

Research Statement

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I am an applied microeconomist. My research spans several fields, with primary interest in applied econometrics, labor economics, and economics of education. My work centers on establishing causality in complex empirical settings to uncover insights that enhances understanding of human behavior and aid effective policy design.

CURRENT WORK

My job market paper, “[The Anatomy of a Piece-rate Teacher Bonus Program](#),” (co-authored with Ian Callen) exemplifies my approach to identifying causal effects and uncovering behavioral mechanisms in policy-relevant settings. Standard economic theory predicts performance pay increases effort, yet empirical results are mixed, often complicated by potential distortionary, targeted effort. Our paper contributes to this debate and moves beyond by comprehensively analyzing a statewide AP teacher bonus program to understand how incentives shape strategy and why effectiveness varies.

Our theoretical model employs marginal analysis to demonstrate how the bonus incentivizes targeted teacher effort and to reveal the economic mechanisms underlying the variation in incentive strength, predictions which we test empirically. Using student-course level data linked to teachers and a difference-in-differences design, we first document a significant average effect: the program increased student pass rates by 2.4 percentage points. We then decompose this average effect and report three key insights. First, we show this gain is driven by a broad improvement in learning, contradicting the narrow “teaching to the bubble” hypothesis often supported by findings from proficiency-based accountability studies. Second, we demonstrate that the bonus’s impact is critically mediated by the nature of the task: the incentive was effective in content-driven subjects (e.g., Biology, World History) and ineffective in more holistic or cumulative disciplines (e.g., English Literature, Calculus). This finding highlights the overlooked importance of the subject-specific educational production function in determining incentive efficacy. Finally, our findings suggest that the success of performance pay is jointly determined by the design of the incentive, the nature of the task, and the agent’s baseline performance and workload.

In a related paper, “[Removing Barriers to College Credits: Where and for Whom AP Exam Fee Waivers Work](#),” 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-

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, “[From Coverage to Consequences: BMI, Health Behaviors, and Self-rated Health After Medicaid Contraction](#)” provides the first evidence on how large-scale Medicaid contraction affects body mass index (BMI), self-rated health, and related health behaviors. The study exploits variation induced by Tennessee’s 2005 Medicaid disenrollment using data BRFSS data. In addition to providing extensive evidence that losing Medicaid increases BMI (potentially through worsening health conditions limiting the ability to participate in calorie-intensive physical activities), I tackle a major inferential challenge: addressing non-parallel trend with limited pre-period in a single treated cluster setting. While synthetic difference-in-differences (SDID) method is suitable for addressing bias from non-parallel trends, its small sample properties remain unexamined. My Monte Carlo simulations reveal that the standard SDID placebo inference procedure yields a liberal test. I propose a finite-sample adjustment that corrects this size distortion.

FUTURE WORK

I am increasingly drawn to applied settings that present complex econometric challenges. My approach is to tackle these problems from a practical, data-driven perspective, focusing on intuitive and robust solutions.

For instance, my interest in local shocks led me to develop `propWeights` (forthcoming), a R package that offers data-driven solution designed to consistently measure industry-specific trade shocks. This work directly informs my research utilizing shift-share identification frameworks, where I engage with nuanced issues such as empirically validating the conditions for exogenous shares (Borusyak et al., 2025). I am currently applying this lens to investigate how local trade and media shocks contribute to the nationalization of US politics and the causal effects of gentrification on college tuition.

While my in-progress work extends to questions in political and urban economics, my core research agenda remains centered on overcoming applied econometric challenges and providing rigorous insights for effective education and labor policies.

References

- Borusyak, K., Hull, P., & Jaravel, X. (2025). A Practical Guide to Shift-share Instruments. *Journal of Economic Perspectives*, 39(1), 181–204.
- Sant’Anna, P. H., & Xu, Q. (2023). Difference-in-Differences with Compositional Changes. *arXiv preprint arXiv:2304.13925*.