Research Statement

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I am an applied microeconomist specializing in education, labor, and public economics. My research agenda focuses on the production and preservation of human capital. I study how policy levers can facilitate its accumulation—examining the role of teacher incentives and financial subsidies—and whether safety nets protect its value by buffering against health and economic shocks.

Current Work

My job market paper, "The Anatomy of a Piece-rate Teacher Bonus Program," (co-authored with Ian Callen) exemplifies my ability to combine rigorous quasi-experimental design with theoretical insights to improve our understanding of incentive design. While standard economic theory predicts that performance pay increases effort, empirical results are often mixed, complicated by multitasking concerns and distortionary behavior. In this paper, I contribute to this debate by analyzing a statewide Advanced Placement (AP) teacher bonus program to isolate how incentives shape strategy and why effectiveness varies across contexts.

I develop a theoretical model employing marginal analysis to demonstrate how the bonus incentivizes targeted effort and to generate testable predictions regarding incentive strength. Empirically, I construct a student-course level dataset linked to teachers and employ a difference-in-differences design to document a significant average effect: the program increased student pass rates by 2.4 percentage points. I then decompose this aggregate result to report three key insights. First, I find that gains are driven by broad improvements in learning rather than narrow "teaching to the bubble" strategies. Second, we demonstrate that the incentive's impact is critically mediated by the nature of the task: the bonus was effective in content-driven subjects (e.g., Biology, World History) but ineffective in cumulative or skill-based disciplines (e.g., Calculus, English Lit). This highlights the overlooked importance of the subject-specific production function in determining incentive efficacy. Finally, our findings suggest that the success of performance pay is jointly determined by the intersection of incentive design, task technology, and the agent's baseline capacity.

In a related paper, "Removing Barriers to College Credits: Where and for Whom AP Exam Fee Waivers Work,"[1] I with Cade Lawson address limitations of prior research by implementing a within-student design to analyze the average effect of a universal AP exam fee waivers policy. Using administrative student-course level data, we first demonstrate that this setting is subject to significant compositional changes, which threatens the validity of comparative case study designs to identify causal effects (Sant'Anna & Xu, 2023). Exploiting a within-student design that controls for both observable and unobservable compositional changes, we first document that the policy significantly increased exam participation but not exam pass rate among students taking multiple AP courses both before and after the policy implementation. To produce a more externally valid estimate using the full sample of AP courses (including multiple as well as single AP course enrollees), we then employ machine learning algorithms to pre-

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dict where AP exam fees constitute major barriers to participation to set up a difference-in-differences analysis. We find extensive evidence that fee waivers not only improve educational access (increasing the number of AP enrollments leading to exams) but also induce success. Among waiver-induced exams, approximately one-third resulted in passing exam scores, typically eligible for college credit. Finally, our calculation of the marginal value of public funds (MVPF) offers a key policy insight: the future benefits of a universal waiver program exceed those of a means-tested policy providing waivers only to low-income students.

My work in health economics, "Medicaid and Health Resilience: Evidence from TennCare Disenrollment"[2] contributes to the literature linking public health insurance and health in two primary ways. Exploiting the design logic of BRFSS 'Healthy Days' module, I empirically establish that Medicaid serves as a technological buffer, decoupling adverse health shocks from daily functioning. Specifically, I find that losing Medicaid significantly increases the probability of a health symptom day to result in incapacitation. This partially explains why many previous studies have found significant effect of Medicaid expansions/contractions on self-rated health but not on biological markers of health. On the other hand, I provide first evidence that losing Medicaid increases severe obesity prevalence, suggesting that the benefit of gaining coverage on weight management may be reversible.

Future Work

My research agenda focuses on resolving economic puzzles where standard theory diverges from observed reality, such as the paradox of voting or the asymmetric effects of financial shocks. I tackle these questions by identifying settings that permit rigorous design-based inference, often requiring the construction of novel data to fully exploit specific institutional features. This approach ensures that my work not only overcomes methodological hurdles but generates high-value insights for policy.

For instance, to investigate the 'voting paradox,' I digitized local fiscal levy records to implement a boundary fixed effects strategy, isolating mechanisms of political participation that prior work could not observe. Similarly, my analysis of school tax referenda uses a regression discontinuity design to examine the asymmetric responses of school districts to funding changes. By building these datasets from scratch, I convert raw administrative records into rigorous evidence that solves fundamental economic and policy puzzles.

References

Sant'Anna, P. H., & Xu, Q. (2023). Difference-in-Differences with Compositional Changes. *arXiv preprint arXiv:2304.13925*.

[2]Submitted to Health Economics