

THE PRODUCTION AND CONSUMPTION OF WILDLIFE

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Abstract: Difficulties associated with the production and consumption of public goods and goods with declining costs are identified and discussed. Wildlife is suggested to be a public good. Program budgeting is a possible source of help in identifying costs and in searching for an optimum production level.

As moderator, I have two duties and one privilege. I am required to introduce the two speakers -- which I have just done; I must keep order in the lively discussion which is sure to follow their presentations -- which I plan to do; and I am allowed to say a few words about the problem which has brought us together.

What is there about the production and consumption of wildlife that causes difficulty? We produce millions of tons of food, millions of automobiles, and services of all kinds, without too much centralized concern about prices and production. On the other hand, education, defense, the post office, and public utilities are given a considerable amount of public attention.

I hope to remind you of some of the theoretical and practical difficulties associated with the production of goods and services, and I will suggest some special difficulties in the production and consumption of wildlife, in the hope that the two speakers will indicate where program budgeting would help or hinder.

There are usually three questions to be answered in the production of goods and services:

- 1) What to produce?
- 2) How to produce it?
- 3) Who is to consume it?

Question number two has two parts: the discovery of technically efficient alternatives and the choice of an economically efficient method of production from among those that are known to be technically efficient.

For private goods, the producer pays all the costs and the consumer gets all the utility. If, in this simple case the law of diminishing returns is operative, an "invisible hand" guides producers and consumers to an equilibrium. At this equilibrium point, an increase of one person's welfare can be accomplished only at the expense of impairing another's. What is more, the solution is in terms of variables that can be interpreted as prices, wages, income, and quantities of goods and services. It can be shown that with the simple model, price must equal marginal cost of production if total utility is to be maximized.

Further, in the manufacture of joint production goods -- where the technically efficient process uses two or more factors to provide two or more goods -- each factor's marginal value product in the production of each good must be equal to its market price.

Everyone greatly admires the efficiency and impersonality of the "invisible hand". A staggering amount of computation seems to be done with relative ease by the market. The system has another admirable quality; if disturbed, it returns to an equilibrium point.

However, even under this system Adam Smith saw the need for government action to:

- 1) provide protection against external dangers,
- 2) maintain internal order,
- 3) provide those goods and services which no private producer would manufacture or those which no private consumer would buy -- but which nonetheless were desirable. A modicum of self-imposed paternalism was felt to be necessary.

This simple economy had at least two major difficulties. Income distribution-- who received the goods -- could be extremely poor from some viewpoints. Returns to ownership could be quite high, while returns to labor and entrepreneurial effort could be quite low. Secondly, high levels of unemployment were consistent with equilibrium.

In addition, this type of economy was thought to be rather discouraging of invention and innovation. Thus we have patent laws.

However, as the economy progressed, even if slowly, more complex production processes and more complex goods were introduced. We encountered two additional problems:

- 1) the problem of externalities, and
- 2) the problem of declining cost industries.

There are two sets of externalities. In production, the cost to the private producer may be less than the total cost to the society. Pollution is a typical example. On the other hand, one producer's actions may lead to a reduction in costs for another producer. An example might be the reduction in the price of a metal acquired as a by-product in the mass production of another, more profitable, metal.

Consumption, too, has its externalities. For example, the private motorist does not pay the full cost of motoring. Bridges, highways, and tunnels ease his way, and, in general, he could not decrease pollution very much by keeping his car in the garage. On the other hand a high level of fire prevention activity on the part of my neighbors certainly renders my house somewhat more safe.

We are all aware of government action to subsidize the production of goods with external economies: bridges, educational activities, public health, and so on. We are beginning to observe activities in the areas where external diseconomies exist: pollution, noise abatement, automobile access to central cities.

Another type of good leads to difficulties: that good whose production is not governed, within the current effective range, by the law of diminishing returns. In the case of decreasing costs, marginal cost is below average cost. If total utility is maximized by setting price equal to marginal cost, full cost will not be recaptured by the producer. We are all aware of these goods: telephone and other public utilities, bridges, urban transit systems, highways, and so on.

In general, concerted action is required when:

- 1) private marginal cost is not equal to social marginal cost,
- 2) private marginal utility is not equal to social marginal utility, and
- 3) price is not equal to marginal cost.

Where does the production and consumption of wildlife fit into all of this? Wildlife may be a declining cost industry, but I suspect that the real problem lies in the failure of the market to take full costs and returns into account in performing the calculations.

To start with, we must recognize that wildlife is almost always a jointly produced good and that the production process uses a factor of great complexity--land.

Recall that a rational producer moves to the point in the productive process where marginal value products for a given factor are all equal. Let us consider a person who is producing refuge for shore birds and land for sub-divisions. Is it likely, even if he could capture the full private value of his production of shore birds, that he would not subdivide? Suppose that a market was set up for the wildfowl produced on his land. Is it conceivable that the market value of his wildfowl could even approach the marginal value product of an acre of land assigned to be sub-divided? Is not wildfowl a public good?

We are all aware that we are at a point in the evolution of our economy where public costs and public returns must receive more attention than is given by the purely competitive model with its concentration on private costs and returns. However, we don't like it. The impersonality of the "invisible hand" and the computational efficiency of the market are attractive. We balk at the problem of calculating true costs and returns.

Can program budgeting help with the identification and computation of total cost and total returns and thus help rationalize the production and consumption of wildlife?