

PROFESSIONAL STATEMENT

Developing Insights to Improve Targeting of Health Interventions

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OVERVIEW

I am a health economist. My most influential contributions use novel approaches to evaluate the impacts of health policies on vulnerable groups. By examining long-term economic outcomes in administrative tax data, my research finds that subsidized health insurance for [low-income children](#) partly pays for itself. By incorporating key features of the Affordable Care Act and the Massachusetts reform that preceded it into a structural model and taking it to the data, my research finds that an individual mandate makes health insurance more affordable for [the uninsured](#) as well as the insured. By comparing discontinuities in spending and mortality around a clinical cutoff, my research finds that spending on [at-risk newborns](#) delivers high returns. My findings have been featured in the Economic Report of the President, and they have prompted the Congressional Budget Office to consider using a longer time horizon when scoring policies that invest in children.

Beyond describing average policy impacts, my research examines tradeoffs at policy-relevant margins to understand overall impacts on society and to inform the design of optimal policies. By examining the relationship between mammography behavior and long-term rates of breast cancer in a large clinical trial influential to mammography guidelines, my recent research finds that [women more likely to receive mammograms](#) are healthier and more likely to be overdiagnosed with breast cancers that would not cause symptoms for decades. Applied to current guidelines in the United States, my findings imply that an improvement in the targeting of mammograms would provide a rare opportunity to decrease health spending and improve health.

My current research has opened a new frontier to improve targeting of medical interventions by developing an approach to detect when interventions that benefit most people may nonetheless be harmful to some. With a current PhD student, I relax an assumption that has become central to the dominant econometric framework for causal inference—the assumption that the intervention affects all people in weakly the same direction. This assumption is appropriate in many contexts. However, medical interventions such as surgery, chemotherapy, and radiation can clearly cause side effects as serious as death, even if they save lives on average. The key to our advance is that we harness assumptions based on the design of experiments. These assumptions are realistic because they are under the control of the experimenter, and they deliver evidence that is impossible to obtain under standard assumptions. We have presented our work over 20 times nationally and internationally, and it has already inspired working papers by prominent statisticians and econometricians.

My body of work has been recognized at the highest levels of health economics and econometrics. My research is published in the top general interest journals in economics, including the [American Economic Review](#), the [Review of Economic Studies](#), where I have published [twice](#), and the [Quarterly Journal of Economics](#), as well as the top field journals in health economics and econometrics. My most recent publication in a top general interest journal is [sole-authored](#). In 2019, the American Society of Health Economists awarded me the [ASHEcon medal](#) for “an early career economist who has made the most significant contributions to the field of health

economics.” Since then, I received the 2023 [Willard G. Manning Award](#) for the “best research in health econometrics” for my work on mammograms, and I was recently notified that I have been elected as a [Fellow of the International Association of Applied Econometrics](#). I have also received an [NSF CAREER Award](#) from the National Science Foundation, the [Zellner Thesis Award in Econometrics and Statistics](#) from the American Statistical Association, and the [Yale Greer Prize](#) for Outstanding Scholarly Publication or Research from Yale University. My publications have also garnered national awards from the National Institute for Health Care Management, the Healthcare Cost and Utilization Project, and Research!America.

A deep interest in health policy has been integral to my contributions because health policy relies on a complicated patchwork of institutions. To make my findings on mammograms useful to current guidelines, I examined how previous results from clinical trials informed those guidelines with guidance from participants in the literature. I shared what I learned separately in the [Journal of Economic Perspectives](#). Most importantly, long-term results from large clinical trials do not provide compelling evidence of reductions in all-cause mortality, but they do provide compelling evidence of overdiagnosis, which motivates my focus on overdiagnosis in my main work.

One theme in my research process is that I make connections between useful advances in other fields and long-standing questions in health economics. I aim to make contributions that represent more than the next incremental step by using these advances. I began the process while studying public economics and econometrics as a graduate student interested in health. Since then, I have been deliberate in seeking connections. I have spent at least an academic year as a regular visitor at each of Brookings, NYU, Princeton, and Stanford. I have also spent several weeks visiting premier health policy research groups at Rand and USC. I spent my 2024-2025 sabbatical year making visits to Columbia, Harvard, Princeton, the University of Chicago, and Yale. These visits have been instrumental in helping me to gain perspective and make connections. While I was visiting the Brookings Institution in Washington DC from 2011-2012, shortly after learning about cutting-edge research in public economics that used administrative tax [data that were notoriously difficult to access](#), I started a collaboration with David Brown and Ithai Lurie at the US Treasury. Their access to the administrative tax data was crucial to our ability to extend [seminal work](#) from health economics and find that [expansions of Medicaid to low-income children decreased mortality, increased college attendance, decreased fertility in early adulthood, and partly paid for themselves through increased taxes and decreased transfers by age 28](#).

Beyond connections to data, connections to models from public economics have been crucial to my ability to characterize tradeoffs, estimate the impacts of counterfactual policies, and inform optimal policies by estimating impacts on societal welfare. In early work, I adapted a [canonical nonlinear budget set model of taxation](#) to [quantify a key tradeoff](#): employer-sponsored health insurance offers protection from risk but also induces consumption of extra care. In later work, Jonathan Kolstad and I adapted a [canonical model of mandated benefits](#) to incorporate the elements of the Massachusetts and national reforms most important to the labor market. The model allowed us to [extrapolate](#) from the Massachusetts reform and use graphical deadweight loss triangles to estimate the size of the distortion to the labor market. In a different paper with Martin Hackmann, we extended an [influential model of adverse selection](#), which allowed us to use a novel identification strategy relying on the mandate penalty structure. We found that [the individual mandate under the Massachusetts reform improved welfare in the individual health insurance market by decreasing the distortion from adverse selection, but the larger penalty under the national reform was closer to optimal](#).

Connections to econometrics have allowed me to answer long-standing questions from health economics in new ways and to pursue new areas of inquiry within health economics. Douglas Almond, Joseph Doyle, Heidi Williams, and I were able to find that [marginal returns to medical care on at-risk newborns are high relative to conventional benchmarks](#) by recognizing that the widespread use of cutoffs in clinical guidelines enables the use of regression discontinuity designs. In my recent work, I combine advances from the econometric literature on treatment effects with the model that I used to examine [adverse selection](#) in insurance markets to model selection and treatment effect heterogeneity within experiments. The model allows me to [reconcile findings](#) from the Massachusetts health reform and the Oregon health insurance experiment by showing that the Oregon experiment expanded coverage to sicker people who were more likely to increase their emergency room utilization upon gaining coverage. It also allows me to use data from an influential clinical trial to [ask whether current guidelines target mammograms appropriately and find that they do not](#).

My work with the greatest impact has two features. First, it has a tight connection between an important question and an empirical strategy. Second, it presents ideas simply. In my current work, I have increased my ability to forge tight connections between questions and empirical strategies by collaborating with others whose expertise complements mine in terms of subject matter and methodology. I also continue to invest in making complicated ideas simpler by presenting them [graphically](#). Simplicity exposes my assumptions to more scrutiny such that the assumptions that survive the process are more compelling. In turn, my work is more useful in health economics and more accessible to researchers in other fields, clinicians, and policymakers.

I am currently leading two interdisciplinary research grants totaling approximately \$6 million: one from the National Institutes of Health and another from the University of Michigan. Currently in their second year, these grants bring together experts from medicine, public health, sociology, political science, and statistics. The foundation for these grants is that electronic health records allow large academic health systems to rapidly implement targeted randomized interventions at scale and to learn about many dimensions of their impact through linked data from the social sciences. I am building the foundation for future interdisciplinary collaborations by working with clinicians and computer scientists on a series of projects to use predictions to develop targeted interventions.

I aim to have a broader impact by teaching others about my research process. I help students to develop a “research mindset” through participatory exercises. With undergraduate students, I have developed a series of four [problem sets](#) that teach students how to replicate and think critically about research based on what I have learned in my own work. I circulate the problem sets on my website, and I have shared the answer keys with faculty at many institutions. Outside of formal classrooms, I have led a [research team](#) that has included full-time research assistants since 2011. I help the members of my team to grow as researchers by sharing research projects holistically, not just through isolated tasks.

Here, I aim to do more than summarize the findings of my individual papers. I discuss the ideas that motivated them, the collaborations that enabled them, what their key innovations were, and how those innovations enabled their findings. I also discuss how my work has had an impact, from inspiring subsequent research, to garnering attention from the popular press and policymakers, to helping students become researchers. I conclude with more detail on teaching, mentoring, and service.

RESEARCH

Health Insurance for Low-Income Children Partly Pays for Itself in the Long Term

The greatest legacy of the Affordable Care Act will likely be through the long-term impact of state-level expansions of subsidized health insurance to low-income households through Medicaid. The long-term impact of previous expansions to Medicaid can inform the potential long-term impact of current expansions. With coauthors from the US Treasury, I find that childhood Medicaid expansions for children born from 1981 to 1984 partly paid for themselves in the long term through higher tax revenues and lower tax credits (Brown, Kowalski, and Lurie, 2020, [“Long-Term Impacts of Childhood Medicaid Expansions on Outcomes in Adulthood.”](#) *Review of Economic Studies*).

The main advance that facilitates our findings is access to the population of administrative tax data, which allow us to examine impacts on important long-term outcomes. One challenge in using administrative tax data for research in health economics is that it contains minimal information on health insurance. We construct childhood Medicaid eligibility in the data using linked information from parental tax forms and a [Medicaid calculator](#) that we compiled from many sources, including historical documents on state policies. Effects of Medicaid can be difficult to detect because Medicaid targets the poor, who could have worse outcomes despite improvements through Medicaid. Following [seminal work](#) in health economics, we address this challenge using a “simulated instrument” strategy that isolates policy variation across states and birth month cohorts. We build confidence in the strategy using a dose-response exercise that uses longitudinal variation in childhood income.

We present our results in figures that show the age profile of impacts from age 19 to 28. The figures help us to illustrate mechanisms behind impacts on taxes. Medicaid eligibility increases college attendance and decreases fertility in early adulthood, followed by improvements in economic outcomes. Decreases in mortality accumulate over time. Given these benefits, the main tradeoff in expanding Medicaid is the cost. Rather than obtaining a cost estimate from the literature, we estimate impacts on costs using the same empirical strategy that we use to estimate impacts on benefits with historical data on Medicaid spending. Discounting total taxes and Medicaid spending at a 3% rate, we divide our estimated increase in total taxes by our estimated increase in Medicaid spending to find that the federal government saves 58 cents for each dollar that it spends on childhood Medicaid by the time those children reach age 28.

Putting our findings in the context of findings on a wide variety of government policies, subsequent [high-profile research in public economics](#) concludes that along with investments in education, investments in Medicaid for children have historically delivered the largest marginal value of public funds. As states have considered whether to implement Medicaid expansions under the Affordable Care Act, the popular press has covered our [findings in several outlets including the New York Times](#). It has also influenced projections by the [Congressional Budget Office](#). Our work was recognized in 2021 as a [finalist for the NIHCM research award](#). I am currently working with Zoey Chopra, Atul Gupta, Rebecca McKibbin, Kevin Rinz, and David Wasser to examine the longer-term impact using ten additional years of data available through the US Census, which allow us to follow children through age 38. Our results show continued returns through later adulthood.

An Individual Mandate Makes Health Insurance More Affordable

One of the most controversial aspects of the Affordable Care Act (ACA) was the individual mandate, which required individuals to have health insurance or pay a tax penalty. The penalty was not implemented until 2014, but the state of Massachusetts implemented a similar penalty in 2006. At the time, Massachusetts was one of a handful of states that already had regulations established by the ACA that limited the ability of health insurers to deny coverage and set prices based on health risk. Such regulations could induce adverse selection of the sickest people into the insurance pool. [Canonical theory](#) held that a mandate could address the problem of adverse selection by drawing healthier people into the pool. The most exciting aspect of the theory was that the mandate had the potential to make insurance more affordable to everyone; it could alleviate the tradeoff between making health insurance more affordable for the healthy or the sick.

Jonathan Kolstad and I began a series of projects on the 2006 Massachusetts health reform just after its passage when we were graduate students in Massachusetts. Our most important contribution is our work on adverse selection, coauthored with my former student Martin Hackmann (Hackmann, Kolstad, and Kowalski, 2015, "[Adverse Selection and an Individual Mandate: When Theory Meets Practice](#)," *American Economic Review*). [Influential previous work](#) on adverse selection had found a negligible welfare impact of adverse selection in a context in which it affected the affordability of more generous employer-sponsored coverage. We find a meaningfully large welfare impact in a context in which it affected the affordability of *any* coverage. We also recover the optimal individual mandate penalty, which is higher than the penalty in Massachusetts and closer to the initial penalty established by the ACA.

The key innovation that enables our findings is our linkage between important elements of the Massachusetts reform and a transparent graphical model of adverse selection. [Previous work](#) had estimated welfare in insurance markets using variation in prices. We use variation induced by the Massachusetts reform through the establishment of the individual mandate and the health insurance exchange. Although changes in prices induce a walk along the demand curve, the individual mandate induced a shift in the demand curve by the amount of the penalty, which allows us to identify its slope. The enrollment of healthier people into insurance coverage decreased the average costs that insurers paid on their behalf, which allows us to identify adverse selection. In our innovative data on the individual health insurance market, we can observe average premiums as well as average costs, which allow us to identify a decrease in markups induced by the establishment of the exchange and its associated welfare impact.

To isolate changes induced by the reform from changes that also occurred in other states, we estimate difference-in-difference regressions for enrollment, costs, and premiums with the synthetic control method. We feed the estimated coefficients directly into our model as sufficient statistics, which allows us to construct an empirical analog of our theoretical graph. We recover the welfare gain from the reform as the area of a graphical region. In this region, the marginal cost of insuring the uninsured is less than their willingness to pay for coverage, but they went uninsured before the reform because premiums based on the average cost of sicker enrollees were higher than their willingness to pay. By drawing healthier enrollees into the pool, the individual mandate decreased premiums for everyone while increasing coverage and thereby increased overall welfare. Our paper was awarded the [NIHCM Research Award](#) and was highlighted in the announcement of my [Yale Greer Prize](#). A former Yale graduate student who was not my advisee [adapted the approach to examine national disaster insurance](#) and was recently awarded the [American Economic Journal: Economic Policy Best Paper Award](#).

Spending on At-Risk Newborns Delivers High Returns

Health spending now represents almost a fifth of all spending in the United States, making the tradeoff between increased spending and increased health an important one to study, especially on policy-relevant margins. However, the marginal return to health spending is difficult to study because patients in worse health often receive more care. Douglas Almond, Joseph Doyle, Heidi Williams, and I propose a novel approach to estimate the marginal return to health spending and apply it to spending on at-risk newborns (Almond, Doyle, Kowalski, and Williams, 2010, [“Estimating Marginal Returns to Medical Care: Evidence from At-risk Newborns,”](#) and [2011 response to comment](#), *Quarterly Journal of Economics*).

Low birth weight is salient to clinicians, and its costs have received attention in [high-profile research](#) in economics. Our innovation is to recognize that low birth weight is not just a health outcome: it is an input into decisions about health spending. More broadly, the wide use of diagnostic thresholds by clinicians creates discontinuities in spending for people in similar health at policy-relevant margins. Thresholds that affect spending on at-risk newborns are important, especially because of increasing use of high-cost technologies. We compare newborns just above and below the “very low birth weight” threshold of 1500 grams (just under 3 pounds, 5 ounces).

We present our main results in two simple figures that demonstrate visible discontinuities without the need for superimposed trend lines. First, we plot mortality by birth weight using the census of available United States birth certificate data from 1983 to 2002. Even though mortality generally decreases as birth weight increases, newborns just below the threshold are less likely to die. Second, we plot spending and length of stay by birth weight using data from all hospitals in several states. Newborns just below the threshold have higher spending and longer hospital stays. Because we do not have data on birth weight, spending, and mortality in the same dataset for all newborns, we use a two-sample instrumental variable strategy to obtain our main result. We divide the estimated discontinuity in spending from one sample by the estimated discontinuity in mortality from another to arrive at the marginal cost of saving a newborn life around the threshold. Our estimate is small relative to conventional benchmarks, demonstrating high marginal returns at the cutoff. Our results imply that the optimal cutoff would be higher.

Building on our main analysis, we show that discontinuities are more pronounced in low quality hospitals, which appear more responsive to cutoffs. Moreover, there is a dose-response relationship between the impacts on spending and mortality across hospitals with different levels of quality. This relationship builds confidence that our main results identify a causal relationship between spending and mortality. Overall, our findings build confidence in [previous high-profile estimates](#) of the high returns to medical spending that rely mainly on variation over time.

Our work has received attention from clinicians through the [Garfield Economic Impact Award](#). It also received the [HCUP Outstanding Article of the Year Award](#). It has inspired many subsequent studies, including a [high-profile extension that finds returns to medical spending on at-risk newborns through subsequent academic achievement](#). Our findings have been [replicated](#) and [extended](#) widely in other [countries](#) and [contexts](#).

The Massachusetts Health Reform Offers Lessons for the Affordable Care Act

My first paper on the Massachusetts reform with Jonathan Kolstad is important because it provided some of the first empirical evidence on the impact of the reform (Kolstad and Kowalski, 2012, [“The Impact of Health Care Reform on Hospital and Preventive Care: Evidence from Massachusetts,” *Journal of Public Economics*](#)). In our paper, we examine welfare-relevant tradeoffs in a systematic way by comparing impacts on several measures of cost, quality, and access from hospital and survey data. Overall, we find that access and quality increased while costs grew in line with their previous trajectory. Our findings have inspired many subsequent studies in economics and medicine, and they have [received attention in several outlets](#). I have presented findings from my body of work on the Massachusetts reform to over 50 audiences of academics and policymakers, including the Council of Economic Advisers, the Office of the Assistant Secretary for Planning and Evaluation, the Bureau of Economic Analysis, and the Census Bureau. Three of our most notable findings set the stage for future work in my portfolio.

First, we found that preventable admissions to the hospital decreased, but only when we controlled for patient severity. This finding is consistent with adverse selection into insurance before the reform such that healthier patients sought hospital care after the reform. In a short subsequent paper with Martin Hackmann, we found direct evidence of adverse selection into insurance using hospital and survey data (Hackmann, Kolstad, and Kowalski, 2012, [“Health Reform, Health Insurance, and Selection: Estimating Selection into Health Insurance Using the Massachusetts Health Reform,” *AER Papers and Proceedings*](#)). That study motivated our [later joint work](#) (discussed above), which quantified the welfare impact of adverse selection using data on the individual health insurance market.

Within a year of the establishment of the individual mandate penalty under the national reform in 2014, I extended our previous work on adverse selection in Massachusetts to analyze its impact on the individual health insurance markets in other states (Kowalski, 2014, [“The Early Impact of the Affordable Care Act, State by State,” *Brookings Papers on Economic Activity*](#)). Even though the ACA was a national policy, I found that state-level policies that affected its implementation had an economically significant welfare impact. In states that left enforcement to the federal government and states that did not set up exchanges, health insurance was less affordable because higher-cost individuals selected into the market. My findings appeared in several [outlets in the popular press](#).

Second, approximately half of new health insurance coverage was employer-sponsored despite fears that employers would drop coverage and instead pay the penalty established by the employer mandate. We explain this finding in our subsequent work on the labor market impact of health reform (Kolstad and Kowalski, 2016, [“Mandate-Based Health Reform and the Labor Market: Evidence from the Massachusetts Reform,” *Journal of Health Economics*](#)). The key to our advance is the link between the reform and our model, which incorporates impacts on the labor market through the individual mandate, the employer mandate, and subsidies for coverage outside of employment. Most Americans get health insurance through employers. [Previous theory](#) shows that employer-sponsored benefits distort the labor market by making it more expensive to hire employees, decreasing labor demand. However, if employees value those benefits, they are willing to work for lower monetary wages, so labor supply also increases, decreasing or eliminating the distortion. Our extensions allow us to recover the size of the distortion.

Like our work on adverse selection, our work on the labor market has a tight link between the reforms, the model, and the estimation, and we depict the size of the distortion in a simple figure. Using data that follow individuals over time, we find that employees in Massachusetts after the reform valued health insurance at almost the full cost to employers. The distortion to the labor market is only 8% as large as it would have been if employers had been taxed to provide insurance that employees did not value. Our model and findings explain why employer-sponsored coverage increased despite fears that employers would drop coverage and pay the penalty: the individual mandate made employer-sponsored coverage more valuable. Employer-sponsored coverage was already valuable relative to other types of coverage because employers and employees pay premiums before taxes, and employer-sponsored coverage is often more generous and less expensive. For higher income workers not eligible for subsidies, the individual mandate tightened the link between health insurance and employment by making employer-sponsored coverage even more valuable. Our findings have received attention [in the popular press](#).

Third, hospital admissions from the emergency room decreased even though there was fear that emergency room usage would increase when coverage increased. The state of Oregon expanded Medicaid through a lottery in 2008, and findings from the resulting experiment got attention in the [New York Times](#) for showing that emergency room usage increased, in contrast to our finding and related work on the Massachusetts health reform [by other researchers](#). In recent work, I reconcile both findings using a model of selection into health insurance coverage that incorporates important features of the Oregon experiment and the Massachusetts reform (Kowalski, 2023, [“Reconciling Seemingly Contradictory Results from the Oregon Health Insurance Experiment and the Massachusetts Health Reform,” *Review of Economics and Statistics*](#)). Within the Oregon experiment, I find that sicker people who used the emergency room most when uninsured are more likely to sign up for health insurance coverage, and they increase their utilization the most upon gaining coverage. This finding can reconcile the results because Oregon expanded coverage to sicker people who signed up for a lottery, while Massachusetts expanded coverage to healthier people who avoided paying the penalty associated with the individual mandate.

The key advance that enabled my findings is that I saw fundamental parallels between models of adverse selection and econometric models used to examine [heterogeneous treatment effects](#). These parallels allow me to find adverse selection into health insurance coverage within the Oregon experiment and relate it to adverse selection within the Massachusetts reform. More importantly, they allow me to find that the treatment effect of health insurance coverage on emergency room utilization varies with selection into health insurance coverage. I originally demonstrated the parallels and explained the models using simple figures in a working paper (Kowalski, 2016, [“Doing More When You’re Running LATE: Applying Marginal Treatment Effect Methods to Examine Treatment Effect Heterogeneity in Experiments,” *NBER Working Paper*](#)). I subsequently divided the econometric content from the working paper between my work on the Oregon experiment and a separate paper on mammograms that I discuss with my recent and current work below. [Press coverage](#) of the working paper helped me to distill my findings. I have released accompanying [Stata commands](#) to make computation more accessible. In a third paper, I use stylized examples to explain how the model and figures can be useful to examine external validity within experiments (Kowalski, 2023, [“How to Examine External Validity Within an Experiment,” *Journal of Economics and Management Strategy*](#)). To better understand the implementation of experiments, I worked on a trial with an experienced team of colleagues (Anderson, Horn, Karlan, Kowalski, Sindelar, and Zinman, 2021, [“Evaluation of Combined Financial Incentives and Deposit Contract Intervention for Smoking Cessation: A Randomized Controlled Trial,” *Journal of Smoking Cessation*](#)).

Politics Affects Health Spending

Economists often consider [technology growth](#) to be the main driver of health spending growth. With Zack Cooper and two political scientists, I explore the role of a different driver: politics (Cooper, Kowalski, Powell, and Wu, 2024, "[Politics and Health Care Spending in the United States: A Case Study from the Passage of the 2003 Medicare Modernization Act](#)," *Journal of Health Economics*). We find that politicians who vote to increase health spending receive larger hospital payments in their districts. In turn, local health spending increases and politicians secure larger campaign contributions. Our work has received attention in [the popular press](#).

Health Insurance Involves a Tradeoff Between Price Sensitivity and Risk Protection

High deductible health insurance policies have become dramatically more popular since the Medicare Modernization Act of 2003 established health savings accounts, which allow people with high deductible health insurance policies to pay for qualified health expenses with pre-tax dollars. With two economists who worked with me at the Council of Economic Advisers in 2003 before I enrolled in graduate school, I examined data that we obtained from health insurers who sold high deductible plans on the individual health insurance market (Kowalski, Congdon, and Showalter, 2008, "[State Health Insurance Regulations and the Price of High-Deductible Policies](#)," *Forum for Health Economics & Policy*). Our finding that policies were prohibitively expensive or unavailable in states with the most restrictive regulations motivated my interest in the welfare impact of adverse selection in my later work.

The promise of high deductible policies to limit spending through consumer price-sensitivity inspired my dissertation research. In my job market paper, I found that people enrolled in employer-sponsored plans respond even more to the prices that they face for medical care than [classic results](#) from the Rand Health Insurance Experiment would suggest, in part because they face greater out of pocket costs than participants enticed to participate in an experiment (Kowalski, 2016, "[Censored Quantile Instrumental Variable Estimates of the Price Elasticity of Expenditure on Medical Care](#)," *Journal of Business and Economic Statistics*). To address the issue that some people had very high expenditures and many had no expenditures at all, I developed a new estimator with econometrician coauthors (Chernozhukov, Fernandez-Val, and Kowalski, 2015, "[Quantile Regression with Censoring and Endogeneity](#)," *Journal of Econometrics*). We released a [Stata command](#) and accompanying [Stata Journal article](#) with Sukjin Han. My work was awarded the [Zellner Thesis Award in Econometrics and Statistics](#), and it also influenced projections by the Congressional Budget Office.

Price-sensitivity increases welfare by curtailing over-consumption of insured medical expenses, but it decreases welfare by exposing people with insurance to greater risk. In the remaining chapter of my dissertation, I developed a structural model to examine both sides of the tradeoff simultaneously by extending [classic theory](#) of responses to nonlinear taxation (Kowalski, 2015, "[Estimating the Tradeoff between Risk Protection and Moral Hazard with a Nonlinear Budget Set Model of Health Insurance](#)," *International Journal of Industrial Organization*). Among enrollees in employer-sponsored health insurance plans, I found a net welfare loss from over-consumption of medical care because all plans provided ample protection against catastrophic risk.

Risk protection from high medical expenses is likely the most valuable to people who experience large health shocks and lose access to employer-sponsored health insurance. However, few sources of data follow people who change coverage or become uninsured. By securing restricted

longitudinal data on all people who visited hospitals in the state of New York over a sixteen-year period, I found that Medicaid provides valuable risk protection to young people with private health insurance because they enroll in Medicaid after experiencing health shocks (Kowalski, 2015, [“What Do Longitudinal Data on Millions of Hospital Visits Tell Us About the Value of Public Health Insurance as a Safety Net for the Young and Privately Insured?”](#) *NBER Working Paper*). I am significantly revising this paper with Kurt Lavetti and Lee Lockwood using theory and richer data from the Utah All Payer Claims database.

Women More Likely to Receive Mammograms are Healthier and Face Greater Overdiagnosis

Mammograms are controversial because they involve a tradeoff. The benefits of mammograms and the costs of “false positive” diagnoses are intuitive. Mammogram recommendations have weakened worldwide in response to growing evidence of costs that occur through a channel that is less intuitive: overdiagnosis of “true positive” breast cancers that would not eventually cause symptoms. No one can ever tell if a given diagnosis is an overdiagnosis, but long-term data from [clinical trials](#) show that overdiagnosis occurs. Women in the control arms only received mammograms during the trials if they experienced symptoms. Data from decades later show that smaller fractions of women in the control arms have ever been diagnosed with breast cancer, demonstrating that women in the intervention arms were overdiagnosed with breast cancers that would not have caused symptoms for decades.

Diagnosis of breast cancer can be costly because most women diagnosed with breast cancer pursue therapies such as surgery, chemotherapy, and radiation, which can cause side effects and even death. As I discuss in a symposium on [preventive care](#), clinical trials on mammography do not show statistically significant reductions in long-term all-cause mortality for women in any age group (Kowalski, 2021, [“Mammograms and Mortality: How Has the Evidence Evolved?”](#) *Journal of Economic Perspectives*). Given mounting evidence of overdiagnosis, the United States Preventive Services Task Force mammography guidelines for women in their 40s now recommend that women consult with their doctors and receive mammograms as they see fit.

Do these mammography guidelines target women who benefit most? I address this question using data shared with me by the investigators of the Canadian National Breast Screening Study, a large trial influential to the guidelines (Kowalski, 2023, [“Behaviour within a Clinical Trial and Implications for Mammography Guidelines,”](#) *Review of Economic Studies*). The data follow participants long enough to demonstrate overdiagnosis through examination of breast cancer as a health outcome. They also allow me to observe mammography behavior: some women in the control arm receive mammograms and some women in the intervention arm do not. Combining the data with a model of mammography behavior, I find that women more likely to receive mammograms are healthier and more likely to be overdiagnosed by them. Extrapolating my findings to the current environment using the model and findings from the literature, my findings suggest that further weakening of mammography guidelines could provide a rare opportunity to improve health and decrease health spending. It would also make guidelines in the United States more consistent with guidelines in other countries.

The key to my advance is the connection between the clinical trial data and the model. Previous evidence from [Korea](#) and [the United States under current guidelines](#) corroborates my finding of selection into mammography such that healthier women are more likely to receive mammograms, but it does not consider treatment effect heterogeneity, and it does not consider overdiagnosis because it cannot observe long-term outcomes of women who do not receive mammograms. Using

evidence from the trial data to motivate assumptions that I present graphically, I identify treatment effect heterogeneity using weaker assumptions than my previous work on the [Oregon experiment](#), discussed above. I also present my assumptions more simply. My work has the potential to be useful beyond the context of mammography because it illustrates how to use behavior within the same clinical trial data used to develop guidelines to inform targeting within those guidelines.

My paper was awarded the [Willard G. Manning Memorial Award for the Best Research in Health Econometrics](#) in 2023. Nobel laureate Joshua Angrist cited the paper prominently in the [Inaugural Article he published in the *Proceedings of the National Academy of Sciences \(PNAS\)*](#) upon his election to the National Academy of Sciences, and he invited me to serve as a publicly acknowledged reviewer. We subsequently began a collaboration using data that I obtained from the influential Women’s Health Initiative Clinical Trial, resulting in a 2025 publication with Marcia Stefanick, a principal investigator of the trial, and Ljubica Ristovska, a former full-time research assistant of mine who is now an assistant professor (Angrist, Kowalski, Ristovska, and Stefanick, 2025, [“Instrumental Variables Methods Reveal Larger Effects of Menopausal Hormone Therapy in the Landmark Women’s Health Initiative Clinical Trial,” *AEA Papers and Proceedings*](#)).

Evidence that Interventions Save Some and Kill Others is a Step Toward Targeting

Motivated by my work on mammograms, I recognize that surgery, chemotherapy, and many other medical treatments can save the lives of some people but kill others. The model that I use to examine treatment effect heterogeneity in my previous work allows the intervention to affect people by different magnitudes but in weakly the same direction. The “monotonicity assumption” that the intervention cannot affect people in opposite directions has become fundamental to causal inference in economics, so much so that it was [central to the 2021 Nobel Prize in Economics](#). In my current work with PhD student Neil Christy, I relax the monotonicity assumption with an approach that can yield a positive count of “defiers” who respond in the opposite direction of the average, even if the average effect is large and statistically significant (Christy and Kowalski, 2026, [“Counting Defiers: A Design-Based Model of an Experiment Can Reveal Evidence Beyond the Average Effect,” arXiv Working Paper 2412.16352](#); first version: Kowalski, 2019, [“Counting Defiers,” *NBER Working Paper 25671*](#)).

We make progress by building a model of the randomization process within an experiment, inspired by my work with previous models of treatment effect heterogeneity, which showed me that some parameters can be calculated in two ways that only differ because of the realized randomization process. An attractive feature of the model that we develop is that the key assumption depends on the design of the randomization: for example, a series of coin flips. The randomization process is part of the experimental design, so assumptions based on it can be made arbitrarily compelling through careful implementation. The field of statistics has long embraced assumptions based on experimental design to quantify uncertainty in average effects; our focus on health motivates us to use design-based assumptions to estimate a more primitive object: the entire distribution of effects among people in an experiment. We demonstrate that we can construct an estimate with very limited data: only a binary intervention and outcome.

We develop a novel visualization to explain how our approach works in a stylized example. The visualization shows that samples with “defiers” who respond in the opposite direction of the average can sometimes generate the data in more ways than samples without defiers, yielding a

higher likelihood. The exact likelihood is the key to our contribution. The traditional sampling-based likelihood does not vary with the number of defiers within the estimated Fréchet bounds.

We harness information from the likelihood by proposing a design-based maximum likelihood decision rule. We provide three justifications: it is “reasonable” because it varies with the data, it is Bayes optimal under appropriate conditions, and it is also optimal by the principle of maximum entropy. We apply our rule to two real experiments in health care, and we provide a publicly available command, **dbmle**, compatible with Python and Stata.

Our findings have [engaged prominent statisticians](#) and econometricians, and they have already inspired new research, including a [forthcoming publication in Biometrika](#). A [recent working paper](#) shows that our finding calls into question the usefulness of the traditional concept of “identification,” necessitating new perspectives. Some next steps are clear. We are deriving design-based likelihoods for more complex experimental settings, including those with two stages, multi-valued variables, and alternative randomization designs. We obtain exact evidence from very minimal data, and the incorporation of further information from more complex experimental settings should strengthen it. Our demonstration that a design-based likelihood can reveal evidence beyond the average effect serves as a proof-of-concept that will pave the way to achieve the goal of targeting interventions.

Collaborations and Future Work Will Improve Targeting of Health Interventions

I am now in my second year of leading two large research grants that develop a model for large academic health systems to implement targeted randomized interventions at scale and to learn about many dimensions of their impact through linked data from the social sciences. The foundation for these grants is that Michigan Medicine, the large academic health system affiliated with the University of Michigan, has used its electronic health record system to implement targeted randomized interventions, enabling research opportunities. Thus far, we have succeeded in linking electronic health records to a wide variety of sources of administrative, marketing, and survey data. We have expanded the holdings of linked Medicare data available to the entire university community in partnership with AI and Digital Health Innovation (AI&DHI) at the University of Michigan, and we are aiming to expand access to linked data on the social determinants of health.

Our team includes physician economist David Chan, economist Keith Chen, and University of Michigan colleagues including physician John Ayanian, sociologist Sarah Burgard, physician Sandro Cinti, statistician James Henderson, political scientist Yanna Krupnikov, computer scientist Maggie Makar, epidemiologist Abram Wagner, and computer scientist Jenna Wiens. We also have support from Fiona Linn at Michigan Medicine. In other collaborations, I am working with clinicians and computer scientists to examine coding intensity in Medicare Advantage plans and to predict when pregnant women will go into spontaneous labor.

The infrastructure and relationships that we are building are part of an ambitious vision. Our goal is to leverage ideas for quality improvement into rapid cycle randomized controlled trials that can be implemented quickly and easily through electronic health records. Automatic collection of linked social science data will allow us to quantify our impact and target future interventions.

TEACHING AND MENTORING

Graduate and Undergraduate Teaching Facilitates the Transition from Student to Researcher

The main goal of my PhD course on public finance with a focus on government expenditure and health is to facilitate the transition from student to researcher. Rather than simply relaying content from the research frontier, I require students to engage with the content more deeply through regular response papers that I coach them to write in the style of an introduction to a referee report using a six-question format that I developed to help students to evaluate research. Students write response papers on assigned readings as well as the weekly public finance seminars and lunches, which I co-organize to dovetail with the class. In recent years, following a tip that I received by email from University of Michigan teaching consultants, I have required students to make entries into a metacognition journal using prompts that I have designed to help them to generate research ideas by making connections between what they are learning and what they already know. I also require students to make weekly entries into a research journal and to meet weekly with other students to give and receive feedback. By building community among my second-year students and connecting them to more advanced students for feedback in some weeks, I ensure that all students receive regular individualized feedback. I also aim to preempt isolation in the later years of the PhD. The last five times that I have taught the course, my median rating has varied from 4.8 to 5.0 out of 5.0 on the primary metric solicited by current University of Michigan teaching evaluations: “the course advanced my understanding of the subject matter.” Across custom questions that I added in 2025 and 2019 to evaluate whether my course helped facilitate the transition from student to researcher, 15 of 16 students strongly agreed and the remaining student agreed. In their comments, students consistently note how the course helps them to transition into research:

- “...I particularly liked the regular feedback we received on research ideas and the somewhat open framework to discuss papers/topics in class. One of the best classes I have taken – both in the usefulness as a researcher and in my enjoyment.” (Fall 2025)
- “I found that the class provided useful insight into doing economic research that no other class in the second-year sequence provides. I really appreciated the focus on research idea creation.” (Fall 2022)
- “She does an excellent job fostering discussion and creating space for us to puzzle through things together. I think, more than any other course, this course illustrated how to build and foster a supportive research community.” (Fall 2019)

The main goal of my undergraduate course on health economics is to help students to develop a working knowledge of the healthcare system and a “research mindset” that they can apply in the real world. I aim to achieve these goals by teaching theoretical models and empirical methods in the first half of the course that we apply to a variety of topics in the second half of the course. I encourage critical thinking in all assignments. My course routinely enrolls over 60 students, and I teach it without access to any teaching assistant or administrative assistant support. The last four times that I have taught the course, my median rating has varied from 4.3 to 4.6 out of 5.0 on the metric “the course advanced my understanding of the subject matter.”

One innovative approach that I use to bring research into my graduate and undergraduate classrooms relies on four problem sets that I developed based on four of my publications. I developed them with the help of research assistants who often started out as my undergraduate students. The problem sets involve replicating empirical results in Stata using best practices for programming, making calculations in Excel, and writing responses to longer questions pertaining to economic theory. All four problem sets are appropriate for advanced undergraduate and

graduate students. These problem sets encourage students not only to read the research but also to critique it. I have posted them on my website, and I have shared the answer keys with many professors at other schools (see <https://sites.lsa.umich.edu/amanda-kowalski/problem-sets/>).

Undergraduate Research Mentees Continue Training in Economics and Medicine

Over the years, I have supervised many undergraduate research projects at Michigan, Princeton, and Yale, and I have served on many dissertation committees. Several student research topics have stemmed from ideas that arose during my classes. At the end of my CV, I do not include all undergraduate thesis advisees and research assistants, but I highlight that I have served as a recommender for undergraduates who have enrolled in top economics PhD programs (Harvard, Princeton, Yale) and medical schools (Stanford, Weill Cornell, Yale).

Research Team Environment Facilitates the Transition from Trainee to Researcher

I also expose students at many levels to the research process as the leader of a research team that has included full-time predoctoral research assistants since 2011. My current team includes eight predoctoral research assistants and four PhD students, and a postdoc will be joining the team in July. I provide project-based assignments as opposed to task-based assignments so that team members can engage more deeply with research. So that the research assistants get a broad perspective on multiple projects, I hold regular research lab meetings with my research assistants and coauthors. These meetings allow participants to learn from each other and to exchange expertise. Research assistants review each other's work and develop replication packages, building habits that travel with them into their own careers.

I also provide opportunities for members of my research team to develop independent research ideas. They attend weekly seminars, and I work with them to develop research proposals and to solicit feedback from others. I meet trainees where they are, tailoring my mentorship to each person's skills, interests, and intended career path. Previous research assistants have gone on to top PhD and MD-PhD programs, many with prestigious national fellowships (Hertz, 3 with NSF). Placements include programs in health policy (3 at Harvard), medicine and health care management (Penn), economics (Berkeley, Harvard, Michigan), business economics (Chicago Booth, Harvard, Michigan), policy economics (Michigan), and computer science (Carnegie Mellon). As detailed at the end of my CV, former full-time predoctoral research assistants from my team now hold faculty positions at Boston University in Economics, MIT in Computer Science and Political Science, and the University of Texas at Austin LBJ School of Public Affairs in Economics. It is particularly rewarding when former members of my research team become peers in the profession. Former graduate students hold tenured faculty positions in economics at UCLA, the University of Chile, the University of Sydney, and in public health at George Mason.

National Mentoring Advances Research in Economics

My CV includes a selection of mentoring activities. I try to focus my mentoring activities in areas where I have a comparative advantage and the pool of others who could serve is relatively small. For example, in 2022, I traveled to Chicago to discuss an applied econometrics paper by a junior faculty member at the inaugural Becker Friedman Institute Women in Empirical Microeconomics Conference, and I served as a discussant again in 2024. In 2021, I served as a mentor for associate professors through the Committee on the Status of Women in the Economics Profession (CSWEP), and I co-led a professional development session at the 2021 Latin American Meeting of the Econometric Society. I

previously served as a mentor in a multi-day workshop for junior faculty in economics through the 2018 CSWEP CeMENT mentoring program.

SERVICE

National Service Advances Research in Economics and Health

I am currently an elected member of the Executive Committee of the American Economic Association (AEA). I have served on the budget and finance committee, an ad hoc committee to review the data editor, and the program committee for the 2024 annual meetings. In each of these roles, I have tried to make active participation in the profession more accessible to junior researchers. I have done so through decisions that we have made on how to fund the review process at AEA journals, how to reduce the burden of making rigorous replication materials accessible, and how to systematically involve junior researchers in the annual meetings.

I recently completed my second four-year term as an elected board member of the American Society of Health Economists (ASHEcon), and I continue to be a standing member of the awards committee. ASHEcon is a relatively new professional organization, having held its first conference in 2006, yet its annual conference garners more than twice the attendance of the annual Society of Labor Economists meeting. As a board member, I have helped ASHEcon to manage the transition from biennial conferences to annual conferences, to hire a new executive director, to manage the challenges of the pandemic, and to start new initiatives. I served as lead organizer of the inaugural emerging scholars sessions at the 2020 ASHEcon meetings. These sessions featured 45 presentations by recent and current PhD students, each discussed by established scholars in the field. When the conference moved to a virtual format in June 2020, even though we cancelled almost all other sessions, we held all emerging sessions so that scholars could get feedback at a critical time.

I am also proud of the work that I did to make health economics more inclusive through the Health Economics Research Organization (HERO), which organizes five health economics sessions at the annual Allied Social Science Association (ASSA) meetings. HERO began over fifty years ago with the HERO program chair, Donald Yett. Until Kosali Simon and I became the two members of the program committee in 2016, HERO solicited papers through telephone calls and mailings. During my five years on the committee, we made enduring changes to make HERO more inclusive by soliciting papers electronically and featuring junior scholars in high profile sessions.

University of Michigan Service Advances Research in Economics and Health

I currently serve as an elected member of the University of Michigan Department of Economics Executive Committee, which advises the chair on a wide variety of issues. The committee meets weekly, and it is also responsible for the hiring of junior faculty and annual evaluations of faculty. I also served during my first year at Michigan from 2018-2019. Starting then, I led hiring efforts in econometrics, an area in which few other senior faculty had related expertise, until recently as our econometrics group has grown. This year, the focus of our work on the executive committee has been to reform the graduate program to include more scaffolding for the transition into the research phase of the PhD. The first phase of our recommendations has been adopted by department vote.

I also serve as an elected member of the University of Michigan Population Studies Center Advisory Committee at the Institute for Social Research, which advises the director on a wide variety of issues. As part of my work with the center, I have joined the training faculty as part of a T32 training grant through the National Institute on Aging at the National Institutes of Health. With the center, I work alongside sociologists, epidemiologists, and researchers in other fields to advance health research.