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IN A THREE-SECTOR ECONOMY

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ABSTRACT

This paper is an exploratory effort to examine the role of a voluntary, "non-profit" sector in a three-sector economy with collective-consumption and private-consumption goods. More generally, it seems an answer to the questions, what factors determine which goods will be provided governmentally, which privately in for-profit markets, and which in voluntary (non-profit) markets.

The government is frequently thought of as the social instrument that is used when the private market provides too little of particular goods or services. Alongside these two sectors -- government and private -- however, is a third economic sector, consisting of "voluntary" organizations. Non-governmental in legal form, and yet seemingly different in objectives and behavior from private profit-seeking firms, many of these organizations can be viewed as non-governmental supplementers of public-type services. Thus, to understand, for example, the role of aid-to-the-poor in our economy, one must examine not only governmental actions, but also the activities of non-governmental, voluntary organizations. The voluntary sector's activities are not limited to aiding the poor, but such aid, in addition to related activities in the health, education and welfare areas, are important components of the voluntary sector's outputs. The present paper is an attempt to show what the role of the voluntary sector is in a society with a heterogeneous population having diverse preferences.

TOWARD A THEORY OF THE VOLUNTARY NON-PROFIT SECTOR
IN A THREE-SECTOR ECONOMY

Burton A. Weisbrod

This paper is an exploratory effort to examine the role of a voluntary, "philanthropic" sector in an economy with public and private (for-profit) sectors and with collective-consumption and private-consumption goods. More generally, it seeks an answer to the questions, what factors determine which goods will be provided governmentally, which privately in for-profit markets, and which in voluntary markets? The approach is primarily positive, attempting particularly to predict the circumstances under which the voluntary sector will develop, grow and decline. A model will be fashioned in which certain behavioral and organizational constraints limit public-sector and for-profit sector activities and stimulate the voluntary sector; and in which the existence of collective-consumption goods is not sufficient to ensure governmental production or provision. The existence of such voluntary organizations will thus be explained with a minimum of institutional assumptions. In effect, we set forth the logic behind a hypothesis that there are non-governmental, voluntary organizations providing collective goods. Some normative judgments will be reached regarding efficient public policy toward certain types of voluntary organizations.

The analysis presented here is essentially static. There is some consideration, however, of the effects on the distribution of economic activity among the three sectors--government, for-profit, and voluntary--that result from changes in population characteristics and in the level and inequality of income.

The interest that is now developing in organizations variously referred to as voluntary, non-profit, collective, charitable, non-market or philanthropic is overdue, for there is no doubt that a wide array of economic activity is undertaken outside the private profit-seeking sector and outside the public sector. Contemporary economics includes a long-established theory of the private (profit) sector, the rationale for its existence, and the mode of its equilibrium behavior; more recently a theory of the public (government) sector has evolved, emphasizing the existence of "public," "collective-consumption" goods for which the private sector is an unsatisfactory production vehicle that is likely to produce sub-optimal quantities.¹ Yet the reality of goods and services that are provided neither governmentally, in the sense of being financed through user charges and operated for "profit", confronts us with a gap in our theories.

But my goal is less ambitious than to explain the existence, let alone the behavior, of all of the many kinds of organizations that are found outside the private-profit and the public sectors. Rather I wish to identify one class of such activities--the provision (financing) of public-type, collective-consumption goods by non-governmental enterprises. Thus, this paper will examine some inter-relations between the public sector, the private sector, and the voluntary sector, focusing on the provision of collective-consumption goods outside the government.

We begin with an analysis of governmental behavior. The existence of certain constraints on governments will be seen to create what might be termed government market failure, analogous to the conditions causing private market failures. Development of a voluntary sector will then be posited as an adjustment to the restricted capabilities of these other two sectors.

The Elements of A Simple Model of Output Determination in the Government

Sector

To begin with let us assume a society in which: people behave rationally in pursuit of their individual objectives of utility maximization; a given state of technology and set of production possibilities exist, and these permit production of some collective-consumption and some private-consumption goods; each person's utility is a function of both his private goods and the collective-consumption goods that are available to him; utility functions are not the same for all people.

One question with which we want a behavioral model to deal is: How much of the demand for collective-consumption goods will be satisfied by government? "Satisfied" by a government is defined as financed by a government, no distinction being made between government production (ownership) of some good and provision via purchase or contracting-out--that is, paying a private producer to supply it.² Henceforth, the term, government provision, will be used to describe both types of arrangements.

A rule or behavioral assumption is needed for determining how government will finance any given level of output for a specified good, and a rule is also required for specifying how voter demands will influence the level of government provision. Both of these are important and, given the present state of economic understanding, controversial issues. While particular assumptions will be stated shortly, it is desirable to relax the assumptions in order to determine the sensitivity of our results to the particular assumptions. Now, regarding the finance mechanism we postulate:

Any tax (and perhaps user-charge) system may be used by government to finance a particular expenditure program, subject to the constraint that

the system does not permit every, or nearly every, consumer to equate the tax he pays with the marginal benefit of the good to him. Such a relatively weak assumption will not permit strong statements about government output levels, and more attention should be given to the implications of more specific requirements, but some interesting conclusions can nonetheless be reached. It should be noted, however, that the assumption is less innocuous than it might appear. It rules out vote trading, selling, or logrolling if the effect would be to leave each person with a net tax price--net of "bribe"--that is equal to his valuation of marginal output. While such trading activities do occur to some extent and they do tend to reduce divergencies between marginal benefit and marginal price among consumers, the combination of information costs, strategic behavior (transactions costs) and, in most instances, legal prohibition (against "selling" votes) sustain significant divergencies.

We turn now to the need for a rule regarding how consumer-voter demands influence decisions by government to supply a good. This has received growing attention in recent years but consensus has not yet been reached.³ In this paper, however, we begin with the assumption that:

Government will supply a quantity and quality of any commodity that is determined by a political voting process. One such process would involve majority vote, according to which the demands of the median voter would determine the outcome.⁴ One alternative would be a weighted-majority decision rule in which the weight attached to each person's "vote" is some function of the "loudness" of his "squawk" (intensity of dissatisfaction with a given tax-and-provision decision).⁵ The latter model might predict that

mean, rather than median, demand determines levels of government provision, and that the dispersion to the right and to the left of the mean might have asymmetrical effects. But these are little more than plausible speculations concerning political processes. For our present purpose we require only that the political process leaves significant numbers of voters dissatisfied with government output and taxation levels.

Summing up: If consumer-voters know the rule by which government will allocate costs among them, their utility functions will generate a set of demand functions for governmentally-provided goods which, with the government-supply decision-rule, will determine a level of government provision.

While each of our assumptions may reasonably be questioned as to its realism, there is particular reason to question whether consumer-voters know how the cost of any increased government output provision will be distributed among taxpayers.⁶ Nevertheless, it is perhaps reasonable to believe that whatever cost-distribution rule taxpayers expect to be used, few persons expect a rule that (even roughly) equates tax liability with the value of benefits from a marginal unit of the good. This is especially true for the host of governmentally provided goods for which there are no user charges.

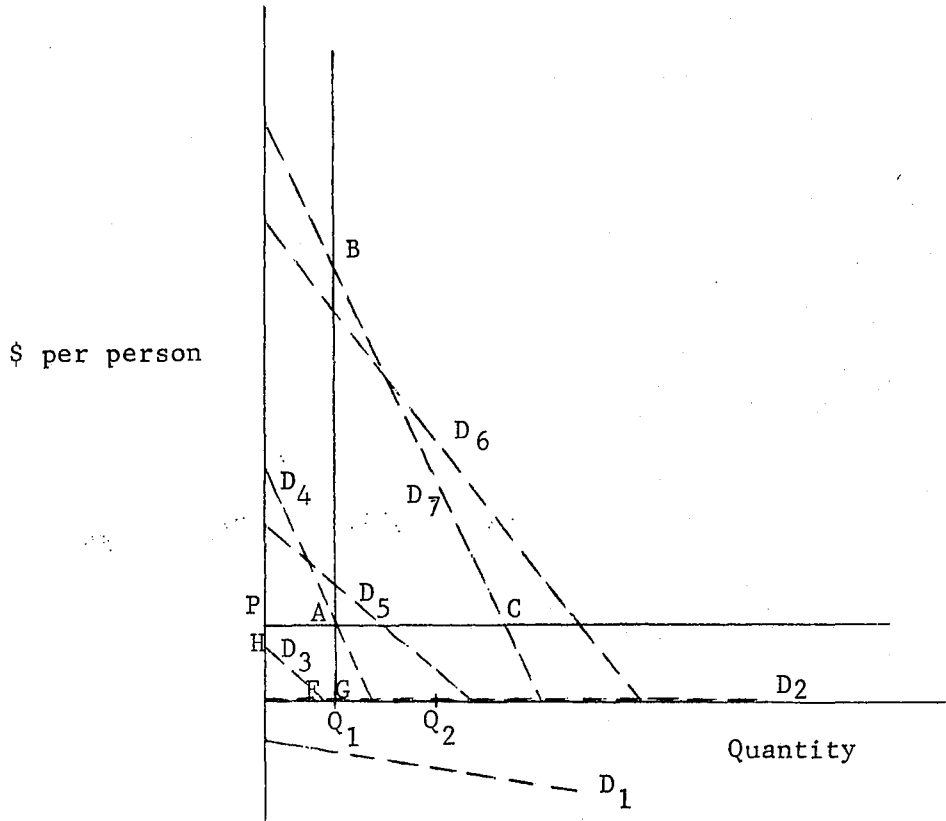
The assumption of non-benefit-principle tax-pricing is critical to the argument that follows. The reason is that a tax-pricing system that does not equate, for each voter, his marginal tax with the marginal benefit he receives from each collective-consumption goods, will produce, in general, a level of government provision that exceeds what some voters demand and that falls short of what others demand. Not only is such a result non-optimal, as is well known,⁷ but as we shall see, its occurrence can be expected to set in motion forces that will influence the aggregate allocation of resources

among the three economic sectors. The assumption of non-benefit tax-pricing is quite general, permitting a wide range of tax systems. It rules out only a system that is, in reality, not available anyway, given that little is known about individuals' marginal valuations of particular public goods, and given that the free-rider problem leads people to hide their true valuations, even if they know them, when a benefit-based tax system is known to be used for financing a collective-consumption good.

Figure 1 illustrates a situation in which: (a) voter demands for public provision of a specific good vary among the seven persons portrayed; and in which (b) the tax-finance price rule specifies that costs are borne equally by all,⁸ with each taxpayer paying P per unit of output provided by the government. This simple, but unrealistic tax rule is used for its simplicity only; it is not implied by our assumptions. The good may be thought of as a collective-consumption good, although it need not be. Later, we will consider briefly the demand for governmental provision of non-collective-consumption goods.

It is apparent from the diagram that, with each consumer-taxpayer paying the same tax, P , per unit of output, a majority of consumers (persons 4-7) would prefer to increase output to the level Q_1 . At that level, consumers 1, 2, and 3 prefer to reduce the total tax and the quantity of output, while consumers 5, 6, and 7 prefer to increase both the total tax and the quantity supplied, but they are in the minority. Assuming a majority-vote rule, person 4, the median voter, has his way. In general, however, whether a majority vote or some other rule is operative, in the absence of marginal-benefit taxation the political process of determining an output level is likely to leave some consumers dissatisfied because

Figure 1



they are receiving and paying for too much of the good, while others are dissatisfied because they are receiving too little -- that is, they would prefer to have the total tax payment and output level increased.⁹ The relative numbers of the two dissatisfied groups, depend, of course, on the particular tax-pricing system and the political decision process. The simple majority-vote rule, for example, would satisfy only the median consumer, and so the population would be split evenly between those who demand more and those who demand less at the prevailing marginal tax-prices.

The intensities of individuals' dissatisfactions will also generally vary; for a person who demands more than the quantity supplied, the intensity can be measured by the area under his demand curve, above the tax-price curve and to the right of the quantity supplied. For person 7 in Figure 1, this is the area ABC. For a person who demands less than the quantity supplied, the intensity of dissatisfaction may be measured, in corresponding fashion, by the area above the demand curve, below the tax-price curve, and to the left of the quantity supplied (PAGFH in Figure 1, for person 3).

Reactions of Dissatisfied Consumers

With many consumers being either under-satisfied or over-satisfied, adjustments can be expected to occur.¹⁰ Before turning to the nature of the adjustment possibilities, note that the relative numbers of persons who desire any adjustment, and the degree of adjustment desired, depend on the variation in demands at the tax price(s) that each consumer assumes he confronts. Thus, of major importance, in addition to the tax system, is the degree of demand homogeneity of the population. The greater the homogeneity within a political unit -- that is, the greater the similarity in income, wealth, religion, ethnic background, education level, and other

characteristics influencing demand for any collective-consumption good -- the smaller the expected variation in individual demands, and, hence, the smaller the likely degree of dissatisfaction with the politically-determined level and quality of output.

There are several adjustment possibilities available to the dissatisfied consumers, including migration, formation of lower-level governments, resort to private market alternatives and to voluntary organizations. Each will be discussed in turn, but the attempt is to describe not a sequential process but rather a general equilibrium adjustment process in which all of these organizational forms for satisfying consumer demands are simultaneously operative.¹¹

One option for the dissatisfied consumer is migration to another governmental unit in which output and tax-pricing systems lead to an improvement in his economic welfare. The viability of this adjustment option is, of course, considerably greater if local governmental units are being considered than it is if higher-level governments are the focus.¹² In any case, since moving is not costless and since locational decisions reflect many considerations other than governmental outputs and taxes, we can think of the type of situation portrayed in Figure 1 as reflecting the likely situation even after migration adjustments -- diverse demands, some "over-satisfied" consumers, and some "under-satisfied" consumers.

Beyond migration, the under-satisfied and the over-satisfied consumers do confront somewhat different options. The over-satisfied consumers (persons 1-3 in Figure 1), if they do not move out, will have few options except to bear the burden or else to exert political pressure to alter either the tax-price system or the output-determination system. The under-satisfied consumers, however, have other alternatives, and this paper focuses on them.

A second adjustment outlet, open to all those who want and are willing to pay for added output, is to form lower-level governments. Thus persons 5, 6, and 7, in Figure 1 might organize an additional governmental unit including only themselves, to provide additional units of the commodity in question. They could not entirely avoid the free-rider problem, of course -- other persons would use some of their output if they could do so without paying (or paying less than P). Neither could the undersatisfied demanders avoid the cost of organizing the new governmental unit. We can expect, therefore, that while (1) some lower-level government supplementation of output will take place -- and this is illustrated by parks and libraries, which are provided by federal, state, county, and local governments -- at the same time; (2) some under-satisfied demand will remain.

As we consider adjustments in the several economic sectors, it should be noted that because we are considering collective goods, which benefit more than one person simultaneously, the provision of such goods in any one sector may well reduce the demand for it in the other sectors. If the good were a "pure" collective good -- involving no "congestion" whatever -- then an increment of output of the good in one sector would presumably bring about an equal decrement in another sector, at least in equilibrium. When the collective good is anything short of pure, however, the provision of an additional unit of output in one sector will not lead to an equal decrease in the level of output provided in another sector.

In addition, to migration and formation of lower-level government units, the third and fourth adjustment outlets for the undersatisfied demanders, and the two on which I will focus, are the private (for-profit)

market and the voluntary ("non-profit") markets.

Consider, first, the private market. The currently-prevailing view among economists regarding the role of private markets in the provision of public, collective-consumption goods is simply that those markets will produce suboptimal quantities of such goods, and that, therefore, governments may be, and from an allocative-efficiency standpoint should be, called upon to take steps to see that the output level is increased. Implicit in this view is an assumption that the private and the public markets are two alternate organizational mechanisms for providing the same good.

Public and Private-Good Substitutes

This, I believe, is an invalid assumption. As an alternative I suggest that we think of the production-possibility set at a given point in time as including collective-consumption goods and private-good substitutes for them, as well as "ordinary" private goods. Thus, for example, the collective good, lighthouse, has a private-good substitute, shipboard radar; the collective good, provision of clean air, has private good substitutes in air filters and purifiers for home, automobile and place of work; the collective good, stand-by fire department, has a private good substitute, sprinkler systems; the collective good, generic information (e.g., on drugs), has the private-good substitute, brand-name advertising; and the collective good, police department, has private good substitutes that include alarms, locks, guards, and dogs.¹³

To observe that there are often private-good substitutes for collective goods by no means says, however, that they are perfect substitutes. In fact, as the examples just given suggest, these substitutes are generally different

in a particular and important way, to be discussed shortly, and this difference has a notable implication for any attempt to understand and predict the degree of public sector involvement in the provision of a good.¹⁴

Observing that there are private-good substitutes for collective goods suggests that it would be useful to study the "industry" comprising: (1) each good or service provided by the public sector; plus (2) the substitutes provided by the private sector; plus -- for the reason to be explored below -- (3) the substitutes provided by the voluntary sector. In a later section of this paper I will report on some early empirical work on such industry studies.

It is presumably true that there is no technological constraint that prevents the private sector from producing collective goods. If that is so, then any observed differences in the "type" of goods provided by the private and the government sectors of an industry are likely to reflect consumers' preferences and/or relative prices. From the consumer-preference viewpoint, a collective-consumption good is likely to have one important disadvantage compared with a private-good substitute. The disadvantage of the collective good--whether it is governmentally or privately operated--is the lesser degree of individual control that each consumer can exercise over its form, quality and utilization or deployment. Even the classical lighthouse and national defense activities must take particular forms, must be located in particular places, and must be activated and deactivated at particular times and under particular circumstances. Rarely, if ever, will all consumers agree about how any of these decisions should be made, and yet, by the very nature of collective goods, the decisions once made, affect all persons. A given lighthouse cannot be located diff-

erently for different users, nor can it be turned on and off at different times to satisfy conflicting preferences. (This is to observe once again the heterogeneity portrayed in Figure 1.)

Why, in the face of this disadvantage inherent in sharing, should a good be demanded of government when a private-good substitute exists? One answer is that the private-good substitute may be a very poor substitute -- as is the case with national defense, where hand guns (private goods) are poor substitutes for such collective goods as hydrogen bombs, and where a social judgment has apparently been made that devastating weapons should not be purchasable by private consumers at any price. In many, perhaps most, other cases, however, where private goods are available that can achieve virtually the same objective as the public-good version, the only significant advantage of the public good would seem to be its relative price. That is, some people may prefer to pay for a marginal unit of the public-good version at its associated tax price rather than a unit of the private good version at its market price. (The particular tax-price system that is used will, thus, affect the number of persons who opt for the public good or the private good substitute.)

We can now return to analysis of the choices open to consumers whose demands for any collective good are undersatisfied through government markets. The consumer who turns to the private-market option is, in effect, choosing an option that often involves a different form of the good in question. He may be expected to select a form which, while providing its owner with greater individual control, does so by providing smaller external benefits to other consumers. After all, if a consumer must bear the total cost rather than share the cost with others, then he will presumably tend

to choose a form of the good that maximizes internal benefits, including his individual control, paying little attention to the external benefits that might be provided in greater measure by some other, collective-consumption form of the good.

The point to emphasize is that such a choice may be socially non-optimal, albeit privately optimal in an economy with only two sectors -- private and public -- and with output in the public sector being constrained. Purchases of private-good substitutes may reflect not simply the interaction of preferences and production costs; rather they can reflect, and, in the situation depicted in Figure 1 actually do reflect, an adjustment to the non-optimal level of provision of the collective good by government.¹⁵ The analysis suggests, at this point, that consumers are likely to be left in non-optimal positions in both private and government markets, being over- or under-satisfied in government markets and making socially inefficient choices in private markets.

The Voluntary Sector

This brings us to a rationale for the development of voluntary non-profit organizations.¹⁶ The reasoning above suggests the hypothesis that a class of voluntary organizations will come into existence as extra-governmental providers of collective-consumption goods.¹⁷ They will "supplement" the public provision (which can be zero) and provide an alternative to the private-sector provision of private-good substitutes for collective goods.¹⁸

If the voluntary organizations do in fact provide collective goods, they may be expected to confront financial problems, given the free-rider problem. However, since all the alternatives available to undersatisfied

demanders also involve inefficiencies, it may be worthwhile (that is, efficient) to form and maintain voluntary organizations as a "second best" solution.¹⁹

This exposition has seemingly implied that the initial response to demands for collective consumption goods is sought in the public sector, with subsequent adjustments reflecting dissatisfaction with that response. Such a sequence may or may not be accurate as a description of real-world behavior -- although a little evidence on this will be cited later -- but in any case the sequencing is only an expositional convenience. Although the public sector has some clear advantage in the provision of collective goods, it may also have a disadvantage in the form of organizational costs.²⁰ When the differential costs of organizing economic activity in the various sectors (and at various governmental levels) is considered -- a factual matter about which little is known -- it is no longer apparent in which sector the initial response to collective-good demand will occur. It is likely, however, that the government sector will not be the first to respond to consumer demands for collective goods. The reason is that demands by all consumers do not generally develop simultaneously, and so the political decision rule will at first determine a zero level of government provision, leading the undersatisfied demanders to non-governmental markets.

Not all governmentally-provided goods and services have a significant collective-consumption component. Publicly-provided employment services and library provision of current best-seller novels (but not research materials), for example, are not easily explainable as responses to this source of market failure.²¹ Why governments provide non-collective goods is a matter deserving further scrutiny, and we will only touch on the question

here. One potential justification for public provision of a private-consumption good is the saving in private-market transaction costs (or enforcement costs) in cases where there is widespread agreement regarding the quantity of an individual-consumption good that each consumer wishes to consume (or wishes others to consume). As long as tax bills are being paid to finance government provision of collective goods, there may be advantages to adding to the bill a sum to finance the "minimum" level of a private good that the political majority prefers. While more study is needed of the rationale for government provision of goods with little or no collective character, it is important to note that governments do provide them. For if this is the case, then the voluntary sector, if it is indeed providing collective-consumption goods, as has been hypothesized in this paper, will be found to be more prominent in supplementing those government activities having the "largest" collective-consumption component. By contrast, we may expect that the private-good activities of government will be supplemented to a relatively greater extent in the private for-profit sector.

With a collective-consumption good, and substitutes for it, being provided in two or even three economic sectors, there is no easy answer to the question of whether such a good is likely to be provided in optimal, sub-optimal, or super-optimal total quantities. What is needed is a more general theory that goes beyond the private market's tendency to underprovide collective-consumption goods and explains the public and voluntary markets' supplemental activities.

Private and Public-Good Substitutes, Some Dynamics

Up to this point we have assumed that the set of collective-consumption and individual-consumption goods from which consumers could choose was given exogenously. Now we will drop the static assumption of a predetermined set

of goods, instead examining some determinants of what is included in the set. Specifically, is there a basis for predicting that in the course of time the menu of collective-consumption goods will expand more, or less, rapidly than the menu of private goods? What determines such changes?

It was stated above that a major distinction between public goods and their private good substitutes is the greater individual control offered by the latter and preferred by consumers generally. Granted such a difference, it would seem likely that if consumers at a given level of income are found to be purchasing a particular ratio of a public good to its private-good substitute, then at sufficiently higher income levels that ratio is likely to fall, as demand shifts in favor of the private goods. This is not to say that the income elasticity of demand for any collective good is necessarily negative at some income levels. We suggest the following hypotheses: at "very low" income levels the income elasticity of demand for a given collective good is positive and large; as income increases people shift expenditures from a pattern in which neither a collective good nor a private-good substitute is purchased to a pattern that includes some collective goods. And as incomes rise further, the demand for collective goods rises, but at some point the private-good substitutes will come to be bought instead of the collective good. (This point may differ, of course, for different goods.) That is, the income elasticity of demand for collective goods may be positive but lower than that for private-good substitutes at sufficiently high levels of income. Thus, the relationship between the level of per capita income and the relative size of the government sector is likely to be that of an inverted U.²²

Some Bits of Evidence

This brief section provides (a number of scraps of) "evidence" on the notions presented above. None of the evidence, individually or in total, is offered as "proof" of the propositions we have discussed. Rather, they are intended to be suggestive of the types of research that would be useful in order to better understand the role of voluntary organizations in a three-sector economy that also includes government and private for-profit sectors.

1. Private-Good Substitutes for Collective Goods. We now consider the effects of relaxing the initial assumption of an exogenously-determined set of collective and of private goods. If the hypothesis is correct that beyond some level of income for any given person collective goods are demanded in preference to private goods, then as such an income level is approached by increasing numbers of persons we should expect an increase in the amount of private-market resources devoted to research and development on private-good substitutes. Thus, the set of private, individual-consumption goods that are available would expand in response to increased incomes. This may be one of the factors explaining (a) the growing number of inventions to provide home and business security -- in addition to the expanded provision of the traditional collective good, police protection; (b) the development of home garbage disposers, incinerators and, now, trash compactors as substitutes for the more-collective good, trash collection; and (c) the development of electronic air filters as substitutes for cleaner air in the environment.

In more general terms, there are many other examples of how increased incomes are reducing consumers' relative demands for "shared" goods, which they can utilize only under particular conditions and at particular times -- e.g., urban mass transit and public libraries -- and are increasing demands for non-shared goods that are fully under the individual's control -- e.g., private autos and paperback books. I do not suggest that the distinction

between shared and non-shared goods is synonymous with the distinction between collective-consumption and individual-consumption goods. Nevertheless, there is a relationship: collective-consumption goods, except for the pure case, do require sharing.

2. A Fragment of Historical Evidence on Voluntary Provision of Public Goods. Our analysis concerning undersatisfied demanders of collective goods and their relationship to voluntary organizations portrays the latter as non-governmental providers of collective goods that are normally identified with governments. Historical events provide one test of our view, which implies that before a political-majority comes to demand government provision, the minority that demands governmental provision of a good will be undersatisfied and will turn to voluntary organizations. Thus, provision by voluntary (non-profit) organizations is hypothesized to precede governmental provision historically. It is noteworthy, therefore, that in 16th-century England, where governmental provision of any civilian goods or services was very modest, private "philanthropies" (voluntary organizations) were providing funds for such wide-ranging public, collective activities as schools, hospitals, non-toll roads, fire fighting apparatus, public parks, bridges, dikes and causeways, digging of drainage canals, waterworks, wharves and docks, harbor cleaning, libraries, care of prisoners in jails, and charity to the poor²³ -- in short, for the gamut of non-military goods that we identify today as governmental responsibilities. Such voluntary-sector-giving even included support for such noble charitable causes as "houses for young women convinced of their folly."²⁴ At the same time we are told that private interests "sought to prod the central government to carry forward needed projects . . ."²⁵ -- behavior that we would anticipate since collective-type goods were involved.

The relationship between governmental and voluntary provision of goods has also been noted by historians of Elizabethan England. "The various philanthropic activities, which we have been reviewing [including highways, police charity, hospitals and schools] were supplemented in some important respects by the corporate action of the towns."²⁶ Whether the public sector "supplemented" the voluntary, or vice versa, is, I believe, an insignificant distinction.

Note that it is quite consistent with our theoretic model that the level of politically determined governmental provision of a collective good can be zero even though a large minority (or even a majority, if a political decision rule other than majority vote is used) has positive demands. If the undersatisfied demanders turn to the voluntary sector, as is likely, then this sector will develop first. Later, perhaps in response to economic development, the number of positive demanders might increase and so the government sector would become a provider of the good involved. Thus, in general, we might expect the voluntary sector to precede the government sector in the provision of collective goods.

An historical perspective on public-sector activities raises the question of to what extent any observed changes in the relative size or scope of government are the results of changes in the magnitudes of variables -- e.g., incomes -- or changes in the magnitudes of parameters -- such as those mirroring attitudes toward the "appropriate" role of government. Both, of course, may be important. The view (hypothesis) being set forth here, however, is that the varying roles of government over time, as well as across countries, are not a consequence of exogenously-determined "attitudes" toward government; rather that such attitudes are themselves

endogenously determined by changes in incomes, in other demand variables and in the state of technology and factor prices. Depending on stages of development and on population demand characteristics, a different role for government can be expected.

3. Financing Voluntary Provision of Collective Goods. If our identification of voluntary organizations with the provision of public, collective goods, is valid, we should expect these organizations to confront finance problems. Indeed, because they share with private-sector firms "... the absence of the coercive and compulsive powers of government" Buchanan and Tullock have grouped those two types of organizations, terming them "voluntary groups" and distinguishing them from governments.²⁷

It is important, however, to distinguish between any differences among organizations in the types of their outputs, and differences in the methods of their finance, although the two are not entirely independent. Our emphasis here is on the nature of outputs, and on this basis the similarity of government and voluntary organizations is significant, as is the difference between both of these and the private for-profit organizations. The free-rider problem associated with collective goods does lead us to expect that non-governmental providers of such goods face a financial obstacle.

Upon further study, however, it turns out that voluntary organizations do employ "coercive and compulsive powers," just as do governments, although the penalties are social rather than governmentally sanctioned fines or imprisonment. While pressures to "donate" to the United Fund, Red Cross, Cancer Society, or private colleges, are (sometimes) somewhat more subtle than the pressure to pay one's taxes, the difference is one of degree, not of kind.²⁸

There are several plausible reasons why people may give to a voluntary organization when there is neither compulsion of law nor any apparent quid pro quo. One is the social pressure just noted.²⁹ A second reason, very closely related to the first, is captured by the recent conception of Pareto-optimal redistribution -- individuals' utility functions may be such that they derive benefit from either the act of giving or from seeing someone else benefitted.³⁰ That is, the apparent lack of a quid pro quo may be misleading. A "donor" to a voluntary organization may derive satisfaction from the act of giving to a "worthy" cause. Also he may benefit from the gratitude, esteem and plaudits of his neighbors and fellow citizens -- rewards which to some extent even show up as financial returns and act to internalize what would otherwise be external benefits to the donor.

Sometimes the benefit from giving is quite direct and in a private-good form; thus a giver may receive a tangible gift in return for his "donation". One organization offers a "free" road atlas for a \$3 donation; in other cases the donor may have his name inscribed on a plaque or even on a college library or hospital wing.³¹

The question of why people like such social reinforcement rewards and, hence, are willing to pay for them, is an important matter of utility-function determination that economists have avoided too long. Utility functions are not determined entirely by forces exogenous to the economic system, and even if they were, economic analysis could still contribute to understanding the process of their formation. In any case, there can be no doubt that there are very many transactions in the economy that involve no binding quid pro quo -- there are many things that people do which, like supporting voluntary organizations, bring little or no clear and certain reward. One example is truly voluntary giving to charity or to a blood

bank.³² Another is the support by young people for old age pensions through the social security system, support which appears to hinge on the hope and faith that future generations of young people will be willing to finance the retirement of the aged just as the current generation of young people is doing. It is by no means obvious why young people have such faith, but apparently it is a real force influencing actions. It seems to apply not only to retirement pensions, but also to the support for public education. There appears to be a "social compact" such that each generation of adults agrees to support the education of the younger generation.

4. The Logic of Public Subsidy for Voluntary Giving. We have seen in Figure 1 that of the seven (groups of) people portrayed, only three demand more than Q_1 level of provision at the price P . A fourth, however, consisting of people such as person 4, would derive some positive benefit from additional output. It might be expected, therefore, that a majority of voters would favor a government program that financed, in addition to Q_1 , a part of the cost of output in excess of that quantity. Given consumer awareness of the free-rider problem and its likely resolution in diversion of non-government resources from collective goods to private-good substitutes, a political majority of voters would be rational to agree not only to full governmental financing of some output but also to partial government subsidy for some additional non-governmental provision of collective goods.

Such a subsidy could take various forms, being an explicit grant or a tax-subsidy. Both, in fact, are employed. The voluntary hospital industry in the United States, for example, receives partial government support through outright cash grants from the federal government for construction, through the Hill-Burton Act, and also benefits from the income-tax deductibility of private contributions to voluntary non-profit hospitals. By contrast, the public hospitals are financed fully by government.

It is noteworthy that such governmental subsidies, and in particular the income-tax deductibility subsidies, are extended only to some of the non-governmental organizations that provide goods that are also provided governmentally. In general, only organizations in the health, education, charity, and religious areas can qualify for such government subsidies -- not, by contrast, the non-governmental organizations that either do, or might, provide trash collection, roads, fire or security services, or other services that have counterparts in the public sector. It would seem that the magnitude of the subsidy ought to depend -- from the standpoint of allocative efficiency -- on the severity of the free-rider problem -- that is, on the magnitude of external benefits that would be generated by individuals' private decisions to purchase (or supply) the good. If we were correct in arguing above that governments provide some non-collective-consumption goods, it would follow that subsidies would be widely supported (and would be efficient) only for the non-governmental providers of collective goods, and not for the non-governmental providers of private goods that substitute for collective goods.

Under current federal income-tax law, there are only two "levels" of such subsidization through the deductibility route: either zero, with gifts and grants to the organization not qualifying for tax deductibility, or full deductibility. (Of course, the importance of the latter from the giver's viewpoint depends on his marginal tax rate and whether he itemizes his deductions.) While a binary subsidy schedule would surely not be economically efficient under conditions of perfect information, it could be a reasonably good rule-of-thumb basis for setting subsidies to stimulate non-governmental provision of public goods.

How good is it? How effective is it? I make no attempt here to answer these questions carefully. While further study is needed, it seems that the kinds of activities for which private giving does qualify for tax deductibility do have a larger public-good component than is the case for other activities -- that is, they enter the utility functions of more persons and enter more "importantly". If this is so, then there is at least some efficiency basis for the voluntary-donations deductibility feature of our tax system.

5. Heterogeneity of Demand. Just as the model sketched above predicts that there will often be private-market or voluntary-market supplementation of governmental provision of goods, so it also predicts that there will be little or no undersatisfied demand -- and, hence, little or no extra-governmental provision -- if all consumer demands are essentially the same. One testable implication of this proposition is that if two political units (e.g., countries) differ in the degree of "heterogeneity" of their populations -- in the degree of income inequality, diversity of cultural heritage or other demand-determining variables -- the unit with the lesser heterogeneity will, ceteris paribus, have a lower level of private and voluntary-sector provision of collective-type goods or their substitutes.³³ In short, that country will tend to have a relatively larger public sector. Conversely, in a country, or smaller political unit, with great inequality in the level of individual's demands for collective goods, the level of private and voluntary sector supplementation of public-sector provision will be larger and the public sector will be relatively small.³⁴

It follows that one should not be surprised to find that the governmental "provision" (that is, support) of, say, church activities -- which have a significant public-good component for persons of that faith but not

for others -- is apparently great in countries where virtually the entire population shares one religion (e.g., Spain and Ireland). Similarly it is not surprising that the public provision (financing) is far lower in a country such as the United States, where religious preferences (including atheism) are far more diverse; it seems likely that no religion in the U.S. could win the support of a majority of voters to the cause of substantial public financing of its activities.

If our hypothesis is correct and the heterogeneity of demand for collective goods influences the degree of supplementation in private and voluntary markets, then the relative size of the government sector would be expected to be a function of that heterogeneity. As one test of this hypothesis an analysis has been undertaken of determinants of the changing relative size of the total non-defense government sector (federal, state, and local) in the U.S. for various years over the time period 1929-1969.³⁵ Explanatory variables in the model include, as proxies for heterogeneity of demand, the variances in income, age, and education, and measures of diversity of religion, race, and urbanness; mean or other average values (e.g., percent of population that is urban) for these six variables were also included. Of particular interest are the variance measures, for our model suggests negative signs for them. That is, it predicts that government (non-defense) expenditures as a percentage of total GNP will be a negative function of the variation in demand for collective-consumption goods, and we are taking heterogeneity of population characteristics to reflect such variation.

The regression model we used is handicapped by having only 10 degrees of freedom (24 observations and 13 independent variables); nonetheless, our findings, while not overwhelming, are rather encouraging. First,

inclusion of the heterogeneity measures actually increases the significance levels of the variables reflecting mean values. Second, the F-ratio is extremely significant (.0000 level). Third, of the six heterogeneity variables, five were negative, as hypothesized. Only two of the five -- religion and race -- were significant, however, a result that may reflect the multi-collinearity and the relatively small number of degrees of freedom. Variance in income, for example, had the anticipated negative relationship with the relative size of the government sector, but the coefficient was significant at only the .33 level.

Further analysis of time-series data would be useful in order to test for the impact of population heterogeneity. Similarly, cross-country comparisons of the size of the government sector would be useful. Lack of data on dispersions of demand-variables, however, is an obstacle to such studies.

6. Industry Analyses -- the Market Niches of the Public, Private, and Voluntary Sectors. The emphasis on the respective roles of the private and voluntary sectors vis-a-vis the public sector has led me to a new type of "industry study." Each service provided by governments (at this stage no distinctions between levels of government are being made) can be usefully thought of as a portion of an industry that also may include a voluntary and a private for-profit sector.

One principal hypothesis is that in such industries in which the government is providing essentially a private good, the undersatisfied demand will be manifest principally in the private for-profit sector, and the voluntary sector will be comparatively small. Similarly, if the government services are substantially collective, then supplementation will tend to be in the voluntary sector, with the private for-profit sector being relatively small.

Several small-scale industry studies for the U.S. are now under way to shed light on this hypothesis -- the hospital industry, the library industry, and the employment-service industry. Findings to date will be briefly summarized below. Other studies are planned for the education, fire, police-security, information-research and possibly other industries.

The hospital industry is a very complex, multi-product industry. Measured by expenditures, it is 22% public, 73% voluntary, and 5% private for-profit. Much of what any hospital does involves provision of private services, but some outputs -- such as medical care for the indigent, cancer-research-programs, and the stand-by availability of intensive-care units, open heart surgery facilities, and 24-hour emergency rooms that charge prices below profit-maximizing levels -- appear to be of a collective-good type, benefitting many potential users simultaneously.³⁶ I have attempted to test the propositions that public and voluntary hospitals provide essentially identical services, while for-profit hospitals less-commonly provide the kinds of collective goods just noted.³⁷ Data are limited but our tentative conclusion is quite supportive of our hypotheses regarding the roles of the 3 sectors. Consider emergency departments, in small hospitals (under 50 beds) for example: in 1969, 80.3% of public hospitals and 78.5% of non-profit hospitals had such a department (a statistically insignificant difference), but only 58.7% of the private hospitals (less than the public and voluntary percentages at the .05 level of significance). In general, for all of the six hospital-size classes, each of the twenty-one hospital services that we had previously identified as of the collective type were provided predominantly in public and voluntary hospitals, as expected, while each of the nine services identified as private-type were provided predominantly in the private, for-profit hospitals, again as expected.³⁸

We have found that private hospitals are significantly less likely than public or voluntary hospitals of similar size to have a social work department, a family-planning service, an organized outpatient department, a teacher-internship program or a cancer research program, to name some of the collective-type services studied. If there were no difference between the "collective" (government plus voluntary non-profit) and the for-profit hospitals with respect to frequency of provision of these various services, we would have expected to find that each service was equally likely to be found in either class of hospitals. In fact, however, this was decidedly not the case. Thus, our findings to date do tend to confirm the hypothesis that the collective and for-profit hospital sectors do differ in the extent of their provision of "collective-type" services.

Similarly, we have compared the relative frequency with which various services are found in the governmental and the voluntary hospitals. The hypothesis is that there will be no difference between these two sectors. We have found, after controlling for hospital size (as was also done above) that 60 percent of the services were provided with greater relative frequency in the government hospitals and 40 percent in the voluntary hospitals. This 60-40 split is significantly smaller than the 78-22 split found between the combined government-voluntary hospitals and the for-profit hospitals; this suggests that, as expected, the governmental and voluntary hospitals are more like each other than they are like the for-profit hospitals. Nevertheless, the 60-40 split is still significantly different from 50-50 (at the .05 level) and this does not support the hypothesis that the governmental and the voluntary hospitals are the same.

Further study and the search for better data seem to be warranted. We have barely scratched the surface of the research effort that is required

to discern the differences in outputs by type of hospital, since we have not considered community size, the total supply of hospital services in the "market area," or a variety of demand-side variables.

In the case of libraries, data have thus far been exceedingly difficult to find concerning the relative size of the three sectors.³⁹ One might guess, a priori, that the stand-by services of a research library have a significant collective-good component, whereas the provision of current best sellers is essentially a private good, entering the utility function of only the person who holds it at the moment. This being so, we would expect the bulk of the public library services -- which do not consist of current best sellers -- to be supplemented in the voluntary sector, while the private-good services of the public libraries are supplemented in the private sector. Both appear to be the case. There are, in addition to libraries of "private" universities (voluntary, in our terms), various "non-profit" libraries such as the John Crerar Library in Chicago and the Pierpont Morgan Library in New York City. There is a private for-profit sector, too; small and diffuse, it consists of the rental libraries that specialize in the private good, current best sellers; these libraries can be thought of as supplementing the level of public provision for persons who do not want to wait weeks or months to obtain today's favorite books.

The most appropriate way to define any industry is always a problem, given the availability of close substitutes, and this is certainly the case for libraries. There is a question as to whether it is useful to define an industry to include only rental activities; the availability of books for outright purchase is, of course, a close substitute for library books -- a private good substitute.

Turn now to the employment service industry.⁴⁰ Government employment services appear to provide an essentially private service in matching a worker with an employer. This being so, we would expect that persons seeking to supplement this government service, seeking a higher-quality or faster service, would turn to the private market, there being little rationale for attempting to organize in the voluntary sector. Indeed, given the apparently-small collective-component of employment services, and the variation in the extent to which people wish to use formal employment services, we expect the size of the public sector to be small. Again, our early findings support the expectation. In a study of hiring by 75 Chicago firms in the period 1960-63, it was found that among both blue-collar and white-collar workers, almost 98 percent found their jobs through private-market channels -- including referrals by other workers, direct firm applications, advertisements and employment agencies; nearly 2 percent found their jobs through the public employment service; and only about one-half of one percent, through the voluntary sector, including agencies of churches and charities.⁴¹

Our hypothesized difference between the types of good provided publicly and privately -- between the collective-consumption good and the private-good substitute -- is confirmed again in the employment-service industry. All employment agencies obtain job-market information as part of their activities. "Unlike a public intermediary, however, private agencies quite naturally endeavour to keep this information on vacancies and workers confidential.... Thus, ... private agencies restrict the flow of information in the market."⁴² By so doing, they can convert a collective good, of the type provided by government employment services, into a private-good substitute. Such information restriction, however, while privately rational, is socially inefficient.

Conclusion. To summarize: first, the expectation is that supplementation of public-sector provision of any good, will either be overwhelmingly voluntary or overwhelmingly private, depending on whether the publicly-provided good is primarily a collective or an individual good. In addition to the extent of "collectiveness" of the governmentally-provided good, the relative size of the voluntary and private sectors in any industry will depend on the state of technology -- specifically on the closeness of private good substitutes for collective goods and on the relative production costs.

Second, in a model attempting to explain the relative size of the government sector in some industry or for some country, a significant variable is likely to be the heterogeneity of demand -- the smaller the heterogeneity the smaller the non-governmental sector. In a simple majority-vote model without vote-selling, the greater the undersatisfied demand -- that is, the demand in excess of the median -- the larger will be the combined private and voluntary-sector outputs, and, hence, the smaller the proportion of industry output that is governmentally provided, for that is determined solely by the median. In another model that, for example, weighted voters by intensity of preference, the resulting predictions would differ quantitatively; yet we would still expect that greater variation in consumers' demand would lead to relatively greater extra-governmental provision and a relatively smaller role for the public sector.

The analytic approach suggested here points to a number of testable propositions, involving historical, international, and three-sector industry studies (governmental, for-profit, and voluntary). While a number of suggestive pieces of evidence from preliminary studies have been presented

in this paper, much more study is needed, both positive and normative, of the inter-related roles of the governmental, private, and voluntary sectors of the economy.

FOOTNOTES

1. For a useful survey of the varied conceptions of "public" goods, see Peter O. Steiner, "Public Expenditure Budgeting," (Washington, D.C.: The Brookings Institution, 1969).
2. This is not to suggest that the distinction is an insignificant one, but it is not examined in this paper. Indeed, there does not appear to be an accepted theory of the choice between government production and purchase.
3. See Anthony Downs, An Economic Theory of Democracy (New York: Harper and Row, 1957); Duncan Black, The Theory of Committees and Elections (Cambridge, U.K.: Cambridge University Press, 1958); James Buchanan and Gordon Tullock, The Calculus of Consent (Ann Arbor: University of Michigan Press, 1962); Jerome Rothenberg, "A Model of Economic and Political Decision-Making," in Julius Margolis, ed., The Public Economy of Urban Communities (Washington, D.C.: Resources for the Future, Inc., 1965); Roland N. McKean, Public Spending (New York: McGraw-Hill, Inc., 1968), especially chapter nine; and Hirschel Kasper, "On Political Competition, Economic Policy, and Income Maintenance," Public Choice, Spring 1971, pp. 1-19.
4. The majority rule approach may produce intransitive orderings. Moreover, since specific issues are generally decided by political representatives, not by voters -- at least not directly by voters, "... the link between individual utility functions and social actions is tenuous, though by no means completely absent." (Kenneth Arrow, "The Organization of Economic Activity: Issues Pertinent to the Choice of Market Versus Non-market Allocation," in Robert Haveman and Julius Margolis, editors, Public Expenditures and Policy Analysis [Chicago: Markham Publishing Company, 1971], p. 70.)
5. Albert Breton posits that individuals are more likely to engage in political activity the greater the difference between their actual and their desired position. ("A Theory of the Demand for Public Goods," Canadian Journal of Economics and Political Science, November 1966, pp. 455-467.
6. For a recent discussion of the issue see W. Lee Hansen and Burton A. Weisbrod, "Who Pays for a Public Expenditure Program?" National Tax Journal, December, 1971, pp. 515-517.
7. Paul A. Samuelson, "The Pure Theory of Public Expenditure," Review of Economics and Statistics (November 1954), pp. 350-356.
8. The horizontal price function assumes implicitly that the cost of supplying marginal quantities of the good (national defense, a park, or anything else) is constant, but this is simply for convenience of exposition and is in no way required.

9. In this model each consumer is seen essentially as a price taker and quantity adjuster; the tax-price rule, although a variable, is constrained. For a related discussion see Leif Johansen, "Some Notes on the Lindahl Theory of Determination of Public Expenditures," International Economic Review, September 1963, pp. 346-358.

10. The emphasis in the public goods literature has been on the quantity of the good supplied being equal for all consumers, (P. Samuelson, "Pure Theory," Restat., November 1954; J. Buchanan, "Notes for a Theory of Socialism," Public Choice, Spring 1970, pp. 29-43, esp. p. 30.) The comparative lack of attention to inequality in demands (as portrayed in Figure 1) is, in my view, unfortunate. If some particular national defense expenditure, or some lighthouse -- to use two favorite examples of public goods -- were demanded by only one person while all other persons were indifferent to them, these goods would presumably be provided in optimal quantities in the private sector. The point is not that such examples are realistic, but only that insofar as the key concern of analysts is the efficiency of private markets -- the market-failure issue -- the crucial characteristic of a "public" (collective-consumption) good is not its technical availability to many persons simultaneously, but the number of simultaneous beneficiaries -- persons into whose utility functions it actually enters.

In Figure 1, for example, the good is, I suggest, not a "public good" for person 2, and is not a public good for person 3 in quantities greater than Q_1 . Rather than regard a particular good as simply a public good, it is useful to think of women's public goods, water-sports, enthusiasts' public goods, Catholic public goods, "hawks" and "doves" public goods, etc. (Cf. Albert Breton, "Theory of Government Grants," Canadian Journal of Economics and Political Science, May, 1965, pp. 175-187, who refers to local, metropolitan, state, national, and world goods, but not to the aggregations of consumers (beneficiaries) discussed here.) The figure also illustrates that a commodity can be a public good for some persons -- entering all of their utility functions simultaneously -- and also a public "bad" for others, such as person 1, entering negatively into their utility functions.

In a recent paper Samuelson has also come to the conclusion that a public good is most usefully defined in utility terms, not in terms of "technological" characteristics of a good. See his "Pure Theory of Public Expenditure and Taxation," in J. Margolis and H. Guitton, eds., Public Economics, Proceedings of a Conference Held by the International Economic Association, St. Martin's Press, New York, 1969, pp. 98-123.

The extent of benefits to each consumer is a second determinant of the degree of private-market failure. If, for example, a lighthouse entered positively into the utility functions of a number of consumers, but was of trivial value to most, the "few" large demanders might well reach a bargain that led to essentially an optimal level of provision.

11. This paper does not explore the possible game-theoretic aspects of decision-making in the three sectors when collective-consumption goods are involved.

12. This was discussed at the theoretic level by Charles Tiebout, "A Pure Theory of Local Government Expenditure," Journal of Political Economy, October 1956, pp. 416-424. See Wallace Oates, "The Effects of Property Taxes and Local Public Spending on Property Values: An Empirical Study of Tax Capitalization and the Tiebout Hypothesis," Journal of Political Economy, November-December 1969, pp. 957-971 for a recent empirical examination of the Tiebout model of choice among local governmental units. Jerome Stein, in an analysis of optimal policy toward environmental pollution, has assumed away the issue of heterogeneous demands among consumers by assuming that ". . . each locality is composed of identical households . . ." ("Micro-Economic Aspects of Public Policy, American Economic Review, September 1971, p. 534.)

13. Discussing the exclusion principle with regard to collective goods, Kenneth Arrow illustrates the problem with the example of pollution: ". . . it would have to be possible in principle to supply [clean air or water] to one [person] and not the other But this is technically impossible." (In Haveman and Margolis, op. cit., p. 65).

But it is not impossible. Air and water filters, air conditioning, and bottled water perform precisely this exclusionary function, as do vacations to places "where the sky is not cloudy (or smoggy) all day."

14. A striking illustration of the difference between a public-good solution to a problem and a private-good solution is the adjustment to environmental hazards in less-developed areas. Where malaria-carrying mosquitos breed, the public goods, area-wide DDT spraying and swamp drainage, might be used; and among the private-good substitutes are mosquito nets and migration away from the area.

An incisive analysis of the difference between public sector and private sector rationing policies, involving money prices and waiting-time prices, is in Donald Nichols, Eugene Smolensky, and Nicholas Tiedeman, "Discrimination by Waiting Time in Merit Goods," American Economic Review, June 1971, pp. 312-323.

15. A vertical summation of the seven demand curves in the diagram would intersect with the commodity cost curve, $7P$, at quantity Q_2 , the output level that would be Pareto-optimal if tax prices were set equal to marginal valuations of each consumer. While the optimal output exceeds the "actual" in this illustration, this would not be the case under some other political-decision rule.

16. For a useful introduction to some issues in this area, see William Vickrey, "One Economist's View of Philanthropy," in Philanthropy and Public Policy (New York: National Bureau of Economic Research, 1962).

17. Eli Ginzberg et al. discuss a wide range of "non-profit" organizations. The authors observe that "Many non-profit organizations perform functions that are identical or closely allied to those performed by government. In fact, many governments weigh carefully whether to establish or expand certain activities under their own aegis; whether to seek to accomplish their goals by relying on non-profit organizations; or whether, as frequently happens, to do part of the work themselves and to look to non-profit organizations to do the rest." (Eli Ginzberg, Dale L. Hiestand and Beatrice J. Reubens, The Pluralistic Economy [New York: McGraw-Hill Book Co., 1965], p. 23).

On the relationship between the activities of non-profit and private for-profit organizations, however, Ginzberg et al. are not in agreement with the analysis in this paper. They state: "The key difference between the private sector and the not-for-profit sector is not in the economic activities which they undertake, but in whether they are organized in order to seek a profit from their efforts." (Ibid., p. 30.) These authors make no distinction between collective-consumption goods and their private-good substitutes.

18. If it is true that there exists a non-public voluntary sector that provides collective-consumption goods, as do governments, then it really is "...a shame that public goods are called 'public'." (Otto A. Davis and Andrew B. Whinston, "On the Distinction Between Public and Private Goods," American Economic Review, May 1967, p. 372.)

19. Our emphasis on the similarity of outputs of the government and voluntary sectors, and on the qualitatively different outputs of the private-sector substitutes, may be contrasted with the dichotomization presented by James Buchanan and Gordon Tullock. They emphasize the distinction between government provision and "private," where the latter includes both for-profit and "voluntary, but cooperative" organizations. (Buchanan and Tullock, The Calculus of Consent, op. cit., p. 50.) The similarity of voluntary, "philanthropic" activities and the activities of the "free market" is also expressed by Robert A. Schwartz who states that individual philanthropic efforts "supplement the functioning of the free-market system....," rather than supplementing the outputs of public markets, the emphasis suggested in the present paper. (Schwartz, "Personal Philanthropic Contributions," Journal of Political Economy, November-December 1970, p. 1291.)

20. For a theoretical analysis of organizational costs, related to both population heterogeneity and the nature of political decision rules, see J. Buchanan and G. Tullock, op. cit., esp. p. 115.

21. James M. Buchanan has recently focused attention on "the effects generated by governmental organization of the supply of goods and services that are largely if not wholly 'private', that is, fully divisible into separate and distinguishable units of consumption." "Notes for an Economic Theory of Socialism," Public Choice, Spring 1970, p. 29.

22. Cf. "Wagner's Law" which, though variously interpreted, predicts that the public sector will grow with per capita income. For the original exposition see Adolf Wagner, Finanzwissenschaft, Leipzig, 3rd edition, 1890; for discussions in English see Richard M. Bird, "Wagner's Law of Expanding State Activity," Public Finance, No. 1, Vol. 26, 1971; and Bernard P. Herber, Modern Public Finance: the Study of Public Sector Economics (Homewood, Ill.: Richard D. Irwin, Inc., 1971), pp. 371-381.

23. W. K. Jordan, Philanthropy in England, 1480-1660 (London: George Allen and Unwin, Ltd.), 1959, passim.

24. Robert Nelson, "An Address to Persons of Quality and Estate, Ways and Methods of Doing Good," published in 1715, cited by B. Kirkman Gray, A History of English Philanthropy (London: Frank Cass and Company Limited, 1905), p. 95.
25. Jordan, op. cit.
26. Gray, op. cit., p. 25.
27. James Buchanan and Gordon Tullock, op. cit., p. 49.
28. At the theoretical level this similarity has been discussed by Thomas R. Ireland and David B. Johnson, The Economics of Charity (Blacksburg, Virginia: Center for the Study of Public Choice, 1970).
29. John Stuart Mill recognized that societal reinforcement could serve as a possible inducement to people to incur costs for which there was otherwise little or no private benefit. Although arguing that "... it is a proper office of government to build and maintain lighthouses...[since] no one would build lighthouses from motives of personal interest....", and that few people would undertake scientific research without government support, he also mentioned the possibility that "great public spirit" might motivate some persons to undertake activities that are "of great value to a nation." (John Stuart Mill, Principles of Political Economy, Vol. III, [Toronto: University of Toronto Press, 1965], p. 968.)
30. See Harold Hochman and James Rodgers, "Pareto Optimal Redistribution", American Economic Review, September 1969, pp. 542-57; Robert A. Schwartz, "Personal Philanthropic Contributions," Journal of Political Economy, November-December 1970, pp. 1264-91; and T. Ireland and D. Johnson, op. cit.
31. Note that income tax deductibility of such "donations" would never be a sufficient inducement for giving, as long as marginal tax rates confronting an individual were less than 100 percent.
32. The market for human blood is discussed in the most thought-provoking book by Richard Titmus, The Gift Relationship (London: George Allen and Unwin, 1971).
33. The influence of "subcultures", defined by homogeneity of ethnicity and income, on voting behavior is examined in James Q. Wilson and Edward C. Banfield, "Public-Regardingness as a Value Premise in Voting Behavior," American Political Science Review, December 1964, pp. 876-887.
34. The relationship between population heterogeneity and degree of public-sector activity has also been considered in terms of the costs of organization; the greater the heterogeneity, the larger the prospective costs of organizing through political markets relative to the costs of organizing private firms. (See Buchanan and Tullock, op. cit., especially Ch. 8.
- For an interesting paper describing the variation in size of public sectors among a number of countries, and attempting to explain it by "ideological differences," see Anthony King, "Ideologies as Predictors of Public Policy Patterns: A Comparative Analysis," paper presented at Meetings of American Political Science Association, Chicago, September 1971.

35. In this work I have been aided by Jennifer Gerner.

36. This form of "option demand" was discussed by Burton Weisbrod, "Collective-Consumption Services of Individual-Consumption Goods," Quarterly Journal of Economics, August 1964, pp. 471-477. See also subsequent comments in the Quarterly Journal of Economics by M. Long, May 1967, pp. 351-52; C. Lindsay, May 1969, pp. 344-46; D. R. Byerlee, August 1971, pp. 523-27; and C. Cicchetti and A. M. Freeman, III, August 1971, pp. 528-39. Much of the debate has concentrated on whether an option demand would be present if the seller were a perfectly discriminating monopolist. Since real-world sellers are limited, however, in the knowledge required for such discrimination, and in addition seldom have substantial monopoly power, the option demand (or consumer surplus, in the case of zero uncertainty or of risk neutrality) will tend to be greater than zero for such stand-by services as those considered in the hospital industry.

37. In this hospital study I have been assisted by A. James Lee.

38. For further discussion and analysis of our findings concerning the three sectors of the hospital industry see Burton A. Weisbrod and A. James Lee, "A Model of Demand for Collective Goods, as Applied to the Hospital Industry," paper presented at the Conference on Medical Economics from an Industrial Organization Viewpoint, Northwestern University, May 19-20, 1972 (mimeo).

39. In the library work I am being assisted by Donna Beutel.

40. In the employment-service project I am being assisted by Marc Bendick, Jr.

41. Computed from data in Eaton H. Conant, "An Evaluation of Private Employment Agencies as Sources of Job Vacancy Data," in The Measurement and Interpretation of Job Vacancies, A Conference of the National Bureau of Economic Research (New York: National Bureau of Economic Research, 1966), pp. 519-47.

42. Economic Council of Canada, Eighth Annual Report, Ottawa, September 1971, p. 189.