

Public choice and the economic analysis of anarchy: a survey

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Abstract Public choice economists began studying anarchy in the 1970s. Since then, the amount of research on anarchy has burgeoned. This article surveys the important public choice contributions to the economics of anarchy. Following early public choice economists, many economists are researching how individuals interact without government. From non-public-interested explanations of the creation of government to historical studies of internalizing externalities under anarchy, public choice scholars are arriving at a more realistic perspective of human interaction with and without government. Although the economics of politics receives more attention, the economics of anarchy is an important area of research in public choice.

Keywords Anarchism · Lawlessness · Order · Internalization of externalities · Self-governance

JEL Classification D74 · H11 · K42

“It is high time to shift out of the pragmatic mind-set that has been our national characteristic. The grand alternatives for social organization must be reconsidered. The loss of faith in the socialist dream has not, and probably will not, restore faith in laissez-faire. But what are the effective alternatives? Does anarchism deserve a hearing, and, if so, what sort of anarchism?”

James M. Buchanan (1974: 914)

1 Introduction

Most economists take a system of government and law enforcement as given in their work. In many situations in the real world, however, government enforcement is imperfect, weak,

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corrupt, or absent, leaving people in an effective state of anarchy. This is most obvious for the millions of people who live under what are called weak or failed states, and it is also the case for the many areas of our lives where government enforcement is uninvolved. What then? Are people still able to make economic choices, and can economists study the situation? In the early 1970s economists at the Center for Study of Public Choice asked novel questions and pioneered the study of anarchy using public choice economics. James Buchanan (2005: 267) describes how the public choice economists “saw challenge in analyzing just what genuine anarchy would look like.” Buchanan recalls how his colleague, Winston Bush, got them interested in studying a stateless society: “Before we knew it, we were all working on anarchy, and he had organized the most exciting continuing seminar in which I have been associated, before or since” (2005: 267).

The public choice analysis of anarchy is an important but often overlooked strand of research in the economics of non-market decision making. “The economic analysis of anarchy attracted much effort in the early 1970s” (Buchanan 2003: 6), and it has spawned much more research since. Public choice analysis of anarchy began with two edited volumes published by the Center for Study of Public Choice, *Explorations in the Theory of Anarchy* (1972) and *Further Explorations in the Theory of Anarchy* (1974a), and works that followed by Gordon Tullock (*The Social Dilemma*, 1974b) and James Buchanan (*The Limits of Liberty*, 1975). Around the same time Murray Rothbard (1970, 1973/1996), David Friedman (1973/1989, 1976), and Robert Nozick (1974) began discussing anarchy as well.

The early public choice scholars sought to explore the theory of anarchism and what an anarchistic equilibrium would look like. Without government, to what extent would prisoners’ dilemma problems of cheating and predation prevail? What can be done to reduce conflict and encourage cooperation? Since their initial contributions, the quantity of work in the economics of anarchy has burgeoned. For example, recent public choice scholars have conducted historical investigations into whether governments created a monopoly over law to respond to a market failure (to advance the public interest) or due to more self-interested motivations. Other scholars have studied how parties interact without government, often finding that parties devise private mechanisms to produce order. Today the discussion of and research on anarchy continues with economists using modern theory and experimental laboratories to explore the equilibrium or equilibria that might arise under anarchy. This research is important for those who seek to describe the world as it actually is (with government enforcement so lacking), and the research may have important normative implications as well. If the state is unlikely to solve a problem that private parties actually can solve, then putting faith in government law enforcement is unwarranted. As social scientists develop a better understanding of the mechanisms that create order in society, they will be more likely to recommend prescriptions conducive to helping order come about.

In this article we highlight the major public choice contributions to the economics of anarchy. Section 2 summarizes the early contributions to the theory of anarchy made in the 1970s. Section 3 examines how modern public choice economists have applied rent seeking stories to the emergence of government law enforcement. Section 4 summarizes the literature on historical studies of anarchy and the methods through which parties create what might be considered ordered anarchy. Section 5 summarizes the more recent theoretical debates surrounding the economics of anarchy. Section 6 concludes.

2 Early public choice contributions to the economics of anarchy

In an indication of their originality, the first public choice economists asked big questions about political economy rather than restricting themselves to the boundaries of traditional

economics. They sought to explore and model ways that people in a state of anarchy might interact. James Buchanan describes the questions that the public choice economists asked:

What were the descriptive features of Hobbesian anarchy? Could something like an anarchistic equilibrium be defined? Bush was instrumental in organizing a series of weekly workshops in 1972 during which each participant in turn presented papers on differing aspects of the theory of anarchy. As revised, these papers were published in *Explorations in the Theory of Anarchy*. (Buchanan 1992: 116)

In 1972 and 1974, the Center for Study of Public Choice published two edited volumes, *Explorations in the Theory of Anarchy* and *Further Explorations in the Theory of Anarchy*. The volumes contained contributions by many original public choice thinkers, including James Buchanan, Winston Bush, Thomas Hogarty, J. Patrick Gunning, Laurence Moss, Warren Samuels, William Craig Stubblebine, and Gordon Tullock, who also edited the volumes.

James Buchanan speaks highly of this endeavor in his public lectures and his autobiography. He recalls the importance of the project:

Those weeks were exciting because never before or since have I participated so fully in a genuinely multiparty ongoing research effort, one that we knew to be relevant in some ultimate sense ... For me this brief period of research activity was important because it gave me a new focus on my whole enterprise. (1992: 116)

Explorations in the Theory of Anarchy and *Further Explorations in the Theory of Anarchy* clearly influenced subsequent scholarship in public choice, including Buchanan's *Limits of Liberty* (dedicated to Winston Bush) and Tullock's *The Social Dilemma*, as well as modern research in public choice today. We begin by summarizing these early contributions.

Winston Bush (1972) wrote the pioneering article, "Individual Welfare In Anarchy." His work, an extension of which was published in the *Journal of Economic Theory* (Bush and Mayer 1974), provides a mathematical model of social interaction without the state.¹ Although Bush (1972: 5) wrote, "Anarchy as an organizing principle for society must appeal to anyone who places individual freedom high on his scale of values," he was not sure how stable it (or, for that matter, any system including constitutional government) could be over the long run. Behind many authors' criticisms of anarchy is the idea that prisoners' dilemmas would be ubiquitous without external enforcement. In this story, although people would be better off if they could agree to cooperate, their narrow self-interest will always make them cheat. In Bush's model, people who interact can choose to respect the other's property or to engage in predation. Bush argues that in a state of anarchy, individuals expend too many resources on predation, making both parties worse off. After the distribution of property rights under Hobbesian anarchy is established, agreeing on a common set of rules will be mutually beneficial. Although he is inclined to favor a society without rules, Bush believes that predation would prevail. As an example, when Robinson Crusoe and Friday first meet, they know little of each other, might never interact again, and have no ability to rely on external enforcement, so we might expect the results of the standard prisoners' dilemma to hold.

Other members of the Center for Study of Public Choice modeled anarchic situations as prisoners' dilemmas and came to similar conclusions as did Bush. Tullock's (1972: 65–75) "The Edge of the Jungle" advances the Bush hypothesis, arguing that cooperation would be

¹Whereas Bush (1972) models a society with two individuals, Bush and Mayer (1974) model a society with multiple individuals in their attempt to see if an anarchist equilibrium could be defined. Okuguchi (1976) extends the model further to explore the stability of an equilibrium in an anarchist society.

limited under anarchy. Without government enforcement, long term contracting and many other beneficial trades would not occur. People would spend too many resources engaging in opportunistic behavior, which would eventually lead to anarchy's demise. Tullock maintains that those with a comparative advantage in the use of force will overpower the weak and impose government. Although government could be used to redistribute resources, Tullock argues that creating this external enforcer could benefit all members of society. The government apparatus still uses power to enforce the law, but it eliminates the use of force by others. The ensuing reduction of conflict creates incentives for production rather than predation.

Tullock elaborates on many of these questions in his 1974 book, *The Social Dilemma: The Economics of War and Revolution*. Here too the prisoners' dilemma occupies a central place in the analysis. Tullock gives reasons why people form government, but he recognizes that conflict may always persist. He analyzes revolution and how parties attempt to use violence to overtake the government. Tullock also describes how states can become dictatorships and how different states can come into conflict. Although Tullock presents the state as a force ultimately for good, he recognizes that in certain ways the Hobbesian prisoners' dilemma is never solved.

Like Tullock, Thomas Hogarty (1972) believes that life in anarchy is brutish and uncooperative. Taking a somewhat more empirical approach, Hogarty argues against anarchy using three case studies. As his first example, Hogarty points out that brown rats do not have government, and, in fact, often bite each other. In his second example, Hogarty discusses how the children in *Lord of the Flies*, who lacked government, engaged in many malicious acts. As his final example, Hogarty argues that a prisoner of war camp during the American Civil War provides an example of individual interaction without a state. Rather than acting cooperatively, the prisoners engaged in aggressive behavior. All three case studies lack cooperation, so Hogarty concludes that an anarchist equilibrium is undesirable.

Gunning's (1972) chapter does not rule out ordered anarchy, but he believes that anarchy can only function at a primitive level. Also relying on the prisoners' dilemma model, Gunning believes that more advanced relations involving trade require external enforcement. In Gunning's words, "Even if trades are expected to be infinitely-recurring, there may be no trade." He gives an example of a pygmy and a giant who would be unable to make contracts unless a third party, a super-giant, entered the picture. The super-giant is an analogy for the government that prevents cheating. In this view, government is potentially beneficial to all because it enables people to engage in contracts.

Engaging in contracts without government is only one issue; enforcing property rights without government is another. Buchanan (1972) analyzes the establishment of property rights under Hobbesian anarchy as a prisoners' dilemma. Buchanan believes that people will act opportunistically when given the incentive; although they would be better off following common rules, they have no way to commit. Buchanan uses this to derive a contract theory of the state. By implementing an external enforcer, the prisoners' dilemma can be solved to help establish property rights.

Two years later, the follow up to *Explorations in the Theory of Anarchy*, the 70 page volume *Further Explorations in the Theory of Anarchy*, was published (Tullock 1974a). The second volume came out of the same series of workshops at the Center for Study of Public Choice, and contained another article by Tullock and three articles by scholars outside of the center: Laurence Moss, Warren Samuels, and David Pingry. Moss (1974) takes the possibility of ordered anarchy most seriously. Moss writes that although economists have further developed the economic theory of anarchism in recent years, the idea that markets can function without government was popular in eighteenth century America as well. He

argues that (non-economist) anarchists such as Josiah Warren, Lysander Spooner, and Benjamin Tucker were simply defending the ideals of the Declaration of Independence. Moss then discusses how Murray Rothbard and other modern free-market economists have picked up this tradition.²

Samuels (1974) is critical of anarchism and of Rothbard's conception in particular. Samuels believes that power relations will be present under private property anarchism or any form of markets. He sympathizes with the anarchist goals of freedom, order, and markets, and shares a suspicion of the state, but he questions whether anarchism will deliver those ends. Samuels maintains that agencies enforcing libertarian law would nominally be private but equivalent to government. He criticizes Rothbard (1973/1996) for simply wanting to replace one type of coercion with another. To Samuels, the theory of anarchism fails to resolve the problem of power relations and so should not be considered superior to government.³

Buchanan elaborated on many of these questions at great length in his 1975 book *Limits of Liberty: Between Anarchy and Leviathan*. He seeks to explore the institutional arrangements that people would choose to create a social order. Here Buchanan clearly shows his fascination with anarchy as an ideal:

To the individualist, the ideal or utopian world is necessarily anarchistic in some basic philosophical sense. This world is peopled exclusively by persons who respect the minimal set of behavioral norms dictated by mutual tolerance and respect. Individuals remain free to 'do their own things' within such limits, and cooperative ventures are exclusively voluntary. Persons retain the freedom to opt out of any sharing arrangements which they might join. No man holds coercive power over any other man, and there is no impersonal bureaucracy, military or civil, that imposes external constraint. The state does indeed wither away in this utopia (1975: 3).

Although Buchanan refers to himself as a "philosophical anarchist," he argues that contemporary anarchists (Friedman 1973/1989; Rothbard 1973/1996) have not addressed how the initial distribution of property rights occurs in a stateless society (Buchanan 1974: 915, 1975: 181). Ultimately Buchanan believes that a stateless order would be conflict-prone and that to solve the prisoners' dilemmas that arise under anarchy, people would contract to create a state.

Outside the Center for Study of Public Choice, Rothbard (1970, 1973/1996), Friedman (1973/1989), Nozick (1974), and Taylor (1976) also made significant contributions to the economic analysis of anarchy. Although how much all these scholars interacted is unclear, most seem to be aware of the work of others, as indicated by their citations.

Taylor's (1976) *Anarchy & Cooperation* (and its revised 1987 version *The Possibility of Cooperation*) is the closest methodologically to the studies from the Center for Study of Public Choice. Taylor models Hobbesian anarchy as a repeated N -person prisoners' dilemma, but he is more optimistic about decentralized cooperation than the public choice scholars.

²In his article in *Public Choice*, "Optimal Jurisdictions and the Economic Theory of the State: Or, Anarchy and One-World Government Are Only Corner Solutions," Moss (1980) compares the theories of the state developed by Nozick and Buchanan.

³Together the Moss and Samuels chapters occupy the first 59 pages of *Further Explorations in the Theory of Anarchy*; the Pingry and Tullock chapters occupy the last 11. Pingry (1974) argues that externalities exist under anarchy, so people will have incentives to create a constrained anarchy with property rights. Tullock (1974b: 65–70) explains how the existence of externalities and transaction costs justifies government. Nevertheless, Tullock maintains that government may never eliminate externalities, as those in charge will always be tempted to be corrupt.

He argues that when the short-run advantages of defecting are outweighed by long-run benefits from cooperation then decentralized conditional cooperation can be stable. The 1987 version considers other governance games, such as chicken and coordination games that are even more robust to Hobbesian assumptions. Overall, Taylor's work could be considered cautiously optimistic that decentralized cooperation could avoid brutish outcomes even when one begins with Hobbesian assumptions.

In *Power and Market* and *For a New Liberty* Rothbard theorizes how the free market could provide law and order without the state.⁴ He starts with a theoretical discussion of how a market could provide law enforcement and courts, and then argues that the only way to determine the amount of protection necessary is to have a market for law enforcement. Next he provides a speculative account of how multiple competing firms could provide police and courts and offers some ways that people who subscribe to different protection agencies could settle disputes. Under Rothbard's vision, protection agencies would hold each other mutually accountable through the market's competitive process to respect individual rights.

David Friedman's *The Machinery of Freedom* (1973/1989) also hypothesizes how a market could provide law and order. Friedman argues that one need not be ideological; rather, one can embrace anarchism out of pure self-interest. Where Rothbard argues for anarchism based on rights, Friedman provides arguments for anarchism based on efficiency. Friedman's vision differs from that of Rothbard because Friedman believes that anarchist laws need not be libertarian. Under a market for law, people would be free to choose any rules they wish, and net willingness to pay would determine the resulting outcome. Friedman describes how multiple police forces might operate in each area and their incentives to settle disputes through bargaining rather than violence.

Robert Nozick's *Anarchy, State, and Utopia* (1974) describes what could legitimately happen in an anarchic world where multiple groups could enforce the law.⁵ He argues that out of a system of multiple competing firms eventually a dominant agency will establish itself. He maintains that this dominant firm could legitimately protect its clients from other potentially risky firms. He says outlawing competing agencies would not violate anyone's rights as long as the dominant firm compensated them with protection. Nozick argues that eventually, through an invisible hand process, the dominant firm will become a monopoly and establish a minimal state. To Nozick, anarchy is not a stable outcome.

Like Nozick, the Center for Study of Public Choice economists' overall perspective on anarchism could be described as sympathetic, but ultimately pessimistic. Much of the discussion about whether anarchism would be chaotic or ordered would resurface in modern debates three decades later. How much order versus how much conflict occurs under anarchism is an empirical question. Through *Limits of Liberty: Between Anarchy and Leviathan*, *The Social Dilemma*, *Explorations in the Theory of Anarchy*, and *Further Explorations in the Theory of Anarchy*, the public choice economists helped open the door for subsequent scholars to explore anarchism from an economic point of view.

⁴For *For a New Liberty* takes an explicitly more normative approach. For a literature review of the normative works on anarchism published in the 1970s, see Stringham (2007). For a review appearing in *Public Choice*, see Leeson (2007e). Other recent works in this tradition include Hoppe (2003) and Skoble (2008).

⁵Although much of his account is speculative, Nozick's exercise is largely normative. In the book he attempts to prove that a state could arise without violating libertarian rights. This is not necessarily the same as an economic prediction of how anarchism would evolve.

3 Applying public choice to government law: extending the public choice arguments

Since the 1970s, many public choice scholars have extended the original work on anarchy. Whereas many of the original contributors argued that government law enforcement is created to serve the public interest (in the contract theory of the state), subsequent research by public choice scholars has questioned that assumption. Public choice scholars including Bruce Benson, Robert Ekelund, and Anthony de Jasay have provided both theory and evidence regarding why government law enforcement is created for special interests rather than to benefit the public. These scholars apply public choice logic even more persistently than the early public choice economists did, and thus are more skeptical that governments improve on stateless situations.

De Jasay's (1985/1998) book *The State* maintains that members of the state act in their own interest first and foremost. He says that society cannot expect to rise above anarchy assuming that all will be well with the state. In a review in *Public Choice*, James Buchanan (1986: 242) summarizes de Jasay's perspective, "Once the state's own interest (or the interests of those who act as agents) is so much recognized, the Hobbesian post-contract dilemma arises. How can the state, acknowledged to have its own interests, and empowered with the authority to act, be prevented from acting as its interests dictate?" In de Jasay's point of view, the State and its law enforcement apparatus are adversaries of the public. His other books, including *Social Contract, Free Ride: A Study of the Public Goods Problem* (1990), also advance this hypothesis. De Jasay argues that the creation of government actually causes free-riding and interferes with peoples' ability to create order.⁶

In *Against Politics: On Government, Anarchy, and Order*, de Jasay (1997) further advances the idea that order exists independent of government. First De Jasay criticizes the advocates of limited government who argue that the state has the ability to eliminate sub-optimal outcomes. Just because a problem exists does not mean that government has the ability to solve it. He then argues that under anarchy individuals have an incentive to internalize some of the negative externalities that result from conflict. The key is to find market solutions to potential problems. De Jasay addresses the claim that people need government if they want to interact outside of small groups. He says that although any given transaction may appear to be a prisoners' dilemma, transactions take place in the complex web of society, where repeated transactions and reputation effects create incentives for cooperation. Rather than viewing government as positive, de Jasay argues that it crowds out order that exists independent of government. These arguments go against the perspective found in the public choice writings from the 1970s, but James Buchanan (1986: 241–243) calls de Jasay's analysis "flint-hard" and recognizes that de Jasay severely challenges the contractarian-constitutionalist conception of the state.⁷

Another public choice scholar who does not rule out anarchy is Mueller (1988). Mueller argues that under certain conditions anarchy can effectively produce the public goods necessary for an orderly society. When a society has a small population, repeated dealings enable people to solve prisoners' dilemmas and effectively produce public goods. Mueller also argues that government is not created to provide order, because order precedes government. Mueller (1988: 822) writes, "Formal laws and their impartial enforcement by government

⁶It is worth noting that, although he does not view the state as negatively as does de Jasay, Tullock discusses essentially this problem in his (1971) article "Public Decisions as Public Goods." While the economic justification for a government is to solve public good problems, good government itself is a public good.

⁷De Jasay's body of work can be considered a comprehensive social critique of government and politics per se. De Jasay (2008) ultimately supports competitive as opposed to monopoly law enforcement.

authority would not be relied upon to maintain order within a village, but to transfer resources out of it. Formal laws and their enforcement in medieval society are more typically to raise revenue for the king or local knight.” Mueller believes that anarchy cannot function in a modern society because the prisoners’ dilemma problems become bigger as population increases, but he questions the old account that ordered anarchy is a priori impossible and that the state is created to bring order.

Benson is another public choice scholar who maintains that government law enforcement is created to benefit those in government and ends up crowding out private order. In his 1990 book *Enterprise of Law* and his article “Are Public Goods Really Common Pools? Considerations of Policing and Highways in England,” Benson (1994) presents an historical account of how government law enforcement in England actually came about. Benson documents how private parties in medieval England solved disputes without relying on government courts. The system was largely restitution-based, so wrongdoers had to compensate their victims. Even though law enforcement requires coordination between many people, Benson describes how people joined groups of one hundred to police and settle disputes. The Anglo-Saxon kings, however, began centralizing the law once they realized that they could use the legal system to collect revenue. By declaring private torts also to be violations of the king’s peace, they could require wrongdoers to pay fines to the king in addition to restitution to the actual victim. By the time of the Norman invasion, the king declared that all restitution must go directly to him. Predictably, this eliminated the incentive for private law enforcement and created the “need” for public law enforcement. The article shows that government law enforcement was created, not to deal with market failure, but to enhance revenue for the state.

Ekelund and Dorton (2003) present a similar account in their article, “Criminal Justice Institutions as a Common Pool: The 19th Century Analysis of Edwin Chadwick.” Ekelund and Dorton outline the arguments by Chadwick, an economist who analyzed the evolution of government law enforcement in England. Chadwick starts by discussing how one thousand years ago, disputes were settled privately in what was called the frankpledge system; he believed the system worked well (Ekelund and Dorton 2003: 275–276). Over time, however, government involvement increased, thereby eliminating incentives for private participation. Government law enforcement was only later rationalized because government had created so many common pool problems. Ekelund and Dorton (2003: 281) write, “The deficiencies of the common pool criminal justice system are no more apparent than in the kind of criminal procedure followed in Chadwick’s day and, to a large degree, in our own. They are, furthermore, then and now, riddled with rent seeking behavior within the court system.” Rather than viewing government law enforcers as a public spirited group, Ekelund and Dorton (2003: 290) write, “The incentives of police did not serve the end of crime prevention or even of reasonable enforcement of laws.”

The perspective of De Jasay, Benson, Ekelund, and Dorton is that governments do not take over law enforcement to fix some market failure. Rather, order precedes government. The most comprehensive studies of private examples of law and order are Benson’s (1990) *The Enterprise of Law* and Benson’s (1998) *To Serve and Protect*. From privately developed law in the Middle Ages to examples of private policing in modern society, many examples exist of law and order independent of the State. The State comes in and displaces the private system not to fix a market failure; rather, it comes in to advance its own interests. Benson calls his analysis of the legal history “a public choice approach to authoritarian law.” Compared to the early public choice scholars’ research on anarchy, the public choice economics of Benson, Ekelund, Dorton, and De Jasay does not exclude the incentives faced by government actors from their analysis of anarchy. In that respect, their work can be considered more in the spirit of public choice than the work on anarchy done at the Public Choice Center.

4 Case studies of anarchy: ordered anarchy and the internalization of relevant externalities

Once one recognizes that government may not be perfect or created to eliminate market failures, it opens up a number of questions. Is having a state necessarily an improvement over what came before? Will all anarchic situations be Hobbesian, or might ordered anarchy be possible under certain circumstances? What conditions would be required for ordered anarchy to be attained, and under what conditions could ordered anarchy be extended? To answer these questions one needs to study what society looked like before government and how parties interact when they are outside the influence of government.

This section provides an overview of studies that document human interaction in an effective state of anarchy. Whereas early scholars viewed anarchy as a Hobbesian war of all against all, many recent scholars have documented many examples of how parties have benefited from creating order independent of government. We start by discussing studies of relatively simple interactions within relatively small, homogenous groups, and then proceed to discuss studies of interaction in more complicated situations. Although most non-economists assume that all trade would be impossible without government, many economists recognize that trade is possible without external enforcement if it's within small groups, face-to-face, and simple. Ever since Adam Smith discussed the discipline of continuous dealings (1766/1982: 538), many economists have recognized that repeated interaction creates incentives for parties to cooperate rather than cheat (Tullock 1985, 1999). As Telser (1980) explains, these contracts can be self-enforcing. Evidence also indicates that people may cooperate due to internalized notions of reciprocity (McCabe et al. 1996). Nevertheless, cooperative behavior may not be dominant in all circumstances (Barzel 2002). Cooperation is often difficult if groups have high discount rates, are too large, or are too heterogeneous (Ostrom 1990: 166).

Despite what the standard prisoners' dilemma model suggests, economists have started documenting that trade is possible without external enforcement, even in more complex situations when trade involves long distances, large groups, heterogeneous traders, and/or complicated transactions that take place over time. Similarly, whereas most non-economists assume that all property rights and legal rules must come from the state, economists are documenting how private parties have created property rights and eliminated conflict.

Where many of the early historical studies were purely descriptive, much of the recent historical studies also outline the mechanisms that parties use to eliminate prisoners' dilemmas. Even if both parties are pure egoists with little concern for their trading partner, they can both gain if they can find mechanisms to reduce cheating. By figuring out ways adhere to privately generated law, as opposed to coercively imposed law, parties are able to make themselves better off. As Vernon Smith (1996: 3) writes, "property rights predate nation states." In this section we discuss the ways in which parties attempt to and often successfully create ordered anarchy.

4.1 Complex trade without government

Trade in religiously homogenous groups

In the diamond industry traders deal with merchandise worth thousands of dollars, yet they are able to enforce contracts without government courts. Bernstein (1992) shows how the New York diamond industry eliminates potential prisoners' dilemmas by organizing trade in a small and religiously homogenous group. When parties have repeated interaction and

know they can benefit by cooperating over the long run the non-cooperative results of a one-shot prisoners' dilemma do not hold. The New York Diamond Dealers Club has traditionally been composed of members of the orthodox Jewish community where people interact time after time. Incentives for cheating are reduced by the fact that diamond traders also have interactions in their Jewish religious and civic communities. Disputes are rare, but when they occur are handled by an internal arbitration system, which has many advantages over government courts: privacy, speed of resolution, and judges who are industry insiders who can rely on custom rather than overly formal rules. A party that does not abide by these decisions will receive social sanctions and may be ostracized or even be kicked out of the community. Because everyone is a member of a tightly knit group where people interact repeatedly, the potential problem of fraud among diamond traders is solved.

Other studies have documented how organizing within religiously homogenous groups enables self-enforcing contracts across long distances. Greif (1989, 1993) documents how 11th century Maghribi traders created self-enforcing contracts in difficult circumstances. One thousand years ago these traders migrated out of the Middle East and scattered around the Mediterranean, organizing large-scale international trade between them. Merchants located in one port would employ agents in other ports (agents could also be merchants) to buy or sell goods on their behalf. Because of the difficulty of proving whether a contract had been followed and the problems of multiple legal jurisdictions, government enforcement of contracts was not an option. To reduce this potential problem, the Maghribi traders formed a coalition to share information about whether their agent had represented their interests. Greif describes a multilateral reputation mechanism where members of the coalition could know to trust the dependable and know to boycott the untrustworthy. This multilateral reputation mechanism acted as a substitute for trust built between two people with repeated interaction.⁸ Greif (2005: 777) believes that extended markets do require a state, but he believes at a very minimum private orderings can operate on a small scale.

Landa (1981, 1994) has also documented other examples of trading networks as a way to eliminate one-shot prisoners' dilemmas. Even though an original producer and an end buyer might never have the opportunity to build up a long lasting relationship, Landa explains that middlemen have the opportunity to link them indirectly "together in complex networks of exchange" (1994: 5). The middlemen create a system with repeat interaction out of what would otherwise be a series of short-term dealings, thus enabling people to rely on the discipline of continuous dealings. Landa's discussion of ethnically homogenous middlemen in China describes how trust relationships provide an alternative to contract law. By reducing the potential for opportunistic behavior, middlemen effectively lower transaction costs. When people can establish relationships and choose with whom to interact, many of the problems associated with one-shot prisoners' dilemmas will be absent.

Trade in non-religiously homogenous groups

Researchers have also documented how trade without external enforcement can take place among people from different backgrounds. Clay (1997) documents how merchants in Mexican-California between 1830 and 1846 used a coalition to make contracts self-enforcing. At the time neither the Mexican nor the American legal system enforced contracts in California. Merchants, however, successfully created a coalition, similar to that

⁸Although one might predict that cheating would be more likely to occur as an agent approached the end of his career, the network eliminated this problem by allowing fathers to pass their membership on to their sons.

of the Maghribi traders, to share information about agents' reliability. In this case, however, traders were mostly of British or American origin and were not born with a common religion. Most integrated into local communities by learning Spanish, marrying into local families, and converting to Catholicism. Any given settlement might include only one or two coalition members, so they were not a distinct homogenous group within communities. However, even if two traders did not have multiple dealings with each other, members of the group could share information about the reputations of others to ensure that traders acted in a trustworthy manner. Agents accused of cheating typically settled with the aggrieved party, and in cases in which they did not, boycotts were possible. General boycotts were costly because they could entail forgoing trade in an entire region, so partial boycotts were more common. Clay shows that this network supported a relatively large volume of trade before the United States annexed California. The flood of immigrants accompanying the California gold rush redirected most shipping directly to San Francisco, thereby eliminating the need to rely on this dispersed network, but it provided an important service for many years.

Trade involving sophisticated contracts over time

Although it is becoming clear that much trade can take place without external enforcement, many authors claim that it can only take place with simple transactions, in small groups, between people who have low discount rates. Stringham's (2003) research on the world's first stock market in 17th century Amsterdam shows that many of the assumptions about the limits of self-ordering markets may be unwarranted. Stringham (2003) documents how informal market mechanisms can help enforce relatively sophisticated contracts as well. In the 17th century, Dutch authorities considered most financial contracts as forms of gambling that could be used to manipulate markets, so they refused to enforce contracts for all but the simplest types of transactions. At the same time, there were hundreds of potential traders who were fairly diverse socially and religiously, which might lead many to think that the potential for cheating would be rampant. Nevertheless, traders developed relatively sophisticated contracts, including forward contracts, short sales, and options, even though they were not enforceable in courts of law. The market mechanism worked because traders had the ability to choose to do business only with those whom they could trust. People who wanted to conduct considerable trade needed to build up reputations for being reliable, and those who defaulted would effectively be excluded from the market. A trader's reputation thus served as a bond. By informally sharing information about each other, traders could then boycott those who were unreliable. Enforcement was wholly informal, but this reputation mechanism enabled the existence of sophisticated contracts with large payments over time.

As markets expand in size, informal exclusion mechanisms for enforcement often become more difficult to use. At the end of the 17th century and throughout the 18th century, England developed its own stock market, which expanded to such an extent that stockbrokers had a difficult time personally tracking who was trustworthy. Stringham (2002) documents how brokers solved the potential problem of fraud by congregating in coffeehouses and transforming them into private clubs to create and enforce rules. One of their original solutions was to write the names of defaulters on a blackboard in Jonathan's Coffeehouse so that others knew not to deal with them. Eventually, the brokers contracted with the owners of the coffeehouse to make Jonathan's a private club which enabled them to exclude the unreliable. After a few iterations, the brokers successfully created a self-policing club referred to as New Jonathan's; this became formally known as the London Stock Exchange. Only the more reliable brokers were invited to join, and those defaulting on contracts were

kicked out, so the mechanism of including certain people and excluding others created an atmosphere of trust. Any one individual may have difficulty investigating the reliability of all potential trading partners, but a club's ability to enforce rules for members and exclude nonmembers can eliminate the one shot prisoners' dilemmas. As long as traders are able to join a club that screens its members, one can trust the many transactions that take place within that club.

Trade among heterogeneous groups

In addition to documenting how traders can self-select into homogenous groups, economists have shown how extremely heterogeneous groups can figure out ways to include each other in a nexus of self-enforcing trades. Leeson (2008b) explains how socially distant groups can come into contact and establish trading relationships even before reputation can be established. Rather than relying on ex-post reputation, groups can signal their trustworthiness ex-ante to establish trade. While some aspects of heterogeneity, like one's ethnic group, are inalterable, other margins, such as language or religion, are malleable. Leeson uses a formal model to show how trustworthiness can be established by investing in costly adaptations of margins of heterogeneity. If potential traders invest more in altering one margin of their heterogeneity in order to fit in with the group with which they would like to trade than they could reap in rewards from cheating on a contract they can signal their long-term trustworthiness because they obviously must expect that the group they are trading with will want to continue to trade with them in order to justify their upfront investment. Leeson draws on evidence from stateless regions of heterogeneous tribes in pre-colonial Africa for empirical support. He finds that they established trade relations with heterogeneous groups principally by altering margins of their culture to show support for other groups' informal leaders, land customs, or religions. Often this took the form of gift-giving and taking time to participate in local customs. Leeson (2006) also finds evidence of traders working to signal homogeneity at the margin in medieval Europe, tribal societies, and modern international trade. Signaling mechanisms in these cases act as a substitute for external enforcement.

Trade between strong and weak when property rights are insecure

In addition, economists have documented mechanisms to create trading relationships when property rights are insecure. Leeson (2007f) shows that even when one party is stronger and no underlying governmental guarantees against violence exist, self-enforcing exchange is still possible. In particular, he studies trade between European caravans and local producers in the West African interior in the late 19th century. The mobile European caravans were more powerful than the largely immobile native producers of ivory, rubber, and wax. If the natives possessed a stock of goods, the Europeans' superior power meant that they could raid rather than trade. This created a potential problem. If the natives knew their goods would be stolen, they would have no incentive to produce in the first place. Market participants recognized this problem and solved it by separating payment from exchange through the use of credit. Leeson explains that natives would not hold stocks of goods that the Europeans could plunder. Instead, natives required European traders to pay for the goods in advance, and only then did natives produce. When the Europeans returned, only the goods they had paid for were available, so there was nothing to steal. Even though no laws were effective against violent theft, the use of credit allowed weaker and stronger parties to engage in trade.

International trade without government enforcement

Another question economists research is to what extent self-enforcing contracts can scale upward. It is one thing for parties to trade in small groups, but can self-enforcing agreements take place at a global level? Leeson (2008a) investigates the extent to which international trade depends on government enforcement by looking at current international arbitration. International trade accounts for approximately 25% of global economic activity, yet international arbitration associations rather than governments provide resolution of most contract disputes. Until the New York Convention of 1958, state enforcement of arbitration decisions was completely unavailable. States signing on to the “Convention on the Recognition and Enforcement of Foreign Arbitral Awards,” agreed that when a company in their country lost an arbitration ruling, the government would enforce the ruling if necessary. Studying 157 countries, Leeson employs a gravity model augmented with controls for culture, history, whether the countries are members of a trade agreement, and whether one or both countries are signatories to the New York Convention. Leeson finds that signatory states conduct more international trade, but only by 15% to 38%, and non-signatory states do conduct a significant amount of international trade, indicating that informal voluntary mechanisms are a viable alternative to government enforcement for the majority of global trade.

4.2 Creation of law and property rights without government

Recent research has shown that trade can take place without external enforcement. Informal mechanisms such as reputation sharing can take the place of formal contract law. But the existence of trade independent of government does not prove that wide scale cooperative interaction can take place without government. In some cases, more formal enforcement may be desirable, and in all cases trade depends on the existence of some property rights. But although most people assume that property rights and formal laws must come from the state, researchers over the past few decades have been documenting how even property rights and law can arise without government. As in the area of trade, private parties can benefit by eliminating the problems of opportunistic behavior.

The Law Merchant

One of the most well-documented private legal bodies is the *lex mercatoria* or law merchant. Following the work of legal historians, including Berman (1983), Fuller (1964), and Liggio (1999), economists such as Benson (1989) provide an economic explanation for the rise of the law merchant in the Middle Ages. Medieval merchants traveled in and out of towns, and they had little time to wait to have their cases tried in government courts if disputes arose. Local laws often differed, and local functionaries offered foreign merchants little assurance that local courts would treat them fairly. But merchants desired mechanisms to resolve disputes, so they developed what became known as “pie powder” or “dusty feet” courts. These courts adjudicated disputes based on customary business practices and were known for being swift, since traveling fairs were often in a town only briefly. Merchants brought their disputes to these private courts, and if a merchant refused to listen to the court, the remaining merchants would blacklist him. These courts were chosen voluntarily, so they had to be impartial, conform to business expectations, and update their “laws” as business practice evolved. Unlike judges in government courts, adjudicators were selected because they were experts in a particular area of commerce. Benson finds that the law merchants

played an important role in facilitating the use of credit, which helped lead to the commercial revolution.

Similarly, Milgrom et al. (1990) find that the medieval law merchant played an important role in the revival of international trade. As it became clear that certain ways of resolving disputes were better than others, the law merchant ended up creating commercial codes. These were not necessarily binding on future parties, but they evolved and were adopted to the extent that they helped resolve disputes in a sensible manner. The most effective rules then spread throughout Europe, resulting in a relatively uniform system of commercial law. Milgrom, North, and Weingast maintain that the creation of commercial codes to prevent cheating helped minimize transaction costs.⁹

Customary law and property rights in American history

Spontaneously evolved commercial law was effective because arbitrators' decisions were backed by the threat of commercial sanctions in the form of boycotts and ostracism. Other evidence indicates that reciprocity and the threat of ostracism are important in the creation of other forms of law as well. In American history Benson (1991) found many examples of law that developed "from the ground up" due to recognition of the mutual benefits of participating in law enforcement. For example, colonial Puritans and Quakers based their laws on their religious convictions. The church could neither seize property nor arrest wrongdoers, but religious tribunals could effectively enforce laws through the threat of social ostracism or expulsion from the community. Similarly, law outside of federal, state, or local government was created and enforced in ethnic immigrant communities. Chinese in Chinatowns, Scandinavians in Minnesota and North Dakota, and Eastern European Jewish immigrants in Northeastern cities all maintained private legal codes that were distinct from American law. Although enforced solely through social sanctions and reciprocal relationships, these private legal codes promoted social interaction and order.

Another example of law without government in U.S. history comes from the American West. Anderson and Hill (1979, 2004) discuss how the 19th century frontier was beyond the reach of any federal or state law. Rather than being the Wild West as portrayed in the movies, however, they find it was, "An American Experiment with Anarcho-Capitalism: The Not So Wild Wild West." The authors document numerous private mechanisms for enforcing rules, establishing property rights, and creating order. Land clubs enabled people to establish property rights for land even though the federal government had yet to survey the territory; cattlemen's associations helped enforce property rights on the open range, which had millions of cattle and lacked government police; mining camps established methods of settling claims without the use of lawyers; and wagon trains dealt with enforcement issues once people traveling west left the jurisdiction of the federal government.

Building on this research, Morris (1998) documents many of these mechanisms and additional ones used by cattlemen, miners, and others on the frontier. Often the focal point of property rights was the customs of the American society from which individuals came. During the Gold Rush, however, groups arrived from many parts of the world, yet they successfully established property rights without the state. Sometimes these groups enforced

⁹Zywicki (2003) discusses how many of the sensible features of modern common law were imported from various legal bodies such as the law merchant. For example, Zywicki explains that the law merchant was just one of many competing legal systems during the Middle Ages. A modern equivalent is the growing popularity of mediation and arbitration as an alternative to government courts (Caplan and Stringham 2008).

their decisions with force, but often non-violent methods such as social exclusion and boycott were used. Anderson and Hill (1979: 27) conclude, “It appears in the absence of formal government, that the western frontier was not as wild as legend would have us believe. The market did provide protection and arbitration agencies that functioned very effectively, either as a complete replacement for formal government or as a supplement to that government.”

Reciprocity continues to be a source of enforcement for customary “law” in the United States today. Ellickson (1991) documents how ranchers resolve disputes in cattle country in Shasta County, California. He finds that formal legal rules rarely influence the outcome of cattle trespass disputes there. In fact, most ranchers as well as local legal experts are unaware of which formal laws apply. Ellickson studied the official laws to determine how cattle trespass disputes “should” be settled, and then he went to Shasta County to ask people what they actually did. Ellickson finds that instead of relying on legalistic methods of dealing with disputes, the ranchers and farmers rely on notions of what they consider right. Because their norms often differ significantly from the law, their system of property rights and means of settling disputes is clearly not a product of government. Instead, customary norms of trespass are used, and most disputes are resolved on the basis of “good neighborliness.” Most cattle trespasses are not made into a big issue and a mental accounting of sorts is kept of inter-neighbor debts. People’s reputation in the community is extremely important, so most cooperate to settle any issue that arises.

Ellickson (1989) also researched the 19th century whaling industry and found that whalers solved dilemmas privately rather than relying on government. Ellickson discusses how whalers developed different norms depending on the situation. Take the example of the dilemma of who has proper ownership of a whale after hunting. If a whale slipped free in pursuit and is found dead later, should the party that first pursued it or the party that ended up with it receive the carcass? A policy of those who end up with the whale owning 100 percent of it might encourage free riding by those who let others do 90 percent of the work and then come in at the last minute and capture the almost dead whale out of the hands of the other exhausted crew. But if the party that ends up with the whale is never entitled to any of the value of whales that escaped and then resurfaced injured or dead, then a lot of unclaimed whales would rot.

The optimal answer is not obvious; this type of dilemma could be debated for years in government courts. Whalers instead developed their own rules that varied depending on the type of whale most prevalent in the area. In areas with slower right whales (so named because they were the right and easy whale to catch), whalers adopted a rule that whoever had the whale fastened on a line would own it; if a whale was not on the line, it was completely up for grabs. In areas containing more vigorous sperm whales (those like Moby Dick), whalers enforced the iron holds the whale rule, in which the first person who affixed a harpoon to the whale was entitled to it, even if it temporarily got free, as long as the first whaler remained in pursuit. And finally, in areas with finback whales, whalers used a split ownership rule. Finback whales usually sank to the bottom after being killed but would later resurface, often washing up on shore a few days later. Splitting the value of the carcass between the harpooner and the discoverer of the resurfaced dead whale encouraged people to work on both ends of the process. Ellickson concludes that members of the whaling industry were able to choose rules to maximize the benefits to the group.

Property rights in cyberspace

Cyberspace is another arena in which private mechanisms enforce property rights and contracts as well as establish law. In 2005 the *Journal of Law, Economics & Policy* published a

symposium on the topic organized by Peter Boettke. In it Benson (2005) documents many of the non-governmental mechanisms to secure property rights in cyberspace. He argues that the online world has evolved to include many of the real world mechanisms of securing property rights including traditional methods of watching, walling, and wariness. He also finds that polycentric cybergovernance through third party dispute resolution is pervasive in the online world. Cybercommunities do not correspond to political boundaries in geographic space, so different cybercommunities have different rules. Since exit is an option from these communities, market selection mechanisms have determined how rules have evolved, resulting in laws that better solve particular communities' problems than a state's monopoly law could.

In another contribution to the symposium, Friedman (2005) theorizes how reputational mechanisms from the real world work even better in the online world because information is cheaper to transmit and acquire. Digital signatures enable parties to utilize reputation mechanisms even when parties do not know their trading partners' actual identities. Stringham (2005b) investigates the government's ability to protect against online fraud by studying firms in Silicon Valley. He finds that technology moves too quickly for the government to keep up and that jurisdictional problems prevent governments from protecting sellers from online fraud. Rather than relying on ex post enforcement by government, private payment systems figure out ways to prevent fraud ex ante. The mechanism is to detect and turn down fraudulent orders before they are processed thus enabling the system to work with little reliance on ex post enforcement. Morriss and Korosec (2005) describe how credit card networks have developed advanced legal systems to prevent and resolve potential disputes between merchants, merchant acquirers, consumers, card issuers, card associations, and transaction processors. All parties involved benefit by dealing with disputes in a cost effective manner. Coyne and Leeson (2005) argue that private parties are better able than government to deal with their marginal security needs. In addition, Powell (2005a) examines the critical cyberinfrastructure of the financial services industry. Although aspects of cybersecurity have characteristics associated with public goods, he finds that the private sector successfully utilizes an array of technologies to secure their infrastructure. Overall, these studies illustrate that many of the same private mechanisms that have evolved to provide order in real world situations are succeeding in cyberspace as well.

Property rights in informal and illegal sectors

Work by De Soto (1989) has documented how systems of property rights have developed independent of government around the world. In Peru, for example, the government bureaucracy does not recognize the property rights of entire groups of people. Nevertheless, the informal sector is not lawless, and a thriving extralegal economy exists. From farmers in rural areas to squatters in urban areas, an elaborate system of property rights has developed. Even though government does not formally recognize these people's property, de Soto says that one can tell where property rights begin and end by listening to when an owner's dog barks. De Soto's later work (2000) argues that government needs to formalize these informal titles, but his research shows that property rights precede government.

Private enforcement often emerges when property rights are recognized but not well protected by the state. Sobel and Osoba (forthcoming) study one such instance. They find that since youths in the United States often do not face substantial repercussions for committing crimes against other people and their property, the state doesn't effectively protect those most at risk of youth crime – other youths. Although high crime rates and youth gang formation are correlated, Sobel and Osoba hypothesize that rather than increasing crime, gang

formation actually decreases it by providing a deterrent, in the form of retribution, to committing crimes against gang members. They perform causality tests and find that violent crime causes increases in gang membership, not vice versa. Youth gangs are essentially private protection agencies that safeguard the rights of a subset of the population that the state is doing a particularly poor job of protecting.

Rather than an unprotected or unrecognized group within a society under a government, pirates were a group of individuals completely outside of government who were able to create their own internal system of laws and property rights. Leeson (2007b) studies 18th century pirates who were unable to use government to enforce their cooperative agreements due to the illegal nature of their business. Pirate crews ranged in size from fewer than 100 to as many as 300 people, and multi-ship joint ventures could be as large as 2,000 people. Given their size, the extended time they were at sea, and their isolated situation, these groups were essentially mini-societies. While pirates employed violence against other ships, little internal violence and theft occurred within pirate crews despite the fact that no government enforced their property rights or their contracts with each other. Leeson finds that these pirate crews were able to create self-enforcing contracts that allowed them to minimize internal predation and maximize coordination so that they could successfully plunder other vessels. In particular, they used a system of democratic checks through the popular election of the captain and quartermaster; a separation of powers among the officers; and written constitutions to establish rules governing duties and division of spoils. Leeson finds that pirates were efficiently employing these checks and balances before ‘legitimate’ governments were. And unlike formal government constitutions, since joining a pirate vessel was (usually) voluntary, agreement to the rules of the game truly was *ex ante*. Competition between pirate vessels meant that they had to offer profit maximizing, self-enforcing constitutions. Few people would hold piracy to be a normative ideal, but even among pirates one can see degrees of cooperation without government.

Creation and enforcement of law between members of different social groups

Leeson (2008c) also studies the creation of law between warring societies in the sixteenth century Anglo-Scottish borderlands. During this time members of different societies considered each other hated enemies and the societies had frequent conflict. Nevertheless a self-enforcing system of cross-border law for individuals, the *Leges Marchiarum*, emerged. The *Leges Marchiarum* had rules about: killing, wounding, theft, perjuring, unapproved revenge, arson, harboring outlaws, and entering the other realm. For murder, the law allowed execution or holding the perpetrator ransom. For theft the law prescribed restitution of twice the value of stolen property plus compensation for time and trouble. Trials occurred at time periods called “Days of truce.” Community members would file bills of complaint against anyone with whom they had a cross-border grievance and members of both communities would meet to decide cases. An English warden would select six Scottish jurors and a Scottish warden would select six English jurors. The Scottish jurors judged English complaints and vice versa. This appointment system created the conditions needed for each side to play a tit-for-tat strategy that helped insure reasonableness on both sides. The laws for cross-border interaction helped to create a peaceful focal point by creating common rules for interaction. Their jury system helped to make both sides judge the other one fairly, and bonds helped to insure verdicts were enforced. The system was remarkable because it shows that private creation of law is possible even between hostile societies

4.3 Societies without government

Numerous case studies illustrate how market mechanisms provide appreciable order independent of government, yet one might wonder how much order could exist without any government at all. Cases of stateless societies on a large scale are not common, but examples can be found in medieval Iceland, medieval Ireland, many primitive societies, and modern day Somalia. Each case provides us with some evidence of the market's ability to provide 'meta' institutions that enable widespread cooperation without government.

Friedman's (1979) study of medieval Iceland, based on the sagas, is one of the most cited cases of ordered anarchy. After its initial settlement in the 9th century, Iceland had no government for hundreds of years. Nevertheless, Iceland had laws. Individuals had ties to the legal system through chieftains, but these chieftains were not geographic monopolies like modern governments. Individuals could switch chieftains without the need to relocate, so competition occurred among providers of law. The chieftains established courts and judged cases, but after they rendered judgments no institutionalized system enforced the decisions. Instead, plaintiffs received a transferable property right in restitution and could choose either to enforce their claim themselves or to sell their right of restitution to another party who might be in a better position to enforce the ruling. Defendants who did not comply with rulings were considered 'outlaws' and no longer protected under the law.

How well did the system work? Friedman points out that the institutions survived more than 300 years and maintains that "the society in which they survived appears to have been in many ways an attractive one. Its citizens were, by medieval standards, free; differences in status based on rank or sex were relatively small; and its literary output in relation to its size has been compared, with some justice, to that of Athens" (1979: 400). He also finds that the system deterred violence relatively well. Rape and torture were uncommon, and the killing of women was nearly unheard of. Friedman calculates that Iceland's average number of people killed or executed during the most violent years of the sagas was approximately equal to murder and non-negligent manslaughter rates in the modern United States (1979: 410). Subsequent economists who have studied the Icelandic legal system have reached a similar conclusion, namely that social order is possible without government (Solvason and Runolfsson 1992).¹⁰

Medieval Ireland also had law without government. Peden (1977) documents how Ireland developed legal institutions, private property rights, and professional jurists, but no state. Like Iceland, the legal system was based on restitution rather than punishment, and people could pledge property or their own personal labor as a bond. The surety bonds arranged in advance of trials provided incentives for parties to abide by the rulings, so the private jurists, called *brehons*, did not need to rely on coercion to enforce their rulings. Women had legal capacity and the ability to own property, leading Peden (1977: 91) to conclude, "By this standard Irish law in the 8th century may have had more sophistication than English law in the days of Queen Victoria." The decentralized system of law ended only when the English conquered Ireland and imposed a centralized legal system that undermined traditional Irish mechanisms of law. Here too, history shows that law and order precede government.

When most people look for examples of stateless societies, they want to see anarchist countries. This perspective assumes that the unit of analysis is a nation, but from an anarchist

¹⁰Eggertsson (1990: 306–311) provides an account of the breakdown of Iceland's polycentric legal system and their adoption of a monarch. Eggertsson's chapter on "Property rights in stateless societies" covers the emergence and enforcement of property rights without government, but ultimately he believes that modern wealthy societies require government.

point of view, the appropriate unit of analysis may be much smaller. Although the modern world is carved into countries with clear boundaries, in much of the world the units of social order are not at a national but at a tribal level. Benson (1988, 1991) has brought some of these societies to economists' attention. In his study of "Legal Evolution in Primitive Societies," Benson documents how many societies use voluntary customary law rather than government imposed law. He describes the legal system of the Kapauku Papuans of West New Guinea in the 20th century, who had no formal government yet had a private legal system that evolved to meet ongoing needs. The Kapauku created reciprocal legal arrangements based on kinship and the reputation of tonowi (wealthy men) whom they trusted to assist in legal matters. The legal system was mostly based on restitution or public reprimand rather than punishment, and the system largely respected individual property rights. Likely, countless examples of tribal systems have yet to be studied, so this is an area that is ripe for research.

A modern example of a stateless society on a national scale is Somalia. After the central government collapsed in 1991, the country plunged into a civil war as factions tried to establish themselves as the new central government. Since 1995, however, fighting has decreased; it only flares up when external attempts to impose a government in Somalia occur. Despite nominal claims of having a "government" in two regions of northern Somalia, the creation, adjudication and enforcement of law is provided privately throughout Somalia. Somali law is based on custom, and decentralized clan networks interpret and enforce it. As in Iceland and Ireland, the legal system focuses on the restitution of victims, not the punishment of criminals; each Somali is born into an insurance paying group that is responsible for compensating a victim in the event that a defendant from the group is unwilling or able to pay. Neither the clans nor the insurance groups are geographic monopolies; individuals are free to switch to new ones.

Three recent papers study how well anarchic Somalia has performed. Coyne (2006) examines measures of income, health, children's health, telecommunications, and infrastructure. He finds that Somalia compares relatively well on measures of poverty and infrastructure provision compared to neighboring countries and West African countries. Leeson (2007c) compares how 18 development indicators have changed since the collapse of Somalia's nation state. He compares the last five years Somalia had a state (85–90) to the most recent five years with available data (2000–2005). Of the 18 development indicators, 13 clearly improved since the collapse of the state, and only two, adult literacy and school enrollment, clearly declined. In addition, Powell et al. (2008) compare Somalia's living standards to those of the 42 other sub-Saharan countries with data available both pre- and post-Somali state collapse. Of the 13 measures they identify, Somalia ranks in the top 50% of nations in five of them and ranks near the bottom only in infant mortality, immunization rates, and access to improved water sources. The authors find that, compared to pre-state collapse measures, Somalia has improved not just in absolute terms but also relative to the performance of other African countries. These results hold up when Somalia is compared only to peaceful African nations and only to other countries that, like Somalia, warred in the early 1990s and then established peace.

4.4 Lessons from case studies of law without government

The cases of Iceland, Ireland, and Somalia provide evidence that privately created law, adjudication, and enforcement can be sufficiently provided on a society-wide basis. Nevertheless no modern and wealthy stateless society currently exists, so historical scholarship does not prove that these systems can function at a higher level of development. What the cases of Iceland, and to a greater extent Somalia, do illustrate is that in a comparative institutional

setting, given history, culture, level of development, etc., these stateless societies have done quite well while using completely private legal systems. The enforcement of contracts, creation of property rights, resolution of disputes, and enforcement of law are all areas in which many economists believe that markets fail and government provision is necessary. In this section we have discussed a wealth of scholarship that demonstrates that markets may be more robust at providing these services than economists traditionally have presumed.

Early public choice models of anarchy typically assumed that individual choice would be unconstrained under anarchy resulting in opportunistic behavior on a large scale. But more recent research has uncovered many potential mechanisms to constrain opportunistic behavior and eliminate prisoners' dilemma situations. A multilateral reputation mechanism, for example, provides an alternative to contract enforcement when people are able to choose with whom they deal. When group members can share information about the reliability of various parties, boycott or possible expulsion become constraints that limit incentives for cheating. This mechanism works easily in small homogeneous groups, and research shows it also can work in larger more heterogeneous groups.

Yet even when reputation mechanisms are less functional other private mechanisms for eliminating potential prisoners' dilemmas exist. In cases where reputation has yet to be established, parties can make irrecoverable investments to signal trustworthiness and a desire for repeat dealings. Or when one party is more powerful than the other, credit relationships enable the stronger party to pay in advance and collect later, thus minimizing incentives for plunder. Other mechanisms to encourage cooperation include voluntary mutual enforcement, bonding, and insurance. Economists are only beginning to document the many mechanisms to solve what previous economists would have assumed to be unsolvable prisoners' dilemmas.

5 Modern theoretical and experimental debates about anarchy

In addition to the increasing number of historical studies of ordered anarchy, the past 15 years have also seen an increase in theoretical and experimental debates about anarchy. Historical studies show that order is possible without government, but important questions remain: Is ordered anarchy stable in the long run? How much could the institutions of self-governance scale up? Could they support a modern society? Theoretical and experimental analyses are needed to answer these questions.

The theoretical and experimental literature on anarchy can be categorized into four areas. The first group can be seen as an extension of the 1970s' public choice explorations of what an institutionless anarchist equilibrium might look like. A second group can be seen as an extension of the work of Friedman, Rothbard, and Nozick and their discussion of how anarchy with private law enforcement might function. A third group of public choice scholars have theorized about the relative desirability of anarchy versus the state. A fourth group uses modern simulation studies and experimental economics to investigate many of the theoretical propositions and debates about anarchy. This section of the paper reviews each of these areas in turn.

5.1 Theoretical debates about anarchy without institutions of law

The early public choice literature modeled anarchy as a prisoners' dilemma. The prisoners' dilemma model of Hobbesian anarchy has influenced work both inside and outside of economics. Kavka (1986) and Hampton (1986) are notable examples of this influence in

philosophy. Kavka argues that anarchy, either of the individualist or group-defense form, is unable to provide the level of security that can be provided by a state. However, this does not lead him to claim that any state is necessarily superior to anarchy. States are superior only when they do “not itself threaten the individual’s security to an even greater extent than do the alternatives” (Kavka 1986: 173). For Kavka the case against anarchy cannot be based solely on a priori prisoners’ dilemma reasoning, but instead is made on empirical grounds. Similarly, Hampton considers at length the iterated nature of the prisoners’ dilemma in Hobbesian anarchy. She believes that cooperation would be in everyone’s rational long-term interest, but that the shortsightedness of some individuals gets in the way and leads other rational individuals to use preemptive violence. Creating government thus is in the collective interest of at least the longer-sighted. Both Kavka and Hampton, like Buchanan, start in a Hobbesian prisoners’ dilemma but end up concluding, unlike Hobbes, that some form of limited government, rather than an absolute sovereign, is preferable to anarchy.

Modern economics literature has built on variations of the prisoners’ dilemma theme to reach slightly different conclusions. Throughout the 1980s economists continued to employ prisoners’ dilemma models to study anarchy but examined strategies that could lead to the establishment or maintenance of cooperation. Axelrod’s (1981, 1984) work on the evolution of cooperation is among the most influential of these studies.¹¹ Axelrod created a series of computer tournaments where theorists in economics, mathematics, political science, psychology, and sociology could submit instructions as to when their computer agent should cooperate and when it should defect against the other players. With a preannounced prisoners’ dilemma payoff matrix, and a series of 200 moves, Axelrod examined what would be the winning strategy in a round-robin tournament. While many people believed that defect always would be the winning strategy, Axelrod (1981: 309) found that the winner was “the simplest of all strategies submitted, TIT FOR TAT.” The tit-for-tat strategy was to always cooperate unless the other party defects. Axelrod’s (1984) book on the *Evolution of Cooperation* discusses how the tit-for-tat strategy mirrors many examples in found in nature and among humans. Even if many potential prisoners’ dilemma situations exist, since interaction is often repeated it makes sense to cooperate rather than defect. The implication of the research is that even among egoists and no central authority, cooperation can emerge.

More recently, Kurrild-Klitgaard (2002) studies anarchic prisoners’ dilemma games and comes to more optimistic conclusions than the earlier public choice scholars. He starts by modeling Hobbesian and Lockean state-of-the-nature-games, emphasizing Locke’s point that not every form of political authority always is preferable to any type of state-of-nature. Then exit is built into the prisoners’ dilemma game. Once players can exit, the standard prisoners’ dilemma outcome can turn into a viable long-term cooperation strategy. Kurrild-Klitgaard argues that a prudent morality strategy (i.e., a player refuses to play with those who defected in the past) beats other strategies (e.g., tit for tat, or opportunist), and repeated games lead toward the building of trust and reputation. Even if asymmetric payoffs are introduced, cooperative outcomes can emerge. The standard prisoners’ dilemma argument against anarchy is much weaker when the exit option is taken into account.

Hirshleifer (1995, 2001) studies anarchy as a potentially peaceful Hayekian spontaneous order, but considers the conditions under which anarchy would devolve into chaos or lead

¹¹For a critical review of the studies that weakened the earlier prisoners’ dilemma conclusions see Schofield (1985). Schofield believes the studies he reviews have merit, but ultimately he is concerned that cooperative outcomes require common knowledge and that consideration limits when anarchy could be a desirable outcome.

to a state. Hirshleifer (1995) models groups as unitary actors, with efforts divided into either production from assets or fighting to seize assets. His model includes technologies for both production and appropriation and suggests that a necessary but not sufficient condition for stable anarchy is strongly diminishing returns to fighting. Variations of Hirshleifer's model examine: two contenders, asymmetrical fighting effort and resources, costs, strategic positions, exogenous/endogenous number of contenders, and Cournot and Stackelberg competition. The overall conclusion is that although an anarchic system is sometimes stable, anarchy is extremely fragile and likely to break down. Hirshleifer believes that anarchy will result either in a world where all resources are wasted or in a world with a state. To Hirshleifer, stable, ordered anarchy is highly unlikely.¹²

Dowd (1997) argues that Hirshleifer ignores as a third possibility in which anarchy ends up being peaceful rather than becoming violent or devolving into a state. He says that social rules can develop such that disputes need not be solved exclusively by violence. Drawing on historical studies, Dowd argues that private judges can help develop a system of customary law. By avoiding violence, parties have the ability to benefit from continual deals and thus will have incentives to help create an ordered rather than a Hobbesian anarchy.

Grossman et al. (2001) test the robustness of Hirshleifer's model by allowing the appropriable resources to be distinct from resource used for appropriation. Specifically they extend Hirshleifer's model to a two-factor setup where appropriative competition with other individuals and the production of consumables are alternative uses of inalienable time and effort. They find that Hirshleifer's results about the instability of anarchy are not robust. In their two-factor model, even without strongly diminishing returns to fighting, anarchy remains viable.

Hausken (2006) builds on Hirshleifer's model, but instead of modeling groups as unified actors, Hausken attempts to incorporate the conflict inherent within competing groups. He assumes that actors either specialize in production or fighting and that fighting will determine the distribution of productive resources. Furthermore, some members of a group may wish to contribute to their group's fighting effort, but others may attempt to free ride. The model predicts that anarchy will include some production and some fighting rather than having corner solutions with all of either one. Hausken states that unless the cost of fighting is extremely high or the groups are small with similar productivities, all productivity and no fighting will not occur. He also says all fighting and no production is impossible because of free riding within groups. Society thus benefits because of the existence of free riding. When collective action problems are important, a semi-peaceful anarchy becomes possible.

Economists are now looking to study anarchy for both positive and normative reasons. From a positive perspective, Rajan (2004: 56) argues that it does not make sense for economists to assume that "all contracts are enforced by omniscient, incorruptible courts; and governments automatically take care of all the public goods and interfere in none of the private ones." In many cases, especially in less developed countries, governments are quite unlike this. All economic models that assume a perfect government have unrealistic assumptions that lead to a misunderstanding of how the world works. From a normative perspective,

¹²Other recent articles that model anarchy include Warneryd (1993), Bos and Kolmar (2003), and Anderson and Marcouiller (2005). The various authors discuss the conditions under which cooperation rather than a Hobbesian jungle are likely to arise. Grossman (2002) and others discuss why even a predatory state could be preferable to anarchy. They argue that as the technology of predation becomes more effective, the desirability of even an exploitative state increases. For a critique of the idea that people voluntarily choose government, see Block and DiLorenzo (2000).

Rajan argues that making such assumptions is also a bad recipe for public policy since governments implementing policies are so far from perfect. Rajan instead argues that we should assume anarchy and proceed from there.

Dixit's (2004) book, *Lawlessness and Economics*, examines how property rights can be respected and trade can take place when the rule of law is absent. Most economists implicitly assume that the law operates costlessly, but Dixit argues that in the real world this is never true. Government courts are often "very costly, slow, unreliable, biased, corrupt, weak, or simply absent" (Dixit 2004: 3). Despite this economic activity still takes place, and thus economists should be studying how trade can take place in absence of law. Dixit discusses historical examples of lawless situations and then models them using game theory. Long term dealings, reputation mechanisms, and arbitration are three important ways that parties can bring about private order. Dixit appears to be unaware of most of the literature on anarchism;¹³ nevertheless, his book is a major contribution to this line of research.

5.2 Theoretical debates about anarchy with privately generated law

Many authors have outlined visions of how an ordered anarchy might look. In the 1970s Friedman and Rothbard theorized that multiple protection agencies would peacefully be able to settle disputes within a given geographic area. Nozick, in contrast, argued that even if society started in a competitive market with multiple firms, a minimal state will naturally arise. Since then, especially in the past 15 years, public choice scholars have contributed to the debate about the stability of a private, competitive protection market.

Cowen (1992) argues that a system with competing companies will devolve into a coercive government because law enforcement is a network industry in which firms must interact. Cowen's article, "Law as a Public Good: The Economics of Anarchy," includes "Public Good" in the title, not because the government is providing a good but because Cowen believes that a legal system must apply to everyone in a geographic area. He argues that if firms are able to cooperate, rather than fight, to settle disputes, then that same mechanism will enable them to cooperate collusively. Even if multiple firms exist, Cowen argues that the result will be a de facto monopoly that can use force to exact taxes, just like government. Either competing firms will be unable to cooperate and thus an ordered anarchy of competitive firms will dissolve into a Hobbesian war, or the ability to cooperate will enable them to collude and act like a government.

Friedman (1994) responds to Cowen by agreeing that firms would have relationships with each other, but he disagrees that private protection must be a network industry that facilitates the formation of a cartel. He argues that a situation with bilateral contracts between firms is quite different than a situation with one industry-wide contract. If the only relationships in the industry are between pairs of firms, these relationships do nothing to enhance their ability to collude. Friedman argues that this situation is akin to the contractual relationships between grocery stores and suppliers.

Cowen's (1994) rejoinder argues that analogies from regular industries do not apply because the protection industry uses force. Competing firms must cooperate to enforce laws, and any ability to cooperate will enable them to coercively form a cartel. Whereas most cartels break down on their own, Cowen believes that a cartel with members whose business

¹³For example, Dixit (2004: 2) writes, "Even the most libertarian economists, who deny the government any useful role in most aspects of the economy, allow that making and enforcing laws that give clear definitions of property rights, and ensuring adherence to voluntary private contracts, are legitimate and indeed essential functions of government."

is force will be able exact compliance from everyone. The number of firms is unimportant because even though the world has many different police forces and local governments, they still collude.

Caplan and Stringham (2003) question Cowen's argument that network industries facilitate collusion. Although enforcement of law across multiple agencies would require some cooperation, the ability to cooperate does not guarantee the ability to collude. The authors distinguish between self-enforcing and non-self-enforcing agreements and argue that collusive agreements between firms would be harder to enforce. For example, if firms attempt to collude to raise prices, each firm has an incentive to break the agreement. On the other hand, if firms coordinate to boycott a bad business risk, each firm has an incentive to follow the agreement lest it be cheated itself. Caplan and Stringham give historical examples of network industries that have been able to facilitate coordination without collusion. In 19th century America, for example, banks joined clearinghouses that monitored banks to assure solvency, but despite their efforts clearinghouses did not enable banks to fix interest rates. In modern times credit card issuers cooperate when it comes to coordinating payments, but they still compete when it comes to service.

Cowen and Sutter (2005) reply, arguing that Caplan and Stringham's analysis underestimates the importance of the use of force. Cowen and Sutter claim that the interaction between firms is a coordination game with multiple equilibria. Although a situation of armed conflict may not occur, firms might back down to the demands of a coercive firm rather than defending their clients' rights. Because membership in a network is valuable, the incumbents may be able to exercise their market power at the expense of others. Such a situation will enable members of a network to enact coercive rules and then refuse to deal with new entrants who do not agree. This sows the seeds for the creation of a state, whether customers and other firms like it or not.

Sutter (1995) also considered the power relations between protective firms and their customers. He models a game in which firms have more power than customers and may use that power to prevent customers from switching to other firms. Without the ability to exit, the competitive checks from multiple firms are undermined. Sutter considers how various exit strategies and cost structures could impact the competitive nature of the industry. Under certain circumstances the distribution of rights between customers and firms will be more equal than the distribution of their power. Depending on the assumptions adopted, a competitive system may or may not be viable.

Stringham (2006) argues that one potential way for markets to deal with the problem of predation by private law enforcement is through vertical integration. If the owner of a proprietary community provides law enforcement, then any malfeasance on the part of the law enforcer (the proprietor) will result in decreased rent for the community owner. Stringham argues that making the law enforcer a profit-motivated residual claimant will align the incentives of the proprietor/law enforcer with its customers. This vision contrasts with the view that multiple governing authorities in a given area is the goal (Frey 2001). Stringham maintains that anarchists should be less concerned with the number of firms in an industry and more concerned with whether individuals agree to a system *ex ante*. Stringham says that one can agree with many of the arguments of the classical liberals about the need for a monopoly in a given area, yet one need not conclude that its law enforcers must be provided by the state.

Leeson (2007a) provides a critique of Stringham, maintaining that even if an agreement between a proprietary community, its law enforcement, and its customers is *ex ante* utility-enhancing to all parties involved, cooperation may not be the final outcome. Leeson formalizes Stringham's proposal and argues that the law enforcers will have an incentive to

cheat *ex post*. Leeson says that the system depends on trust and the discipline of continuous dealings, but he maintains that such mechanisms will not function when parties can resort to force. Since a proprietary community with private law enforcement will be much stronger than its customers, he argues that the law enforcement will maximize profits by extorting from clients and that another solution must be found.

Finally, Holcombe (2004) also claims that the ultimate outcome rests on force. He argues that although government is not voluntary, created to benefit the public, or even necessary, it will always prevail. Anarcho-capitalism would either internally devolve into government or be overtaken by an external state. Holcombe maintains that the best we can hope for is to proactively create a limited government. Leeson and Stringham (2005) respond, arguing that Holcombe is too pessimistic about the possibility of stateless orders and too optimistic about limited government. If Holcombe's Hobbesian assumptions are correct, then nothing stops limited government from becoming unlimited government. Leeson and Stringham maintain that limiting government ultimately depends on ideological opposition to the state, and that if limited government is possible, so too is anarchy.

5.3 Comparative analysis of anarchy versus the state

Public choice economists' early explorations in the theory of anarchy often compared the desirability of a theoretical state of anarchy to the desirability of a theoretical government. Generally, they argued that a world with government is far superior to a world without government, so they hypothesized that individuals under anarchy would unanimously agree to form a state. Recent comparative analysis by public choice scholars, however, has been more critical of the universal desirability of a state. In addition, many public choice scholars have abandoned social contract modeling and instead model state formation as a result of self-interested actions imposed on unwilling populations.

Mueller (1988) offers a framework for judging between anarchy and the state, and makes a conditional case for government. In more primitive societies, however, he argues that anarchy can be orderly when the population is small and has low mobility. Repeated interaction, social pressure, and norms allow people to eliminate prisoners' dilemmas. He writes (1988: 821), "Small numbers and immobility favor the anarchic achievement of Pareto optimality for public goods provision." On the other hand, Mueller argues that markets for private goods work best with large numbers of buyers and sellers, the conditions under which solving the public goods problem will be difficult. Mueller suggests that a modern society with large cities would be impossible without a state, because too many prisoners' dilemmas would occur. But he recognizes that government entails costs and that it too may not eliminate Hobbesian problems. The costs of devising private solutions, such as those based on reputation, must be weighed against the costs of having government and its regulation. He concludes that a modern world with total anarchy would be suboptimal, but his framework does not exclude the possibility.

Leeson (2007d) makes a conditional case for anarchy, examining circumstances under which anarchy could be preferable even to a benevolent government. He assumes that state enforcement of property and contracts enhances the gains from trade that society is able to achieve. However, he also recognizes that costs will arise, such as the decision making costs of arriving at a set of rules the state is to enforce, and the external cost of collective decision making that occurs when the group decides something contrary to one's personal interest. Leeson argues that whether anarchy is efficient depends on the magnitude of the increase in gains from trade compared to the costs of government. When there is little to gain from trade or when the costs of government are very high, anarchy may be preferable

to government. Leeson maintains that anarchy is often efficient in primitive societies with small trading populations, relative homogeneity of productive capabilities and preferences, and some informal institutions to facilitate trade. In these cases, the gains from trade that a government could create would be minimal. Furthermore, international anarchy already exists on a global level. Leeson argues that the international arena is a case in which the cost of government is large; even though gains from trade would be substantial, a world government is not desirable. Societies vary between these extremes, and whether any given state is efficient compared to anarchy depends on the balancing of these relative costs and benefits.

The relative merits of anarchy versus government can be modeled with game theory as well. Witt (1992) evaluates the desirability of forming a social contract. He follows Buchanan's basic approach, but considers the possibility that a government will use its monopoly on the use of force for the benefit of the rulers rather than the people. While a social contract solves the prisoners' dilemma of interactions between individuals, it creates a new prisoners' dilemma between the government and the people. Witt argues that once this second level is considered, people are much less likely to find it in their interest to form a state.

If a state emerges from a process by means other than a social contract, does that make the state undesirable? McGuire and Olson (1996) and Olson (2000) consider the creation of government to be based on predation rather than contract, but still consider the outcome positive. Their model is essentially Hobbesian: amoral individuals plunder whenever they can. In a world comprised of "roving bandits," individuals become less likely to produce because their resources are preyed upon in a tragedy of the commons situation. McGuire and Olson argue that if one bandit (the government) can monopolize theft in a given jurisdiction, it will essentially privatize part of the commons for itself.¹⁴ They consider this a good thing because the state becomes a sort of residual claimant that will steal, but since they are now a stationary bandit they will not steal so much as to stifle production.¹⁵ The state not only has a direct interest in the product of the ruled, but it has an incentive to provide a stable social order, including protection to help maximize production. McGuire and Olson (1996: 73–74) write, "It is as if the ruling power were guided by a hidden hand no less paradoxical for us than the invisible hand in the market was for the people in Adam Smith's time ... the invisible hand will lead it, remarkably, to treat those subject to its power as well as it treats itself." To these authors, the state increases the welfare of all parties, including those who had the state imposed on them.

Moselle and Polak (2001) also consider the relative merits of anarchy, roving bandits, and stationary bandits, but reach the opposite conclusion. Comparing the predatory state to anarchy, they argue that a predatory state may reduce both output and welfare. They model the choice set of the predatory state and how it wields its power. Government may create law and order, but it will do so only to become more of a plunderer. In their model, citizens choose to be either bandits or productive peasants. Peasants pay taxes but bandits do not. The predatory state will provide a "public good" of defense against banditry. However, since

¹⁴Buchanan (1973) makes a related point about crime in general. He argues that a smaller quantity crime is produced when crime is monopolized, so having organized crime is socially preferable to having many competing criminals.

¹⁵See Kurrild-Klitgaard and Svendsen (2003) for a historical case study. They examine the evolution of Viking governance from a situation in which Vikings over-plundered territories as roving bandits. Eventually the Vikings settled down and became stationary bandits, in the process deciding to provide order and public goods so they could maximize revenue for themselves.

citizens' exit option to banditry is now relatively less attractive the state can raise its own tax rates making both citizen and bandit welfare worse off. Moselle and Polak argue that even public goods such as irrigation can make the population worse off. With greater total production there is a higher return to banditry making government revenue and peasant welfare suffer. Thus, a more powerful state that provides public goods is not something one should necessarily assume to be beneficial for citizens. Contra Olson, Moselle and Polak (2001: 24) conclude that "maximizing revenue is not the same thing as maximizing output or popular welfare. To expect a predatory state to do the latter out of enlightened self-interest is wishful thinking."

Powell and Coyne (2003) also consider how the interests of the rulers and the ruled fail to dovetail in the way Olson claims. They consider cases in which rulers are not narrow monetary maximizers but instead have subjective preferences regarding social outcomes. Becoming a stationary bandit raises a ruler's income substantially, and if the other goods the ruler values are normal goods, he will demand more of them, even if this decreases his long term monetary wealth at the margin. Thus, even the prototypical stationary bandit can make citizens worse off.

In addition to the increasing number of articles, book-length volumes are exploring the relative merits of anarchy versus government, including *Anarchy, State, and Public Choice* (Stringham 2005a).¹⁶ *Anarchy, State, and Public Choice* revisits the issues originally raised in the monographs *Explorations in the Theory of Anarchy* and *Further Explorations in the Theory of Anarchy* three decades before. The edited volume reprints the main chapters from the original public choice volumes and contains new responses by eight George Mason University trained economists. Furthermore, it contains new reflections by James Buchanan and Gordon Tullock as well as a contribution from Jeffery Hummel. Compared to their predecessors, the younger generation is less inclined to view government as working for the public interest. Although the original studies from the public choice center in the 1970s tended to view anarchy as a prisoners' dilemma where government would improve the situation, the new contributions discuss whether anarchy need always be Hobbesian and whether government can be relied upon as a solution.

Osborne (2005) follows up on Bush (1972), contending that because of the adoption of contingent cooperation strategies, people will engage in less cheating than the Winston Bush model foretells. Coyne (2005) provides a critical evaluation of Tullock (1972) by describing how private parties (including private law enforcement) may solve the problems in Hobbesian anarchy. Leeson (2005) responds to Gunning (1972) by discussing ways in which contracts are negotiated without external enforcement. Powell (2005b) addresses the concerns raised by Buchanan (1972), taking the Hobbesian assumptions of Buchanan's model and questioning whether a government populated by these same Hobbesian individuals can bring about any improvement. Storr (2005) reexamines the case studies of anarchy in Hogarty (1972) and concludes that they are inconclusive about the desirability of anarchy because all fail to replicate any reasonable approximation of a real world anarchic situation. Beaulier (2005) evaluates the concerns raised by Samuels (1974) and finds Samuels' definition of power to be too broad to claim conclusively that an ordered anarchy with private law enforcement would be just as coercive as government.

Buchanan (2005) provides an interesting comment on the new works, writing, "The seminar papers, as published in the small volumes edited by Gordon Tullock, as well as Tullock's book, *The Social Dilemma* (1974b) and my own book, *The Limits of Liberty* (1975), should,

¹⁶Recent books that debate this topic with less of an exclusively economic focus include Stringham (2007) and Long and Machan (2008).

at least in part, be interpreted as reactions to the times.” Tullock (2005) stays true to his universal message and questions whether ordered anarchy is really possible. Hummel (2005) responds, arguing that anarchy is possible if people’s ideology is strong enough to surmount the same types of public choice problems faced when trying to keep a government limited.¹⁷ Boettke (2005) ends the volume, arguing that anarchism is more than a normative endeavor. The world has many puzzles that cannot be explained by theories that assume the dependence of markets on government. The review of *Anarchy, State and Public Choice* appearing in *Public Choice* concludes: “Overall the book demonstrates the considerable progress made in understanding the working of libertarian anarchy over the past thirty-plus years . . . The contemporary responses to the papers in Tullock’s edited volumes demonstrates that interest in anarchy is alive with the current generation of public choice economists” (Sutter 2008: 493).

5.4 Agent based modeling and experimental investigations of anarchy

As the debate about anarchy has advanced, some scholars have applied various tools from modern economics to evaluate the competing theories. Historical case studies are useful for examining episodes of anarchy, but these studies are often silent on how things might happen in other circumstances. Unfortunately (or fortunately, depending on the outcome one predicts), no true real world counterparts exist for researchers to observe as ways of helping corroborate or disprove the different theories of anarchy. For example, little historical evidence exists about how humans behave in an institutionless state of nature. As Tullock notes, “Hobbes’s ‘war of all against all’ was not part of human history,” and “Insofar as we can tell man developed from an ape which was already social. In other words, our predecessors lived in small bands whose social coherence depended to a considerable extent upon inherited behavior patterns” (1974b: 9). Since a lack of evidence prevents economists from observing behavior in a state of nature, some researchers are now investigating the realism of the formal theories using simulations and experimental laboratories.

Vanderschraaf (2006) uses agent based modeling to explore how humans might interact over time under Hobbesian anarchy. Vanderschraaf (2006: 243) believes “that this kind of dynamical analysis is a more promising route to predicting the outcome of anarchy than the more traditional a priori analyses of anarchy in the literature.” The model assumes that parties do not know the payoffs of their partners and no mechanisms can generate any common knowledge about the parties, but that individuals can change their behavior over time. The simulations show that if everyone in the population is inclined toward cooperation, then anarchy converges to a state of peace. But if even a small number of “nasty” people are present in the initial conditions, they cause others to start acting nasty in response. In the model, people who do not know whether they are interacting with cooperators or dominators treat everyone as enemies. Hence, through experience everyone learns not to cooperate, and this sparks the Hobbesian war of all against all. However, Vanderschraaf suggests that future research could relax the no-knowledge assumption, which might allow a peaceful outcome to be achieved.

Another avenue of research attempts to model a state of nature in a laboratory and then observe the behavior of the subjects. Carter and Anderton (2001) investigate pairs of subjects who alternate between two types of roles: first-movers who can be productive and/or

¹⁷Hummel (2001) explores ideology in greater depth by examining the provision of “national” defense in an anarchist society and the transition from government to anarchy.

engage in defense, and second-movers who can be productive and/or engage in offense to appropriate the endowments of the first-movers. The second-movers observe the decisions of the first-movers before making their own. The authors find that the outcome is sensitive to the conditions, namely, increasing the relative effectiveness of predation leads the equilibrium level of appropriation to vary from zero, to partial, to full predation.

Duffy and Kim's (2005) study of anarchy in the laboratory complements Carter and Anderson by increasing the size of the societies from two to ten individuals, who can choose to be either producers or plunderers. Subjects who choose to be producers must decide how to divide their resources between income production and defense against plunder. Plunderers must invest all resources in plunder. Each plunderer shares equally in the production appropriated from the producers, and each producer shares equally in the production that remains after plundering. After seeing what happens under anarchy, Duffy and Kim introduce a government in which an eleventh person, a dictator, chooses the level of defense for all producers to deter plunder. Duffy and Kim find that (a) without dictators, the experimental economies approach the Nash equilibrium of their anarchy model, and that (b) dictators lead all of the individuals to become producers instead of plunderers, thereby achieving a Pareto-superior outcome.

Powell and Wilson (2008) expand on these studies by creating a real time Hobbesian jungle to measure the deadweight cost of predation. In their experimental societies, each of six individuals can choose how much, if any, of their productive endowment to invest in offense and/or defense. The subjects are not compartmentalized, exogenously or endogenously, as either pure producers or pure plunderers; they can choose the degree to which they wish to allocate productive units to offense and defense and can change these allocations throughout the experiment. Moreover, the experiment is conducted in continuous time (i.e., defensive decisions do not necessarily precede offensive ones, and offensive choices do not necessarily follow defensive decisions). There are no rounds in which subjects repeatedly face the same decisions. Actions can occur at any time. Each subject also has just one shot with their "life." Since productive assets earn subjects money whereas offensive and defensive units do not, Powell and Wilson are able to examine the inefficiency of a Hobbesian jungle without external enforcement. Their experimental jungles were neither utopian nor particularly brutish, and were 42.9% efficient on average. Powell and Wilson also test Buchanan's hypothesis that people in a state of anarchy will unanimously agree to form a social contract; they found that constitutional contracts were unanimously adopted only 1 out of 31 times.

Kimbrough et al. (2008) use laboratory conditions to explore how property rights emerge without external enforcement. Their experiment involves eight anonymous subjects who begin in pairs and are merged gradually into a single group as the experiment progresses. Individuals differ in productive capabilities and preferences over two goods. To achieve efficiency, subjects must discover the principle of specialization and exchange. In Kimbrough et al.'s initial treatment, property rights are enforced exogenously by forbidding individuals to steal. In later treatments individuals are allowed to steal, which could inhibit the groups' ability to achieve efficiency by specializing and exchanging. In their experiments the researchers find that in the chat room entrepreneurial subjects argued to convince others that they all can earn more by mutually respecting property rights. Others then followed that lead. Kimbrough et al. found no statistically significant difference in efficiency between sessions in which property rights were perfectly enforced exogenously and those in which property rights arrangements were left to the subjects to evolve endogenously.

These new research methods provide an important complement to the historical and theoretical studies of anarchy. The results of agent based models and experimental studies of anarchy are sensitive to the assumptions and setups of the models used, but these studies

allow researchers to test theories in a laboratory setting when no naturally occurring cases are available. Experimental studies enable researchers to observe how people actually react under various situations rather than just assuming that conflict will always or never prevail. These new methods of exploring anarchy show that the study of anarchy has come a long way, and they should prove fruitful for further investigations of how ordered anarchy might function.

6 Conclusion

Economists' contributions to the study of anarchy in the past four decades have been substantial. While almost no economists studied anarchy before the 1970s, since then scores of articles have been written on the subject. Beyond the potentially interesting normative questions, the positive economic analysis of anarchy can provide many insights about how property rights and order are formed. Rather than assuming that government always is perfect and property rights always are secure, scholars following in the footsteps of the original public choice economists can now study what actually happens when government enforcement is imperfect. Many aspects of the economy currently fall outside state influence, making reliance on law enforcement an unusable option. Even in most people's everyday lives, individuals cannot rely on government at every turn, yet order persists. How is that possible? Economists who study anarchy now have much more to say about the many pockets of stateless orders in the world.

Much of the recent historical research on anarchy indicates that ordered anarchy is much more common than earlier thinkers assumed. Economists have described various mechanisms that enable self-enforcing contracts to take place. In light of this, one can no longer say that contracts are impossible without government. Without government enforcement, trade can take place not only in simple situations but also in large groups, between heterogeneous traders, and in cases involving complicated contracts over time. Similarly, in light of the recent research, one can no longer say that property rights and law itself are impossible without government. Many pockets of society past and present rely on customary laws, and in some cases whole societies exist without government.

The studies of the historical episodes and of modern day stateless orders may have important policy relevance in both developed and less developed countries today. A significant fraction of the world's population lives under governments that do poor jobs of enforcing contracts and protecting property rights. Yet fixing "weak or failed states" is much easier said than done. Most attempts to improve governments by using military force fail (Coyne 2008), as do most attempts using foreign aid (Powell 2008). Government is often the source of the problem (Stringham 2005c). By assuming that markets require strong governments (Basu 2000), policymakers may be focusing their efforts in the wrong place. Even though government law enforcement is so often lacking, one can still observe what can be called rule making entrepreneurship where private parties profit by creating beneficial rules (Boettke and Leeson 2008). These private orderings exist in most all nations, poor and rich, but they are often impeded by government. Rather than focusing on building or strengthening governments around the world (Bates 2008), embracing decentralized and stateless orders might be our best chance for having "workable utopias" (Boettke 1993). From this perspective, the research on anarchy may be of utmost practical relevance for the world today and the future.

Public choice revolutionized the way economists think about government. Once one recognizes that agents of the state may not promote the general interest, even idealized governments can suffer from "government failure." By recognizing that public choice insights

also can apply to law, members of society might decide that government law enforcement should not be given *carte blanche*. Rather than assuming that ordered anarchy is impossible and that government is always perfect, economists should now undertake comparative analysis between real world anarchy and real world government. Under what conditions is ordered anarchy achievable, and how far can ordered anarchy extend in a modern economy? These are the new research questions.

In 2004 Buchanan wrote, “As I now reflect on that burst of interest in the theory of anarchy, I now realize that we were perhaps too influenced by the Bush-Tullock presumption to the effect that the behavioral hypotheses used were necessarily empirically grounded.” The pessimistic Hobbesian beliefs about human behavior under anarchy might not always hold. Buchanan (2004: 268) writes that their pessimistic assumptions “led us to neglect at that time any effort to work out just what an ordered anarchy would look like. What would be the results if persons should behave so as to internalize all of the relevant externalities in their dealings among themselves?”

By asking important research questions, public choice scholars have helped open the door to an entire line of research that has discovered many mechanisms to constrain opportunistic behavior in absence of government enforcement. If workable and perhaps superior alternatives to government law enforcement exist, the previously unquestioned choice of government over anarchy can come into question. In the greater scheme of things, civilization is a few thousand years old, but the study of economics is only a few centuries old. Yet, society has advanced significantly since people began studying economics. Similarly, although the study of economics is a few hundred years old, the economic analysis of anarchy is only a few decades old. Have economists discovered a viable alternative that until now has been too hastily dismissed?

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