

RESEARCH STATEMENT

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September 2009

An open debate in the development of legal institutions is whether individuals obey the law because the law incentivizes or because the law has legitimacy. Much of my research in law and development seeks to understand how people form normative commitments and how they respond to these normative commitments. My early work traces the incentives that lead to what has now come to be viewed as human rights violations, such as religious, ideological, and gender violence, even though they derived their legitimacy from proto-legal sources and ultimately undermined that legitimacy. I examine how interpretations of religious and legal texts, particularly those associated with fundamentalism, interact with market forces. In two three-part studies, I investigate the economic forces underlying the religious provision of social insurance, social sanctions, and social conservatism and, turning to one dimension of social conservatism, the economic incentives that give rise to gender violence. In doing so, I provide an explanation for why church-state separation arose in the US but not in many European countries and develop a methodology for empirically evaluating the effects of interpretations and the law using the random assignment of interpreters, such as judges and doctors.

Evaluating legal rules with observational data provides only a black box on human behavior, but experimentally manipulating legal rules in contextualized field settings is practically infeasible because doing so often violates normative commitments. Using a disaggregated labor market and drawing on previous field experience in developing countries, my recent research conducts a series of field experiments in mechanism design to test behavioral economic theories of how individuals are incentivized in groups, a central assumption underlying the law and economics approach to law. This apparatus also provides a contextualized setting for conducting experiments in empirical moral psychology, philosophy, and interactive epistemology, central to exploring the transmission and persuasion process of normative ideas whose incommensurability lead to conflict. Concomitantly, using observational data on judges and courts where normative ideas incubate, I study incentives and market design for the formation of legal ideas, judicial innovation, and the production of justice.

The development of legal institutions is critical to implementing policy and business innovations designed to spur growth and help the poor in developing countries, but incentives to help members of shared identities frequently debilitate these initiatives. On a thick vein, I study the demographic laws and policies that aid discrimination. My research primarily draws on the empirical and experimental tools of modern development economics, though I also aim to use the structural and theoretical tools of modern microeconomics and macroeconomics, to broaden law and economics. If economics is the science of how individuals optimize to budget constraints, my research studies how societies optimize in response to textual constraints, from religion to constitution to the tax code.

Throughout my research, I have been motivated by an idea that can be broadly termed, hermeneutics, which is hermeneutics and econometrics, the economics of textual interpretation. Examples include modeling the economic incentives behind the shift from pro-welfare religious interpretations a century ago to the anti-welfare posture of today's religious right and why

church-state separation arose when and where it did, measuring the effects of sexual harassment law—an interpretation of anti-discrimination law—on gender inequality by exploiting the random assignment of appellate judges interpreting the facts and the law differently but in a predictable manner, using a particular instance of interpretive injustice where British capital cases during World War I were randomly executed or commuted to estimate the deterrent and delegitimizing effects of the death penalty, and studying how individuals misinterpret the law by manipulating tax schedules and contracts in contextualized labor market settings.

Job Talk

One of the more dramatic labor market changes in the past half-century has been making the work environment friendlier to women. Forbidding sexual harassment has been one of the key practical contributions of feminist legal theory. Yet economic theory suggests that forbidding sexual harassment is a form of mandated benefit and can actually backfire on the groups that it was meant to help. My job talk paper (“**Does Forbidding Sexual Harassment Exacerbate Gender Inequality?**” with Jasmin Sethi) empirically evaluates the effect of sexual harassment on gender inequality in the labor market and develops a new methodology to do so. We find that forbidding sexual harassment increased female employment status, hours worked, wages, and management status relative to males but that these ameliorative effects on gender inequality are reduced for women previously in the labor force.

- State variation in policy regimes is rarely completely random, so we use the random assignment of appellate judges together with the fact that Democratic appointees and female judges tend to decide favorably for sexual harassment plaintiffs to identify the effect of forbidding sexual harassment on employment outcomes. I am employing this methodology in other areas of the law and developing other empirical methodologies that can be used by students, practitioners, and legal academics.
- We find that sexual harassment law delivers its impact through the number of plaintiff cases, not damages awarded. An open debate in the development of legal institutions is whether individuals obey the law because the law deters through monetary sanctions or because the law has moral legitimacy. I am conducting experiments manipulating rules in contextualized field settings that test behavioral law and economics assumptions regarding individual rationality and morality.
- One of the more surprising results is that the positive effect on female outcomes comes entirely from sexual harassment law, not gender discrimination law, highlighting a practical contribution of feminist interpretation. Hermometrics (hermeneutics) is hermeneutics and econometrics, the economics of interpretation. I am studying how interpretations of law that are not quite statutory or pure ideology evolve to investigate the broader claims of legal realism.
- These results contrast with recent empirical literature findings that the ADA and maternity mandates had detrimental effects, a puzzle we resolve with an insider-outsider model of involuntary unemployment. The development of legal institutions is critical to economic growth, but incentives to help members of shared identities

frequently debilitate these initiatives. I am tracing the incentives that lead to what has now come to be viewed as human rights violations.

Secondary Job Talk

Capital punishment is viewed as a human rights violation in some countries but not others. It is often justified on utilitarian grounds. Whether the death penalty deters is a classic legal and economic question that has been unable to be answered convincingly with any available data. During World War I, the British military condemned over 3,000 soldiers to death, but only executed approximately 12% of these soldiers; the remainder received commuted sentences. Many historians believe that the military command confirmed or commuted sentences for reasons unrelated to the circumstances of a particular case and that the application of the death penalty was essentially random – a “pitiless lottery.” Using a dataset on all capital cases during WWI, **“The Deterrent Effect of the Death Penalty? Evidence from British Commutations During World War I”** (with John Horton) statistically investigates this claim and finds that the data are consistent with an essentially random process. Using this result, we exploit variation in commutations and executions within military units to identify the deterrent effect of the death penalty, with deterrence measured by changes in the timing of subsequent absences within that unit. Absences are measured via “wanted” lists prepared by British military police units searching for deserters. We find limited evidence that executing deserters deterred absences, while executing non-deserters and Irish soldiers, regardless of crime, spurred absences, particularly Irish absences. This provides causal evidence of minorities reacting negatively to state-imposed sanctions and novel evidence of individuals responding to the legitimacy of the law.

Tax

Insights from behavioral law and economics require a fundamental reorientation of current tax law. High marginal tax rates from redistributive programs may be less costly than previously thought in terms of labor supply responses if people confuse average and marginal tax rates.¹ Moreover, the elasticity of labor supply may be highly dependent to justifications for tax changes.² If matching grants encourage charitable donations, then charitable tax deductions for private redistribution may be more effective than previously thought.³

The interaction between public and private redistribution is an important topic for tax law. Without redistribution, private groups may step in to provide social insurance.⁴ Depending on the mechanism guaranteeing repayment in private social insurance schemes,⁵ private redistribution can have positive or negative externalities.⁶ Public redistribution crowds out private redistribution.⁷ Crowding out helps explain why some tax laws are viewed as less

¹ “Do People Confuse Average and Marginal Tax Rates? Evidence From a Field Experiment” (with John J. Horton)

² “Pricing Wage Cuts: Evidence From a Field Experiment” (with John J. Horton)

³ “Charitable Tax Deduction Experiments”

⁴ “Club Goods and Group Identity: Evidence from Islamic Resurgence During the Indonesian Financial Crisis” (revise and resubmit, **Journal of Political Economy**)

⁵ “Does Economic Distress Stimulate Religious Fundamentalism?”

⁶ “Islamic Resurgence and Social Violence During the Indonesian Financial Crisis” (in **Institutions and Norms in Economic Development**, MIT Press, ed. M. Gradstein and K. Konrad, 179-200, 2007.)

⁷ “Religion, Welfare Politics, and Church-State Separation” (**Journal of Ecumenical Studies**, 42(1), 42-52, 2007, with Jo Lind)

legitimate by some parts of the population.⁸

Understanding how the cost and benefits of public goods are borne by the population may suggest tax laws that more finely assign specific taxes for public goods provision to those who benefit from them. Tax policy is rarely randomly assigned, however. Assuming that the tax incidence of public goods is the same regardless of the source of policy variation, the incidence of environmental public goods can be investigated in labor market outcomes⁹ as well as property prices.¹⁰ Labor market regulation¹¹ might have adverse consequences for the intended beneficiaries or positive consequences if they prevent involuntary unemployment.¹²

Population has always factored into tax law, and indeed, was one of the prime reasons for some of the earliest tax laws.¹³ Such tax laws have had ethically ambiguous redistributive consequences as have their modern-day counterparts.¹⁴ Models incorporating demographic forces into tax policy suggest that even temporary redistribution, such as increasing opportunities for the poor, could permanently reduce inequality.¹⁵

These projects and others are described in more detail below.

I. Methodology

Which legal rules and interpretations are socially beneficial? Random assignment of judges with different but predictable decision-making tendencies allows the evaluation of rules and interpretations. Using the random assignment of appellate judges, I consider the causal impact of appellate law on economy-wide outcomes.

Dynamic Efficiency

Law and economics has traditionally focused on static efficiency instead of dynamic efficiency. A question central to law and development, however, is which legal rules and regulations spur growth. “Does Forbidding Sexual Harassment Exacerbate Gender Inequality?” finds that forbidding sexual harassment increased female employment status, hours worked, wages, and management status relative to males but that these ameliorative effects on gender inequality are reduced for women previously in the labor force. This leaves open the question of whether this labor market regulation has had ameliorative or detrimental effects for firms and whether it has made it more difficult for firm entry. In the last year, a number of new datasets on firm well-being and firm entry have become publicly available (e.g. Business Dynamic Series), which I plan to link with my database of appellate opinions. I hope to study the impact of labor market and environmental regulation on firm entry. The legal database covers the following areas of

⁸ “The Political Economy of Beliefs: Why Fiscal and Social Conservatives (Liberals) Come Hand-in-Hand” (with Jo Lind)

⁹ “Who Bears the Cost of Environmentalism? The Incidence of the Environmental Protection Act and National Environmental Policy Act on Wages, Unemployment, and Growth”

¹⁰ “Do Regulatory Takings Increase Property Values?”

¹¹ “Labor’s Burden? The Effects of National Labor Review Board Decisions on Wages, Unemployment, and Growth”

¹² “Does Forbidding Sexual Harassment Exacerbate Gender Inequality?” (with Jasmin Sethi)

¹³ “Can Countries Reverse Fertility Decline? Evidence from France’s Marriage and Baby Bonuses, 1929-1981”

¹⁴ “Trading Off Reproductive Technology and Adoption: Do IVF Subsidies Decrease Adoption Rates?” (with I. Glenn Cohen)

¹⁵ “Income Distribution Dynamics with Endogenous Fertility” (*Journal of Economic Growth*, 7(3), 227-258, 2002, with Michael Kremer, and *American Economic Review Papers and Proceedings*, 89(2), 155-160, 1999, with Michael Kremer)

law for which I plan to examine the effects of on firms. 1. Regulatory Takings, 2. Sexual Harassment and Gender Discrimination, 3. Affirmative Action and Title VII, 4. National Labor Review Board Decisions, 5. Environmental Protection Act and National Environmental Policy Act, 6. Punitive Damages, 7. Piercing the Corporate Veil.

Following the methodology laid out in “Does Forbidding Sexual Harassment Exacerbate Gender Inequality?” I can examine the effects of other labor market and environmental regulation on worker well-being. For instance, no differences in wages have been found for workplaces in which unions win National Labor Review Board (NLRB) elections by slim margins in comparison to workplaces where unions lose NLRB elections by slim margins. However, workplaces where unions are winning or losing by slim margins might not be representative of workplaces as a whole. “Labor’s Burden? The Effects of National Labor Review Board Decisions on Wages, Unemployment, and Growth” examines whether NLRB matters for labor market outcomes more generally by using the demographic characteristics of a judge to predict voting behavior in NLRB cases. A similar study, “Who Bears the Cost of Environmentalism? The Incidence of the Environmental Protection Act and National Environmental Policy Act on Wages, Unemployment, and Growth” seeks to examine the effects of environmental regulation to see whether there is decrease in labor productivity or increase due to its health benefits.

The government has the power to make private property available for public use or to restrict some current use of private property, as long as it abides by the Takings Clause, providing “just compensation” for its actions. Of particular interest is the second case, where the restriction takes the form of a government regulation, and where the debate over compensation to the property owner tends to be complicated. “Do Regulatory Takings Increase Property Values?” seeks to uncover the effect of pro-compensation regulatory takings decisions on home prices. Economic theory is divided on this question. On the basic level, there is a predicted decrease in property value, since a property owner has restricted use of his land. On the other hand, other property owners may want to develop their property fast and possibly too much, fearing that their property, too, will soon be regulated. I use the fact that judges are randomly assigned to appellate cases, and that panels with at least one female judge or at least one Catholic judge tend to vote in favor of the plaintiff (property owner) making regulatory takings more difficult. I find suggestive evidence that making regulatory takings easier lead to decreases in home price indices at both the state and metropolitan area level.

Inequality

A concern for dynamic efficiency is balanced against a concern for inequality. Similar to the debate in “Does Forbidding Sexual Harassment Exacerbate Gender Inequality?” affirmative action can increase or decrease the labor market outcomes of minorities depending on whether affirmative action acts as a mandated benefit and thus a tax on labor demand or a vehicle for preventing harassment and involuntary unemployment. “The Legacy of Affirmative Action and Title VII on Race and Gender Inequality” seeks to empirically answer this question using the fact that whether a judge is Jewish or African-American predicts voting behavior in affirmative action cases. I measure a negative correlation between expansive affirmative action rulings and minority and female labor market outcomes. The IV estimates, however, suggest that these relationships are not causal. These findings are consistent with the idea that social forces

(greater inequality between races and between genders) lead to changes in affirmative action law. Title VII has negative causal effects for minorities but not for females.

The Americans with Disabilities Act has recently come under fire for allowing non-meritorious claims of disability. “The Social Construction of Disability: Does the Americans with Disabilities Act Enable or Disable?” finds that pro-plaintiff ADA rulings increase reported disability benefits but not the number of people reporting disabilities. I also find that the ADA helps the disabled relative to the non-disabled.

The Regulation of Moral Values

Rationales for regulating pornography and obscene expression typically point to the state’s compelling interest in protecting people from harms such as moral decay and endangerment of health and safety. However, empirical support regarding the harmful consequences of permitting obscenity has been lacking. “Obscenity Law and the Commodification of Women” (with Susan Yeh) explores the relationship between obscenity law and sexual activity and attitudes. We exploit the random assignment of judges to appellate panels and the predictive power of their personal attributes to identify the effects of liberalizing obscene expression on sexual activity and attitudes. We find a correlation between permissive obscenity laws and sexually liberal behaviors such as having more partners, being more likely to engage in paid sex, and being more accepting of extramarital affairs. The IV estimates suggest that these relationships are quite fleeting. While we find transient effects on sexual activity or other proxies for moral turpitude, our results do suggest that permissive obscenity law might lead to poorer general health.

Legalized abortion can increase labor market outcomes for females if it acts like a technology enabling female labor market participation (Goldin and Katz, 2002) or it can decrease labor market and health outcomes if it forces females to compete in the market for sexual favors (Akerlof and Yellen, 1996). “The Political Economy of Women’s Rights: Did Legalized Abortion Lead to Feminization of Poverty” seeks to empirically answer this question using the fact that whether a judge is female or Democrat predicts voting behavior in abortion cases.

Homosexual rights have been theorized to have adverse consequences for heterosexual marriages and child outcomes. “Do Homosexual Rights Have Adverse Consequences on Marriages and Children?” seeks to answer this question using the demographic characteristics of a judge to predict voting behavior in homosexual rights cases.

Deliberative Democracy

Restrictions on campaign contributions have been analogized to restrictions on free speech. Moreover, democratic theorists express concern that campaign contribution limits might lead to a decline in voter participation. “Do Campaign Contribution Limits Lead to Voter Apathy?” measures the effect of campaign spending laws on voter turnout and election outcomes. I find that restricting campaign contributions leads to lower voter turnouts but does not affect whether Republicans or Democrats are more likely to win.

Our other projects for which I have already obtained data on appellate decisions and judicial

background characteristics include: “The First Amendment and the Marketplace for Ideas”; “Does Segregation Influence Peer Effects in Crime and Voting Preferences?”; “Do Punitive Damages Reduce Accidents and Workplace Injuries?”; “Free Speech and Consumer Welfare: The Effects of Federal Communications Commission Decisions”; “The Effects of Standing on Litigation”; “Piercing the Corporate Veil on Stock Prices and White-Collar Crime”; “The Criminal Effects of Criminal Appeals and Capital Punishment”; “Does the Eleventh Amendment Fetter State Sovereign Immunity?”

Redistricting

Application of the Voting Rights Act depends critically on whether alternative redistricting plans are more or less likely to result in candidates preferred by minority groups, which in turn depends on whether majority groups exposed to minority groups will vote in a less discriminatory way. In “The Demographic Structure of Racial Bloc Voting,” I use segregation indices and precinct-level data from Texas to estimate the effect of exposure to other races on voting preferences. I find that voters exposed to other races do not vote more like them. I contribute to the literature on ecological inference by adapting structural methods commonly used in industrial organization for estimating individual demand from market-level data in the presence of endogenous variables. The methodology allows inquiry into how political parties compete on demographic characteristics and the equilibrium consequences of different redistricting plans. It can be used by legal practitioners in the same manner structural models are commonly used in antitrust regulation.

Evolution of Law

Conflicts arise when people do not acknowledge other perspectives can exist. Is it possible to detect statistically whether scientific or legal 'truth' is specific to historical socio-cultural environments? Thomas Kuhn's *Structure of Scientific Revolutions* (1962) proposes a theory of knowledge—science undergoes periodic paradigm shifts—that has been interpreted to mean that there is no 'truth' in science. Others believe science accumulates slowly by logical steps based on prior knowledge rather than radical reformulations. Previous tests of historical theories of knowledge tend to be archival, comparing rhetoric, subjective, or anecdotal. Suppose one constructs a “citation tree” (formally, a graph) where each node is a paper connected to all the papers it cites and the papers that cite it. Then, just as in evolutionary biology where a species tree has branches that get sparse or chopped off during times of mass extinctions, in “**Does Science Progress? A Statistical Approach to Postmodern Theories of Knowledge**,” I develop a methodology to look for similar events in a citation tree and differentiate competing theories of science. Using ISI data, I construct geology, economics, mathematics, linguistics, law, literary criticism, and theology trees dating from 1945, 1956, and 1975 for science, social science, and humanities trees respectively. I also use the NBER Patent Citation database from 1975-1999. Clustering algorithms marking death of “bushes” indicate linguistics and geology are qualitatively different from literary criticism, where statistical “extinctions” occur often, contrary to the constructionist claim that all forms of discourse accumulate similarly. Paradigm shifts incommensurate enough to cause mass extinctions do not appear to have occurred in linguistics, geology, or patent citations but do occur in literary criticism. The broader interest is developing econometric tools useful for testing the burgeoning theoretical literature on networks, non-

market interactions, and social capital and to uncover stylized facts that may inform new theory and science policy, such as those regarding interdisciplinary work (Is the likelihood of intellectual impact a function of distance between the old ideas that are combined?), economic growth (Do branches that get too separated die off faster? Can lack of progression be detected by branching structure?), and affirmative action (Does academic diversity facilitate or debilitate scientific progress?). Rich data on the transmission of scientific ideas makes science a particularly apt context to study incommensurability of perspectives and may shed light on the transmission of religious and political ideas, whose incommensurability is of topical concern.

“Does Law Progress? Tracing the Evolution of Common Law” examines whether the evolution of common law progresses more like science or literary criticism and whether money influences the progression and establishment of law, using Herfindahl indices of citation concentration. Theory suggests that common law evolves towards efficiency, particularly when monetary interests are involved. Does an area of law become more established as judges cite the same cases (i.e. the “market share” of citations gets increasingly concentrated by the “established” law)? A novel aspect of legal citations as compared to scientific citations is that both positive and negative citations are demarcated.

II. Field Experiments for Behavioral Law and Economics

Evaluating legal rules with observational data provides only a black box on human behavior, but experimentally manipulating legal rules in contextualized field settings is practically infeasible. Using a disaggregated labor market and drawing on previous field experience in developing countries, I conduct a series of field experiments in mechanism design to test behavioral economic theories of how individuals are incentivized in groups, a central assumption underlying the law and economics approach to law. No one appears to have conducted these kinds of labor market and mechanism design experiments in the field because of the difficulty in randomly assigning individuals to different rules in actual market settings. This apparatus also provides a contextualized setting for conducting empirical moral psychology and philosophy experiments to understand the moral intuitions that underlie the law.

Contextualized Labor Market Experiments

“Do People Confuse Average and Marginal Tax Rates? Evidence from a Field Experiment” (with John Horton) offers a kinked wage schedule that reflects higher marginal tax rates vs. a constant high marginal tax rate schedule and examine whether labor is curtailed in the kinked schedule beyond where it is curtailed in the constant schedule. The income effect from pre-kink wages would curtail labor earlier, making the effect harder to find. We also manipulate context to see what causes this confusion to occur, e.g. inform wage-to-date cumulative payroll or give complete information on schedule of marginal or average wages. We find that the workers who saw the average payment schedule do significantly more work than the workers who saw the marginal payment schedule. When workers are not primed with average or marginal payment rates, they do significantly more work. These results suggest that workers may be less responsive to marginal rates than previously thought, eliminating some of the deadweight loss from high marginal taxes. If people confuse average and marginal tax rates, it requires a fundamental reorientation of current tax law.

“Pricing Wage Cuts: Evidence from a Field Experiment” (with John Horton) conducts a field experiment to understand why firms rarely cut nominal wages, a central tenet of macroeconomics, and poorly understood due to the difficulty of observing plausibly exogenous wage reductions in actual labor market settings. We hired workers for a data entry task, paid them a high wage and then offered some of the workers the opportunity to keep working, albeit for a lower wage. Offers were framed differently across groups. Workers were more likely to reject lower offers, but “reasonable” justifications eliminated this effect. Yet not all justifications were effective---suggesting the cut would improve our profits increased quits. We also measured whether the treatments affected quality, trust and cooperation. The “profits” treatment reduced cooperation and possibly reduced quality; the other treatments had generally weak effects. Our auxiliary results are more consistent with theories of negative reciprocity, where firms are reluctant to reduce wages for fear of worker retaliation, than with theories of gift exchange or adverse selection. In a follow-up experiment, we measure the value of different framings for wage cuts.

A current debate in child and worker psychology is whether praising intelligence leads to a false sense of self-esteem that leads to quitting in the face of challenges. “Does Praising Intelligence Lead to Quitting? Evidence from a Field Experiment” praises workers for hard work or great work before asking them to do much more difficult data entry.

A subject of much debate in executive compensation is whether pay-for-performance increases risk-taking at the expense of optimal performance. “Does Pay-for-Performance Encourage Excessive Risk-Taking? Evidence from a Field Experiment” tests for optimal rules in repeat tournaments on time and errors from doing data entry to maintain incentives for top performers. In contrast to theory, handicapping winners disincentivizes losers but does not incentivize winners to perform better. Losers in early tournaments improve their performance more in the control group without handicapping of winners than in the control group. Winners in both control and treatment perform the same in subsequent tournaments.

What are the optimal shareholder incentives that should be placed on executives? “Leadership, Organizations, and Organizational Choice: Evidence from a Field Experiment” asks pay rates to be chosen by others who are leaders to overseeing groups to do data entry. I examine the optimal incentives for the principal (the leader) in charge of the agents (the workers). I also examine whether decentralized or heirarchical organizations give better output and allow subjects to choose their type of organization, to see if people select into certain kinds of organizations.

Empirical Moral Psychology

Moral intuitions underlie much of law and these studies investigate the malleability of those moral intuitions. Philosophers and economists hotly contest the proper scope of markets. While economists primarily focus on efficiency, philosophers speculate on how markets leave their mark on social norms. An oft-stated concern is whether people become corrupted or degraded if turned into commodities. To test these hypotheses, **“Markets and Morality: Do Free Markets Corrode Moral Character?”** exploits random assignment of wage contracts across workers to

investigate how market interactions affect normative commitments. Workers who are assigned piece rate work become more utilitarian while workers who are assigned to tournaments become less utilitarian. Exposure to tournaments does not alter workers' donations to charity but it does reduce their error rates. Tournament winners, however, are more likely to donate to charity. American workers are less likely to be utilitarian in the piece rate condition. These results suggest that more competitive settings do not necessarily make individuals more utilitarian, that the commodification of labor may have effects on normative commitments heretofore unmeasured, and that the manner in which market forces shape normative commitments may be contingent on culture.

A classic question in experimental economics is whether hot or cold interactions matter. Almost all studies in the laboratory are conducted in a cold interaction (individuals are presented a set of hypotheticals and asked to choose their action in each hypothetical) for lack of subjects and money. Using an online labor market intermediary, I circumvent this problem and also investigate whether behavior elicited is the same regardless of context. **“Hot and Cold Social Preferences”** finds that hot interactions increase cooperative and trustworthy behavior, while cold interactions precipitate more selfish or spiteful behavior. I find that people are less likely to accept an ultimatum game offer presented as a hypothetical, strategic form, commonly used in experimental work, but are more likely to accept if there is a hot offer made in real-time. I also find that the hot form increases the relationship between the amount offered and the amount returned in the trust game. Raising the stakes in hot interactions, however, lead to more selfish behavior. Raising the stakes lead to even more ultimatum game acceptances. Higher stakes reduce trustworthiness, the sensitivity of the amount returned to the amount offered in the trust game in the hot setting.

“Egoism vs. Altruism: Do Individuals Become Less Moral When Choices are Obfuscated?” examines whether individuals become less moral when they know their choices are obfuscated under randomization within the context of a labor market experiment where workers do not know they are being studied. Individuals enter data, grade another individual's work, and decide to split a bonus. Graders who are told the split might be implemented or modified by a new procurement algorithm are less generous than graders who are told their split might be averaged or randomly selected among other graders. This is consistent with the Beckerian view of egoist motivations for altruism.

“The 21st Century Mechanical Turk: A True Automaton for Running Experimental Games on the Internet” (with Anna Dreber and David Rand) replicates canonical games in an online labor market intermediary and shows that cooperation in the Prisoner's Dilemma is correlated with trustworthiness and not trust, consistent with the notion that cooperation in the Prisoner's Dilemma represents altruism as opposed to trust and that subjects do not treat Prisoner's Dilemma as a stag hunt. We also find no correlation between contribution in Public Goods game and the rejection threshold in the Ultimatum Game, which suggests that punishment in the Ultimatum Game is not an altruistic punishment but perhaps stems more from something like anger.

Recent debate on the need for empathy on judicial courts begs the question what empathy may cause. Theory suggests that guile may arise from empathy, since individuals need to perceive

another individual's expectations for placation before other individuals bias these expectations to their own advantage. "Does Empathy Beget Guile?" first validates two measures of empathy by correlating Reading the Mind in the Eyes scores with prosocial behavior and correlating prosocial behavior with how much time people spend reading about others' payoffs vs. own payoffs and others' decisions vs. own decisions. I examine how closely the ability to read emotions from pictures of eyes tracks which behaviors in social preference games with and without priming of empathy. Humans are unique among primates in that we have white sclera enabling humans to more easily read where the eye is looking. Then, I cross empathy with cheap talk (guile) games, priming empathy and guile respectively to examine whether one causes the other.

"Charitable Tax Deduction Experiments" conducts matching experiments in the relevant range for charitable tax deduction policy and examines the charitable response to different matching ratio less than one. Early experiments find that workers who received wage cuts were more likely to donate, not less. A tentative interpretation is that while they're insulted from the wage cut and disproportionately refuse to continue working, they are not exhausted from effort nor feel that they "earned" the money that they have the opportunity to donate. Moreover, twice as many individuals were willing to donate to the International Red Cross / Red Crescent when their donations are matched one-for-one than when their donations are not matched. Karlan and List (2007) find that match ratios of 1:1 or higher are highly stimulative of participation and donation compared to the no match ratio control group and that match ratios of 1:1, 2:1, and 3:1 have the same effect. Match ratios less than 1:1 is more analogous to present tax law. I conduct experiments to discover at what ratio less than 1:1 does the stimulative effect of matching disappear. Similarly, an earlier study (List, John A. and David Lucking-Reiley, "The Effects of Seed Money and Refunds on Charitable Giving: Experimental Evidence From A University Capital Campaign," Journal of Political Economy 2001) finds that providing seed money increased participation and donation, but it does not rule out the possibility that the amount needed to be raised could deter people from participating. I conduct an experiment where we vary the target and seed percentage, keeping the amount to be raised constant, to see if donation increases because people think the target is almost attained or decreases because people think they are less influential. This research helps distinguish among theories of altruism, warm-glow effects and bequests, which has ramifications for inheritance tax.

III. Legal Realism

Where do interpretations come from and why do people interpret the way they do? I use observational data on judges and courts, where normative ideas incubate, to study the incentives and markets for the formation of legal ideas, judicial innovation, and the production of justice. I conduct empirical and experimental work on interactive epistemology, central to exploring the transmission and persuasion process of normative ideas whose incommensurability lead to conflict.

Judicial Discretion

"Electoral Cycles Without Electoral Incentives? Evidence from Appellate Judges" (with Carlos Berdejo) uncovers evidence that even without electoral pressures, appellate judges are

more likely to dissent in the three quarters leading up to a presidential election and find this effect to be more pronounced in ideologically divided panels. Opinions written in the quarter before an election are longer and more frequently cited. We also challenge the existing literature on the politics of judicial retirements and, using more granular data, uncover evidence that appellate judges are less likely to voluntarily leave in the three quarters leading up to a presidential election. This effect is more pronounced when the party in power at the time the judge leaves is different from the party that appointed the judge. This effect also appears to be entirely driven by Democrat-appointed judges. The electoral effect we observed in dissent rates and judicial retirements did not exist before 1980. Taken together, these results may help explain recent trends in judicial polarization along party lines as more polarized decision-making and judicious timing of retirement can lead to a self-reinforcing cycle.

Whether judges make decisions based on their demographic characteristics is a subject of normative and positive debate. **“Priming Ideology: Is Judicial Bias Cognitive or Motivational?”** (with Carlos Berdejo) builds on previous studies documenting a correlation, by priming party affiliation and gender identity in subjects to ascertain the causal effect of social identity on decisions in sexual harassment and reversals. We examine how much of the observed correlation in previous studies is explained by social identity. If judges decide in a manner more like the non-primed control group, this suggests judicial decision-making is more similar to vestigial non-trained response to fact patterns. If judges decide in a manner more like the primed treatment group, this suggests that judges may be very conscious of their gender or party affiliation. The broader question is to examine whether judicial bias is cognitive or motivational.

The sale of litigation claims to third parties has historically been banned in almost every legal system. While this ban reduces the likelihood of frivolous, negative expectation suits, allowing such litigation may be welfare enhancing overall and may stimulate socially beneficial interpretations. A number of recent theoretical papers have proposed that the creation of a market for litigation would increase welfare, through the increased access to the courts for individuals who are risk averse or credit constrained. Until recently this question remained a theoretical one, as there was no venue to empirically test the impact of litigation sales. But recent court decisions in Australia have led to the formation of litigation funding corporations, which buy claims (or fractions) from third parties. **“A Market for Justice”** (with David Abrams) attempts the first empirical investigation into the impact of litigation funding. We analyze data obtained from the leading litigation funding firm in Australia, as well as from the Australian state and federal courts. Using this data we test several economic theories of litigation. If litigation trading alleviates credit constraints, litigation trading should stimulate the filing of more costly suits. If litigation trading allows the smoothing of risk, litigation trading should stimulate the filing of lower probability suits. We make use of the changes in the law in Australia as natural experiments, which alter the cost of litigation. Specifically, we examine the impact of litigation funding on settlement rates and amounts, time to settlement, volume of litigation, conditional fees, establishment of precedent, and development of law. The findings are important to understanding the welfare implications of liberalizing litigation funding laws and allowing law firms to go public, currently under consideration in a number of countries. In preliminary findings, litigation funding does appear to increase the number of suits filed and decrease the frequency of appearances before the court.

Are certain judges more likely to innovate and are they rewarded or punished for innovation? **“Judicial Innovation”** (with Carlos Berdejo, Andrei Shleifer, and Georgios Theophanous) uncovers evidence that reversed cases, especially those with dissents, subsequently receive more negative citations. They are much more likely to be distinguished (receive a caution citation) than to be directly overruled (warning citation). Judges appointed by Democrats are more likely to overturn lower court decisions, especially those with dissents. When an appellate court reverses a lower court opinion by distinguishing it, our working hypothesis is that other appellate courts not ready to follow the example of the leading appellate court cite the case negatively. This treatment of judicial innovation holds across all case types. Some legal innovation, such as *Vandermark v. Ford Motor Co.*, which helped spur the development of tort law, occur with significant judicial fact discretion. Yet appellate judges are supposed to take facts as given from lower courts.

Physicians interpret highly complex fact patterns and with significant market influences. Using a dataset from an institutional pharmacy containing over 80 million prescription decisions and exploiting random assignment of physicians to patients within facilities, “The Welfare Consequences of Physician Pharmaceutical Choice” (with David Abrams, David Chan, and Steve Olley) studies the causes and consequences of physician pharmaceutical choice. “Conflict of Interest? Pharmaceutical Payment to Physicians and Physician Prescriptions” (with David Abrams, David Chan, and Steve Olley) first studies the effect of payments by pharmaceutical companies to physicians on physician pharmaceutical choice and patient health outcomes to determine if payments by pharmaceutical companies to physicians are welfare improving or disimproving. We study how the effect differs by type and size of payment and whether it is mediated by other factors, such as physician characteristics or insurer bargaining power. The welfare gain from physicians choosing between close substitute drugs is another open question. We use doctor prescription propensities as an instrument for a particular drug preference to see the exogenous part of which drug a patient gets in comparison with the OLS, which includes the endogenous part (physician tailoring his choice of drug to the patient) as a way to study the welfare gains from physician pharmaceutical choice. In the absence of random assignment of competing pharmaceuticals, we proxy for it using the fact that some doctors tend to prescribe individual drugs at higher rates. We then make use of the random assignment of physicians with different propensities to prescribe particular drugs to determine the relative impact of different drugs, akin to simulating comparative clinical trials that are otherwise too expensive to conduct.

Interactive Epistemology

“Epistemic Crowdsourcing: Motivation vs. Incentives” (with Yochai Benkler and Aaron Shaw) examines optimal mechanisms for encouraging truthful revelation in crowdsourcing knowledge tasks. We examine whether simulating relational contracting (normative priming, cheap talk, solidarity, humanization, promise of future work) by asking for compliance is as or more effective than providing incentives (rewards, punishment, tournaments, Bayesian Truth Serum) for compliance. We find that incentives matter more in this contextualized experiment for truthful revelation than relational contracting. More specifically, we find that Bayesian Truth Serum is more effective than betting and tournaments, which are more effective than punishment, which is more effective than rewards. Cheap talk performed the worst.

How do we know we can trust the wisdom of crowds? “Epistemic Crowdsourcing: Empirical Interactive Epistemology” creates artificial laboratory wikis to see how truth converges or does not converge. I provide three levels of manipulations. One, I allow the person to see only the question, the question and the most recent answer (wikipedia), the question and all previous answers (bazaar), and communicate with other players (deliberative democracy). Two, I vary the kind of question from objective to subjective, verifiable (weather forecasts) to non-verifiable (historical interpretations, guilt or innocence). Third, I manipulate incentives or prime cooperation. One hypothesis is whether individuals, knowing that people observe the history of answers, choose strategic extremism and report an answer that is not something that they would report in the control group.

“Experimental Cultural Evolution” observes how advice in public goods games affect future generations' play, whether intergenerational play is highly path dependent, and how malleable paths of cultural evolution can be. I implement sequential and overlapping generations of public goods games.

In “Culture as Interactive Epistemology and the Demography of Ideas,” I elaborate on an evolutionary and demographic metaphor for the spread of beliefs. Suppose the doctrines of an ideology are like the molecular mechanisms of a biological entity that help it self-propagate and maintain its prevalence in society. Some people are prone to be carriers. Ideologies, like competing societies, firms, or animal species, acquire these doctrines through competition and selection pressure; like rational economic individuals, it's as if they have these optimal characteristics. Trade-offs may be necessary so that in “equilibrium,” everyone does not carry the same ideology. One might expect the following to be associated: high virulence—high mutation—low longevity—low radius, e.g. fundamentalist sects; and the opposite: low virulence—low mutation—high longevity—high radius, e.g. science. The ideology's comparative advantage in method of transmission may be related to the nature of its virulence (and hence, the degree it emphasizes proselytizing as opposed to fertility (or violence)). Ideologies that find it easier to transmit vertically (parent-to-child) than horizontally (peer-to-peer) may also be pro-fertility.

Why do people prefer different argumentation and persuasion styles? Suppose these tastes are determined by a society's philosophical and religious traditions: Socrates for a logical style as opposed to an analogical style that characterizes Confucian thought. Consider a Cobb-Douglas idea production function of logic and analogy. This suggests what is considered valuable or creative is a function of its scarcity in the ways of thinking of a society. In “A Theory of Persuasion and Argumentation: Why People Prefer Different Ways of Knowing,” I will use this framework to explain import-export patterns of ideas across disciplines and across countries and across time, such as why the US exports economics but Europe exports sociology and literary criticism. In contrast to standard trade theory, countries with a comparative advantage in the scarce resource within a discipline export their ideas to countries with a comparative advantage in the abundant resource.

IV. Law and Development

The development of legal institutions is critical to implementing policy innovations designed to

spur economic growth, but incentives to help members of shared identities frequently debilitate these initiatives. My work traces the incentives that lead to what has now come to be viewed as human rights violations, such as religious, ideological, and gender violence, even though they derived their legitimacy from proto-legal sources and ultimately undermined that legitimacy. I examine how interpretations of religious and legal texts, particularly those associated with fundamentalism, interact with market forces. In a multipart study, I investigate the economic forces underlying the religious provision of social insurance, social sanctions, and social conservatism and, turning to one dimension of social conservatism, the economic incentives that give rise to gender violence. I also study the demographic laws and policies that aid discrimination.

Fundamentalism

In **“Club Goods and Group Identity: Evidence from Islamic Resurgence During the Indonesian Financial Crisis,”** I present a model where group identity in the form of religious intensity represents the degree of social insurance in which people participate and social sanctions facilitate religion’s function as ex-post insurance. I exploit relative price shocks induced by the Indonesian financial crisis to demonstrate a causal relationship between economic distress and religious intensity that is weaker for other forms of group identity. Rapid inflation favored growers of staple crops and disfavored those whose wages were particularly sticky. I use pre-crisis wetland hectares and government occupation as instruments and dryland hectares and service occupation as “placebo instruments” to estimate the impact of economic distress on religious intensity. Households who experience a \$1 decline in monthly per-capita nonfood expenditures are 2% more likely to increase communal Koran study and 1% more likely to switch a child to Islamic school but are no more likely to increase other communal activities or secular school attendance. The average household suffered a \$4.70 decline in monthly per-capita nonfood expenditure. Consistent with predictions derived from the model, credit availability reduces the effect of economic distress on religious intensity by roughly 80%, religious intensity alleviates needing alms or credit to meet basic needs at the peak of the crisis, religious institutions reduce the spread of consumption shocks among villagers during the crisis, and religious institutions reduce the effect of income shocks on consumption shocks. These results provide evidence that religious intensity responds to economic forces and suggest alleviating risk may mitigate fundamentalist tendencies.

Whether social violence rises or falls with religious intensity is a subject of much debate. Economic theorists have wondered, why in the presence of economic inequality, does social conflict occur along religious lines instead of class lines? Theory suggests that groups with club goods provide resources for the poor to conduct conflict in a battle over resources. In **“Does Economic Distress Stimulate Religious Fundamentalism,”** I find that economic distress does not stimulate social violence by itself but stimulates it in the presence of religious institutions. I exploit differences in religious institutions across Indonesia before the Indonesian financial crisis and relative price shocks induced by the crisis to identify the effect of economic distress on the relationship between religious institutions and social violence. High religious intensity areas before the crisis have more social violence after the crisis. Stronger measures of religious intensity are more strongly associated with social violence. Social violence increases fastest where participation in Koran study also increases the fastest. Social violence is negatively

associated with other social activities. Notably, social violence is more strongly linked with religious intensity in regions that are more economically distressed, while credit availability mitigates this effect. These results suggest that in a world of competing insurance groups, as volatility increases, religions with stronger sanctions or violence are more stable and successful, but as volatility declines, benign groups and religions become relatively successful.

Religious intensity as social insurance may explain why fiscal and social conservatives and fiscal and social liberals tend to come hand-in-hand. **“The Political Economy of Beliefs: Why Fiscal and Social Conservatives (Liberals) Come Hand-in-Hand”** (with Jo Lind) finds evidence that religious groups with greater within-group charitable giving are more opposed to the welfare state and more socially conservative. The alliance reverses (social conservatives become fiscal liberals) for members of a state church. Increases in church-state separation, measured by US judicial decisions and the 2000 Swedish separation of church and state, precede increases in the alliance between fiscal and social conservatism. The theory provides a novel explanation for religious history: as elites gain access to alternative social insurance, they judicate increasing church-state separation to create a constituency for lower taxes. This holds if religious voters exceed non-religious voters; otherwise, elites prefer less church-state separation in order to curb the secular left, generating multiple steady states where some countries sustain high church-state separation, high religiosity, and low welfare state, and vice versa. We use this framework to explain the changing nature of religious movements, from Social Gospel to the religious right, and why church-state separation arose in the US but not in many European countries.

In **“Gender Violence and the Price of Virginit: Theory and Evidence of Incomplete Marriage Contracts,”** I build and test a model of marriage as an incomplete contract that arises from asymmetric virginity premiums—the double standard placed on men and women at the time of marriage—and examine whether this can lead to social inefficiencies. Contrary to the efficient households hypothesis, women cannot prevent being appropriated by men once they enter marriage if they command lower marriage market opportunities upon divorce. Because men cannot or do not commit to compensating women for their lower ex-post marriage market opportunities, marriage is an incomplete contract. Men may seek to lower women’s ex-ante “market wages” in order to induce entry into joint production. Inefficient or abusive marriages are less likely to separate. Equalizing virginity premiums may reduce domestic and non-domestic violence. Female circumcision and prices women pay doctors to appear virgin before marriage in many countries suggest asymmetric virginity premiums continue to exist. Evidence from China and the US suggest asymmetric virginity premiums persist over economic development. Asymmetric virginity premiums are strongly positively correlated with female but not male virginity premiums. I use variation in religious upbringing to help isolate the effect of virginity premiums on gender violence in the US. The correlation between virginity premiums and female reports of forced sex may be biased downwards if shame is associated with abuse and this shame is greater for women with higher virginity premiums. But the correlation for males might not be biased downwards. Asymmetric virginity premiums are positively correlated with men forcing sex on women and paying women for sex. The model complements a growing empirical literature on inefficient households and human rights abuses, visible manifestations of female appropriability across time and space.

“Gender Inequality in Social Context” (with Scott Kominers and Christina Jenq) proposes a

mechanism to elicit asymmetric virginity premiums through a randomized survey and a speed dating auction experiment. In the survey portion, we ask the preferred number of sexual partners for themselves and for their spouses at the time of marriage. The difference-in-differences is the asymmetric virginity premium. We propose randomizing some surveys to inform that nowadays, in our society, some women can pay doctors to appear virgin before marriage and we vary the price. We hypothesize that the asymmetric virginity premium disappears as the price goes to zero. Conceptually, the speed dating auction experiment involves bidding on phone numbers where some women and men are randomly assigned a sexual history and a second-price auction obtains the price of male virginity vs. the price of female virginity (or number of partners). Randomly assigning who receives the information obtains individualized asymmetric virginity premiums and to whom the asymmetry is perceived. The challenge is to minimize harm to participants while also providing incentives to reveal the truth. One method is to request a menu of bids for all possible histories and conduct an auction with the bids that correspond to information revealed to the auctioneer but not to the participants in order to preserve anonymity.

Demographics of Discrimination

Incentives to help members of shared identities debilitating development initiatives are strikingly illustrated in the following case study. **“Interim Report on a Preschool Intervention Program in Kenya”** (with Paul Glewwe, Michael Kremer, and Sylvie Moulin) evaluates an educational program that professionalized an informal educational system. Teacher training, classroom materials, and incentives for teacher attendance was provided to fifty preschools randomly selected from one hundred preschools in rural Kenya. Teachers were eligible for bonuses of up to 85% of pre-program salary depending on their attendance. Headmasters acted as monitors and distributed funds. In practice, headmasters typically paid the entire bonus to teachers, some of which were replaced by relatives, regardless of attendance, which tended to crowd out parental contributions to teacher salary. Teacher training significantly reduced the number of minutes spent on the blackboard. The point estimates suggest that the program improved teacher attitude, energy, effort, control, and organization. The program increased progression to grade one by the end of three years; however, it also significantly decreased written test scores after two years.

Does familiarity breed comfort or contempt? Legal scholars and social scientists have documented that judges who are more exposed to other races are not particularly different in implicit discrimination and display more prejudicial decision-making in the lab, but when judges are explicitly made conscious of race, they suppress their innate discriminatory tendencies. Thus, even in the presence of random assignment, laboratory and survey studies suffer from the possibility that reported attitudes are different from actual behaviors. Affirmative action policy depends crucially on whether being exposed to diversity makes people less discriminatory. **“Demographics of Discrimination: How Minorities Influence Majority Voting Choices and Hate Crime”** (with Susan Yeh) uses refugee assignment to test whether the presence of minorities cause majority groups to behave more or less antagonistically towards minority groups. How minority populations influence racial bloc voting and hate crime is important for gerrymandering strategies, application of the Voting Rights Act, and development of anti-discrimination law.

A recent experimental literature finds that women shy away from competition and perform worse in mixed sex tournaments, while men do better. **“Pay-for-Performance and Gender Inequality”**

(with Da Lin and Susan Yeh) studies how much of pay for performance contributes to the “variation” that Summers noted at the top end of the distribution. In other words, is the greater variance of male outcomes due to social structures, such as performance pay, or due to genetics. We examine whether an increasing fraction of jobs in the U.S. labor market that explicitly pay workers for their performance using bonuses, commissions, or piece-rates explains the lack of convergence in gender inequality.

Developing countries with highly unequal income distributions, such as Brazil or South Africa, face an uphill battle in reducing inequality. Educated workers in these countries have a much lower birthrate than uneducated workers. Assuming children of educated workers are more likely to become educated, this fertility differential increases the proportion of unskilled workers, reducing their wages, and thus their opportunity cost of having children, creating a vicious cycle. **“Income Distribution Dynamics with Endogenous Fertility”** (with Michael Kremer) builds a model incorporating this effect, generating multiple steady-state levels of inequality and suggesting that in some circumstances, temporarily increasing access to educational opportunities could permanently reduce inequality. Empirical evidence suggests that the fertility differential between the educated and uneducated is greater in less equal countries, consistent with the model.

Concerned about fertility differentials between the rich and poor, during the early 20th century, France initiated an unusual tax policy to promote marriage and fertility, regressive in that fertility incentives were so large and greatest among the rich. Eugenic interest in family allowances was substantial during this time due to fear of depopulation and changing ratios of uneducated to educated. Family incomes were divided by family size to determine a final tax bracket. A number of countries have begun promoting similar tax incentives. In **“Can Countries Reverse Fertility Decline? Evidence from France’s Marriage and Baby Bonuses, 1929-1981,”** I use variation in tax policy with differential impact for different population groups to disentangle economic incentives from propaganda that often accompany such country-wide initiatives. Evidence using synthetic cohorts constructed from aggregate tax return data suggests a large and significant elasticity of fertility and marriage with respect to tax incentives exists, which may partly explain France's higher post-war fertility relative to other European countries.

Do individuals have a moral duty to improve the life prospects of already existing children waiting for adoption rather than having genetically related children of their own? What role should the state play in mediating the claim of the infertile that they suffer an illness and merit state support to correct it, against the claim of adopted children? Should the state tip the balance by subsidizing the use of reproductive technology or should it remain neutral? Motivating these normative and legal questions is an omnipresent assumption in the literature that state subsidization of reproductive technologies will reduce adoption; that is, there is a trade-off between helping individuals conceive and helping adopted children in America. **“Trading Off Reproductive Technology and Adoption: Do IVF Subsidies Decrease Adoption Rates?”** (with Glenn Cohen) challenges that assumption. Using the differential timing of introduction of state-level insurance mandates in some states relating to In Vitro Fertilization (IVF), and differences in the form these mandates take, we find, contrary to the assumption in the literature, no strong evidence that state support of IVF crowds out adoption.

V. Hermemetrics

Hermemetrics (hermeneumetrics) is hermeneutics and econometrics, the measurement of meaning: how people interpret, why people interpret the way they do, the impact of particular interpretations, and how to improve interpretations or interpretive methods, using economics and statistics as lenses, with applications to law, religious hermeneutics, and Habermasian hermeneutics of society (culture). Why do academics and civil law use peer review while common law uses advocacy and adjudication to get at truth? In science vs. law, is one method more efficient than the other, if so, why? Why do religion and medicine use mechanisms different from these? Is this a mechanism design problem? These are some of the broader questions I hope to eventually answer with “Hermemetrics.”