

Social Macroeconomics

Working Paper Series



The republic of beliefs: a new approach to 'law and economics'

SM-WP-2015-002

May 2015

Kaushik Basu, The World Bank



Abstract

The discipline of law and economics deals with wide-ranging topics, from competition and environmental policy to crime control, and has been instrumental in determining how an economy performs. Yet its success has fallen short of its potential. The discipline's shortcomings are nowhere as visible as in developing economies, where a common refrain is how the law looks good on paper but does not get implemented. This paper articulates a methodological flaw that

underlies much of contemporary law and economics, and argues that there is an intimate connection between human beliefs and expectations, on the one hand, and the effectiveness of the law, on the other. I propose a new approach to law and economics that is rooted in game theory and rectifies the flaw. It is argued that this approach can open up new areas of research and be marshalled to address some of the more pressing policy challenges of our time.

This paper is a product of the Office of the Chief Economist, Development Economics Vice Presidency. It is part of a larger effort by the World Bank to provide open access to its research and make a contribution to development policy discussions around the world. Policy Research Working Papers are also posted on the Web at <http://econ.worldbank.org>. The author may be contacted at kbasu@worldbank.org.

The Policy Research Working Paper Series disseminates the findings of work in progress to encourage the exchange of ideas about development issues. An objective of the series is to get the findings out quickly, even if the presentations are less than fully polished. The papers carry the names of the authors and should be cited accordingly. The findings, interpretations, and conclusions expressed in this paper are entirely those of the authors. They do not necessarily represent the views of the International Bank for Reconstruction and Development/World Bank and its affiliated organizations, or those of the Executive Directors of the World Bank or the governments they represent.

Acknowledgements

I owe the writing of this paper to three lecture invitations that came in quick succession and allowed me to develop different aspects of a topic that had lived with me for some time. The first was an invitation from Dani Rodrik to speak at the Institute of Advanced Study, Princeton, on December 10, 2014. Soon thereafter, I delivered The Amartya Sen Lecture at the London School of Economics, on March 3, on “Law, Economics and the Republic of Beliefs,’ and The D. Gale Johnson Lecture at Chicago University’s Department of Economics, on 13 April, on ‘Why are Laws So Poorly Implemented? From Policymaking in India to Models of Law and Economics.’ I felt honored by the invitations to give lectures named after such iconic figures. But, more importantly, they turned out to be just the incentive I needed to formalize my inchoate thoughts. I have had a long-standing interest in this topic and have done some piecemeal writing over the years, but had left it at that. These invitations provided the impetus I needed for writing the paper. I also presented some related ideas at the LAMES-LACEA conference in Sao Paolo, and Indian Statistical Institute, Kolkata, in December 2014. As a consequence of the long gestation, I have accumulated many debts. For valuable comments and criticisms, discussion of the varied literature on the subject, and, in some instances, just getting the assurance from someone whose views I respect that he or she was persuaded, I am grateful to Craig Calhoun, Kalyan Chatterjee, Tito Cordella, Anandi Mani, Kalle Moene, Stephen Morris, Roger Myerson, Derek Neal, Martin Osborne, Debraj Ray, Phil Reny, Dani Rodrik, John Roemer, Valentin Seidler, Amartya Sen and Ram Singh. Finally, I owe a special mention of Gary Becker, who did so much of the early work that inspired this literature, for a long conversation I had with him, on 23 September, 2013, when he came to the World Bank to speak in my lecture series.

The Republic of Beliefs: A New Approach to ‘Law and Economics’

1. Introduction

This paper has an ambitious agenda. It argues that a fault line runs through much of the discipline of law and economics, which explains why despite several major successes, in many fundamental ways it remains constrained and deficient. Its shortcomings are nowhere as visible as in developing economies, where a constant refrain is how the law is fine on paper but not implemented properly. The explanation of why that is the case is usually left to a hand-waving reference to corruption, poor governance, and the lack of determination on the part of political leaders. The aim of this paper is to try to articulate an important conceptual flaw that underlies much of contemporary law and economics and the way the discipline has been conceived, to provide a deeper understanding of the poor implementation of the law.

The big challenge, however, is not the pointing out of the problem, which, once articulated, is easy enough to grasp, but the reflection on how to rebuild the discipline of law and economics once the flaw has been recognized. That turns out to be a formidable task, which compels us to pay attention to multiple disciplines and confront some intriguing logical puzzles. But building a new conceptual outline for the discipline of law and economics is likely to yield rich dividends. The aim of this paper is to sketch such an outline. As such a new methodology for law and economics is suggested in this paper. The building blocks used for this are mostly some rudimentary concepts from modern game theory; this is done carefully not to deter readers without familiarity with that literature. The ultimate aim of the new approach is to help us craft better laws in terms of economic outcomes and also laws that are implemented more effectively.

The current model of law and economics dates back to history and is an idea that gradually took shape and so has no defining starting point. Adam Smith was concerned with it, important steps towards a formal framework were taken by Ronald Coase (1960) and Guido Calabresi (1961). In some ways the iconic paper on this turned out to be the seminal work of Gary Becker, where he developed a full model of crime and punishment (Becker, 1968)¹. Becker was not trying to create a framework of law and economics but simply using some ideas from mainstream economics to analyze how best to control crime. But since it was a mathematical model it compelled the author to lay out a formal structure, which became the template for law and economics. In this paper I will begin from a brief recounting of the traditional model,

¹ See, also, Becker and Stigler, 1974; Cooter and Ullen, 1988; Baird, Gertner, and Picker, 1995; Mercurio and Medema, 1997; Schafer and Ott, 2005; Persson and Siven, 2006; and Paternoster, 2010.

presented with selective emphasis, which highlights both its strengths and the kind of weakness which lends itself to providing grist for the new conceptual approach that this paper presents.

The altered perspective suggested in this paper does have important implications for how we design policy and craft legislation. Corruption, at one level, is simply a problem that arises from people trying to circumvent the law. The high incidence of corruption in a large number of countries, especially emerging economies is simply a reflection of the poor implementation of the law. While the focus of this paper is on theory and the methodology of law and economics, it sheds important light on why our laws may have functioned so poorly. As such, it hopes to influence the design of actual legislation, so that our laws are more effective in the future.

When I say that this paper deals with the discipline of law and economics, the conjunction with ‘economics’ is deliberate and critical. Legal scholars and legal philosophers, most prominently Hart (1961), have long tried to conceptualize how the law does what it does, the basis of legitimacy, and the reasons for compliance. I comment and even draw on some of these works but the paper’s main engagement is with law and economics, that is, with Becker rather than Hart. The new approach proposed is distinct from both. While the new approach avoids the fault line underlying mainstream law and economics, it is not without its own open ends. The paper closes with a discussion of some of weaknesses of the new approach and some hints for future directions of research².

2. The Law and Its Implementation: Some Examples

It is useful to start with a practical problem—that of the implementation of the law. I draw my examples mainly from my own experience working in India. India has a large program, now backed by law³, of trying to get a certain minimal amount of food to all citizens, the target, of course, being the poor. The way the program runs is as follows. The Food Corporation of India (FCI), which was set up by the government under the **Food Corporations Act, 1964**, is a state-owned corporation, which is meant to execute the government’s food price stabilization program and also food support program. Each year the Indian government announces a Minimum Support Price (MSP), which is a price at which farmers have the right to sell food to the FCI. Usually the MSP is set sufficiently high to make it attractive for farmers to sell to the government. In states

² I have made several previous forays into this area (Basu, 1993; 2000) but in passing and mainly as a critique of the existing approach to law and economics, without being able to bring the argument to any form of closure of the kind attempted here.

³ The National Food Security Act, 2013, popularly known as the Right to Food law. This is part of an understandable effort to protect the poor from some of the extreme vagaries of the market, a topic that has been of concern to economists for a long time (see Johnson, 1976).

where the collection system is efficient and there are a large number of collection windows⁴, large amounts of rice and wheat are bought up by the government, meaning the FCI, under this program.

A part of this grain collection is then stored as reserves for times of shortage in the future. But a part is meant to be sold to poor households, who have cards identifying them as Below Poverty Line (BPL) households. The sale to BPL households is done through what are called ration shops or public distribution shops. India has roughly half a million ration shops scattered through the nation. The FCI sells the food grain meant for such distribution at below market price to the ration shops with the instruction that the ration shops then sell these grains to poor households at a pre-fixed price, which is also below the free market price, and according to the maximum per-household quota specified by the government. The idea is that poor households should have the right to get some essential food grains at a low price.

A huge amount of effort goes into designing this system, which is now backed up by an act of government. The problem is that the law is widely violated. There are careful studies that show that over the last decade somewhere between 43% and 54% of the grain meant to be distributed under this system and released by the FCI for this purpose simply leaks out (see Jha and Ramaswami, 2010; Khera, 2011). Table 1 below presents some of this data. Wheat diversion is greater than rice. Overall food grain diversion peaked in 2004-5, when more than half the grain released for poor households did not make it to those households. There has been a slight improvement since then, but only slight.⁵

Table 1. Diversion of PDS Food Grain in India (% of grain released for the poor)

| | Rice | Wheat | Food grain |
|--------|-------------|--------------|-------------------|
| 2001-2 | 18.2 | 66.8 | 39.0 |
| 2004-5 | 41.3 | 70.3 | 54.0 |
| 2006-7 | 39.6 | 61.9 | 46.7 |
| 2007-8 | 37.2 | 57.7 | 43.9 |

Source: Khera (2011)

⁴ The MSP is usually set fairly high. The way the glut of sales to the government that would result from this is kept manageable is by not having windows for receiving food grain in large parts of India. This indeed gives rise to a non-level playing field for farmers and deserves criticism but that lies beyond the focus of this paper.

⁵ I have described this food distribution in some detail in Basu (2015).

The problem is not with the intention of the law; the problem is with its design and implementation. This massive leakage has meant that the poor have not got what they were supposed to get and the nation's fiscal balance has been under strain. The proximate cause of this poor implementation is easy to see. The law of food distribution was written up assuming that government functionaries, including the ration shop owners, would carry out what they were supposed to do diligently or robotically, that is, take the subsidized food from FCI and hand it over to the poor⁶. Unfortunately, individual rationality intervened. What many of the shop owners did in India was to take the food from FCI, sell a part of it on the open market at the higher price that prevails there, and turn away the poor saying that they have run out of supplies. This is what explains the large leakage shown in Table 1.

I have argued elsewhere that the way to fix the problem, at least partially, is to be realistic about the ration shop owners and not hand over the subsidized food to them. Instead, the subsidy should be given directly to the poor, in the form of vouchers, food stamps or plain cash; and then to allow them to buy the food from private sellers. By handing over the subsidy directly to the poor and leaving the purchase from farmers and sale to consumers to the private sector, leakages would be much less (Basu, 2015; see also World Bank, 2003, Chapters 2 and 3). This is however not germane to my present concern. My concern here is to point out that laws often fail to do good in developing countries not so much because the laws' intentions are malevolent (of course, there are occasions, in rich and poor countries, where they are) but because they do not get implemented and the way we design our laws contribute to this.

A related debate that I got drawn into in India, which highlights some of the same concerns, pertains to the use of bribery to circumvent the law or to escape harassment by bureaucrats. In this, there is a second layer of fall back in India (as in most countries). There are laws and there are laws that say that you cannot circumvent the laws by paying bribes. The latter is enshrined in the **Prevention of Corruption Act 1988**. I argued in Basu (2011) that this 1988 law could be seen to be flawed, once one took a realistic view of not just ordinary citizens but also civil servants, the police and other government functionaries in India. The problem arises from the fact that, under this law, in particular, Section 12 of the Act, the bribe giver and the bribe taker are treated as equally guilty and punishable⁷. I claimed that the law created perverse incentives because, after the fact of the bribery, it was in the joint interest of the bribe giver and

⁶ The connection between corruption and governance structure and even political institutions has been investigated widely (see, for instance, Rose-Akerman, 1999; Mishra, 2006). For me, the experience in India was especially instructive because it was hands-on experience of what I knew from the academic literature.

⁷ It may be worth pointing out that under Section 24 of the Act the bribe giver does have some exemptions from punishment. However, over the years, this section has effectively become an exemption only for those, mainly journalists, wanting to carry out a sting operation against a bureaucrat to trap him or her taking a bribe (Basu, 2011). Apart from this, the bribe giver and the bribe taker are equally guilty under the Indian law.

the taker to keep the crime secret. If the law was amended to break this symmetry by holding only one side, in this case, the bureaucrat taking the bribe, guilty, he or she would expect the bribe giver to more readily blow the whistle; and, knowing this, he or she would be more reluctant to take the bribe in the first place.⁸

By thinking through each piece of legislation we may be able to do better, as illustrated above with the Indian policy of trying to ensure that the poor have enough food and the Indian law that tries to curtail bribery. But more, importantly, and this is the central message of this paper, this happens because of a fundamental flaw in the way the role of law has been conceptualized in law and economics, and because this thinking has permeated through the world of policy. The aim of this paper is to take some first steps to correct this foundational problem.

3. Traditional Law and Economics

For a quick recounting of the standard model of law and economics consider an agent contemplating some new enterprise, for instance, that of digging into earth and taking out some valuable mineral for sale and possible profit. I shall call this activity coal mining. To start with, suppose coal mining is a fully legal activity. This person has to decide if this venture is worthwhile. The standard model of economics tells us that the agent will basically calculate the revenue that this venture will earn and the costs of the enterprise. Subtracting the latter from the former we can calculate the net return or profit from this venture. Call this net return B . Standard economics tells us, if B is positive, she will go for the venture. Otherwise, she will consider it not worthwhile and abandon this coal mining project. This standard view of rational decision-making has weaknesses and has rightly been criticized, challenging the idea of selfishness inherent in it, the assumption of unlimited capacity of computation implicit in it and so on.⁹ But this is not a criticism that is central to the present paper and, barring some reference to some of these matters later in the paper, I will treat the rational actor assumption as valid.

⁸ The subject of bribery and the vulnerability of the law enforcer has a large literature. I discussed some of this in Basu, Bhattacharya and Mishra (1989), Basu, Basu and Cordella (2015). For some recent analysis of this problem of bribery and the motivation of the law enforcer, see Abbink, Dasgupta, Gangadharan and Jain (2014), Spengler (2014), Sukhtankar and Vaishnav (2014), Dufwenberg and Spagnolo (2015), Oak (2015), Dharmapala, Garoupa and McAdams (2015).

⁹ See, for instance, Veblen, 1899; Sen, 1973; 1997; Tversky and Kahneman, 1986; Bowles, 2004; Thaler and Sunstein, 2008; Gintis, 2009; Kahnemann, 2011; Rubinstein, 2012; Basu, 2000; Benabou and Tirole, 2006; Ellingsen and Johannesson, 2008; World Bank, 2014, to name just a few.

Now suppose the government enacts a new law that declares (coal) mining illegal. It further specifies that anyone caught mining will be fined F dollars. Let us suppose that given the level of policing and quality of governance, the probability of getting caught is p .

Given the new law, the agent's or the entrepreneur's calculations will get changed. It is easy to see that, now, she will go for the mining project if and only if:

$$B > pF,$$

that is, if the net return from mining exceeds the expected cost associated with the illegality of the activity, or, in brief, the 'crime.' This also means that, in case the government is keen to stop this crime, it has to choose p and F such that¹⁰:

$$B \leq pF.$$

This is the briefest sketch of the standard model of law and economics; and it has served us well, giving us some new insights and helping us get away from some of the more nebulous explanations of compliance with the law that earlier legal scholars gave. It tells us, for instance, that the state has two variables to act on when controlling crime, p and F . It is arguable that in most situations, raising p is costlier to the state than raising F . To raise p , namely, the probability of catching a criminal, it may need more police personnel, more surveillance cameras, more police jeeps, and so on, whereas raising F is simply a one-time decision. Thus in many cases, crime control is most efficient if we raise the F very high and contend ourselves with a low p . In other words, the chance of being caught is small, but, if caught, the penalty is hefty.

There are however limits to how far we can go with this. For one, many nations, certainly all industrialized countries, have prior limited liability laws, which prevent the state from inflicting punishments beyond a level¹¹. In poor countries, without such laws, the criminals may be sufficiently poor that they are unable to pay a penalty beyond a level. Hence, F may often have an upper bound; then the government has to raise p to make sure that pF is as large as B . In brief, there is a rich research and policy agenda that opens up even with this simple model; and there is an enormous literature, that builds on this model, whether by way of policy design or criticism.¹²

This model has come under some straightforward criticism, which has helped effort to enrich it, and hidden in this criticism there is a critique that forms the basis of my main argument

¹⁰ For the fastidious I should point out that I am making the arbitrary assumption that a person indifferent between committing and not committing a crime, chooses the latter. This harmless assumption will be made throughout this paper.

¹¹ In the absence of that we run into the kind of problem that was pointed out by Stern (1978).

¹² See, for instance, Bardhan (1997), Mishra (2006).

that I will get to eventually. It has been pointed out, for instance, that as soon as you have a penalty or a fine, you open up the possibility of bribery. Hence, the crime control equation above may not be quite as simple as appears at first sight. A criminal, once caught, may try to negotiate a bribe with the police. So we need a theory of bribery to determine what will deter the crime in the first place. In brief, the agenda that opens up is large. But that need not detain us here. What I want to do is to draw out some conceptual underpinnings of this standard model, which are often left implicit and so are accepted with little thought.

The Becker model is founded in mainstream neoclassical economics, whereby people are supposed to have well-defined preferences or utility functions, satisfying standard assumptions like preferring more goods to less and having diminishing marginal utility or more generally convex preferences. Morals do not play a role in this setting. In this model, a fine is like a price¹³. If you are told that driving above 65 mph is illegal and if you do drive above that you will have to pay a fine of \$100, in the Becker model this is the same as saying, you are welcome to drive at above 65 mph but that entails a price of \$100. What Becker demonstrated is that this is a very powerful assumption, which can help us make inroads into understanding a lot of human behavior¹⁴. As Cooter (2000, pp. 1577-8), contrasting the approach of economists vis-à-vis legal scholars, notes, “Almost all economists ... practice moral skepticism ... The success of the economic analysis of law demonstrates the power of skeptical models.”

These founding assumptions of neoclassical economics have come under criticism from various quarters, questioning ideas of conventional human rationality, as done in the early works of Sen and, more recently, from the challenge of behavioral economics (see World Bank, 2014). Legal scholars have been aware of this. When it comes to paying taxes, they noted, people do not always go by pure cost-benefit analysis (Posner, 2000). It has, for instance, been noted that “whereas economic models of self-interest predict low rates of tax compliance, some countries like the United States and Switzerland, enjoy unusually high rates of compliance” (McAdams, 2000, p. 1579). I should add here that neoclassical economists need not feel deflated by such findings because in many developing nations and emerging economies, which are best left unnamed, individuals do display a high degree of rationality in that their tax compliance is as low as neoclassical economics would predict.

This is, however, not the critique I want to go into here—I shall turn to some of this towards the end of the paper. My own belief is that the neoclassical assumption, while not always valid, has played a useful role. The main fault line of mainstream law and economics that I want to point to is to do with internal consistency. I shall argue that parts of its analysis contradict

¹³ For a critique of the use of this kind of rational actor model in law and economics, see Nussbaum (1997).

¹⁴ The law works simply because it is an order backed by a sanction, often known as the “imperative theory of law.” For an excellent review of this, see Raz (1980).

assumptions in other parts of the discipline. In this and the next few sections—till further notice—I shall retain the assumption of human rationality as in mainstream economics. It will be argued that without questioning this assumption of traditional law and economics there is reason to question other fundamental features of traditional law and economics.

With this methodological comment in the background, let us return to the Becker model of crime and punishment. What is it about the law that has the potential to change human behavior? Under the traditional model of law and economics just described, a law seems to change behavior by altering the returns that individuals get from different kinds of behavior. This is indeed what economists and practitioners of law and economics assume (see Baird, Gertner and Picker, 1995). To quote McAdams (2000, p. 1650), “[B]y imposing liability or punishment on individuals, the state changes the payoffs so that cooperation rather than defection is the dominant strategy.” Again, on the same page: “[T]he first step in the causal chain by which law affects individual behavior is that the formal sanctions law imposes raise or lower the costs of behavior.”

To put this in the language of game theory, according to the traditional view of law and economics, a new law or a new amendment to an existing law changes outcomes by changing the ‘game’ that people play. A game, in modern economics and game theory, is defined by a set of players, for each player a set of available strategies or actions, and for each player a specified payoff or return associated with every possible combination of actions chosen by the players. Hence, what we were saying above is that if a law changes (in traditional law and economics), that basically changes the game that people play, that is their payoffs change or the set of strategies available change. And a well-designed law is one which, by changing the game, alters the strategies people use and drives society towards a welfare-enhancing outcome.

4. The Critique

This conventional approach is, however, deeply problematic. Let us think in the abstract of the constituents of a new law. A new law, in essence, is nothing more than some words on paper. They say that you are not supposed to do such and such a thing and, if you do so, you will be fined or jailed, and so on. The question that must arise is why mere words written on paper should make a difference to what individuals can do or what payoffs they earn. This is what I had called the “ink on paper” problem in Basu (1993) or what today may more aptly be called the “digital jottings” problem¹⁵. If everybody chose to ignore the ink on paper or the digital jotting,

¹⁵ Indeed, there are conditions where it is neither in digital record nor written down on paper. We find a quizzical observation on this in the twelfth century writing by Ranulf de Glanville: “Although the laws of England are not written, it does not seem absurd to call them laws—those, that is, which are known to have been promulgated

and do what they did earlier, they would surely get the same payoffs as before. If each person chooses the same action as he or she would have chosen in the absence of the law, clearly each person must get the same payoff as what he or she would have got in the absence of the law, since the fact of some jottings on paper does not affect our payoffs. Hence, given the way we usually think of the strategies open to individuals and payoffs they earn, in brief, the game that people play, a new law cannot change these and so cannot change the game that people play.

To see this more clearly, return to the model in the previous section. Why, in the first place, did we think that the game was altered by the new law? Presumably because, after the new law, the same act of mining which earlier earned a payoff of B , now earns a payoff of $B - pF$. So at first sight, it does appear that the payoff function of the entrepreneur is changed. But clearly the payoff changes, if it does, because the police person tries to catch him and, if she succeeds, the entrepreneur is fined F dollars. However, the police person could have done the same thing even in the absence of the law. If everybody behaved the same way after the law was enacted as they did before the law was enacted, everybody would get the same payoff. Hence, the law or the fact that some ink has been smeared on paper or digital jottings made on a computer cannot make a difference to the game that people are playing. The same n -tuple of actions undertaken by the same n -tuple of players lead to the same payoffs for all the n players. The law cannot change this.

Likewise for a speeding law. Suppose a nation imposes a new speeding law whereby you are not supposed to drive above 100 km per hour and, if caught doing so, you are fined a certain amount. At first sight this seems to change the game people are playing. Earlier when you decided to drive above 100 km per hour you calculated the returns in terms of the time saved, the risk of a skid and so on. Now on top of all those, it seems, you have to add the expected cost of a fine. But this implicitly assumes that the traffic police is a robotic creature who will impose a fine because the law says so.

The mistake in the traditional view arises because of the unwitting assumption that leaves the enforcers of the law out of the picture or treats them as robots who will automatically do what the law asks them to do. If all the players in this game--the driver, the traffic police, the magistrate in the local court--are included in the game as players, as indeed they should be, it is clear that the law cannot change the game. If everybody behaved the way they did before the law, then everybody would get the same payoffs after the law as they did before the law since the mere writing down of the law cannot change the payoffs¹⁶. This is the flaw in the traditional

about problems settled in the council on the advice of the magnate and with supporting authority of the prince-- for this also is a law that 'what pleases the prince has the force of law.' (Hall, 2002, p. 2).

¹⁶ There can be no doubt that some of this will change as we move into a more digital age. We can use computers, and robots to monitor and implement some of the laws, and it may be possible to switch these machines into a special mode to carry out their altered role mechanically, at the moment of adopting a new law (World Bank,

approach to law and economics, and it has sullied a lot of our analysis and hurt the policies we have crafted with this conceptual flaw in the foundation.

Before proceeding further, I want to develop a sharper example to illustrate this same problem, which will help me later to explain what should be done to rectify this problem. For this, consider the standard Prisoner's Dilemma.

Suppose there are two players, 1 and 2, each of whom has to choose between actions A and B. It is a useful mnemonic, as will be evident later, to think of B as standing for 'bad behavior.' The payoffs they earn by these choices are displayed in the payoff matrix shown below. Player 1 chooses between rows and 2 between columns. The payoffs earned by the two players are shown in the payoff matrix displayed below. Of each payoff pair the number on the left is what is earned by the player choosing between rows and the number on the right is what is earned by the player choosing between columns. I shall refer to the payoffs generally in dollar terms but one can think of them as units of happiness or 'utils.'

Game 1: Prisoner's Dilemma

| | | Player 2 | |
|----------|---|----------|-------|
| | | A | B |
| Player 1 | A | 7 , 7 | 1 , 8 |
| | B | 8 , 1 | 2 , 2 |

As is obvious, in the Prisoner's Dilemma with rational players the outcome is (B, B), since each player is better off choosing B, no matter what the other player does. The outcome of course is disastrous for both. They earn a payoff of 2 dollars each, whereas they could have both earned 7 dollars. This is a familiar story that we encounter in many different domains and contexts of life. This, for instance, is the tragedy of the commons, whereby each person exploits the environment to satisfy his or her individual interest and collectively they do badly, such as

2015). However, we are nowhere near that yet and, it is arguable, that even as we enter such an age, human volition and the need for human action will never be fully obliterated.

through over grazing. We see the same idea crop up in Runciman and Sen's (1965) interpretation of Rousseau's 'general will.'

Confronted by a poor outcome of the kind illustrated by the Prisoner's Dilemma, what does one do? This is exactly, where the law comes in. It can be used to deflect society to a better outcome. As McAdams (2000, p. 1650) observes, "[B]y imposing liability or punishment on individuals, the state changes the payoffs so that cooperation rather than defection is the dominant strategy." Similar ideas underlie the works of Coase (1960), Calabresi (1961) and Schauer (2015).

Now that we have a formal game, above, it is easy to see how a legal intervention may work. Suppose, the country adopts a law which says that action B is illegal and anybody who chooses such an action has to pay a penalty equal to 2 dollars. The penalty could be an actual fine of 2 dollars or some time behind bars, which inflicts a pain equal to 2 dollars. This transforms the above to game to as shown in the payoff matrix below. The only difference between the above game and this new one is that whenever someone now plays B, we deduct 2 from that player's payoff.

Game 2: Prisoner's Dilemma with Fine

| | | Player 2 | |
|----------|---|----------|-------|
| | | A | B |
| Player 1 | A | 7 , 7 | 1 , 6 |
| | B | 6 , 1 | 0 , 0 |

In this new game, it is a dominant strategy to play A. That is, no matter what the other player does, you are better off choosing action A. And, this changes the outcome. The players end up with the good social outcome (A, A). This is one of the most important objectives of the law—to deflect society, which, left to itself, would tend to get trapped in a bad outcome, to a socially superior situation¹⁷.

¹⁷ This is not the only objective of law. There are in fact other objectives pertaining to justice, fairness and individual liberty, which could even conflict with the Paretian aim discussed above. One of the most celebrated

This example illustrates the traditional view of law and economics well. What the law does is to transform the game that society plays. In the above example, the game is transformed from Game 1 to Game 2. This is what facilitates society to achieve a Pareto-superior outcome, as in the above example, or a more just outcome or a fair outcome, whatever it is that we seek to achieve.

However, let us pause and think about how the above game changed. This happens because now when someone plays the bad action B that person is charged a penalty of 2. But who charges the penalty? In most normal cases, there has to be *someone* who does it—a police person, a traffic warden, a magistrate. But if there was such a person who could be marshalled to penalize what is not permitted under the new law, why was he or she not a part of the initial description of the game people play. In other words, the first game, the Prisoner's Dilemma, a two-player game, was not a full description of what was going on. Minimally, there is another person who has the power of inflicting penalty, and who is there waiting in the wings to act as he or she wishes.

If we wrote down the full game, with all players included, that is, by including the person with the ability to charge a penalty, alongside the two engaged in the Prisoner's Dilemma, it is not clear the new law could change the game. This is because even in the absence of the law the third person could have charged a penalty. So, after the passage of the law, the three players can do all the things they could do before the law was enacted; and every time the three of them choose any triplet of actions, they will get the payoff they would have got before the law came into existence. We are back to the 'ink on paper' critique of the standard view of law. If the game played by society is fully described to start with, the law cannot change the game.

5. The Republic of Beliefs

The above critique seems compelling enough, and as long as we remain within the framework of standard economics with exogenously given human preferences, it seems unavoidable. In other words, the two founding assumptions of traditional law and economics, to wit, that people have exogenously given preferences which they maximize and that a new law affects outcomes by changing the game people play are mutually contradictory.

However, this criticism immediately raises a question. If the law does not change the options open to agents, and the payoffs agents earn, in brief, the game that people in a society play, how can the law change behavior and outcomes? We simply have to look around us to see

examples of such a conflict is that of the 'liberty paradox' (Sen, 1969). See also, Gaertner, Pattanaik and Suzumura (1992).

that there are plenty of examples of laws which are effective. It is true that laws are frequently disregarded by the citizenry, and they often sit in legal texts, unimplemented in practice, especially in developing societies. Indeed, we will see how the approach being proposed in this paper can vastly improve our understanding of why laws are so often so poorly implemented. Nevertheless, the fact remains that laws also often work. Anybody who has been ticketed for driving above the speed limit, knows this, which is a way of saying almost everybody knows this. Given the nihilistic direction in which the critique outlined in the previous section pushes us, we have to ask how the law at all affects behavior.

There seems to be only one possible answer to this question: The law changes human behavior, or, in the context of games, the outcomes of games, by changing people's beliefs about what other people may or not do. In other words, the only way the law can affect behavior and outcomes is by deflecting society from one (pre-existing) equilibrium to another (pre-existing) equilibrium, an 'equilibrium' being a choice of behavior on the part of each player that is optimal given that each player believes that the others will do as specified in the equilibrium.

In the end, it is this that changes people's behavior and social outcomes. The might of the law, even though it may be backed up by handcuffs, jails, and guns, is, in its elemental form, nothing but a structure of beliefs carried in the heads of all the people in society—from the ordinary citizenry to the police, politicians and judges—, intertwining and reinforcing one another, till they become as strong as concrete structures, and create the illusion of being made of bricks, mortar and steel. The most important ingredients of a republic, including its power and might, reside in nothing more than the beliefs and expectations of ordinary people going about their quotidian chores.

The above idea, albeit in somewhat inchoate forms, goes far back into history, certainly to the mid-nineteenth century and David Hume. As Hume pointed out in his essay on government (Hume, 1742, Essay 4, para 6): "No man would have the fear of the fury of a tyrant if he had no authority over any but from fear; since as a single man his bodily force can reach but a small way, and *all the farther power he possesses must be founded either on our opinion, or on the presumed opinion of others* (my italics)." What is being suggested here is that what matters are my beliefs and my beliefs about others' beliefs, which is exactly how focal points are sustained.

More recently, in the domain of law and economics, this view of law is propounded by Mailath, Morris and Postlewaite (2001, 2007). I have also discussed some of these ideas in some form in some earlier writings (Basu, 1993; 2000). There are related ideas explored by legal philosophers as well but, as I shall argue later, while they have similarities with what is being argued here and use somewhat similar language, they are quite distinct from the thesis being proposed in this paper.

Thanks to the advance of modern economics and, in particular, game theory, it is possible to take this idea much further and even to think of making it usable in the real world in terms of creating laws that are better implemented and are more effective. In doing so, I shall continue to stay within the mainframe of economics by assuming that individuals have well-defined preferences and are rational. This assumption is common to mainstream neoclassical economics and also to game theory. Game-theoretic economics is less constraining than neoclassical microeconomics because it does not impose restrictions on what people maximize but simply asserts that people have a utility or payoff function that could have come from anywhere and take any form. But once it is in place people maximize it. I will later discuss the scope for venturing beyond this assumption but for now stay within it. The main claim of this paper is that the methodological basis of law and economics is not consistent with mainstream economics.

The first step towards an amended law and economics is to recognize that if the only way that a law has an impact is through its effect on the beliefs of people, its effective conduit has to be the idea of the 'focal point', as developed by Schelling (1963). A successful law is one that shifts human behavior by creating a new focal point in the 'game of life' (Binmore, 1994) or what I shall, in this paper, often refer to as the 'game of the economy' or 'economy game'. The economy game is very similar to the conceptualization of the game of life as used by economists, but since there are other senses in which the expression, the game of life, has been used in other disciplines, it is worthwhile introducing this new terminology, which I shall occasionally use, if for no other reason to remind ourselves of the sense in which we are using the admittedly better-sounding expression, 'the game of life'.

The 'economy game' or for that matter, in this paper, the 'game of life,' is one in which each of all the players, who participate in the functioning of an economy, can choose any action or behavior or strategy available to him or her by the laws of nature; and, given each player's choice of action, each player gets a payoff or utility (which we may, for convenience, express in dollar terms). The last of these is what constitutes the payoff function of the player. The terminology is useful here because law and economics can be thought of as the study of how laws affect outcomes and behavior in the economy game.

I am now in a position to state formally one of the central claims of this paper:

The law works, to the extent that it does, by creating focal points in the game of life or the economy game; and, further, this is the only way in which the law affects individual behavior and collective outcomes.

This claim is the central proposition of the 'focal point approach' to law and economics.

It is important to stress that I am not asserting that this is a way in which the law often works but that this is the way in which the law always works. This is important to understand

because there are prominent legal scholars who have made significant contributions to law and economics by using the idea of the focal point to understand ways in which *certain kinds* of laws work (see, for instance, Cooter, 1998, 2000; McAdams, 2000, 2015).¹⁸ However, the present paper makes a more universal claim. This stems from an important conceptual difference with what the legal, focal-point school argues. I shall return to this later.

The next few paragraphs will be familiar territory for the economist but to carry the reader into some detailed implications, and a better understanding of why some laws are poorly implemented, it is useful to elaborate a little on the basic idea of a focal point. The focal point is a somewhat mysterious concept from game theory, which is hard to define, but nevertheless is a useful concept with palpable consequences.

There are many situations in life with multiple equilibria. Suppose a group of people land up in a new lawless island. Each has to decide which side of the road he or she drives on. Clearly, if everybody else decides to drive on the left, it is in the interest of the remaining individual to drive on the left. Likewise on the right. In other words, in this society there are two equilibria—everybody drives on the left and everybody drives on the right. The trouble is even if you know this it is not very helpful, since you would not know which equilibrium others think you are in. In this paper, I shall assume that all references to an equilibrium is to the Nash equilibrium. Essentially, we want to work with the idea of an equilibrium as a self-fulfilling set of behaviors on the part of individuals. This idea can be formalized in different ways. I shall for reasons of simplicity confine the analysis in this paper such that all references to equilibrium are meant to be references to the Nash equilibrium, namely, a choice of behavior or strategy or action on the part of each individual which has the property that if all others adhere to this, then there is no incentive for one individual to deviate.

The focal point is a psychological capacity, common among human beings, especially those who share a common cultural background, which enables each to guess what others expect and what others are likely to do. In this example, in case all the people who arrive are from the U.S., each person may reason that the others will use their history of experience and drive on the right and so choose to drive on the right. Such reasoning would, in this case, work. Basically, the focal point is a Nash equilibrium which is salient and so helps people coordinate their actions.

There are many instances where a focal point can be deliberately created. The best example of this pertains to meeting at airports. Suppose two persons have decided to meet at an airport at a certain time but have forgotten to specify the place. They are then locked in a game

¹⁸ See also Geisinger (2002).

in which each player has to choose a place to go and wait. If they both choose the same place, they meet up and are happy. If they choose different places, they are unhappy.

This game clearly has a multitude of equilibria. For every location, if both choose that location, then this comprises an equilibrium. The problem stems from the fact that there are so many equilibria that it seems very difficult to coordinate. Fortunately, many airport authorities have solved this problem by creating a focal point. They do this by simply choosing any visible place in the airport and put up a sign, saying "Meeting point."

This works, not always, but extremely well. The point where the sign is put up is treated by the travelers or players as the focal equilibrium. Why this works so well is not well-understood but what is important is that it works.

Since this is a concept that I shall return to on multiple occasions, here is another example to clarify further the concept. Two players sit across a board which has nothing but 16 squares marked, four columns and four rows, as shown below. Each player has to choose a square. If both choose the same, they get \$1000 each. Otherwise they get nothing. I shall call this the Squares Game. Clearly, this game has 16 Nash equilibria. If they play this game the chances are they will not be able to coordinate on a square and so get nothing. This is a game where a focal point can really help.

Game 3: The Squares Game

| | | | |
|--|--|--|--|
| | | | |
| | | | |
| | | | |
| | | | |

One way to create an equilibrium is to place a visible marker, say a yellow stone, in any one square. Once this is done, there is little need to say anything else. The likelihood is that this will act as focal points do. Both players will choose the square with the yellow stone and earn \$1000.

The claim in this paper is that this is what the law does. The enactment of a law is like the placing of the yellow stone. It does not change the game. The available strategies are the same; and the payoffs for different possible actions are the same. But the new law, like the yellow stone, can affect the play and the outcome. It does so by altering what I expect the other person to do and altering what the other person expects me to do. It also probably affects higher order beliefs, that is, beliefs about beliefs. It is worth stressing, it is not being suggested that the law can, at times, work like this, but that this is the way the law works. This is important to stress to distinguish the approach taken in this paper from a line that has been taken in some influential works by legal scholars and even in economics (see, for instance, McAdams, 2015; Basu, Chapter 4).

This argument has an interesting obverse. Since the outcome brought about by the use of the law is anyway an equilibrium, that outcome could have occurred without the law. In brief, any outcome that is made possible by creating a law could have happened without the law¹⁹. If a law prohibiting freedom of speech can curb people from speaking freely, then a curb on people speaking freely could occur without the law. It is for this reason, I argued elsewhere (Basu, 2000) that if we want to see if a certain society has freedom of speech, it is not enough to study the nation's law because the same outcome can be achieved through informal social sanctions or the threat of ostracism. India's caste rules are not backed up by the law but in many rural Indian communities they bind behavior with as much force as the law (Akerlof, 1976).

Consider a food security law, of the kind discussed in the context of India in section 2, which says that poor people should be given vouchers which they can use to buy food from privately-run food stores, and the food stores can then give the vouchers to banks and exchange them for money. If this law does work as I suggested it is likely to, then, even though this sounds strange, it means that the whole system can work even without the law. In such an equilibrium some people would print the vouchers, give them to the poor, who would then take these to food shops and buy food. The food shop owners would then take the vouchers to banks and get cash in exchange. In brief, if the law is effective then, if everyone—the citizens, the police, the judge—did exactly what they did in a society with the law, then their actions would constitute a Nash equilibrium. Hence, they could have sustained that outcome without the law. If this reasoning sounds alien to us that is only because the standard view of law (with its fault lines) has, unfortunately, become so much a part of our thinking.

¹⁹ It is not surprising that there are many instances of groups of ordinary citizens, firms or guilds have often succeeded in creating self-enforcing rules for monitoring their own behavior (Bernstein, 1992; Greif, Milgrom and Weingast, 1994; Myerson, 2004; Dixit, 2007, 2015). This also explains the possibility of spontaneous order on which there is a substantial literature (see, for instance, Ellickson, 1991; Elster, 1989; Sugden, 2009).

As I asserted earlier, the full mechanics of why and how the focal point works is not known. But it does work, and we have some notion of how it works, so as to be able to use it to take the focal point approach to law and economics further and to put it to use in policymaking.

To understand this better, let us return to the Prisoner's Dilemma discussed above. How can the law be used to rescue the individuals from the bad outcome? This is one of the central motivations of the discipline of law and economics. In case the game has been rightly described and this is a full description of the economy game, the answer is: They cannot be rescued; look the other way.

However, the fact that we talk about imposing a fine on bad behavior and so on, shows that we do not really believe that the game that has been described is the real one being played. After all, to impose a fine, we minimally need one more person--the police or the traffic warden who can be brought in to monitor and punish. And if such a person exists, that person should have been modeled, in the first place, as part of the game.

Let us proceed to do that. I shall create a somewhat contrived game for the aim here is not to solve some real problem but to explain the new approach to law and economics. So let us assume there is a third person—the police or player 3. The first two persons play the 'Prisoner's Dilemma,' as before. But the police person gets to make a choice as well. If she chooses left, L, players 1 and 2 get the same payoff as in the Prisoner's Dilemma. If she chooses right, R, they get the payoffs of the Prisoner's Dilemma with Fine. In other words, they get punished for bad behavior. Clearly, it is player 3's action that determines whether or not 1 and 2 will get punished for bad behavior. A good way to remember the actions is to think of R as standing for "Regulation enforcement," and L standing for "Laxity" (on the part of the police).

To complete the description of the game, we need to specify what payoff the police gets. Since the aim here is purely illustrative, let me, for simplicity and without bothering to create a story, assume that she gets a payoff of 1 if she chooses R, no matter what 1 and 2 do. But if she chooses L, what she gets depends on what 1 and 2 choose. If both choose A, she gets 0. For all other choices by 1 and 2, she gets 2. All this is summed up in the two payoff matrices below. I am assuming for simplicity that all the choices are made simultaneously. Hence, the two matrices together describe the 3-player normal-form game.

I shall call the game just described the "Prisoner's Dilemma Game of Life, I" because it brings in not just the players who are locked in the Prisoner's Dilemma but others who are there—in this case player 3—and who can be marshalled into action if need be; that is what explains the reference to the 'game of life.' I call this "Game of Life, I," because there will be an alternative version, II, that will be later described.

Game 4: Prisoner's Dilemma Game of Life, I

| | A | B | | A | B |
|---|---------|---------|-------------------------------------|---------|---------|
| A | 7, 7, 0 | 1, 8, 2 | A <td>7, 7, 1</td> <td>1, 6, 1</td> | 7, 7, 1 | 1, 6, 1 |
| B | 8, 1, 2 | 2, 2, 2 | B <td>6, 1, 1</td> <td>0, 0, 1</td> | 6, 1, 1 | 0, 0, 1 |
| | L | | | R | |

This game has two Nash equilibria. One can see this easily by examining the above payoff tables. The two Nash equilibrium outcomes are: (B, B, L) and (A, A, R).

Suppose the game, left to itself, reaches the equilibrium (B, B, L). The players then get a payoff of (2, 2, 2). No one could have done better, individually, though, collectively, 1 and 2 are badly off by such behavior. This is where the law comes in. Suppose a new law is enacted which declares action B as wrong and asserts that a fine equivalent to \$2 will be charged from anybody who chooses B. Implicitly what is being asserted is that the police will usher in a world in which this punishment is inflicted on the erring individual. In other words, what is being said is that the police will choose R.

Hence, what the law is doing here is simply to urge society to shift to (A, A, R). According to the new approach the law's power comes solely from its ability to make (A, A, R) into a focal point, so that everybody's—the citizens' and the police person's—beliefs are appropriately changed and the outcome actually ends up there. The law is like putting up a Meeting Point signboard up in an airport terminal or placing a yellow stone on one of the squares in the Squares Game. The law, in this formulation, is mere prediction. It chooses an equilibrium, from among all available equilibria, and says that that will happen and by doing so, it hopes to make that outcome focal.

What is critical to understand is that the law can do nothing else but this. If everybody decides to collectively look the other way and ignore the law, the law will have no impact. On the other hand, if it does manage to change expectations, it can have a binding effect and give the appearance of an iron fist controlling society. However, all said and done, this is always an appearance, because the law can do nothing more than affect beliefs. We are all, for good or for bad, citizens of the republic of beliefs.

The law uses the language of command but is, in reality, nothing but a forecast of behavior. If you are bad, the police will punish you. If you are bad and the police does not punish you, the magistrate will punish the police (for this we will need a more elaborate game than the one just described because here there is no magistrate). And so on. By pointing to an outcome, it tries to persuade people to go there. If the direction to which they are being directed is an equilibrium, once people believe that others expect this to happen, they are locked in. It is worth recalling that a focal point is, by definition, a Nash equilibrium.

It follows, and this is critically different from what happens in the traditional law and economics model, that if the economy game or the game of life has only one equilibrium, or more elaborately, only one outcome that can occur under equilibrium play, the law can do nothing. If in the above game, for instance, the payoff from the outcome (A, A, R), instead of being (7, 7, 1), was (7, 7, -1), and all other payoffs were unchanged, the only Nash equilibrium outcome would be (B, B, L) and so, no matter what the law, this would occur. Since the law cannot alter the game and the game has a unique equilibrium outcome, the citizenry would be destined to it. The law cannot create new equilibria, as supposed in the traditional approach to law and economics.²⁰

The fact that the law often affects behavior and the outcome reached by society shows that the game of the economy generally has multiple equilibria. Indeed, contrary to what many economists believe, economic life is, in all likelihood, full of equilibria²¹. That is what makes economic policymaking a challenge and exciting venture. Indeed, if the economy game happens to have only one equilibrium, the law can have no effect since the equilibrium can settle down only at one point. This argument is clearly articulated in Myerson (2006, p. 12): “I would argue that the right mathematical model of institutions should admit such a multiplicity of solutions, because real institutions are manifestly determined by cultural norms and traditional concepts of legitimacy, which would have not scope for effect if the economic structure of the true game ... admitted only one dominant solution.”²²

²⁰ At least not in the direct way in which traditional law and economics supposes. There are, as we shall later see, some ways in which new equilibria might get created but the process is rather different from that of traditional law and economics.

²¹ For an excellent essay on the real-life plausibility of multiple equilibria, especially in the context of developing economies, see Hoff and Stiglitz (2001).

²² As in the present paper, Myerson (2006) uses the idea of “focal-point effects” to explain institutions but, interestingly, he extends the idea of focal ‘points’ to set-valued solution concepts, such as the curb set used in Basu and Weibull (1991). If we were to pursue this route in this set up, and it is eminently suited for that, what we would need to focus on is the concept of the ‘focal curb,’ that is, a curb set, which is somehow salient and so all players know that this is the set of outcomes within which the game is going to end up. A new law would, in this case, not take society to a well-defined outcome but to a set of possible outcomes. This idea is very important for another reason. I have given here the impression that the law directs or tries to direct society to somewhere precise. But that is not the case; if for no other reason because the actual game of life is so complex that the precise description of proposed behavior is virtually impossible. The law often specifies behavior for a few limited number of situations. Thereafter, we have to proceed by analogy and extend it from one case to another. This was

6. Extensive Forms and Multiple Equilibria: Technical Digression

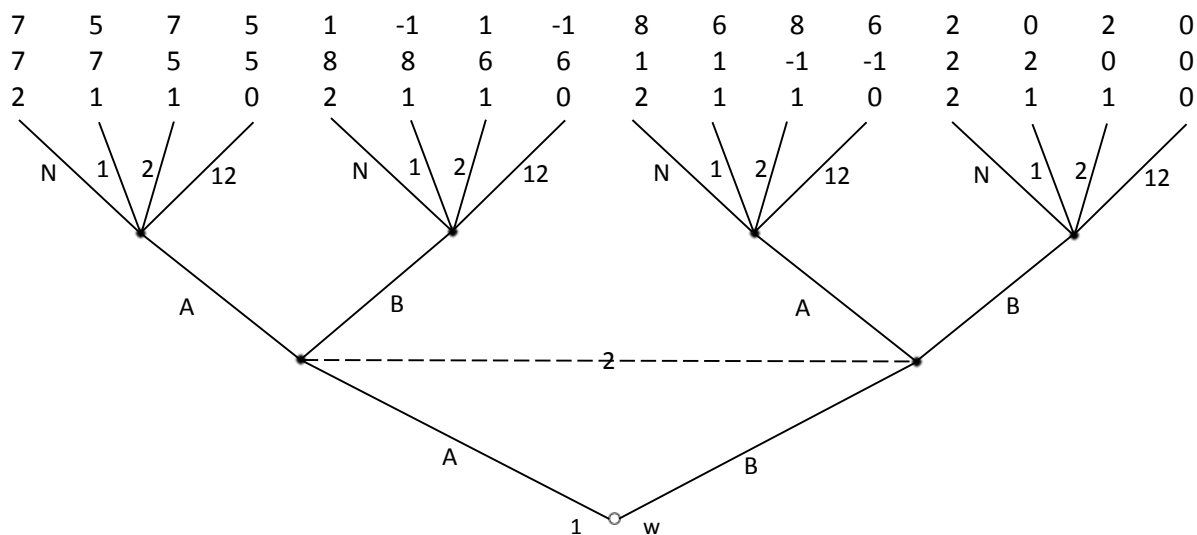
Before moving on, it is worth clarifying that there are other ways in which we may be able to describe the 3-player Prisoner's Dilemma, that is, with the police included. One, more-intuitive form, is to suppose that in period one, two players play the usual Prisoner's Dilemma; then, in period 2, the police chooses between four actions—punish none (action N), punish player 1 (action 1), punish player 2 (action 2), and punish both players (action 12). Punishing in this case means, deducting 2 units of payoff. To describe the game fully we must say what payoff the police, or player 3, gets. The simplest would be to suppose that the payoff of player 3 is unchanged, say stuck at 2 units. A more realistic assumption, and that is the one I will make here, is to assume that to punish each person the police loses one unit of her own payoff (the pain of having to raise the baton and bring it down). This leads to the 2-stage extensive form game described below and called the "Prisoner's Dilemma Game of Life, II."

This game has several Nash equilibria. One Nash equilibrium consists of player 3 choosing N under all circumstances and players 1 and 2 each choosing B. This results in the standard Prisoner's Dilemma outcome.

But the game has other Nash equilibria. Here is one of them: Both players 1 and 2 play A; and player 3 chooses N at node a, 2 at node b, 1 at node c and 12 at node d. In other words, player 3 says, if any of players 1 and 2, chooses action B, I will punish that player. This strategy triplet, it is easy to see, constitutes a Nash equilibrium. It is not subgame perfect, but since we have decided on the convention of treating Nash equilibrium as the appropriate equilibrium in this paper, this example serves our purpose equally well. So if the law is that whoever plays B will be punished, and both 1 and 2 believe in this then they will choose action A. The new law simply creates a new focal point and this has the chance of actually affecting behavior.

the thesis associated with Levi (1949) (see also Swedberg, 2014, Chapter 4). To formalize this it is useful to have a set-valued equilibrium concept, which leaves room for ambiguity and maneuver. I shall, however, not pursue this route in the present paper. There is a suggestion of the same idea in Hardin's (1989) conceptualization of the role of the constitution. For him a constitution is not so much a contract as an aid to coordination, creating mutually reinforcing expectations of behavior in a population.

Game 5: Prisoner's Dilemma Game of Life, II, or the Broom



Should we wish to use subgame perfection as the relevant equilibrium concept, there is an easy way to do this, which entails the addition of a third period of the game which involves a stage game with multiple equilibria (Basu, 2000). We could, for instance, think of a fourth player, the magistrate being there. After the two stages illustrated in the above game is over, the police (player 3) and the magistrate (player 4) have an interaction in which, the magistrate has to choose between 'status quo' (action S) and punishment (action P), where he tries to punish the police person. The police, in turn, has to choose between status quo (S) and taking a defensive position (D) to take cover against the punishment strategy. This results in a simple normal-form game described below.

Now we can think of the full economy game as involving the Prisoner's Dilemma Game of Life, II, described above, with a third period appended to each terminal node of the Prisoner's Dilemma Game of Life, II. In the third period, players 3 and 4 play the above normal-form game. In other words, the full game of life now is a four-player game involving three periods.

Game 6: The Police Magistrate Game

| | | Player 4 (Magistrate) | |
|----------------------|---|-----------------------|------|
| | | S | P |
| Player 3 (Police) | S | 4, 4 | 0, 2 |
| | D | 1, 0 | 1, 2 |

This three-period game has two equilibria, one (the status quo outcome) in which the police earns 4 and the other (the punishment outcome) in which she earns 1. Depending on how these outcomes are chosen a variety of subgame perfect equilibria can be supported in the three-period game of life. The announcement of a new law which declares the use of strategy B as punishable can indeed lead to the police person punishing anybody who chooses action A because if she does not punish such a person then there can be a common expectation that player 4 will play P in the last stage, prompting 3 to play D. Hence, the police would get a payoff of 1 instead of 4. It is thus clearly in the interest of the police to enforce the law.

Of course, the game has other subgame perfect equilibria and so it is not necessary that the outcome suggested by the law will occur. But, as before, the law creates a focal point, and as long as it is an equilibrium it has a chance of being implemented. If the game of life had only one equilibrium, the law would not have any effect, because no matter what it says, society would settle in that only outcome that can be supported by equilibrium play. This, in essence, is the focal point approach to law and economics.

7. Why Are Laws So Often So Poorly Implemented?

This altered approach to law and economics, despite its seemingly nebulous quality, gives us important insights and a deeper and more correct understanding of how the law affects economic outcomes. The move from the traditional approach to law and economics to the focal point approach is somewhat akin to moving away from a partial equilibrium analysis of the economy to a general equilibrium one. A partial equilibrium analysis works by assuming that variables outside of the market being studied remains unchanged even while behavior within the

market changes. This is a handy model, but flawed because we do know that changes within a market often affects variables beyond the market and these can come back to alter the market outcome. Indeed, there are situations where the partial equilibrium results are actually inconsistent in the overall economy.

Likewise for the traditional approach to law and economics. It works by placing attention on a *segment* of the full game of the economy, by leaving out other vital players and assuming that they are robotic followers of the law. What the focal point approach to law and economics does is to take on the full game of the economy, including the police and the judge, and then tries to explain how and why the law works. As we have seen, this shift of perspective forces us to alter the very paradigm of analysis, from viewing the law as an instrument for changing payoff functions and the game to an instrument that is powerless to do this but can act as a catalyst for altering the beliefs of players.

One important thing that the focal point approach to law and economics does is to help us understand when and why so many laws fail to be implemented and simply languish on paper, and why this happens more in some societies, especially developing nations and emerging economies.

The first reason why some laws fail to be implemented is that they try to direct the economy to a non-equilibrium point. If you adopt a law which asks people to behave in certain ways, and it has the attribute that if everybody behaves in the way recommended, then it is in the interest of at least one person to behave differently (that is, the proposed behaviors do not constitute a Nash equilibrium), then clearly the law will not be borne out in practice. In brief, the implementation of the law must be self-enforcing with all human beings—citizens and agents of the state alike—are treated as rational. This is, of course, the assumption behind much of mainstream microeconomics. But interestingly, the way traditional law and economics has worked is that it has assumed this strictly for all ordinary citizens and flagrantly violated this assumption for agents of the state.

If a law is enacted that tries to direct the entire society to an outcome that is not an equilibrium and hence, not a focal point, then the law is doomed not to get implemented. To see this in an interesting case alter the above Prisoner's Dilemma Game of Life I (Game 4) a little. Change all the payoffs of player 3 in the left payoff matrix to 8. Now suppose a new law is enacted, which asks each of the players 1 and 2 to choose action A and player 3 to choose action L. This law will never get implemented because if each of person 1 and person 2 expect all others to follow the law, then it is not in their interest to follow the law. This law is doomed because it targets an outcome which is not a Nash equilibrium of the game. This is because the new approach to law and economics, unlike the traditional one, asserts that a law can never *create* an equilibrium. It can simply direct society to some pre-existing equilibrium. A cardinal mistake

we often make is to not realize this limitation of the law, and try to over reach and direct society to some outcome that is not an equilibrium, and hence not sustainable. In such cases we end up with laws that do not get implemented²³.

The second reason for non-implementation of the law is extremely important and pertains to a generic and somewhat open-ended problem of focal points—namely, that it is not evident what constitutes a focal point for different groups of people. The same signal may be picked up by one set of people to be focal and be ignored by another group. We know, for instance, that players sharing a common group identity find it easier to coordinate onto a focal point (Habyarimana, Humphreys, Posner and Weinstein, 2007; see, also, Boettke, Coyne and Leeson, 2008). This, in turn, implies that when a group of people have got reasonably used to a focal point, the presentation of a new focal point can actually make the coordination problem worse.

Thus suppose in the squares game, a society gets fairly used to choosing the top left square, that is, when two individuals are made to play this game, the player choosing between rows generally chooses the top most row, and the player choosing between columns tends to choose the left most column. In brief, this is the social norm that helps these people to frequently earn \$1,000. Now suppose, to be helpful, someone places a yellow stone in some other square and asks people to play this game. It is entirely possible that coordination will now get worse with some expecting the square with the yellow stone to be focal whereas others assuming that the old custom of the north-western square being focal continuing to hold.

This is not as abstract an exercise as may seem at first sight. In an important paper, Kranton and Swamy (1999) discussed the agricultural credit market in colonial India. The market was an informal one which ran on norms. It worked but only moderately well, with defaults and consequent credit scarcity. To rectify this the British rulers of India created civil courts in the Bombay Deccan. The outcome was a worsening of the market's functioning and diminution of efficiency. Drawing on historical records the authors show how farmers did not benefit by this. There can be many reasons for this including the piecemeal nature of reforms as Kranton and Swamy suggest. But it is also possible and in fact likely that when you try to replace custom and norms by law and courts, it is like having two focal points. Far from helping, it is likely to worsen matters, at least for some time, till a winner focal point emerges among the contenders and acquires salience²⁴.

²³ This is not worth laboring further since what I am arguing here is a line taken by the mechanism design literature (see, for instance, Myerson, 1983; Maskin and Sjostrom, 2002; Arunava Sen, 2007).

²⁴ Posner (2000, p. 4) makes a similar observation when he writes, "The desirability of a proposed legal rule...does not depend only on the existence of a collective action problem on the one hand, and competently operated legal

To take another analogy, if in Heathrow airport an official decided that instead of making people walk great distances to get to the spot with the board marked Meeting Point, he would put up two or three such boards at different places, the whole project could become a failure. Once we recognize the focal point foundation of the law, we have to take extra care to make sure that the law becomes salient. This may need education and other forms of persuasion and even then we may have to be reconciled to the fact that it will take time for the law to become effective. However, in the process, there is a risk. If it takes too long, people may come to disregard the law and when that happens for long the law can lose its effectiveness altogether. Indeed as individual pieces of legislation lose effectiveness, a citizenry can come to believe that laws in general are there to be ignored. It does come close to this in some developing countries where no one pays attention to the law. What I am arguing is that this is fully rational. If it is known no one at an airport pays any attention to the Meeting Point sign, it will be foolish of you to go and wait under it to meet your friend. It would be better for you to try the bookshop or the pub, depending on your friend's predilection for books or beer.

This is one problem that plagues newly-industrializing and modernizing nations and developing countries. Most of them have relied for large stretches of time on social norms, feudal customs and cultural practices to make some form of economic life to be possible. Simple economic functions, such as trade and exchange, require some basic norms and customs to be in place. It can be shown that they cannot function purely by the drives of individuals to maximize utility and amass wealth (see Basu, 2000, Chapter 4). So either through feudal pronouncements or more likely through slow evolutionary processes these societies have come to acquire certain equilibrium-selection norms, which are nothing but focal points, that made economic life possible. More precisely, societies which exist are the ones which had these basic norms in place.

The process of modernization that is occurring today takes the form of trying to import laws and rules from modern industrialized nations, some of which were the rulers of former colonies, to the former colonies and other poor nations. In brief, the laws in these cases are competing with pre-existing focal points determined by custom and the long history of social evolution. Dislodging those norms is not easy. Indeed, matters may get worse since these laws in many cases amount to trying to create a new focal point when an old focal point exists and can make matters worse. This is most likely the reason why in developing and emerging market economies laws are so often overlooked by all and sundry.

There is an important conceptual problem that underlies this and understanding it can help us create an environment where laws are more diligently followed. This pertains to the question of how to *erase* focal points. This is a question that has received very little investigation.

institution on the other. It depends on the way non legal systems already address that collective action problem and the extent to which legal interventions would interfere with those nonlegal systems."

How focal points are *formed* may not be fully understood but it is a matter that has received a lot of attention and we have at least a rudimentary understanding of it. But on how focal points are erased or switched off we have no understanding. Yet that is what is needed if we want new laws to be better implemented. The prior salient outcome, which allowed some behavioral coordination, however imperfect, may need to be erased from collective belief for new laws to be more effective. The reason why this is such a difficult problem is that once people get used to some kind of behavior, removing the coordinating marker may not change anything. Suppose the Meeting Point board at an airport was located just outside a prominent burger restaurant. If, after many years, the board is removed, people may still continue to use the burger shop as the meeting place. Memory, in these kinds of problems, tends to leave a residue which is hard to erase.

One thing we do know, however, is that much depends on the meta beliefs held by a society. If it is known by all that once a law is enacted, everyone follows the law or is law-abiding, then that belief itself allows the law to acquire salience. In brief, the law is likely to be more effective if everyone knows that laws are meant to be followed. If that founding assumption is not there in society, then the announcement of a new law does not stand much of a chance in being effective. Hence, even before considering the question of whether it is one's interest to follow a particular law, there is need to have a more foundational belief that laws are meant to be followed.

I am not asserting here that anyone will follow the law solely for that reason for we are still operating within the mainstream, neoclassical paradigm, whereby each person has an exogenously given preference or utility function and takes decisions to maximize this. So whether to follow the law will be done on the basis of pure selfish optimization. Nevertheless, whether or not one has the prior belief that laws are meant to be followed is important. It is the existence of such a belief that gives the law a chance of creating a focal point. If people do not have this foundational belief, then they are unlikely to even notice and certainly unlikely to cogitate over a new law. If you live in a society in which it is not known that red light means stop and green light means go, you may not stop when you see red and you may allow the other car crossing your path to cross even when you see green and the other car sees red. In many developing nations, this foundational belief is weak and a large part of the non-implementation problem of the law stems from this. A signal cannot create a focal point if people do not even take cognizance of the signal in the first place.

Some of these arguments are at play in why India's food security law and its predecessor, the government instruction to supply cheap food to poor households, worked so poorly, as discussed in section 2. It is possible that the law is attempting something that is not a Nash equilibrium in the first place. It is not in the interest of the ration shop owner to sell the food

below the market price to poor households. This argument is valid if we assume that the police will not catch and punish ration shop owners who behave like this. In other societies, this may not happen, not because ration shop owners are instinctively law-abiding but because they fear they will be punished by the police if they violate the law. And, if this is part of a Nash equilibrium, we have to explain why the police will try to catch and punish an erring ration shop owner. And so on.

However, it is also possible that the law does point to a possible Nash equilibrium, where the ration shop owner would give out the food to the poor if he or she expected the police to punish were it otherwise and the police would punish for the police knew that otherwise the magistrate would punish the police and so on. But in this society the violation of the law is so common that people do not get the cue that the new law is focal. You know others will not treat this as focal, so you do not, and so on; and the others do not for the very same reason.

There are other reasons why the law may not be implemented well in developing countries and emerging economies, which require us to go beyond the neoclassical paradigm. Up to now, I have operated under the assumption of individuals having exogenously given preferences and being rational in the sense of optimizing on the basis of these preferences. In section 9, I will step beyond this framework and there will be scope for returning to this question then.

8. Norms, Laws, and a more Elaborate Conception of the Economy Game

The discussion in the last few sections raise an important question: Is there then no difference between the law and norms? This is a natural question to ask since the focal point approach to law takes a view of the law as very similar to equilibrium-selection norms, that is, social norms and custom which simply help people choose some specific Nash equilibrium, knowing that others will do the same (Akerlof, 1979; Platteau, 1994; Schlicht, 1998; Basu, 2000; Cooter, 2000; Posner, 2000; Benabou and Tirole, 2006; Fisman and Miguel, 2007).

Researchers have tackled this question, some arguing that the law derives its force from the presumed authority on the part of the sovereign or the state, with others arguing that the crucial difference is in their origins. The law is usually legislated, such as under the United States Constitution whereby a bill becomes a law only after it passes the test of majority in both houses of Congress and the President signs it. Norms on the other hand, typically evolve and emerge gradually from practice and through processes of natural selection. These boundaries are not water-tight with common law evolving gradually and some social norms being decided by the village elders; nevertheless these distinctions in the traditional approach to law and economics are of some value.

The challenge becomes harder under the focal point approach to law and economics. After all, an equilibrium-selection social norm is nothing but a focal point; and so is the behavior inspired by a law. The failure to recognize that they have similarities has had adverse effects on some of our research. I have argued elsewhere that in answering the important practical question of how much freedom of speech different nations have and focusing purely on the freedoms granted under the law can distort our findings. By using social sanctions, stigma, our innate guilt aversion, and the threat of ostracism, huge restrictions can be placed on different kinds of behavior²⁵, and also speech. Likewise, many practices of discrimination and power based on race, gender, and ethnicity can be perpetrated using nothing but social norms and they can be as oppressive as what is achieved by the law (Akerlof, 1976; Granovetter and Soong, 1983). So, the fact that norms and the law cover very similar terrains and in principle, as shown by the focal point approach to law and economics, *can* cover exactly the same ones and encourage development and progress or oppression and discrimination is important to understand. Nevertheless, we ‘know’ that the law is different from social norms. This raises the question: What is it that distinguishes them? What gives law the *kind* of legitimacy that the law has? What distinguishes the authority of law from other more social constraints on individual behavior?

These turn out to be a more vexing questions than they may appear at first blush. Legal philosophers have engaged in this investigation, a lot of it rooted in the seminal work of Hart (1961). I do not have the expertise to go into this in any great detail, but the approach developed in this paper allows us to provide some new definitions and concepts that lend clarity to these questions and permit some formal answers that may not have been available to earlier contributors. This is also important to understand in order to be able to draw a distinction between the focal point ideas of legal theorists that is presented in this paper as the focal point approach to law and economics.

To get to this we have to think of the economy game, more elaborately than we have done thus far. In particular, we need think of the set of players as partitioned into the set of ‘citizens’ and the set of ‘functionaries.’ By a ‘functionary’ I mean any agent of the state—the police, the magistrate, the traffic warden, the judge, the president or the prime minister—who is expected to play the role of enforcer. The functionary typically earns an income which comes from the tax collection of the state. By a ‘citizen’ I mean all ordinary individuals in society in the economy, who may or may not be passport-holding citizens, but whose main distinguishing mark is that he or she is not expected to be an enforcer of the state and, typically, his or her salary does not come from the state. Thus the set of citizens will consist of the workers, entrepreneurs, the unemployed, the students and illegal immigrants.

²⁵ Besley and Coate (1992), Lindbeck, Nyberg and Weibull (1989), Lopez-Calva (2003).

In writing up a game we have to formally specify who the functionaries are and who the citizens. Typically, a functionary is someone who has certain available actions which have significant effects on other people's payoffs, since it is the functionary who imposes fines and taxes and also gives out rewards. In the above 3-person Prisoner's Dilemma, it seems reasonable to think of players 1 and 2 as citizens, and player 3, who chooses between L and R, and so effects punishment on 1 and 2, as a functionary.

The important idea that was put forward by some legal scholars is that at times the law can be effective without needing the functionaries to do anything to enforce the law. The law simply directs citizens to a focal point. This is a simple and yet powerful idea. There are situations in life where ordinary citizens have more than one possible equilibria in their dealings with each other. Whether you drive on the left of the road or right is one such case. If all others in society choose to drive on the left it is in your own interest to drive on the left and likewise the right. In such a situation to have a law requiring people to drive on the left (or right) does not really need policing, the way a No Parking law needs one. This is because once the law kicks in, it is in the self-interest of each person to adhere to it. We do not need a police force to enforce this. The law in this sense merely directs citizens to some focal point. This, as we have already seen, is a compelling idea (see McAdams, 2015) that can be put to use in a variety of ways. As the authors in this field point out, the focal point idea can be used for relatively easy implementation of the law *in some situations*.

These ideas, discussed by legal scholars, are closely related to the role of policy in ending child labor, as analyzed in Basu and Van (1998)²⁶. This paper tried to show that an economy with plenty of child labor and low adult wages (caused in part by the large number of children supplying labor, since for a lot of unskilled work, adult labor and child labor are substitutes) and the same economy with no child working and high adult wage could both be equilibria, in the very standard sense of demand being equal to supply of all goods and services. The paper showed that if one assumption, which was called the "luxury axiom" was valid then multiple equilibria in the child labor market of the kind just described is very likely. The luxury axiom simply asserts that it is not laziness that makes parents send their children to work but extreme poverty. When the household is very poor, it cannot afford the luxury of the children not working. Fortunately, a lot of subsequent empirical work corroborated the luxury axiom.

What we can assert now is that in such an economy if we start from a situation where lots of children are at work and adult wages are low, a law banning child labor can have a very similar effect as the one suggested by the research of the legal scholars described above. It can deflect the economy from this bad equilibrium to a good equilibrium in which there is no child labor. In

²⁶ See, also, Emerson and Souza, 2003; Lopez-Calva, 2003; Edmonds, 2007; Baradaran and Barclay, 2011; Bagenstos, 2013.

these situations the law loses its need once it has moved the economy to the new equilibrium. There is no need for bureaucrats, police and government functionaries to enforce the law.

The above statement is however different from (though not contradictory to) the claim in my focal point approach to the law. The above statement pertains to citizens alone, without having to bring the enforcers into the picture and says that *there are* situations where the law acts as a focal point for the citizens and enables a change of behavior without having to bring costly enforcement into the story. As McAdams (2015, p. 7) points out in his new book, “Law deters and incapacitates, but it *also coordinates and informs*. (my italics added to his)” Again (p. 9), “In sum, most of this book explicates law’s function in providing coordinating focal points and information, *functions I aim to place alongside deterrence* (my italics).

This approach to law and economics made by legal scholars and philosophers makes an *existential* claim. They point to the fact that there are situations where the law does not need enforcers. Once others follow it, it is in your interest to follow it. This is true and important but what I am arguing is however for a more fundamental methodological shift. It makes not an existential claim but a *universal* one. What the above analysis shows is that the creation and shifting of the focal point is the *only way* that the law works. Once we bring all players in the game of the economy into the picture, as indeed we should, there is no other way for the law to work, for once the game of the economy is fully-specified, a law cannot alter the game. It can only work through the beliefs of citizens *and also the functionaries*. It is not just in some situations but in all situations that the law has to work by acting on human beliefs and trying to create new focal points. In brief, we are condemned to the republic of beliefs.

9. The Legitimacy of the Law

I have stayed all this time with the assumption of exogenously rational individuals, which is the core of mainstream microeconomics, because that is the assumption under which modern thought on law and economics was developed. In the last section we did delve into matters of stigma and social sanctions, which are not always common in textbook economics but that was also done under the assumption of exogenously given preferences. I wanted to show that even without questioning the discipline’s own stated assumptions, we can expose a major fault line in the discipline.

Contemporary research, however, behooves us to go a step further and ask if, in the light of modern findings, especially from the growth industry of behavioral economics, we should not question the assumption of exogenous individual rationality. There is now an array of research showing that how a choice is framed, the default option in a dichotomous choice situation, and simply the pressure of time, influences the choices we make (see Kahneman, 2011; O’Donoghue

and Rabin, 2001; Rubinstein, 2008; Thaler and Sunstein, 2008; World Bank, 2014). Whether we call the Prisoner's Dilemma by that name or some kindlier one like "cooperation with the fellow prisoner" can make a difference to how one plays the game. The words spoken before a person is made to do a task can affect how the task is performed (Hoff and Pandey, 2005). In some early papers, Sen (1973, 1993, 1997) showed how even the mere presence of certain options, which may never be chosen, can cause a reversal in preferences between two other options. He used this to argue that consistencies of certain kinds, such as the weak axiom of revealed preference may be violated by reasonable players.

All this being so, it is natural to ask if words uttered in the parliament and written down as statute, that is, some ink on paper, can under some circumstances influence people's preferences, and, through that, behavior. If so, then are we not back to the traditional approach to law and economics, which was earlier rejected in this paper? The answer to the first question is yes, and to the second, no. The words and the utterances in a legal statute can affect preferences and behavior. The literature on the expressive function of the law alludes to this (Lessig, 1996; Sunstein, 1996a; Cooter, 1998). However, there is no reason to believe that the effect of the law is for people and enforcers to do literally what the law commands. It is one thing to agree that the law can affect behavior and quite another to assume that the affect will be of the kind that is literally specified by the law.

In getting into this matter, let me begin with an example. For this, I shall return to the subject of food subsidies discussed above. Consider the case of a nation adopting a new law which requires the government to give food vouchers or stamps to the poor. Some may argue that the reason this works in many societies is because if after the legislature passes this law the functionaries of the government do not give out the vouchers and food shops do not give food in exchange for the vouchers, ordinary people will be angry with the government functionaries and stigmatize them. It is this fear of stigma and ostracization that makes the bureaucrats perform their designated task; and that in turn is what makes the law effective²⁷. And conversely, if there is no such law and some bureaucrats printed out vouchers and gave them out to people, that would make people angry and lead them to stigmatize the bureaucrats. It is these responses that keeps the government straight.

This argument is correct in the sense that governments do often perform their task well because of this kind of citizen monitoring. What is however important to realize is that this argument takes us beyond the standard model of law and economics. That model, as propounded by Becker, was so effective because of its sparse characterization of human preferences. Human beings had no innate attitude to the law. A punishment for driving fast was like a higher price of oranges. They made people desist from driving fast the same way that the higher prices reduces

²⁷ This is an argument that came up following my D. Gale Johnson Lecture at Chicago University.

demand for oranges. It had nothing to do with people's moral attitude to the law. Indeed, that is what made traditional law and economics distinct from the argument that legal philosophers had propounded for a long time. I am not here arguing that traditional law and economics is right or wrong in making this assumption regarding human preference; but simply pointing out that the above argument, based on citizen sanctioning of bureaucrats, takes us beyond traditional law and economics.

Further, once one takes this route, it is not clear why we need bureaucrats and the police. Citizens could sanction one another for failing to respect the law and that could lead to conformity with the law, obviating the need for law enforcers.²⁸

In sum, in the light of the new research in behavioral economics, we have to recognize the possibility that laws can change the economy game. However, even if that were the case, the game is not necessarily altered in the way in which it is assumed in the standard law and economics literature. In other words, findings from behavioral economics egg us on, not to return to traditional law and economics but to an even newer course, which I shall refer to as the 'sophisticated focal point approach.'

This approach acknowledges that a new law can affect human preferences and values. It can in some situations prompt conformity with the law, as just discussed in the case of food vouchers, but it can also have arbitrary affects and in some cases the orthogonal effect of causing perverse behavior, which deliberately contradicts the law. During India's independence movement, Indians marched to make salt from the sea, in response to a new colonial law that prohibited this kind of salt manufacturing. It is doubtful if Indians would have made salt from seawater in large scale if not for the fact that this was not allowed under colonial law.

For the sake of clarity, I shall from here on differentiate between the 'focal point approach' to law and economics, and the 'focal point approach with non-neoclassical features (NNF).' Till now we stayed with the neoclassical assumption of rational individuals with exogenously-given preferences. We could have called our approach thus far more accurately the focal point approach with neo-classical features.' What I am moving on to now is a recognition that human preferences are malleable and can change, which is the NNF part.

The recognition that the law can affect human preferences opens up new avenues of research and also the quest for new ways to influence behavior and outcomes in society. An ultimate objective, often attempted by societies, is to have all individuals in the game of the economy be so programmed as to carry out the dictates of the law (as long as that is consistent and feasible), simply because they are the dictates of the law. This is not without a downside for

²⁸ I believe that such self-enforcing societies may be possible in the future. We see glimpses of this when people object to the person trying to light up a cigarette in public place.

it can make society too dormant and lacking in creativity. All societies can do with a shot of anarchy. But leaving aside such objections, it is interesting to see that this may not be as impossible as may appear to mainstream economists. After all, in limited measure, we already do so. People widely respect the law not to smoke in public gatherings not out of fear of the police and functionaries of the state but simply out of regard for a law that they consider is in some sense legitimate. If this attitude can be taken to all laws we can do away with the enforcement machinery altogether.

This is however not likely to happen in the near future. An important intermediate step is to persuade the functionaries of the state to obey the law and do as the law suggests simply because that is the law, without regard to their self-interest. In some societies this has been at least partially achieved. For instance, one reason why the law is implemented better in developed countries is that this value is reasonably inculcated in the police and the judges. These agents of the state may do utility maximization the same way everybody else does when they go shopping, choosing a college for education and playing the market but, at least in some societies they do not do so when managing traffic or passing judgment²⁹. One of the problems of developing countries is that all individuals, including the functionaries of the state, fit the neoclassical assumption of rational individuals rather better than in developed countries. The direction of causality here is not clear, however. It is entirely possible that societies that manage to inculcate these values in the functionaries of state (and, in some measure, even in the citizenry) are ones that become developed. Nevertheless, it is worthwhile to try to instill these in bureaucrats, police and the courts. Minimally, this will help create a fairer society.

For fuller clarity of these two approaches involving the law affecting human behavior, it may be useful to explain the idea with an example. Let me modify the Prisoner's Dilemma Game of Life to yet another version, displayed below. As before, this is a 3-player game. Player 1 chooses between rows, 2 between columns and 3 between the left matrix and right matrix.

Game 7: Prisoner's Dilemma Game of Life, III

| | A | B |
|---|---------|---------|
| A | 7, 7, 2 | 1, 8, 2 |
| B | 8, 1, 2 | 2, 2, 2 |

L

| | A | B |
|---|---------|---------|
| A | 7, 7, 1 | 1, 6, 1 |
| B | 6, 1, 1 | 0, 0, 1 |

R

²⁹ For contrasting views on this, see Meade (1974) and R. Posner (1993).

In this game, if player 3, the police, chooses L, it means she just sits back and does nothing. As we can see from the payoff matrices, she gets a payoff of 2 in that case, no matter what players 1 and 2 do. If she chooses right, she is vigilant—in regulatory mode. She now goes out and punishes whoever chooses action B. But this vigilance is costly to her, and so when she chooses R, she gets a payoff of only 1. Now we can see how the two different levels of moral compliance work. Suppose that only the functionaries of the state, in this case, player 3, internalizes the law. Then as soon as the law says that players 1 and 2 should not play B, and that, if they do, player 3 should go into regulatory mode (that is choose R), player 3 feels bad not to play R, since that is what is required of her by the law. This may be captured by saying that if she moves L, that is, does nothing, she feels pangs of guilt and the payoff of 2 that she earlier got from L now becomes 0. Hence, as soon as the law is announced, she will ‘prefer’ to play R. Knowing this, players 1 and 2 will choose A and they get a payoff of 7 each.

In this case, the players are assumed to be of mixed types. Players 1 and 2 are standard neoclassical players with exogenously-given payoff functions, while player 3 is a moral person whose preference is shaped by the law. Of course, if this is possible, it is also possible to think of societies where the citizens are moral. As soon as the new law is announced, players 1 and 2, feel pangs of conscience to play B. If they do they get lower utility by 2 each. In other words, the game changes to something just like Game 2, above. In other words, enforcement occurs without the need for enforcers. Both these approaches require us to break away from the neoclassical view of individuals.

This discussion is closely related to the idea of legitimacy³⁰ of the state and the law. In the light of our new approach to law and economics, the idea of legitimacy comes in two different forms.

Let us first consider this within the focal point approach to law and economics, instead of the focal point approach with NNF. Here, the only way in which the law can make a difference to behavior is by creating a focal point (different from the prevailing equilibrium). Hence, the power of the law is critically dependent on the ability of the law to signal a focal point. There is no known theory of how focal points are formed but it is arguable that we will be inclined to pay heed to the law if we think others will pay heed to it, and they will do that and we will do so, if, minimally, we view the law as an instrument for enhancing our own welfare. If the law was crafted by a mendacious leader or state that wanted to hurt and exploit us, we would be inclined to pay no heed to it (if not positively move away from it).

³⁰ For formalizations of the concept of legitimacy, not necessarily in the context of the state but organizations, which raises issues similar to ones raised here, see Kornhauser (1984) and R. Akerlof (2012).

Hence, the law being an instrument of helping the citizenry is an important precondition for it to be focal. An illegitimate government, foisted on a people to extract rents out of them, will have difficulty in being effective. All this does not mean that it is impossible for an exploitative and illegitimate government to be effective. It simply makes the task harder for such a government. It may have to split the interests of the players, letting a small minority gain, inflict a large loss on the majority and siphon off the difference. Colonialism is a good example of precisely this. Unlike the ancient conquering kings, colonialism was a fine innovation in management, whereby you use a handful of the local people to exploit a mass of the local population. The amazing feature of European colonization in Africa, Asia and Latin America, and especially the former two, is how few of the colonizers were actually needed to run and exploit these large economies.

Once we move to the focal point approach with NNF, we can explore other ways in which legitimacy may work. For instance, people are more likely to adhere to the rule of abiding by the law *purely because it is the law and even when it goes against ones narrow self-interest*, if they treat the law as legitimate and feel that the state has some legitimacy (McAdams, 2015; Feldman and Teichman, 2009; Bilz and Nadler, 2009). Interestingly, we can distinguish between two notions of legitimacy, which I shall refer to as first- and second-order legitimacy. First-order legitimacy is a kind of minimal legitimacy whereby the functionaries of the state, that is, those who have taken up jobs where they are supposed to uphold the laws of the state, abide by the law. That is, they enforce the law as they are expected to, but the citizens are driven by self-interest and conventional utility maximization.

Second-order legitimacy, on the other hand, is defined as something more all-embracing. This is the case where all players—citizens and functionaries alike—are imbued with the value of following the law because it is the law.

In case the law has first-order legitimacy we are in the world of traditional law and economics, where a new law changes the game citizens play since the functionaries robotically follow the law. On the other hand, if the state and the edicts of the state have second-order legitimacy, the law will not only be effective but it will be so without the need to have anybody enforcing the law.

It is arguable that some high-income countries do approach something like first-order legitimacy and that is the reason why the laws are generally effective in these countries. How such legitimacy is achieved is not always clear but evidently this is something nations should aspire to, since it can make the laws more effective and thereby help growth and development. In brief, legitimacy of the state is not just good for democracy but may facilitate economic efficiency and development.

10. Two Foundational Questions

All formulations of law and economics, and maybe all disciplines, suffer from open questions pertaining to their foundations. Hence, at one level, with all disciplines, the decision problem is to choose which fault lines to build above, since fault lines of different kinds are ubiquitous.

In this short section, I want to point to two particular problems that underlie much of the discussion in this paper. This is an open-ended discussion, since it is not evident to me at this point of time, what can be done about them. I merely draw attention to the existence of these problems to facilitate future inquiry.

Before going into these, I should point out that these methodological problems should not plunge us into nihilism about the possibility of law and economics. The foundational questions raised here should be viewed akin to the paradoxes that underlie much of mathematics. We still continue to practice mathematics and get a lot out of it, while retaining awareness that there are troubling fault lines beneath it. These fault lines being lodged deep down are not easy to correct. Hence, the concerns expressed here should be viewed as a large agenda that we have to get to eventually.

The first fundamental problem that we usually handle by looking the other way, pertains to the concept of the 'game of life' or what is called here the 'game of the economy.' The game of life is one where individuals are free to do what is biologically and physically possible. The idea is that this is largest and most primitive game within which we function. Individuals are allowed to choose from the set of all possible actions.

The troubling question that we usually deal with by looking the other way is: Is that a well-defined game? The answer is, in all likelihood, no. This is akin to the problem that afflicted early set theory, which used the idea of a universal set, that is, the set of every conceivable thing. Operating with this assumption led to some celebrated paradoxes, such as the Russell paradox. It was later realized that the Russell paradox was a result of the implicit assumption of there existing a set of everything³¹.

It is arguable, in the same spirit, that assuming that there exists a game of life in which players can do anything that they physically can, is similarly problematic. For one, this approach does not articulate the choices open to a player. It simply says that the player can do anything that he or she wishes to. In some ways it subsumes the assumption of there being a universal set,

³¹ There seems to be little writing on this kind of paradoxes in legal theory. But see Hockett (1967) and Jain (1995).

a set of everything; and hence, it subsumes the assumption that we know from set theory is untenable. In our everyday use of the focal point approach to law and economics as proposed in this paper, this problem does not affect us because typically we will begin by specifying the actual game that is being played, instead of making arbitrary references to the game of life or game of the economy. In, for instance, both versions of the Prisoner's Dilemma Game of Life, described above, the full game is laid out and so there is no ambiguity about the game itself. It may be argued that these are not games of life because we can think of other actions players may take. But, *once these games are specified*, the focal point approach can be used with no ambiguity. The open question that remains concerns where do the games that people play come from? How are their contours specified? What we know is that a hand-waving reference to the game of life does not work.

The second question pertains to who the people are who draft and create the law. Are they part of the game? The focal point approach to law and economics treats all enforcers of the law, those I refer to as functionaries, as part of the game, but it does not treat the act of creating the law as part of the game and leaves ambiguous who the people are who draft and announce laws. Strictly speaking we should treat the game of life (admittedly a concept not without problems, as just discussed) as including all individuals locked in a large extensive form game. Even the drafting of the law (in contrast to its enforcement) is something that occurs at some information set among a set of players. In other words, a law is something that gets adopted by a subset of players at some stage of the game. In an ideal formulation we would use such an all-encompassing approach, but such an approach will have to entail a lot of methodological novelty and have its pitfalls.

11. Law as Cheap Talk and Burning Money

At this stage, it is not fully evident how one should proceed to build such an all-encompassing model, where even the enactment of the law is part of the economy game. There are two possible routes, both of which at this time I will leave purely at the level of suggestions, to be developed later fully. The first route is to draw on the concept of cheap talk in game theory (Crawford and Sobel, 1982; Farrell and Rabin, 1996). The act of adopting a law, according to this view is like a player or a group of players in the middle of a game making a public statement or writing down something on paper.

The second approach is based on the recognition that enacting a law can be costly to the individuals engaged in the process. Minimally, it takes time and effort. If it does not change the game, as was argued in the focal point approach to law, then it is like burning money. Fortunately,

there is a literature on what burning money can do (Kohlberg and Mertens, 1986; Van Damme, 1989; Ben-Porath and Dekel, 1992; Rubinstein, 1991).

While I am unable to take these approaches to full closure, it will be evident that both of them suggest models of law and economics which are natural extensions of the focal point approach to law and economics proposed above.

Consider first the case of cheap talk. In itself, this is a costless act and as such some would view it as inconsequential. However, it could be treated as a signal of what the player who does the cheap talking or, in this case, the enacting of the law, intends to do in future stages of the game³². In other words, the enactment of a new law is a costless announcement of what a player or a group of players intend to do *here onwards* in the game.

How consequential this is depends critically on the subgame that lies ahead of the period in which the law is enacted. In case there is only one equilibrium in the subgame ahead, the cheap talk can do nothing. However, if there are several equilibria, the law can, by indicating what the people who announce the law intend to do, influence what others will do. There is a close connection between this and the focal point approach. Here, as before, a focal point is created by the announcement of the law in the subgame that lies ahead. In some ways it is a more compelling focal point since the announcer is a player who is saying what he or she will do in the periods that lie ahead. In brief, the credibility of the lawmaker is on the line³³.

The more difficult model is one which treats the enactment of the law as burning money. The process of enacting the law is costly. But, after the law is enacted, it is (in the traditional neoclassical model) like some ink on paper. If after that people do what they would have done without the law, they get the same payoffs. In other words, the law does not alter the game. How then can enacting the law, which is similar to burning money, alter the outcome of the game? The answer has to be by signaling something to other players about the future. This is what is called forward-induction in game theory. The power of forward induction is usually illustrated

³² In the present context I am staying with the mainstream assumption that the conversation or words uttered in the middle of a game does not alter payoffs but merely signals future action. There is however a literature which points to the fact that conversation and words can raise expectations on the part of the listeners, which can create pressure on the listener and the speaker by creating expectations, guilt and guilt aversion (see, for instance, Charness and Dufwenberg, 2006; Ellingsen, Johannesson, Tjotta and Torsvik, 2010). Likewise, words can create promises and experiments show that human beings do not like to break their own promises, even if they are relatively indifferent to other people's promise on their behalf (Vanberg, 2008). Hence, the lawmaker's behavior could indeed be affected by the law that he or she makes.

³³ This is closely connected to the idea of credibility of the autocrat or simply the government, on which depends a lot of what actually happens in a collectivity (Myerson, 2008; Schauer, 2015, Chapter 7). In Myerson's formulation, it is more than a pointer to a pre-existing equilibrium in the subgame ahead but it is device used by the autocrat to tie himself or herself down to a certain behavior in the future, because to deviate from a commitment is to lose credibility.

with the Battle of the Sexes (see Osborne and Rubinstein, 1994, Chapter 6). Let me instead illustrate this with the Prisoner's Dilemma game of life I, as described above.

Suppose that before playing that game, player 1 has the choice of enacting a law, which says that the citizens should choose A and the police, that is player 3 should choose R. Actually, in this approach what the law says is unimportant. All that matters is the fact that enacting the law is costly to player 1 (who, it is assumed here, does the enacting). Suppose, the cost of enacting the law is 1 to player 1. Under this formulation what we have is a two-period game. In period 1, player 1 chooses to enact the law (burn money) or not do so, and then, in period two, they play the Prisoner's Dilemma Game of Life I (PDGL).

This full game, in which the person who enacts the law is also a part of the game, will be called the Economy Game with Law Enactment. The game is illustrated below. The game starts at the node w , where player 1 chooses to do "Nothing" or "Enact" the law, which inflicts a cost of 1 on player 1.

Once this choice is made, players 1 and 2 play the PDGL, which is illustrated below. The only difference between playing the PDGL after enactment and playing after doing nothing is that, after enactment, player 1 earns a payoff of 1 less than what he would have earned otherwise. This is the cost of enactment he has to bear. Hence, the 3 players playing (A, A, L) leads to the payoff of (7, 7, 0), if no law is enacted. But if the law is enacted, the same action triple leads to the payoff of (6, 7, 0).

How will this game be played? To answer this, note that if player 1 enacts the law, that is, burns money, it must be because he expects that by virtue of doing this the game will end up at (A, A, R) instead of (B, B, L). Burning money was worth it because it signals to the other player that he is now expecting the game to go to (A, A, R). Hence, the law helps to take the economy to the Nash equilibrium outcome that is good for the citizens. The law in this case is very effective. Its role is purely that of signaling what the one who enacts the law will do and this is a powerful driver of everybody's behavior.

Unfortunately, forward induction has other complications. A question that quickly arises is: If burning money can take a player to his or her preferred equilibrium, why is it necessary to burn money? Even if he or she does not burn money, that fact that he or she could have, should be enough to take the economy to the equilibrium outcome where the player who could have burned money is better off. In other words, it is not really necessary to enact the law. The mere fact that he or she can enact the law is enough to influence behavior.

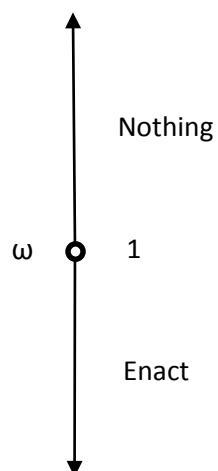
Game 8: Economy Game with Law Enactment

| | A | B |
|---|---------|---------|
| A | 7, 7, 0 | 1, 8, 2 |
| B | 8, 1, 2 | 2, 2, 2 |

L

| | A | B |
|---|---------|---------|
| A | 7, 7, 1 | 1, 6, 1 |
| B | 6, 1, 1 | 0, 0, 1 |

R



| | A | B |
|---|---------|---------|
| A | 6, 7, 0 | 0, 8, 2 |
| B | 7, 1, 2 | 1, 2, 2 |

L

| | A | B |
|---|---------|----------|
| A | 6, 7, 1 | 0, 6, 1 |
| B | 5, 1, 1 | -1, 0, 1 |

R

It is possible to argue that in the messy politics of real life it is not always visible to all agents whether a person X had the option to enact a law (or burn money). The only way to show this is to actually enact the law. This is the reason why laws get enacted and this is how behavior gets affected. Forward induction is a complicated idea and this is not the end of the matter. But I must leave it at this plausible resting point, for further inquiry and extension in the future.

Taking the above argument as it stands, one can see the power of this approach in a monarchy or in an autocratic system. A law is an announcement of what the king intends to do here onwards. The king incurs a cost to make this credible. This could influence the behavior of those near the king and that in turn could influence the behavior of more people and if given all those influences it is rational for the king to do what the king has said he will do, then the law becomes effective. In other words, the law influences behavior but in a very different way from that in the standard approach to law and economics.

An important precursor to this idea is that of the ‘norms entrepreneur’ that legal scholars have written about (see, for instance, Sunstein, 1996b; Posner, 2000). To quote Posner (2000, p. 30): “Usually, when the government or private individuals succeed in establishing certain actions as signals, they do so by drawing the public’s attention to one of several conflicting focal points.” And a little later on the same page: “To analyze these points more carefully, it is useful to imagine the cooperation game embedded in a larger game. Prior to the first move of the cooperation game, a “norm entrepreneur” announces that a particular action will be a signal.”³⁴

It seems reasonable to expect that in monarchies or oligarchies the law is likely to be more effective than in democracies, where the source of the announcement is more diffuse and so it is not clear who will do what after the law is announced. Of course, on the other hand, in case we allow for morals and values to play a role, it is arguable that in a democracy ordinary people may buy into the law more readily, thereby making it more effective.

The jury has to be out on this. But using the concept of cheap talk games to understand how the law works in a model in which all persons, including those who enact the law, are treated as players in the economy game is a promising direction to pursue; and this is nicely complementary to the focal point approach to the law. A fuller development of this, however, lies outside the scope of the present paper.

³⁴ If we treat the ‘cooperation game’ to be the subgame that lies ahead of the announcement, then the norm entrepreneur does something very similar to a monarch announcing a new law.

12. Concluding Remarks

The focus of this paper was law and economics, but it has a larger ambition.

Much of the paper argued that the traditional approach to law and economics is flawed in an important way. Its central assumptions that (1) players are traditional, rational agents, with exogenously given preferences, and (2) a new law changes the game that players play by altering their payoff functions or available strategies, are together inconsistent. This paper proposed an alternative formulation—the focal point approach to law and economics. In essence, what this approach claims is that a new law does not change the game that citizens play but changes the beliefs and expectations that players have about how other players will behave within the same game of life; and it is these changed expectations that lead to changed behavior.

The new approach can vastly improve our understanding of how the law works and impacts on economic outcomes, enabling nations to grow and develop. It also helps us understand why so many laws remain so poorly implemented in many countries, and especially so in developing and emerging economies.

The paper drew attention to the fact that human preferences do not have to be restricted to maximizing apples, oranges and wealth, as in some economics textbooks. Human beings are characterized by other psychological and behavioral yearnings; they feel ashamed when stigmatized and do not like to be ostracized; and they use stigma and ostracism to influence others. This recognition enriches our understanding of human behavior but does not help us escape the problems that underlie mainstream law and economics. For that, the critical point is to realize that the game of life or the economy game cannot be changed by a law. The law cannot change the rules of that grand game. It can only change human expectation and beliefs about the thought and behavior of other human beings. The mammoth power of the law works, at first sight surprisingly, through these rather soft channels of the human mind and human beliefs.

What is interesting, however, is that this does not mean that we have to restrict our understanding of the concept of law to hand-waving and nebulous ideas. By drawing on modern game-theoretic concepts, in particular, the focal point, cheap talk, and forward induction, we can formalize the idea of law in a way that may not have been feasible before. These larger questions, that legal philosophers have grappled with, were mentioned every now and then in the above pages but were peripheral to the concerns of this paper.

What I want to suggest in closing is that the approach taken here may allow us to better grapple with the big questions of law and philosophy. We get a glimpse of the big questions H. L. A. Hart took on from the 81 pages of scribbling he set down in a notebook he kept while working on his classic book on the concept of law. The book that eventually emerged has a neatness which is at one level deceptive; and the open questions look more closed than they are. As Hart's

biographer, Nicola Lacey points out having read his hand-written notebook, in pursuing his mammoth project, Hart drew widely, from Austin, Bentham and Hobbes to Wittgenstein. What, however, he did not have access to were ideas from modern game theory because this was a discipline at a very rudimentary stage in the fifties. Especially on extensive-form games, that is, games over multiple time periods, there was next to nothing. I am not referring here to complex ideas which are part of the body of mathematical game theory but simple intuitive ideas, which emerged out of that literature. I am referring to ideas like how a conversation which is virtually costless among a group of people (that is, 'cheap talk') can influence how the people interact with one another thereafter, or how a person or a group of people indulging in some explicit and seemingly meaningless wastage (that is, 'burning money') can influence behavior and real outcomes.

These newer ideas and concepts which are available to us today help us to take a much richer view of the concept of law. While this paper is not on this large essentially philosophical project it does shed light on it. It seems fair to argue now that Hart's proposition that the law is a system of rules, like in a game of chess or bridge, that defines the contour of human interaction, is inadequate, if not unacceptable. The all-encompassing game that people in a society play is given. A law does not change that. What it does is, within that game of life, create beliefs and expectations in our heads about other people's behavior. Though Hart did draw on Hume, he did not draw enough on him. Hence, while he made a huge contribution to our understanding of the law, it remained incomplete in important ways. This incompleteness would have been evident to him if he drew more on Hume since it was evident to Hume, even though a full answer would not have been possible because he needed some tools of analysis and concepts that we have only now, thanks to the rise of game theory.

Although they are rooted in a complex and large literature, these game-theoretic ideas and concepts are, in retrospect, simple and easy to use and do not require lawyers and legal philosophers to plough through the early game theory literature. What I tried to do in this paper is to draw some critical definitions and propositions from this literature to inform our understanding of law and economics. What I am also suggesting is that we can do even more with them—change and vastly enrich our understanding of the concept of law.

References

- Abbink, K., Dasgupta, U., Gangadharan, L., and Jain, T. (2014), 'Letting the Briber Go Free: An Experiment on Mitigating Harassment Bribes,' **Journal of Public Economics**, vol. 111.
- Akerlof, G. (1976), 'The Economics of Caste, Rat Race and Other Woeful Tales,' **Quarterly Journal of Economics**, vol. 90.
- Akerlof, R. (2012), 'A Theory of Authority,' mimeo: Warwick University.
- Bagenstos, S. (2013), 'Employment Law and Social Equality,' **Michigan Law Review**, vol. 112.
- Baird, D., Gertner, R. and Picker, R. (1995), **Game Theory and the Law**, Cambridge, MA: Harvard University Press.
- Baradaran, S. and Barclay, S. (2011), 'Fair Trade and Child Labor,' **Columbia Human Rights Law Review**, vol. 43.
- Bardhan, P. (1997), 'Corruption and Development: A Review of Issues,' **Journal of Economic Literature**, vol. 35.
- Basu, Karna, Basu, K., and Cordella, T. (2014), 'Asymmetric Punishment as an Instrument of Corruption Control,' World Bank Policy Research Working Paper, No. 6933.
- Basu, K. (1986), 'One Kind of Power,' **Oxford Economic Papers**, vol. 35.
- Basu, K. (1993), **Lectures in Industrial Organization Theory**, Oxford: Blackwell.
- Basu, K. (2000), **Prelude to Political Economy: A Study of the Social and Political Foundations of Economics**, Oxford: Oxford University Press.
- Basu, K. (2011), 'Why, for a Class of Bribes, the Act of Giving a Bribe Should be Treated as Legal,' Ministry of Finance, Government of India. Available at: <http://mpra.ub.uni-muenchen.de/50335/>
- Basu, K. (2015), **An Economist in the Real World: The Art of Policymaking in India**, Cambridge, MA: MIT Press.
- Basu, K., Bhattacharya, S. and Mishra, A. (1992), 'Notes on Bribery and the Control of Corruption,' **Journal of Public Economics**, vol. 48.
- Basu, K. and Van, P. H. (1998), 'The Economics of Child Labor,' **American Economic Review**, Vol. 88.
- Basu, K. and Weibull, J. (1991), 'Strategy Subsets Closed Under Rational Behavior,' **Economics Letters**, vol. 36.
- Becker, G. (1968), 'Crime and Punishment: An Economic Approach,' **Journal of Political Economy**, vol. 76.
- Becker, G. and Stigler, G. (1974), 'Law Enforcement, Malfeasance, and Compensation of Enforcers,' **Journal of Legal Studies**, vol. 3.
- Benabou, R. and Tirole, J. (2006), 'Incentives and Pro-social Behavior,' **American Economic Review**, vol. 96.

- Ben-Porath, E. and Dekel, E. (1992), 'Signaling Future Action and the Potential for Sacrifice,' **Journal of Economic Theory**, vol. 53.
- Bernstein, L. (1992), 'Opting Out of the Legal System: Extra-legal Contractual Relations in the Diamond Industry,' **Journal of Legal Studies**, vol. 21.
- Besley, T. and Coate, S. (1992), 'Understanding Welfare Stigma: Tax Payer Resentment and Statistical Discrimination,' **Journal of Public Economics**, vol. 48.
- Bilz, K. and Nadler, J. (2009), 'Law, Psychology, and Morality,' **Psychology of Learning and Motivation: Moral Judgment and Decision-Making**, vol. 62.
- Binmore, K. (1994), **Game Theory and the Social Contract: Playing Fair**, Cambridge, MA: MIT Press.
- Boettke, P., Coyne, C. and Leeson, P. (2008), 'Institutional Stickiness and the New Development Economics,' **American Journal of Economics and Sociology**, vol. 67.
- Bowles, S. (2004), **Microeconomics: Behavior, Institutions, and Evolution**, Princeton: Princeton University Press.
- Calabresi, G. (1961), 'Some Thoughts on Risk Distribution and the Law of Torts,' **Yale Law Journal**, vol. 70.
- Charness, G. and Dufwenberg, M. (2006), 'Promises and Partnership,' **Econometrica**, vol. 74.
- Coase, R. (1960), 'The Problem of Social Cost,' **Journal of Law and Economics**, vol. 3.
- Cooter, R. (1998), 'Expressive Law and Economics,' **Journal of Legal Studies**, vol. 27.
- Cooter, R. (2000), 'Do Good Laws Make Good Citizens? An Economic Analysis of Internalized Norms,' **Virginia Law Review**, vol. 86, 1577-1601.
- Cooter, R. and Ullen, T. (1988), **Law and Economics**, London: Pearson.
- Crawford, V. and Sobel, J. (1982), 'Strategic Information Transmission,' **Econometrica**, vol. 50.
- Dixit, A. (2007), **Lawlessness and Economics: Alternative Modes of Governance**, Princeton: Princeton University Press.
- Dixit, A. (2015), 'How Business Community Institutions can Help Fight Corruption,' **World Bank Economic Review, Papers and Proceedings**, forthcoming
- Dharmapala, D., Garoupa, N. and McAdams, R. (2015), 'Punitive Police? Agency Costs, Law Enforcement, and Criminal Procedure.' Mimeo: University of Chicago Law School.
- Dufwenberg, M. and Spagnolo, G. (2015), 'Legalizing Bribe Giving,' **Economic Inquiry**, forthcoming.
- Edmonds, E. and Schady, N. (2007), 'Poverty Alleviation and Child Labor,' **American Economic Journal: Economic Policy**, vol. 4.
- Ellickson, Robert (1991), **Order without Law: How Neighbors Settle Disputes**, Cambridge, MA: Harvard University Press.
- Ellingsen, T. and Johannesson, M. (2008), 'Pride and Prejudice: The Human Side of Incentive Theory,' **American Economic Review**, vol. 98.

- Ellingsen, T., Johannesson, M., Tjøtta S., and Torsvik, G. (2008), 'Testing Guilt Aversion,' **Games and Economic Behavior**, vol. 68.
- Elster, J. (1989), 'Social Norms and Economic Theory,' **Journal of Economic Perspectives**, vol. 3.
- Emerson, P. and Souza, A. P. (2003), 'Is There a Child Labor Trap? Intergenerational Persistence of Child Labor in Brazil,' **Economic Development and Cultural Change**, vol. 51.
- Farrell, J. and Rabin, M. (1996), 'Cheap Talk,' **Journal of Economic Perspectives**, vol. 10.
- Feldman, Y. and Teichman, D. (2009), 'Are All Legal Probabilities Created Equal?' **New York Law Review**, vol. 84.
- Fisman, R. and Miguel, T. (2007). 'Corruption, Norms and Legal Enforcement: Evidence from UN Diplomatic Parking Tickets,' **Journal of Political Economy**, vol. 115.
- Gaertner, W., Pattanaik, P. and Suzumura, K. (1992), 'Individual Rights Revisited,' **Economica**, vol. 59.
- Geisinger, A. (2002), 'A Belief Change Theory of Expressive Law,' **Iowa Law Review**, vol. 88.
- Gintis, H. (2009), **The Bounds of Reason: Game Theory and the Unification of Behavioral Sciences**, Princeton: Princeton University Press.
- Granovetter, M. and Soong, R. (1983), 'Threshold Models of Diffusion and Collective Behavior,' **Journal of Mathematical Sociology**, vol. 9.
- Greif, A., Milgrom, P. and Weingast, B. (1994), 'Coordination, Commitment and Enforcement: The Case of the Merchant Guild,' **Journal of Political Economy**, vol. 102.
- Habyarimana, J., Humphreys, M., Posner, D., and Weinstein, J. (2007), 'Why Does Ethnic Diversity Undermine Public Goods,' **American Political Science Review**, vol. 101.
- Hall, G. D. G. (ed.) (2002), **The Treatise on the Laws and Customs on the Realm of England Commonly called Glanvill**, Oxford: Oxford University Press.
- Hardin, R. (1999), **Liberalism, Constitutionalism and Democracy**, New York: Oxford University Press.
- Hart, H. L. A. (1961), **The Concept of Law**, Oxford: Oxford University Press.
- Hockett, R. (1967), 'Reflective Intensions: Two Foundational Decision Points in Mathematics, Law and Economics,' **Cardozo Law Review**, vol. 29.
- Hoff, K. and Pandey, P. (2006), 'Persistent Effects of Discrimination and the Role of Social Identity,' **American Economic Review**, vol. 96.
- Hoff, K. and Stiglitz, J. (2001), 'Modern Economic Theory and Development,' in G. Meier and J. Stiglitz (eds.), **Frontiers of Development Economics**, New York: Oxford University Press.
- Hume, D. (1742), 'On the First Principle of Government,' in **Essays: Moral, Political and Literary**, Part I. 1987 edition by Liberty Fund, Inc.
- Jain, S. (1995), 'The Coherence of Rights,' in D. Andler, P. Banerjee, M. Chaudhury and O. Guillaume (eds.) **Facets of Rationality**, Sage, New Delhi.
- Jha, S. and Ramaswami, B. (2010), 'How can Food Subsidies Work Better? Answers from India and the Philippines,' Asian Development Bank Economics Working Paper Series No. 221.

- Johnson, D. G. (1976), 'Increased Stability of Grain Supplies in Developing Countries: Optimal Carryovers and Insurance,' **World Development**, vol. 4.
- Kahneman, D. (2011), **Thinking, Fast and Slow**, Farrar, Straus, and Giroux.
- Khera, R. (2011), 'Trends in Diversion of Grain from the Public Distribution System,' **Economic and Political Weekly**, May 21, vol. 46.
- Kohlberg, E. and Mertens, J. -F. (1986), 'On the Strategic Stability of Equilibria,' **Econometrica**, vol. 54.
- Kornhauser, L. (1984), 'The Great Image of Authority,' **Stanford Law Review**, vol. 36.
- Kranton, R. and Swamy, A. (1999), 'The Hazards of Piecemeal Reform: British Civil Courts and the Credit Market in Colonial India,' **Journal of Development Economics**, vol. 58.
- Lacey, N. (2004), **A Life of H. L. A. Hart: The Nightmare and the Noble Dream**, Oxford: Oxford University Press.
- Lessig, L. (1996), 'Social Meaning and Social Norms,' **University of Pennsylvania Law Review**, vol. 144.
- Levi, E. (1949), **An Introduction to Legal Reasoning**, Chicago: University of Chicago Press.
- Lindbeck, A., Nyberg, S. and Weibull, J. (1989), 'Social Norms and Economic Incentives in the Welfare State,' **Quarterly Journal of Economics**, vol. 114.
- Lopez-Calva, L.-F. (2003), 'Social Norms, Coordination and Policy Issues in the Fight against Child Labor,' in K. Basu, H. Horn, L. Romain and J. Shapiro (eds.), **International Labor Standards**, Oxford: Blackwell Publishing.
- Mailath, G., Morris, S. and Postlewaite, A. (2001), 'Laws and Authority,' mimeo: University of Pennsylvania.
- Mailath, G., Morris, S. and Postlewaite, A. (2007), 'Maintaining Authority,' mimeo: University of Pennsylvania.
- Maskin, E. and Sjoström, T. (2002), 'Implementation Theory,' in K. Arrow, A. Sen and K. Suzumura (eds.), **Handbook of Social Choice Theory and Welfare**, Amsterdam: Elsevier.
- McAdams, R. (2000), 'A Focal Point Theory of Expressive Law,' **Virginia Law Review**, vol. 86.
- McAdams, Richard (2015), **The Expressive Powers of Law: Theories and Limits**, Cambridge: Harvard University Press.
- Meade, J. (1974), 'Preference Ordering and Economic Policy,' in A. Mitra (ed.), **Economic Theory and Planning: Essays in Honour of A. K. Dasgupta**, New Delhi: Oxford University Press.
- Mercuro, N. and Medema, S. (1997), **Economics and the Law**, Princeton: Princeton University Press.
- Mishra, A. (2006), 'Corruption, Hierarchies, and Bureaucratic Structures,' in S. Rose-Akerman (ed.), **International Handbook on the Economics of Corruption**, Cheltenham, U.K.: Edward Elgar.
- Myerson, R. (1983), 'Mechanism Design by an Informed Principal,' **Econometrica**, vol. 51.

- Myerson, R. (2004), 'Justice, Institutions and Multiple Equilibria,' **Chicago Journal of International Law**, vol. 5.
- Myerson, R. (2008), 'The Autocrat's Credibility Problem,' **American Political Science Review**, vol. 102.
- Myerson, R. (2006), 'Fundamental Theory of Institutions: A Lecture in Honor of Leo Hurwicz,' mimeo: Department of Economics, Chicago University.
- Nussbaum, M. (1997), 'Flawed Foundations: The Philosophical Critique of (a Particular Type of) Economics,' **University of Chicago Law Review**, vol. 64.
- Oak, M. (2015), 'Legalization of Bribe Giving When Bribe Type Is Endogenous,' **Journal of Public Economic Theory**, forthcoming.
- O'Donoghue, T. and Rabin, M. (2001), 'Choice and Procrastination,' **Quarterly Journal of Economics**, vol. 116.
- Osborne, M. and Rubinstein, A. (1990), **A Course in Game Theory**, Cambridge, MA: The MIT Press.
- Paternoster, R. (2010), 'How Much Do we Really Know about Criminal Deterrence?' **Journal of Criminal Law and Criminology**, vol. 100.
- Persson, M. and Siven, C. –H. (2006), 'Incentive and Incarceration Effects in a General Equilibrium Model of Crime,' **Journal of Economic Behavior and Organization**, vol. 59.
- Platteau, J. –P. (2000), **Institutions, Social Norms, and Economic Development**, Amsterdam: Harwood Academic Publishers.
- Posner, E. (1996), 'Law, Economics and Inefficient Norms,' **University of Pennsylvania Law Review**, vol. 144.
- Posner, E. (2000), **Law and Social Norms**, Cambridge, MA: Harvard University Press.
- Posner, R. (1993), 'What do Judges Maximize? (The Same Thing Everybody Else Does),' **Supreme Court Economic Review**, vol. 30.
- Raz, J. (1980), **The Concept of a Legal System**, Oxford: Clarendon Press.
- Rose-Akerman, S. (1999), **Corruption and Government: Causes, Consequences, and Reform**, Cambridge: Cambridge University Press.
- Rubinstein, A. (1991), 'Comments on the Interpretation of Game Theory,' **Econometrica**, vol. 59.
- Rubinstein, A. (2008), 'Comments on 'Behavioral Economics',' mimeo: Tel-Aviv University.
- Rubinstein, A. (2012), **Economic Fables**, Open Book Publishers, Cambridge, UK.
- Runciman, W. and Sen, A. (1965), 'Games, Justice, and the General Will,' **Mind**, vol. 74.
- Schafer, H.-B. and Ott, C. (2005), **The Economic Analysis of Civil Law**, Northampton, MA: Edward-Elgar
- Schauer, F. (2015), **The Force of Law**, Cambridge, MA: Harvard University Press.
- Schelling, T. (1960), **The Strategy of Conflict**, Cambridge, MA: Harvard University Press.
- Schlicht, E. (1998), **On Custom in the Economy**, Oxford: Oxford University Press.
- Sen, A. (1969), 'The Impossibility of a Paretian Liberal,' **Journal of Political Economy**, vol. 78.
- Sen, A. (1973), 'Behaviour and the Concept of Preference,' **Economica**, vol. 40.

- Sen, A. (1993), 'Internal Consistency of Choice,' **Econometrica**, vol. 61.
- Sen, A. (1997), 'Rational Fools: A Critique of the Behavioral Foundations of Economic Theory,' **Philosophy and Public Affairs**, vol. 6.
- Sen, Arunava (2007), 'The Theory of Mechanism Design: An Overview,' **Economic and Political Weekly**, vol. 42, December 8.
- Singer, M. (2006), 'Legitimacy Criteria for Legal Systems,' **King's College Law Journal**, vol. 17.
- Spengler, D., 2014. 'Endogenous Detection of Collaborative Crime: The Case of Corruption,' **Review of Law & Economics**, vol. 10(2), pages 17, July.
- Stern, N. (1978), 'On the Economic Theory of Policy towards Crime,' in Heineke, J. M. (ed.), **Economic Models of Criminal Behavior: Contributions to Economic Analysis**, Oxford: North-Holland.
- Sugden, R. (1989), 'Spontaneous Order,' **Journal of Economic Perspectives**, vol. 3.
- Sunstein, C. (1996a), 'On the Expressive Function of Law,' **University of Pennsylvania Law Review**, vol. 144.
- Sunstein, C. (1996b), 'Social Norms and Social Roles,' **Columbia Law Review**, vol. 96.
- Sukhtankar, S. and Vaishnav, M. (2014), 'Corruption in India: Bridging Academic Evidence and Policy Options,' India Policy Forum 2014, Brookings and NCAER.
- Swedberg, R. (2014), **The Art of Social Theory**, Princeton: Princeton University Press.
- Thaler, R. and Sunstein, C. (2008), **Nudge: Improving Decisions about Health, Wealth and Happiness**, New Haven: Yale University Press.
- Tversky, A. and Kahneman, D. (1986), 'Rational Choice and the Framing of Decisions,' **Journal of Business**, vol. 59.
- Van Damme, E. (1989), 'Stable Equilibria and Forward Induction,' **Journal of Economic Theory**, vol. 48.
- Vanberg, C. (2008), 'Why do People Keep Their Promises?' **Econometrica**, vol. 76.
- Veblen, T. (1899), **The Theory of the Leisure Class**, Macmillan: London.
- World Bank (2003), **World Development Report 2004: Making Services Work for Poor People**, Washington, D.C.: World Bank.
- World Bank (2014), **World Development Report 2015: Mind, Society, and Behavior**, Washington, D.C.: World Bank.
- World Bank (2015), **World Development Report 2016: Internet for Development**, Washington, D.C.: World Bank, forthcoming.