with a proposed Missouri Ag Innovation Center, industry-centric studies, and COVID-related work on food systems.

Dawn Thilmany McFadden (Colorado State). Working on regional aspects of food systems with Sarah Low at Missouri and Jeff O'Hara from AMS- focus on labor costs in food sector. Also on a project related to food hubs and supply chain with Brian Rowe at Ohio State how farm-to-school drives producers. A focus in on national policymaking on ag cost production – and was in Wisconsin and Kentucky recently on this. Still interested in tourism, but there are no active projects right now. Will likely be a bigger issue during the recovery – mountain counties that had to shut down their borders due to the city people taking the COVID problem there. In her new role with the economic development office, worked with the National Governors Association on a project related to the gig economy (with Stephan Weiler). May have led to gig workers getting UI coverage during the current crisis. May be an opportunity to expand this work after the crisis. She mentioned she is looking for volunteers for AAEEA committees. She also followed up on Liz's comment on child care to mention the work they did on child care shortages in Colorado (map on their COVID page mapping vulnerability to child care):  
<https://foodsystems.colostate.edu/covid19/>

Siew Hoon Lim (ND State). Evaluated the economic benefits to households and farms of new NASA remote sensing technology for flood forecasting using contingent valuation method. Conducted two separate surveys. Also, examined the CRP (conservation reserve program) federal program, which has general contracts for 10 years with annual payments. Assessed preferences for CRP design and found that landowners preferred shorter contracts, with higher payments, and more flexible alternatives.

### **Discussion on Reporting:**

To show our impact, we decided to report based on the categories of our contributions. Stephan Goetz will also create a graphic showing our connections – based on extension, research, who we've worked with, and the topics.

We also discussed having a set of questions to ask to help with reporting. This will include some of the same things that Stephan will need. Heather Stephens will put together the questions and send out with these minutes.

### **Next meeting (2021):**

We decide to wait until Fall 2020 to decide on the next meeting – either Austin for SRSA or Palm Springs for WRSA.

### **Other topics/opportunities for collaboration/etc:**

Would one topic of interest be local government finance? Yong Chen is working on this. But, there may be a big need (as Steve Deller is finding out already in Wisconsin) as we emerge from this crisis.

Mike Betz mentioned the possibility of organizing sessions for NARSC in November 2020. Keep this in mind. May be also an opportunity to partner with the sessions that Sarah Low and Stephan Weiler are organizing.

There was a lot of discussion about how this group could contribute to the analysis related to COVID. Maybe as we emerge – or at least by the fall – there may be opportunities to begin doing assessments. More short term, there may be a project opportunity (raised by Dawn and Stephan, among others) to look at how we can help businesses (especially in tourism) emerge from this crisis. There was a consensus that we should keep talking/share resource/etc.

### **Accomplishments**

The group has previously identified the following focus areas: 1) Rural Entrepreneurship and Community Well-being; 2) Community Resilience; and 3) Energy and Land Use policies in rural areas. In the past year, the group has made substantial contributions to the academic literature and in disseminating the findings of these studies.

### ***Activities and Outputs***

#### **Entrepreneurship and Non-agricultural development opportunities**

Researchers in Nevada, Ohio, Wisconsin, Idaho and West Virginia engaged in research related to entrepreneurship and non-agricultural economic development. Specifically, researchers in Nevada developed SAM models to incorporate factors of automation. Finding economic sectors that are most impacted by automation. Also deriving difference of impacts of automation on metropolitan and non-metropolitan counties. Researchers in Ohio examined the geographical and temporal effects of the technological changes that led to the U.S. shale oil and gas boom. They assessed changes in U.S. county rates of entrepreneurship and survival rates of existing businesses across different industries in response to the innovations that led to energy development in counties with shale resources. They find that temporal impacts obscure effects that would look small if we only examined average effects. Namely, new firm formation and sales initially decrease in boom regions, followed by a positive trend after the initial disruption. While new firm formation eventually recovers after many years, the overall impact on business dynamism is negative, suggesting that the areas most affected by this technological change may not benefit. This study also contributed to the goal of advancing the understanding of the impact of entrepreneurship on rural areas.

#### **Regional resilience**

Ohio State, Wisconsin, Idaho, Missouri, West Virginia, North Dakota, Nevada and Pennsylvania were engaged in research related to regional resilience and pursued research on regional resilience that examined specific impacts of the Great Recession on local and regional economies

across the United States. One line of inquiry explores how a region's endowment of natural amenities affects labor market outcomes during an economic downturn across high and low amenity areas. They find that the preexisting wage gap between low and high amenity areas that represents the capitalized value of these amenities disappeared during the recession. These results combined with evidence of larger declines in employment in the high amenity areas point towards a reduction in labor supply, not labor demand, consistent with the results expected from a decrease in the demand for natural amenities. Another line of inquiry examines shifts in the balance of agglomeration and competition among restaurants and retail firms during the recession. They find that the recession reduces these shopping externalities through increased competition and income effects on consumers' budgets. Ohio is also engaged in research that focuses on housing market resilience. Using over 15 million observations of housing sales across the largest 51 metropolitan areas of over one million population, they focus on housing price variations across urban gradients within U.S. metropolitan areas. Results indicate that, relative to suburban and exurban areas, housing markets in urban areas were harder hit during the recession but recovered faster after the market crash. Researchers in North Dakota conducted a survey of farmer and resident's perceptions of ecosystem services. The researchers anticipate the farm survey data and results will empower evidence-based community resilience enhancements in the flood-prone area in the RRB and thus forge community partnerships between the local government agencies and their constituents in financing flood preparedness measures. For example, the results show that having a good understanding of the usefulness of the NASA product and how it can apply to flood forecasts efficiently to enhance forecast accuracy are key to gaining more support, and in turn higher economic valuations, among the constituents. Researchers in West Virginia and elsewhere investigated the link between health and community resilience and how the regional variation in life expectancy which could impact the resiliency of communities. Researchers in Missouri researched the role of local governance and decentralization on resilience. Decentralization has been posited as a means to provide more local voice and control of policy and policy implementation. This is expected to allow rural areas to design and implement policies and programs that fit local objectives. The case of the US suggests that a high degree of decentralization is not a guarantee of successful policy outcomes. Lack of professional capacity, information asymmetries, lack of performance criteria in contracts and perception bias (because only the successful projects survive) may lead to persistence of programs that do not provide public benefit.

### **Energy, Land Use, and Rural Development**

Ohio, Wisconsin, New Hampshire, Oklahoma, Oregon, Idaho, and Pennsylvania conducted research on how economic and demographic changes communities have impacted a broad range of economic and demographic outcomes. Specifically, Ohio engaged in research related to how income, employment, and the influx of young male workers associated with oil and gas development have impacted marriage, fertility, employment, overdose deaths and human capital development within communities where drilling has occurred. He and his team have found that oil and gas development has wide-ranging impacts on these outcomes, which in turn have implications for the long-term. Research conducted in Wisconsin suggest that higher levels of social capital at the local level is generally associated with higher levels of community well-being including higher rates of entrepreneurship. In addition, remote rural areas with higher rates of entrepreneurship tend to be associated with higher rates of in-migration by older persons. Results suggest that the in-migration of persons aged 50 to 65 tend to experience higher rates of

new business formation. The results indicate that people seeking “early retirement” and relocate to more remote rural areas tend to start their own businesses. The “receptiveness” of these communities to new in-migrants, a form of bridging social capital, is fundamental to entrepreneurial activity. Research results also suggest that access to broadband is positively capitalized into residential property values: increasing access to broadband will improve property values. Researchers in Oklahoma conducted research on broadband access and how that contributed to rural economic development.

### ***Milestones***

We organized an executive committee and have begun to conduct analyses for each objective, with particular focus on producing results that are comparable across the participating states. We have continued to build stronger synergies across rural development scholars. We have conducted outreach activities including input from stakeholders on objectives and results. We have synthesized results across states and across objectives, completed comparative analyses, identified policy implications and, continued outreach activities.

### **Impacts and Indicators**

In the past year this project has led to several media articles about project members.

1. “[Exploring Opioid Treatment Programs and Overdose Deaths in Rural Areas.](#)” *The Daily Yonder*, January 31, 2020.
2. Interview with Eastern Standard (Kentucky National Public Radio affiliate). “[Re-thinking Rural Innovation.](#)” October 3, 2019.
3. “[DSL, the Slowest Technology, Remains the One Most Available in Rural.](#)” *The Daily Yonder*, September 18, 2019.
4. Interview with Rural Health Leadership Radio. “[The Health Care Connectivity Gap.](#)” September 10, 2019.
5. “[AT&T’s Digital Redlining of Dallas.](#)” National Digital Inclusion Alliance, August 6, 2019.
6. “[Broadband Availability Raises Market Value of Rural Houses.](#)” *The Daily Yonder*, July 17, 2019.
7. “[The Rural Innovation Equation.](#)” *The Daily Yonder*, June 27, 2019.
8. “[Life After the Virus.](#)” *The Spokesman Review* (Spokane, WA), April 5, 2020

## **Publications**

Bielicki, J. M., Irwin, E., Bakshi, B., Cai, Y., Doidge, M., Jackson-Smith, D., ... & Wilson, R. S. (2019). Food, Energy, and Water: Resilience and the Governance in Multi-Scale, Multi-Region, Multi-Actor Settings. AGUFM, 2019, GC42A-05.

Borden, B., Harris, T. R., Lednický, J., Thomas, L. (2019). "Economic and Fiscal Impacts of New Lithium Mine and Lithium Processing Operations in Humboldt County". Reno, NV: University Center for Economic Development, UCED Technical Report UCED 2019/20-14.

Brown, JP, DM Lambert‡, TR Wojan. 2019. "The Effect of the Conservation Reserve Program on Rural Economies: Deriving a Statistical Verdict from a Null Finding." *American Journal of Agricultural Economics*, 101(2):528-540

Brunow, S., Pestel, L., & Partridge, M. (2019). Exports of firms and diversity: an empirical assessment for Germany. *Empirica*, 46(1), 151-175.

Cardoso, L. C., Bittencourt, M. V., Litt, W. H., & Irwin, E. G. (2019). Biofuels policies and fuel demand elasticities in Brazil. *Energy policy*, 128, 296-305.

Chacón-Hurtado, D., K. Gkritza, J. Fricker, and D. Yu, "Exploring the Role of Worker Income and Workplace Characteristics on the Journey to Work," *International Journal of Sustainable Transportation*, 13(8): 553–566 (2019).

Chacón–Hurtado, D., I. Kumar, K. Gkritza, and J. Fricker, "Analysis of Spatial Mismatch and Equity Using Commuting and Labor Sheds: Trends in Indiana," *Transportation Research Record, Journal of the Transportation Research Board* 2673, Issue 10, (2019).

Chacón–Hurtado, D., I. Kumar, K. Gkritza, J. Fricker, L. Beaulieu, "The Role of Transportation Accessibility in Regional Economic Resilience," *Journal of Transport Geography* 84 (2020).

Chacón–Hurtado, D., Losada Rojas, L.L., K. Gkritza, J. Fricker, D. Yu, "A Proposed Framework for the Incorporation of Economic Resilience into Transportation Decision Making," forthcoming in *ASCE Journal of Management in Engineering* (accepted May 1, 2020).

Chung, S. H., & Partridge, M. D. (2019). Are shocks to human capital composition permanent? Evidence from the Mariel boatlift. *The Annals of Regional Science*, 63(3), 461-515.

Conroy, T., S. Deller, and P. Watson. 2019. Regional Income Inequality: A Link to Women-Owned Businesses. *Small Business Economics*, forthcoming (published online)

Deller, Steven C., Kurses, Matt and Conroy, Tessa. 2019. "Rural Entrepreneurship and Migration." *Journal of Rural Studies*. 66(February):30-42.

- Deller, Steven C. and Whitacre, Brian. 2019. "Broadband's Relationship to Rural Housing Values." *Papers in Regional Science*. 98(5):2135-2156.
- Deller, S., Whitacre B. 2019. "Broadband's Relationship to Rural Housing Values." *Papers in Regional Science* 98: 2135-2156.
- Dobis, Elizabeth A., Heather M. Stephens, Mark Skidmore, and Stephan F. Goetz. 2020. "Explaining the Spatial Variation in American Life Expectancy." *Social Science and Medicine* 246.
- Feng, B., Partridge, M. D., & Perez-Silva, R. (2019). Taking Measure of Ohio's Adequacy Gap in School Funding.
- Grumstrup, E., Harris, T. R. (2019). "Nevada Industry Excellence: Economic Impact in Nevada". Reno, NV: University Center for Economic Development, UCED Technical Report UCED 2019/2020-09.
- Harris, T. R., Grumstrup, E. (2019). "Use of Social Accounting Matrix Model for Non-Traditional Export-Base Analysis for Humboldt County". In Elliott Parker, Pawel Pietrasienski, Mehmet Tosun, Piotr Wachowiak, and Marcin Wojtysiak-Kotlarski (Ed.), Book Chapter. Warsaw: Entrepreneurship, Economic Development, and Public Policy- In Search of Synergies/SGH Publishing House.
- Harris, T. R., Sullivan, I. (2019)." Updated Estimated Economic Contributions and Impacts of Natural Gas Infrastructure Expansion to Spring Creek, Nevada". Reno, NV: University Center for Economic Development Technical Publication, UCED 2019/2020-03.
- He-Lambert, L, NS Eash, BC English, O Shylo, JA Zahn, DM Lambert. 2019. Supply Chain and Logistic Optimization of Industrial Spent Microbial Biomass Distribution as a Soil Amendment for Field Crop Production. *Resources, Conservation & Recycling*, 146:218-231.
- Irwin, E. G., Bell, K. P., & Geoghegan, J. (2019). Modeling and Managing Urban Growth at the Rural-Urban Fringe: A Parcel-Level Model of Residential. *Spatial Aspects of Environmental Policy*, 149.
- Johnson, S. R., Helmar, M. D., Harris, T. R., Taylor, M. H., Grumstrup, E. (2019). "Cheat grass in the Basin and Range: Threat and Opportunity". Washington, D.C.: Public Land Policy Center.
- Kandilov, Ivan T. and Mitch Renkow. 2019. "The Impacts of the USDA Broadband Loan and Grant Programs: Moving Towards Estimating a Rate of Return." *Economic Inquiry* 58.
- Katsikas, A., Harris, T. R. (2019). "Benefit-Cost Analysis: Wadsworth by Pass Road (PLIR 35) Pyramid Lake Reservation, Washoe County". Reno, NV: University Center Technical Publication UCED 2019/2020-07.



Lin, Z, SH Lim, T Lin and M Borders. 2020. Using Agent-Based Modeling for Water Resources Management in the Bakken Region. *Journal of Water Resources Planning and Management* 146(1). DOI: 10.1061/(ASCE)WR.19435452.0001147.

Lobo, B. Alam R., Whitacre B. 2020. "Broadband Speed and Unemployment Rates: Data and Measurement Issues." *Telecommunications Policy* 44(1):101829

Lowatcharin, Grichawat and Judith I. Stallmann. "Decentralization and Citizen Trust: An Empirical Study of Policing in More and Less Developed Countries." *Journal of Public Affairs*. Published online, June, 2019

Manlove, J., Whitacre, B. 2019. "Understanding the Trend to Mobile-Only Internet Connections: A Decomposition Analysis." *Telecommunications Policy* 43(1): 76-87.

Manlove, J., Whitacre, B. 2019. "An Evaluation of the Connected Nation Broadband Adoption Program." *Telecommunications Policy* 43(7): 101809.

Meadowcroft, D., Whitacre, B. 2020. "Are Rural Opioid Treatment Program (OTP) Facilities Associated with Lower Deaths?" *Substance Use & Misuse* 55(5): 828-838

Miller, H., Xiao, N., Porr, A., Akar, G., Ozbilen, B., & Irwin, E. (2019). The Sustainable Columbus Observatory (SCO): Measuring Community Progress Toward Sustainability and Resilience.

Partridge, M. D., & Hua, Y. (2019). Introduction to the Seventh RUSE Special Issue.

Perez-Silva, R., Partridge, M. D., & Foster, W. E. (2019). Are foreign-born researchers more innovative? Self-selection and the production of knowledge among PhD recipients in the USA. *Journal of Geographical Systems*, 21(4), 557-594.

Ringwood, L., P. Watson, and P. Lewin. 2019. A Quantitative Method for Measuring Regional Economic Resilience to the Great Recession. *Growth and Change*, 50(1): 381-402.

Shepard, M., Betz, M., & Snyder, A. (2019). The Shale Boom and Family Structure: Oil and Gas Employment Growth Relationship to Marriage, Divorce, and Cohabitation. *Rural Sociology*.

Sheng, D., S. Owen, D.M. Lambert, B.C. English, R.J. Menard, D.W. Hughes, L.H. Lambert, C.D. Clark. 2019. "A Multiregional Input-Output Analysis of Water Withdrawals in the Southeastern United States." *Review of Regional Studies*. 49(2):323-350.

Shideler, D. and P. Watson. 2019. Making Change through Local Food Production: Calculating the Economic Impact of Your Local Food Project. *Journal of Agriculture, Food Systems, and Community Development*, 8(3): 165-177.

Tsvetkova, A., & Partridge, M. (2019). Knowledge-based service economy and firm entry: an alternative to the knowledge spillover theory of entrepreneurship. *Small Business Economics*, 1-21.

Tsvetkova, A., Partridge, M., & Betz, M. (2019). Self-employment effects on regional growth: a bigger bang for a buck?. *Small Business Economics*, 52(1), 27-45.

Wachenheim, CJ, SH Lim, DC Roberts and J Devney. 2019. Landowner Valuation of a Working Wetlands Program in the Prairie Pothole Region. *Agricultural Economics* 50(4): 465-478.

Whitacre, B., Johnston, D., Shideler, D., and Lansford, N. 2020. "The Influence of Oil and Gas Employment on Local Retail Spending: Evidence from Oklahoma Panel Data." *The Annals of Regional Science* 64(1): 133-157.

Whitacre, B., Meadowcroft, D., Gallardo, R. 2019. "Firm and Regional Economic Outcomes Associated with a New, Broad Measure of Business Innovation." *Entrepreneurship & Regional Development* 31(9-10): 930-952.

Whitacre, B. 2019. "Building a Rural Library Hotspot Lending Program: Results From a 1-Year Pilot." *Journal of Extension* [On-line], 57(2) Article 2FEA2.