

## **CENTER FOR ECONOMIC RESEARCH & POLICY ANALYSIS**

### **MISSION**

**The Center for Economic Research & Policy Analysis (CERPA)** is a multidisciplinary unit at Appalachian State University. The mission of CERPA is to improve policy- and decision-making by producing rigorous research and disseminating relevant information on current economic and policy issues. To that end, CERPA maintains research programs in the specific areas of economic development, environment & energy, and experimental economics.

### **2021-22 HIGHLIGHTS:**

#### ***Revamping the Western North Carolina Economic Index***

CERPA is in the early stages of revamping the old Western North Carolina Economic Index report. CERPA will collect, analyze, and disseminate monthly economic data for all 25 counties (and beyond) and disseminate the data on an online dashboard. Counties will be able to choose the data type and comparison counties to view and compare economic trends.

#### ***CONCERT Awards***

CERPA, along with the Appalachian Energy Center and the Southern Appalachian Environmental Research and Education Center, works to support and facilitate multidisciplinary research under the umbrella of the Research Institute for Environment, Energy and Economics. To that end, we created and manage the CONducting ComplEx Research Together (CONCERT) internal grant program. Each year, proposals are solicited for possible funding with the goal of supporting new, existing, or developing research projects that involve more than one of the RIEEE core research areas and are performed by collaborative, interdisciplinary teams. This year's program awarded approximately \$15,000 to three proposals.

#### ***Appalachian Experimental Economics Laboratory***

CERPA continues to manage the Appalachian Experimental Economics Laboratory on the third floor of Peacock Hall. The laboratory supports the experimental economics program in the Department of Economics, which is ranked among the top 10% of institutions in the world. In the 2021-22 academic year the research faculty affiliated with AppEEL conducted a total of 158 experimental sessions, with 762 Appalachian State University student participants, with average payments of \$47.50. In total, student participants earned \$36,196 in the 2020-21 academic year.<sup>1</sup>

- a. Funding.** Experiments were funded through multiple sources, including two separate grants from the National Science Foundation, the Center of Growth and Opportunity, the Office of Student Research, and the Walker College of Business Dean's Club. One of the NSF grant provided funding for 2 undergraduate research assistants that conducted data entry in AppEEL.
- b. Student Research.** Faculty also supervise student research, which provides valuable experiential learning involving the formulation of testable hypotheses, experimental design, primary data collection in the lab, data analysis, as well as summarizing and

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<sup>1</sup> This included 80 participants that received an average payment of \$272.00 for a 3-week study. Excluding these participants the average payment for participation was \$21.00.

presenting the results. The experimental faculty supervised 6 student research projects that received \$4480 in funding from the Barnes Program Student Research Grants. These students conducted 22 experimental sessions conducted in AppEEL. In addition, there were 15 students in the experimental economics course that assisted with experiments in AppEEL.

- c. Participants.** The pool of student participants is diverse in terms of major field of study. The largest fraction is from the business school, but most participants are non-business majors. 33% of subjects are non-economics business majors, 11% are economics, 9% are psychology, 9% are undecided, 3% study art, and 3% study biology with the remaining come from over a dozen other majors. 53% percent of participants identify as female and 46% identify as male.
- d. Published Research.** In 2021, faculty associated with AppEEL published 11 research articles in *Experimental Economics*, *Journal Economic Behavior and Organization*, *Economics Letters*, *Journal of Behavioral and Experimental Economics*, *Canadian Journal of Economics*, *American Economic Journal – Microeconomics*, *Southern Economic Journal*, and *Northwestern Law Review*.

#### **Funded Projects:**

##### ***Completed Projects:***

##### ***Measuring the Economic Impact of the Annual Blowing Rock Horse Show***

Principal Investigator: Ash Morgan

The BRCHS is the oldest continuous horse show in the United States, attracting each year, thousands of people (exhibitors, trainers, vendors, etc.) to the event and local community of Blowing Rock. With 21 days of horse shows over three weeks in the summer, attendees travelling to and staying the area, plus stall rentals during the year, significant direct expenditures flow into the local economy in the form of hotel stays, restaurant spending, grocery spending, and attendance at other local events. This direct injection of expenditures from outside the region kick-starts a chain reaction of secondary spending that generates total economic impacts that would not occur absent the event. This work created a geographically-specific input-output model to examine the total economic impact of the event. Direct injections into the model were extrapolated from previous studies on the event.

##### ***Measuring the Economic Impact of the Luke Combs Concert on the Local Economy***

Principal Investigator: Ash Morgan

Luke Combs is an American country music singer and songwriter, born and raised in North Carolina and attended Appalachian State University as an undergraduate student. On September 4, 2021, he played his first ever stadium concert at the Kidd Brewer Stadium, Boone, NC, attracting over 30,000 attendees. Staging such a large event and attracting the flow of external

dollars into the area will generate a significant one-time economic impact. The purpose of this study is to measure the total economic impact of the Luke Combs concert on the Watauga County economy in terms of gross regional product, employment, labor income, and taxes. Ticket sales data and attendee residences were provided by the Boone Chamber of Commerce. Attendee-based sector-specific expenditure flows were then estimated based on research on economic impacts of music events. These flows constitute a direct injection of expenditures from outside the region, kick-starting a chain reaction of secondary spending that generates total economic impacts that would not occur absent the concert. The total economic impacts of the concert on the local economy were estimated by constructing a geographically-specific input-output model.

***Research in Progress:***

***Collaborative Research: Implications of Solar Radiation Management for Strategic Behavior and Climate Governance***

Principal Investigator: Todd Cherry.

Co-Principal Investigator: Dave McEvoy.

Funding: \$396,274

The overall objective is to better understand cooperative action and institutional design in the context of a collective-risk social dilemma with the option of a technological solution. Laboratory experiments will be conducted simultaneously at Colorado State University and the University of Wyoming. Dr. McEvoy will contribute to the design and programming for these experiments, analyze the data and generate manuscripts. He will also help design the field experiment at the UNFCCC COP.

***Commonly Experienced Sleep Restriction and Behavior in Strategic Social Interactions.***

Principal Investigator: David Dickinson.

Senior Personnel: David Bruner, David McEvoy

Funding: \$339,038

The National Science Foundation (NSF) awarded a three-year grant to examine the impacts of sleep deprivation on simple strategic interactions (SR). The investigators will examine ecologically valid (relatively mild) SR effects on decisions in strategic 2-person interactions: win-loss bargaining, positive sum mutual-trust, and cooperation/coordination game interactions. Results will have real world implications for millions of U.S. adults who receive insufficient sleep. For example, sleepiness-induced reductions in cooperation imply reduced social capital and efficiency that has multiplier effects in society.

***The Economic Impacts of Coastal Groundwater Issues from Sea-Level Rise***

Principal Investigator: Dennis Guignet.

Co-Principal Investigators: Bill Anderson, Ash Morgan, and John Whitehead.

Funding: \$5,000 (RIEEE CONCERT Grant)

The research objective is to conduct surveys of NC coastal homeowners and tourists to gather data on attitudes and experience with groundwater regarding water uses and septic systems. The

gathered data will allow for tests of how homeowners may respond to sea-level rise, including behaviors like investing in different water treatment options, or putting their house up for sale and moving. Data will also allow for tests of how tourists may change the frequency and duration of visits to the NC coast, depending on the extent water treatment costs are passed on (e.g., through higher beach house rents and hotel rates). By design, the stated preference questions will enable willingness-to-pay (WTP) for potable and wastewater treatment options to be estimated, which could then be compared to the costs of adaptation strategies and infrastructure investments (e.g., providing alternative water sources, updating desalinization capabilities of water systems, and installing centralized wastewater treatment facilities).

***Insufficient Sleep and Dietary Choices: An Ecologically Valid Examination of the Decision Foundations of Eating Behaviors when Sleep Restricted.***

Principal Investigator: David Dickinson.

Funding: \$131,578

Insufficient sleep (<7 hrs/night [82]) is a significant global health. Recent data indicate that over 80 million U.S. adults ( $\approx 35\%$ ) suffer from insufficient sleep just under the U.S. adult obesity rate (39%) [48]. Thus, the combined public health concerns of insufficient sleep and obesity have widespread impact and are considered key risk factors for chronic disease. There is a recognized link between poor sleep and obesity, but studies have argued for causation both ways. In other words, poor sleep and obesity are concomitant, but the direction of causation remains difficult to disentangle. A solid understanding of the causation channels through which sleep may impact dietary choice is vital, and our premise is that insufficient sleep impacts key components of decision making relevant to dietary choice.

***Measuring the Economic Impact of a New Commercial Office Facility in Boone, NC***

Principal Investigator: Ash Morgan.

Funding: \$5,000 (RIEEE CONCERT Grant)

Northwest North Carolina (NWNC) is a rural region that significantly lags the rest of the state in terms of economic activity. Historically, NWNC captures only 1 in 13 new jobs in the state. The availability of highly educated workers (graduating from Appalachian State University) in a region often encourages the development of industries that utilize those advanced skills, raising the standard of living over time. However, Boone lacks an adequate hard infrastructure to capitalize on these competitive advantages. Companies wanting to remain or expand in or locate to Boone face a lack of investment in an organizational system of resources for businesses to run effectively. As a result, this lack of critical infrastructure creates a large constraint on economic development. This report examines the total economic impacts from constructing and operating a 6,000 sqft to 12,000 sqft facility in Boone, NC, in terms of employment, labor income, and economic output.

***Proposals Under Review:***

***The Economic Impact of Appalachian State University on the Regional Economy***

Principal Investigator: Ash Morgan.

Universities are engines for regional economic development. The presence of a university contributes to the regional economy by enhancing human capital through education, creating new knowledge through research activity, developing and transferring new technology, and creating favorable environments that attract innovative businesses and individuals. For universities located in rural areas, the contribution to the region can be especially noteworthy because they are often one of the largest employers and account for much of spending that supports local businesses. The overall purpose of the proposed work is to develop geographically-specific input-output models to measure the total economic impact of Appalachian State University on the regional economy.