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Public Goods and Externalities: The Case of Roads*

by Walter Block

The Fraser Institute, Vancouver

When government monopolization of the roadways is discussed by economists, the "externalities" argument is usually raised. The argument is said to be simple, clear, and irrefutable. In fact, none of these terms really apply. Let us consider the argument closely.

The externalities argument is based upon a distinction between private goods and services, the use of which benefits only the consumer in question, and public or collective goods, consumption of which necessarily affects the welfare of third or "external" parties. For example, externalities are said to exist when Mr. A paints his house and neighboring householders benefit as a result.[1] Housepainting is contrasted with completely private goods such as bread, which adds to the well-being of only those who purchase and consume it.

The distinction is often made in terms of excludability: in the case of private goods, the consumer is able to exclude all others from the benefits; in the case of public goods, he is not, and so some of the benefits "spill over" onto third parties. A typical textbook makes the point in the following way:

> For a good, service, or factor to be "exclusive", everyone but the buyer of the good must be excluded from the satisfaction it provides. A pair of sox, for example, is a good which is consistent with the exclusion principle. When you buy the sox, it is you alone who gets the satisfaction from wearing them—no one else. On the other hand, a shot for diphtheria is a "commodity" which is *not* subject to the exclusion principle. While the person inoculated surely get(s) benefits from having the shot, the benefit is not exclusively his. Having become immune to the disease, he can't communicate it to other people. They cannot be excluded from the benefit of the shot even though they do not pay for it and even though the person receiving the shot cannot charge them for it.[2]

Even at this introductory level an objection must be made. There are any number of external economies, neighborhood effects, spill-overs, benefits to third parties, which flow from the purchase and use of supposedly private goods. Take, for

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example, the paradigm case of a private good, socks. First, there is a health question. People who do not wear socks are liable to colds, sore feet, blisters, and possibly pneumonia. And sickness means lost days of work and lost production; it means possible contagion (as in the diphtheria case); it may result in rising doctor bills and increased health insurance premiums for other policyholders. Increased demand for doctors' time and energy will result in reduced medical attention for others. There is, in addition, an aesthetic problem: many people take umbrage at socklessness. Restaurants often forbid bare feet, presumably in the interests of retaining their more sensitive customers. Not wearing socks is also interpreted by some as a disturbing political statement, like flag or draft-card burning. Many mothers—a third party, if ever there was one—rejoice when their "hip" sons finally don footwear. That benefits of sock-wearing "spill over" to these mothers cannot be denied.

The problem is by no means limited to the socks example, for *all* so-called private goods affect second or third parties in some way. The reader is challenged to think of any item the use and purchase of which is not affected with a public interest, i.e., which does not similarly have spill-over effects on other people.

Misguided though the definition may be, the externalities argument still has strong influence. Many economists continue to claim that to the extent that externalities are present, "market imperfections" are created and government action is justified to remedy the situation.

I. External Economies

Leaving aside these objections for the time being, let us consider the externalities argument as it applies to roadways. The argument assumes that roadways are an instance of positive externalities. Any entrepreneur who constructs a road will have to bear all the costs (of labor, materials, etc.), just as in any business, but since highways are an external economy, he will be unable to reap rewards proportional to the benefits provided. For example, benefits would spill over to those who own land near the highways, in the form of increased value (i.e., the road builder cannot charge the beneficiaries for these gains). Other benefits would be enjoyed, for free, by people who simply prefer more and more highways. Nor could the road owner exclude from increased benefits those who gain from the resulting cheaper transport in the form of lower prices for shipped merchandise.

The claim is that private road builders, responsible for all of the costs but only partially compensated (through fee charges) for providing the benefits, would underinvest. The marginal dollar, therefore, would have a higher return in highway investment (were all benefits to be considered) than it would in alternative outlets.

This argument is sometimes put forth in terms of social and private returns. Private returns—the difference between the outlay and revenue which accrue entirely to the individual entrepreneur—are said to be lower than social returns—the difference between the costs and the benefits for society as a whole. In both cases, the builder—whether an individual business or society as a whole—must pay the

full costs of the highway; but it is possible only for society as a whole to derive the full benefits. The entrepreneur, being limited to the tolls he can collect, is unable to capture the gains in terms of increased land values, etc., which spill over onto the remainder of the population.

Given this alleged tendency of the market to underinvest in highways, the argument from externalities concludes that it is the government's obligation to correct matters by subsidizing road building, or, more likely, by building roads itself. Consider the following argument made by Bonavia:

> The extreme *laisser-faire* doctrine of non-interference by the State depends upon the assumption that social and private net returns are identical—that self-interest is equated with the common weal.
>
> We are only concerned here with one aspect of positive intervention by the State—namely, through investment in transport. It is clear . . . that the object of State investment is to secure output of a kind whose private net returns are lower than its social net returns, and which accordingly tends to be less than it would be under ideal conditions. A railway, for example, may yield high prospective social returns, and yet, in a community chronically short of capital, offer lower private returns than other industries. The State may then find it advisable to invest the communities' resources in railway construction.[3]

This argument is erroneous, for its conclusion does not follow from its premises. Even if we accept the view that private road ownership will indeed result in underinvestment, it does not logically follow that government must step into the breach and make up the deficit. The contention that government should involve itself with the private economy is a moral conclusion, one that can be reached only if there are ethical arguments in the premises. But the science of economics must of necessity be value-free.[4] Therefore, no strictly economic argument can ever establish the legitimacy of government intervention into the economic sphere.

Can we interpret the argument as leading to the conclusion that, since the market will underinvest, given externalities, government action will correct the misallocation of resources by adding to the mileage of road construction? This will not work either. On the one hand, the addition of government investment in roads may decrease the amount of private investment,[5] so that the total amount of road building, private plus public, may fall below the previously established market level and thus worsen the so-called original underinvestment in roads. On the other hand, government, unshackled by any market test of profitability, may so expand the scope of road building that a resultant overinvestment may ensue. If so, a new misallocation will emerge, with an overinvestment substituted for an underinvestment. Further, even if government action results in the correct amount of total road mileage, government management of its domain may be so inept as to erase any allocation gains. If any of these eventualities obtains, and there is little reason to think not, then the argument fails.

There is another flaw in Bonavia's view: his notion of a "chronic shortage of capital." Economies are *always* short of capital in the sense that people would

prefer to have more; this is because capital is an economic good. If capital is not in short supply, it becomes a free good, or a general condition of human welfare, and thus is not amenable to economic analysis. If, however, "chronic shortage of capital" is meant to distinguish poor from wealthy economics, then it is irrelevant to the issue of externalities. The presence of neighborhood spill-overs has to do only with whether third parties are affected, and they will occur or fail to occur regardless of the wealth of a society.

The externalities argument for governmental roads, although widely acclaimed in the modern era, is by no means recent. On the contrary, it is a hoary tradition. Jackman, writing of England in the mid-1830's, referred to the argument "that [only] those who used the roads should [financially] sustain them," saying:

> But the fact is that it was not alone the carriers, but the public as a whole, that reaped the benefits from good roads, and therefore the upkeep of the roads should not be a charge upon those who used the road, but upon the public treasury, for all derived the advantages from them. It was, therefore, inevitable that in time the turnpike gates should be taken down and a more equitable method adopted to secure the end desired.[6]

The American Henry Clay wrote that it is

> very possible that the capitalist who should invest his money in [turnpikes] might not be reimbursed three per cent annually upon it; and yet society, in its various forms, might actually reap fifteen or twenty percent. The benefit resulting from a turnpike road made by private associations is divided between the capitalist who receives his toll, the land through which it passes, and which is augmented in its value, and the commodities whose value is enhanced by the diminished expense of transportation.[7]

The major flaw in the externalities argument is, as we have seen, the fact that it is vulnerable to a *reductio ad absurdum,* for indeed there is precious little (if anything) that is *not* an example of an externality. And unless we are willing to follow the internal logic of the argument and hold that government is justified in taking control of practically every aspect of our economy, we must, perforce, pull back from the conclusions of the argument from neighborhood effects.

Gabriel Roth wrote the following concerning external economies:

> It is sometimes suggested that roads should not be charged for because they provide "external economies", that is, benefits to the community which cannot *in principle* be recouped from road users. For example, it is said that the construction of the Severn Bridge will stimulate economic activity in South Wales, that the benefits from this increased activity cannot be reflected in the tolls collected on the bridge, and that therefore there is no point in charging a toll.
>
> While this argument is good as far as it goes, it applies in the case of all intermediate goods and services. There is no reason to suppose that the benefit to the community from a new or improved means of transport is greater than the benefit from an improved supply of electricity or steel. Unless it can be shown that roads are a special case, the "external economies" argument . . .in the case of roads becomes a general argument for subsidizing *all intermediate goods and services.*[8,9]

Shorey Peterson is another economist who seems to understand this point, though he is reluctant to accept its full implications:

> Actually it is easy to endow much of private industry with great collective significance, if one is so inclined. There is no greater social interest than in having the population well fed and housed. The steel industry is vital to national defense. Railroads perform the specific social functions credited to highways. The point is that, in a society such as ours in which an individualistic economic organization is generally approved, it is usually deemed sufficient that an industry should develop in response to the demands of specific beneficiaries, and that the social benefits should be accepted as a sort of by-product. If the steel industry, spurred by ordinary demand, expands sufficiently for defense purposes, further development because of the defense aspect would be wasteful . . . .
>
> Thus if highways, when developed simply in response to traffic needs, serve adequately the several general interests mentioned above, no additional outlay because of these interests is warranted.[10]

On one hand this is a very welcome statement, for it clearly sets forth the thesis that the externalities argument for government intervention into the highway industry must be opposed. If we were to allow state takeovers in all areas with "great collective significance," there would scarcely be any private enterprise left in our "individualistic economic" system.

On the other hand, Peterson seems unable to carry through his own logic. In the sentence omitted from the above quote, he states: "But if, as in the case of the American merchant marine, the ordinary demand is not believed to bring forth what some collective purpose requires, additional investment on the latter account is indicated." He thus denies practically everything he stated before, for there will always be some "collective purpose" which "requires" additional investment on the part of the state because of externalities. If additional state investments in the American merchant marine are indeed indicated for "collective purposes," even though it is now as large as voluntary payments from satisfied customers would make it, then why is not a governmental takeover of the food and housing industries warranted? After all, there is no question, as Peterson himself has pointed out, that food and housing are imbued with the public, collective interest.

William Baumol is one who does not seem to be aware of this problem. In fact he carries the externality argument to almost ludicrous lengths in contending that population growth, of and by itself, is a justification for increasing the scope of government operations because of the neighborhood effects it brings in its wake.

> Thus, increasing population adds to the significance and degree of diffusion of the external effects of the actions of all inhabitants of the metropolis, and thereby requires increasing intervention by the public sector to assure that social wants are supplied and that externalities do not lead to extremely adverse effects on the community's welfare.
>
> Indeed, the very growth of population itself involves external effects. New residents usually require the provision of additional services and facilities—water, sewage, disposal, road paving, etc., and this is likely to be paid for in part out of the general municipal budget.[11]

The obvious question that cries out for an answer is: Why should we single out government services tinged with externalities, such as water, sewage, and road paving, as examples of areas requiring growth, given population increases? Why not also include services and goods that are usually forthcoming on private markets? As we have learned from Peterson, "There is no greater social interest than in having the population well fed and housed." It surely cannot be denied that a lack of food and shelter will create all sorts of negative externalities. Were a population to be deprived of these necessities, disease, famine, and death would soon appear, commerce would grind to a halt, and the economy, indeed the very society, out of which all external benefits flow, would soon end. How can it be, then, that an increase in population does not create the need for government takeovers of the farming and housing industries, to mention only two, even *before* the stepped up and continued nationalization of such paltry things as sewage and paving, as called for by Baumol? Can it be because we have all witnessed the doubling, redoubling, and doubling again of the U.S. population, since the level attained in the 1770's, with no apparent harm to the nation's farms or construction firms, externalities notwithstanding? Can it be that we are simply unused to the idea of a market in road paving, water, and sewage? Such shall be our contention.[12]

The unique power of the *reductio ad absurdum* is that it casts doubts on the externalities argument, as used by Baumol, Roth, and Peterson. If a nationalized industry can be justified on the basis of externalities, but this phenomenon applies as well to areas where no one wants to see the spread of government enterprise, then one may question just how seriously its advocates take their own argument. They cannot have it both ways. Either externalities justify state enterprise on roads and in practically every other industry as well, or they justify it in no case. It is completely illogical to apply an argument in one case and to fail to apply it in all other cases in which it is just as relevant.[13]

II. External Diseconomies

One phenomenon that particularly infuriates those who see externalities as a justification for intervention is the fact that, under congested road conditions, each additional motorist imposes extra costs on all others, costs which he does not take fully into account, resulting in uneconomic use of resources. Roth states the problem as follows:

> the level of traffic flow will depend on decisions taken by individuals taking account of the costs and benefits *to them* associated with road use. But from the point of view of the traffic as a whole this is an unsatisfactory state of affairs, for the individual road user when making his decision does not—indeed he cannot—take into account the costs imposed by him on others. He assesses his private costs but ignores the road use, congestions and community costs. It follows that so long as the volume of traffic in conditions of congestion is determined by each road user considering only his own costs and benefits, traffic volumes will be larger, and costs higher, than is socially desirable.[14]

And A.A. Walters expresses it this way:

> Under congested conditions an additional vehicle journey will add to the congestion. The vehicle will get in the way of other vehicles using the road and will cause their costs to increase as they waste more time in traffic jams and incur higher maintenance costs per mile in the dense traffic. Thus the decision by a vehicle owner to use a congested highway involves all other users in increased operating costs.[15]

Unquestionably, under present conditions motorists do indeed ignore the costs they impose on other drivers with respect to overcrowding. Frequently a driver takes account of congestion costs imposed on *him* by others in that he tries to avoid being ensnared in tie-ups if possible. But to suggest that a commuter would refrain from traveling out of fear of slowing down others is ludicrous. The traffic jams endemic to urban rush hours are eloquent testimony to this fact.

Why does such antisocial behavior take place on our highways, and not in other areas where it might be expected? The reason is that our roadway network is in a state of chaotic non-ownership, run by the government, while other settings in which such behavior might be expected, but does not appear, are run by private enterprise.

We can ask, for example, why it is that economists of the Roth-Walters-Haveman stamp never spare a worry about movie goers who impose crowding costs on others? Why do not the "externality economists" wax eloquent in describing the individual movie goer (or opera patron, punk rock devotee, supermarket shopper, hotel patron, department store customer, airplane traveller, or indeed any person who utilizes a resource which is actively sought by many others at the same time) who shows callous disregard for the costs he imposes on others?

One reason is that the institution of private property[16] is allowed to function in these other areas, so that the so-called externalities can be internalized. Externalities are said to be internalized when A, the source of the externality, and B, the recipient, interact on privately owned property, and can be appropriately penalized or compensated for the externalities through fees imposed by C, the owner. In the case of non-ownership of the roads, which presently obtains, each additional driver, A, imposes congestion costs on all other drivers, B, and there is little or no reason for A to desist. But if the road were privately owned, then it would be possible (and indeed profitable) for the owner, C, to reduce negative externalities such as crowding, by raising charges for rush-hour use. C's profit potentialities are in direct proportion to the smooth functioning of the roads; and the fewer the negative externalities, the more attractive will his place of business be, and the more he can charge for additional amenities.

This relation may be difficult to perceive in the case of roads, for we are not accustomed to thinking of roads in terms of private ownership. Let us consider, then, an example which will make the process clearer. A loudmouthed swaggering drunkard is an external diseconomy on a public (unowned) street. He frightens passers-by, but as long as he does not violate any law, no incentive to forbear is

placed upon him. Let this same worthy put in an appearance in a nightclub, however, and he is no longer an external effect on his fellow customers. He no longer can adversely affect them and expect to be free of countersanctions. He has now been transformed into an "internal" financial liability to the nightclub owner. It is no longer true that A can act without "tak[ing] into account these costs imposed by him on others," for C, as the owner of the premises, has the lawful right to force A to take account of these impositions, by throwing him off the premises if need be. In the private club, the victims (B) of A's unsavory actions cease to bear the complete burden. Though they are the initial sufferers of A's excesses, it is the work of a moment to depart for greener nightclub pastures. The real loser is C, who stands to lose not only revenue, but his entire investment, should his nightclub become known as one that tolerates the likes of A. The existence of bouncers and private guards shows that nightclub owners take seriously the threat of external diseconomies offered by the drunkards of the world.

The drive-in movie furnishes us with a case in which external economies were successfully internalized. When pornographic films were first shown at outdoor theaters adjacent to highways, they created quite a stir. Row after row of tractor-trailers were seen parked at the shoulders of roads, their operators perched atop their cabs to view without paying admission. These spectators, B, received the positive externality (namely, the view of the screen) from A, the theaterowners. Had this situation been permitted to continue, it might have created an under-investment in outdoor theaters, compared with the case in which all spectators were forced to pay admission. Needless to say, it did not long continue. In quite short order the owners in question erected higher fences, forcing all those who valued the view to pay for it. No longer was A conferring a benefit on B, unable to charge him for it. With the advent of the fence, the truck drivers' free view was cut off. The choice open to B was to see the movie and pay for it, or to not pay and not watch. If non-excludability is the hallmark of the externality, then the ability to exclude non-payers from the benefits, as here afforded by the fence, is the key to the internalization.

The objection has been raised that a private market in roads would result in underinvestment because the private developers would not be able to reap benefits of their efforts associated with increased land values and lowered costs of transporting goods. Rejecting free enterprise, most economists call instead for increased property taxes on the increased site value of land abutting a highway by the amount of gain attributable to the increased benefits conferred on the property by the road.[17] As we have seen, however, this argument is without merit. External benefits do not lead to underinvestment. On the contrary, the prospective road builder can recoup the gains by internalizing the potential externality. The ease with which this can be done is evident when we reflect upon the fact that, before the actual building process begins, the entrepreneur is the only one who knows where the road is scheduled to be located (or even that a road is intended to be built at all). All the prospective builder need do is buy up territory likely to gain in value from his road at the old, low prices, which do not reflect the increased values likely to be imparted by the highway.[18]

The logic of this argument is not lost upon mainstream economists. For example, Cooper perceptively states:

> In the immediate vicinity of a transportation corridor, urban land values tend to increase at a much higher rate from the beginning of facility construction until some time after the facility is in operation. Increases that are more than double or even triple the prevailing growth rate are common. A strong rationale exists for public rather than private realization of this increase in land value. It is argued that, because the taxpayers' money earned the increment, the taxpayers should receive the return. This rationale could justify the purchase of a right of way somewhat wider than needed for actual facility construction, thereby achieving greater flexibility with respect to mode choice and design.[19]

The only problem with this statement, from our point of view, is that Cooper ignores the possibility that the capitalist, too, could purchase "a right of way somewhat wider than needed for actual facility construction." If there is any question about which institution, private enterprise or government, would be better able to predict which land would benefit, and to keep plans in secret until the actual purchase was made, etc., there seems little doubt that the market would win hands down. The profit and loss test alone should ensure this.

However, the problem goes deeper. It is widely claimed that the market cannot function, given external economies. It is then argued that the government could act so as to dispel the positive externalities. *A fortiori,* we must conclude, the market can also internalize these externalities, and more effectively to boot.

III. The "Evil" Free Rider

The indictment against private ownership of roads is sometimes reversed. Instead of the highway owner being accused of not building enough, the non-highway-user who benefits without cost is castigated as a "free rider" who "refuses" to pay for the benefits he receives. But certainly he has not asked for these benefits, and in no case can it be alleged that he has contracted for them.

Let us now consider the gains imparted to the consumers of final goods who benefit because goods can now be more easily shipped. If too large a proportion of the benefits created by the highway are provided free of charge, consumers will gain from lower-priced goods, but a private concern may be unable to cover its costs. But through the advent of externality internalization, the road owner will receive payment for the benefits he is providing. The process is simple. All that the road owner need do is charge a price for highway usage roughly conformable to the savings in transport fees created by the facility. The road will still benefit its users (the shippers) and their customers (the final consumers), but there will be no benefits seeping out, or spilling over, as it were, for "free." Such benefits will be paid for, given a price that makes it still profitable for a trucker to use the road. This point is made by Brownlee and Heller as follows:

> That highways may cut transportation costs undoubtedly is true; but this truth does not warrant special taxes for highways purpose levied against per-

> sons who do not use the highways. Insofar as truckers pay for using the highways, those persons not directly using the highways can help pay highway costs indirectly through the price system. If appropriate charges for highway use were levied against the military, nonusers would also pay indirectly for the highways from general tax funds spent by them for highway services. The alleged benefits of highways to those who do not use them directly are primarily illusions arising from failure to charge highway users appropriately for the services provided by the highway system.[20]

Without this insight, one might assume that highways necessarily involve the creation of an external benefit by the road building company to the advantage of the rest of the public. According to this reasoning, to the extent that highways are important for the national defense effort, the population at large gains a measure of security from them. But the Brownlee-Heller statement shows this argument to be false, for if the military, like anyone else, were required to pay for (potential) road use, then roads would be no more of a positive externality than shoes, lead, paper, or any other material used by the army.

The Brownlee-Heller statement has not gone unchallenged, however, in the economic literature. According to William D. Ross:

> The highway users cannot theoretically or practically be assessed the full cost of providing low traffic volume connecting highways and access roads and streets. Some of the benefits of such roads are realized in forms other than the direct use of these roads, but the benefits are more than "illusions arising from failure to charge highway users appropriately for the services provided by the highway system." Some nonhighway-user revenues are necessary if adequate support for highway improvements is to be provided.[21]

But Ross's response is unsatisfactory. He fails to cite any theoretical reason why the overwhelming majority of benefits (or at least enough to make road building profitable) cannot be captured in revenue to the private road owner. We have seen how the entrepreneur would be able to capture the increased values of land by purchase at the old, lower prices. And the same principle can be applied to other important sources of externalities. Nor has Ross succeeded in countering the Brownlee-Heller contention that a price charged for highway use would end the free benefits provided to those who use roads indirectly. Indeed, he ignores this point.

Ross does point out a practical problem: "As a practical matter, utility of service or value of service cannot be used as a basis for pricing highway services to the highway user except in the very limited case of toll roads." But modern innovations in electronic counting mechanisms and computers have taken the force out of this argument, if it was ever valid. We must conclude that the external benefits in this case are, in the words of Brownlee and Heller, "illusions arising from failure to charge highway users appropriately for the services provided by the highway system."

Let us take a quite different case. An attractive woman sauntering down the street in a miniskirt provides an external benefit.[22] She is a delight to other pedestrians, yet she is unable to charge them for these viewing pleasures.[23] The

recipients, according to the theory, however, are the "free riders," who benefit without paying their "fair share" of the costs. Ought they to be forced to pay? Although examples cited by the advocates of the view that free riders ought to be made to pay for benefits received are usually far more sober, the miniskirt case is perfectly analogous. In all cases, the so-called free rider's benefits come to him unsolicited. If it is ludicrous to insist that he pay for an uninvited view of a woman's legs, it is equally so to insist that he be charged, via tax payments, for the losses accompanying "transport of all types."[24] And to call such forced payment "justified," as is often done, is to be guilty of a clear violation of "wertfrei" or value-free economics. No value judgments whatsoever logically follow from strictly economic postulates. Since we are here concerned only with what economics, not ethics, can teach us, we do not consider the question of what, if anything, would justify the extraction of coercive payments from free riders. We must content ourselves with the observation that the receipt of unsolicited services certainly cannot do so.

If the free-rider argument were really valid, it would open up a Pandora's box of truly monumental proportions. For example, a hoodlum could approach anyone walking along some street, smile at him,[25] and then ask the recipient of the smile for a payment of any arbitrary amount (for the value of the benefit that the free rider supposedly enjoys has not been established by any proponent of this view). If the honest burgher refuses to pay, the hoodlum has as much (or as little) right to force him to do so as does Smerk, or his agents, the government, to compel the average citizen to pay for the benefits he receives from "transport of all types."

The so-called free-rider problem would not be limited, however, to such fanciful examples, for our lives are riddled with such phenomena. As Murray Rothbard has written:

> The difficulty with this argument is that it proves far too much. For which one of us would earn anything like our present real income were it not for external benefits that we derive from the actions of others? Specifically, the great modern accumulation of capital goods is an inheritance from all the net savings of our ancestors. Without them, we would, regardless of the quality of our own moral character, be living in a primitive jungle. The inheritance of money capital from our ancestors is, of course, simply inheritance of shares in this capital structure. *We are all, therefore, free riders on the past. We are also free riders on the present,* because we benefit from the continuing investment of our fellow men and from their specialized skills on the market. Certainly the vast bulk of our wages, if they could be so imputed, would be due to this heritage on which we are free riders. The landowner has no more of an unearned increment than any one of us. Are all of us to suffer confiscation, therefore, and to be taxed for our happiness? And *who* then is to receive the loot? Our dead ancestors who were our benefactors in investing the capital?[26] (emphasis added)

IV. Public Goods

Another line of attack on the possibility of a free market in roads is that centered around the concept of "public" or "collective" goods. A pure public good is defined

by Haritos as one, such as an outdoor circus, or national defense, "which all enjoy in common in the sense that each individual's consumption of such goods leads to no subtraction from any other individual's consumption of that good."[27] The polar opposite of this is the pure "private consumption good, like bread, whose total can be parcelled out among two or more persons, with one man having a loaf less if another gets a loaf more."[28]

Samuelson acknowledges the polar aspects of this partition of goods: "Obviously I am introducing a strong polar case . . . . The careful empiricist will recognize that many—though not all—of the realistic cases of government activity can be fruitfully analyzed as some kind of a blend of these two extreme polar cases."[29] As we saw in the case of the socks, there is no clear dividing line between the two categories and, furthermore, no criteria by which the disinterested observer can objectively distinguish between a private good, a public good, and a blend of the two. Let us consider three examples.

First, to the extent that bread is a source of external economies it is a public good, rather than a private one, since these external benefits are "enjoyed by all in common." In other words, while the bread itself may be a private good in that if one person has more, someone else necessarily has less, the bread *plus* its inseparable neighborhood effects is a collective good, since the externalities from the bread that benefit Mr. D do not in any way subtract from those enjoyed by Mr. E. Mr. D's gain from the externalities, again in Harito's words, "leads to no subtraction from any other individual's consumption of that good."

Secondly, contrary to what might be assumed, an outdoor circus need not be a collective good at all. If a fence is placed around the festivities and a charge is levied for admission, the external benefits will no longer seep out onto the general public. In addition, if no one in the neighborhood likes circuses, then it is not a good at all. However, if so many people like circuses that crowding results, then it will not be true that one person's enjoyment of the spectacle will not detract from another's. Rather, in the press for a good view, one person's good position will necessarily entail a poor one, or none at all, for another.[30]

A third case, national defense, is one of the reddest of red herrings. This case is of such wide renown and so hoary with tradition that it has gone almost completely unchallenged. But in fact national defense does not fit well with the definition of a public good. One problem stems from differing tastes: not everyone views national defense in the same light. In the words of Rothbard, "an absolute pacifist, a believer in total nonviolence, living in the [sheltered] area, would *not* consider himself protected . . . or [as] receiving defense service."[31] Far from being a collective *good,* so-called defense would be considered a liability. Furthermore, defense protection is supplied through the intermediation of physical tangible goods and services which are very certainly limited in supply—if one person or locale has more of them, another must have less. According to Rothbard: "A ring of defense bases around New York, for example, cuts down the amount possibly available around San Francisco."[32]

Furthermore, contrary to the definition of public goods, the positive external effects of national defense can be largely internalized. While it might not be possible

to exclude all non-payers from protection, there is no evidence indicating that internalization could not be made to work reasonably well.

How might this work? We might divide the country into sections according to the alacrity with which most people in an area are likely to welcome a private defense agency dedicated to their protection from foreign enemies. Thus, Orange County, California, parts of Arizona, the far west, and the old south might be considered highly interested in safeguarding their liberties in such manner. Mid-Pennsylvania, home of the pacifistic Mennonites, Amish, and other Pennsylvania Dutch peoples, along with the upper west side of Manhattan, and Ann Arbor, Michigan, strongholds of liberalism and anti-war sentiment, would very likely be lukewarm in their reception of such an enterprise. The rest of the country would fall somewhere in between these two extremes.

One manner of internalization of the externalities, on what we might call the "macro level," would be the use of restrictive covenants. People could simply refuse to sell their homes (or rent their apartments) to those who would not agree, and also hold all future owners to agree, to a contract calling for payments to a defense company. Although there might be a few holdouts and recluses, most people in these areas would soon find it in their interest to subscribe. And in the same manner, the areas of the country with a less developed preference for such services would tend to have commensurately less defense provision.

On what might be called the "micro level," the defense company might at some point announce that those who had not paid for service would no longer be protected by its personnel. The company would, of course, continue to protect their own dues-paying members, and indiscriminate attacks on the neighborhood would be repelled. Any attacks which interfered with paying customers would be liable to retaliation from the defense company. But, of course, an attack pinpointed against non-payers, which did not at all interfere with customers, would be ignored by the company. Given these conditions, the provision of defense service loses most of its qualities of being a public good.[33] People who paid for the service would receive it; others would not. As in so many other cases, the notion of a collective or public good is an illusion created by the absence of an actual market. Effective operation of the market depends on excludability. But the important point is that *excludability is not an inherent characteristic of goods.* Rather, the ability to exclude non-payers from benefits is something that can be *learned,* that *must* be learned, if the market is to operate. We cannot first prohibit the operation of the market (by government pre-emption), and then conclude that a market could not function, because of its inability to exclude beneficiaries who do not pay. Of course it would be very difficult for a market which hitherto has been prohibited to suddenly begin effective operation (and it is much more difficult, as we have seen, to *envision* the operation of such a market). But this difficulty is not the result of anything intrinsic. It is because the erection of bigger and better fences, the creation of more sophisticated jamming devices, etc., can come only with practice; if there is no market in operation, there is no chance for the experimentation with the skills, institutions, and management requisite to its development.

Bish and Warren assert that all "public or collective goods . . . are 'non-

packageable'; that is, in principle, no one can be excluded from consuming them.''[34] But they are incorrect. As we have seen, even in the case of national defense, the paradigm case of the collective good, there exist potential methods and institutions for excluding non-payers.[35] There is nothing in principle to prevent excludability—there is only a lack of a past history of market operation in this area and the limited powers of imagination on the part of economists.

An interesting sidelight on the definitional problem of using national defense as an example of a public good is considered by Charles M. Tiebout. Tiebout contrasts national defense with radio broadcasting, which he holds is *not* a collective good.

> There seems to be a problem connected with the external economies aspect of public goods. Surely a radio broadcast, like national defense, has the attribute that A's enjoyment leaves B no worse off; yet this does not imply that broadcasting should, in a normative sense, be a public good . . . . The difference between defense and broadcasting is subtle but important. In both cases there is a problem of determining the optimal level of outputs and the corresponding level of benefits taxes. In the broadcasting case, however, A may be quite willing to pay more taxes than B, even if both have the same ''ability to pay'' (assuming that the benefits are determinate). Defense is another question. Here A is not content that B should pay less. A makes the *social judgment* that B's preference *should* be the same. A's preference, expressed as an annual defense expenditure such as $42.7 billion and representing the majority view, thus determines the level of defense. Here the A's may feel that the B's *should pay* the same amount of benefits tax.[36] (Emphasis added)

Troubling and puzzling is the importation of value judgments into the analysis. It would appear that the concept of ''public good'' was offered in a scientific, not a normative sense. What, then, are we to make of the statement, ''Broadcasting should, in a normative sense, be a public good.'' In the spirit of the definitions offered, one would have thought that broadcasting (or any other service or good) either is or is not a public good, and that normative judgments were beside the point. This is not the case, however, for later in the quote we learn that A's ''social judgment'' is all that is necessary to justify that B ''should pay'' for national defense. But what is a ''social judgment'' as opposed to, for example, a ''private judgment''? And by what authority can A, a mere individual, make a ''social judgment,'' whatever that is? Suppose that it is A's considered ''social judgment'' that B should, through taxes, pay for can openers. Does that judgment automatically convert these implements into collective goods? Moreover, why need we assume that A is content that B pay less taxes for radio, but not for defense? May we not reverse this and assume that although A is willing that B pay less for defense, he is not so inclined when it comes to radio? Is there anything intrinsic to the goods ''radio'' and ''defense'' that precludes this reversal? And if A's preferences were indeed reversed, would this prove that radio, rather than defense, is a ''true'' collective good?

Perhaps we should reckon with the institution of "democracy," for Tiebout cites majority support for A's preference. It is majoritarianism, then, that puts the winning side in a position to label its view a "social judgment." But this is very far indeed from the initial definition of a collective good. If this is all his argument amounts to, Tiebout might just as well have spared us all the rigmarole about externalities, public goods, and the fact that A's enjoyment leaves B no worse off. All he need have said is that, if and when, for whatever reason, a majority of the eligible voters decides that any particular good ought to be provided by the government, why then, so be it.

V. Signposts and "Free" Goods

If classifying a good as "public" implies that one person's utilization of that good does not detract from another's, then defining roads as a "public good" presents another problem. If, on congested highways, any one motorist imposes costs on all others, the classification of roads as a public good fails. Conversely, if roads really are an example of a public good, then, by definition (but contrary to evidence), one motorist cannot impose costs on others in overcrowded conditions.

According to Samuelson, "no decentralized pricing system can serve to determine optimally [the] levels of collective consumption." And why is this so? "It is the selfish interest of each person to give false signals, to pretend to have less interest in a given collective consumption activity than he really has."[37] It is for this reason that Savas holds that "public goods are properly paid for by the public at large, for their benefits cannot be charged to individual consumers or small collective groups."[38]

For a more elaborate rendition of this point of view, we turn to Haveman:

> The posting of signs on a highway, for example, is a public good. The benefits cannot be denied to anyone who travels the road. Similarly, when a society provides national defense, the benefits accrue to all of its citizens. Because it is so costly to ration the system of city streets once it has been put into place, they, too, are public goods.
>
> Because one can not economically be excluded from the benefits of a public good once it has been provided, private firms have no incentive to produce and market these commodities. Any potential buyer would refuse to pay anything like what the commodity is worth to him. Indeed, he would be likely to express an unwillingness to pay anything at all for it. He would reason: "If I simply sit tight and refuse to pay, I may get the benefit of the good anyway, if someone down the line provides it for himself—after all, it's a public good." However, if each buyer reasons this way (and presumably he will), the good will not be provided. Public goods will only be provided if collective action, usually through a government, is taken. Only through collective action can the availability of worthwhile public goods be assured.[39]

Needless to say, there are many compelling problems with this argument. As we have seen, highway sign-posting is a public good only when private ownership is forbidden and no price is charged. It becomes a private good just as soon as the externalities are internalized by the market. It is easy to see this point. No one, after all, would call signs in a privately owned department store public goods. Yet the benefits of the signs, usually posted on each floor as well as on elevators and escalators, indicating the departments located on the various floors, "cannot be denied to anyone who travels" in the store. Is there a case, by analogy, for making government responsible for informing people where dresses, sportswear, and household utensils can be found?

Let us turn now to the doctrine of revealed preference. It, too, has serious flaws. It is our contention that, government interferences into the market apart, *all* external benefits, spill-overs, etc. will tend to cease to exist, provided they are significant enough to make it profitable for private enterprise to internalize them. For example, if the costs of building a tall fence around the drive-in theater are lower than the (discounted) value of the additional receipts the owner expects to receive as a result of its construction, then he will build it. If the costs exceed the benefits derivable, he will not build the fence. But if the benefits to be received are so low, then the externalities and spill-overs are not likely to discourage the businessman from providing the service in the first place.

It has been objected that the government can provide the internalization for free and may thus be more efficient than the market (profit and loss incentives notwithstanding). Let us construct an example. Suppose that in a society of 100 people each would benefit from the provision of a "public good" to the extent of $10. And let us also suppose that the cost of providing the good, in terms of alternatives foregone, is only $50. Thus, with a total benefit of $1,000, less a cost of $50, there would be a $950 profit in this enterprise. The only problem is that, while each of the 100 people would indubitably benefit to the tune of $10, we must also consider the cost—let us assume, $1,000,000—of erecting a fence sufficient to exclude these people from enjoying the benefits for free. Therefore, it cannot be a paying proposition for free enterprise. But what will government do? Rather than wastefully spend the $1,000,000 on the fence, the state simply recoups the $50 cost by taxing $.50 from each of the 100 people, and then provides the service to all comers "for free."

Can we, as strictly value-free economists, conclude that the government will maximize utility by so acting? I submit that we cannot. We cannot, unless, in addition to all the facts heretofore presented, we assume that none of the 100 people will resent being forced to contribute to the scheme via compulsory taxes. And this we have no reason to do. In other words, even while maintaining the assumption that each person values his benefits from the project at $10, and that each realizes that the government's plan will cost him well as everyone else) only $.50, it is still conceivable that a person will so resent being forced to do something, even "for his own good," that the costs to him will vastly exceed the $9.50 gain he stands to capture.

To deny this possibility is to make an implicit assumption of the validity of interpersonal comparisons of utility. In order to justify government action on utility grounds in this case, one has to assume either that all 100 people are identical, as far as utility is concerned, or, at the very least, that the benefits derived by the 99 outweigh the psychic income losses of the one malcontent. In fact, the assumption of interpersonal utility comparison is not merely implicit in the thinking of mainstream economists. Samuelson, for example, speaks of a "social welfare function that renders interpersonal judgements,"[40] and then proceeds to draw an indifference curve map encompassing the utilities of two or more different people.[41]

This procedure is scientifically invalid, however, as there are no units with which to measure or compare happiness or utility. We may, in ordinary discourse, say that one child likes pickles more than another and that therefore, should any temporary household shortage arise, the "pickle lover" should get first crack. But in so speaking we do not have in mind any units of happiness. We do not imagine that one child loves pickles to a degree of, let us say, 48.2 happiness units, the other child only 24.1 units, and that therefore the first child likes pickles exactly twice as much as the other.

Rothbard tells us that

> there is never any possibility of *measuring* increases or decreases in happiness or satisfaction. Not only is it impossible to measure or compare changes in the satisfaction of different people; it is not possible to measure changes in the happiness of any given person. In order for any measurement to be possible, there must be an eternally fixed and objectively given unit with which other units may be compared. There is no such objective unit in the field of human evaluation. The individual must determine subjectively for himself whether he is better or worse off as a result of any change. His preference can only be expressed in terms of simple choice, or *rank*. Thus, he can say, "I am better off" or "I am happier" because he went to a concert instead of playing bridge, . . . but it would be completely meaningless for him to try to assign units to his preference and say: "I am two and a half times happier because of this choice than I would have been playing bridge." Two and a half times *what?* There is no possible unit of happiness that can be used for purposes of comparison, and hence of addition or multiplication. Thus, values cannot be measured . . . . They can only be ranked as better or worse.[42]

If, then, it is impossible to make interpersonal utility comparisons, we cannot, as scientific economists, conclude that government intervention in "public goods" production will unambiguously lead to an increase in welfare.

VI. Measuring the Unmeasurable

In order to avoid these difficulties, the neighborhood effects economists have attempted to measure externalities. Large numbers of impressive statistics have not been forthcoming however. Rather the work of these economists has been sort of a "meta-measurement," a prolegomenon to any future measurement; benefit measures have been developed and discussed, but no one has, as yet, offered any

definite findings which purport to gauge external benefits received with any degree of exactitude. Mohring, in a typical statement, writes: "the benefit measures developed in this paper ignore externalities—plus or minus, pecuniary or technological. My basic excuse for this shortcoming is the conventional one: the data required to place dollar values on externalities are lacking."[43]

There is indeed a lack of data placing dollar values on externalities. The problem would appear to be, judging from the above quote, a mere accident: economists have, for some (implicitly) unimportant reason, not yet begun the actual measuring. But in this age of statistics, this is indeed puzzling. Surely a few economists should have taken time out to measure such important data.

Actually, of course, the problem is far more intractible. What is being proposed by those who would attempt to measure the value of externalities is simply the measure of utility. But as we have seen, such an undertaking is impossible and hence doomed to failure. Utility is a subjective phenomenon, rooted in individual preference. There are no units with which to measure utility, a fact that appears to be no more than a slight annoyance to those who would measure it.

In a second attempt, Mohring and Harwitz inform us that in questions of highway benefits "reliance is placed entirely on the body of theory that would likely be used by an economist in attempting to place a value on a dam, a steel mill, or any other productive investment."[44] But this, too, fails. First, the economist, qua economist, simply has no special aptitude as an appraiser of real estate, factories, or any capital good. This is the job, rather, of the businessman, or entrepreneur, whose success depends on his acuity in making such determinations. No theoretical economist, empirical economist, historical economist, nor any other kind of economist, qua economist, has any practical training or experience as an appraiser. Second, there is no "body of theory" that can be used by an economist (or by anyone else) in determining the value of a capital asset. The value the market places on an asset depends upon what people plan to do with it, with its complements and substitutes, upon the reactions consumers are expected to have toward the finished product; it depends upon the course of new discoveries and inventions, upon wars, famines, storms, and so forth. Some people are better able to anticipate the future course of the market than others; but such people are successful entrepreneurs, not economists or other social scientists. But Smerk nevertheless suggests in his book on urban transport:

> External costs and benefits, many of them of a nonpecuniary nature, should be weighed along with the pecuniary costs and revenues internal to the project. Some of the external factors to be considered will be: 1. Over-all freedom of movement; 2. Gains or losses to central city businesses in terms of customer traffic; 3. Gains or losses in travel time for subway riders, public transport riders in general, and motorists; 4. Gains or losses in real estate values; 5. Effects on air pollution and other amenities.[45]

As a statement of the measurement task, Smerk's is par for the course. It is really no more than an exhortation that measurement be undertaken, and a specification of some of the facets to be measured. But it does not help us to overcome

any of the problems involved. Indeed, it underscores them. How, for example, would we approach a calculation of the value of increasing "over-all freedom of movement"? Even if we choose to ignore the lack of a unit of pleasure and the problem of interpersonal comparisons of utility, the task is insurmountable. Nor is his specific suggestion for measuring the benefits of a belt highway in terms of "the resulting increase in sales"[46] of much use. Smerk seems to be saying that we can measure the external benefits of a belt highway by noting the sales of the relevant stores before and after its construction and simply attribute the difference to the road. But there is no constancy in human affairs, and other factors may well have intervened between the first measurement and the second. Tastes and fashions, consumer knowledge concerning alternatives, the prices of substitutes and complements, zoning laws, the alacrity with which laws are enforced—all of these might have changed in the interim. Thus, to ascribe all measured change to the belt highway would be illegitimate. Moreover, the use of econometric techniques, which are commonly employed for purposes of this sort, are unsuitable.[47] Perhaps their most important drawback is that they rely on the facile assumption that discrete, unique, non-repeatable events (e.g., a presidential election, or the economic effects of opening a road at a particular time and place) can be abstracted from to produce a series of random events (i.e., all presidential elections, all road openings). This assumption is necessary for econometric equations; but if applicable anywhere, they are applicable only to truly random events such as flipping a coin or tossing dice.

In terminology employed by Mises, what we have here is a confusion of class probability ("We know, or assume to know, with regard to the problem concerned, everything about the behavior of a whole class of events or phenomena; but about the actual singular events or phenomena we know nothing but that they are elements of this class") with case probability ("We know, with regard to a particular event, some of the factors which determine its outcome; but there are other determining factors about which we know nothing").[48] Road openings and their effects on sales are, at best, amenable to study in terms of case probability. Econometrics, however, can function only in a milieu of class probability. It is therefore inappropriate to use econometrics in measuring a new belt highway's effects on sales.

VII. Revealed Preferences

We now return to our second criticism of the Samuelson-Savas-Haveman assertion that the market will fail, in the case of public goods, because economic actors will fail to register their true preferences. The basic drawback of this approach to the question of "revealed preference" is the vantage point from which the decision-maker is viewed. Let us, then, focus our attention on how these economists view market participants who refuse to voluntarily purchase the public good on the market. Under their theory a market actor would have as his constant refrain, "Let George do it." Unwilling to spend his own money on a good which he may enjoy through the payment of others, this person contributes to the unlikelihood of private provision of that good.

An embarrassing question arises: How does the economist propose to determine the preference scales of market participants? It might be suggested that each individual knows his own preference ranking by introspection, and that the rest of us come to know it by simply asking him. Both, however, are incorrect. The latter, the questionnaire method, may easily be dismissed. The empirical unreliability of questionnaires and public opinion polls alone should give us pause for thought. Furthermore, the fact that people lie clearly invalidates this method as a good foundation for scientific economics.

It might be argued nevertheless that the individual himself surely knows his own preferences by introspection. Our answer, once again, is no. The evidence of impulsive buying is overwhelming. How many of us have walked down the street with nothing further from our minds than the purchase of an ice cream cone, only to find ourselves, seemingly without any conscious volition, plunging hand into pocket, relinquishing the required sum, and avidly eating away? Is it that we "really" or "unconsciously" were thinking of ice cream? While that could be true, it need not be. Regardless, however, of the exact psychological mechanics involved, it is clear that, before the purchase, introspection might well have failed to reveal the hidden desire. We must therefore conclude that, in at least some cases, the individual economic actor may not know his own value scales. Motivational advertising, to the extent that it is efficacious, is further evidence of the fact that introspection will not necessarily dredge up the true preferences of the individual. The buyer may think he knows what he wants, but in reality, according to this argument, some of his tastes are at the beck and call of Madison Avenue, and not amenable to his own consciousness.

If true value-rankings can be scientifically discovered neither by introspection nor by questionnaire surveys, how can they be? The answer is through market purchases and sales, or more generally, through observation of human action. Ludwig von Mises expressed this idea as follows:

> It is customary to say that acting man has a scale of wants or values in his mind when he arranges his actions. On the basis of such a scale he satisfies what is of higher value, i.e., his more urgent wants, and leaves unsatisfied what is of lower value, i.e., what is a less urgent want. There is no objection to such a presentation of the state of affairs. However, one must not forget that the scale of values or wants manifests itself only in the reality of action. These scales have no independent existence apart from the actual behavior of individuals. The only source from which our knowledge concerning these scales is derived is the observation of a man's actions. Every action is always in perfect agreement with the scale of values or wants because these scales are nothing but an instrument for the interpretation of a man's acting.[49]

In our previous example, all the prior introspection and questionnaires in the world would not have ineluctably established that the buyer valued ice cream over the money it cost. It was his action alone, in making the purchase, which established that, at least at the time of purchase, the buyer actually valued the ice cream more than the money spent.[50]

Let us consider a possible challenge to this view. Suppose the ice cream buyer is actually an economist intent upon proving Mises's argument false. Suppose, further, that he hates chocolate and that to refute Mises's theory he goes to the candy store and purchases chocolate. Would he then have demonstrated Mises's theory as wrong by virtue of its implication that he valued the hated chocolate more highly than the money paid for it?

There is more than one way to handle this challenge. First, we might deny that the purchaser really hates chocolate. Following a strict interpretation of Mises, we can reason that whatever his past relationship with this particular treat, his present purchase reveals either that he has changed his taste or that at least he prefers it to the money he exchanged for it. His action has spoken, in this interpretation, louder than all his protestations to the contrary.

Secondly, and perhaps in the present scenario more straightforwardly, we can reinterpret the good that was actually purchased. What was really bought was not only chocolate, but chocolate plus the pleasure of "proving Mises wrong." If it had been a question of the chocolate alone, a true chocolate hater would not have purchased it perhaps at any positive price. It was the compensatory pleasure of attempting to disprove the thesis (that only human action establishes value orderings) that more than made up for the disutility of the chocolate. And if the person went so far as to eat the hated chocolate in order to prove his point, our interpretation would still apply and would be fully consistent with the Misesian view.

The trouble with the revealed preference doctrine put forth by Samuelson, Savas, and Haveman is that it assumes a preference ordering on the part of the general public which is completely divorced from actual choices and actions. There is no room in scientific economics for "true preferences" which are not embodied in action. Samuelson may contend that "it is in the selfish interest of each person to give false signals"—i.e., signals which underestimate that person's true value for the collective good—but he cannot show that his interpretation has any scientific validity. This is not to say that his statement is meaningless. Indeed, in the ordinary discourse that has room for measured and interpersonal utility comparisons, it is perfectly sensible. But if we are to remain true to the strict discipline of economics, we shall have to relinquish such loose talk from our vocabulary. There is simply no action that anyone can take which would demonstrate the truth of Samuelson's contention. Samuelson might reply, with an admission that he is citing inaction, not action; a refusal to purchase, not an actual purchase. The problem, though, is that (temporary) nonaction is consistent with all too many other things. No one can logically reason from the fact that a person is not buying something (a "public good") to the conclusion that he really relishes the service in question and is seeking a "free ride." It may be that he simply does not *want* it. We can speculate at length about the different reasons people have for not buying something (distaste, ignorance, the desire to "free ride"), but we cannot as scientific economists conclude from the fact of non-purchase that the person "really" values the good.

If we could legitimately reason in this manner, the sky would be the limit. Once

we leave the solid foundations of preferences revealed in market action, the imagination is left free. Some contend that parks, roads, and national defense are public goods and would receive underinvestments in a free market. But using the same reasoning, one might hold that Edsels, pickle-flavored ice cream, and kerosene lamps are presently victims of vicious underinvestment because people are secretly waiting for everyone else to buy first, so that they can be free riders. All of these claims have the same logical status. Each is conceivable and expressible in ordinary discourse. But none is supported by demonstrated preference. We must regard all of them as scientifically invalid.

VIII. Isolability

Another argument for government provision of roads, closely allied to the externalities argument, might be called the isolability condition. According to this line of thought, a good or service comes properly under the province of the marketplace only if its benefits can be isolated and imputed to specific individuals. Otherwise its benefits are said to be "diffused," and the good in question must then be supplied by government. As stated by one advocate of this position: "If it were agreed that the benefits from highway improvements are so diffused among inhabitants of a state that it is impossible to isolate individual beneficiaries, . . . [then] highways should be supported from the general fund."[51]

One problem with this reasoning is that if there is really no one person willing to step forward and declare himself a beneficiary, then there remains a serious question as to whether there really are any beneficiaries. As we have seen in the discussion on revealed preference, the only secure evidence of actual benefits is market action—the actual payment by consumers for goods delivered or services rendered. If payment is not forthcoming, then it is only idle speculation to suppose that there are hordes of beneficiaries who are unwilling to reveal their interests through market action.

Secondly, if one is free to justify government roads on this ground, then one is free to defend any state action on the same ground: "X really benefits the masses, although no one person will exemplify this through voluntary payments; the problem is that the gains are diffuse, so that no one beneficiary can be isolated. Therefore government involvement in the provision of X is justified." We would not for a moment accept this argument were it applied to any good or service that the government is not now engaged in supplying. As a defense of the status quo, however, its defects are more difficult to see.

This argument can also be attacked on a third ground. Most contemporary economists are comfortable with the phenomenon of continuity in economics. For example, revenue curves and cost curves are usually drawn as smoothly continuous, presumably depicting economic action as taking place in a series of infinitely small steps. The doctrine of "diffused benefits" is entirely in keeping with this tradition, for here, too, an infinitesimal benefit, so small as to not even be noticeable to the presumed beneficiary, is regarded as "real"; indeed, it is seen as justifying government involvement in the economy.

It is true that such a conception of the universe is exceedingly helpful in the employment of the mathematical tools of analysis, especially differential calculus. This no doubt explains, at least in part, the popularity of smooth curves, and the acceptability of diffuse, infinitely small gains. However, as Rothbard states, "we must never let reality be falsified in order to fit the niceties of mathematics. In fact, production [and, similarly, benefits from the actions of others or of oneself] is a series of discrete alternatives, as all human action is discrete, and cannot be smoothly continuous, i.e., move in infinitely small steps from one . . . level to another."[52] Strictly speaking, either a gain is noticeable to the presumed beneficiary, or it is not part of his realm of human action at all. If a person makes no notice of something, then for him it is not an element that can affect his choices. And if it cannot enter into his economic decision making, it is irrelevant.

An implicit justification for government activity here is that, while the benefits to any one person in a group are indefinitely small, once their benefits are added up they become substantial. This may work, under some assumptions, in physics and other natural sciences. But in economics, where human action is the touchstone, it is nonsense to posit that a phenomenon which is of no benefit to any one individual can be of substantial importance to a group of such individuals. If no one person can be shown to gain from these "diffuse benefits," it cannot be claimed that the whole group somehow gains.

IX. One Man's Meat Is Another's Poison

Let us consider now a shortcoming, previously alluded to, in the public good view: that tastes differ and that what may be viewed as a benefit by one person may be seen as something to be avoided by another. Samuelson replies to this objection as follows:

> Even though a public good is being compared with a private good, the indifference curves are drawn with the usual convexity to the origin. This assumption could be relaxed without hurting the theory. Indeed, we could recognize the possible case where one man's circus is another man's poison, by permitting indifference curves to bend forward. This would not affect the analysis but would answer a critic's minor objection.[53]

While it is true that, in a formalistic sense, indifference curves could be drawn as concave to the origin to represent disutility, garbage, or negative feelings toward the "good" in question,[54] this answer will not suffice. When we reflect on the fact that Samuelson's use of the concept of public goods to justify government takeovers is based on the assumption that such takeovers will maximize everyone's welfare, we can see the weakness of this answer. A person for whom a good or its presumed external benefits are in fact disadvantageous will actually lose by its subsidization. To the confirmed pacifist, for example, the expenditure of ever more billions of dollars for military purposes leads to increased disutility. And to add insult to injury, Samuelson's argument is used to justify taxing the pacifist, supposedly for his own benefit, to cover the costs of those increasing expenditures. What we have, then, is a situation which forces a person to pay for the provision of a good that he regards as a "poison."

No minor rearrangement of an indifference curve can erase the harm done to a man so confronted. At best, Samuelson's suggestion of permitting the indifference curve to bend forward provides a means of representing the problem—a geometrical way of stating the dilemma—but hardly a solution to it. It is as if, in response to a complaint that the economy is constantly in a state of disequilibrium, Samuelson were to offer to draw supply and demand curves, showing price to be other than at their intersection. Such a drawing would be an illustration of the difficulty, not a solution to it. It cannot seriously be maintained that a man's lot will be bettered by forcibly extracting his money in taxes, if it is intended that these funds be spent on a good that for him is detrimental. The objection cannot be dissolved by pointing out that the situation where one man's circus is another man's poison can adequately be *portrayed* by forward falling indifference curves.

X. Is Group Action Irrational?

We next consider a version of the public good argument put forth by Mancur Olson. It is his contention that "unless the number of individuals in a group is quite small, or unless there is coercion or some other special device to make individuals act in their common interest, rational, self-interested individuals will not act to achieve their common or group interests." And, as a corollary, only "groups composed of either altruistic individuals or irrational individuals may sometimes act in common for group interests . . . even when there is unanimous agreement in a group about the common good and the methods of achieving it."[55]

Olson limits his analysis to groups whose avowed purpose is the furtherance of the economic well-being of their membership: "The kinds of organizations that are the focus of this study are *expected* to further the interests of their members."[56] A group such as a "lobbying organization, or indeed a labor union or any other organization, working in the interest of a large group of firms or workers in some industry, would get no assistance from the rational, self-interested individuals in that industry."[57] Olson accounts for this situation by invoking neighborhood effects and public goods. He writes:

> Some goods and services . . . are of such a nature that all of the members of the relevant groups must get them if anyone in the group is to get them. These sorts of services are inherently unsuited to the market mechanism, and will be produced only if everyone is forced to pay his assigned share. Clearly, many governmental services are of this kind.
>
> It would obviously not be feasible, if indeed it were possible, to deny the protection provided by the military services, the police, and the courts to those who did not voluntarily pay their share of the costs of government, and taxation is accordingly necessary. . . . A common, collective, or public good is here defined as any good such that, if any person X_i in a group $x_1, \ldots x_i, \ldots, x_n$ consumes it, it cannot feasibly be withheld from the others in that group.[58]

And further:

> To be sure, for some collective goods it is physically possible to practice exclusion. But . . . it is not necessary that exclusion be technically impossible; it is only necessary that it be infeasible or uneconomic.[59]

We have already touched upon the case of unfeasible excludability in our numerical example (in Section V). There, we concluded that the value-free economists could not justifiably deduce that government action, albeit "cheaper," would unambiguously increase utility. Now we must consider Olson's assertion that economic rationality and market action are incompatible. We must ask whether market action in the case of collective goods can function only if the economic actors are altruistic or irrational. We must ask if a large group of individuals can collaborate in the provision of a good whose benefits, once created, cannot feasibly be limited to cooperating members.

In fact, there are literally hundreds of groups now in existence which meet Olson's definition. Labor unions, charities, businessmen's associations, and civic organizations are numerous. Contributions to artistic and musical societies are in abundance. As I write this, a local non-profit radio station is featuring "160 uninterrupted hours of J. S. Bach" and asking for funds. If contributors respond generously, such programming can continue to exist. But each potential contributor may reason that, if many others give, he himself will not be excluded from the benefits. And the same applies for the Society for the Prevention of Cruelty to Animals, the N.A.A.C.P., disease research foundations, etc.

In a recent year, the United Way charity alone raised $1,039,000,000 for such purposes as individual and family services, hospitals and health, social adjustment, and community organization. The American National Red Cross reported donations received totalling $248,700,000, as well as the involvement of 4,262,000 participants in its blood donor programs. And, in this era of government assumption of increasing numbers of functions previously in the private domain, private philanthropy funds were in a recent year as follows: individuals, $21.4 billion; foundations, $2.0 billion; business corporations, $1.2 billion; and charitable bequests, $2.2 billion.[60] One might want to discount some of the corporate giving as motivated by tax incentives, which no doubt did play a role. But the generous financial outpourings from concerned individuals provide ample evidence of the charitable impulses of many of the American people.

Are we to assume, on Olson's theory, that no rational, self-interested persons are involved in these enterprises? I think not. Rather, it seems clear that Olson is guilty of a stipulative re-definition of some rather slippery words such as "rationality," "self-interest," "altruism," and so on. Specifically it would be inconsistent with his theory to suggest that a rational, self-interested person might be interested in the welfare of others to that extent that he derived pleasure from an increase in theirs. But why should this suggestion be considered unreasonable? Olson has definitionally precluded such motives from the realm of the rational.

It might appear that Olson is on firmer ground in using the term "self-interested." Dickens's Scrooge, after all, was not known for his charitable instincts. But on consideration, it does not seem correct to so restrict the word "self-interested" to those who take only their own happiness into account, and no one else's. Surely the word is sufficiently elastic to include as "self-interested" a person who includes the welfare of others around him, such as the members of his

immediate family, in his own utility calculations. Doesn't Papa Scrooge ever worry about how Li'l Scrooge is making out?

If we are wrong in this contention, and it is somehow shown that true self-interest is limited to consideration of one's own pleasure and no one else's, then Olson's view is of course correct. But even then, Olson's position is much less powerful than he seems to believe, for all we are left with is the argument that those individuals who are strictly self-interested will be unable to coalesce into groups which can work for common ends. But since there cannot be more than a minute proportion of people who really take into account no one's happiness but their own, this would seem to be but a slight impediment to the smooth functioning of cooperative groups.

Another problem with Olson's hypothesis is that it ignores the role of the entrepreneur.[61] To be sure, it is difficult to rouse large numbers of individuals for collective action. And it is difficult to convince people to contribute to the production of any good whose benefits they will receive whether they contribute or not. The entrepreneur is not faced with this problem, however. If the entrepreneur sees an opportunity for profit, he seizes it, presenting a *fait accompli* to the consumers. In the case of a "public good," of course, the businessman will first have to take steps to ensure that there will be sufficient funds forthcoming to defray expenses and leave a profit. Olson argues that in the case of public goods, if one person in a group consumes the service, then it cannot feasibly be withheld from others. The entrepreneur will strive to deal with this challenge by lowering the costs of exclusion of non-payers to the point at which potential revenues warrant investment. The feasibility or unfeasibility of exclusion is not predetermined, but rather a function of market operation. If hitherto government-monopolized markets were suddenly opened to the domain of the entrepreneur, the number of goods and services to which Olson's definition applies would be sharply reduced.

Indeed, the key to excludability may be as cheap as it is obvious. We have seen how a simple announcement of discontinuance of protection for non-contributors might work in the case of defense. Fire protection would probably fall into the same mold. Let just one house burn down, with the private fire department and its apparatus on the scene but refusing to quench the flames—all because the owner not only did not keep the company on retainer, but also refused to meet a "special, emergency price"—and let this event be widely reported by the media, and fire protection would probably cease, from that moment on, to be an example of Olson's public goods.

XI. The History of Private Roads

Perhaps the most telling argument against the externality and collective goods thesis as applied to the provision of roads is the sheer weight of historical experience to the contrary. Roads are nowadays generally considered a paradigm case of public goods, for the very possibility of privately operated roads is dismissed. Yet, prior to the latter part of the nineteenth century, private roads, highways, turnpikes, etc. played an important role in world commerce.

Privately owned and operated turnpikes were the backbone of the highway network in England in the eighteenth and nineteenth centuries. Exact statistics for this time period are unfortunately difficult to come by. However, since the formation of each new turnpike required a specific Act of Parliament, the number of such acts provides "a fairly reliable, though rough, estimate of the progress that was taking place."[62] According to Jackman, the number of such parliamentary acts throughout England in the two decades from 1751 to 1770 was twice as great as the number passed during the previous fifty years. In the north midland counties, the number rose from 55 in the earlier time period, to 189 in the latter. And from the first half of the eighteenth century to the forty-year period after the mid-century mark, there was a 388% increase in the number of such acts passed.[63] And if the percentage increase figures are impressive, the base is no less so. Says Sir Alker Tripp, "it is computed that more than a thousand Turnpike Acts were passed between 1785 and 1810, and that in all there were more than four thousand acts of this character."[64]

From the perspective of history, it is difficult to avoid the conclusion that private turnpikes were the norm. For example, in the view of Shorey Peterson:

> But history shows, if two notable instances establish a rule, that when highways come to play a major part in transportation, the view of them in strict collective terms breaks down both in theory and in practice. This was true in the 18th and early 19th centuries when the growing commerce of the Industrial Revolution turned to the public roads for accelerated and cheapened movement. The local governments were unable to take care of the traffic; and turnpike trusts of a quasi-private nature were set up to exploit the discoveries of Telford and McAdam on a business basis. Toll gates might seem offensive by customary usage, but there was effective logic in the idea that highway service, unlike other basic government activities, might be developed by ordinary investment standards and financed by specific beneficiaries, rather than the general public.[65]

If every dirt track, muddy path, narrow passageway, and winding route were counted, of course, the actual mileage of public highways was far in excess of the turnpikes. Jackman, citing two historical reports, calculates that in 1820, "out of a total length of about 125,000 miles of road, only a little over 20,000 miles, or roughly, one-sixth of the whole, was turnpike; and even by 1838 there was only 22,000 miles of turnpike, while the amount of ordinary highway was computed as not less than 104,770 miles."[66]

These statistics are, however, misleading in terms of the actual importance played by the turnpike system, for highway mileage is not a homogeneous commodity. Miles cannot be equated one to another. On the contrary, some mileage is more strategically placed, is of better quality, and supports more important and valuable traffic. And in each of these respects the (quasi) private turnpikes surpassed the public highway system. In terms of strategic location, for example, Jackman tells us that "the greatest industrial and commercial centres at this time [1838] were linked up by practically continuous turnpike roads."[67] In comparison, the less industrialized areas of the country were served by the parish highways. Although these

served "large and important sections" of the country, the typical rate of industrialization and commercialization was lower there. Further, the parish, or public highways, in comparison with the turnpikes "were generally in a bad state."[68] And, as for the quality of traffic, "turnpike roads were constantly treated by the legislature on the assumption that the traffic upon them was more important than the traffic upon an ordinary highway."[69]

The early American experience of private road building was entirely in keeping with that of England.[70] Replying to the view that individual investment in roads would have to make way for societal or public investment, Wooldridge had this to say:

> Exactly the opposite situation prevailed for most of the important roads of the nineteenth century. From 1800 to 1830 private investment poured into thousands of miles of turnpikes in the United States, notwithstanding the miniscule return the capital earned, and hundreds of turnpike companies built roads that carried the rivers of emigration to the old Northwest and the products of the newly settled states back to the seaboard. For the first third of the century, constructing the roads that were the only means of transportation to and communication with most parts of the West remained a function of private capital. An occasional exception, like the famous National Road going west from Cumberland, Maryland, was a deviation from the norm.
>
> The history of the grandfather of all the turnpike companies, the Philadelphia and Lancaster Turnpike Corporation, chartered in 1792, has much in common with all the rest. Pennsylvania had no desire on principle to commit its program of road building to private enterprise, and in fact had resorted unsuccessfully to several other expedients before chartering its first turnpike company. That was the pattern in most of the states where the companies later flourished; in the late 1700's, the states tried lotteries, forced road service from local landowners, grants-in-aid to localities, and even offers of large acreages to contractors if they would build roads to the interior. All these measures failed, as well as the routine expedient of levying taxes and spending them on the highways of the states. None of the states' financing schemes could begin to supply the volume of capital necessary for the improvements the people were more and more vociferously demanding as they in ever larger numbers pushed to the West. An economist might have told the states that if the people needed roads that badly, it ought to be a simple matter to levy sufficient taxes to pay for them, but then as now political reality was not always conducive to economic models, particularly when the people using the roads were often using them to leave the states. *In view of the durable consensus on the necessity of publicly financed roads that developed well before the end of the nineteenth century, it is a little ironic that the private road companies should have been chartered only because it proved impossible for the states themselves to raise enough capital to build the roads everyone seemed to want.*[71] (Emphasis added)

Although the early part of the nineteenth century was the heyday of private road construction, similar efforts are to be found much later on. The Lincoln Highway, for example, was built in the twentieth century.[72] Although not privately owned, its impetus, and much of its financing, came from private sources. The

idea for a road across the United States was first presented by Carl Fisher in 1912 to a body of automobile and allied businessmen, who, as we can imagine, had an immediate and pressing interest in the construction of highway mileage. And there were dozens of private contributions, including $300,000 from Goodyear and $150,000 from Packard, although these were given to various state governments for actual construction.

Furthermore, if the existence of externalities are held to be an impediment to the private construction of roads, then the existence of private *railroads* throughout American history must be counted as evidence to the contrary, for the external effects are virtually the same in the two cases. Yet the existence of externalities has never acted as a barrier to private railroad construction. Indeed, as of 1950, there were some 224,000 miles of railroad track in operation,[73] virtually all of it privately owned; this is truly ample testimony to the fact that the existence of claimed externalities has not interfered with the construction of substantial railroad mileage.

XII. Conclusion

Finally, even if the externality–public good argument for government intervention were correct, it would be problematic because it can so easily lead to abuses. All sorts of state activities could, on the same grounds, be demanded by those who advocate an ever larger role for government. Baumol warns of this when he says: "The presence of external effects and other grounds for increased governmental intervention need not constitute a license for petty bureaucrats and others to impose their view of virtue and good living on a recalcitrant public."[74]

The problem is, of course, that many governmental operations, supposedly justified on public goods grounds, do not really involve externalities, even in the view of the proponents of this view. Says Peterson, for example:

> But government does not limit itself to activities which are purely of this type [collective or public goods], or, necessarily, even approximately of this type. For a variety of reasons, it may, and often does, enter fields where the principles of the private economy can and do operate, wholly or in considerable degree. This happens when a government undertakes to supply water or gas or electricity or street railway or bus service, when it markets forest or mineral products from the public domain, or even when it provides postal service.[75]

Peterson might well have included the provision of highways in this regard. Savas makes a different but related point:

> public goods are properly paid for by the public at large, for their benefits cannot be charged to individual consumers or small collective groups. However, from this reasonable arrangement, it is easy to leap to the unwarranted implication that public goods paid for by the public through payments to the public tax collector must be provided to the public by a public agency through public employees. There is no logical reason for the mode of payment to bear any relation to the ultimate mode of delivery of collective goods.[76]

Here, again, we find the government, seemingly basing its actions on the "scientific" arguments from externalities, somehow overstepping these bounds. And we know that this trend is widespread. Modern government has undertaken a myriad of tasks unrelated to the collective good argument (or any other arguments we have discussed here), as Peterson has indicated. As Savas suggests, even when the collective goods argument does apply, the ensuing state involvement monumentally oversteps the bounds set by it. In how many cases does the government limit its activities merely to ensuring that the good is produced? Quite to the contrary, in the transportation sector, as in many others, the government has undertaken the direct provision of the service by a public agency, through public employees.

Given this state of affairs, it behooves us to question the role played by the collective goods argument. Is it, as is implicitly maintained by its adherents, an intellectually sound defense of government activities? Or is it no more than an apologetic for programs which would have been embarked upon regardless of the availability of the argument—and which were actually begun long before the argument was conceived?

NOTES

1. Externalities are usually separated into external economies (positive externalities) and external diseconomies (negative externalities). Although considered by most economists as virtually the same (i.e., as merely opposite sides of the same coin), in our view positive and negative externalities are conceptually different and in need of separate treatment. See Murray N. Rothbard, "Law, Property Rights, and Air Pollution," *Cato Journal* 2, no. 1 (Spring 1982): 55–99.
2. Robert H. Haveman, *The Economics of the Public Sector* (New York: John Wiley and Sons, 1970), p. 25. Robert L. Bish and Robert Warren ("Scale and Monopoly Problems in Urban Government Services," *Urban Affairs Quarterly* 8, no. 1 [September 1972]: 97–122) define public goods in terms of excludability: "Public or collective goods in economic terminology are 'non-packageable'; that is, in principle, no one can be excluded from consuming them."
3. Michael R. Bonavia, *The Economics of Transport* (London: Cambridge University Press, 1954), pp. 48–49. Consider also this statement: "Transportation almost always involves rather strong . . . externalities of one sort or another, so that unsubsidized private operation involves necessarily higher prices, in order to break even, than would be conducive to the most efficient utilization of the facilities" (private correspondence, September 6, 1977, from William Vickrey to the present author).
4. See Murray Rothbard, *Man, Economy, and State* (New York: D. Van Nostrand and Co., 1962), p. 883. Also Walter Block, "On Value Freedom in Economics," *American Economist* 19 (Spring 1975).
5. Whenever government competes in the market, it has a chilling effect on private investment in that area, for the government can underwrite its losses out of tax proceeds, and a market enterprise cannot. In this paper we assume the plausibility of a private market in road building. For further explication, see Walter Block, "Free Market Transportation: Denationalizing the Roads," *Journal of Libertarian Studies* 3, no. 2 (Summer 1979): 209–38.
6. W. T. Jackman, *The Development of Transportation in Modern England*, vol. 1 (Cambridge: Cambridge University Press, 1916). p. 261.
7. Cited in William C. Wooldridge, *Uncle Sam, the Monopoly Man* (New Rochelle, N.Y.: Arlington House, 1970), p. 129.
8. Gabriel Roth, *Paying for Roads—The Economics of Traffic Congestion* (Baltimore, Md.: Penguin Books, 1967), pp. 20–21.
9. Roth unfortunately contradicts himself several pages later. Even though he is unwilling to accept the implication that government becomes involved in the production of all "intermediate goods

and services," he states: "As roads benefit non-motorists by providing facilities for pedestrians and cyclists, and access to properties of different kinds, . . . there is a logical case for charging non-motorists for the use of the roads" (*Paying for Roads*, p. 43). There would be no problem for Roth if the non-motorist he advocated as liable for tolls were limited to cyclists and pedestrians. Although they are certainly non-motorists, it is no less sure that these two groups do use the roads. This interpretation will not do, however, for Roth raises this point specifically in order to justify property taxes as a source of road funding. But property taxes are paid by landowners, who are not to be confused with motorists, pedestrians, or cyclists (although there is obviously an overlap). In basing road charges on property ownership, Roth is using the very externality argument which he had earlier seemed to reject.

10. Shorey Peterson, "The Highway from the Point of View of the Economist," in Jean Labatut and Wheaton J. Lane, eds., *Highways in Our National Life: A Symposium* (Princeton, N.J.: Princeton University Press, 1950), p. 196. See also Herbert Mohring, "Urban Highway Investments," in Robert Dorfman, ed., *Measuring Benefits of Government Investments* (Washington, D.C.: The Brookings Institution, 1965). Mohring states that "the aesthetic, humanitarian, and other 'non-market benefit' arguments that are often used to justify subsidies to such areas as education, research, and the arts seem to apply little to transportation" (pp. 231–32).
11. William J. Baumol, "Urban Services: Interactions of Public and Private Decisions," in Howard G. Schaller, ed., *Public Expenditure Decisions in the Urban Community* (Baltimore, Md.: Johns Hopkins University Press, 1963), p. 8.
12. For the same logical error, although presented with a slight variation of emphasis, see George M. Smerk, "Subsidies for Urban Mass Transportation," *Land Economics* (February 1965), where he states: "External economies abound from the provision of transport. In other words, there are many gains and costs which are not realized in pecuniary terms by the enterprise in question, since by its very nature transport confers substantial benefits upon non-users. . . . Assuming operation of public transport to reflect the general interests of the public, transport output therefore seems most justifiably geared to a point of equality between social costs and benefits rather than strict and sole adherence to the forces of the market as expressed in purely pecuniary terms" (p. 63). Assuming, however, operation of merry-go-rounds to reflect the general interests of the public, and assuming also, as is the case, that these mechanisms, too, are replete with external benefits, does it follow that merry-go-round output therefore seems most justifiably geared to public rather than private enterprise? If so, then it would seem that there is nothing that cannot be claimed for government operation.
13. It would be consistent, although nonsensical, to accept the externality argument in favor of government road monopoly—and nationalization of all other industries wherein externalities obtain—as well. For opposing positions, however, the reader might consult F. A. Hayek's *The Road to Serfdom* and *Collectivist Economic Planning*, and three books by Ludwig von Mises, *Bureaucracy, Planning for Freedom*, and *Human Action*.
14. Roth, *Paying for Roads*, p. 34. Haveman writes the following: "when the next semi-truck pulls onto the freeway with the effect of delaying your arrival and that of all other freeway motorists, you and your fellow drivers are the objects of a spill over cost. It is characteristic that . . . the person harmed bears identifiable 'costs' for which he is *not* compensated. Moreover . . . this person would be willing to pay something to avoid bearing the spill over cost" (*Economics of the Public Sector*, p. 34).
15. A. A. Walters, *The Economics of Road User Charges*, International Bank for Reconstruction and Development, Staff Occasional Paper #5 (Baltimore, Md.: Johns Hopkins University Press, 1968), p. 11.
16. If the government charged a price for highway use, such a user fee might deter congestion and lead motorists, in effect, to take account of the congestion costs they impose on others. For an analysis of why a privately owned road system is preferable even to a government pricing mechanism, see Block, "Free Market Transportation."
17. Winch, for example, calls for "taxes aimed to recoup from property owners the costs of the road attributable to the traffic which has conferred benefits on that property" (David M. Winch, *The Economics of Highway Planning* [Toronto: University of Toronto Press, 1963], p. 130).
18. He may not be able or even willing to purchase *all* of the land that may conceivably be benefited

from his construction, but this will not affect the viability of private roads anymore than will the advent of helicopters, able to see over even the highest of fences, ruin the possibility of a private market in outdoor movies.

19. Norman L. Cooper, *Urban Transportation: An Answer* (Bloomington, Ind.: Indiana University Press, 1971), p. 23.
20. O. H. Brownlee and Walter W. Heller, "Highway Development and Financing," *American Economic Review* 46 (May 1956): 236.
21. William D. Ross, "Comment," *ibid.*, p. 257.
22. To most males, that is. In the eyes of competitive women, homosexuals, perhaps, and strict, fundamentalist clergymen, presumably, she is anything but. (We deal in Section IX with the question of one man's meat being another's poison.)
23. Even such an externality can be internalized by the ever watchful and vigilant marketplace. For an account of how this is accomplished by the management of Maxwell's Plum restaurant, in New York City, see *New York* magazine, March 1978, and for a similar account involving Sardi's restaurant, see *United* magazine, November 1982.
24. Smerk writes: "As the general public benefits from an increased supply of transport of all types, tax receipts from the general public may with justice be used to make up losses" (George M. Smerk, *Urban Transportation: The Federal Role* [Bloomington, Ind.: Indiana University Press, 1965], p. 230).
25. Or do anything else, whatsoever, that could theoretically be interpreted as being of benefit to the free rider. Remember, it has not been proven that the free rider must admit to being a beneficiary. Smerk and other writers have been willing merely to assume that the general public benefits from an increased supply of transport.
26. Rothbard, *Man, Economy, and State,* pp. 888–89.
27. Z. Haritos, "Theory of Road Pricing," *Transportation Journal* 13, no. 3 (Spring 1974): 54.
28. Paul A. Samuelson, "Diagrammatic Exposition of a Theory of Public Expenditure," *Review of Economics and Statistics* (November 1955), p. 350.
29. *Ibid.*
30. On this point, see Stephen Enke, "More on the Misuse of Mathematics in Economics: A Rejoinder," *Review of Economics and Statistics* (May 1955), pp. 131–33; Julius Margolis, "A Comment on the Pure Theory of Public Expenditure," *Review of Economics and Statistics* (November 1955), pp. 247–49; and Charles M. Tiebout, "A Pure Theory of Local Expenditures," *Journal of Political Economy* (October 1957), p. 417.
31. Rothbard, *Man, Economy, and State,* p. 884.
32. *Ibid.*, p. 885.
33. This is not meant as an exhaustive brief for a free market in defense services. Such treatment would take us far beyond the scope of this paper, but the interested reader can consult Murray N. Rothbard's two books, *For a New Liberty* (New York: Macmillan, 1973), chaps. 11, 13, and *Power and Market* (Menlo Park, Calif.: Institute for Humane Studies, 1970), chap. 1; as well as Wooldridge's *Uncle Sam, the Monopoly Man,* chap. 6.
34. Bish and Warren, "Scale and Monopoly Problems," p. 100.
35. For examples of excludability of road users, see Haritos, "Theory of Road Pricing," pp. 55–56.
36. Tiebout, "A Pure Theory of Local Expenditure," p. 417.
37. Paul A. Samuelson, "The Pure Theory of Public Expenditure," *Review of Economics and Statistics* (November 1954), pp. 388–89.
38. E. S. Savas, "Municipal Monopoly vs Competition in Delivering Urban Services," in Willis D. Hawley and David Rogers, eds., *Improving the Quality of Urban Management,* vol. 8, *Urban Affairs Annual Reviews* (London: Sage Publications, 1974), p. 483.
39. Haveman, *Economics of the Public Sector,* pp. 42–43.
40. Samuelson, "Diagrammatic Exposition," p. 351.
41. *Ibid.*, p. 352.
42. Rothbard, *Man, Economy, and State,* pp. 15–16. See also John V. Krutilla, "Welfare Aspects of Benefit Cost Analysis," in Schaller, *Public Expenditure Decisions,* p. 227; and Edward F. Renshaw, "The Economics of Highway Congestion," *Southern Economic Journal* (April 1962), p. 374. Winch writes that "unless we make some assumption about interpersonal comparisons

[of utility], economics can offer no help in problems of policy such as that of highway planning" (*Economics of Highway Planning*, p. 38).

43. Mohring, "Urban Highway Investments," p. 231.
44. Herbert D. Mohring and Mitchel Harwitz, *Highway Benefits* (Evanston, Ill.: Northwestern University Press, 1962), p. 7.
45. Smerk, *Urban Transportation: The Federal Role*, p. 236.
46. *Ibid.*, p. 241.
47. See Bruno Leoni and Eugenio Frola, "On Mathematical Thinking in Economics," *Journal of Libertarian Studies* 1, no. 2 (Spring 1977): 101–10; Ludwig von Mises, *Human Action* (1949; Chicago: Henry Regnery, 1966), pp. 107–115, 350–52; and Rothbard, *Man, Economy, and State*, pp. 277–80.
48. Mises, *Human Action*, pp. 107, 110.
49. *Ibid.*, pp. 94–95.
50. Rothbard asks "by what mysterious process the critics know that the recipients [of external benefits] would have liked to purchase the 'benefit.' Our only way of knowing the content of preference scales is to see them revealed in concrete choices. Since the choice concretely was *not* to buy the benefit, there is no justification for outsiders to assert that B's preference scale was 'really' different from what was revealed in his actions" (*Man, Economy, and State*, p. 890).
51. D. Netzer, "Toll Roads and the Crisis in Highway Finance," *National Tax Journal* 5, no. 2 (June 1952): 109.
52. Rothbard, *Man, Economy, and State*, p. 643.
53. Samuelson, "Diagrammatic Exposition," pp. 350–51. Neither will Tiebout's attempted reformulation do: "A definitive alternative to Samuelson's might be simply that a public good is one which should be produced, but for which there is no feasible method of charging the consumers" ("A Pure Theory of Local Expenditure," p. 417). We can ask Tiebout (and Samuelson, too) how we can *know* that consumers really value a good for which they have no way of registering a demand. If there is no feasible method of charging a consumer, then he can never make his desires known.
54. This is not the time to expound on the general difficulties of indifference curve analysis. It is worth noting, however, that it is impossible to reveal indifference through the usual market procedures of buying or selling. Thus, an economics based on the view that preference orderings are seen only in human action must entirely reject indifference curve analysis. For a full exposition of this point, and a general discreditation of indifference as an economic category, see: Rothbard, *Man, Economy, and State*, pp. 265–67; and Walter Block, "On Robert Nozick's 'On Austrian Methodology,'" *Inquiry* 23: 422–37.
55. Mancur Olson, Jr., *The Logic of Collective Action* (New York: Schocken Books, 1965), p. 2.
56. *Ibid.*, p. 6.
57. *Ibid.*, p. 11.
58. *Ibid.*, p. 94.
59. *Ibid.*, p. 14.
60. U.S. Bureau of the Census, *Statistical Abstract of the United States, 1976* (Washington, D.C.: U.S. Government Printing Office, 1976).
61. For an excellent exegesis of the importance of the entrepreneur, see Israel Kirzner, *Competition and Entrepreneurship* (Chicago: University of Chicago Press, 1973).
62. Jackman, *Development of Transportation*, p. 233.
63. *Ibid.*, pp. 233–34.
64. Sir Alker Tripp, "The History of the Modern Highway in England," in Labatut and Lane, *Highways*, p. 43. According to Sidney and Beatrice Webb (*English Local Government* [New York: Longmans, Green, 1922], pp. 155–59), toll roads, or turnpikes, were in operation as early as 1662 and 1670 but did not achieve a modest frequency until 1691. The earliest historical example on record, however, seems to be much earlier: "Authority seems to have been given in 1267 to levy a toll in Gloucestershire Manor" (*ibid.*, p. 157).
65. Peterson, "The Highway," pp. 192–93.
66. Jackman, *Development of Transportation*, p. 234. The two reports he cites are "Report from the Committee of the House of Commons to Consider Acts Regarding Turnpikes, Roads, and

Highways, 1821" and "Report of the Royal Commission on the State of the Roads, 1840." The Webbs give rough support to these estimates in stating that 23,000 miles of roads were administered by the Turnpike Trusts in 1835. They add the fact that, in the same year, 1,100 Turnpike Companies collectively levied an annual revenue of more than 1.5 million sterling and had a debt of £7 million. (Webb and Webb, *English Local Government*, p. 152.)

67. Jackman, *Development of Transportation*, p. 234.
68. Brit. Mus., T. 1157 (4), "Highways Improved," p. 2, quoted in *ibid.*
69. Joshua Scholefield and Archibald W. Cockburn, eds., *Pratt and MacKenzie's Law of Highways*, 18th ed. (London: Butterworth, 1932), p. 467, quoted in Tripp, "The History of the Modern Highway," p. 43.
70. See also Bonavia, *Economics of Transport*, p. 53, concerning the Italian experience with private roads, or *autostrade*.
71. Wooldridge, *Uncle Sam, the Monopoly Man*, pp. 129–30.
72. See *The Lincoln Highway*, Lincoln Highway Association (New York: Dodd, Mead, 1935).
73. U.S. Bureau of the Census, *Statistical Abstract of the United States, 1976*, p. 604.
74. Baumol, "Urban Services," p. 14.
75. Peterson, "The Highway," p. 192.
76. Savas, "Municipal Monopoly," p. 483.