

Morality as a Variable Constraint on Economic Behavior

by

Daniel Friedman

Economics Department

University of California, Santa Cruz

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Abstract:

In social creatures, evolutionary forces constrain self-interested behavior in various ways. For humans, group interests are served, and individual self interest is constrained, by the moral system -- the shared understanding of proper behavior. This chapter explores the coevolution of human moral systems and market-oriented institutions. It observes that morals constrain economic behavior in many ways that are seldom recognized in traditional economic models but that have considerable practical importance.

The first half of the paper sets the context. All social creatures require some way to resolve the tension between self-interest and group interest. Humans achieve unparalleled degrees of cooperation by means of two distinctive tension reducers. The first is our moral system, and the second is market exchange. The second is particularly important in the modern world, but it still relies on the first, and is constrained by it.

The second half of the paper explores some of those constraints and their economic impact on firms' pricing decisions, on employee relations, on financial market institutions, and on the existence of markets more generally.

1. Introduction: The third branch of behavioral economics.

Standard neoclassical analysis assumes *equilibrium* among economic agents who *maximize* preferences based on material *self-interest*. Behavioral economics is concerned with systematic deviations from standard neoclassical analysis, so one can say that it has three main branches. The first branch, exemplified in learning or adaptive processes, relaxes the assumption that the economy is always in equilibrium. The second branch, exemplified in the biases and anomalies literature, relaxes the assumption of maximization. Although there is much to say about these matters (some of it contained elsewhere in this volume), it can be argued that behavior in these branches often is transient. People usually improve their choices once they become aware of substantially better alternatives, and many economic processes tend towards equilibrium, at least under favorable circumstances.

The third branch of behavioral economics is different. It studies deviations from self-interested behavior, and in many circumstances, such deviations are not transient. People who deviate from material self-interest are typically well aware of that fact, and often are proud of it. Serving the greater good at moderate personal

expense is considered the right thing to do, and in some circumstances following personal self-interest is considered reprehensible.

This chapter is about enduring deviations from self-interest that are guided by moral principles. We argue informally that such deviations can be understood using tools familiar to economists, and that they can be economically important. Examples abound in all stages of life, from child raising to bequests.

Two side issues perhaps deserve mention before proceeding. First, the title of this essay will strike some readers as oxymoronic: in mathematics, constraints are not variable. True enough, but a major theme of this chapter is that the contents of moral codes are very context- and culture-dependent. Hence the constraints they impose also vary over time and by location, context and status.

Second, emphasizing such variability may cause some readers to wonder whether the chapter assumes (or even espouses) moral relativism. Of course, *descriptive* moral relativism is a simple and not very controversial fact. Clearly the content of moral codes varies considerably from culture to culture, and even within a culture from context to context. To cite one example, the age of consent is 15 to 18 in most Western societies, but arranged marriages of very young children are an accepted practice in some parts of the world. On the other hand, this chapter will take no stand on more controversial versions of moral relativism such as *meta-ethical* relativism, the claim that nobody can judge one set of ethical beliefs morally superior to another. We will only go so far as to claim that in some situations, one moral code may be more efficient than another.

The next four sections rely largely on material presented more fully in Friedman (2008, Chapter 1), Friedman and Sinervo (2015, Chapter 13), and Rabanal and Friedman (2015).

2. An evolutionary puzzle.

Everyday experience tells us that cooperation is common, and yet it is a puzzle to biologists as well as to economists. For the moment, take as given that fitness is the biological counterpart of material self-interest; later we will consider the point more carefully. The fundamental tenet of evolution is that fitter behavior becomes more prevalent over time. It seems to follow that evolution favors the selfish, so that behavioral deviations from self-interest should also be transient.

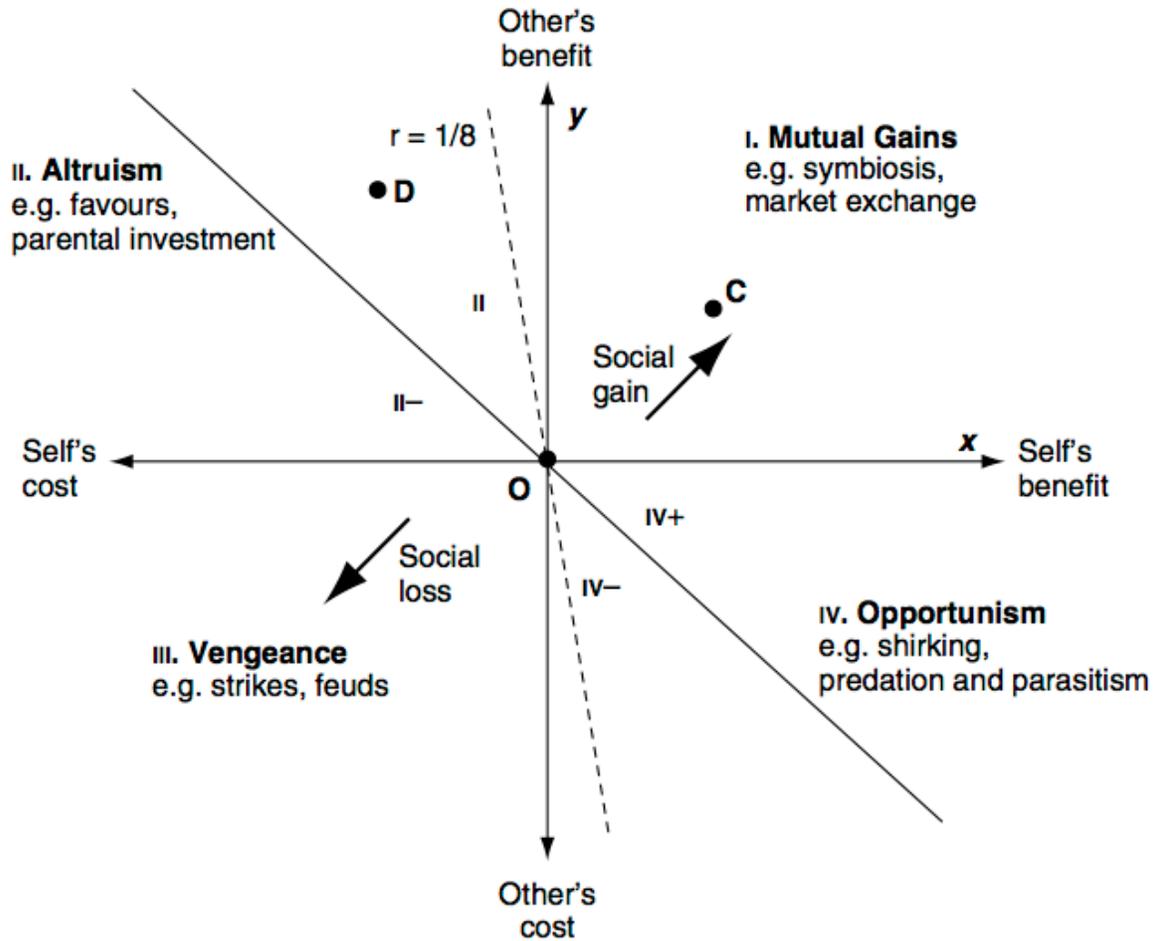


Figure 1 elucidates the puzzle from the perspective of an economic agent called Self, who interacts with other economic agents, collectively called Other. Relative to the status quo, each alternative action available to Self potentially increases or decreases her own fitness, and at the same time has an impact on other individuals. That net fitness impact (summing across all agents other than Self) also may be positive or negative, and is shown on the vertical axis labeled Other.

Evolution directly favors actions whose fitness impact on Self is positive, regardless of the impact on Other. Self's iso-fitness lines in Figure 1 are parallel to the vertical axis, and lines further East (i.e., to the right) represent higher fitness. Hence shares should increase most rapidly for actions whose fitness is furthest East. We conclude that unaided evolution pushes agents into quadrants I and IV.

By contrast, the group as a whole gains fitness when the sum (or average) of the members' payoffs is as high as possible. Social efficiency is best promoted by actions that equally weight fitness of Other and Self, so social iso-efficiency lines are parallel to the line of slope -1 through the origin. The group does best when actions are chosen that are farthest to the Northeast.

Actions in quadrant I serve self interest and group interest simultaneously, i.e., bring mutual gains. However, efficient altruism (subquadrant II+) is not favored by unaided evolution, while inefficient opportunism (IV-) is favored. In these shaded subquadrants we have a direct conflict between what is good for the individual and what is good for the group.

A standard example is the two-player Prisoner's dilemma, with payoff matrix (1)

1, 1	-1, 2
2, -1	0, 0

The status quo is for both players to choose the second action ("Defect"), yielding the payoff sum $0 + 0 = 0$. A unilateral move by Self to instead play the first action ("Cooperate") yields the payoff vector $(-1, 2)$ in subquadrant II+, an increase in social efficiency since the payoff sum is $-1 + 2 = 1 > 0$. Social efficiency is maximized if Other reciprocates, yielding payoff vector $(1, 1)$ in quadrant I and payoff sum 2. But unaided evolution increases the share of Defect because it is the dominant action.

In general, social efficiency requires seizing opportunities in shaded region II+ and preventing activities in shaded region IV-, contrary to the push from unaided evolution. How might that happen? There are several different ways, as we will now see. From the perspective of Figure 1, however, they all do the same thing --- they all rotate the vertical axis (or Self's iso-fitness lines) counterclockwise. In other words, they all internalize the externalities and thereby convert social dilemmas into coordination games.

3. Two standard solutions.

The first way to resolve social dilemmas is to funnel the benefits to kin (Hamilton 1963). Here is the basic algebra, which interested readers can extend to more general scenarios. Suppose that, relative to status quo, Self bears fitness cost C for some genetically controlled cooperative behavior, and other individuals $i=1, \dots, n$ each enjoy benefit b . Let $r_i \in [0, 1]$ denote i 's degree of relatedness to Self, i.e., the probability that i and Self share a rare gene. Let $r = (1/n)\sum r_i$ be the average degree of relatedness of the beneficiaries, and let $B=nb$ be the total benefit to Other. Then, relative to status quo, the prosocial gene has fitness $-C + rB$. It therefore will increase share if and only if

$$(1) \quad rB > C.$$

Equation (1) is known as Hamilton's rule, and says that a prosocial trait will spread iff its personal cost is less than the total benefit B times the beneficiaries' average relatedness r .

Figure 1 illustrates the geometry. When $r=1$, as between clones, the locus $B=C$ where equation (1) holds with equality coincides with the -45° line that separates the efficient from the inefficient portions of quadrants II and IV. A gene benefits exactly to the extent that the group benefits. That is, when genes are identical within the group, the vertical line (representing zero fitness increment for Self) is rotated

counterclockwise 45°. Then the externality is completely internalized and the conflict between group and self interest evaporates. For lesser values of r the conflict is ameliorated but not eliminated. The dashed line in Figure 1 is the locus $rB=C$ when $r = 1/8$, as with first cousins. The line has slope $-1/r = -8$, and it represents counterclockwise rotation by about a sixth of that required to eliminate the conflict between Self and group.

Kin selection is an important solution to social dilemmas, but it has its limits. To work properly, non-kin must be largely excluded from the benefits of altruistic behavior. Otherwise, as the fraction of non-kin beneficiaries increases, the average relatedness r drops until equation (1) fails, which implies by Hamilton's Rule that cooperation fails. To exclude non-kin, there must be reliable kin recognition and/or limited dispersal.

Game theorists developed a second solution to social dilemmas, this one purely rational. By the early 1960s many leading game theorists came to realize that the key was repeated interaction and patience. Their insight is contained in what is now called the Folk Theorem. As explained in almost every game theory textbook, a simple version runs as follows. Suppose that Self interacts repeatedly with Other, and each can bestow benefit B on the other at personal cost C . If the discount factor (due to delay and uncertainty) in receiving return benefit is δ , then the repeated game has an equilibrium in which everyone always cooperates (i.e., always bestows the benefit) if and only if $\delta B > C$.

Readers will quickly realize that the condition is exactly the same as Hamilton's rule except that the discount factor $\delta \in [0, 1]$ replaces the relatedness coefficient $r \in [0, 1]$. The geometry and the economic interpretation is also the same: a larger δ implies more counterclockwise rotation of the vertical axis in Figure 1, and more internalization of the externality. The dilemma is ameliorated for $\delta > 0$, and eliminated only for $\delta=1$.

Note that, in order to work well, this sort of cooperation requires reliable repeat business (and the ability to recognize who is owed a favor); otherwise δ will be too low to support significant departures from direct self-interest.

Taken together, these two different solutions can explain a lot of cooperation observed in nature. The standard explanation for the remarkable degree of cooperation among sister ants and bees is that they are very closely related, with r as high as 0.75. The standard example of cooperation explained by the Folk Theorem (or of reciprocal altruism, as biologists have called it since Trivers, 1971) is mutual grooming by chimpanzees and many other primate species --- unrelated adults literally scratch each others' backs to mutual benefit.

4. Social preferences: half of a third solution.

We humans are especially good at exploiting once-off opportunities with a variety of different partners, so bilateral reciprocity can't be the whole story. Nor can kin

selection, since even in tribal groups average relatedness r is typically less than $1/8$ (e.g., Smith, 1985).

What other explanations might there be? Could it be that we just like to help our friends? Introspection tells us that most people really do care about others, at least their friends, and are willing to make some sacrifices to benefit them. That is, we have *social preferences*. Let's pick a simple specification and examine it in light of the discussion so far.

Suppose that your utility function is $u(x, y) = x + \theta y$, i.e., you are willing to sacrifice up to θ units of personal payoff x in order to increase others' payoff by a unit. In other words, you would take an action with personal cost C as long as the benefit B to others satisfies $\theta B > C$. Once again, you follow a variant of Hamilton's rule, now with the preference parameter θ replacing the relatedness coefficient r . And once again, we have the same geometry and economic intuition. Friendly preferences of the sort just described partially internalize the externality, and parameter values $\theta \in [0, 1]$ potentially can explain exactly the same range of social behavior as genetic relatedness and repeated interaction.

But this explanation is too glib. The relatedness coefficient r and the discount factor δ are given features of the environment, while θ is an evolved preference parameter. The puzzle has not been solved, just pushed down a level. Now the question is: how can friendly preferences evolve? How can $\theta > 0$ arise, and how can it resist invasion?

Before trying to answer that question we should probe the nature of preferences. Economists usually take preferences as a starting point that is not subject to further analysis but, if pushed, some will say that preferences really just summarize (and are revealed by) contingent choices.

Evolutionary economists have recently begun to develop a different perspective, and see evolved preferences as Nature's way of delegating choices that must respond to local contingencies. For example, tribeswomen may gather only certain kinds of root vegetables and only in certain seasons, and prepare them only in certain ways. They and their families would lose fitness if they ate poisonous roots, or didn't cook some good roots properly. It is implausible that evolving hardwired contingent behavior could deal with so much complexity --- one needs about 2^{100} alternatives to fully specify contingent behavior with only 5 root species in 4 seasons with 5 preparation methods. Even worse, changes in the environment can make the hardwiring obsolete before it can become established. As Robson and Samuelson (2011, section 2.3) put it,

A more effective approach may then be to endow the agent with a goal, such as maximizing caloric intake or simply feeling full, along with the ability to learn which behavior is most likely to achieve this goal in a given environment. Under this approach, evolution would equip us with a utility function that would provide the goal for our behavior, along with a learning process, perhaps ranging from

trial-and-error to information collection and Bayesian updating, that would help us pursue that goal.

To return to the question of how a social preference parameter like θ evolves, we must distinguish between fitness payoff and utility payoff. Evolution is driven purely by fitness, i.e., by own material payoff x arising from one's own acts and those of others. Choice, on the other hand, is driven by preferences, i.e., by utility payoff that may include other components such as θy , the joy of helping others.

Creatures (including people) who make choices more closely aligned with fitness should, it would seem, displace creatures whose choices respond to other components. But social interactions complicate the analysis because fitness payoffs depend on others' choices as well as one's own, and one's own behavior can affect others' choices. For a given sort of preferences to evolve, creatures with such preferences must receive at least as much material payoff (or fitness) as creatures with feasible alternative preferences. Evolution here is indirect (Guth and Yaari, 1992) in that it operates on the preference parameters (such as θ) that determine behavior, rather than directly on behavior.

Thus the crucial evolutionary question is whether people with larger θ gain more material payoff than those with smaller θ in $[0,1]$. The extreme $\theta = 1$ applies to individuals who follow the Golden Rule and value Other's material payoff equally with own material payoff, and the other extreme $\theta = 0$ represents a selfish Self who is indifferent to the impact his actions have on others. Hirshleifer (1978) refers to such behavior as the Brass Rule. Compared to those with larger θ , individuals with smaller θ would seem to have lower costs, since they bear the cost of donation in fewer circumstances. If so, evolutionary forces will undercut friendly preferences and they will eventually disappear, or never appear in the first place.

Vengeful preferences rescue friendly preferences. The idea here is that social preferences are state dependent: my attitude θ towards your material well-being depends on my emotional state, e.g., friendly or hostile, and your behavior systematically alters my emotional state. If you help me or my friends, then my friendliness increases, as captured in the model applying a larger positive θ to your material payoff. But if you betray my trust, or hurt my friends, then I may become quite angry with you, as captured by a negative θ . In this emotional state, I am willing at some personal material cost to reduce your material payoff, that is, I seek revenge. I would thus follow Hirshleifer's (1978) Silver Rule: be kind to others who are kind to you, but also seek to harm those who harm you or your friends.

The algebra of vengeance involves double negatives but is otherwise very simple. An action in Quadrant III of Figure 1 is represented by $x, y < 0$, i.e., both Self and Other incur losses relative to the status quo. In an angry state with $\theta < 0$, punishing (imposing the loss $y < 0$ on) a culprit Other will bring Self satisfaction $\theta y > 0$, which may more than offset her personal fitness loss $x < 0$.

Everyone loses fitness from such punishment and in that sense it directly impairs efficiency, but the indirect positive effects can more than compensate. If Others punish Self for being insufficiently friendly, then the material advantage of having a lower θ shrinks or disappears. Cheaters no longer prosper. That is, although less friendly people still incur fewer costs of altruistic acts, they now incur increased costs due to punishment by vengeful group members. If vengeance is sufficiently intense, it supports a high average value of θ , and thus promotes efficient social behavior.

But we are still not done. Punishment is also costly to the avenger, so less vengeful preferences seem fitter. What then supports vengeful preferences: who guards the guardians? This is called the *second order free rider problem*, and it has provoked a considerable literature in its own right. Samuelson (2001) summarizes the early work as follows. There is no second-order free rider problem when Others can see Self's degree of vengefulness. In this case, sometimes called "transparent disposition," a high degree of vengefulness brings high material payoff because it deters free riding and no costly punishment is necessary. However, in the opposite case of "opaque disposition," in which Others can not directly tell whether Self is quite vengeful or not at all vengeful, then the second-order free rider problem is fatal: less vengeful types indeed drive out more vengeful types and cooperation fails.

5. Morals: the missing half.

As we see it, morals are the human solution to the second-order free rider problem and hence (in conjunction with Silver Rule preferences) are the other half of our solution to underlying social dilemmas. The second order free rider problem is greatly ameliorated when the costs of vengeful behavior are shared widely within a group --- the group as a whole can impose large costs on a single culprit at small cost to each individual member. The cost is even lower when such group sanctions deter most selfish behavior, so that vengeful episodes are rare. Gossip (or, in economic jargon, information sharing within the group) may be imperfect but still enables these advantages.

The Rabanal and Friedman (2015) model captures some of the crucial ideas. Consider the Prisoner's dilemma in extensive form, also known as the Trust Game, as a population game with two roles: first mover (or Trustor) and second mover (or Trustee). Starting with the payoff matrix in equation (1) above, the payoff is 0 to both players if the Trustor defects, is (-1,2) if he cooperates but the Trustee defects, and is (1,1) if both cooperate. When a Trustee defects, Trustors with vengeful preferences and constant marginal punishment cost c want to (personally or as a group) incur total cost v to inflict a utility-maximizing degree of harm v/c on the culprit. In the basic model where aggrieved Trustors personally punish culprit Trustees, FR15 find second order free riding in that Trustors with lower v gain higher fitness and thus displace more vengeful types. Cooperation is not evolutionarily viable.

But now suppose that vengeance is backed by a moral code that calls on each Trustor (a) to share equally the cost of punishing all Trustees who defect, and (b) to share information via gossip on which Trustees defect so that they can be avoided in the future. We have in mind a coherent group of Trustors who interact frequently and know each other well, and so can discipline anyone who tries to gain the benefits of gossip without sharing the punishment cost. Thus (a) and (b) are a package. Some Trustors, the code compliers (K), adopt the package. Possibly there are other Trustors, called non-compliers (N), who avoid the costs of punishing third parties but have no access to gossip. Of course, gossip is imperfect, so there is some error rate e at which defecting Trustees are encountered.

Cost sharing boosts Ks' expected payoff when D is relatively rare and K is relatively common. It turns out that the model supports an equilibrium of that sort, i.e., with a high degree of cooperation but less than 100%. Even better, that equilibrium has a large basin of attraction under perturbed best response (logit) dynamics for plausible parameter values, i.e., the populations of Trustors and Trustees converge to this equilibrium, via damped oscillations, from a broad set of initial conditions. The basin of attraction is larger when, for example, gossip is more reliable.

The point of the model is that a functioning moral code can promote a high degree of flexible cooperation within a coherent small group of people who know each other and can share information about code compliance. Examples include tribesmen, and members of a small unit within a modern organization. The model says nothing about cooperation in a wider world where people often interact with strangers.

Before moving on, it may be worth underlining the distinction between compliance to a moral code and responding to social preferences. Social preferences trade off self-interest against the greater good, while compliance to a moral code is a constraint that admits no tradeoff. The constraint depends on the content of the particular moral code, and that varies by context even in simple societies. In the modern world the moral constraints are even more variable, yet still crucial in many realms. They deserve closer scrutiny by economists.

6. Morals, Civilization, Markets and Modernity.

All evidence suggests that the moral system co-evolved with our hunter-gatherer ancestors, and that their moral codes were very egalitarian (see, for example, Chapters 1 and 2 of Friedman, 2008). The contents of the moral code changed drastically with the appearance of large scale river-valley agriculture. First seen along the Tigris and Euphrates, soon after along the Nile and then on the great rivers of India and China, this sort of agriculture demands cooperation of large numbers of individuals to construct and maintain irrigation facilities, and to store and defend a large annual harvest.

Meeting those logistical requirements marked a new chapter in human sociality, and ushered in civilization. No longer did humans interact mainly with people they knew

personally. In a city of thousands of inhabitants (Uruk, the world's leading city 6000 years ago, had 50,000), cooperation becomes qualitatively different. Gossip can't keep up, and people often have to deal with perfect strangers. Egalitarianism then fails to ensure cooperation.

Moral codes adapted. The codes of river valley civilizations (even in the new world, millennia later) all emphasize hierarchy, obedience to authority, and third party enforcement.

Markets originate in gift exchange, first practiced by our prehistoric ancestors. Gift exchange continues in new guises in river valley civilizations, but spot markets began to emerge. So did written contracts and other promises verifiable by third parties with no personal connection --- indeed, writing seemed to develop largely to support contracting (e.g., Van De Mieroop, 2005). But all market activity was subordinate to the moral system as enforced by political and religious authorities, backed by laws and soldiers. The authorities tended to favor monopolies run by their friends, limiting innovation and disruption.

A very different social order began to take hold in England and Netherlands about 200 years ago. The long absence of unified political control in Europe, together with active long-distance trade, allowed markets to slip their feudal bonds. For the first time, market imperatives became a force comparable to moral imperatives, sometimes able to trump traditional political and religious authority. It was the dawn of the modern world.

The rise of markets caused (and was caused by) another great transition in moral codes. Bourgeois virtues --- prudence, punctuality, respect of private property and wealth accumulation, autonomy, skepticism of authority --- worked better with the emerging modern economy, and tended to displace more traditional moral codes. Our interest in this chapter, however, is the reverse influence: how do modern moral codes constrain modern markets?

7. Existential Constraints.

The most fundamental constraint is whether a market exists at all. Markets for slaves existed for millennia, but they did not survive the sea change in moral codes. Notions of human rights and democracy gained traction in the late 1700s, and by the late 1800s laws backed by military force had killed off international slave markets. Moral forces similarly helped terminate the market for child labor in western world in the early 20th century.

A number of other potential markets fail to exist due to moral strictures backed by well-enforced laws. In 21st Century United States, these include direct purchase of votes for elective office, direct purchase for transplant of organs such as kidneys, and selling horsemeat for human consumption. Despite often vigorous suppression, black markets continue to exist for many illegal drugs, for sexual services, and for

venues for soccer's World Cup. In the 19th Century, it was legal (if less than honorable) to hire a substitute to avoid military service, but that became illegal in the 20th century. Readers can surely add to the list of markets that were or are non-existent because of morally-grounded legal prohibitions, and to the list of black or gray markets that exist despite prohibition.

Conversely, some markets exist only by virtue of moral impulses. Philanthropy can be explained in part by our tax laws and some donors' desire for public recognition, but only in part. Likewise, the war on drugs has been funded willingly (at least until quite recently) by taxpayers who by all objective measures get a meager or perhaps negative return for their generous support.

Such lists beg the question. How do particular sorts of markets come to be considered moral or immoral? Indeed, are some sorts of transactions inherently corrupt, and others inherently legitimate? Since we are not prepared to reject (or accept) meta-ethical moral relativism, the followup question remains beyond the scope of this essay. Readers may, however, want to scan Chapters 4-6 of Friedman (2008), which recount the moral revulsion to early capitalism and urban squalor expressed by Romantic poets such as William Blake, the subsequent hostility to many sorts of markets that informed 19th and 20th century socialism, and the moral constraints that paralyzed Japan's economy after 1990. Roth (2007) is the seminal article on this topic.

Neoclassical economists may have part of the answer to the begged question. The Law and Economics literature posits that the key is (and should be) economic efficiency. Does opening some market increase aggregate wealth? If so, then morals and laws should support it. Does graft or nepotism slow the growth of the economic pie? If so, such activities should be efficiently suppressed. One could perhaps extend the test to economic equality, if it is associated with growth or desired for its own sake. To the extent that economic efficiency helps one jurisdiction outcompete another, evolutionists would use the same criterion. Economic efficiency evidently provides an advantage in meme competition, so in the long run it should help determine which sorts of markets are encouraged or discouraged by our moral codes.

8. Pricing Constraints.

To see how a firm's everyday pricing decisions are constrained by morals, consider the following hypothetical scenario from Kahneman, Knetsch and Thaler (1986):

A hardware store has been selling snow shovels for \$15. The morning after a large snowstorm, the store raises the price to \$20. Please rate this action as Completely Fair, Acceptable, Unfair [or] Very Unfair.

The authors report that 82% of respondents rate the price increase as unfair or very unfair. Other parts of the study suggest that customers are OK with raising prices due to cost increases, but not due to demand increases. An actual hardware store that surmised that its customers had similar reactions probably would not raise

prices after a snowstorm, and the likely result would be a stockout, reducing both consumer surplus and firm profits.

In 2000, Amazon customers became aware that some got lower prices than others for the same DVD movies; intense outrage led Amazon to offer refunds to those who bought at the higher prices in their “dynamic pricing experiment” (Streitfield, 2008). Since then, firms have been very circumspect in conducting such experiments, despite their obvious value to the firm and perhaps even to most customers.

On the other hand, airline passengers have become accustomed to paying wildly different prices. On any given flight, a typical customer might have paid hundreds of dollars more (or less) than the person sitting next to her. Why does such extreme price discrimination provoke only grumbles and not outrage? Why is there no pressure to allow secondary markets in airline tickets? These would quickly eliminate most of the price discrepancies, but they are forbidden by law. (Why? Supposedly for security reasons, but that claim falls apart when examined.)

The moral constraint thus seems especially variable when it comes to pricing. It seems manipulable by choice of framing and force of habit. One conjecture perhaps worth exploring is that the moral instincts are efficiency-enhancing in proper context, but sometimes are improperly generalized. In the snow shovel example, our outrage at the price increase may spill over from hold-up problems. A first mover who expects exploitation by the second mover will not invest, to the detriment of both. However, as in the Trust game described earlier, a second mover who expects moral outrage and sanctions in response to an attempted hold-up will be deterred from such antisocial behavior, enabling efficient cooperation. Perhaps our moral instincts are not yet finely tuned enough to distinguish the snow shovel allocation problem from the classic hold-up problem.

9. Wage Constraints.

Moral constraints play a central role in the workplace. Neoclassical principal/agent models assume that workers will shirk whenever that is in their direct interest, but everyday observation suggests otherwise. Organizations with a positive “corporate culture” get a major boost from workers trying to act in the organization’s best interest even when they are not monitored. It is a form of gift exchange, where the workers reciprocate with organizations that offer good working conditions and wages. Friedman (2008, Chapter 7) argues that these organizations harness our small-group moral system and profit from it.

But things can also go badly in organizations. When employees resent their peers or their bosses, they can cripple productivity and worse. Kruger and Mas (2004) document an egregious example at Firestone’s Decatur Illinois tire plant. In 1995, management won a bitter battle with the labor union, but defective tires from that plant subsequently caused hundreds of traffic fatalities. Firestone and its main customer, Ford, barely survived.

The macroeconomic implications may be even more serious. Textbooks attribute jumps in unemployment largely to downward nominal wage rigidity: when demand slackens, firms have traditionally been more inclined to lay off workers than to cut wages to clear the market. Akerlof (1982) was among the first to argue that the reason is gift exchange. The positive reciprocity described two paragraphs ago might, following wage cuts, become more like the negative reciprocity described in the previous paragraph. Cyclical bouts of unemployment, recessions and occasional depressions may well be the unintended consequence of moral constraints in the workplace.

Brosnan and de Waal (2003) point up another aspect of fair pay. They famously show how one capuchin monkey that had been happy to perform routine tasks for a cucumber slice reward becomes enraged, and stops performing the task, when he sees another monkey get a better reward, a grape, for the same task. It is easy to over interpret this study, but it has traction at my school. Viewing De Waal's video enlivened discussions of salary compression --- some recently hired junior faculty receive salaries similar to those of more accomplished senior faculty. This "compression" is due to the disconnect between the external job market and internal pay scales based on seniority and merit. Of course, there is also a long-running controversy on the extent of, and the reasons for, lower pay for women whose qualifications seem similar to men. Pay equity is an issue in most large organizations, and there is no easy answer when internal notions of fair pay collide with external market trends.

10. Financial Market Constraints.

Finance has always faced severe moral constraints. Laws against usury crippled finance in the medieval world, and still distort financial arrangements in the Islamic world. In the US today, there are still laws that cap the interest rate lenders can charge, but the more interesting and consequential constraints concern home mortgages.

Twentieth century home mortgages were rather straightforward. After saving for years a family would shop for an affordable home. The down payment would cover at least 20% of the price, and the rest would be financed by a 30 year loan whose monthly payments required at most 1/3 of verified monthly income. The lender was a local savings and loan or commercial bank, and the lending officer would often build a personal relationship with the borrower. If the family got into trouble, they would often be able to negotiate an accommodation that worked for both borrower and lender.

Things changed around the turn of the century. Financial innovations, especially securitization, broke the personal connection between borrow and lender. Since loan would not stay long on the lender's books, the loan officer became concerned mainly with whether the loan would be accepted into a pool that could be securitized and sold to investors.

Demand boomed for high-yielding mortgage-backed securities in the early years of the 21st century. Moral and legal responsibility diffused between the institutions that originated loans, the mortgage brokers who first bundled them, the investment banks that sliced and diced the bundles, the rating agencies who blessed the resulting products with AAA ratings, and the investors who purchased them. Booming demand and diffuse responsibility naturally led to lower standards --- loans soon required only a 10% or 5% or eventually 0% down payment; some borrowers were encouraged to lie about their income, and some never understood the teaser loans they received with artificially low initial monthly payments. Savvy financial professionals up and down the securitization food chain knew that lots of these mortgages would go bad, but thought that they were insulated from the problem and that someone else would be left holding the bag.

This moral morass was, it is widely acknowledged, the primary cause of financial market turmoil in 2008-09 and the subsequent great recession, from which the world has not yet fully recovered. See, for example, Gorton and Metrick (2012) and Lo (2012).

Moral constraints can bind when financial markets are behaving well. The insurance industry is emblematic, and not just for trying minimize submission of fraudulent claims. The term “moral hazard” was invented by Victorian-era insurance analysts to describe the propensity to engage in riskier behavior after purchasing insurance. The term is now part of standard lexicon, but like shirking on the job, it is less prevalent in advanced economies than standard selfish optimization models would predict.

Recent financial innovations work with moral constraints in new ways. In many emerging economies, roscas (see, e.g., Anderson and Ballard, 2002) and other sorts of microfinance (e.g., Armendáriz and Morduch, 2010) leverage small group personal connections to improve repayment rates. In the US and other advanced economies, crowdfunding platforms like Prosper.com, Kickstarter.com and GiveForward.com (see, e.g., Belleflamme et al 2014) and innovative companies like SoFi help small investors find and directly fund individuals and businesses with whom they share some sort of affiliation.

11. Discussion

This essay has aimed to highlight many of the significant roles that moral considerations play in economic life. It began with perspectives on the social purpose of a moral code, and hinted at the reasons why codes vary so much in terms of which behaviors they encourage or discourage. The economic consequences include creating markets where they might not otherwise exist, including black or gray markets for some goods, while killing off markets for other goods and services. Moral constraints reshape financial markets and labor markets, and constrain pricing behavior even in markets for everyday consumer items.

These points are worth making to an academic audience because moral constraints are not yet an established part of economists' research agenda. New questions begin to come into focus. Some seem trivial --- e.g., why do people who would be distressed if the home team lost the big game not use the cheap insurance policy of betting on the rival team? More often, they compound their risks by betting on the home team. Other open questions are deep, and perhaps interdisciplinary --- e.g., how can we model the evolution of norms, the contents of moral codes? If some readers are inspired to tackle such questions, this essay has served its purpose.

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Figure 1 caption.

The origin $O = (0, 0)$ marks the status quo fitness. In quadrant I, both the actor ("Self") and all others affected by her action ("Other") benefit from a departure from the status quo. In quadrant II, the action helps Other at a cost to Self; the fitness sum is positive in subquadrant II+ (shaded) and negative in II-. In quadrant III, both Self and Other incur fitness costs. In IV, Self gains at the expense of Other, and the fitness sum is positive in IV+ but negative in the shaded subquadrant IV.

Bibliography

Akerlof, George A. "Labor contracts as partial gift exchange." *The Quarterly Journal of Economics* (1982): 543-569.

Anderson, Siwan, and Jean-Marie Baland. "The economics of roscas and intrahousehold resource allocation." *Quarterly Journal of Economics* (2002): 963-995.

Armendáriz, Beatriz, and Jonathan Morduch. *The economics of microfinance*. MIT press, 2010.

Belleflamme, Paul, Thomas Lambert, and Armin Schwienbacher. "Crowdfunding: Tapping the right crowd." *Journal of Business Venturing* 29.5 (2014): 585-609.

Brosnan, Sarah F., and Frans BM De Waal. "Monkeys reject unequal pay." *Nature* 425.6955 (2003): 297-299.

Friedman, Daniel. *Morals and Markets: An Evolutionary Account*, Palgrave Macmillan, 2008.

Friedman, Daniel and Barry Sinervo. *Evolutionary Games in Nature, Computers and Society*, forthcoming, Oxford University Press, 2015.

- Gorton, Gary, and Andrew Metrick. "Securitized banking and the run on repo." *Journal of Financial Economics* 104.3 (2012): 425-451.
- Güth, Werner, and Menahem Yaari. "An evolutionary approach to explain reciprocal behavior in a simple strategic game." U. Witt. *Explaining Process and Change—Approaches to Evolutionary Economics*. Ann Arbor (1992): 23-34.
- Hamilton, William D. "The evolution of altruistic behavior." *The American Naturalist* 97, no. 896 (1963): 354-356.
- Hirshleifer, Jack. "Natural economy versus political economy." *Journal of social and Biological Structures* 1.4 (1978): 319-337.
- Kahneman, Daniel, Jack L. Knetsch, and Richard Thaler. "Fairness as a constraint on profit seeking: Entitlements in the market." *The American economic review* (1986): 728-741.
- Krueger, Alan B., and Alexandre Mas. "Strikes, Scabs, and Tread Separations: Labor Strife and the Production of Defective Bridgestone/Firestone Tires." *The Journal of Political Economy* 112.2 (2004): 253-289.
- Lo, Andrew W. "Reading about the financial crisis: A twenty-one-book review." *Journal of Economic Literature* (2012): 151-178.
- Rabanal, Jean Paul, and Daniel Friedman. "How Moral Codes Evolve in a Trust Game." *Games* 6.2 (2015): 150-160.
- Robson, Arthur, and Larry Samuelson. "The evolution of decision and experienced utilities." *Theoretical Economics* 6, no. 3 (2011): 311-339.
- Roth, Alvin E. "Repugnance as a Constraint on Markets." *The Journal of Economic Perspectives* 21.3 (2007): 37-58.
- Samuelson, Larry. "Introduction to the evolution of preferences." *Journal of Economic Theory* 97, no. 2 (2001): 225-230.
- Smith, Eric Alden. "Inuit foraging groups: some simple models incorporating conflicts of interest, relatedness, and central-place sharing." *Ethology and Sociobiology* 6, no. 1 (1985): 27-47.
- Trivers, Robert L. "The evolution of reciprocal altruism." *Quarterly Review of Biology* (1971): 35-57.
- Van De Mierop, Marc. "The invention of interest. Sumerian loans." *The Origins of Value* (2005): 17-30.

