

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 in development seeks to understand how people form normative commitments and how they respond to these normative commitments. My work in development 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 multi-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 field experience in developing countries, my recent research conducts a series of field experiments in institutional and 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, contracts, and optimal taxation theory. This apparatus also provides a contextualized setting for conducting experiments in empirical moral psychology and philosophy and interactive epistemology, in order to explore 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 preventing the tragedies that stem from lack of choice, be they poverty, inequality, violence, infectious diseases, or lack of health and education, but incentives to help members of shared identities frequently debilitate these institutions. On a thick vein, I study the macro and demographic forces and laws that aid or hinder discrimination. On another vein, I have been motivated by an idea that can be broadly termed, hermeneutics, which is hermeneutics and econometrics, the measurement of meaning, or economics of interpretation, as a source of normative commitments. 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. If economics is the science of how individuals optimize to budget constraints, hermeneutics studies how societies optimize in response to textual constraints, from religion to constitution to the tax code.

My research and teaching interests in law fall into the substantive areas of contracts, tax, and procedure.

## **Contracts**

### **Markets and Morality: How Does Competition Affect Moral Judgment?**

Investigates the long-standing issue of market inalienability / commensurability

### **Are There Stable Types? Hot and Cold Social Preferences**

Another reason, besides incentive compatibility, why agents might not have incentives aligned with principals. The decision to work with the principal involves cold decision-making, while the actual work involves hot decision-making.

### **A Market for Justice: The Effect of Third-Party Litigation Funding on Legal Outcomes**

Market inalienability of litigation

### **The Welfare Consequences of Physician Pharmaceutical Choice**

Morality of contracts between physicians and pharmaceutical companies

### **Hard and Soft Betrayals**

Agreements that are closer to actual contracts induce less betrayal aversion and more trustworthiness

### **The Wages of Pay Cuts: Evidence from a Field Experiment**

Justification for breaking contracts matter

### **The Economics of Crowdsourcing: A Theory of Disaggregated Labor Markets**

What kinds of contracts prevent anonymous individuals from appropriation in disaggregated labor markets that would otherwise cause these markets to unravel?

### **Epistemic Crowdsourcing: Motivation vs. Incentives**

A field experimental test of relational contracting

### **Gender Violence and the Price of Virginity: Theory and Evidence of Incomplete Marriage Contracts**

Consequences of inability to contract

### **Interim Report on a Preschool Intervention Program in Kenya**

A case study of failed relational contracting with gatekeepers

## **Tax**

### **Do People Confuse Average and Marginal Tax Rates? Evidence from a Field Experiment**

These results suggest that workers may be less responsive to marginal tax rates than previously thought, eliminating some of the loss in labor supply from high implicit margins.

### **The Political Economy of Beliefs: Why Fiscal and Social Conservatives (Liberals) Come Hand-in-Hand**

### **Religion, Welfare Politics, and Church-State Separation**

Examine sources of tax preferences

### **Club Goods and Group Identity: Evidence from Islamic Resurgence During the Indonesian**

### **Financial Crisis**

Private redistribution mechanisms in the absence of public redistribution

### **Does Economic Distress Stimulate Religious Fundamentalism?**

#### **Islamic Resurgence and Social Violence During the Indonesian Financial Crisis**

Potential negative externalities from private redistribution mechanisms

### **Can Countries Reverse Fertility Decline? Evidence from France's Marriage and Baby Bonuses, 1929-1981**

Population was one of the prime reasons for some of the earliest tax laws

### **Trading Off Reproductive Technology and Adoption: Does Subsidizing IVF Decrease Adoption Rates and Should It Matter?**

Tax laws that have had ethically ambiguous redistributive and demographic consequences

### **Income Distribution Dynamics with Endogenous Fertility**

Models incorporating demographic forces into tax policy suggest that even temporary redistribution, such as increasing opportunities for the poor, could permanently reduce inequality

### **Tastes for Desert and Placation: A Reference Point-Dependent Model of Social Preferences**

An economic model of deontological choices

### **The 21<sup>st</sup> Century Mechanical Turk: A True Automaton for Running Experimental Games on the Internet**

Cooperation represents altruism not trust and rejection of unfair situations may stem from anger

### **Procedure**

### **The Deterrent Effect of the Death Penalty? Evidence from British Commutations During World War I**

Response to state-imposed sanctions may depend on perceived legitimacy of the law

### **Insiders and Outsiders: Does Forbidding Sexual Harassment Exacerbate Gender Inequality?**

#### **The Economic Impacts of Eminent Domain**

#### **Instrument Selection Using LASSO**

Using random assignment of appellate judges to estimate the causal effect of common law

### **Priming Ideology: Electoral Cycles Among Unelected Judges**

Behavioral biases in the evolution of common law

### **Is Judicial Bias Cognitive or Motivational?**

Investigates mechanism for above paper

### **Judicial Innovation**

Democratic appointees are more likely to reverse and reversals making new law are more highly cited

### **Are There Paradigm Shifts? A Statistical Approach to Postmodern Theories of Knowledge**

Using citation patterns to detect incommensurability

## **Completed Research**

### **“Insiders and Outsiders: Does Forbidding Sexual Harassment Exacerbate Gender Inequality?”** (with J. Sethi), under review

This paper tests an insider-outsider model of harassment and involuntary unemployment. We exploit the random assignment of appellate judges to three-judge panels and the fact that a judge’s gender and party affiliation predict decisions for sexual harassment plaintiffs to demonstrate a causal relationship between appellate decisions creating precedent in forbidding sexual harassment and subsequent labor market outcomes. Consistent with an insider-outsider model of involuntary unemployment, forbidding sexual harassment encouraged entry of outsiders and reduced gender inequality along the dimensions of quantity, price, and quality, but these ameliorative effects on gender inequality are reduced for women previously in the labor force.

### **“Markets and Morality: How Does Competition Affect Moral Judgment?”**

I study the impact of market interactions on three forms of normative commitments: utilitarian versus deontological values, other-regarding preferences, and charitable donations. Using a labor market intermediary, I randomly assign workers to different market conditions – competitive versus piece-rate – in order to distinguish self-selection into market settings from the causal effect of competitive experiences on morality. Competition increases deontological commitments, deontological commitments towards outgroup members, and donations by productive workers, though it decreases donations by less productive workers. The effect of competition on deontological commitments may reverse with income, consistent with the intellectual history of the *doux commerce* thesis.

### **“Priming Ideology: Electoral Cycles Among Unelected Judges”** (with C. Berdejo)

We uncover evidence that unelected appellate judges display electoral cycles – judges dissent, vote along partisan lines, and time retirements in a manner contingent on the President’s party more before elections. We explore strategic and behavioral reasons for expressing ideological commitments before US Presidential elections. Consistent with priming of ideological polarization, those more susceptible are inexperienced and subject to contention; priming generates facile responses: conditional on dissenting, dissent before elections occur on procedural, not substantive, issues and on less seminal cases; electoral cycles increase with ideological polarization; and wartime primes consensus especially among susceptible judges.

### **“Club Goods and Group Identity: Evidence from Islamic Resurgence During the Indonesian Financial Crisis,”** *Journal of Political Economy*, 118(2), 2010

This paper tests a model where group identity in the form of religious intensity functions 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 (Koran study and Islamic school attendance) that is weaker for other forms of group identity. Consistent with ex-post insurance, credit availability reduces the effect of economic distress on religious intensity, religious intensity alleviates credit constraints, and religious institutions smooth consumption shocks across households and within households, particularly for those who were less religious before the crisis.

### **“Trading Off Reproductive Technology and Adoption: Does Subsidizing IVF Decrease Adoption Rates and Should It Matter?”** (*Minnesota Law Review*, 95(2), 2010; with G. Cohen)

For those facing infertility, using assisted reproductive technology to have genetically related children is a very expensive proposition. A number of states have attempted to improve access to this technology through state-level insurance mandates that cover IVF. We expose the contestable implicit assumptions behind the normative considerations regarding increased access to assisted reproductive technology. Using differential timing of introduction of state-level insurance mandates relating to In Vitro Fertilization (IVF) in some states and differences in the forms these mandates take, we find no strong evidence that state support of IVF through these mandates crowds out either domestic or international adoption.

**“Income Distribution Dynamics with Endogenous Fertility”** (*American Economic Review*, 89(2), 155-160, 1999; with M. Kremer)

**“Income Distribution Dynamics with Endogenous Fertility”** (*Journal of Economic Growth*, 7(3), 227-258, 2002; with M. Kremer)

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. A model incorporating this effect generates multiple steady-state levels of inequality, 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.

**“Can Countries Reverse Fertility Decline? Evidence from France’s Marriage and Baby Bonuses, 1929-1981,”** revise and resubmit, *International Tax and Public Finance*

A number of countries have begun implementing tax incentives designed to reverse the decline in fertility. Whether such incentives are effective or equitable remains an open question. During the early 20th century, France initiated an unusual tax policy to promote fertility and marriage: household income was divided by family size to obtain a final tax bracket. Similar policies whose fertility benefit increases with income are being implemented today. Using hand-collected archival data from aggregate tax returns and three natural experiments, I find mixed evidence that these kinds of tax incentives affect fertility and marriage.

**“Religion, Welfare Politics, and Church-State Separation”** (*Journal of Ecumenical Studies*; Vol 42, No. 1, with J. Lind, 2007)

**“The Political Economy of Beliefs: Why Fiscal and Social Conservatives (Liberals) Come Hand-in-Hand”** (with J. Lind), currently under revision

Religious intensity as social insurance may explain why fiscal and social conservatives and fiscal and social liberals tend to come hand-in-hand. We find 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.

**“Islamic Resurgence and Social Violence During the Indonesian Financial Crisis”**

(*Institutions and Norms in Economic Development*, 2007, MIT Press, ed. M. Gradstein and K. Konrad)

**“Does Economic Distress Stimulate Religious Fundamentalism?”** currently under revision.

Why in the presence of economic inequality, does social conflict occur along ethnic-religious lines instead of class lines? Economic theory suggests that groups with resources for the poor direct them to conduct conflict in a battle over resources. Consistent with these models, I find that economic distress alone does not stimulate social violence but stimulates it in the presence of religious institutions. I exploit relative price shocks induced by the 1997 Indonesian financial crisis and variation in religious institutions across Indonesia before the crisis to identify the effect of economic distress on the relationship between religious institutions and social violence. In the cross-

section, 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. In the panel, social violence increases fastest where participation in Koran study also increases the fastest. In the two-stage least squares, instrumenting for economic distress using relative price shocks shows a causal relationship between economic distress and the relationship between religious intensity and social violence.

### **“Gender Violence and the Price of Virginity: Theory and Evidence of Incomplete Marriage Contracts,”** currently under revision

This paper builds and tests a model of marriage as an incomplete contract that arises from asymmetric virginity premiums and examines 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 estimate the effect of virginity premiums on gender violence in the US. The OLS relationship 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 OLS relationship 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.

### **“The Wage of Pay Cuts: Evidence from a Field Experiment”** (with J. Horton), currently under revision.

We conduct 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.

### **“Are There Paradigm Shifts? A Statistical Approach to Postmodern Theories of Knowledge,”** currently under revision

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. To test this theory, I construct “citation trees,” where each node is a paper connected to all the papers it cites and the papers that cite it. Just as in evolutionary biology where a species tree has branches that get sparse or discontinued during periods of mass extinctions, I look for similar events in a citation tree. Using ISI data, I construct geology, linguistics, and literary criticism trees dating from 2001 back to 1945, 1956, and 1975 respectively. I also use the NBER Patent Citation database from 1975-1999. Markov 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 literary criticism may have had a paradigm shift in 1990.

### **Working Papers**

#### **“The Economic Impacts of Eminent Domain” (with S. Yeh)**

This paper evaluates prominent theories on the consequences of eminent domain. We exploit random assignment of appellate judges to three-judge panels and the fact that religious affiliation and public education of judges predict pro-plaintiff takings decisions to show a causal relationship between takings precedents and subsequent economic outcomes. Consistent with eminent domain encouraging development as property owners anticipate higher compensation, property prices rise in metro regions but fall in non-metro regions, where condemnation is less frequent. Eminent domain also spurs economic growth but exacerbates inequality as pro-defendant takings decisions increase local GDP, individual wages, and employment, but not for minorities.

#### **“The Deterrent Effect of the Death Penalty? Evidence from British Commutations During World War I” (with J. Horton)**

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, we statistically investigate this claim and find 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.

#### **“A Market for Justice: The Effect of Third-Party Litigation Funding on Legal Outcomes” (with D. Abrams)**

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. We attempt 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.

### **“Do People Confuse Average and Marginal Tax Rates? Evidence from a Field Experiment” (with J. Horton)**

- Offers a kinked wage schedule and shows that labor is curtailed when workers see the marginal payment schedule as opposed to the average 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 loss in labor supply from high marginal taxes.

### **“Interim Report on a Preschool Intervention Program in Kenya” (with P. Glewwe, M. Kremer, S. Moulin)**

This paper 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 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.

### **“Are There Stable Types? Hot and Cold Social Preferences” (with J. Horton)**

- Experimental economics traditionally employ strategic form data rather than collect them in real time, primarily because of limitations in data quantity and expense.
- We find that real time behavior is more cooperative and trustworthy than calculated behavior.
- This suggests another reason, besides incentive compatibility, why agents might not have incentives aligned with principals. The decision to work with the principal involves cold decision-making, while the actual work involves hot decision-making.
- An explanation for Baby M case

### **“The Economics of Crowdsourcing: A Theory of Disaggregated Labor Markets” (with J. Horton)**

- What prevents anonymous individuals from appropriation in disaggregated labor markets? What kinds of contractual mechanisms prevent hold-up that would otherwise cause disaggregated labor markets to unravel?
- We present some stylized facts and a simple model illustrating the role of fixed price vs. cost plus contracts in disaggregated labor markets.

### **“Tastes for Desert and Placation: A Reference Point-Dependent Model of Social Preferences” (with J. Horton)**

Several paradoxes of empirical moral philosophy are inexplicable by current economic models of social preference focusing on outcomes and intentions. Consider the classic moral thought experiment where you have the choice whether to pull a lever and divert an out-of-control train careening towards a group of people, but at the cost of killing a strictly smaller number of people standing on the other track: many people find it acceptable to pull the lever--but in a related scenario, few people find it acceptable to push a portly companion into the train's path even if it has strictly better utilitarian outcomes. We argue that the difference between the train diversion and the shove is about expectations. We propose a reference-point dependent model of social behavior where individuals maximize a three-term utility function: a consumption utility term and two “social” terms. One social term captures a preference for desert (others getting what we think they deserve) and the other term a preference for the satisfaction of other's expectations, or to placate them (i.e. them getting what we think they think they deserve). We test the model in a contextualized field setting by asking subjects to grade data entry and propose a split of a bonus.

We manipulate desert reference points by framing mistake frequency. Individuals transfer more when they do not know the number of mistakes or are told how many subjects make at least one mistake than when individuals are told how many make two or three mistakes respectively, suggesting that individuals transfer more when subjects are viewed as more deserving. We manipulate placation reference points by revealing information on how much the offeree might expect. When individuals are not told any information about the offeree's knowledge or when they are told the offeree knows about the potential bonus, there is no difference in the bonus split. When individuals are told the offeree is not told about the bonus, then offers drop precipitously.

### **Work in Progress**

#### **“Instrument Selection Using LASSO”** (with A. Belloni, V. Chernozhukov, and C. Hansen)

- With an application to measuring the consequences of judicial discretion

#### **“Is Judicial Bias Cognitive or Motivational?”** (with C. Berdejo)

- Prime party affiliation and gender identity in subjects to ascertain the causal effect of social identity on judicial decision-making

#### **“Judicial Innovation,”** (with C. Berdejo, A. Shleifer, and G. Theophanous)

- Democratic appointees are more likely to reverse
- Reversals making new law are more highly cited

#### **“The Welfare Consequences of Physician Pharmaceutical Choice”** (with D. Abrams, D. Chan, S. Olley)

- Morality of contracts between physicians and pharmaceutical companies
- Payments for physicians and physician prescription tendencies
- Random assignment of physicians in dataset of over 80 million prescription decisions to examine the welfare consequence of these payments

#### **“Hard and Soft Betrayals”** (with J. Horton and R. Zeckhauser)

- Present experimental subjects a contextualized, two-player decision-making scenario to investigate their aversion to being betrayed and their aversion to betraying others.
- Some treatments make the betrayal more or less severe by providing details about the prior communications of the actors in the scenario (not the experimental subjects themselves), and by changing the conditions under which betrayal might take place.
- Scenarios involving money (agreements that are *closer to actual contracts*) induce less betrayal aversion by player 1 and more trustworthiness by player 2.

#### **“The 21<sup>st</sup> Century Mechanical Turk: A True Automaton for Running Experimental Games on the Internet”** (with A. Dreber, J. Horton, and D. Rand)

- Cooperation in the Prisoner's Dilemma is correlated with trustworthiness and not trust. This suggests that cooperation in Prisoner's Dilemma may represent altruism as opposed to trust.
- Contribution in the Public Goods game is uncorrelated with the rejection threshold in the Ultimatum Game, suggesting that rejection could stem from something like anger or betrayal aversion rather than altruism.

#### **“Epistemic Crowdsourcing: Motivation vs. Incentives”** (with J. Horton and A. Shaw)

- A field experimental test of relational contracting