Personal, Background, and Future Goals Statement

My desire to study economics stems from how the field designs and utilizes mathematical models to answer policy-relevant questions about the world. I plan to pursue a PhD in economics with the intent of becoming a professor who conducts research that helps create frameworks for evidence-based health policy. Graduate school will equip me with the analytical tools needed to do this, tools that I have already begun to develop throughout my undergraduate career and time as a research assistant (RA) at both the Federal Reserve and the Stanford Institute for Economic Policy Research (SIEPR).

Intellectual Merit

I entered the University of Notre Dame as a mathematics major, but I soon found myself disappointed with the abstract nature of many of the classes I was taking. I enjoyed learning the theory and motivation behind the mathematical models and formulas I had always taken as given. However, I found it difficult to connect what I was learning in the classroom with the phenomena I witnessed outside of it**.** This all changed during my sophomore year, when I took “The Economics of Education" with Professor Chloe Gibbs. We learned how researchers were using basic economic models to evaluate the impact and effectiveness of different educational interventions, from early childhood to adulthood. Inspired by the economic discipline’s ability to answer intriguing questions, I left the class knowing that I wanted to be an economist and use these same economic tools, methods, and ways of thinking to answer questions that directly inform policy.

Spurred by my experience in Professor Gibbs’ class, I became an RA for the Wilson Sheehan Lab for Economic Opportunities (LEO) where I conducted economic analyses on the efficacy of various anti-poverty programs. I spent the summer after my sophomore year working on-site at Heartland Alliance, a comprehensive social service care provider in Chicago, Illinois. I worked with other researchers to analyze real-time data on programs in health, education, and housing. I also made presentations to convey the results of our analyses on program effectiveness to interested stakeholders. One program I helped evaluate sought to increase community college completion for young adults by providing an array of services, including individualized case managers. I had the opportunity to interview program participants, incorporating their feedback and opinions into our analysis. I continued my work with LEO during my junior year, when I researched the effect of a jobs program in Colorado on earnings and other employment outcomes like job retention. The opportunity to simultaneously interact with program participants and conduct statistical analyses provided a model for how I would like my career to look: one where I can help provide answers to meaningful questions that have real-world impact.

After my work at LEO, I became increasingly interested in the role of health and health emergencies in dictating individual life outcomes. Growing up in North Carolina, a state disproportionately affected by the opioid epidemic, I had seen first-hand how this health crisis affected the lives of so many people around me. I decided I wanted to study it in more detail, choosing to write my senior honors thesis on the labor market effects of the prescription opioid crisis. I tested 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 (2021), I used the presence of a triplicate prescription program in 1996, the year of the introduction of OxyContin into the markets, as a proxy for the presence of opioid misuse in a state. Unsealed documents from a civil court case against Purdue Pharma reveal that the company viewed these early prescription drug monitoring programs as a major barrier to the prescription of OxyContin, and therefore targeted their marketing towards states without triplicate programs. This decision, in turn, significantly affected the presence of opioids, and subsequently opioid overdose deaths,

in these states. I found that while looser prescribing practices have no discernible effect on labor force participation, they can explain a sizable share of the decline in a state's employment rate. These results are meaningful, as prescription drug monitoring programs have gained increasing support as one of the most promising policy measures implemented to combat the epidemic.

After completing my undergraduate degree, I worked for two years in the Household and Business Spending section at the Federal Reserve Board of Governors in Washington, D.C. as both the GDP and the consumption RA. I began my job amid the COVID-19 pandemic, and, although the nature of the job was continuously changing, I saw first-hand the significance of our policy work. Throughout my tenure, I was able to attend meetings where the materials I created were being used to brief the governors and other policymakers as they made swift, and oftentimes difficult, decisions aimed at alleviating the effects of the pandemic. These experiences cemented my desire to conduct research that lays the foundation for evidence-based policies that benefit the greater public.

While much of my work focused on policy at the Federal Reserve, I also collaborated with economists on academic-style research. Continuing with my work related to the opioid epidemic, I worked with David Cho, Joshua Montes, Daniel Garcia, and Alvaro Mezza on two projects. The first project 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. We found that increases in heroin use led to declines in employment and labor force participation rates, particularly for individuals who were young, white, and had a high school degree or less. The results suggested the importance of looking beyond prescription opioids and into the rise of illicit drug use when studying the effects of the epidemic and shaping effective policy.

As a coauthor on the second project, I participated in the entire research process from beginning to end. I wrote applications for restricted datasets, performed data exploration, and generated descriptive analyses, as well as collaborated on the writing, editing, and presentation of the paper. The project explains important differences between data on prescription and dispensing opioid drug rates. Given the inherent limitations and difficulties in measuring recreational drug misuse — such as underreporting illicit drug use in surveys — researchers generally proxy for misuse by using two different measures of local opioid supply: (1) milligram-morphine equivalent (MME) shipments of opioids from the Drug Enforcement Agency's records and (2) the amount of opioid prescriptions from the Center for Disease Control. While these two measures are often seen as substitutes, our results suggest that a researcher's choice between the two has important implications. We found that while measures that track prescriptions generally track hydrocodone, measures that track MME amounts of shipments generally track oxycodone. This difference has important implications given the well-documented link between oxycodone and the subsequent rise in heroin and synthetic opioid overdose death rates. Given that this same link does not exist between hydrocodone use and subsequent rises in illicit opioid deaths, depending on the research question, choosing hydrocodone-based measures may understate the health and economic consequences of opioid misuse.

I currently work as a Predoctoral Research Fellow at SIEPR for Professor Heidi Williams. Through this experience I have built upon my technical skills, learning how to use Python and SQL to extract XML data, as well as how to parse and work with large, proprietary data sets in high performance computing (HPC) environments. I also summarize and present key findings from the work of various economists and innovators who study how to effectively fund science. The opportunity to see first-hand how academic work can be transformed to inform policy has reinforced my desire to go to graduate school and ultimately work at the intersection of research and policy.

Broader Impacts

My desire to pursue a PhD is not solely rooted in my desire to conduct research, but also in my belief in advocacy and mentorship. I have always had a great love for teaching. Beginning in my sophomore year, I was a peer tutor, where I helped groups of students in all of the core economics and mathematics classes including macroeconomics, microeconomics, econometrics, and the calculus series. During my senior year, I was the sole TA for an Economics of Innovation course taught by Professor Kirk Doran. In addition to handling all the grading, I worked closely with Professor Doran to draft all lecture materials, assignments, and assessments for the course.

Throughout my time as an RA at the Federal Reserve, I became increasingly aware of how, although monetary policy affects all U.S. residents, we have historically limited the voices at the table. I thought critically about the need to diversify the field by increasing the number of underrepresented minorities who are exposed to and eventually enter into economics. I decided to devote a large portion of my time towards the Diversity and Inclusion efforts at the Fed. I gave presentations on financial literacy and the role of the Fed to high schoolers throughout the U.S. Knowing I wanted to take on more of an explicit mentorship role, I applied to teach an AP Macroeconomics class at Benjamin Banneker High School in D.C. This class is historically undersupplied, due to limited teachers and resources. My students had so many questions about economics, especially as they watched the pandemic unfold and shape their lives in so many ways. I worked to tailor each class so that they could understand the relevance of the lesson in their own lives. I held mock Federal Open Market Committee (FOMC) meetings and economic policy conferences to not only help my students understand the role of economic thought in the world, but also to encourage them to challenge existing assumptions and beliefs. At the end of the year, all four seniors in my class decided to major in economics in college**.** While I was excited that the vast majority of my class passed their AP exam, the most rewarding part of the class was discovering that I had been able to provide the same mentorship to my students that so many of my teachers had provided to me.

Future Plans

I strongly believe that economics can be used to answer some of the most important and pressing issues today. In my future career, I hope to become a professor and produce high-quality research that is used to directly influence health policy. I want to study what types of health-based interventions are most effective in promoting health equity, particularly the role of expanded access to healthcare and reduced barriers to quality, affordable healthcare services. Discriminatory practices are often deeply institutionalized and embedded in society, and I believe economics can be used to identify these practices and evaluate their proposed solutions.

I know I would not be where I am today without quality teachers, who empowered me and provided me with consistent support and guidance along the way. When I think back to my own educational experience, I remember the teachers who inspired me, who mentored me and told me that I could become an economist. I now want to be that support and teacher for others. I hope to inspire my future students with the power of economics and convince them, much like my teachers convinced me, that the field of economics will only benefit from the inclusion of their distinct perspectives.

References

Alpert, A., Evans, W.N., Lieber, E.M.J., & Powell, D. (2021) The Quarterly Journal of Economics