



Opportunities for Applied Research with North Carolina State Agencies

June 2020

Purpose: The North Carolina Office of State Budget and Management (OSBM) Strategic Partnerships team is facilitating research to improve public policy and program operations for the benefit of North Carolinians. Highlighted here are open partnership opportunities and information on how to express interest in participating. **Partnership Opportunities:** We are assembling an interdisciplinary network of partners, who collectively can provide methodological expertise related to design, data analytics, and field experimentation, as well as domain knowledge related to the topics. Funding may be available, based on fit and need. There are opportunities for entry-level to highly experienced scientists. We seek pragmatically oriented scientists who appreciate that applied research often requires pivoting focus and methods based on an evolving understanding of the problem and associated constraints. For each of the below, we also may seek individuals with project management experience, especially demonstrated success in a complicated organizational setting. The immense challenges that COVID-19 is causing across sectors makes this work as critical and timely as ever, highlighting opportunities for and the importance of contributions from research partners.

Projects:

- 1. How can prisons ensure that changes in staffing needs are calculated when the Legislature enacts laws that increase or decrease the prison population?** Safe and efficient operation of state prisons is a high priority for the Division of Adult Correction and Juvenile Justice of the Department of Public Safety. Maintaining integrity of prison staffing patterns across all disciplines is paramount to ensuring the safety of both employees and offenders. When the Legislature is considering bills that affect sentencing laws, it solicits impact on prison bed capacity from the NC Sentencing Policy and Advisory Commission (SPAC). SPAC also works to provide an annual population projection report with a focus on prison bed needs. This request seeks to develop a methodology to project staffing needs in relation to the increased (or decreased) prison capacity projections, both for annual population projections and for criminal sentencing laws. *Skillsets needed include expertise in **business and human resources systems analysis**, knowledge of the unique aspects of prison facilities' environment and settings, and experience with **legislative fiscal research**.*

How can North Carolina enhance the design of its reentry policies and programming? In 2017, more than 20,000 people returned to communities after leaving state prison. That number continues to increase, along with the number of people who are leaving federal prison or

completing court-ordered monitoring or supervision. The reentry process entails supporting these formerly incarcerated individuals as they work to reintegrate into their communities through employment, education, housing, and other goals. North Carolina has government, nonprofit, and business community resources, but how should we best use those resources? Information about current efforts can be found on the [Office of Reentry Programs and Services](#) website; see also the [State Reentry Council Collaborative](#). Our charge is to reinforce reentry efforts by providing empirical assessments of existing programs and designing a learning agenda of field work to fill knowledge gaps moving forward. *Skillsets needed include **ethnography** to describe current processes across the state prison and reentry systems; **software and data engineering** to stitch together a patchwork of IT systems containing prisoner information; **data science** for analyzing those data; **social scientists** to design and analyze randomized field experiments; and experts on the topic of reentry.*

- 2. How can North Carolina improve voluntary compliance with tax filing and payment?** The North Carolina Department of Revenue (NCDOR) administers tax laws and collects taxes due in an impartial, consistent, and secure manner. It is the goal of the NCDOR that all taxpayers voluntarily comply with their tax obligations. This means filing and paying all returns due and taxes owed in a timely manner. When taxpayers do not comply voluntarily, they risk civil penalties, interest, as well as potential criminal prosecution and it undermines the funding of public services benefitting the people of North Carolina. NCDOR has a variety of resources for education and outreach to make it easier for taxpayers to pay their fair share, but how can those resources be best enhanced? Anticipated projects will involve 1) design and A/B testing work to optimize the catalogue of communications used by NCDOR; tens of thousands of Notices are sent every month; and 2) determining what the economic and other impacts would be of a seemingly small (~1-2%) incremental increase in voluntary compliance. *Skillsets needed include **behavioral science** and **graphic design** to create new communications; **social scientists** to design and analyze randomized field experiments; and experts on the topic of the tax gap, voluntary and involuntary compliance and *tax collection specifically.**
- 3. How can North Carolina increase the number of young adults living in or relocating to rural communities that earn close to the state average income?** Many rural communities want to reverse the trend of a steadily declining rate of growth, loss of a young demographic, and a lack of earning potential; but need guidance on what to invest in to make a difference. Among the trends that could be analyzed are commuting to a job in an urban county, investment in broadband infrastructure and affordability, presence of maternal and early childhood health care, innovations in education, proximity to outdoor recreation, and ease of acceptance into the community fabric. *Skillsets needed are likely to include **sociology**, **economics**, **infrastructure planning**, and **investment strategy**.*
- 4. How can North Carolina best match job-seekers with opportunities in state government?** State agencies often have hard-to-fill, open positions that pay well and do interesting work for the public benefit. At the same time, students graduating from the state's colleges and universities (and other job-seekers) share that they are interested in but cannot find such opportunities or have a hard time "getting in" to state government. There are a variety of technologies that aim to connect employers and potential employees. None yet are uniquely designed for

government, and more particularly the opportunity for syncing North Carolina state government with the extensive talent coming from colleges and universities. This project seeks to address the talent pipeline gap by first, determining the ideal interconnections between government position postings and colleges/universities and, second, building an online system that connects those in need of the talent with those with the talent to offer. *Skillssets needed (likely from multiple individuals) include **lean/UX design** for mapping the ideal user experience; **full-stack and software engineer** for building the online platform and requisite API pipelines; **survey methodology** for soliciting employer and job-seeker information; and experts on the topic of human resources, particularly in university and government settings.*

5. How can North Carolina best manage and maximize the benefits of its environmental assets?

The Department of Environmental Quality (DEQ) has identified projects of interest that include questions such as: how to predict flooding in an effort to save life and property; how to preserve and introduce pollinator-friendly species; how to mitigate bacterial contamination in the aquaculture industry; how to value our seafood industry; how to clean our waterways; how to incentivize wider adoption of home energy weatherization; how to prepare for rising sea levels? *Skillssets needed (likely from multiple individuals) include **digital and aerial photography and geographic information systems (GIS)** for mapping assets across the state; **machine-learning and high-performance computing** for modeling weather and climate patterns; **environmental sampling; econometrics** and policy experts for modeling financial impact and tax incentive schemes; **water quality monitoring**; and experts on environmental management.*

6. How can North Carolina best use Medicaid dollars to support individuals with intellectual, developmental, and substance use disabilities?

The NC Department of Health and Human Services (HHS) oversees a \$1.3 billion budget allocated for mental health, developmental disabilities, and substance use services. What is the evidence base behind every dollar being spent? Our charge is to provide empirical assessments of existing programs and to design a learning agenda of analytic and field work to fill knowledge gaps moving forward. We have related goals focused on increasing the number of contracts that we compete for service based pilots while also ensuring that our process involves a diverse set of provider organizations (i.e. organizations owned by women, minorities, and veterans or organizations serving primarily underserved populations). *Skillssets needed include **data engineering** to curate and manage a vast quantity of health-related administrative data; **data science** for analyzing those data; **social and medical scientists** to review and assess existing programs and contracts; and experts on administrative data and programming in the HHS policy context.*

7. The North Carolina Department of Information Technology Broadband Infrastructure Office's vision is for all North Carolinians to have access to affordable, high-speed broadband, anywhere at any time.

North Carolina public schools enroll nearly 1.5 million pre-K-12 students across 115 school districts that stretch across a state that is highly diverse geographically and demographically. Hundreds of thousands of those students have limited or no access to the internet. This limits not only students' ability to complete their schoolwork successfully (or in some cases at all) but also opportunities to pursue post-secondary education and career opportunities. In addition, businesses and medical facilities in rural areas – and their employees and consumers – are at a disadvantage without consistent, quality internet access. This affects the health and well-being of individuals, families, and entire communities. With numerous

initiatives underway to increase broadband access, adoption, and use, the Office seeks a partner to assist in conducting an economic impact study of broadband access and adoption in North Carolina. The study should build upon existing research such as that of the Whitacre, Gallardo, & Strover 2014 study, "Does rural broadband impact jobs and income? Evidence from spatial and first-differenced regressions." *Skillsets needed include **economic analytics** to monitor the return on investment of broadband, and **computer science and procurement expertise** to advise on how to best implement broadband technologies.*

Commitment Needed: Engagements on all the above will begin as soon as individuals with needed skills are identified and available. Most opportunities have a minimum commitment of four months and 10 hours per week. Roles with substantially more engagement will also be needed, and along longer time horizons.

Publication Policy: Our aim is enriching life for all North Carolinians. To that end, we are committed to open science best practices, including sharing results and distributing of materials needed to replicate. This includes academic and practitioner publishing, as well as compelling storytelling through interactive online reports, community forums, podcasts and radio, and beyond as best fit for the relevant audiences.

The Environment: North Carolina state government serves a population of over 10 million residents across policy and programmatic domains. The Office of State Management & Budget (OSBM) is in the heart of Raleigh, next to the Capitol, the Legislature, and state departments and agencies. You would work closely with state agency officials and the Strategic Partnerships team including Jenni Owen, Director of Strategic Partnerships, and [David Yokum](#), Senior Advisor.

How to Express Your Interest: Please email partnerships@osbm.nc.gov, including your resume and a statement of how your skillset and interests align with the mission and projects described here.

Note: Depending on current needs, skillsets offered, and other considerations, it is possible that not all individuals who express interest will receive a reply.

This list is likely to be revised as opportunities and needs change.