mists who have been concerned with public investment and public expenditure decisions. One facet of this work has been manifest in benefit-cost analysis and the development of the PPB system. (116) PPB analysis rests upon much the same theoretical grounds as the traditional theory of public administration. The PPB analyst is essentially taking the methodological perspective of an "omniscient observer" or a "benevolent despot." Assuming that he knows the "will of the state," the PPB analyst selects a program for the efficient utilization of resources (i.e., men and material) in the accomplishment of those purposes. As Senator McClelland has correctly perceived, the assumption of omniscience may not hold; and, as a consequence, PPB analysis may involve radical errors and generate gross inefficiencies. [See (126).]

Public choice represents another facet of work in political economy with more radical implications for the theory of public administration. Most political economists in the public choice tradition begin with the individual as the basic unit of analysis. Traditional "economic man" is replaced by "man: the decision maker."

The second concern in the public choice tradition is with the conceptualization of public goods as the type of event associated with the output of public agencies. These efforts are closely related to Simon's concern for the definition and measurement of the results of administrative action. In addition, public choice theory is concerned with the effect that different decision rules or decision-making arrangements will have upon the production of those events conceptualized as public goods and services. Thus, a model of man, the type of event characterized as public goods and services, and decision structures comprise the analytical variables in public choice theory. Our "man: the decision maker" will confront certain opportunities and possibilities in the world of events and will pursue his relative advantage within the strategic opportunities afforded by different types of decision rules or decision-making arrangements. The consequences are evaluated by whether or not the outcome is consistent with the efficiency criterion.

Work in public choice begins with methodological individualism where the perspective of a representative individual is used for analytical purposes. (20) Since the individual is the basic unit of analysis, the assumptions made about individual behavior become critical in building a coherent theory. (32) (33) Four basic assumptions about individual behavior are normally made.

First, individuals are assumed to be self-interested. The word "self-interest" is not equivalent to "selfish." The assumption of self-interest implies primarily that individuals each have their own preferences which affect the decisions they make, and that those preferences may differ from individual to individual. (25)

Secondly, individuals are assumed to be rational. Rationality is defined as the ability to rank all known alternatives available to the individual in a transitive manner. Ranking implies that a rational individual either values alternative "A" more than alternative "B," or that he prefers alternative "B" to alternative "A," or that he is indifferent as between them. Transitivity means that if he prefers alternative "A" to alternative "B," and "B" is preferred to "C," then "A" is necessarily preferred to "C." [See also (13) and (48).]

Third, individuals are assumed to adopt maximizing strategies. Maximization as a strategy implies the consistent choice of those alternatives which an individual thinks will provide the highest net benefit as weighed by his own preferences. (117) At times the assumption of maximization is related to that of satisfying, depending upon assumptions about the information available to an individual in a decision-making situation. (105)

Fourth, an explicit assumption needs to be stated concerning the level of information possessed by a representative individual. Three levels have been analytically defined as involving certainty, risk, and uncertainty. (68) (72) The condition of certainty is defined to exist when: (1) an individual knows all available strategies, (2) each strategy is known to lead invariably to only one specific outcome, and (3) the individual knows his own preferences for each outcome. Given this level of information, the decision of a maximizing individual is completely determined. He simply chooses that

strategy which leads to the outcome for which he has the highest preference. (50)

Under conditions of risk, the individual is still assumed to know all available strategies. Any particular strategy may lead to a number of potential outcomes, and the individual is assumed to know the probability of each outcome. (1) Thus, decision making becomes a weighting process whereby his preferences for different outcomes are combined with the probability of their occurrence prior to a selection of a strategy. Under risk, an individual may adopt mixed strategies in an effort to obtain the highest level of outcomes over a series of decisions in the long run.

Decision making under uncertainty is assumed to occur either where (1) an individual has a knowledge of all strategies and outcomes, but lacks knowledge about the probabilities with which a strategy may lead to an outcome, or (2) an individual may not know all strategies or all outcomes which actually exist. (57) (91) Uncertainty is more characteristic of problematical situations than either certainty or risk. Under either certainty or risk, an analyst can project a relatively determinant solution to a particular problem. Under conditions of uncertainty, the determinateness of solutions is replaced by conclusions about the range of possible "solutions." (102)

Once uncertainty is postulated, a further assumption may be made that an individual learns about states of affairs as he develops and tests strategies. (108) (110) Estimations are made about the consequences of strategies. If the predicted results follow, then a more reliable image of the world is established. If predicted results fail to occur, the individual is forced to change his image of the world and modify his strategies. (83) Individuals who learn may adopt a series of diverse strategies as they attempt to reduce the level of uncertainty in which they are operating. (35) (109)

The Nature of Public Goods and Services

Individuals who are self-interested, rational, and who pursue maximizing strategies find themselves in a variety of situations. Such situations involve the production and consumption of a variety of goods. Political economists in the public choice tradition distinguish situations involving purely private goods as a logical category from purely public goods. (39) (97) (98) Purely private goods are defined as those goods and services which are highly divisible and can be (1) packaged, contained, or measured in discrete units, and (2) provided under competitive market conditions where potential consumers can be excluded from enjoying the benefit unless they are willing to pay the price. Purely public goods, by contrast, are highly indivisible goods and services where potential consumers cannot be easily excluded from enjoying the benefits. (17) Once public goods are provided for some, they will be available for others to enjoy without reference to who pays the costs. National defense is a classic example of a public good. Once it is provided for some individuals living within a particular country, it is automatically provided for all individuals who are citizens of that country, whether they pay for it or not.

In addition to the two logical categories of purely private and purely public goods, most political economists would postulate the existence of an intermediate continuum. Within this continuum, the production or consumption of goods or services may involve spill-over effects or externalities which are not isolated and contained within market transactions. (5) (23) (38) (75) Goods with appreciable spill overs are similar to private goods to the extent that some effects can be subject to the exclusion principle; but other effects are like public goods and spill over onto others not directly involved. (31) The air pollution which results from the production of private industry is an example of a negative externality. Efforts to reduce the cost of a negative externality is the equivalent of providing a public good. The benefits produced for a neighborhood by the location of a golf course or park is a positive externality.

The existence of public goods or significant eternalities creates a number of critical problems for individuals affected by those circumstances. (26) (58) (89) Each individual will maximize his net welfare if he takes advantage of a public good at minimum cost to himself. (42) He will have little or no incentive to take