Research Statement
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The distributional consequences of policy are not an afterthought, but a core part of what makes a particular policy optimal for a particular policymaker's normative and ethical goals. This idea motivates my main research agenda. My other work considers what drives the decision-making process for public policy and how socio-political forces influence decisions. More broadly, my fields are public finance and applied microeconomics, and my work touches on welfare economics, education economics, and political economy.

What exactly is utility and is it comparable across people? If so, what shape does the function take? In my job market paper, "**Is Utility Concave?**" I address these questions. Despite playing a ubiquitous role in economic theory and practice, the definition of utility and its use often varies. Normative economics research and tools frequently require that utility not only order individual actions, but also corresponds to an individual's welfare or well-being. The implications of this assumption on the marginal utility of income are not well understood but it plays a vital role in interpreting and understanding the results of normative analysis. I estimate the concavity of utility over income, and, to my surprise, I find that cardinal utility is roughly linear in dollars.

How can marginal utility of income be measured? Suppose there is a good called a widget and we know that the average utility of receiving a widget is the same across income levels. In this case, any differences in the average willingness to pay for a widget across income levels are entirely driven by differences in marginal utilities of income. This idea is quite simple, but the difficulty with measuring marginal utility of income lies in finding a real good where the average utility of receiving that good is equal across income groups. The marginal utility of any good almost always depends on the other goods an individual consumes, complements and substitutes. Moreover, the bundle of goods people consume changes with their income.

Rather than a material good, I use relief from common minor pains to satisfy the necessity identification assumption. Using validated survey questions, I elicit the willingness to pay for relief from these pains. These pains resolve quickly, leaving no time for compliment or substitute goods to alter the impact on a person's utility, regardless of income. The results indicate that the willingness to pay for relief from these situations, and by extension the marginal utility of income, is the same across income groups. This implies that cardinal utility is roughly linear in dollars. One implication of this finding is that welfarist policymakers with a preference for redistribution must be driven by egalitarian motives. That is, they care how utility is distributed and not just about maximizing the sum total of utility. Alternatively, if a policymaker's philosophical definition of well-being *requires* the marginal value of a dollar to diminish with income, my results show that individual decision utility, which guides individual actions and does not diminish with income, cannot be equal to this policymaker's definition of well-being.

I hope to continue using empirical tools to better understand this fundamental part of normative economic analysis. For example, I would like to run an experiment to see if this behavior replicates with

real money on the line. I would also like to take a systematic look at how willingness to pay changes for a wide range of goods in observational data.

Who is impacted by public policy may matter as much or more than the average effect. This idea sparked my interest in investigating marginal utility and the theme carries through to my co-authored paper, "**From Value Added to Welfare Added**". Raising mean test scores for students by 10 points sounds great, but whether that gain is coming from struggling students or students with top scores might make all the difference to a policymaker. We formally articulate when estimating heterogeneity in a policy's effect is necessary to determine welfare impacts. We consider the specific application of value-added modeling, a tool for estimating teacher's mean impact on students. We adjust this method to examine heterogeneity over the test score achievement distribution.

Using data from the San Diego Unified School District we find assigning teachers to classrooms based on their comparative advantage significantly improves average outcomes. Beyond just improving the average, we also map out the policy possibility frontier of test score gains from high and low achieving students. These results point to the importance of optimizing public programs by using information about effect heterogeneity to both increase average outcomes via comparative advantage *and* better match distributional impacts from policy recommendations to the social preferences of decision makers. I hope to expand this approach to a wider range of policy settings.

In addition to improving tools for policy analysis, I investigate what influences the policy making process in "**I'll Have What They're Having: State Fiscal Policy Interdependence".** Previous literature has found that when one state increases public spending, spending in similar states increases as well. What drove me to investigate further is why exactly this happens. My theory is that voters are shaping their expectations for adequate spending from news about surrounding states. I create a new network of state "closeness" with newspaper data scraped from Google and Bing. Surprisingly, I find null results for this new network as well as old networks which have previously given large significant results. This suggests that since the original studies, the process for state interdependence has shifted or perhaps disappeared entirely. I look forward to investigating this finding further.

Finally, I have a work in progress, "**Taxing Under the Influence: Optimal Tax Under Political Influences**", which explores the relationship between politics and public policy by modeling how the influence of money in politics may shape optimal tax. This paper is still in the early stages, but I am excited about where it could go and the prospect of more work that explicitly considers the role sociopolitical factors play in decision making.

The work I have done as a graduate student improves our fundamental understanding of economic policy analysis, helps to better match policy analysis to the goals of policymakers, and contributes to our understanding of why policymakers come to the decisions they do. As I continue along my path as a researcher, I look forward to building on the work I have done and continuing to address these important areas of economics.