

## **Statement of Purpose**

**AnneMarie Bryson**

My desire to study economics stems from how the field designs and utilizes mathematical models to answer policy-relevant questions about the world. I developed this passion through my coursework and research experience, as well as through my time spent serving as a high-school economics teacher in Washington, D.C. I am confident that my strong academic background coupled with my prior research experience prepare me well to excel as an economics PhD student at Northwestern.

I graduated summa cum laude from the University of Notre Dame with a degree in economics and mathematics. My coursework included multivariable calculus, linear algebra, real analysis, micro and macroeconomic theory, and econometrics. While building a rigorous foundation in the field's methods, I became inspired by how economics could provide a bridge between the theory I learned in my mathematics classes and the phenomena I witnessed in the world. In my final years, I worked as the sole teaching assistant for an Economics of Innovation course with Professor Kirk Doran and took classes in the economics of health and education. These experiences cemented both my love of teaching and passion for applying research to pressing questions.

In addition to my coursework and teaching roles, I pursued both independent and collaborative research opportunities. Beginning in my sophomore year, I interned for the Wilson Sheehan Lab for Economic Opportunities (LEO). I worked on-site at Heartland Alliance, a social service care provider in Chicago, Illinois, analyzing real-time data on programs in health, education, and housing. I continued this part-time into my junior year, where I evaluated the impact of a transitional jobs program on earnings and job retention.

After my work at LEO, I became increasingly interested in the role of health and health emergencies in dictating individual outcomes. I chose to write my senior honors thesis on the labor market effects of the prescription opioid epidemic. I analyzed whether rising opioid abuse rates were responsible for declining labor market outcomes for young workers in the early 2000s. Following the work of Alpert et. al (2022), I used the presence of a strict prescription drug monitoring program (i.e., triplicate prescription program) in 1996, the year of the release of OxyContin, as a proxy for the presence of opioid misuse in a state. This experience was especially rewarding for me because it allowed me to begin familiarizing myself with the research process and developing my own research agenda.

Following graduation, I worked for two years as a Research Assistant at the Federal Reserve Board of Governors. I had the opportunity to collaborate with economists, including David Cho, Joshua Montes, Daniel Garcia, and Alvaro Mezza, on two academic research projects related to the opioid epidemic. The first identifies the causal effect of heroin misuse on labor market outcomes by proxying for heroin use with county-wide shipments of oxycodone, the active ingredient found in many prescription opioids. I gained experience dealing with the practical

challenges associated with building a dataset, such as how to parse and clean raw microdata and how to standardize mortality categories despite overtime changes in ICD codes.

I am a co-author on the second project, which explains differences between data on prescription opioid drug rates. Given the inherent difficulties in measuring recreational drug misuse, researchers generally proxy for misuse by using two different measures of local opioid supply: (1) milligram-morphine equivalent (MME) shipments of opioids and (2) the number of opioid prescriptions. These measures are often seen as substitutes; however, we find that while measures based on the number of prescriptions generally track hydrocodone, measures based on MME amounts generally track oxycodone. This difference has important implications given the well-documented link between the present-day rise in heroin and synthetic opioid overdose deaths rates and oxycodone (but not hydrocodone) misuse. Thus, choosing hydrocodone-based measures may underestimate the health and economic consequences of opioid misuse. This project allowed me to participate in the entire research process, from writing applications for restricted datasets and generating descriptive analyses to collaborating on the writing and editing of the paper. I also presented the results at the Applied Micro Seminar at the Federal Reserve, affording me the opportunity to interact with economists researching a diverse set of issues and solidifying my desire to pursue a career in economics.

I currently work as a Predoctoral Research Fellow at the Stanford Institute for Economic Policy Research (SIEPR) for Professor Heidi Williams on projects related to innovation. In addition to taking a graduate level field course in Market Design, I have further built upon my technical skills, learning how to use Python and SQL to extract XML data and work with large, proprietary data sets in high performance computing (HPC) environments. I also summarize findings from the work of economists studying how to effectively fund science. The opportunity to see first-hand how academic work can inform policy has cemented my desire to conduct research that lays the foundation for evidence-based policies that benefit the greater public.

My coursework and research experience have reinforced my interest in studying topics in applied microeconomics, particularly in health, industrial organization, and labor. I am interested in questions regarding the returns to medical innovation and the effectiveness of health-based interventions in promoting health equity, such as the impact of expanding access to healthcare. Many economists at Northwestern are leaders in these fields, including Drs. Molly Schnell and David Dranove. Additionally, the opportunity to become involved with impactful research centers like the Institute for Policy Research – which applies rigorous, data-driven research to public service – will be invaluable to my development as a researcher.

I strongly believe that economics can be used to answer some of the most important and pressing issues today. In my future career, I intend to become a professor and produce high-quality academic research that will directly influence policy. Obtaining a PhD from Northwestern will equip me with the analytical tools needed to accomplish this goal and make significant contributions to the field of economics.