

Valuation." Journal of Financial Economics. 1988. Vol.20, 293-315.

Pinto, Brian, Belka, Marek and Krawjewski, Stefan. "Transforming State Enterprises in Poland: Evidence on Adjustment by Manufacturing Firms." Brookings Papers on Economic Activity. 1993. Vol.1, 213-70.

Report of the Deutsche Bundesbank for the Year 1991.

Sachs, Jeffrey. Poland's Jump to the Market Economy. Cambridge, Massachusetts: The MIT Press, 1993.

Schmidt, Klaus-Dieter and Sander, Birgit. "Wages, Productivity and Employment In eastern Germany." The Economics of German Unification. Ghaussy and Schaefer, eds.. London: Routledge, 1993. 60-72.

Shales, Amity. "Germany's Chained Economy." Foreign Affairs. 1994. Vol.73, No.5, 109-24.

Shliefer, Andrei and Vishny, Robert W.. "Politicians and Firms." January, 1994.

Siebert, Horst. "German Unification: The Economics of Transition." Kiel Working Papers, Kiel Institute of World Economics. March, 1991. No.468.

Sinn, Hans-Werner. "Privatization in East Germany." Working Paper, National Bureau of Economic Research. No.3998, February, 1992.

Slay, Ben. "Rapid versus Gradual Economic Transition." RFE/RL Research Report. August 12, 1994. Vol.3, No.31, 31-42.

Slay, Ben. "Poland: The Role of Managers in Privatization." RFE/RL Research Report. March 19, 1993. Vol.2, No.12, 52-6.

Slay, Ben. "Poland: An Overview." RFE/RL Research Report. April 24, 1992. Vol., No.17, 15-23.

Thomerson, Michael J.. "German Reunification--The privatization of socialist property on East Germany's path to democracy." Georgia Journal of International and Comparative Law. Vol.21, No.1, 1991. 123-43.

Weitzman, Martin L.. "How not to Privatize." Revista di Politica Economica. No.12, December, 1991.

STANDING AT THE INTERSECTION OF PHILOSOPHY  
AND ECONOMICS: THE AXIOMATIC APPROACH TO  
THE PROBLEM OF DISTRIBUTIVE JUSTICE

MATTHEW TAYLOR HINSHAW

Taylor Hinshaw, Trinity Class of 1995, is a philosophy and economics double major. A member of Phi Beta Kappa, his intellectual interests include the philosophy of social science, social and political philosophy, and the philosophy of mind. His non-academic interests include music, basketball, and lo-lai. Next year he will enter the graduate program in philosophy at the University of California at San Diego, where he hopes to study in greater detail the philosophy of social science and its relationship to both social and political philosophy and philosophy of mind. Taylor has received a National Science Foundation Graduate Research Fellowship in the Philosophy of Science, as well as a Mellon Fellowship in the Humanities. After receiving his Ph.D., Taylor intends to pursue a career in academic philosophy. This paper is an abridged form of an honors thesis written under the supervision of Dr. Hervé Moulin.

## Introduction

Contemporary Anglo-American political philosophy focuses heavily on the problem of the just distribution of resources in society. This problem, often referred to as the problem of distributive justice, is a natural object of study for both economics and philosophy because it attempts to discover from the set of all efficient politico-economic institutions, a small subset that implement a 'just' distribution of societal resources.

Axiomatic theory may be able to contribute to the contemporary debate over the problem of distributive justice. As a positive discipline, it utilizes a vast set of mathematical tools that enable theorists to rigorously characterize the problem of distributive justice. Moreover, it is also able to incorporate ethical intuitions into its positive tools, thus enabling economists and philosophers alike to study with greater precision the equity issues that arise in the distribution of resources in a particular society.

The economist John Roemer has contributed mightily to the development of the normative aspects of axiomatic theory. In his research he axiomatizes contemporary political philosophies, then tries to determine the consistency of the legitimacy of the arguments that undergird those philosophies. By examining his work, I hope to explore the strengths and weaknesses of the axiomatic method as a tool for the political philosopher. I do not think that the axiomatic method will ever prove to supplant political philosophy as the dominant vehicle for the study of distributive justice. However, I do think that the method has much to contribute to political philosophy, and thus shall argue in favor of greater interaction between the two disciplines.

## The Political Philosophy of John Roemer

John Roemer is not a political philosopher, *per se*. Instead he is an economist who works in the axiomatic tradition. However, his work to date has been heavily influenced by political philosophy. Indeed, Roemer might be best thought of as a normative economist.<sup>63</sup> His work is situated squarely in the intersection of political philosophy and positive economic analysis. Roemer's methodology is axiomatic because he develops axiomatic characterizations of political philosophies, then studies the models created with those axioms in order to glean insight into their structure.

Roemer's own political philosophy comes close to that of G. A. Cohen (1986). Indeed, a reasonable reading of Roemer might interpret him as the economic counterpart of Cohen. Cohen, as a political philosopher, is principally concerned with the moral justification of economic and political systems. His arguments tend to exhibit the abstract, prose method of argumentation which characterizes much of

<sup>63</sup>Hervé Moulin suggested this term to me.



philosophy. Roemer, on the other hand, studies the possibility for the practical implementation of the social systems which Cohen and others construct.

Recently, Roemer has systematically organized the various criticisms which he has levied against contemporary political theories into a single text. This manuscript shall eventually be published under the title *Theories of Distributive Justice*. It represents Roemer's most comprehensive effort to date to assimilate the axiomatic criticisms that have been levied against contemporary political philosophies. In this manuscript Roemer takes aim at those elements of these theories that are untenable, due to internal inconsistencies, and unattractive, due to unforeseen complications which run counter to moral sensibilities.

In my opinion, Roemer's work displays the constructive interplay of economic methodology and political philosophy which is the focus of this paper. On the one hand, Roemer is careful to not allow himself to rely too heavily on axiomatic methods. Axiomatic methods, despite their vast applications, are no substitute for normative justifications. These methods may illuminate normative concepts through their ability to highlight the salient aspects of a highly abstract phenomena; however they are unable to create the ideals that stand as the ground for normative judgments. Axiomatic methods are a tool that must be used in conjunction with the proper philosophic reflection if they are to yield credible ethical results.

On the other hand, Roemer displays a needed skepticism towards the theories of the philosophers that he examines. His analysis of contemporary theories of justice is astute. He axiomatizes the fundamental assumptions of these philosophers, then illustrates the shortcomings of their theories in a way which could not be obtained through standard philosophic analysis. Roemer also gives common intuitions concerning ethical issues its proper respect, for he is often quick to point out when a political philosophy endorses a conclusion which is repugnant to most observers. He does not hide behind the mathematics which are his indispensable analytical tool, showing the courage to confront the ethical implications of his models when they conflict with tradition, and the modesty needed to dismiss his models when their results are repulsive.

In the following sections, I shall focus primarily on Roemer's forthcoming work. My goal is not necessarily to examine the substance of the work and attack the various models that he has created. Rather, I am interested in studying his general methodological approach. I wish to focus on the strengths and the weaknesses of the highly mathematical axiomatic method which is the backbone as Roemer's criticisms. Roemer's models are interesting in their own right, when considered solely as forays into the abstract and exciting world of mathematical microeconomic theory. However, these models must be more than elegant mathematical results if they are to undergird normative criticisms of political philosophies. They must be able to isolate the essential features of a political philosophy and demonstrate why those features fail to establish the legitimacy of the arguments in support of that philosophy. The axiomatic method must be able to reveal hidden inconsistencies in arguments. It must also be able to expose hidden flaws and uncover implicit premises that damage the integrity of the arguments. In short, the axiomatic method must accomplish all the tasks that

traditional philosophic analysis accomplishes if it is to contribute to the philosophical discussion of distributive justice. I am of the opinion that the axiomatic method accomplishes these things and shall attempt to demonstrate this through the course of this paper.

### Theories of Distributive Justice

In his manuscript, *Theories of Distributive Justice*, Roemer uses axiomatic methods to analyze political philosophies. In five chapters that constitute the heart of his analysis, Roemer focuses on utilitarianism, Rawlsian liberalism, Nozickian neo-Lockeanism, Dworkian resource egalitarianism, and opportunity egalitarianism. I shall focus on two of these political philosophies, Rawlsian liberalism and Nozickian neo-Lockeanism, in order to show how Roemer uses the analytical tools of economics to illuminate certain implications of these theories of distributive justice.

I shall begin my discussion with Roemer's analysis of Rawlsian liberalism. Roemer has a number of interesting things to say about Rawls' theory. However, I shall focus on two criticisms in particular, 1) his claim that Rawls' can not consistently argue for an objective index of primary goods, and 2) his claim that in the original position a representative soul would not necessarily choose to have goods distributed according to the maximin principle. Roemer concludes that although Rawls' egalitarian theory is intuitively attractive, the arguments are weak on several key fronts. For these reasons Roemer claims that Rawlsian liberalism, despite its strengths, is not an attractive candidate for a comprehensive theory of justice.

After outlining Roemer's criticisms of Rawls, I shall turn to his discussion of Nozick's neo-Lockean political philosophy. As one might expect, Roemer is deeply antithetical to the anti-egalitarian bias of Nozick's conception of justice. Roemer attacks Nozick's political philosophy on several fronts. First of all, he argues that Nozick's theory does not remain true to the intentions of the Lockean political philosophy which is its intellectual ancestor. Of particular concern is Nozick's justification of the way in which scarce natural resources are initially appropriated by individuals within a society. Roemer re-casts Nozick's political philosophy in the language of axiomatic theory in an attempt to discover whether or not principles of liberty (what Roemer calls self-ownership) are compatible with an equitable distribution of resources. Roemer concludes that Nozick's theory of appropriation is inconsistent with any high degree of equality; however, he does attempt to illustrate how Lockean political theory may be consistent with a high degree of equality. In the end, Roemer rejects Nozick's political philosophy on the grounds that it does not justify the principle of appropriation which is perhaps its most crucial component, while leaving open the possibility that Locke's political philosophy may be compatible with an equitable distribution of goods.

### Rawlsian Liberalism - Democratic Equality

Rawls' political philosophy has sparked a wealth of discussion and criticism since its initial presentation in *A Theory of Justice*. Rawls' argument is constructed around one central proposal, namely that a society should seek to create institutions



which maximize the endowment of the least well-off segment of that society. This endowment is measured by an index of primary goods which consists in the basic items that every individual needs to promote her idiosyncratic ends. These goods are rights, liberties, opportunities and power, income and wealth, and self-worth. (Rawls 1971, p. 92) In order to justify this distribution -- known as the maximin distribution -- Rawls develops the notion of a veil of ignorance. He argues that if each individual within a society was ignorant of the morally arbitrary characteristics of their self (this includes social status, natural abilities, income, diligence, family background, talents, intelligence, etc.), then the perfectly rational individual would conclude that primary goods should be distributed in such a way so as to maximize the well-being of the least well off. (Ibid., pp. 17-22; 60-67)

As Roemer notes, Rawls does not provide an account of how this index of primary goods is to be constructed. Presumably this index should weight the various categories in some fashion and derive a measure of the overall well-being of each agent. Roemer attempts to construct just such an index and shows that Rawls' theory can not meet all the requirements he sets forth. Roemer also contests Rawls' claim that behind the veil of ignorance the rational individual would adopt the difference principle. According to Roemer, the argument from the veil of ignorance is predicated on two implicit premises for which Rawls gives no justification: 1) that individuals behind the veil are extremely risk adverse, and 2) that rationality consists in the ability to choose a distribution from among a profile of distributions. Against the first premise, Roemer argues that there is no good reason to accept that individuals behind the veil of ignorance are extremely risk adverse. Against the second premise, Roemer argues that the notion of economic rationality presupposes that individuals have well-defined preference orderings across all possible outcomes. Thus, he says, any attempt to argue that rationality consists in the selection of one such outcome mis-interprets the economic conception of rationality.

Roemer's first criticism deals with the consistency of several core tenets of Rawlsian justice. Indeed, Rawls writes as if the construction of the appropriate index of primary goods is a trivial problem. Expanding on Arneson's (1990) criticism that Rawls' theory is implicitly welfarist, Roemer attempts to show that Rawls can not reconcile his views on happiness, primary goods, the achievement of life-plans, and the existence of an objective index.<sup>64</sup> (Roemer, in press, Chapter 5, p. 7) The heart of Roemer's argument is a mathematical formulation of the problem which illustrates that Rawls' theory ordinally equates the index of primary goods to the individual's welfare. However, this is contrary to Rawls' professed intention, since he wants to argue that his theory is non-welfarist (that is, the mechanism which assigns goods does not make its decisions based solely on the utility levels that an individual would obtain from a given bundle of goods). The only solution to this dilemma is to discover an index of primary goods that, though it is ordinally linked to the welfare of the individual, may

<sup>64</sup> A theory of distributive justice is *welfarist* if utility is the sole criterion that is used to determine the distribution of goods and resources.

not be derived purely from information on welfare. (Ibid., Chapter 5, p. 12)

Roemer's argument against the consistency of Rawls' proposal is as follows:

- P1) Rawls argues that regardless of life plans, primary goods are such that individuals prefer more to less, regardless of the circumstances, for they assure greater success in the advancement of ends (Ibid., Chapter 5, p. 7)
- P2) Rawls also argues that a person is happy when that life plan is being fulfilled. (Ibid., Chapter 5, p. 7)
- P3) For Rawls, utility measures happiness, or ex hypothesi, the degree to which one's life plans are being fulfilled. (Ibid., Chapter 5, p. 8)
- P4) However, when comparing individuals and/or groups, Rawls claims the relevant measure of comparison is the index of primary goods, not utility. (Ibid., Chapter 5, p. 8)
- P5) It is entirely conceivable that there exists an index of goods, call it  $\mu^h$ , and a utility function,  $u^h$ , for which an individual might have a lower utility with a greater endowment of goods. This would entail that the individual had a greater chance of seeing her life plan fulfilled and thus being happy at the smaller endowment. (Ibid., Chapter 5, p. 8)
- P6) P5, though, directly contradicts P1, ergo Rawls must either deny P1 or P5. (Ibid., Chapter 5, p. 8)
- P7) Denying P5 entails accepting the fact that the index of primary goods and the utility function of individuals in society will be ordinally equivalent. (Ibid., Chapter 5, p. 8)
- P8) Assuming the denial of P5, there is no good reason to assume that utility function should be ordinally equivalent across individuals in society. Therefore, it can not be the case that the index of primary goods can be ordinary equivalent across individuals in society. Or, alternatively, given P1 and P2 there exists no single objective measure of primary goods. (Ibid., Chapter 5, p. 8-9)

Roemer concludes that "each individual's index of primary goods is ordinally equivalent to his measure of happiness [welfare], and that these indices are themselves not generally ordinally equivalent. In particular, the indices are different across persons" (Ibid., Chapter 5, p. 9). Rawls cannot consistently argue that an objective index of primary goods exists and that primary goods are such that individuals always prefer more to less. This does not necessarily entail welfarism, as Roemer points out, for it will be the case that a transformation function is needed to make the transition from an ordinally comparable utility function to an ordinally comparable index of primary goods. The distribution of goods will not depend solely on utility information, and hence can not be called welfarist. (Ibid., Chapter 5, p. 9) Of course, what is left once these transformations have been made is not Rawls' original theory, for he advocates an objective index of primary goods which applies to all individuals in society. Roemer shows that this goal is impossible given Rawls' presuppositions; however, he does show that this does not necessarily render Rawls' theory welfarist. (Ibid., Chapter 5, p. 12)

This rather counter-intuitive result threatens the entire legitimacy of Rawls'



theory. Rawls does not seek to use welfare (that is, utility) as the relevant standard of measurement, for to do this would be to open his theory to the very same criticisms which he levied against utilitarianism -- that it ignores the sources of utility in its allocation of goods, that it rewards individuals with "expensive" tastes, that it does not adequately compensate individuals with tastes formed under duress, etc. Roemer has demonstrated that Rawls' theory is not purely welfarist, for there is at least a transformation function which is needed to recover the utility function from the index of primary goods. However, the ordinal equivalence of utility and the index of primary goods insures that, given the appropriate transformation function, utility information will be recoverable from the index of primary goods and vice versa. Rawls' theory may not be explicitly welfarist. Nonetheless, there is a creeping welfarism which begins to assert itself once Rawls assumes that primary goods are such that individuals prefer more to less because they enhance the prospects for attaining ends.

Roemer's second criticism of Rawls' theory of justice is not quite as 'optimistic'. In *A Theory of Justice*, Rawls presents a number of arguments in favor of the maximin criterion. Among them is a contractarian argument that is based on the notion of a veil of ignorance. Rawls claims that rational individuals, when deprived of their knowledge of the morally arbitrary features of their existence, would agree to establish social institutions which insure that the well-being of the most disadvantaged group in society is as high as possible. Rawls calls this hypothetical state the original position, and argues that from the original position one can see that the maximin distribution mechanism is the only just mechanism. Roemer criticizes this argument for the maximin principle because it equates rationality with extreme risk aversion. Roemer argues that Rawls has no good reason to assume that in the original position rational individuals are extremely risk averse. Therefore he concludes that Rawls' argument in favor of the maximin criterion from the original position is seriously flawed.

Rawls defines the original position as "a state of affairs in which the parties are equally represented as moral persons and the outcome is not conditioned by arbitrary contingencies or the relative balance of social forces." (Rawls 1971, p. 120) He argues that in this hypothetical situation, individuals abstract from the personal characteristics of their lives and view themselves as a purely rational agent attempting to decide what the distribution of primary goods should be in the subsequent society. Rawls claims that in this environment, rational individuals will choose that distribution of goods which maximizes the well-being of the least well off.<sup>65</sup> (Ibid., pp. 150-161) Roemer questions whether or not rational agents will truly choose the maximin criterion by constructing a model of a society in which the individuals move

<sup>65</sup>Rawls gives another justification of the maximin criterion (also called the difference principle). The impetus behind the argument is that this is the only allocation which is fair. For the purposes of this paper I shall focus primarily on Rawls' second justification, the argument from the original position.

into the original position, yet fail to choose the maximin criterion. His conclusion is that only extremely risk adverse agents will settle upon the maximin criterion. Since there is no good reason to assume that individuals in the original position are risk adverse, Roemer concludes that Rawls' argument in favor of the maximin criterion is flawed and argues that Rawls' primary mistake is to equate rationality with risk aversion.

Roemer claims that the problem of obtaining an acceptable distribution of goods is a decision problem. This is based on the observation that the move through veil of ignorance dissolves the boundaries between individuals and results in a single, representative soul facing an optimization problem. Roemer then constructs a rudimentary society which has the following characteristics: 1) there are two main goods, leisure and consumption goods; 2) wages are intended to measure the relative abilities of agents in the society; 3) utility is a function of leisure, goods, and wages; and 4) the utility function is a measure of expected degree of life plan fulfillment.<sup>66</sup> (Roemer, in press, Chapter 5, p. 19)

Roemer defines the decision problem as one of choosing a set of tax schedules which redistribute income, subject to the condition that the "government" which redistributes the income balances its budget. Given the multiplicity of possible tax structures, only a few will induce the appropriate maximin redistribution of goods.<sup>67</sup> There is a probability distribution function over these tax schedules that an agent in the original position knows. Thus the decision facing the agent is one of maximizing her expected utility subject to the risk which accompanies that level of utility. Roemer shows that only extremely risk adverse agents will choose tax schedules which induce a maximin distribution of goods. Risk neutral and risk loving agents may not choose these tax schedules, and thus Rawls' argument fails to establish the maximin criterion based solely on the original position. (Ibid., Chapter 5, pp. 19-22)

Rawls might well respond to Roemer's criticism by arguing that the rational agent, when situated behind the veil of ignorance, will choose those tax schedules

<sup>66</sup>One might object to the introduction of utility functions and degrees of life plan fulfillment into the original position, since Rawls has insisted that it is primary goods which are to be distributed by the society. Roemer has, essentially, two responses. First, that the utility of the agents is ordinaly equivalent to the index of primary goods. Second, there is no reason to assume that agents can not know the distribution of life plans in the actual society. Furthermore, if it is the case that agents do, in fact, know this distribution, then they will not only be concerned with goods, but will also be concerned with the degree of expected life plan fulfillment. (Roemer, in press, Chapter 5, pp. 19-20)

<sup>67</sup>Roemer gives four technical criteria that these tax schedules must meet in order to induce a maximin distribution. I shall omit these technical conditions here. For a more in-depth discussion see Roemer, in press, Chapter 5, pp. 20-21.



which result in a maximin distribution. Of course, this, then, is to implicitly argue that rationality consists in extreme risk aversion. Roemer points out that the economic notion of rationality presupposes that an agent has well defined preferences over a set of states. Risk aversion entails that the agent prefers outcomes with lower expected values, yet smaller standard deviations. Risk loving entails just the opposite -- the agent prefers outcomes with higher expected values and larger standard deviations. Given that an agent's preferences exhibit risk aversion, the agent is said to be rational if his decisions are such that he chooses an outcome that coheres with his preferences. However, an agent who is risk loving may also, under the economic definition of rationality, be said to be rational. Given that an agent has risk loving preferences, she is rational when she chooses an outcome that coheres with her preferences, which happen to be different than those of the risk averse agent. It is a mistake on Rawls' part to associate risk aversion with rationality, for rationality, as it is conceived by economists, is used to denote those situations where choices cohere with preferences. In arguing that the rational soul will choose a maximin distribution of wealth Rawls appeals, not to the principle of economic rationality, but rather to commonsense intuitions of rationality.<sup>68</sup> Roemer argues that this confusion causes Rawls to overlook the fact that the representative soul, if she is risk neutral or risk loving, may not choose the tax schedules which induce a maximin redistribution of goods.<sup>69</sup> (Ibid., Chapter 5, pp. 22-23)

#### Neo-Lockeanism - Ownership of the Self

Nozick's political philosophy, as it is enunciated in *Anarchy, State, and Utopia*, is at once a reaction to the democratic liberalism of Rawls and a revival of the Lockean emphasis on rights. Nozick reacts against Rawls by denying that distributive justice requires society to enforce a "patterned" distribution of holdings.<sup>70</sup> (Nozick 1974, pp. 153-160) In a Lockean move, he argues that considerations of liberty

<sup>68</sup>In the commonsense notion of rationality, one would say that it would simply be *crazy* or *irrational*, for me to wager an exorbitant amount of money on my ability to predict, word for word, the lecture that my economics professor will give today in class.

<sup>69</sup>While Roemer rules out Rawls' argument in favor of maximin distribution of primary goods, he notes that there may be other goods reasons for selecting such a distribution. He alludes to work that suggests that the maximin solution may be the distribution chosen by a certain set of ethical axioms. See Roemer, in press, Chapter 1, pp. 33-46.

<sup>70</sup>Nozick uses the generic term "holdings" to refer to all those things which an individual owns. It includes, but is not restricted to, wealth, income, power, talents, opportunities, etc. It is roughly equivalent to Rawls' primary goods; however, holdings refers to items such as personal belongings and luxuries, whereas Rawls' concept of primary goods is concerned with basic necessities.

prevent the coercive transfer of holdings that must transpire in Rawlsian democratic liberalism. Nozick claims that justice does not reside solely in end-state distributions of holdings. Instead, the principles by which those distributions arise must be taken into consideration if a given distribution is to be called just. (Ibid., pp. 150-51)

Nozick argues that as distributions evolve over time the sole criterion by which they may be judged is the principle of justice in transfer. This principle states that "A person who acquires a holding . . . from someone else entitled to that holding, is entitled to that holding" (Ibid., p. 151). Within the context of Nozick's theory, this principle of justice adequately covers those situations in which a title is voluntarily transferred from one agent to another. Nozick, though, must still answer the question of how an agent initially comes to acquire her holdings. To accomplish this task he establishes the principle of justice in acquisition. This principle states that "A person who acquires a holding in accordance with the principle of justice in acquisition is entitled to that holding" (Ibid., p. 151). Nozick completes the framework for his theory of distributive justice by claiming that these are the only two means by which an individual is entitled to his holdings.

Nozick's argument is heavily dependent on the characterizations of the two principles of justice. The principle of justice in transfer is relatively straightforward -- so long as the transfer occurs voluntarily (i.e., no coercion on the part of either agent) the resulting distribution is just. The principle of justice in acquisition is much more complicated. Nozick builds upon Locke's conception of property rights and argues that the initial acquisition of holdings from the previously unowned natural world is acceptable so long as the appropriation "leaves no one worse off than she would have been had that part remained unowned." (Roemer, in press, Chapter 6, p. 3)

Roemer, as well as a number of others, is highly critical of this proposal. As Cohen has noted, there are a variety of counterfactuals which could stand as the basis of comparison. (Cohen 1986a, pp. 118-31) Nozick does not provide any justification for his assumption that in the absence of appropriation the proper basis for comparison is the world in which resources remain un-appropriated. Cohen and Roemer both argue that perhaps a better basis of comparison would be the situation in which the world is jointly owned. Under these circumstances, the distribution of resources transforms itself into a bargaining problem among self-interested agents. (Roemer, in press, Chapter 6, p. 8) From this point of departure, Roemer uses the tools of axiomatic bargaining theory to determine what type of allocation mechanisms satisfy a relatively small number of attractive ethical principles.

Roemer is willing to grant one important concession to Nozick, and that is that there is a natural sense in which an individual may be said to be the owner of her natural talents and abilities. Cohen (1986a, 1986b) has called this the thesis of self-ownership. Nozick holds a strong version of the thesis of self-ownership, since he argues that it is in virtue of this thesis one acquires permanent, bequeathable rights in all that which one has mixed with one's labor. In fact, Nozick adheres to an extremely powerful form of the thesis of self ownership, one which holds not only that one acquires permanent rights in the fruits of one's labor, but also that it is morally impermissible for society to abridge those rights. Roemer denies the strong forms of



the thesis of self-ownership, but is at least willing to concede that individuals do have some rights in the talents that they "own." In his analysis, he attempts to model a minimal version of self-ownership, while at the same time preserving joint ownership of the external world.

Much of this work is carried out in Moulin and Roemer (1989), where the two attempt to use axiomatic methods to model a world in which two agents share a productive technology. The technology requires one input -- labor. However, the two individuals have different skill levels, a fact which ensures that for a given amount of labor input the technology is more productive when operated by the higher skilled worker. Moulin and Roemer postulate four axioms that should govern the behavior of the mechanisms which allocate labor shares and distribute goods.<sup>71</sup> Using the axiomatic method, they prove that the only mechanism which meets these four criteria is the egalitarian mechanism, which equalizes the utility levels of the agents at the highest possible level. (Moulin and Roemer 1989, p. 355; Roemer, in press, Chapter 6, p. 12) They also show that as various axioms are dropped, alternative distribution mechanisms become permissible. (Moulin and Roemer 1989, pp. 358-59) Finally, Roemer claims elsewhere that any attempt to strengthen the self-ownership postulate such that the more highly skilled agent receives strictly more output than the lower skill agent creates an impossibility result, thus showing that strong self-ownership is incompatible with the ethical requirements of technological monotonicity and the protection of the low skill agent. (Roemer, in press, Chapter 6, p. 14)

This work shows that at a very fundamental level joint ownership and self-ownership conflict with one another. If, as Moulin and Roemer have argued, the

<sup>71</sup> Moulin and Roemer's axioms are as follows:

**Pareto optimality** - All acceptable mechanisms should select a Pareto optimal distribution. (Moulin and Roemer 1989, p. 353)

**Technological monotonicity** - If two worlds are identical, save for the productivity of the technology, then neither agent should be rendered worse off in the world with the more productive technology or rendered better off in the world with the less productive technology. (Moulin and Roemer 1989, p. 3253)

**Limited self-ownership** - The more highly skilled agent should always be rendered at least as well off as the less highly skilled agent. (Moulin and Roemer 1989, p. 354)

**Protection of low skill** - For a given skill level, an agent should never be worse off in a world with a higher skilled agent than he would be in a world with a lower skilled agent. (Moulin and Roemer 1989, p. 354)

It is not my intention to debate the appropriateness of the axioms which they have chosen to model the problem. Rather, I wish to survey the general method which they use to reach their conclusions. For a discussion of the motivations behind these axioms, the interested reader is referred to their (1989) article.

axioms of technological monotonicity and protection of low skill adequately capture minimal ethical features of joint ownership, then large degrees of inequality will not be permissible. Moreover, if one attempts to strengthen the axiom of self-ownership in order to express the idea that the more highly skilled agent is able to benefit in virtue of his higher skill, then self-ownership is inconsistent with joint ownership. Together these two results highlight the incommensurability of the thesis of self-ownership and the joint ownership of the external world.

One must be careful, though, in citing this result against Nozick's political theory, for he may respond by claiming that the inconsistency of strong self-ownership and the ethical mandates of joint ownership is evidence that joint ownership is an unattractive characterization of the natural world. After all, Nozick is primarily concerned with the rights of individuals. He is highly critical of any attempt to abridge these rights. The inconsistency which Moulin and Roemer uncover between self-ownership and joint ownership is, for Nozick, the ultimate *reductio ad absurdum* of the claim that the natural world is jointly owned. On the other hand, for thinkers like Roemer and Cohen, the egalitarian distribution which results from this characterization is a strong argument in favor of this characterization of the natural world. The difference of opinion between the two sides can only be resolved by appealing to normative premises and systems of valuation that are independent of the characterization of property rights in the natural world. Thus, while Moulin and Roemer's work may not necessarily establish that joint ownership is the proper characterization of the natural world, it at the very least brings clearly into focus the deep inconsistencies between the thesis of self-ownership and joint ownership of the natural world. This has in turn contributed to a better understanding of the nature of the disagreement between Nozick's libertarian political philosophy and the egalitarian alternatives of Roemer and Cohen.

Roemer also takes a second approach towards modeling the requirements of joint ownership and self-ownership. In the axiomatic characterization of the problem, it was shown that joint ownership and self-ownership were incompatible, given the ethical requirements of technological monotonicity and protection of the low skilled. However, one can also investigate the question of the compatibility of these two theses without recourse to axiomatic characterizations. This approach is taken in Roemer and Silvestre (1993) and Roemer (in press). In these works, the authors attempt to adhere to the Lockean proviso concerning the appropriation of scarce natural resources while at the same time preserving the attractive features of self-ownership.<sup>72</sup> The

<sup>72</sup> The Lockean proviso is not the same as Nozick's principle of acquisition. Nozick's principle of acquisition says that individuals may appropriate scarce resources whenever doing so would make no one else worse off than they would have been had the resource remained unowned. The Lockean proviso states that an individual may only appropriate scarce natural resources when doing so would leave "enough and as good in common for others." As Roemer notes, "Nozick's proviso countenances 'first come, first served' while Locke's does not." (Roemer, in press, Chapter 6, p. 5)



mechanisms discovered through this compromise might potentially be attractive candidates for the implementation of joint ownership if they maintain some degree of balance between the thesis of self-ownership and certain ethical mandates of joint ownership other than those put forth in Moulin and Roemer (1989).<sup>73</sup>

In his investigation into the question of whether or not such mechanisms exist, Roemer (in press) first outlines the type of economic environment that he will explore. He constructs a typical economic environment in which a group of agents must decide the optimal levels they each should work a commonly owned technology.

In this particular example the agents are all fishers, and together they must agree on the proper usage of a lake that they own in common. Roemer observes that in the case of increasing or constant returns to scale no problems arise from the common ownership of the lake, due to the absence of negative externalities. He calls the solution obtained under this arrangement the Lockean solution to the distribution of shares in the lake. (Roemer, in press, Chapter 6, p. 15) The Lockean solution, though, is not desirable in the case of decreasing returns to scale, because each fisher imposes a negative externality on the other fishers who fish the lake. Under these conditions, the Lockean solution is inefficient, and cooperation among the fishers would induce a Pareto improving reallocation of labor and output shares. (Ibid., Chapter 6, pp. 15-18)

There are a variety of mechanisms that distribute labor and output shares that Pareto dominate the shares obtained under the common ownership equilibrium. These mechanisms generalize the Lockean solution in a way which preserves the notion that each fisher is the owner of her own labor while at the same time recognizing the fact that a cooperative agreement must be reached if the lake is to be utilized efficiently. Roemer discusses four such mechanisms: 1) the Nash dominator solution, 2) the equal benefits mechanism, 3) the proportional solution, and 4) the constant returns equivalent solution.<sup>74</sup>

The Nash dominator solution privatizes the lake and distributes shares among the fishers based on their proportional labor contributions under the common ownership solution. (Ibid., Chapter 6, p. 18) The equal benefits solution is much the same. The lake is privatized; however, each fisher receives an equal share in the firm which is created. (Ibid., Chapter 6, p. 19-20) Under the proportional solution the lake is once again privatized, only this time shares are distributed according to each fisher's proportion of the overall efficiency units of labor expended. In other words, those

<sup>73</sup> Obviously any such mechanisms will not simultaneously satisfy the axioms of Pareto efficiency, technological monotonicity, limited self ownership, and protection of the low skill; however, they may, nonetheless strike some type of balance between the requirements of self ownership and joint ownership and thus be attractive.

<sup>74</sup> Although Roemer and Silvestre do not present axiomatic characterizations of the generalizations of the Lockean solution, Moulin (1990) has. It is not my intention to delve into the axiomatic characterization of these axioms, so those who are interested may consult Moulin's article.

fishers who contribute more in labor efficiency units will receive proportionally more than those who contribute less. (Ibid., Chapter 6, pp. 20-21) Finally, there is the constant returns equivalent solution, which assigns shares so as to insure that the utility of each fisher is equal to the utility that the fisher would enjoy in a certain linear economy. (Ibid., Chapter 6, p. 23) Roemer is careful to point out that his discussion of the mechanisms which generalize the Lockean solution is not an argument to the effect that they are "candidates for ways of implementing joint ownership of the external world in conjunction with private ownership of labor" (Ibid., Chapter 6, p. 23). However, from the discussion it is clear that they are intended to combat Nozick's assertion that the natural world is best thought of as unowned prior to the establishment of property rights.

These mechanisms all preserve the concept of self-ownership while at the same time implementing some type of joint ownership of the natural world. They do not preserve the same type of joint ownership outlined in Moulin and Roemer (1989). However, there is no canonical definition of joint ownership, so theorists have a great deal of latitude in tailoring the concept as they see fit. It would, I think, be a mistake to attempt to outline the necessary and sufficient conditions for joint ownership, given the multiplicity of interpretations of the concept. Thus, the results of Moulin and Roemer (1989) do not necessarily contradict those of Roemer (in press) and Roemer and Silvestre (1993). If anything, I think that these two sets of competing results show that there may be some way to reconcile self-ownership with the joint ownership of the external world.

#### The Strengths and Weaknesses of the Axiomatic Approach to Distributive Justice

As a tool for analyzing the philosophical treatment of distributive justice, the axiomatic method has both strengths and weaknesses. The strengths of the method center around its ability to isolate the core features of a particular theory, then examine the consequences of those features. The axiomatic method has the potential to reveal inconsistencies in political philosophies which otherwise might not have been easily discovered. Similarly, the method may enable theorists to better understand how and why one particular political philosophy conflicts with another. Finally, on a practical note, the axiomatic method may provide insights into the feasibility of the implementation of a particular social and economic system. The axiomatic method is able to accomplish these things because it is based on a set of analytical tools which provide the rigor and generality to solve abstract problems concerning the social and economic interaction of many autonomous agents.

That is not to say that the axiomatic method is without its drawbacks. As I have noted before, the axiomatic method carries with it no philosophical presuppositions. Normative issues may only be injected into the axiomatic method through the appropriate construction of the axioms which characterize a given problem. In its purely mathematical form, the axiomatic method is a positive method of analysis. It is only by interpreting a set of axioms as containing ethical content that one can begin to make normative judgments about a particular situation. The analytic tools of the axiomatic method are no substitute for normative ideals. Furthermore, the



axiomatic method, almost by necessity, is informationally impoverished, since it is extremely difficult to take into consideration all the relevant ethical information without generating an impossibility result. These weaknesses strongly suggest that the axiomatic method will not one day supplant traditional political philosophy. Instead, it suggests that the axiomatic method is an analytical tool that, when used properly, may work with political philosophy to answer difficult questions concerning the nature of distributive justice.

### The Strengths of the Axiomatic Method

Much of the relevance of the axiomatic method to contemporary political philosophy comes from the recent focus on distributive justice. Since Rawls, Anglo-American political philosophy has focused almost exclusively on the just distribution of resources in a society. Economics is well positioned to contribute to the discussion on how to best allocate resources in a particular society. Where economics fails, though, is in its ability to select the proper goals and ends of society. These normative ideals stand independent of the positive methodology of economics. As a branch of economics, axiomatic theory possesses many positive tools of analysis; however, the virtue of the axiomatic method is that its axioms may often be interpreted as having ethical content. Once these axioms are well-defined, one may determine both their consistency and the types of allocations they permit. It is in this way that the axiomatic method may contribute to political philosophy, for the philosophical intuitions captured by a given system will be discarded if they are either inconsistent or the allocations they prescribe do not follow from the content of the theory.

In his discussion of Rawls, Roemer illustrates how the axiomatic method may be used to uncover internal inconsistencies and flawed arguments. Roemer develops a rudimentary economic model designed to illustrate the inconsistencies of Rawls' claims that there exists an objective index of primary and that his theory is non-welfarist. Indeed, with this very simple model Roemer is able to elegantly demonstrate that one of the integral parts of Rawls' theory, the objective index of primary goods, is an impossibility.

Roemer also demonstrates that one of Rawls' arguments in favor of the maximin distribution of goods is seriously flawed. In order to coherently argue in favor of the maximin distribution, Rawls must assume that individuals in the original position are extremely risk averse. As Roemer points out, this assumption runs counter to all economic presuppositions concerning the nature of rationality. It does not follow from Rawls' argument that the rational individual in the original position will agree to the maximin allocation. There may be other good arguments in favor of maximin; however, the argument from the original position is not one of them.

Roemer's discussion of Rawls does not explicitly rely on the tools of axiomatic theory. It borrows concepts from axiomatic theory and bases its criticisms on insights gleaned from rudimentary economic models. This is in contrast to his discussion of Nozick. Here Roemer is much more explicit in his reliance on the axiomatic method. Following Cohen, he characterizes the appropriate Lockean baseline as joint ownership of the external world. He posits four seemingly innocuous

axioms which capture some characteristics of joint ownership and self-ownership. He then demonstrates how there is a direct conflict between the concept of self-ownership and the concept of joint ownership. While the result may be appropriated by either a proponent or an opponent of joint ownership, the result does help expose the depth of the disagreement between the libertarian emphasis on rights and the egalitarian emphasis on equality. Roemer's formulation of the problem, though it is based on Cohen's original criticism, contributes to the debate by showing just how little room exists for compromise between these two opposing traditions.

Roemer attempts to negotiate a partial compromise between the two traditions in his exploration of the potential for a generalization of the Lockean solution. This work generally confirms the intuitions of his axiomatic work on Nozick's theory. However, by ignoring axiomatic characterizations and instead focusing on mechanisms that implement a particular type of solution, Roemer is able to preserve some degree of self-ownership while at the same time forbidding the high degree of inequality which is tacitly endorsed by Nozick's political philosophy. Roemer explicitly cautions against interpreting his results as arguments in favor of the implementation of any particular type of joint ownership of the external world. Nevertheless, he leaves open the possibility that the mechanisms which he uncovers may one day prove to be effective means of implementing a form of joint ownership that would preserve the concept of self-ownership and equalize resources to a higher degree than currently exists.

These four examples illustrate the potential of the axiomatic approach. In his treatment of Rawls, Roemer shows how concepts from axiomatic theory may help uncover internal inconsistencies in political philosophies. He also reveals how a conclusion that *prima facie* appears to follow directly from the argument actually relies on a series of implicit premises that, when explicitly stated, may be neither plausible nor desirable. Furthermore, in his discussion of Nozick, Roemer highlights the deep inconsistencies between Nozick's theory and that of his critic, Cohen. This discussion is helpful because it shows just how difficult it may prove to be to adjudicate the conflict between the two. Finally, in an effort to reach a compromise between these two opposing viewpoints, Roemer explores several mechanisms that could possibly implement a 'society' which displays some degree of both self-ownership and joint ownership.

By and large, the methodology of philosophy is designed to accomplish these same tasks. Philosophical analysis focuses primarily on the reconstruction of arguments and analysis of their soundness and validity. The dialectical method of philosophical argumentation is intended to bring out the important points of disagreement between two opposing positions in order to better understand the differences between those positions and the potential for a resolution. While the philosophical method does not always dwell in practical concerns, I believe that there certainly is room in political philosophy for a better understanding of the feasibility of the institutions which it designs. The resonance between the methodology of philosophy and the axiomatic methodology indicates that the axiomatic method could prove to be a useful analytic tool for the political philosopher. Roemer's recent work



proves that such a synthesis, if done correctly, may be beneficial to both disciplines.

#### The Weaknesses of the Axiomatic Method

Axiomatic theory is closely related to bargaining theory, since both disciplines share the axiomatic methodology which has been the focus of this paper. Indeed, axiomatic theory developed out of an attempt to add explicit normative content to the axioms used to characterize a bargaining problem. A number of authors have seized upon the strides made by bargaining theory and attempted to develop a concept of justice as mutual advantage.<sup>75</sup> Roemer (1986, 1988, in press) is critical of this approach for several reasons. First, he argues that the bargaining theory very close to being welfarist.<sup>76</sup> This is an important point, since so long as one believes that other, non-utility information should be considered in the determination of distributive justice, welfarism is undesirable.<sup>77</sup> Roemer's second criticism of the bargaining theory approach to distributive justice is that bargaining theory is not implemented on an economic environment. Bargaining theory takes place on an environment which consists solely of utility pairs. Few mechanisms may be defined which actually implement an allocation of resources on this environment. In contrast, an economic environment, with its focus on resources, rights, skills, preferences, etc. permits much greater diversity in the types of allocation mechanisms which may be chosen to implement a distribution of resources. For this reason, Roemer argues that bargaining theory is "too simple an apparatus for studying distributive justice" (Roemer 1986, p. 203).

Roemer proposes that axiomatic theory may be better suited to the study of distributive justice than traditional bargaining theory. (Ibid., p. 204) This method is not welfarist, since it takes into consideration more than just utility information. It is also not as informationally impoverished as bargaining theory since it operates on a domain of economic environments. The axiomatic method, though, is not without its drawbacks. It has, in my estimation, three primary weaknesses as a tool for studying

<sup>75</sup>See e.g., Gauthier (1986).

<sup>76</sup>Roemer notes that bargaining theory, *per se*, is not welfarist since it may very well be the case that non-utility information is incorporated into the structure of the bargaining environment through the concept of the *threat point*. (Roemer 1986, p. 204) Of course, one could very well ask the question whether or not it is feasible to expect that *all* the relevant information could be encoded in the threat point of a bargaining game. Thus, even if bargaining theory is not actually welfarist (since it will not be the case that *only* utility is taken into consideration), it is highly likely that it leaves out a great deal of information which is relevant to the problem of distributive justice.

<sup>77</sup>For an empirical paper illustrating the problems that welfarist conceptions of justice pose for common sense ethical intuitions, see Yaari and Bar-Hillel (1984).

distributive justice. First of all, axiomatic theory can not study distributive justice unless theorists choose to interpret its axioms ethically, rather than mathematically. Furthermore, it may only capture those underlying ethical intuitions that are easily cast in the language of axiomatic theory. It is not always obvious that this language allows a theorist to take into consideration all that a comprehensive theory of justice requires.

Finally, though it has contributed to the analysis of political theories, axiomatic theory has not proven useful in the synthesis of its own comprehensive theory of justice. Part of this may be attributable to its relative youth and the extremely slow and difficult process of knowledge construction. However, I believe that a certain degree of the inability of axiomatic theory to contribute a theory of justice is related to the first criticism -- that axiomatic theory is an analytical tool, not a substitute for normative theory construction.

Axiomatic theory is not an inherently normative endeavor. It falls somewhere between positive and normative theory because the mathematical tools which it utilizes may be appropriated for either positive or normative studies.<sup>78</sup> The axioms that the theory uses to characterize distribution problems are generally thought to be normative; however, the normativity is essentially interpretative -- that is, the ethical component must be superimposed by a theorist who decides to interpret the axioms normatively, as well as mathematically. Consider Moulin and Roemer's solution to the conflict of self-ownership and joint ownership. Strictly speaking, they discover a function which equalizes the resources distributed to each individuals. To interpret that mechanism, though, as an egalitarian distribution carries with it a great deal of ideological baggage which is not contained in the mathematics of the problem.

Similarly, in the mathematical formulations of the various axioms, there is nothing explicit in the language of the axioms which would reveal an ethical interpretation. Take, for instance, the technological monotonicity axiom discussed earlier. The mathematical formulation of the axiom is as follows:

Technological Monotonicity (TM) - Let  $e = \langle u, f, s^1, s^2 \rangle$ ,  $e^* = \langle u, f, s^1, s^2 \rangle$ , and  $s^1 > s^2$ . Then  $u(F^1(e)) > u(F^1(e^*))$ . (Roemer, in press, Chapter 6, p. 11)

This mathematical statement does not contain any intrinsic normative content exception insofar as one is willing to interpret the mathematical statement within a greater context. Once meanings are assigned to the various elements of the language and the operators that connect the elements are defined, the sentence may be said to have meaning. Even then, though, I am not convinced that the sentence may be said to have ethical meaning, for to say that is to invoke certain normative standards which

<sup>78</sup>Axiomatic theory, though used towards both positive and normative ends, is perhaps best thought of as what Maskin (1994) calls *conceptual* theory. That is, the "work that describes the world neither as it is nor as it should be but instead provides us with a set of tools that enable us to answer both positive and normative questions" (Maskin 1994, p. 187).



are independent of the mathematical characterization of the sentence itself.

The constitutive elements of axiomatic bargaining theory contain no inherent normativity that permit either the axioms or the resultant mechanisms to be interpreted ethically without reference to an external standard of valuation. The difficulties with this fact are perhaps best illustrated by the conflict between self-ownership and joint ownership which Moulin and Roemer uncover. There is nothing in their characterization of the problem which directly argues against Nozick's political theory. While their result is attractive for those who are already committed to egalitarianism, as the authors point out in their paper, the result may just as easily be appropriated by libertarians to show that the idea that the world may be jointly owned prior to appropriation is a non sequitur.

The point which I am trying to make is that axiomatic theory only makes ethical judgments by reference to an external system of valuation that assigns meaning to the mathematical statements which are the backbone of the approach. This is not a problem so long as theorists recognize this limitation of the theory. This observation becomes a criticism, though, once theorists begin to substitute axiomatic theory for systems of ethical valuation. Roemer is, in my opinion, right to criticize welfarist theories of justice on the basis of their informational impoverishment. What must be recognized, though, is that simply supplanting bargaining theory with axiomatic theory will only succeed if axiomatic theory is used in conjunction with the proper amount of philosophical reflection on the limitations of axiomatic theory. To his credit, I think that Roemer recognizes this point. However, he does not emphasize it through the course of his writings. Given the recent fascination with purely positive theories of justice (e.g., Gauthier, Binmore, etc.) perhaps he should.

The second criticism of axiomatic theory as a tool for studying distributive justice is that the language of the theory may be incapable of adequately expressing the myriad concepts which are contained in the contemporary concepts of justice, fairness, rights, etc. It is, after all, notoriously difficult for philosophers to develop adequate characterizations of ethical concepts.<sup>79</sup> I, for one, am not at all convinced that the language of justice will prove to be any more amenable to characterization by axiomatic methods than it has been by everyday language.

An example of this may be seen in Moulin and Roemer's characterization of the thesis of self-ownership. Their self-ownership postulate states that a more highly skilled agent should be entitled to at least as much welfare as her less skilled companion. This characterization may not be adequate, for as Roemer notes,

[the self-ownership axiom] is intended not as fully capturing what self-ownership entails, but as a necessary condition of self-ownership. In particular, a self-owner can always choose not to reveal, or not to use, his entire skill. This would seem to require that for a mechanism F to respect self-ownership, it must at least do as axiom SO says,

for otherwise it would generally be in more able individual's interest not to use (or reveal) his entire endowment of skill. (Roemer, in press, Chapter 6, p. 11)

Roemer shows that if one tries to modify this concept of self-ownership so that the more highly skilled agent definitely receives more than the lower skilled agent, then an impossibility theorem results.

Moulin and Roemer's axiomatic characterization of self-ownership must be kept to a bare minimum if they are to obtain any useful results. This is the case with much of the field of axiomatic theory. Since the publication of Arrow's (1951) seminal text, a variety of impossibility results have been published which seem to indicate that as one begins to increase the ethical complexity of an axiomatic characterization, the axioms have a tendency to conflict with one another. These negative results show the extreme difficulty that axiomatic theory has in contributing to the positive construction of a theory of justice. Ethical characterizations must be kept relatively simple if results are to be obtained; however, one would like to hope that as the field develops, the discipline could begin to incorporate richer ethical axioms than the rudimentary postulates that are now used.

This latter observation brings me to my final point. There has been little evidence to date that axiomatic theory shall ever supplant political philosophy as the dominant methodology for the study of justice. Axiomatic theory has made advances along several fronts. It has illustrated techniques for ascertaining the consistency and legitimacy of the arguments in favor of a political philosophy. It has provided clues about how to perhaps implement certain institutions espoused by various theories. It has also deepened our understanding of the requirements of justice and alerted us to the fact that a robust, comprehensive theory of justice may not be the nice, tidy, unified theory which has been sought in the past. However, these advances cannot obscure the inability of axiomatic theory to construct a positive theory of justice. I believe that this inability is linked to the fact that axiomatic theory may only make its ethical characterizations in light of an external system of valuation which assigns ethical meaning to the sentences of the theory. I also think that the inherent ambiguity in the concept of justice contributes to the problem, for it is exceedingly difficult to define what we think just justice consists in. This exacerbates the already difficult problem of translating the language of ethics into the language of mathematics.

Despite these difficulties with the axiomatic method, I am convinced that the method shall prove extremely useful in the study of justice. It may not supplant political philosophy. Similarly, it might never be able to construct a positive theory of justice without building upon an extant political philosophy. In conjunction with political philosophy, though, the axiomatic method has proven extremely useful. The axiomatic method is not intrinsically normative, but with the proper amount of philosophical reflection and synthesis it becomes a powerful tool in the study of social institutions and the phenomenon of justice. I believe that the future development of the axiomatic study of justice should be carried out with this end in mind.

Conclusion

<sup>79</sup>See, for example, Plato's (1981) discussion of justice in the *Euthyphro*.



Economics and philosophy are strange bedfellows, yet there is a natural connection between the two. Contemporary political philosophy has demonstrated an obsessive concern for the problem of distributive justice. The economic sub-discipline of axiomatic theory is well positioned to contribute to the current debate on distributive justice because it resides at the intersection of positive economic analysis and normative political theory. By creating axioms that capture certain ethical intuitions concerning a "just" distribution, axiomatic theory can explore the consistency and coherence of contemporary political philosophies. John Roemer takes just this approach in his forthcoming work, *Theories of Distributive Justice*.

Roemer's work is an excellent example of the insights that might be gleaned through the constructive interaction of philosophy and economics.<sup>80</sup> However, there are limitations to the axiomatic method to political philosophy that he has helped pioneer. Axiomatic theory is powerless to assign ethical content to any of its mathematical characterizations without reference to external systems of valuation. Furthermore, the mathematical language of axiomatic theory may not be able to adequately capture all the relevant ethical concepts that are contained in the notions of justice, fairness, equality, and the like. Finally, axiomatic theory has not yet shown any promise of creating a positive theory of justice. While it may be too early to predict whether or not such a goal may one day be attainable, it is highly likely that axiomatic theory will remain a partner with political philosophy in the investigation of justice.

I find this latter observation to be one of the virtues of axiomatic theory, rather than one of its weaknesses. As an independent discipline, axiomatic theory yields interesting mathematical results; however, when these mathematical results are interpreted within an ethical framework, one begins to realize that the method may prove to be a useful tool for the political philosopher. The method can uncover inconsistencies and expose hidden flaws in arguments. Moreover, it can illuminate the sources of conflict between two opposing positions and suggest ways to resolve that conflict. Finally, the axiomatic method provides ways of gauging the feasibility of the implementation of the theoretical institutions of political philosophies. These strengths all emphasize the fact that the axiomatic method is perhaps best utilized in conjunction with political philosophy as an analytical tool.

Roemer's work is an excellent demonstration of this synthesis. He recognizes that the axiomatic method is primarily a set of analytical tools that does not a priori support any particular philosophical doctrine. In his forthcoming book, *Theories of Distributive Justice*, he uses these tools to attack the arguments of almost every major contemporary Anglo-American political philosophy. However, he

refrains from mis-using the tools of axiomatic theory to construct positive arguments where none are warranted. The final result is an invigorating treatise on the strengths and weaknesses of contemporary political philosophies that uses an exciting new method of analysis.

<sup>80</sup>Roemer is certainly not the first economist to be concerned with philosophical issues; nor, if one were to consider him a type of political philosopher, would he be the first to incorporate insights from economics into political philosophy. However, he has been one of the first thinkers to apply to political philosophy the insights gleaned from recent mathematical innovation. It is *this* form of interaction that has been the subject of this paper, and for this reason I must qualify my praise for his work.



## Selected Bibliography

- Arneson, R. 1990. "Primary Goods Reconsidered," *Noûs*, 24: 429-454.
- Arrow, K. J. 1951. *Social Choice and Individual Values*. New York: John Wiley and Sons, Inc.
- Cohen, G. A. 1986. "Self-Ownership, World Ownership, and Equality: Part I," in Frank S. Lucash, ed. 1986. *Justice and Equality Here and Now*. Ithaca: Cornell University Press.
- Gauthier, D. 1986. *Morals by Agreement*. Oxford: Clarendon Press.
- Maskin, E. 1994. "Conceptual Economic Theory," in Philip A. Klein, ed. (1994). *The Role of Economic Theory*. Boston, MA: Kluwer Academic Press.
- Moulin, H. 1990 "Joint Ownership of a Convex Technology: Comparison of Three Solutions," *Review of Economic Studies*, 57: 439-452.
- Moulin, H. and J. Roemer. 1989. "Public Ownership of the World and Private Ownership of the Self," *Journal of Political Economy*, 97(21): 347-368.
- Nozick, R. 1974. *Anarchy, State, and Utopia*. New York: Basic Books.
- Plato. 1981 *Euthyphro*. Reprinted in G. M. A. Grube, ed. 1981. *Plato: Five Dialogues*. Indianapolis: Hackett Publishing Co.
- Rawls, J. 1971. *A Theory of Justice*. Cambridge, MA: Harvard University Press.
- Roemer, J. 1986. "The Mismatch of Bargaining Theory and Distributive Justice," *Ethics*. 97:88-110. Reprinted in Roemer (1994).
- Roemer, J. 1988. "A Challenge to Neo-Lockeanism." *Canadian Journal of Philosophy*. 18: 697-710. Reprinted in Roemer (1994).
- Roemer, J. 1994. *Egalitarian Perspectives: Essays in Philosophical Economics*. Cambridge: Cambridge University Press.
- Roemer, J. in press. *Theories of Distributive Justice*.

- Roemer, J. and J. Silvestre. 1993. "The Proportional Solution for Economies with Both Private and Public Ownership," *Journal of Economic Theory*, 59: 426-444.
- Yaari, M. E., and M. Bar-Hillel. 1984. "On Dividing Justly," *Social Choice and Welfare*, 1: 1-24.