

Policy Evaluations for U.S. Federal Timber Sale Accounting System Development

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Development of a timber sale accounting system for the U.S. Department of Agriculture, Forest Service ordered by the U.S. Congress, has entailed numerous evaluations and research projects. Critics of the current process claim administrative costs are not recovered by the prices paid for Federal timber. However, management of multiple resources for multiple uses makes traditional accounting difficult; i.e., keeping track of cash flows. A further complication involves allocating costs to the various resources (joint cost allocation), for which no nonarbitrary method currently exists. A concurrent issue involves the building of roads for timber harvest into areas released from wilderness consideration. Environmentalists see the road building program of the Federal land management agencies as an additional reason Federal management costs are not recovered from timber-generated revenues. The heart of the issue is which lands are economically suited for timber management, and what nonmarket benefits and costs accrue from timber management.

The United States has a large amount of public forest land. About 76 million hectares are managed by the U.S. Department of Agriculture, Forest Service. This represents about 8.5 percent of the land area of the U.S., and about 26 percent of the total forest land. By law, these lands are managed for many outputs, some of which are market valued, and some of which are amenities. Over the past few years, the Forest Service has sold about 50 million cubic meters of sawtimber annually. These lands have also supported about 230 million recreation visitor days, and many other uses. They represent an important national resource, and interest in their management is high.

The first Chief of the Forest Service, Gifford Pinchot, set the precedent for management of these lands with his famous directive of "the greatest good of the greatest number

in the long run". This multiple use policy can be difficult to implement when uses conflict. As Pinchot also said, "There are a great many interests on the national forests, some of which conflict a little . . ." Management direction to resolve conflicting interests for these national lands is influenced by Congress, the public, and professional resource managers.

Congress influences the management of the National Forests on an annual basis through the appropriation process. Appropriations are made for specific purposes, with close review by the oversight and budget committees, to assure funds are expended properly. The annual budget has a great influence on the management of the Forest Service. Congress also determines how the National Forests will be managed overall through legislation such as the National Forest Man-

agement Act of 1974. This Act requires each National Forest to prepare a land management plan, which describes the objectives for the unit. Specific areas for special uses are also designated by Congress, such as wilderness areas, Wild and Scenic Rivers, National Recreation Areas, and other uses.

The public influences the management of the National Forests through a public comment and appeal process in National Forest planning, and through direct contact with local National Forest managers. Each National Forest has or is developing a plan, which details how that land will be managed: what practices will be used, what outputs (both market and nonmarket) will be produced, what costs and revenues are expected, and what the environmental effects will be, by time period. If the public does not agree with the objectives and management direction set forth in the plan, they can appeal the decisions to another level in the Forest Service. If they still are not satisfied, the public can pursue legal changes through the courts. Forest Service management is always striving to meet the broad range of needs of the entire public. Special interest groups, however, often feel their desires are unmet, and proceed with appeals and political pressure.

Timber sales are an important part of each National Forest Land Management Plan. It is often through management of the vegetation, most often through timber sales, that the objectives of the plan are met. Recently, debate has arisen about the economics of National Forest management, particularly timber harvesting. The issue has come to be called "below cost sales," a pejorative term that has been applied to selected timber sales. These are timber sales which, measured by short term cash flow, do not return to the government the costs of planning and administration borne by the Forest Service. However, the intensity of the debate over the issue is heightened because of the impacts on forest land management in the United States, including unroaded, primitive areas deferral from development, soil erosion from road building and logging, fisheries and wildlife impacts, and the Federal government budget deficit. It also has the potential to cause a serious examination of the multiple use management direction of the Forest Service.

While some have argued that it is an ac-

counting question, the issue is in fact a continuation of the debate over how the National Forests should be managed. After World War II, the population and incomes of Americans grew rapidly, and so did the demand for housing and wood products. This led to increasing demands on the National Forests. To meet this demand, timber harvesting on public lands increased. Concurrently, higher incomes were combined with more leisure time and the means to travel to remote areas for recreation. Dual pressures for commodity production and amenity values then increased at the same time on public lands. The latest emphasis on "below cost sales" is the result of these forces.

Over the past few years, a number of studies have been published which argue that the Forest Service is unjustifiably losing money on some timber sales (Barlow et al. 1980, Sample 1984, Wolf 1984, General Accounting Office 1984). Each study has treated costs and revenues somewhat differently, but none include nonmarket benefits and costs, nor do they include improvements in the asset value of the forest through salvage harvests.

This level of interest in the economics of the National Forest timber sale program led Congress to direct the Forest Service to develop a timber sale accounting system. In response, the Forest Service set up a task force to consider the problem and design a system to meet the needs of Congress. The task force has been working on this charge for two years. Numerous difficult issues have been raised, including keeping track of cash flows for multiple outputs and multiple time periods.

The Forest Service has made a number of management responses to the below cost sales issue. Congress has requested improved information about timber sales, costs and benefits, and additional effects, both positive and negative, on other resources. The task force has delineated four stages for its study of below cost sales: investigation, design of alternatives, testing, and evaluation. The investigation stage began with hearings before a House Subcommittee in February 1985. In these hearings, the Forest Service described how cash flows differed between multiple use and profit maximizing objectives.

The alternative design stage was to develop

several accounting alternatives that could display a range of information relevant to timber sales: cash flows, costs incurred to mitigate or enhance other resources, changes in other resource benefits, and economic impacts on communities. Each alternative was tested repeatedly. Tests have now been done on 35 National Forests.

This experience has shown the Forest Service that its existing accounting systems are generally adequate for tracking timber sale expenditures and revenues. What is needed is a better method to delineate the expenditures of a sale's objectives and other outputs. For example, the objectives of one sale could be to manage an insect attack, to create an opening in the forest to benefit wildlife, or to support a timber processing mill in a small community. Current accounting systems generally do not report such rationales.

The accounting alternatives can present several different types of informational displays. One is the timber sale program's financial costs and revenues, including the costs of planning, administration, roads, overhead, stand examination, and resource support (wildlife, fisheries, cultural resources, water, and others). Balanced against these costs are the revenues received for timber and required deposits for activities such as brush disposal and reforestation. The investments that will return benefits over time are separated from current expenses. To date, these have been lumped together. Finally, the community impacts of income and employment are displayed. All these benefits and costs, including cash, non-market, and social, can be used to show the results of vegetation management.

Community stability is an especially important issue related to the economics of the timber sale program. Many small communities, particularly in the western U.S., are dependent on sawmills and other timber industries for their economic base. Because of the large proportion of timber under control of the Federal government in the West, Federal policies for selling timber and managing the lands can have a large impact on these communities. One of the policies of the Forest Service has been that we will support these dependent communities with sufficient timber sales to keep the mills going. Of course, this is contingent on the mills surviving the other economic pressures that they

face. However, timber sales are often made "below cost" to inefficient mills that would otherwise shut down if forced to pay higher stumpage prices.

Federal lands are not taxable by local governments to support schools, roads, and other local governmental responsibilities. As compensations for this, the Federal government returns 25 percent of the revenues from selling timber to local governments in support of roads and schools. This typically amounts to about \$150 to \$200 million per year. These payments are made regardless whether a sale is "below cost" or not. A reduction in timber sales would also lead to a reduction in the funds paid to States and counties every year.

A major difficulty in devising a system to provide better information for the timber sale program has been the continuing pressure for joint cost allocation. This is the problem of allocating the costs of doing a project among the several outputs produced. A dozen or more methods have been proposed for allocating joint costs, none of which produce a non-arbitrary result. In an effort to fully examine the advantages and disadvantages of the methods of joint cost allocation for Forest Service use, a number of studies have been commissioned (Hof and Field 1986, Hof et al. 1983, Leefers 1985, Rideout 1984, Schuster and Rideout 1986, SK&A 1986, SYDEC 1986). All have reiterated the arbitrary nature of existing joint cost allocation methods, and most have pointed out the dangers of decisions made based on results of using them. Nonetheless, pressure continues to produce the "true cost" of timber production and sales.

At risk in this issue is that the proper method for evaluating the economics of multiple use management will not be fully utilized. The proper way to examine the benefits and costs of timber management in a multiple use context is with a capital accounting framework (Bowes and Krutilla in prep., Bowes, Krutilla, and Stockton 1986). In this way, any immediate costs and benefits of an action must be compared with any change in the asset value of the forest. The net asset value is essentially the present value of the costs and benefits, both market and nonmarket, of the forest as far into the future as is prudent to project. If desired, the separable costs of various outputs can reasonably be

estimated, although with some degree of difficulty. Cash flow comparisons alone do not provide the proper information to make decisions on the economic suitability of an individual timber sale. Changes in the flows of benefits from the forest must also be considered, along with altered cost requirements. Not all chosen harvests result in immediate revenues, sufficient to cover the costs of harvest-related activity.

For the management of public forest lands in the United States, the issue of "below cost sales," or more accurately, the economics of the National Forest timber sale program, may have important impacts. Whether multiple use management produces the benefits foresters have long claimed is under serious question by the Congress and several environmental groups. The forestry community is having difficulty convincing skeptics that the nonmarket benefits are produced, and that their value exceeds the cost of their production. The potential exists to limit timber harvest to lands that show a strict financial gain. If so, the activities of the National Forest System, and hence the benefits to wildlife, forest protection and improvement, and recreation will be reduced.

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Total of 14 references

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PART III

EFFECTIVENESS OF FOREST POLICY PROGRAMS ON TIMBER SUPPLY FROM NON-INDUSTRIAL PRIVATE FORESTS