

# Normative Microeconomics and the Social Contract

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## Abstract

More than thirty years ago, the advancing mathematical economics and the emerging game theory joined forces to attack an ambitious program of social engineering on the microeconomic scale often known as “mechanism design”, but more accurately described as “normative microeconomics”. It combines the tools of normative/axiomatic and strategic/equilibrium analysis to address, inter alia, the design of auctions and other trading mechanisms, the provision of public goods, the fair division of costs or of manna – e.g., inheritance and bankruptcy settlements –, the rationing of overdemanded commodities and the scheduling of tasks.

My goal in this lecture is to explore the methodological and ideological premises of normative microeconomics. I submit that this approach falls squarely in the three centuries old tradition in political philosophy known as the social contract doctrine, and provides powerful arguments against its intellectual nemesis, the minimal state doctrine. This controversial stand explains some of the resistance to the normative approach within the academic economic profession, and is likely to shape its development for the foreseeable future.

## 1. Methodological individualism

The political doctrine known as liberalism is an extension of religious toleration to all individual beliefs and values. A liberal society is one that does not hold any value of its own, but merely organizes the debate between individual citizens holding their own values, opinions and beliefs. Such a definition is obviously a myth: the prohibition of many “antisocial” behaviors (e.g., physical assault) limits the range of acceptable individual values<sup>1</sup>. Thus liberalism is necessarily impure, and strives to make the range of individual values treated according to liberal principles, as broad as possible.

Methodological individualism is the intellectual construction on which liberalism is founded. The central postulate is that we can draw a clear line between the self and the world: on the one hand the human subjects, each one endowed with values, preferences, experiences, beliefs and so on, and on the other hand the material resources of the world, natural and technological. Each individual person is an irreducible atom of the social body, and the public authority can no more alter individual values than the chemist can alter the inner structure of the atoms. Individuals act on the world by consuming or transforming its resources and interacting with other individuals (to influence their values and beliefs as well as their actions). The collective authority merely affects the appropriation of the resources of the world (how and by whom are these resources transformed, consumed?) and the interpersonal interactions (who can do what to whom?); it has no tools to influence individual values.

It is worth stressing the obvious, namely that these postulates are heroic and that competing views abound. In more than one way the development of individual values, beliefs, tasks, etc. is influenced by the social environment (such “externalities” are particularly obvious in education, in religious and political beliefs), to the point where it makes more sense to think of the individual actors as determined by social institutions and interaction with their peers rather than the other way around as professed by methodological individualism. Several doctrines of social justice, of extreme historical importance, adopt the point of view that social institutions determine individual values (and not vice versa), thereby giving conceptual precedence to socially determined values over individual ones:

- The organic model of social solidarity dominant in the middle ages<sup>2</sup>.
- Engels’ and Marx’s historical materialism, viewing the unfolding of class struggles as the primitive force at work behind the shaping of individual ideologies (values and beliefs).
- Durkheim’s conception of the evolution of societies, whereby individual consciousness follows, logically and chronologically, social consciousness of the undifferentiated herd.

Thus methodological individualism, as a route toward a theory of social order, faces serious competition. Its comparative advantage is extreme logical

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<sup>1</sup>Fish [1997].

<sup>2</sup>Baumer [1978].

simplicity and versatility as a modeling tool. The methodological individualism approach is the trademark of economic analysis, and plays the leading role in formal political sciences; it is the dominant methodology in social sciences today.

Microeconomic analysis is the most mathematically sophisticated, yet broadly applicable, model of methodological individualism. The physical description of the resources of the world is captured by a set of *feasible states of the world* (each state specifies who consumes what resources, who works and for how long, and so on). The values of an individual agent (or citizen) are described by her *welfare*, measuring the degree to which a certain state of the world fulfills her values. And finally, the *rights* of an agent specify which actions are open to her (physically feasible and legally permitted), how these actions influence the state of the world and in particular, how they interact with other agent's actions.

Given the feasible states of the world, each citizen endowed with her welfare and her rights (set of actions or strategies open to her), the liberal social order results from the interaction of free wills. Each citizen pursues her own good by her own means, in other words she chooses her actions (within the limits of her rights) in order to maximize her own welfare. When every citizen acts in this way, the eventual state of the world results from the balance of these individual powers and is called the equilibrium outcome. The only role of the collective authority is to enforce the free exercise of individual rights, without influencing in any way the individual choices or the resulting state of the world.

A fast growing set of formal models known as the evolutionary approach to social interactions deserves a mention at this point. This approach uses the very formal structure of microeconomic theory, and game theory in particular: its building blocks are individual actors endowed with strategies (feasible actions) and some measure of welfare; yet the central assumption is that individual behavior evolves by imitation rather than by reason, hence the approach lies squarely outside the realm of methodological individualism. The evolutionary paradigm originates in biology, and builds on the Darwinian postulate that a successful individual (one that scores higher on the fitness scale) will have more offspring than a less successful one. When the paradigm is applied to social sciences, biological reproduction is replaced by imitation, namely the assumption that players mimic the behavior of other successful players. The key feature is that my own behavior cannot be entirely explained by my own system of values and opinions, that the values guiding my choices and actions are open to the influence of my peers. In particular, the evolutionary models describe the equilibrium outcome of a whole lineage of actors, in a dynamic setting, instead of a given set of "hic et nun" players, as required by methodological individualism. See Weibull [1995], Young [1998].

## 2. The social contract

Under methodological individualism, we do not need to explain where individual welfares and the values they reflect come from, because the liberal public

authority simply takes these as given. But the distribution of individual rights is a social construct that calls for explanation and justification.

Where do individual rights come from? How and when did a particular set of rights emerge? Under methodological individualism, the social institutions cannot alter individual values, hence there is no provision for social harmony: we may have as many different conceptions of the good life and of the ideal organization of social institutions, as we have individual citizens. There is no way to force them into agreement and no way to influence their values in that direction. So how will certain liberties, certain social institutions, e.g., political, be selected and enforced? How will our citizens develop the common values necessary to the proper functioning of these institutions?

In order to answer these questions, methodological individualism invokes a *contract*, an agreement in which our citizens enter rationally and freely, and from which they all benefit.

“Men being by nature all free, equal and independent, no one can be put out of this estate and subjected to the political power of another without his consent. The only way whereby any one divests himself of his natural liberty, and puts on the bonds of civil society, is by agreeing with other men to join and unite into a community for their comfortable, safe and peaceable living one amongst another, in a secure enjoyment of their properties and a greater security against any that are not of it” .John Locke [1690].

The contract is merely a mutually advantageous deal: every party is better off when the contract is implemented, therefore signing the contract is the consequence of rational behavior. The only principle we need to invoke is the pursuit of one’s own selfish welfare by all the parties: no social value judgement enters the description of this transaction, and no coercive device is needed to enforce compliance with the terms of the agreement.

The contract paradigm is a very powerful tool, and the central component of the liberal political philosophy. Locke’s implicit assumption is that an agreement to design an entire political system (“to put on the bonds of civil society”) is logically identical to a business deal between two or at most a handful of parties. The former is called a *social contract* and its scale is orders of magnitude above that of a contract between private parties. Yet scale is irrelevant in the sense that these two contracts are identical in nature, and the same logic applies to both.

A contract between a car salesman and his customer is value-free: either party could revoke it if it is advantageous to do so, and the particular price they agree upon is not grounded on any fairness principle: it is simply the equilibrium result of selfish bargaining. The social contract, and the social institutions implementing it, are similarly value-free: only the citizens have a genuine set of values, and the social institutions do not transcend these values with their own set of values. They influence the behavior of individual citizens without altering the inner core of their own goals, preferences and so on. They can be revoked at once if all interested parties agree to do so. For instance, traffic rules are not sacred and we may switch from driving to the right to driving to the left in a whim if the latter proves more convenient; the same applies to the

civil liberties, or to our political constitution: if we all agree that democracy is no longer “the worst system with the exception of all others”, we will change it with a light heart. And so on.

Thus the whole is merely the sum of the parts, in the sense that the social contract is merely the “sum” of individual values, adding no values of its own.

### 3. Transaction costs and the original position

We discuss now the main difficulty in the above interpretation of the social contract.

The “irrelevance of scale” postulate is untenable. The transaction cost of reaching an agreement raises more than linearly with the number of parties involved: this is clear both from casual experience and by simply measuring the amount of communication necessary to conduct a large-scale negotiation<sup>3</sup>. Think of requiring unanimous consent (as in any private contract), when passing a bill: one single greedy or deranged individual can and will block the entire process. Hence when we choose a rule of universal concern (a bill) we must rely on voting rules to achieve a compromise between conflicting opinions: the entire political system can be thought as a practical answer to this problem. Passing bills according to a qualified majority is a *prima facie* liberal institution, yet it is not equivalent, by any stretch of the imagination, to a contract signed by all citizens: it forces coercively an outcome that certain citizens find detestable. The same feature applies to any representative democratic system, where a simple congressman summarizes the conflicting views of his constituents.

Thus we cannot maintain the fiction that contracts between a handful of private agents are the same object as contracts binding the entire civil society. The latter imply a degree of coercive interference by the public authority requiring a compelling justification: social institutions convey a system of values after all, and the whole is more than the sum of the parts.

The myth of the *original position*, to which we now turn, is meant to explain how these values come into existence and how they differ in nature from the -private -values of individual citizens. It resolves the vicious circle of a liberal social contract: how to make the coercive power of the state - necessary for the proper functioning of its institutions - compatible with the liberal principle of accepting all individual values on an equal footing? Every time we side with the majority opinion on an issue of public concern, are we not dismissing the, equally legitimate, opinion of the minority?

The original position is a pristine state of the world where individual citizens are literally unaware of who they are (they are under a *veil of ignorance*, hiding from them their values, endowments of skills and handicaps, and so on) and yet they are able to argue about the relative normative merits of different systems of social organization. That is, they can enter a social contract specifying precisely how and by how much individual freedom of actions will be curtailed. When the veil is lifted (cards are drawn, and everyone learns who he/she is in the

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<sup>3</sup>Buchanan and Tullock [1965].

social galaxy, what his/her own characteristics are in terms of values skills, preferences), then everyone will act “selfishly,” namely promote one’s own values by one’s actions.

Common values emerge in the original position because there is only one rational course of action: in this ethereal state where only moral arguments are exchanged in an impersonal fashion, we must agree on the rational organization of society. For instance, we can agree in the original position that majority voting is the best voting system; when the veil of ignorance is lifted, I may discover myself in the minority and regard as just a decision that I oppose, namely that decision favored by the majority. Rawls describes the original position as follows:

“We imagine that everyone is deprived of certain moral irrelevant information. They do not know their place in society, their class position or social status, their place in the distribution of natural assets and abilities, their deeper aims and interests, or their particular psychological makeup. Excluding this information insures that no one is advantaged or disadvantaged in the choice of principle by natural chance or social contingencies. Since all are in this sense similarly situated and no one knows how to frame principles that favor his particular condition, each will reason in the same way. Any agreement reached is unanimous and there is no need to vote”. Rawls [1971].

The original position captures our intuition that general principles of justice ought to be impartial procedures, universally applicable like a Kantian moral imperative.

By stripping agents of all individual attributes and characteristics, the original position leaves them endowed with reason only, and postulates that under rationality, all citizens must agree on the best organization of society: thus are created the common values on which the legitimacy of the public authority (and of its coercive power in particular) is founded.

The essence of the normative axiomatic approach is to elucidate these “general principles of justice” for concrete problems of resource allocation.

#### 4. Private and public contracts

In order to analyze the logic of contracts, and in particular to examine formally the original position story, microeconomics provides a clear conceptual distinction between the issues of strategic equilibrium and of fairness. This underlines the crucial differences between private and public contracts.

On the one hand *private contracts*, namely agreements entered by all concerned parties in full knowledge of their own personal characteristics, including endowments, idiosyncratic values, beliefs and so on. Such contracts come out of direct bargaining between the interested parties, they result from the spontaneous interaction of selfish players who try to strike the best possible deal. They are modeled with the help of a strategic game between the parties, and described as the equilibrium outcome of strategic interactions.

On the other hand, *public contracts* are designed by a party of disinterested rational actors, under the veil of ignorance, in the name of compelling arguments

of justice - in practice, by a small number of experts, judges or “founding fathers” who agree on the best organization of a certain institution of concern to all members of society. In the microeconomic models they correspond to those allocation and/or collective decision methods justified by suitable axioms. I take the view that a formal axiom is nothing more or less than one possible argument of justice that could be adopted under the veil of ignorance by rational agents: the more intuitive and simple the axiom, the more convincing this point of view. Two examples are the properties Equal Treatment of Equals (e.g., one man one vote) and Pareto optimality (a move that benefits everyone is commendable).

Public contracts require a normative justification, must be explained from first principles of rationality and justice, and administered by a central agency, whereas private contracts have no ethical content, they result from the balance of power between the agents qua players, and from a decentralized, spontaneous process of interaction that requires no social evaluation.

Private contracts work well if the numbers of parties is small, because the transaction costs associated with bargaining are then low. Public contracts are compelling for those problems of collective decision making and/or resource allocation that are of concern to a large community, that involve widespread externalities (e.g., air pollution, the law, and so on). Direct negotiations are feasible but costly when, say, twelve to a few dozen parties must reach a unanimous agreement (think of the unanimous decision in a jury, in the European Union, or among the Cardinals electing a new Pope).

Yet no logical obstacle prevents the use of private contracts for large groups and of public contracts for small ones. Consider first the division of assets during a divorce. Many couples find it emotionally difficult to reach a reasonable settlement without the help of some guidelines on the division process, e.g., provision for child support. These guidelines (that may or may not be enforceable in a court of law) embody the impersonal principles of fairness of a public contract. The situation is similar in most fair division issues involving a specific type of transaction: sharecropping, profitsharing between an artist and her agent, bankruptcy settlement. A customary rule for resolving these issues is a focal principle of justice that all parties can easily adopt; whether or not this principle is legally enforceable influences how often the parties comply with its recommendation, but the principle remains an instance of a public contract between a very small number of parties.

Symmetrically, private contracts can be signed by a large number of parties: a good example is a legal class action; the production of an airplane, or of any sophisticated machine, involves a large number of companies, each one producing a specialized component of the machine, and can be thought of as a private contract involving many parties (the multiple bilateral contracts between the maître d’oeuvre and each one of its contractors is but one possible pattern). In general, the unregulated trade of any commodity allows for private contracts with any number of parties.

## 5. Two doctrines of social order

The two paradigmatic contracts, public and private, throw light on the central issue of politics, namely the extent of public authority over private citizens.

Consider the provision of personal safety: private militias (private contract) are repugnant, and probably less efficient than a centralized police force (public contract). But for agricultural production, independent farmers (private contract) are a more popular system than one of centrally monitored collective farms – kolkhozs – (public contract). And when it comes to such commodities as education, utilities or transportation, the two types of contract have their pros and cons: should we replace the public school system by one of private schools financed by vouchers? How and how much to regulate airlines: why do we want a public control on safety but not on prices? And so on.

The extent of public interference into the private dealings of the citizens is the fundamental question of political theory. Two benchmark answers are two simple ideological statements at the two ends of the ideological spectrum. I submit that the pervasiveness of these two statements and of their tension justifies the terminology of two *doctrines of social order*.

The doctrine of the *minimal state* posits that private contracts are inherently superior to public ones. The ethical statement is that human diversity is the most precious asset of mankind and the highest (the unique) social end is to preserve and nurture this diversity<sup>4</sup>. It follows that the ultimate role of social institutions is to protect and expand individual liberties to the fullest extent possible. In particular, society has no collective goal to reach, no opinion on what an orderly state of the world could mean, no conception of collective rationality, the ideal state of affairs is utopian *anarchy*:

“Except for the acceptance of some organic conception of the social group and its activity, it is difficult to understand why group decisions should be directed toward the achievement of any specific end or goal. Under the individualistic postulates, group decisions represent outcomes of certain agreed-upon rules for choice after the separate individual choices are fed into the process. There seems to be no reason why we should expect these final outcomes to exhibit any sense of order, which might, under certain definitions of rationality, be said to reflect rational social action. Nor is there reason to suggest that rationality, even if it could be achieved through appropriate modification of the rules, would be ‘desirable’. Rational social action, in this sense, would seem to be neither a positive prediction of the results that might emerge from group activity nor a normative criterion against which decision-making rules may be ‘socially’ ordered.” Buchanan and Tullock [1965].

For the minimal state doctrine, the private sphere around each citizen where

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<sup>4</sup>A Darwinian argument is often invoked to underline the postulate: diversity is ultimately the best way to ensure the survival and growth of mankind. As long as this argument is used normatively to promote a “minimal state” type doctrine, it is not distinguishable from the plain ethical postulate that diversity per se is desirable. On the other hand, the evolutionary models of social interaction (discussed at the end of Section 1) provide some positive arguments that lie outside the realm of methodological individualism.



she can form her own values and act upon the external world must be expanded as much as possible: the only danger comes from those individual actions that generate externalities so severe as to precipitate a Hobbesian state of nature (e.g., physical violence). The public authority will coercively eliminate such actions (thus limiting individual freedom) but will minimize such interventions.

By contrast, for the *social contract* doctrine the rational organization of social cooperation is preferred to its spontaneous, anarchic form. Public contracts are inherently superior to private ones, because they embody a clear principle of rationality and justice. The ultimate goal of social institutions is an organization of society that everyone agrees is just, because it follows universal and disinterested principles to which all rational citizens subscribe. The utopian ideal is a consensual society where all citizens share the values underlying the social contract. Naturally, such a state of affairs is compatible with a fair amount of individual liberties. Yet these liberties are not the only inviolable social values, as is the case under the minimal state doctrine: here the whole set of principles on which the social contract is founded, are the values that social institutions are meant to implement. Thus individual liberties do not have the unique inviolable status that the minimal state doctrine confers upon them: they can now be traded for other values such as social justice.

“Rights non-sense, inalienable rights non-sense on stilts”. Bentham’s famous quote is the essence of the social contract doctrine, even if the latter does endow individual citizens with a set of protected rights. These rights are no more natural than any other principle of justice conveyed by the social contract, and they can be revoked and altered to accommodate some of these principles: expropriating private property can be perfectly legitimate. In particular, customary and past arrangements have no bearing on the universal rationality of these principles and the good organization of society does not depend upon the path of history.

Under the minimal state doctrine, the only legitimate role of the public authority is to enforce the exercise of individual rights. The minimal state does not influence the evolution of those rights: private agreements do, as when private ownership changes hands by private agreement; expropriation, on the other hand, is never *prima facie* legitimate<sup>5</sup>. It follows that the minimal state doctrine is not readily able to explain where individual rights come from, how and when they come into existence at the beginning of time. To solve this difficulty, it invokes the notion of *natural rights*, of which the most celebrated example is the Lockean doctrine of entitlement (property rights are created when one’s own labor is mixed with natural resources).

The contrast between the two doctrines is also related to the celebrated distinction introduced by Isaiah Berlin between negative and positive freedom<sup>6</sup>. There are two dual aspects of Man’s freedom in the society where he lives:

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<sup>5</sup>However, under even the most libertarian version of the doctrine, certain private contracts are deemed improper, and publicly forbidden, such as bondage or the sale of one’s organs: see the discussion of externalities in the next Section. Thus the role of the minimal state does involve some monitoring of private agreements.

<sup>6</sup>Isaiah Berlin [1969].

a) negative freedom is the freedom of being left alone to one's own fate and purposes, much as in Hobbes' state of nature, without one's actions being at all constrained by social rules. This freedom materializes in my private sphere where I am not accountable for my actions to anyone; in particular I do not need to provide any rationalization of my choices, be they foolish or absurd or random or spontaneously creative, or whatever.

b) Positive freedom is the freedom of living by one's value system, of defining and achieving one's goal rationally; in Berlin's terms, it is "the ability to be the master of my own life, to use reason to control my passions." Positive freedom materializes in the self-realization, by achieving human virtue and acting upon the world (in particular upon fellow citizens) accordingly.

Robinson Crusoe on his barren island has full negative freedom but zero positive freedom if his goal in life is to be a journalist. A sect member experiencing an intense spiritual life within an authoritarian, totally invasive group discipline, has zero negative freedom and full positive freedom (assuming he shares the values of the sect). A hermit by voluntary choice has full positive and negative freedom.

According to the minimal state doctrine, the role of the state is to guarantee to each citizen as much negative freedom as permitted by the same guarantee to everyone else. The state is not to form any judgment about the way different citizens use their negative freedom. The extremist form of the doctrine advocates an amorphous, anarchic juxtaposition of individual pursuits.

In the social contract doctrine, the public contract embodies those values that are imposed on every citizen (e.g., democratic principles, antitrust regulations, and so on), and these values are justified because they correspond to a certain interpretation of positive freedom. Thus the extremist form of the social contract doctrine is an authoritarian model of society, such as a dictator à la Bentham mandated to maximize the total sum of pleasures and pains.

The minimal state doctrine is associated with the work of Coase [1960], Hayek [1976], Buchanan [1975] and Nozick [1974] to name only a few major authors. It permeates the spontaneous political philosophy of game theorists like Binmore [1994], and is the ideological background of the influential paradigm of repeated games (Aumann and Maschler [1995], see also Axelrod [1984]), poised to explain the emergence of cooperation without the interference of any public authority of any kind.

The modern formulation of the social contract doctrine starts with Rawls [1971] who restored the central role of fairness norms in political philosophy. This book inspired an influential program taking an egalitarian view of social justice: Dworkin [1981], Sen [1985], Roemer [1996], Fleurbaey [1996] are all important contributors to this line of research.

## 6. Externalities

Microeconomic problems of resource allocation are fertile grounds for contrasting the two doctrines just discussed under the microscope of mathematical

modelling. A key issue is how the model accounts for the interpersonal externalities created by the economic activities of consumption and production. The definition of private goods and public goods give some important first insights toward this complex issue.

A commodity is a *private good* if its consumption by one agent generates no externalities on other agents. Thus a fruit is a private good whereas a cigarette consumed in a public place is not. A commodity is a (pure) *public good* if it must be consumed identically by all agents in a given community (the economic terminology speaks of consumption without exclusion and without rivalry). The legal system, the police, as well as a radio broadcast (when everybody owns a receiver) are pure public goods; on the other hand a road system entails partial rivalry (congestion occurs when the number of users is large enough) and possibly exclusion (if only cars with odd plate numbers are allowed to move on a certain day), so that a road system is somewhere in between a purely private and a purely public good.

A private good can be consumed with full negative freedom (I don't care if and how you choose to eat your apple), but a public good, or any good of which the consumption by one person entails some externality on other persons, cannot. In the case of a pure public good (e.g., a certain elected officeholder, whose actions affect everyone in the society), the very notion of an independent consumption is not available: the quantity and quality of the good consumed is publicly selected and imposed on everyone<sup>7</sup>. Smoking is a good example where negative freedom cannot be pure, although a large amount can be preserved. The smoker exercises his negative freedom to consume unhealthy substances, but if other people around him are affected by second hand smoking, their negative freedom to breathe clean air is diminished. As long as we can't stop the flow of air between us, my negative freedom to perfume my body is not compatible with your negative freedom to not breathe any perfume. On the other hand, if we find ways to limit the externality (say by inventing a perfume that is only active within a small bubble around one's body) we can restore a great deal of negative freedom.

The labelling of a commodity as private or public, and more generally the assessment of externalities in consumption and production, far from being an objective empirical fact, is loaded with ethical content: it strikes at the heart of the debate between minimal state and social contract doctrines.

Consider the important ethical issue of the *ownership of self*, namely the extent to which my own body, talents and skills are my private property. Most societies allow me to sell my hair or my artistic talent, but they prevent me from "abusing" my body by taking certain substances (e.g., addictive substances), from selling my organs or from bonding myself into slavery, and, in some cases, from prostituting myself. The reason is the externalities generated when I use my body in the wrong way: consuming drugs makes me a health liability and a threat to social order; selling my organs entails an irreversible stigma, an

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<sup>7</sup>Of course, in a democratic voting rule, I am negatively free to use my ballot in any way I like. However the voting rule itself is a pure public good that all citizens consume without any amount of negative freedom. The argument can be repeated if we vote on the voting rule.

alienation from those citizens who are still “whole” that is incompatible with our common value of equality (this does not apply to hair, that will grow back), and so on.

The general statement that my body is not as private a good as an apple, because I can use and abuse it in ways that are not inconsequential to my fellow citizens, is not controversial. But the line we draw between those externalities that should not imply any limitation of negative freedom and those that should, is a subjective one, and the object of much disagreement. I am negatively free to paint my hair in any color, but not negatively free to break the code of decency, a largely arbitrary and changing convention. I may or may not be able to buy help to commit suicide. I am allowed to consume some addictive substances but denied access to some others.

The identification of the consumption externalities generated by the commodities we consume, is a value judgement on which our two doctrines often disagree. For reasons that are made clear in the next section, the bias of the minimal state doctrine is to deny consumption externalities and see the resources of the world as made of private commodities, whereas the social contract doctrine emphasizes these externalities and the “public good” nature of the commodities we consume.

Consider risky choices: not wearing my seat belt, climbing a difficult peak without training, and so on. The negative freedom to make such choices may be denied in view of the high cost of assisting those who get hurt as a result of these choices. A supporter of the minimal state doctrine wants to preserve my negative freedom and at the same time relieve the public authority from the duty to assist me if I get in trouble: risky choices are allowed, but no help is provided after an accident. The social contract doctrine objects that assistance is warranted, both because of the actual social value of life and by human compassion, hence justify regulations forcing me to wear a seatbelt, preventing me from climbing dangerous peaks, and so on. Another obvious example of the tension between the two interpretations is land management: to what extent am I negatively free to use my plot of land? The river flowing there or the birds migrating through are clearly not entirely mine, but the definition and measurement of the related externalities are arbitrary to a degree. Minimizing the perception of the externalities is tantamount to maximize the private good character of the land, hence to maximize the negative freedom to use it.

A final dimension of the tension between the two doctrines is the very definition of the “commodity” under discussion. Consider gun control. In a minimal state view, the service provided by owning a gun is the possibility of self-defense, which follows from the right to take the protection of my property from physical violence into my own hands. In a social contract view, the relevant commodity is the protection of my property from physical violence, whether it be publicly provided by the state or by my own devices. Now, the social contract argument goes, unrestricted gun ownership by private citizens is not a cost effective way to provide this protection, because it increases the opportunity of wrongful misuse - whether criminal or accidental -, hence the individual right to bear arms should be scrapped. The counterargument, from the minimal state side, is that

the right to self-defense is valuable in and by itself, so that we must be ready to bear reasonable costs (such as an increased risk to be a victim of gun-related violence) in order to enforce this important private liberty.

## 7. Successes of normative microeconomics

Two seminal results of microeconomic analysis are i) private contracts work better than public ones for allocating private goods, but ii) public goods are not efficiently provided by private contracts<sup>8</sup>.

The first result rests on the notion of competitive price, coordinating the dispersed information about opportunities to trade in an economical way (simple, anonymous price signal) and implementing an efficient (Pareto optimal) allocation of the available resources.

In the concept of competitive allocation, the minimal state and social contract doctrine miraculously converge. Indeed this allocation is a resting point of the private contracting process – a property known as “core stability”, see e.g., Mas-Colell, Whinston and Green [1990] – hence the only public authority it requires is a policeman enforcing private property rights. On the other hand the competitive trade of private goods is a fair public contract, when fairness is interpreted as the *No Envy* property. Because the competitive price is the same for every market participant, everyone has access to the same set of net trades, and chooses the one he or she likes best: therefore no one would want to exchange his or her net trade for that of another participant.

The No Envy test is one of a few important new ideas injected in the discussion of distributive justice during the last fifty years or so. It is a versatile test, applicable to a host of fair division problems. It relies on the interpersonal comparison of shares allocated to the agents involved in the division problem in question: everyone is happier (not less happy) with his or her own share than with anyone else’s share. The combination of the No Envy test and of efficiency (Pareto optimality) essentially implies that the division be the competitive allocation with equal incomes for every participant (Varian [1974]).

If private contracts are strikingly successful to allocate private commodities, they are not an adequate mechanism for the production and allocation of commodities involving externalities. A simple and well-known example is the exploitation of a commons, namely a shared technology with decreasing returns. The failure of private contracts in this case stems from the celebrated “tragedy of the commons”. Free access to the commons results in its inefficient over-exploitation, and may wipe out the entire social surplus. A private contract

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<sup>8</sup>“According to the system of natural liberty, the sovereign has only three duties to attend to; three duties of great importance, indeed, but plain and intelligible to common understandings: first, the duty of protecting the society from the violence and invasion of other independent societies: secondly the duty of protecting, as far as possible, every member of the society from the injustice or oppression of every other member of it, or the duty of establishing an exact administration of justice; and, thirdly, the duty of erecting and maintaining certain public works and certain public institutions, which it can never be for the interest of any individual, or small number of individuals, to erect and maintain; because the profit could never repay the expense to any individual or small number of individuals, though it may frequently do much more than repay it to a great society”. Adam Smith [1784].

to curtail the utilization of the commons is vulnerable to free-riding (as when members of OPEC renege on an agreement to reduce oil output); an effective monitoring to prevent free-riding raises transactions costs significantly.

The axiomatic/strategic approach to the commons problem, and more generally to the management of externalities, has been most successful. A case in point is the large body of research on the design of mechanisms for the provision of public goods, – one of Professor Taesung Kim’s main research topics – for which several practical methods are the byproduct of theoretical investigations.

Here is one simple example where the normative microeconomic approach is especially successful.

Consider the fairness issue in the division of joint costs, when the individual demands are not readily comparable. For instance, the problem is to share transportation costs and the agents are geographically dispersed. No simple formula inspired by proportionality or equality makes any sense, given the complicated pattern of interpersonal externalities. The Shapley value (Shapley [1953]) is one simple formula that cuts through any such pattern. After Shapley’s initial axiomatization, half a dozen alternative characterizations<sup>9</sup> have reinforced its normative foundations. Its applications range from cost-sharing to the exchange of private goods and to indices of voting power<sup>10</sup>.

The normative methodology in microeconomics has many more achievements to boast about. Chief among them is the axiomatization of the welfarist approach to distributive justice, including collective utility functions and social welfare orderings<sup>11</sup>. More recent successes bear on specific allocation problems such as the assignment of indivisible objects to individual agents, when each agent must be assigned to at most one object, or the bilateral matching problem, where each agent on one side of the market has to be paired with one on the other side of the market<sup>12</sup>.

Normative microeconomics has produced an impressive body of academic research in the last fifty years. It explores the logical possibility of public contracts in economic environment, thus transforming the intuitive doctrine of the social contract into a versatile tool of social engineering. By focusing on the interplay between private and public contracts, it also explains why in some allocation problems the minimal state and social contract doctrines talk in one voice, whereas in other problems they remain stridently opposed.

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<sup>9</sup> Among them Myerson [1977], Young [1985], Chun [1989], Hart and Mas-Colell [1989].

<sup>10</sup> See Chapter 7 in Moulin [1995].

<sup>11</sup> See Moulin [1988].

<sup>12</sup> See Roth and Sotomayor [1990].

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