

6-1-1994

# National Defense and the Public-Goods Problem

JEFFREY ROGERS HUMMEL

San Jose State University, [jeff@jrhummel.com](mailto:jeff@jrhummel.com)

Don Lavoie

Follow this and additional works at: [https://scholarworks.sjsu.edu/econ\\_pub](https://scholarworks.sjsu.edu/econ_pub)



Part of the [Economic History Commons](#), and the [Macroeconomics Commons](#)

---

## Recommended Citation

JEFFREY ROGERS HUMMEL and Don Lavoie. "National Defense and the Public-Goods Problem" *Journal des Econmistes et des Etudes Humaines: Bilingual Journal of Interdisciplinary Studies* (1994): 363-377.

This Article is brought to you for free and open access by the Economics at SJSU ScholarWorks. It has been accepted for inclusion in Faculty Publications by an authorized administrator of SJSU ScholarWorks. For more information, please contact [scholarworks@sjsu.edu](mailto:scholarworks@sjsu.edu).

# NATIONAL DEFENSE AND THE PUBLIC-GOODS PROBLEM\*

Jeffrey Rogers Hummel<sup>o</sup> & Don Lavoie<sup>oo</sup>

## 1. Introduction

National defense, according to the popular ideal, is a service provided by the state to its citizens.<sup>1</sup> It entails protection from aggressors outside the state's jurisdiction, usually foreign states. The most sophisticated theoretical justification for government provision of this service is the public-goods argument. Roughly stated, this argument claims that the incentive to free-ride inhibits people from providing enough protection from foreign aggression voluntarily. Thus, it is in people's best interests to coerce themselves. Taxation is necessary to ensure sufficient military expenditures.

Many opponents of arms control treat the public-goods problem as if it alone were sufficient to discredit any radical reduction in military spending. We, however, will challenge this presumption. This article will not question the validity, realism, or relevance of the public-goods concept.<sup>2</sup> Indeed, we think that the core

\* We wish to acknowledge the invaluable assistance of Williamson M. Evers and Joe Fuhrig in working out the themes of this paper. Tyler Cowen, David Friedman Marshall Fritz, M. L. Rantala, David Ramsay Steele, Richard H. Timberlake, Jr., David J. Theroux, and Lawrence H. White all gave us helpful comments upon earlier drafts. They do not necessarily share our conclusions, however, and we alone are responsible for any remaining errors.

This article is reprinted with permission from the book, *Arms, Politics and the Economy: Historical and Contemporary Perspectives*, edited by Robert Higgs. © Copyright 1990, The Independent Institute, 134 Ninety-Eight Avenue, Oakland, CA 94603, U.S.A.

<sup>o</sup> Professor of Economics and History, Golden Gate University, San Francisco, CA.

<sup>oo</sup> Professor of Economics, George Mason University, Fairfax, VA.

<sup>1</sup> By "the state" we mean government. We use the two terms interchangeably, unlike many political scientists, who use the term the "state" either for what we are calling the "nation" *i.e.*, the government plus its subjects, or for some vague intermediate entity which is less than the entire nation but more than just the government. We recognize that the state and its subjects can often be intricately interwoven into a complex web of mixed institutions, but the distinction is still fundamental.

<sup>2</sup> Although we will not take up these issues here, some economists suggest that the characteristics that make something a public good are almost never physically inherent in the good or service but are rather nearly always a consequence of choosing one out of many feasible methods for producing the good or service. See Cowen-1985, pp. 53-63; Palmer-1983, pp. 1-5, p. 11; Block-1983, pp. 1-34; Rothbard-1981, pp. 532-46; Goldin-1977, pp. 53-71; and Brubaker-1975, pp. 147-61.

service within national defense — safety from violence and aggression — captures the essence of a public good more fully than economists have appreciated. But this essential feature, rather than providing a solid justification for heavy military expenditures, offers one of the most powerful objections to such a government policy.

We will first reexamine the nature of national defense in order to clarify the underlying goal of military spending. The presumption that the state's military establishment automatically provides safety from aggression needs careful scrutiny. The taxation necessary to fuel military expansion often generates more public-goods problems than it circumvents. This leads us to the more general question of how the free-rider incentive is ever overcome, despite theoretical predictions to the contrary. Public-goods theory seems to misunderstand human nature, by exaggerating the importance of narrow self-interest and confining attention to artificially static Prisoners' Dilemmas. A more social and dynamic model of human action is better able to account for the observed fact that free-rider problems are overcome in the real world all the time.

## 2. What is a public good?

Economists have called many things public goods and then endlessly debated whether the label really applies, but national defense has remained the quintessential public good. Although rarely discussed in detail, it is universally invoked as the classic representative of the public-goods category.<sup>3</sup>

Two characteristics distinguish a pure public good from a private good, and both are exhibited by the case of national defense. The first is *nonrival consumption*. One customer's consumption of a marginal unit of the good or service does not preclude another's consumption of the same unit. For example, in an uncrowded theater, two patrons' enjoyment of the same movie is nonrival. The second characteristic is *nonexcludability*. The good or service cannot be provided to an individual customer without simultaneously providing it to others. The owner of a dam, for example, cannot provide flood control separately to the individual farmers residing downstream.<sup>4</sup>

Although these two characteristics frequently come in conjunction with each other, they do not necessarily have to. Nonexcludability from the dam's flood-control services is accompanied by nonrival consumption of the services

<sup>3</sup> Examples of economists treating national defense as the quintessential public good include Samuelson-1976, p. 159; Buchanan/Flowers-1975, p. 27; and Head/Shoup-1969, p. 567. Among the few attempts of economists to look in any detail at national defense as a public good are Thompson-1974, pp. 755-82; and Wagner-1975, pp. 199-221.

<sup>4</sup> Paul A. Samuelson's two classic articles, Samuelson-1954, pp. 387-89, and Samuelson-1955, pp. 350-56, are generally credited as being the first formal statements of modern public-goods theory. Important further developments in public-goods theory include Samuelson-1958, pp. 332-38; Musgrave-1959; Buchanan/Kafoglis-1963, pp. 403-14; Demsetz-1964, pp. 11-26; Minasian-1964, pp. 71-80; Baumol-1965; McKean/Minasian-1966, pp. 14-23; Davis/Winston-1967, pp. 360-73; Buchanan-1968; Mishan-1969, pp. 329-48; Head/Shoup/1969; Head-1974, Snidal/1979, pp. 532-66.

among the various farmers, but the owner of a nearly empty theater can still exclude additional patrons. Yet, according to the public-goods argument, either characteristic alone causes "market failure" — that is, an allocation of resources that is less than Pareto optimal. Thus, either can be sufficient to justify state intervention.<sup>5</sup>

Even national defense is not a pure public good. Americans in Alaska and Hawaii could very easily be excluded from the U.S. government's defense perimeter, and doing so might enhance the military value of at least conventional U.S. forces to Americans in the other forty-eight states. But in general, an additional ICBM in the U.S. arsenal can simultaneously protect everyone within the country without diminishing its services. In that respect, consumption of national defense is nonrival. Moreover, a technique that defends just a single American from the Soviet state without necessarily defending his or her entire community and perhaps the entire nation is difficult to visualize. That makes national defense nonexcludable as well.

We are going to focus, however, only upon nonexcludability. If consumption of a service is nonrival, but businessmen and entrepreneurs can exclude those who do not pay for it, then they still have strong incentives to provide the service. The most serious "market failure" that is alleged to result is underutilization of the service. Some people will be prevented from benefiting from the quantity of the service that has been produced, even though permitting them to do so costs nothing. Furthermore, even this imperfection will dissipate if the market permits discriminatory pricing.<sup>6</sup>

On the other hand, nonexcludability creates opportunities for free riders, who will pay for the service only if doing so is absolutely necessary to receive it. From the perspective of economic self interest, every potential customer has an incentive to try to be a free rider. If enough of them act on this incentive, the service will not be produced at all, or at least not enough of it.

Another way to think about nonexcludability is as a positive externality in its purest form. Many goods and services generate additional benefits for people other than those who directly consume and pay for them. There is often no way for the producers of these goods to charge those who receive these external benefits. A nonexcludable good or service is one where the positive externalities are not just an incidental by-product but rather constitute the major benefit of the good or service.<sup>7</sup>

<sup>5</sup> Much of the literature has conceded that, strictly speaking, very few actual goods or services exhibit either of the public-good characteristics in its polar form. Instead, in the real world we encounter a range of goods and services for which the potential capacity and quality of nonrival consumption is increasing or for which the costs of exclusion are increasing.

<sup>6</sup> We have slightly understated the supposed "market failure" from nonrival consumption with excludability. The quantity of the public good could also be nonoptimal. There is a vast economic literature debating the intricacies of nonrival consumption. Some of the highlights include Samuelson-1969b, pp. 26-30; Demsetz-1970, pp. 293-306; Thompson-1968, pp. 1-12; Ekelund/Hulett-1973, pp. 369-87; Demsetz-1973, pp. 389-405; Oakland-1974, pp. 927-39; Lee-1977, pp. 403-20; Borcherding-1978, pp. 111-32; and Burns/Walsh-1981, pp. 166-91.

<sup>7</sup> On the relationship of public goods and externalities, see Samuelson-1969a, pp. 98-123; Buchanan-1968 p. 75; Head-1974, pp. 184-213; and Mishan-1969.



Clearly, the justification for the state's provision of national defense does not stem from any major concern that in its absence protection services would be produced but underutilized. Rather, it stems from the assumption that, unless taxation or some other coercive levy forces people to contribute, national defense will be inadequately funded and therefore its core service of safety from aggression will be underproduced. It is this widely held but rarely examined assumption that we wish to question.

### 3. What is national defense?

Before we can explore the free-rider dynamics of the state's military establishment, we must clarify the meaning of the term "national defense." The public-goods justification for military expenditures rests upon a fundamental equivocation over exactly what service national defense entails. When economists discuss national defense, the core service they usually have in mind, explicitly or implicitly, is protection of people's lives, property, and liberty from foreign aggressors. This also appears to be what people have in mind when they fear foreign conquest, particularly in the case of the American fear of Soviet conquest. People throughout the world believe that their own government, no matter how disagreeable, defends them from foreign governments, which they think would be even more oppressive.

This defense of the people is not synonymous with another service that goes under the same "national defense" label: protection of the state itself and its territorial integrity. Historically, the state has often embarked on military adventures unrelated to the defense of its subjects. If this were not the case, people would require no protection from foreign states in the first place. Many Americans seriously doubt that the U.S. bombing of North Vietnam and Cambodia had very much to do with protecting their liberty. One defense-budget analyst, Earl Ravenal, contends that nearly two-thirds of U.S. military expenditures goes toward the defense of wealthy allied nations in Europe and Asia and has little value for the defense of Americans.<sup>8</sup>

The distinction between the two meanings of national defense does not apply only when the state engages in foreign intervention or conquest. Even during unambiguously defensive wars, the state often systematically sacrifices the defense of its subjects to the defense of itself. Such universal war measures as conscription, confiscatory taxation, rigid economic regulation, and suppression of dissent aggress against the very citizens whom the state is presumably protecting. People believe the state defends their liberty; in fact, many end up surrendering much of their liberty to defend the state.

People of course may consider some trade-off worth it. They may accept the costs and risks of the state's protection in order to reduce the risks and costs of foreign conquest. But in most discussions of national defense, the aggressive acts

<sup>8</sup> Ravenal-1984. See also Russett-1970, pp. 91-126.

taken by the government against its own subjects are arbitrarily excluded from the discussion. It is this frequently overlooked cost which is suggested in Randolph Bourne's famous observation: "War is the health of the State."<sup>9</sup>

In other words, the national interest and the public good do not automatically coincide. We do not deny the possibility of an incidental relationship between the defense of the state and the defense of the people. But in the next section, we will present general reasons why we think this relationship is not as strong as usually supposed. Before we can do that, we must fully expose the conceptual gulf between the two meanings of national defense.

The pervasive doctrine of nationalism obscures this fundamental distinction. Nationalism treats nations as collective entities, applying principles drawn from the analysis of individual interaction to the international level. In a war between two nations, the nationalist model focuses on essentially two parties: nation A and nation B. As in fights between individuals, one of these two nations is the aggressor, whereas the other is the defender. As a result, the model axiomatically equates protecting the state with protecting its subjects.

The basic flaw in the nationalist model is its collectivist premise. Although the model informs many of the formal economic analyses of international relations, it represents a glaring example of the fallacy of composition. The state simply is not the same thing as its subjects. Democracies are sometimes referred to as "governments of the people," but this is, at best, rhetorical sloppiness. The state and the people interpenetrate one another and in complex ways, but they clearly do not have exactly the same purposes or interests.

Consequently, any conflict between two nations involves not just two parties, but at least four: the state governing nation A, the state governing nation B, the people with the (mis)fortune to live under state A, and the people with the (mis)fortune to live under state B. Whatever the merits of a dispute between states A and B, the dispute need not divide a significant portion of people A from people B.<sup>10</sup>

Abandoning this collectivist identification of the State with its subjects exposes *the* critical insight about the national-defense service. If one is truly concerned about defense of peoples' lives, property, and liberty, then the transfer of their capital city from one location to another is not intrinsically significant. In some cases it might even be thought an improvement. Many Americans are convinced that the territory constituting Russia is in a very real sense already conquered — by the Soviet government. Some even believe that the Soviet people would fare better with Washington, D.C., as their capital city. What ultimately matters is whether transferring the capital city brings the citizens a net loss or gain.

<sup>9</sup> Bourne-1964, pp. 65-104. A general substantiation (or refutation) of Bourne's observation has so far not attracted the professional energies of any historian, perhaps because they feel no need to belabor the obvious. There are lots of studies showing the growth of state power in particular countries during particular wars, but very few that even treat a single country during more than one war, or more than a single country during one war. A few exceptions that have come to our attention include, Rossiter-1948; Ekirch-1956; Higgs-1987; Tilly-1975; Tilly-1985; and Hale-1985.

<sup>10</sup> We cite examples of economic models exhibiting the nationalistic fallacy of composition below. One of the very few written challenges to the nationalistic model is Rothbard-1974, pp. 70-80. We have profited greatly from this pathbreaking essay.

The danger therefore is not foreign conquest per se, but the amount of power the conquering government can successfully wield. In the final analysis, protection from foreign states is not a unique service. It is a subset of a more general service: protection from aggression by anyone — or any state. Whether we formally label an oppressive state “foreign” or “domestic” becomes a secondary consideration.

People admittedly may highly value their own state’s preservation and glorification, in and of itself. Their government’s military establishment may directly enter their utility functions, the same way their favorite baseball or football team does. But nationalism is not just a subjective preference. It is also a positive social theory, as legitimately subject to criticism for its policy recommendations as any other. The military’s coercive funding unfortunately prevents people from revealing their true preferences about national defense directly and unambiguously. Some citizens may still want a huge and expensive military establishment even if they discover that it gives them less protection than they thought. But meanwhile, an examination of whether military expansion truly does defend people’s lives, property, and liberty is still in order.<sup>11</sup>

#### **4. The Free-Rider Dynamics of Government Intervention**

When Paul Samuelson first formalized public-goods theory, many economists unreflectively subscribed to what Harold Demsetz has called the nirvana approach to public policy. Demonstrating some “market failure” with respect to an abstract optimum was considered sufficient to justify state action. Economists assumed that the costless, all-knowing, and benevolent state could simply and easily correct any failure.

Since then, economists have become far more realistic. Public-goods theory has advanced to the point where it is now an exercise in comparative institutions. Demonstrating “market failure” is no longer sufficient. One must compare the market with the state, not as one wishes the state would behave in some ideal realm, but as it must behave in the real world. To justify state action, one must show the agents of government have the capacity and the incentive to do a better job than participants in the market. Can the state provide the public good without costs that exceed the benefits? And is there some incentive structure that would conceivably ensure that it do so?<sup>12</sup>

Economists within the field of public choice have done some of the most important work on the comparative capabilities of the state — by applying public-goods insights to political action itself. They have come to the realization that the free-rider incentive does not only arise for market enterprises. As Mancur Olson

<sup>11</sup> For a purely formal approach to people’s utility functions with regard to national defense, see Wagner-1975.

<sup>12</sup> Demsetz makes the comparison between the “nirvana” and “comparative institutions” approaches in Demsetz-1969, pp. 1-3. See also Coase-1960, pp. 1-44; Buchanan-1962, pp. 17-28; and Turvey-1963, pp. 309-13.



has demonstrated, the free-rider incentive can arise for any group, especially political groups wanting to influence state policy. This imparts an inherent public-goods character to all political decisions.<sup>13</sup>

Assume that one of us wishes to change some state policy that we personally find particularly onerous — for instance, to repeal a tax. We are members of a fairly large group that will benefit if the tax is repealed. If enough of us contribute money, time, or other resources to bringing about the tax's repeal, we will succeed and all be better off. The money we save in taxes will more than reimburse us for our effort. Once the tax is repealed, however, even those who did not join our campaign will no longer have to pay it. We cannot exclude them from the benefits of the tax's repeal. They will be free-riders on our political efforts.

Just as in the case of a nonexcludable good in the market, every potential beneficiary of the tax repeal has an incentive, from the perspective of economic self-interest, to try to be a free-rider. If enough of them act according to this incentive, the tax will never be repealed. Public choice economists call this result "government failure," completely analogous to the "market failure" caused by nonexcludability.

Of course, this example grossly oversimplifies the problem. Under a democratic state, people do not directly purchase changes in state policy; they vote for them. Or more precisely, some of them vote for representatives who then vote on and bargain over state policy. If the tax repeal example were completely accurate, nearly every intentional benefit provided by the state would be a pure private good, similar to the current salaries of politicians and bureaucrats. With voting, political entrepreneurs and vote maximizing firms (which are called political parties) have some incentive to provide us with our tax repeal, even if we do not politically organize, in order to entice us to vote for them.<sup>14</sup>

This incentive, however, is not very great. First of all, voting itself gives rise to a public good. An individual must expend time and other resources to vote, but he or she can avoid these expenditures by free-riding on the voting of others. Only in the very remote case where the voter anticipates that, a single vote will decide the election's outcome does this incentive to free-ride disappear. Consequently, the political entrepreneur must have some reason to expect that we will vote at all. And if we do in fact vote, he must in addition have some reason to expect that the tax repeal, among all the other competing issues, will affect how we vote. Our forming a political organization to repeal the tax gives him reason to believe both these things.<sup>15</sup>

In short, unorganized groups have some influence upon the policies of a democratic state. But other things being equal, groups that organize and campaign for policies have a significant advantage. That is presumably why they organize

<sup>13</sup> Downs-1957; Buchanan/Tullock-1962; Olson-1971; Niskanen-1971; Tullock-1967; Breton-1974; and Becker-1983, pp. 372-80.

<sup>14</sup> Wagner-1966, pp. 161-70; and Frohlich-1971, stress the political-entrepreneur thesis. Olson responds briefly in the second edition of *The Logic of Collective Action*, pp. 174-75. Barry-1978, pp. 37-40, and Hardin-1982, pp. 35-37, go into the weakness of this thesis in greater detail.

<sup>15</sup> Extended discussions of the outcome of voting as a public good include Barzel/Silberberg-1973, pp. 51-58; Meehl-1977, pp. 11-30; Buchanan/Brennan-1984, pp. 185-201; and Barry-1978, pp. 13-19.



and campaign. It strains credulity to suppose that all the people who pour vast sums of money into political lobbying are utterly mistaken in the belief that they thereby gain some leverage on policy. The common observation that special interests have inordinate influence upon a democratic state is without doubt empirically well founded.

Two variables affect the likelihood that a group will overcome the freerider problem and successfully organize. These variables operate whether the group is trying to attain nonexcludable benefits on the market or from the state. The first is the size of the group. The smaller the group, *ceteris paribus*, the more likely the members are to organize successfully. The larger the group, the more difficult it is to involve enough of them to secure the public good.

The second variable is the difference between the value of the public good to the members of the group and the cost to them. The greater this difference, *ceteris paribus*, the more likely they are to organize successfully. Indeed, if this difference is great enough, one single member might benefit enough to be willing to pay the entire cost and let all the other members of the group free-ride. The smaller this difference, on the other hand, the more essential becomes the contribution of each potential member.<sup>16</sup>

The democratic state therefore makes it much easier to enact policies that funnel great benefits to small groups than to enact policies that shower small benefits on large groups. Because of this free-rider-induced "government failure" the state has the same problem in providing non excludable goods and services as the market — with one crucial difference. When a group successfully provides itself a public good through the market, the resources it expends pay directly for the good. In contrast, when a group successfully provides itself a public good through the state, the resources it expends pay only the overhead cost of influencing state policy. The state then finances the public good through taxation or some coercive substitute.

Moreover, the group that campaigned for the state-provided public good will *not* in all likelihood bear very much of the coerced cost of the good. Otherwise, they would have had no incentive to go through the state, because doing so then costs more in total than simply providing themselves the good voluntarily. Instead, the costs will be widely distributed among the poorly organized large group, who may not benefit at all from the public good.

This makes it possible for organized groups to get the state to provide bogus public goods, goods and services which in fact cost much more than the

<sup>16</sup> One of the clearest expositions of these factors appears in David Friedman's neglected Friedman-1973, pp. 185-88. See also Friedman-1986, pp. 440-47. Olson's taxonomy of groups — privileged (small), intermediate, and latent (large) — in *The Logic of Collective Action* treats the two factors — group size and relative cost of the public good — simultaneously and thereby slightly confuses the issue. Hardin-1982, pp. 38-42, clarifies Olson's taxonomy, correctly pointing out that a privileged group (one in which a single member values the public good enough to pay its entire cost) could theoretically be quite large.

Admittedly, there is some ambiguity about which *cetera* remain *paris* when group size is varied. Some scholars have consequently challenged the claim that larger groups have greater difficulty overcoming the free-rider incentive. See Frohlich/Oppenheimer-1970, pp. 104-20; Chamberlin-1974, pp. 707-16; and McGuire-1974, pp. 107-26. The best resolution of these questions is Hardin-1982, pp. 42-49, pp. 125-37.

beneficiaries would be willing to pay even if exclusion were possible and they could not free-ride. In this manner, the state generates externalities, and ones that are negative. Rather than overcoming the free-rider problem, the state benefits free-loaders, who receive bogus public goods at the expense of the taxpayers. Provision of these goods and services moves the economy away from, not toward, Pareto optimality. When the bogusness of such public goods is obvious enough, economists call them transfers.

What is the upshot of this "government failure" for national defense? In the case of defending the state itself, we are dealing quite clearly with a service that the state has enormous incentives to provide. If this is a nonexcludable good or service at all, then it is a public good that benefits small groups very highly. But in the case of defending the people, we are talking about, in the words of David Friedman, "a public good ... with a very large public." The benefits, although potentially great, are dispersed very broadly.<sup>17</sup>

Thus, to the extent that the free-rider obstacle inhibits market protection of liberty, it raises an even more difficult obstacle to the state's ever undertaking that vital service. The state has strong incentives to provide national defense that protects itself and its prerogatives, but it has very weak incentives to provide national defense that protects its subjects' lives, property, and liberty. This explains the common historical divergence between defending the state and defending the people.

Furthermore, there is a perverse inverse relationship between the people's belief that the state defends them and the reality. To the extent that they accept this nationalistic conclusion, their political resistance against the domestic state's aggression, however weak because of the public-goods problem to begin with, decreases further. This is most noticeable during periods of actual warfare. The belief of the state's subjects that it provides protection actually reduces the amount of protection they enjoy, at least against the domestic state.

Nationalism thus results in an ironic paradox. It views the state as a protection agency, but this very view contributes to the possibility that the state will take on the literal role of a protection racket. Those who decline to pay for the state's protection become its victims. This in turn gives the state an added incentive to find foreign enemies. For without a foreign threat, the justification for the state's protection becomes far less persuasive.<sup>18</sup>

Our remarks have thus far been confined to the democratic state. They apply, however, even more strikingly to the undemocratic state, insofar as there is any significant difference between the political dynamics of the two types. We believe that many economists have overemphasized the operative significance of

<sup>17</sup> Friedman-1973, p. 189. Lee-1985, p. 46, makes the same observation about the political production of national defense, but because he does not recognize the distinction between defending the state and defending the people, he arrives at a much different conclusion: viz., democratic states will underproduce military defense relative to undemocratic states.

<sup>18</sup> A similar point is made by Boulding-1963, pp. 3-27. He refers to the world's competing military organizations as "milorgs" and insists that, in contrast to any other social enterprise (including police protection), military organizations generate their own demand. "The only justification for the existence of a milorg is the existence of another milorg in some other place.... A police force is not justified by the existence of a police force in another town, that is, by another institution of the same kind" (p. 10).

formal voting. Both types of states are subject to the influence of groups that marshal resources in order to affect policy. Formal voting only makes it possible for some changes to manifest themselves faster and less painfully.

Our argument does not rule out the possibility that the state might actually defend its subjects. Whereas the difference between the political dynamics of democratic and undemocratic states is overdrawn, states do differ markedly in the amount of aggression they commit against their own subjects. If we automatically assume that a conquering government can wield as much power over foreign populations as it does over its domestic subjects, then a relatively less oppressive government will, in the process of defending itself, provide some protection for its subjects. But this is often only an unintended positive externality.

Moreover, a military policy designed primarily to defend the state's prerogatives will generally differ from what would be sufficient for the protection of its subjects. This difference may unnecessarily involve the people in dangerous military commitments and adventures. Their lives, liberty, and property, beyond being sacrificed to the interests of the domestic state, will then be at greater risk from foreign governments as well. Even when countering oppressive governments, national defense therefore generates negative externalities that may more than offset the possible positive externality.

Above all, the value of this defense hinges entirely upon the assumption that conquering governments can oppress a foreign population more fully and easily than can that population's domestic government. But this assumption is highly simplistic. It treats the power of the state as exogenously determined. Yet, if our concern is for the protection of people's lives, property, and liberty from any state, then a state's oppressiveness becomes the most critical variable of all. One state's military policy might not only directly affect the liberty of its own subjects, but it might also indirectly influence the power of opposing states. Only a more sophisticated understanding of oppression's fundamental determinants can tell us how best to ward off foreign aggression.

## 6. The free-rider dynamics of social consensus

To this point, our conclusions have been somewhat pessimistic, justifying Earl Brubaker's observation that the free-rider assumption *makes* economics a dismal science.<sup>19</sup> Based on that assumption, neither the market nor the state has much incentive to provide any direct protection of peoples' lives, property, and liberty. To the extent that historical accident has resulted in marked differences in the power of various states over their own subjects, some such protection might be produced as an unintended externality of the state's effort to protect its own territorial integrity. But that very effort at self-protection will also have a significant countervailing negative impact on the degree to which the state aggresses against its own subjects.

<sup>19</sup> Brubaker-1975, p. 153.



Attributing a difference to historical accident, however, is simply another way of saying that the difference is unexplained. Not until we explain the marked differences in domestic power of the world's states will we fully comprehend the relationship between protecting the state and protecting the people.

One naive explanation common among economists is the public-goods theory of the state. This theory often rests upon a sharp dichotomy between two types of states, usually democratic and undemocratic. Undemocratic states according to this theory are little better than criminal gangs, run by single despots or small groups of oligarchs essentially for their own personal ends. The subjects of these states suffer under their rulers but can do very little about their plight. Any effort on their part to change the situation, whether through violent revolution or other means, produces an outcome that is a public good; again, we are caught in the free-rider trap.<sup>20</sup>

Democratic states, in contrast, are the result of social contracts. According to the public-goods theory of the state, people create democratic states to solve the free-rider problem. At some obscure moment in the past, they drew up constitutional rules in which they agreed to be coerced in order to provide public goods for themselves. Over time, because the freerider problem generates "government failure," democratic states have a tendency to fall under the influence of special interests. Perhaps better constitutional decision rules could alleviate this decay. Nonetheless, democratic states always retain vestiges of their public-goods origin. That is why they aggress against their own subjects far less than do undemocratic states.<sup>21</sup>

We do not have to turn to the readily accessible historical evidence to refute this naive theory about the origin of democratic states. The theory's proponents quite often do not literally believe it. Instead, they view the theory as merely explaining the conceptual nature rather than the concrete origin of the democratic state. Either way, however, the theory has an inner contradiction. Creating a democratic state of this nature is a public good itself. A very large group must in some manner have produced it. Because of the free-rider problem, they have no more incentive to do that than to revolt against an undemocratic state or to provide themselves any other nonexcludable benefit.<sup>22</sup>

A more realistic alternative to the public-goods theory of the state is what we can call the socialconsensus theory of the state. All states are legitimized monopolies on coercion. The crucial word is "legitimized." This legitimization is what differentiates states from mere criminal gangs. Any society in, which people refrain from regularly killing each other enjoys some kind of social consensus. No government rules through brute force alone, no matter how undemocratic. Enough

<sup>20</sup> For the argument that revolution is a public good, see Tullock-1971, pp. 89-99, which became with minor alterations one of the chapters of his book, Tullock-1974. Tullock distinguishes between what he calls "exploitative" and "cooperative" governments, rather than democratic and undemocratic, but the two classifications are almost identical.

<sup>21</sup> The public-goods theory of the democratic state is still stated best in Baumol-1965, p. 57.

<sup>22</sup> Kalt-1981, pp. 565-84, pinpoints the contradiction in the public-goods theory of the state. The still devastating, classic, point-by-point refutation of the social contract remains Spooner-1966. See also Evers-1977, pp. 185-94, which traces the literal notion of a social contract all the way back to Socrates.



of its subjects must accept it as necessary or desirable for its rule to be widely enforced and observed. But the very consensus which legitimizes the state also binds it.<sup>23</sup>

The social consensus bears little resemblance to the mythical social contract of public-goods theory. Whereas the social contract is generally conceived of as an *intentional* political agreement, agreed upon explicitly at some specific moment, the social consensus is an *unintended* societal institution, like language, evolving implicitly over time. Sometimes, the evolution of the social consensus can be very violent. Often, particular individuals or even fairly large groups will strongly disagree with certain features of their society's consensus. But at all times, members of society are socialized into the consensus in ways that they only dimly grasp, if at all.<sup>24</sup>

Consider a classroom filled with average American citizens. Ask for a show of hands on the following question: how many would pay their taxes in full if no penalties resulted from nonpayment? Very few would raise their hands. This shows that taxation is involuntary. Then ask the group a second question: how many think taxes are necessary or just? This time, nearly every hand would go up. This shows that taxation is legitimized.<sup>25</sup>

Of course, one of the reasons Americans generally view taxation as legitimate is because they think it is necessary in order to provide public goods. All this proves, however, is that, although the public-goods theory of the state is utterly worthless as an objective description of the state's origin or nature, it is very valuable as an ideological rationalization for the state's legitimization. It performs a function analogous to that performed by the divine right of kings under monarchical states or by Marxist dogma under Communist states.

The social-consensus theory of the state suggests that if you conducted the same survey about taxation upon a group of average Russians living within the Soviet Union, or a group of average Iranians living under the Ayatollah (and you could guarantee them complete immunity regardless of how they answered), you would get similar results. These foreign and "evil" undemocratic states are not exogenous and alien institutions imposed on their subjects by sheer terror. They

<sup>23</sup> Since the definition of the state (or government) is something political scientists cannot even agree upon, ours will obviously be controversial. By "legitimized" (a positive adjective), we of course do not mean "legitimate" (a normative adjective). Most economists should have no difficulty conceiving of the state as a monopolistic coercive institution, but noneconomists might balk. Members of the general public appear to have a bifurcated definition of the state, depending on whether it is domestic or foreign. They view hostile foreign states as simply monopolies on coercion, just like criminal gangs, which is why they fear foreign conquest. They overlook the legitimization of these states. On the other hand, that is the only element they seem to recognize about the domestic state, overlooking or at least deemphasizing the coercive element. This dichotomy is only a cruder version of the distinction made by public-goods theory between democratic and undemocratic states. For an extended defense of the implications of our universal definition, see Rothbard-1974, pp. 34-53.

<sup>24</sup> One of the earliest observations that a social consensus always legitimizes the state is la Boétie-1975. Other writers who have since put forward a social-consensus theory of the state include David Hume, Hume-1963, pp. 29-34; Mises-1966, pp. 177-90; and Sharp-1973.

<sup>25</sup> We are confident about the empirical results, having conducted the test ourselves many times.

are complex products of the culture, attitudes, preferences, and ideas, whether explicit or implicit, that prevail within their societies.<sup>26</sup>

The vast ideological and cultural differences among the peoples of the world are what explain the marked differences in the domestic power of their states. The consensual constraints upon states differ in content, but all states face them. The Soviet leaders fully realize this, which is why they devote so many resources to domestic and foreign propaganda. The shifting social consensus also explains the many changes in the form and power of the state over time. Although professional economists tend to ignore the ideological and cultural components of social dynamics, professional historians give these factors the bulk of their attention.

History records that in the not-so-distant past the world was entirely in the grip of undemocratic states, which permitted their subjects very little liberty. Democratic states evolved from undemocratic states. States that now must tolerate a large degree of liberty emerged from states that did not have to do so. Public-goods theory is in the awkward position of theoretically denying that this could have happened. It raises an across-the-board theoretical obstacle to every conceivable reduction in state power that benefits more than a small group of individuals.<sup>27</sup> The social-consensus theory, in contrast, attributes this slow progress, sometimes punctuated with violent revolutions and wars, to ideological changes within the social consensus.

Thus, history is littered with drastic changes in state power and policy that resulted from successful ideological surmountings of the free-rider obstacle. The Minutemen volunteers who fought at Concord Bridge could not even come close to charging all the beneficiaries of their action. They produced tremendous externalities from which Americans are still benefiting today. The Abolitionist movement produced such a cascade of positive externalities that chattel slavery — a labor system that was one of the world's mainstays no less than two hundred years ago, and had been so for millennia — has been rooted out everywhere across the entire globe. We could multiply the examples endlessly.<sup>28</sup>

Indeed, the existence of any voluntary ethical behavior at all faces a free-rider obstacle. Society is much more prosperous if we all cease to steal and cheat, but the single individual is better off still if everyone else behaves ethically while he or she steals and cheats whenever able to get away with it. Thus, everyone has a powerful personal incentive to free-ride on other people's ethical behavior. If we all succumbed to that incentive, society would not be possible at all.

<sup>26</sup> Zaslavsky-1983, has actually conducted fairly reliable surveys among Soviet subjects, which indicate quite unambiguously that the Soviet state is legitimized. Good single-volume histories that impart an appreciation for the domestic sources of the Soviet state are Daniels-1985, and Hosking-1985. An introduction to the various interpretations of Soviet history by American scholars, written from a revisionist slant, is Cohen-1985.

<sup>27</sup> This awkward position is clearest in Tullock's *Social Dilemma*. The new *Society for Interpretive Economics*, codirected by Lavoie/Klamer (Economics Department, George Mason University) is a welcome exception to the general neglect among economists of cultural and ideological dynamics. We also cite some specific exceptions below.

<sup>28</sup> The premier work on the role of ideas in the American Revolution is Bailyn-1967, while a work that explores the international repercussions of the revolution is Palmer-1959-64. A magisterial survey of the international history of chattel slavery is Davis-1984. On the emergence of the international abolitionist movement, see his Davis-1975.

We must avoid the mistaken impression that the government's police forces and courts are what prevents most stealing and cheating. To begin with, the initial creation of such a police and court system (at least under government auspices) is another public good. But far more important, the police and courts are only capable of handling the recalcitrant minority, who refuse voluntarily to obey society's norms. A cursory glance at varying crime rates, over time and across locations, clearly indicates that the total stealing and cheating in society is far from solely a function of the resources devoted to the police and the courts. Certain neighborhoods are less safe, making an equal unit of police protection less effective, because they contain more aspiring ethical free-riders. If all members of society or even a substantial fraction became ethical free-riders, always stealing and cheating whenever they thought they could get away with it, the police and court system would collapse under the load.<sup>29</sup>

In short, every humanitarian crusade, every broad-based ideological movement, every widely practiced ethical system, religious and non-religious, is a defiant challenge hurled at the neoclassical economist's justification for state provision of public goods. The steady advance of the human race over the centuries is a series of successful surmountings of the free-rider obstacle. Civilization itself would be totally impossible unless people had somehow circumvented the public-goods problem.<sup>30</sup>

## 7. Beyond the free-rider incentive

If what we have been saying so far is even partly correct, there must be a serious flaw in public-goods theory. Howard Margolis points out that "no society we know could function" if all its members actually behaved as the free-rider assumption predicts they will. He calls this theoretical failure freerider "overkill".<sup>31</sup>

Despite this flaw, public-goods theory explains a great deal, which is why it remains so popular among economists. It explains why so many eligible voters do not waste their time going to the polls. But it fails to explain why so many of them still do go. (We think an interesting empirical study would be to determine what percentage of economists who accept public-goods theory violate their theoretical assumptions about human behavior by voting.) It explains why the progress of civilization has been so painfully slow. But it fails to explain why we observe any progress at all.

<sup>29</sup> Among the economists who recognize the public-goods nature of ethical behavior are Buchanan-1965, pp. 1-13, and Buchanan-1975, pp. 123-29; McKenzie-1977, pp. 208-21; and North-1981, pp. 11-12, 18-19, 45-46. See also Parfit-1984.

<sup>30</sup> Rothbard-1981, p. 545, makes a similar observation: "Thus the free-rider argument proves hr too much. After all, civilization itself is a process of all of us 'free-riding' on the achievements of others. We all free-ride, every day, on the achievements of Edison, Beethoven, or Vermeer."

<sup>31</sup> Margolis-1982, p. 6. See also McMillan-1979, pp. 95-107, Smith-1980, pp. 584-99 and Schneider/Pommerehne-1981, pp. 689-704.



Before we work out the implications of this theoretical flaw for the issue of national defense, let us digress briefly and try to identify it. It must involve some weakness in the theory's assumption about human behavior. We make no pretensions, however, to being able fully to resolve the weakness. Because this very issue sits at the conjunction of public-goods theory and game theory, it has become one of the most fertile areas of inquiry within economics and political science over the last decade. All we can do is modestly offer some tentative thoughts about the sources of the weakness.

Two possibilities suggest themselves. Either people do not consistently pursue the ends that the free-rider assumption predicts they will pursue, or they pursue those ends but using means inconsistent with the assumption. We will take up both of these possibilities in order:

1. Do people consistently pursue their self-interest, as the free-rider assumption defines self-interest? Public-goods theorists have offered not one but two motives that should cause a person to behave in accordance with the free-rider assumption. The most obvious is narrow economic self-interest. This end does provide a sufficient reason to free-ride, but visualizing someone choosing a different end is quite easy. Simple altruism is not the only alternative that will violate this narrow assumption. People may desire social improvements — liberty, justice, peace, etc. — not simply for their material benefits, but as ends in and of themselves, independently present within their utility functions. Patrick Henry may have been engaging in political hyperbole when he exclaimed "Give me liberty or give me death!", but he was still expressing a willingness to pay more for attaining liberty than its narrow economic returns would cover. Perhaps this willingness should be called ideological; no matter what we call it, it appears to be quite common in human history.<sup>32</sup>

Mancur Olson is the most prominent public-goods theorist to argue that a second motive beyond narrow economic self-interest justifies the freerider assumption. This second motive applies even to the individual with ideological ends — *if* the group is large enough. He contends that only rationality in the pursuit of whatever end the individual chooses is strictly necessary. The individual will still choose to free-ride, because for a public good requiring a large group his meager contribution will have no perceptible effect on attaining the end.<sup>33</sup>

We could object that an individual's contribution to a cause is often not contingent in any way upon the cause's overall success. Consequently, how much the individual thinks his action will affect the probability of success is often

<sup>32</sup> Several scholars are moving in this direction. For instance, Dawes-1980, pp. 169-93; Brubaker-1984, pp. 536-53; Barry-1978; Higgs-1987, chapter 3; and North-1981, chapter 5. Even Mancur Olson suggests this approach in Olson-1968, pp. 96-118, which contrasts economics, the study of rational action, with sociology, the study of socialization. But the most ambitious effort along these lines is Margolis-1981, pp. 265-79.

We should note that we attach the adjective "narrow" to the term "self-interest" to indicate the usage that involves seeking particular, usually selfish, goals. This is to distinguish it from the broader usage of the term, which can encompass any goal, including altruism. Whether individuals do in fact pursue their narrow self-interest is a question subject to empirical verification or falsification, but individuals by definition always pursue their broad self-interest.

<sup>33</sup> Olson-1971, pp. 64-65.



irrelevant. Some people refuse to litter, for instance, fully aware that their refusal will have no perceptible impact on the quantity of litter. Such individuals gain satisfaction from doing what they believe is proper, regardless of its macro-impact. In addition to a sense of righteousness, ideological movements can offer their participants a sense of solidarity, of companionship in a cause, that keeps many loyal no matter how hopeless the cause.<sup>34</sup>

But this objection concedes far too much to Olson. As philosopher Richard Tuck has cogently pointed out, Olson's notion of "rationality" if consistently obeyed precludes some everyday activities. It does not just apply to an individual's contribution to the effort of a large group; it applies just as forcefully to the cumulative actions of a single person on a large individual project. Olson's "rationality" is simply a modern variant of the ancient philosophical paradox of the Sorites. In one version, the paradox argues that there can never be a heap of stones. One stone does not constitute a heap, nor does the addition of one stone to something that is not already a heap. Therefore, no matter how many stones are added, they will never constitute a heap. (Of course, in the other direction, this paradox argues that there can never be anything but a heap of stones.)

One more dollar will not make a perceptible difference in a person's life savings. One day's exercise will not make a perceptible difference in a person's health. If the fact that the individual's imperceptible contribution goes toward a group rather than an individual effort is what is decisive, then we are simply back again at the motive of narrow self-interest. No doubt, this type of "rationality" does influence some people not to undertake some actions under some circumstances. But just how compelling people find it is demonstrated by the millions who vote in presidential elections, despite the near certainty that the outcome will never be decided by one person's vote.<sup>35</sup>

2. Do people pursue their self-interest but in a manner inconsistent with the free-rider assumption? Olson, again, has suggested one way that individuals might effectively organize despite the free-rider obstacle. Groups can link their efforts at achieving nonexcludable benefits with excludable by-products. Such by-products include low group-rate insurance and professional journals. The incentive provided by these by-products helps counteract the incentive to be a free rider.<sup>36</sup>

<sup>34</sup> Higgs-1987, chapter 3, heavily emphasizes the role of ideological solidarity. Coleman-1966, pp. 49-62, postulates an individual's psychic investment in collective entities. Buchanan and Brennan, "Voter Choice: Evaluating Political Alternatives," think that this symbolic identification is the major motivation behind voting.

<sup>35</sup> Tuck-1979, pp. 147-56. We can salvage Olsonian "rationality" under two strict conditions. When (1) a threshold level of resources is necessary before any of the public good becomes available whatsoever, and (2) people end up paying whatever resources they contribute, irrespective of whether they reach the threshold or not, it becomes rational not to contribute if a person predicts that the threshold will not be reached. In that special case, he or she would simply be throwing away resources for nothing. Notice that these two conditions apply more frequently to obtaining public goods through politics — which is often a win-or-lose, all-or-nothing, situation — than to obtaining public goods on the market. In particular, it applies to voting. Hardin-1982 pp. 55-61, analyzes the first of these conditions, for which he employs the term "step goods."

<sup>36</sup> Olson-1971, pp. 132-68. Olson also refers to excludable "by-products" as "selective incentives." Looked at another way, the byproduct theory converts a full public good into a positive externality of a private good.

One intriguing aspect of the by-product theory is the easy method it seems to offer for providing national defense without a state. Why couldn't the purchase of national defense be linked to some excludable by-product that everyone wants, such as protection insurance or contract enforcement? Indeed, most of those advocating voluntary funding of national defense have hit upon some such scheme.<sup>37</sup>

But this solution is too easy. If the excludable by-product is really what people want, then a competitor who does not link it with the nonexcludable good or service can sell it at a lower price. Only if the group has a legal monopoly on marketing its by-product can it really counteract the freerider incentive. Every really successful example of groups relying upon by-products that Olson discusses involves some sort of legal monopoly. But the group's initial attainment of this legal monopoly remains an unexplained surmounting of the public-goods problem.<sup>38</sup>

Far more promising than the by-product theory for explaining the empirical weakness of the free-rider assumption is some of the recent dynamic analysis being done in game theory. As many scholars have pointed out, the free-rider problem in public-goods theory is identical to the famous Prisoner's Dilemma in game theory.<sup>39</sup>

The Prisoner's Dilemma derives its name from an archetypal situation where two prisoners are being held for some crime. The prosecutor separately proposes the same deal to both prisoners, because he only has sufficient evidence to convict them of a minor crime with a light sentence. Each is told that if he confesses, but the other does not, he will get off free, while the other will suffer the full penalty, unless the other also confesses. If they both confess, they both will be convicted of the more serious crime, although they both will receive some small leniency for confessing. This deal gives each prisoner an incentive independently to confess, because by doing so he individually will be better off regardless of what the other does. Consequently, they both confess, despite the fact that they both collectively would have had much lighter sentences if they both refused to confess.

The public-goods problem is essentially a Prisoner's Dilemma with many prisoners. We cannot delve into the details here of the recent work, both theoretical and empirical, of such game theorists as Michael Taylor, Russell Hardin, and Robert Axelrod, but essentially! they have explored the Prisoner's Dilemma within a dynamic rather than static setting. Their conclusion: whereas in a static single Prisoner's Dilemma, cooperation is never rational; in dynamic iterated

<sup>37</sup> Those advocating voluntary funding of national defence through the sale of excludable by-products include Rand-1964, pp. 157-63; Wollstein-1969, pp. 35-38; Tannehill/Tannehill-1970, pp. 126-35; and Machan-1982, pp. 201-8. For a telling critique of the by-product theory as applied to national defense, see Friedman-1973, pp. 192-93.

<sup>38</sup> Hardin-1982, pp. 31-34, criticizes the by-product theory.

<sup>39</sup> The book that launched mathematical game theory was von Neumann/Morgenstern-1953, the first edition of which appeared in 1944. According to Hardin-1982, p. 24, the Prisoner's Dilemma itself was first discovered in 1950 by Merrill Flood and Melvin Dresher. A. W. Tucker, a game theorist at Princeton University, later gave the Prisoner's Dilemma its name. For the personal reminiscences of one of the early researchers who worked on the Prisoner's Dilemma, coupled with a survey of the studies of the dilemma up to the mid-seventies, see Rapoport-1974, pp. 17-34.

Prisoner's Dilemmas, with two or more people, cooperation frequently becomes rational for even the most narrowly self-interested individual. What this work implies is that in many real-world dynamic contexts, ideological altruism or some similar motive beyond narrow self-interest may not be necessary at all to counterbalance the freerider incentive.<sup>40</sup>

## 8. Conclusion

We have seen that putting domestic limitations upon the power of the state is a public-goods problem, but nonetheless one that in many historical instances for whatever reason has been solved. We have also seen that national defense, in the sense of protecting the people from a foreign state, is a subset of the general problem of protecting them from any state, domestic or foreign.

Because of "government failure," the domestic military establishment itself can become the greatest threat to the lives, property, and liberty of the state's subjects. The danger from military expansion, moreover, is not confined to its domestic impact. By threatening the opposing nation, it cannot even unambiguously guarantee greater international safety. The same threat that deters can also provoke the opposing side's military expansion.

Perhaps the factors that already provide protection from the domestic state are the very factors to which we should turn for protection from foreign states. The same social consensus that has voluntarily overcome the free-rider obstacle to make the United States one of the freest, if not the freest, nation may be able to overcome the free-rider obstacle to protect American freedom from foreign states.

Nearly all of us desire a world in which all states have been disarmed.

Of course, most of the formal economic models of international relations are not very sanguine about this eventuality. Yet our analysis points to two possible shortcomings in such models and suggests at least a glimmer of hope. First, they are generally built upon a static formulation of the Prisoner's Dilemma, whereas dynamic formulations are more realistic and more likely to yield cooperative outcomes. Second, they generally commit the nationalistic fallacy of composition, ignoring the interactions of the state with its own and foreign populations. Like the public-goods theory they emulate, these models are very good at explaining the cases where disarmament fails. They do not do so well at explaining the cases where it succeeds — as for instance, along the U.S.-Canada border since 1871.<sup>41</sup>

<sup>40</sup> Hardin-1971, pp. 472-81; Taylor-1976; Hardin-1982; and Axelrod-1984. Axelrod confines himself to two-person dynamic Prisoner's Dilemmas, while both Taylor and Hardin consider n-person iterated games. For a good review of the growing literature on n-person games, see Dawes, "Social Dilemmas."

<sup>41</sup> Britain and the United States demilitarized the Great Lakes in the Rush-Bagot Treaty of 1817. The process of disarming the entire border was not complete until 1871, however. Both Noel-Baker-1958, and Boulding-1963 appreciate the significance of this example. Economic studies of international relations that share these weaknesses include Lee-1985 and Tullock-1974. Most of the economic work in these areas has focused upon alliances. See for instance Olson-1966, pp. 266-79; Olson/Zeckhauser-1967, pp. 25-63; Sandler-1975, pp. 223-39; and Sandler-1978.



The domestic production of disarmament is itself a public good, confronting the same free-rider obstacle that confronts every nonexcludable good and service. Should a majority in any one nation come to endorse this policy, the narrow — or not so narrow — special interests who benefit from an armed state would undoubtedly be willing to commit vast resources to keeping a huge military establishment. Thus, like all significant gains in the history of civilization, the disarming of the state could only be accomplished by a massive ideological surge that surmounts the free-rider obstacle.



## References

- Axelrod, R. (1984)**, *The Evolution of Cooperation*, New York, Basic Books.
- Bailyn, B. (1967)**, *Ideological Origins of the American Revolution*, Cambridge, Harvard University Press.
- Barry, B. (1978)**, *Sociologists, Economists and Democracy*, Chicago, University of Chicago Press.
- Baumol, W.J. (1965)**, "Welfare Economics and the Theory of the State", 2nd ed. Cambridge, Mass., Harvard University Press.
- Becker, G. (1983)**, "A Theory of Competition among Pressure Groups for Political Influence", *Quarterly Journal of Economics*, n°98, August.
- Block, W. (1983)**, "Public Goods and Externalities: The Case of Roads", *Journal of Libertarian Studies*, n°7, Spring.
- Boëtie, E. de la (1975)**, *The Politics of Obedience: The Discourse of Voluntary Servitude* (1574); reprint ed., New York, Free Life Editions.
- Borchherding, Th. (1978)**, "Competition, Exclusion, and the Optimal Supply of Public Goods", *Journal of Law and Economics*, n°21, April.
- Boulding, K.E. (1963)**, "The World War Industry as an Economic Problem", in the collection he coedited with Emile Benoit, *Disarmament and the Economy*, New York, Harper & Row.
- Bourne, R. (1964)**, "The State", in *War and the Intellectuals: Essays by Randolph Bourne, 1915-1919*, ed. Carl Resek, New York, Harper & Row.
- Breton, A. (1974)**, *The Economic Theory of Representative Government*, Chicago, Aldine.
- Brubaker, E.R. (1975)**, "Free Ride, Free Revelation, or Golden Rule", *Journal of Law and Economics*, n°18, April.
- Brubaker, E.R. (1984)**, "Demand Disclosures and Conditions on Exclusion", *Economic Journal*, n°94, September.
- Buchanan, J.M. (1962)**, "Politics, Policy, and the Pigovian Margins", *Economica*, 2nd ser., n°29, February.
- Buchanan, J.M. (1965)**, "Ethical Rules, Expected Values, and Large Numbers", *Ethics*, n°76, October.
- Buchanan, J.M. (1968)**, *The Demand and Supply of Public Goods*, Chicago, Rand McNally.
- Buchanan, J.M. (1975)**, *The Limits of Liberty: Between Anarchy and Leviathan*, Chicago, University of Chicago Press.
- Buchanan, J.M. & Brennan, G. (1984)**, "Voter Choice: Evaluating Political Alternatives", *American Behavioral Scientist*, n°29, November/December.
- Buchanan, J.M. & Flowers, M.R. (1975)**, *The Public Finances: An Introductory Textbook*, 4th ed. Homewood, Ill., Richard D. Irwin.
- Buchanan, J.M. & Kafoglis, M.Z. (1963)**, "A Note on Public Good Supply," *American Economic Review*, n°53, January.
- Buchanan, J.M. & Tullock, G. (1962)**, *The Calculus of consent Logical Foundations of Constitutional Democracy*, Ann Arbor, University of Michigan Press.

**Burns, M.E. & Walsh, C. (1981)**, "Market Provision of Price-Excludable Public Goods: A General Analysis", *Journal of Political Economy*, n°89, February.

**Chamberlin, J. (1974)**, "Provision of Public Goods as a Function of Group Size", *American Political Science Review*, n°68, June.

**Coase, R. (1960)**, "The Problem of Social Cost", *Journal of Law and Economics*, n°3, October.

**Cohen, S.E. (1985)**, *Rethinking the Soviet Experience: Politics and History since 1917*, New York, Oxford University Press.

**Coleman, J.S. (1966)**, "Individual Interests and Collective Action", *Papers on Non-Market Decision Making* I.

**Cowen, T. (1985)**, "Public Goods Definitions and Their Institutional Context: A Critique of Public Goods Theory", *Review of Social Economy*, n°43, April.

**Daniels, R.U. (1985)**, *Russia: The Roots of Confrontation*, Cambridge, Harvard University Press.

**Davis, D.B. (1975)**, *The Problem of Slavery in the Age of Revolution, 1770-1823*, Ithaca, Cornell University Press.

**Davis, D.B. (1984)**, *Slavery and Human Progress*, New York, Oxford University Press.

**Davis, O. & Winston, A. (1967)**, "On the Distinction Between Public and Private Goods", *American Economic Review*, n°57, May.

**Dawes, R.M. (1980)**, "Social Dilemmas", *Annual Review of Psychology*, n°31.

**Demsetz, H. (1964)**, "The Exchange and Enforcement of Property Rights", *Journal of Law and Economics*, n°7, October.

**Demsetz, H. (1969)**, "Information and Efficiency: Another Viewpoint", *Journal of Law and Economics*, n°12, April.

**Demsetz, H. (1970)**, "The Private Production of Public Goods", *Journal of Law and Economics*, n°13, October.

**Demsetz, H. (1973)**, "Joint Supply and Price Discrimination", *Journal of Law and Economics*, n°16, October.

**Downs, A. (1957)**, *An Economic Theory of Democracy*, New York, Harper & Row.

**Ekelund, R.B. & Hulett, J.R. (1973)**, "Joint Supply, the Taussig-Pigou Controversy, and the Competitive Provision of Public Goods", *Journal of Law and Economics*, n°16, October.

**Ekirch, A.A. Jr. (1956)**, *The Civilian and the Military: A History of the American Antimilitarist Tradition*, New York, Oxford University Press.

**Evers, W.M. (1977)**, "Social Contract: A Critique", *Journal of Libertarian Studies*, Vol. I, Summer.

**Friedman, D. (1973)**, *The Machinery of Freedom: Guide to a Radical Capitalism*, New York, Harper & Row.

**Friedman, D. (1986)**, *Price Theory: An Intermediate Text*, Cincinnati, South-Western.

**Frohlich, N. & Oppenheimer, J.A. (1970)**, "I Get By with a Little Help from My Friends", *World Politics*, n°23, October.

**Frohlich, N., Oppenheimer, J.A. & Young, O.R. (1971)**, *Political Leadership and Collective Goods*, Princeton, Princeton University Press.

**Goldin, K.D. (1977)**, "Equal Access vs. Selective Access: A Critique of Public Goods Theory", *Public Choice*, n°29, Spring.

**Hale, J.R. (1985)**, *War and Society in Renaissance Europe, 1450-1620*, New York, St. Martin's Press.

**Hardin, R. (1971)**, "Collective Action as an Agreeable  $n$ -Prisoners' Dilemma", *Behavioral Science*, n°16, September.

**Hardin, R. (1982)**, *Collective Action*, Baltimore, Johns Hopkins University Press.

**Head, J.G. (1974)**, *Public Goods and Public Welfare*, Durham, N.C., Duke University Press.

**Head, J.G. & Shoup, C.S. (1969)**, "Public Goods, Private Goods, and Ambiguous Goods", *Economic Journal*, n°79, September.

**Higgs, R. (1987)**, *Crisis and Leviathan: Critical Episodes in the Growth of American Government*, New York, Oxford University Press.

**Hosking, G. (1985)**, *The First Socialist Society: A History of the Soviet Union from Within*, Cambridge, Harvard University Press.

**Hume, D. (1963)**, "Of the First Principles of Government", in *Essays, Moral, Political, and Literary* (1741-42); reprint ed. London, Oxford University Press.

**Kalt, J.P. (1981)**, "Public Goods and the Theory of Government", *Cato Journal*, I, Fall.

**Lee, D.R. (1977)**, "Discrimination and Efficiency in the Pricing of Public Goods", *Journal of Law and Economics*, n°20, October.

**Lee, D.R. (1985)**, "The Soviet Economy and the Arms Control Delusion", *Journal of Contemporary Studies*, n°8, Winter/Spring.

**Machan, T.R. (1982)**, "Dissolving the Problem of Public Goods", in *The Libertarian Reader*, Totowa, N.J., Rowman and Littlefield.

**Margolis, H. (1981)**, "A New Model of Rational Choice", *Ethics*, n°91, January.

**Margolis, H. (1982)**, *Selfishness, Altruism, and Rationality: A Theory of Social Choice*, Cambridge, Cambridge University Press.

**McGuire, M.C. (1974)**, "Group Size, Homogeneity, and the Aggregate Provision of a Pure Public Good under Cournot Behavior", *Public Choice*, n°18, Summer.

**McKean, R.N. & Minasian, J.R. (1966)**, "On Achieving Pareto Optimality — Regardless of Cost", *Western Economic Journal*, n°5, December.

**McKenzie, R.B. (1977)**, "The Economic Dimensions of Ethical Behavior", *Ethics*, n°87, April.

**McMillan, J. (1979)**, "The Free Rider Problem: A Survey", *The Economic Record*, n°55, June.

**Meehl, P.E. (1977)**, "The Selfish Voter Paradox and the Throw-Away Vote Argument", *American Political Science Review*, n°71, March.

**Minasian, J.R. (1964)**, "Television Pricing and the Theory of Public Goods", *Journal of Law and Economics*, n°7, October.

**Mises, L. v. (1966)**, *Human Action: A Treatise on Economics*, 3rd rev. ed. Chicago, Henry Regnery.

**Mishan, E.J. (1969)**, "The Relationship Between Joint Products, Collective Goods, and External Effects", *Journal of Political Economy*, n°77, May-June.



- Morgenstern, N. & Morgenstern, O. (1953)**, *The Theory of Games and Economic Behavior*, 3rd ed. Princeton, Princeton University Press.
- Musgrave, R.A. (1959)**, *The Theory of Public Finance: A Study in Public Economy*, New York, McGraw-Hill.
- Niskanen, W.A. Jr., (1971)**, *Bureaucracy and Representative Government*, Chicago, Aldine-Atherton.
- Noel-Baker, Ph. (1958)**, *The Arms Race: A Programme for World Disarmament*, London, Atlantic Books.
- North, D.C. (1981)**, *Structure and Change in Economic History*, New York, W. W. Norton.
- Oakland, W.H. (1974)**, "Public Goods, Perfect Competition and Underproduction", *Journal of Political Economy*, n°82, September/October.
- Olson M. (1968)**, "Economics, Sociology, and the Best of All Possible Worlds", *Public Interest*, n°12, Summer.
- Olson, M. (1971)**, *The Logic of Collective Action: Public Goods and the Theory of Groups*, 2nd ed. Cambridge, Mass., Harvard University Press.
- Olson, M. Jr., & Zeckhauser, R. (1966)**, "An Economic Theory of Alliances", *Review of Economics and Statistics*, August.
- Olson, M. Jr., & Zeckhauser, R. (1967)**, "Collective Goods, Comparative Advantage, and Alliance Efficiency", in *Issues in Defense Economics* ed. Roland N. McKean, New York, National Bureau of Economic Research.
- Palmer, R.R. (1959-1964)**, *The Age of Democratic Revolution: A Political History of Europe and America, 1760-1899*, 2 vols Princeton, Princeton University Press.
- Palmer, T.G. (1983)**, "Infrastructure: Public or Private?", *Policy Report*, n°5, May.
- Parfit, D. (1984)**, *Reasons and Persons*, Oxford, Clarendon Press.
- Rand, A. (1964)**, "Government Financing in a Free Society", in *The Virtue of Selfishness: A New Concept of Egoism*, New York, New American Library.
- Rapoport, A. (1974)**, "Prisoner's Dilemma — Recollections and Observations", in *Game Theory as a Theory of Conflict Resolution*, Dordrecht, D. Reidel.
- Ravenal, E.C. (1984)**, *Defining Defense: The 1985 Military Budget*, Washington, Cato Institute.
- Rossiter, C. (1948)**, *Constitutional Dictatorship: Crisis Government in the Modern Democracies*, Princeton, Princeton University Press.
- Rothbard, M.N. (1974)**, "War, Peace and the State", in Rothbard, *Egalitarianism as a Revolt Against Nature: And Other Essays*, Washington, Libertarian Review Press.
- Rothbard, M.N. (1981)**, "The Myth of Neutral Taxation", *Cato Journal*, n°1, Fall.
- Russett, B.M. (1970)**, *What Price Vigilance? The Burdens of National Defense*, New Haven, Yale University Press.
- Samuelson, P.A. (1954)**, "The Pure Theory of Public Expenditure", *Review of Economics and Statistics*, n°36, November.
- Samuelson, P.A. (1955)**, "Diagrammatic Exposition of a Theory of Public Expenditure", *Review of Economics and Statistics*, n°37, November.

**Samuelson, P.A. (1958)**, "Aspects of Public Expenditure Theories", *Review of Economics and Statistics*, n°40, November.

**Samuelson, P.A. (1969a)**, "Pure Theory of Public Expenditure and Taxation", in *Public Economics: An Analysis of Public Production and Consumption and their Relations to the Private Sectors*, ed. J. Margolis & H. Guitton, London, Macmillan.

**Samuelson, P.A. (1969b)**, "Contrast Between Welfare Conditions for Joint Supply and for Public Goods", *Review of Economics and Statistics*, n°51, February.

**Samuelson, P.A. (1976)**, *Economics*, 10th ed. (with Peter Temin), New York, McGraw-Hill.

**Sandler, T. (1975)**, "The Economic Theory of Alliances: Realigned", in *Comparative Public Policy, Issues, Theories, and Methods*, eds. Liske, C., Loehr, W. & McCamant, J., New York, John Wiley & Sons.

**Sandler, T.M., Loehr, W. & Cauley, J.T. (1978)**, *The Political Economy of Public Goods and International Cooperation*, Denver, University of Denver Press.

**Schneider, F. & Pommerehne, W.W. (1981)**, "Free Riding and Collective Action: An Experiment in Public Microeconomics", *Quarterly Journal of Economics*, n°91, November.

**Sharp, G. (1973)**, *The Politics of Nonviolent Action*, Boston, Porter Sargent.

**Silberberg, E. (1973)**, "Is the Act of Voting Rational?" *Public Choice*, n°16, Fall.

**Smith, V.L. (1980)**, "Experiments with a Decentralized Mechanism for Public Good Decisions", *American Economic Review*, n°70, September.

**Snidal, D. (1979)**, "Public Goods, Property Rights, and Political Organizations", *International Studies Quarterly*, n°23, December.

**Spooner, L. (1966)**, *No Treason: The Constitution of No Authority* (1870); reprint ed., Larkspur, Colo., Pine Tree Press.

**Tannehill, M. & Tannehill, L. (1970)**, *The Market for Liberty*, Lansing, Tannehill.

**Taylor, M. (1976)**, *Anarchy and Cooperation*, London, John Wiley & Sons.

**Thompson, E.A. (1968)**, "The Perfectly Competitive Production of Collective Goods", *Review of Economics and Statistics*, n°50, February.

**Thompson, E.A. (1974)**, "Taxation and National Defense", *Journal of Political Economy*, n°82, July, August.

**Tilly, Ch. ed. (1975)**, *The Formation of National States in Western Europe*, Princeton, Princeton University Press.

**Tilly, Ch. (1985)**, "War Making and State Making as Organized Crime", in *Bringing the State Back In*, ed. Peter B. Evans, Dietrich Rueschemeyer, and Theda Skocpol, Cambridge, Cambridge University Press.

**Tuck, R. (1979)**, "Is There a Free-Rider Problem, and if so, What Is It?" in *Rational Action: Studies in Philosophy and Social Science*, ed. Ross Harrison, Cambridge, Cambridge University Press.

**Tullock, G. (1967)**, *Toward a Mathematics of Politics*, Ann Arbor, University of Michigan Press.

**Tullock, G. (1971)**, "The Paradox of Revolution", *Public Choice*, n°9, Fall.

**Tullock, G. (1974)**, *The Social Dilemma: The Economics of War and Revolution*, Blacksburg, Va., University Publications.

**Turvey, R. (1963)**, "On the Divergences between Social Cost and Private Cost", *Economica*, n°30, August.

**Wagner, R.E (1966)**, "Pressure Groups and Political Entrepreneurs: A Review Article", *Papers on Non-Market Decision Making I*.

**Wagner, R.H. (1975)**, "National Defense as a Collective Good", in *Comparative Public Policy, Issues, Theories, and Methods*, eds. Liske, C., Loehr, W. & McCamant, J., New York, John Wiley & Sons.

**Wollstein, J.B. (1969)**, *Society without Coercion: A New Concept of Social Organization*, Silver Springs, Md., Society for Individual Liberty.

**Zaslavsky, V. (1983)**, *The Neo-Stalinist State*, New York, Oxford University Press.