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# **The Effects of New York State Administered Outdoor Recreation Expenditures on the Distribution of Personal Income**

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THE EFFECTS OF NEW YORK STATE ADMINISTERED  
OUTDOOR RECREATION EXPENDITURES ON THE  
DISTRIBUTION OF PERSONAL INCOME<sup>1</sup>

L. A. Shabman and R. J. Kalter<sup>2</sup>

INTRODUCTION

Richard Musgrave has stated that there are three component functions of a governmental budget, and it would seem that, at least on a highly generalized level, they are the very functions of government itself.<sup>3</sup> The allocation function entails provision of individual wants which the market mechanism can not satisfy, such as defense, or can not satisfy effectively, such as conservation. In the jargon of the economist, the allocation function provides for wants where factors such as commonly owned resources, commonly shared needs, high risk, or externalities may inhibit the proper workings of the private market's price mechanism.<sup>4</sup> The provision of merit wants is also included as part of this function. The second function is stabilization of the economy. This practice occurs as an overt policy only on the federal level, and entails the use of fiscal and monetary measures to promote economic growth with both full employment and stable prices. The third function is to adjust the distribution of income between sectors of the

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<sup>1</sup>Derived from: Leonard A. Shabman, "The Effects on Personal Income Distribution of New York State Administered Expenditures for Outdoor Recreation" (unpublished M.S. dissertation, Dept. of Agr. Econ., Cornell University, 1969)  
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<sup>3</sup>Richard A. Musgrave, The Theory of Public Finance (New York: McGraw-Hill, 1959), pp. 5-28.

<sup>4</sup>Otto Eckstein, Public Finance (New Jersey: Prentice-Hall, Inc., 1964), pp. 10-15.



economy, geographical regions, or individuals. Conscious efforts at such income transfer may take the form of adjustments in the tax system, welfare programs, and/or location of government projects.

However, the functions of a governmental budget, as outlined by Musgrave, are not mutually exclusive categories. For example, a highway program, defense expenditure or recreation project, besides providing a service, also has effects on income distribution. If the overall objectives of government are to be met successfully, then concern for efficient provision of a service must be coupled with concern for the income effects that are associated with providing that service.<sup>5</sup> It is vital that the true income distribution effects of a program are understood, or the results of governmental actions to change income inequality with one program may be neutralized by the effects of other programs which were undertaken, wholly or partially, for other reasons. Moreover, quantification of income distribution effects may be helpful in making the trade-offs which exist between governmental objectives more explicit. This, in turn, may aid the decision maker in making program selections and modifications.

In New York State, as well as the nation, the expansion of income and leisure time among the general population has led to an ever growing demand for outdoor recreation.<sup>6</sup> In 1967, state administered expenditures for construction and operation of facilities to meet this demand were almost \$80 million, yet how this portion of the state's budget affects income distribution is a question which has not been answered. This is the question which will be investigated in this study. What will be asked is: Are the people in each income class getting what they pay for from the state? Are they getting a dollar of recreation expenditure for each tax dollar they provide for recreation?

There are, of course, value judgements to be made on who "needs" or "deserves" to be supplied with outdoor recreation. In other words, what should be the distributional effects of an outdoor recreation program may be as important a question as what they are. This type of value judgement will be explored in a general way in this study, but the first step is to determine the net transfer effects of the New York State program. The analysis will then be expanded to include a discussion of net income distribution

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<sup>5</sup>Since this study focuses on a specific component of New York State expenditure, the stabilization function will not be considered.

<sup>6</sup>U. S. Outdoor Recreation Resources Review Commission, Outdoor Recreation for America (Washington: U. S. Government Printing Office, January 1962).

effects in terms of a willingness to pay for benefits measure.<sup>7</sup> Finally, conclusions will be drawn and some possible alternatives to present policy will be suggested.<sup>8</sup>

#### PROCEDURES

This section will outline the basic procedures to be used in the analysis. In general, studies of this type have traditionally looked at the net transfer effects of governmental taxes and expenditures.<sup>9</sup> However, this study will not only follow this type of procedure but will also utilize another method of analysis. The effects of new public investment in outdoor recreation facilities on personal income distribution will be analyzed in terms of the willingness of each income class to pay for benefits received over time. In addition, a notion of the marginal utility of income will be attached to both procedures in order to obtain a more accurate picture of economic welfare. Hopefully, these additions to the classical form of analysis will make this type of study more useful to public decision makers.

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<sup>7</sup>An analysis of either net transfers or net benefits can be expanded to explore questions related to the utility of the dollar. This will be undertaken in the last section of this report.

<sup>8</sup>For example, one question relates to whether recreation expenditures have left the urban poor behind. The recently published Report of the National Advisory Commission on Civil Disorders has pointed out that lack of recreation facilities is one of the major grievances of the ghetto dweller, being more important than complaints of inadequate welfare, and on equal footing with inadequate education. See: Report of the National Advisory Commission on Civil Disorders (New York: Bantam Books, 1968), p. 144.

<sup>9</sup>Rufus Tucker, "The Distribution of Government Burdens and Benefits," American Economic Review, XLIII (May 1953), pp. 518-534.

Eugene Schlesinger, "The Statistical Allocation of Taxes and Expenditures in 1938/39 and 1946/47," Fiscal Policies and the American Economy, ed. K. E. Poole (New York: Prentice-Hall, 1951), pp. 410-421.

Don Seastone and Gerald Feather, The Impact of Tax Burdens and Government Expenditure Benefits upon the Distribution of Income in Colorado (Fort Collins, Colorado: Colorado State Agricultural Experiment Station, 1966).

O. H. Brownlee, Estimated Distribution of Minnesota Taxes and Public Expenditure Benefits (Minneapolis: University of Minnesota Press, 1960).

Net Transfers: This portion of the study breaks into two major parts. First, an analysis of how much of what the state spends on outdoor recreation accrues to each income class (gross transfer payments of income in kind), and second, the determination of how much each income class pays in taxes and user fees (burden).

Determination of gross transfers will utilize data which describes the participation, by income class, of individuals in various kinds of outdoor recreation activities.<sup>10</sup> The percentage of total use accounted for by each income class for any given activity will be obtained. This percentage can be viewed as a coefficient which, when multiplied by the dollars spent by the state on that activity, gives the dollar flow to that income group for the activity being examined. The sum of these dollar flows for all activities is the gross transfer payment through recreation to any income class. To illustrate:

$$P_i^r = \sum_{j=1}^n a_{ij} e_j$$

where:

$P_i^r$  = gross transfer payments from recreation to income class i;

$a_{ij}$  = percentage of visitor days of activity j taken by income class i;

$e_j$  = expenditures of the state on recreation activity j, (j = 1, ... n).

The next task is to determine how the burden of payment for state expenditures falls on each income class. There are three principal types of funds in New York State which are spent for recreation. These are outdoor recreation bond funds, federal grant funds, and revenues which the state itself raises for the General Fund. In addition, several special accounts provide revenue. State raised revenue for both the General Fund and the special accounts is derived from taxes and license fees. Money for expenditures from the bond account is raised principally through user fees and an earmarked amount of the state motor fuel tax. Federal grant money is assumed to have been raised from the tax revenues of the Federal Government.

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<sup>10</sup>U. S. Outdoor Recreation Resources Review Commission, "National Recreation Survey," ORRRC Study Report 19, Washington, 1962; and Bureau of Outdoor Recreation, The 1965 Survey of Outdoor Recreation Activities, Washington, Oct. 1967.

The next step is to assign the final tax and fee incidence to income groups. This procedure can be illustrated as follows:

$$B_i^r = b_i^r + g_i^r + t_i^r$$

where:

$B_i^r$  = total dollar burden for New York State administered recreation expenditures on income class i;

$b_i^r$  = dollar burden of bonds raised for New York State recreation expenditures on income class i;

$g_i^r$  = dollar burden of taxes to pay for federal recreation grants to New York State on income class i;

$t_i^r$  = dollar burden of taxes and fees for the New York State recreation budget on income class i.

The final step in the analysis is to find the net effect of burdens and gross transfer payments for each income class. This is accomplished by subtracting total burden for recreation ( $B_i^r$ ) from gross transfer payments for recreation ( $P_i^r$ ) for each income class.

Willingness to Pay: Rather than knowing the effects of total annual expenditures on income distribution, public decision makers are more likely to be interested in the effect of new investments on that distribution. However, the net transfer procedures for determining equity changes do not provide useful information for this purpose. In addition to not specifically analyzing new investment, the principal problem stems from the fact that future benefit and cost flows, for the program being considered, are not taken into account. The analysis is static and as such considers only a redistribution of a given amount of income.

What is needed is a method of analysis similar in mission to benefit-cost analysis.<sup>11</sup> The focus would, however, be on equity. A net present value benefit figure for recreation expenditures would be calculated for each income class. The major difference from the net transfer procedure is that benefits are measured by willingness to pay rather than gross transfer payments. Moreover, the analysis pertains to governmental recreation investment expenditures and not to the entire annual outdoor recreation program.

Marginal Utility of Income: The old proposition that an additional dollar may be worth more to a poor than a rich man,

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<sup>11</sup> Otto Eckstein, Water Resource Development: The Economics of Project Evaluation (Cambridge: Harvard University Press, 1958).

while perhaps controversial, nonetheless provides another perspective on the conclusions which can be drawn from this study. The progressive federal income tax structure suggests that society believes the ability to pay a dollar of taxes increases with income. This tax structure can be used as a proxy to provide one measure of a dollar's utility to various income groups.<sup>12</sup> Such a measure can then be applied to the results of the net benefit and net transfer payment approaches in an effort to gain further insight into the income distribution consequences of governmental recreation expenditures.

Some Further Considerations: The above discussion should serve to give a general picture of the methodology to be utilized below. However, before proceeding, three additional considerations should be discussed. First, why was New York State chosen as the area for analysis? Second, what year will be chosen for the analysis? Third, what is the meaning of the term "state administered recreation expenditure?"

The State of New York was chosen for this study for several reasons. The tax structure of the State is not as complex as, for example, the federal structure. Thus, data problems are reduced. Furthermore, the State had available all necessary data for the study. The outdoor recreation program is located in one department, while the federal program is spread over virtually dozens of agencies and departments which would have complicated the task of obtaining total and functional expenditure figures for outdoor recreation. While the federal program was eliminated because of its large size, local governments were eliminated because their small size would have led to a deficiency of data on which to do analysis, and also a lack of program in many areas.

Although the State emerged as the most logical unit of study, the necessary expenditure data has not been readily available. However, in 1967 the State moved to a Planning-Programming-Budgeting System and with this came expenditure information which was accurate and disaggregated enough to be useful. In view of this, it appeared that 1967 was the best year for study. Specifically, the study was done for the New York State 1967-68 fiscal year (fiscal 1968) which runs from April 1, 1967 to March 31, 1968. The available tax data was for 1967 taxes. This was the major source of revenue spent in fiscal 1968.

Once it was decided that the New York State program would be studied, means had to be devised to account for federal, municipal and private expenditures which effect the state recreation program. The State budget, alone, did not give a complete picture of "state

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<sup>12</sup>Otto Eckstein, "A Survey of the Theory of Public Expenditure Criteria," Universities -- National Bureau Committee for Economic Research, Public Finances: Needs, Sources and Utilization (Princeton University Press, 1961), pp. 439-505.

administered expenditures", because the State had control over federal grant money and bond account money. On the other hand, portions of the State budget went to local assistance grants and so were not State expenditures in the true sense, but were really State money initially administered by the State, but ultimately spent by localities. Trying to separate these factors was difficult. However, because the objective of this study pertains to the impact of State recreation money, factors, such as municipal grants, must be left in the analysis. Ultimately, it is a State decision if the money goes to recreation grants. Thus, it was necessary to set up a classification which covered not only money raised solely and spent directly by the State, but which also covered all recreation money which passed through State hands. Therefore, it was decided that the analysis would cover all "state administered expenditures."

#### INCOME DISTRIBUTION IN NEW YORK STATE

Since this study will examine the effects of a government program on personal income distribution, the necessary first step is to define the present distribution. In defining any distribution of income two basic needs emerge. The first is the definition of the income base, i.e., what is meant by income. The second is the definition of the income class groupings. This sort of information is necessary before benefits and burdens from state recreation expenditures can be assigned to each class.

Income Base: There are many ways to define income. The concept may include only wages and salaries or be expanded to encompass other monetary income and/or nonmonetary income or income in kind. It may be defined either before or after taxes. The argument over what is the ideal base for looking at equity questions has no end. It is ladden with value judgement, and often is dictated as much by what is possible to measure as it is by what is conceptually correct.<sup>13</sup>

The choice of an income base for this study was dictated by the available data. Since one basic premise is that National Recreation Survey (NRS)<sup>14</sup> use data by income group, can be used to allocate

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<sup>13</sup>For examples of the issues which can be raised see: Borris I. Bittker, et.al., A Comprehensive Income Tax Base? A Debate (Branford, Conn.: Federal Tax Press, 1968).

Henry C. Simons, Personal Income Taxation (Chicago: University of Chicago Press, 1938).

<sup>14</sup>The NRS studies were done in 1960 by the Outdoor Recreation Resources Review Commission (ORRRC) and in 1965 by the Bureau of Outdoor Recreation (BOR). See footnote 10, page 4.

the incidence of the gross transfers and benefits of government recreation expenditures, all other definitions of the income base should conform to NRS's. According to ORRRC:

The respondent was asked to classify the family according to total income "during the past 12 months." ... family income was defined to include: "wages and salaries, business profits, net farm income, pensions, rents and any other money income received by members of this family."<sup>15</sup>

This definition served as the basis for comparison with the income base used by data sources on income distribution.

The statistical sources on income distribution which were investigated included studies undertaken by the Office of Business Economics (OBE) of the U. S. Department of Commerce; the Bureau of Labor Statistics of the U. S. Department of Labor; the U. S. Internal Revenue Service's Statistics of Income, Individual Tax Returns; and the Census of Population and Annual Current Population Survey (CPS) of the U. S. Bureau of the Census.<sup>16</sup> All studies, except the OBE study, used income base definitions which were consistent with that of the NRS. However, the time periods for which the data were compiled differed from those of the study year. Moreover, indications were that the distribution of income had been changing over time. Consequently, estimates from earlier years may misrepresent the actual distribution in the year to be studied. For example, one report states that "from 1947 to 1964 there were significant changes in the proportion of families located in different income intervals. The proportion of families with incomes under \$3,000 declined from 31% in 1947 to 18% in 1964. Increases in the top income groups were equally dramatic."<sup>17</sup> Of the sources which were deemed acceptable on the basis of their definition of income, only the Treasury Statistics and CPS data had statistics which were recent enough to warrant their use.<sup>18</sup> The Internal

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<sup>15</sup>Outdoor Recreation Resources Review Commission, ORRRC Study Report 19, 111.

<sup>16</sup>For an explanation of these sources, see: T. Paul Shultz, "Statistics on the Size Distribution of Personal Income in the United States." A Report prepared for use of the Subcommittee on Economic Statistics of the Joint Economic Committee, Congress of the United States (Washington: U. S. Government Printing Office, 1965).

<sup>17</sup>U. S. Bureau of the Census, "Trends in the Income of Families and Persons in the United States 1947-1954," Technical Paper 17 (Washington: U. S. Government Printing Office, 1967), p. 1. This statement refers to income measured in constant dollars.

<sup>18</sup>It later became necessary to use some parts of the Bureau of Labor Statistics studies. This will be discussed at the appropriate point below.

Revenue Service data were available for as late as 1966 while the CPS data were in usable form up to 1967. Each of these sources were examined to see how well they fulfilled other desired characteristics.

One important need was finding data for New York State as opposed to national data. If New York differed significantly from the average, use of national statistics on income distribution would give a poor approximation of the New York situation. Only the Internal Revenue Service's Statistics of Income had data broken out for New York.

However, the Internal Revenue Service data contain certain undesirable characteristics. Estimations of income distribution taken from tax returns have a downward bias because two or three people in the same household may file separately (for example, husband and wife) and yet pool their income. This tends to increase the number of returns with low reported income even though the households where these returns originate may have a high pooled income. This bias was felt to be strong enough to eliminate the Treasury statistics from consideration.<sup>19</sup>

<sup>19</sup>This is supported by the 1967 CPS data presented below. Here it can be seen that as total family income increases the percent of families with two or more earners also increases.

Total Money Income	Number of Earners			
	0	1	2	3 or more
Under \$1,000	43.5	40.4	13.7	2.5
\$ 1,000 - \$ 1,499	45.6	34.7	16.5	3.1
1,500 - 1,999	47.5	34.9	15.2	2.4
2,000 - 2,499	41.3	37.9	17.3	3.5
2,500 - 2,999	32.9	40.9	22.4	3.8
3,000 - 3,499	24.5	48.1	23.5	4.0
3,500 - 3,999	19.8	49.2	26.3	4.5
4,000 - 4,999	10.1	52.3	30.7	6.8
5,000 - 5,999	4.8	51.0	37.5	6.7
6,000 - 6,999	2.6	50.1	39.3	8.0
7,000 - 7,999	1.1	46.7	42.3	9.8
8,000 - 8,999	1.0	41.9	45.7	11.4
9,000 - 9,999	.4	35.8	48.7	15.2
10,000 - 11,999	.8	31.7	49.0	18.5
12,000 - 14,999	.6	22.9	49.3	27.2
15,000 - 24,999	.8	23.6	41.1	34.5
25,000 - 49,999	1.2	33.0	34.8	30.8
50,000 and over	1.2	41.1	38.7	19.0

Source: U. S. Department of Commerce, "Current Population Reports," Series P-60 No. 59 (Washington: U. S. Government Printing Office, April 18, 1969), p. 3.



Because none of the surveys conformed exactly to the needs of this study, it became necessary to choose a source from a series of imperfect alternatives. The CPS data went through 1967 and the definition of income was compatible with that of the NRS. The CPS data, however, were for the nation and an estimate of New York State's income distribution was needed. On the positive side, the definition of the individual income classes could be aggregated to conform with those of the NRS surveys. Another consideration of major importance was that the sample used by the NRS "was a particular subsample of persons previously selected for the monthly labor force survey" of the CPS.<sup>20</sup> This common ground added further comparability to the NRS and CPS results. Attempts are made later to remedy the fact that CPS is a national rather than state study, but it was felt that CPS would be the most useful source for approximating the distribution of income in New York State.<sup>21</sup>

Income Classes: In order to use the CPS data on income distribution, the class definitions had to agree with those of the NRS. The class breakdowns for the CPS and NRS studies are shown in Table 1. The two distributions were brought into conformity by

TABLE 1

## INCOME CLASS BREAKDOWNS FOR NRS AND CPS DATA

NRS	CPS
under \$3,000	under \$1,000
\$ 3,000 - \$ 5,999	\$ 1,000 - \$ 1,999
6,000 - 7,999	2,000 - 2,999
8,000 - 9,999	3,000 - 3,999
10,000 - 14,999	4,000 - 4,999
15,000 and over	5,000 - 5,999
	6,000 - 6,999
	7,000 - 7,999
	8,000 - 9,999
	10,000 - 14,999
	15,000 and over

aggregating classes on both sides until the definitions were the same. For example, the three lowest classes in the CPS study were aggregated to coincide with the lowest class in NRS. The resulting

<sup>20</sup>ORRRC, Study Report 19, 104.

<sup>21</sup>For an explanation of the CPS see: U. S. Bureau of the Census, The Current Population Survey--A Report on Methodology, Tech. Paper 7, (Washington: U. S. Government Printing Office, 1963).

classification scheme was:

under \$3,000  
 \$ 3,000 - \$ 5,999  
     6,000 - 9,999  
    10,000 - 14,999  
   15,000 and over

Consumer Units: For this study, the number of consumer units in each income class is required. Therefore, a definition of the consumer unit is needed. The CPS has data for families, households and unrelated individuals. The objective was to pick the unit of measure which would most closely conform to the units used in the NRS. The NRS respondent was meant to represent individuals and not families. Samples were chosen so that "individuals residing in a household"<sup>22</sup> were selected for interviewing, and the sample allowed individuals to be from the same household. However, it was felt that using the CPS distribution of families or unrelated individuals would be incorrect, since use of one would ignore the presence of the other. The most important point was that the NRS respondent was asked to state his household income. Therefore, the distribution of household units was chosen as the unit of measure.

Distribution of Income in the United States: In December 1968, the Current Population Survey published a report on the distribution of households by income class in the United States. The results of the survey are reproduced in Table 2. The total number of households was estimated to be 60,446,000. With this information, the distribution of United States households by the income classes defined for this study was obtained and is shown in Table 3.

Distribution of Income in New York State: As was mentioned above, the CPS data were only available for the nation. There were no recent CPS data which gave a measure of income distribution in New York. Therefore, use of the national data to approximate New York either had to be justified or the data had to be adjusted.

Other studies showed that the distribution of income in New York was skewed more toward upper income groups than that for the country as a whole. For example, the 1960 Census showed income distribution in New York to be different than for the United States. Table 4 shows that, over time, there have been proportionally fewer federal tax returns from New York in the lower income bracket than for the United States. Thus, adjustments were necessary in the national data to make it more closely approximate conditions in New York State.

An adjustment was made by utilizing a portion of the data presented in Table 4. The difference between the percentage of returns filed in 1966 by New Yorkers in each class, as opposed to the

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<sup>22</sup>ORRRC, Study Report 19, 104.

TABLE 2  
 PERCENT OF HOUSEHOLDS BY MONEY INCOME  
 IN THE UNITED STATES, 1967

Income Class	Percent in Class
under \$1,000	4.6
\$ 1,000 - \$ 1,499	4.2
1,500 - 1,999	3.8
2,000 - 2,499	3.9
2,500 - 2,999	3.2
3,000 - 3,499	3.6
3,500 - 3,999	3.2
4,000 - 4,999	6.6
5,000 - 5,999	7.6
6,000 - 6,999	7.8
7,000 - 7,999	8.0
8,000 - 8,999	7.4
9,000 - 9,999	6.2
10,000 - 11,999	10.3
12,000 - 14,999	9.1
15,000 - 24,999	8.3
25,000 - 49,999	1.9
50,000 and over	.3

Source: U. S. Department of Commerce, "Current Population Reports," Series P-60, No. 57 (Washington: U. S. Government Printing Office, December 17, 1968), p. 2.

TABLE 3  
 PERCENT AND NUMBER OF HOUSEHOLDS BY MONEY INCOME  
 IN THE UNITED STATES, 1967

Income Class	Number of Units	Percent of Units
under \$3,000	11,910,000	19.7
\$ 3,000 - \$ 5,999	12,694,000	21.0
6,000 - 9,999	17,767,000	29.4
10,000 - 14,999	11,717,000	19.4
15,000 and over	6,358,000	10.5

proportion in each class nationally, was used as the adjustment mechanism. Table 5 summarizes the adjustment process. The reasoning is that if 3.1 percent fewer returns were filed in the lowest tax bracket in New York, then approximately 3.1 percent fewer households

TABLE 4

PERCENT OF FEDERAL INCOME TAX RETURNS IN EACH INCOME CLASS  
FOR THE NATION VS. NEW YORK STATE, SELECTED YEARS

Income Class Year	under \$3,000			\$3,000-5,999			\$6,000-9,999			\$10,000-14,999			\$15,000 and over		
	Fed.	State	Diff.	Fed.	State	Diff.	Fed.	State	Diff.	Fed.	State	Diff.	Fed.	State	Diff.
1959	36.3	32.1	-4.2	33.9	35.8	+1.9	21.8	22.5	+0.7	5.3	5.8	+0.5	2.6	3.7	+1.1
1962	34.0	29.6	-4.4	30.3	31.2	+0.9	24.5	25.0	+0.5	7.9	8.9	+1.0	3.3	5.3	+2.0
1963	33.2	28.4	-4.8	28.8	30.6	+1.8	25.3	25.6	+0.3	8.8	10.0	+1.2	3.9	5.4	+1.5
1964	32.0	27.5	-4.5	27.3	28.1	+0.8	26.2	27.0	+0.8	10.1	11.4	+1.3	4.4	6.0	+1.6
1966	30.7	27.6	-3.1	23.6	24.1	+0.5	26.3	26.7	+0.4	13.2	14.0	+0.8	6.2	7.6	+1.4

Source: U. S. Treasury Department, Internal Revenue Service, Statistics of Income, Individual Tax Returns (Washington: U. S. Government Printing Office, 1959, 1962, 1963, 1964, 1966).

were in this bracket. How they were distributed to other brackets is indicated by how many more New York returns were filed in upper brackets than at the national level. Thus, .5 percent was added to the \$3,000-5,999 class and so forth up to the highest bracket.

TABLE 5

ADJUSTMENT PROCESS TO DERIVE ESTIMATED DISTRIBUTION  
OF FAMILIES IN NEW YORK STATE

Income Class	Percent Diff. in Tax Returns	Percent of Households in Class - Nation	Adjusted Percent - N.Y.S.
under \$3,000	-3.1	19.7	16.6
\$ 3,000 - \$ 5,999	.5	21.0	21.5
6,000 - 9,999	.4	29.4	29.8
10,000 - 14,999	.8	19.4	20.2
15,000 and over	1.4	10.5	11.9

The last step was to determine how many households were in the various income classes in New York State. A figure for total households in the state was obtained from CPS estimates and this figure was multiplied by the estimated percentages of households in each class. The results are given in Table 6.

TABLE 6

ESTIMATED HOUSEHOLDS IN NEW YORK STATE  
BY INCOME CLASS, 1967

Income Class	% Households in N.Y. State	Total Households N.Y. State 1967	No. Households in Class 1967
under \$3,000	16.6	-	952,111
\$ 3,000 - \$ 5,999	21.5	-	1,233,155
6,000 - 9,999	29.8	-	1,709,211
10,000 - 14,999	20.2	-	1,158,592
15,000 and over	11.9	-	682,537
Total		5,735,606 <sup>a</sup>	5,735,606

<sup>a</sup>This figure is based on CPS estimate of 5,662,000 households in New York State in 1966 projected to 1967 with the annual rate of change of 1.3 percent as suggested by CPS.

THE DISTRIBUTION OF STATE ADMINISTERED RECREATION  
EXPENDITURES BY INCOME CLASS

The allocation of state administered expenditures to the various income classes assumes that dollars spent on recreation facilities by the state are transferred, as income in kind, in direct proportion to the use that class makes of the facilities provided.<sup>23</sup> For example, if income class i takes 25 percent of the user days in swimming then income class i also receives 25 percent of the dollars which the state spends for swimming facilities. The general procedure follows five steps:

1. Define the activity categories.
2. Determine what proportion of each activity is taken by each income class.
3. Determine how much the state spends on each activity category.
4. Multiply the proportion of use for each activity by income class by expenditures for that activity to determine the gross transfer payments each class realizes from each activity.<sup>24</sup>
5. Sum over all activities to estimate total gross payments to each income class.

These steps serve as an outline for the discussion which follows.

Definition of Activity Categories and Use: The NRS studies were used to allocate state administered expenditures from all sources to the different income classes. In order to develop a workable approach to the allocation process, the 25 outdoor recreation activities used by NRS were aggregated into more useful general categories. The categories had to coincide with the way in which the state categorized its expenditures on outdoor recreation, and the state categories were not as specific as NRS's. Thus, the state breakdown of activity categories, which was presented in the PFB budget, was used as a base and the NRS activities were aggregated under the various headings defined by that budget. Nineteen of the twenty-five NRS activities were related to the state definitions of outdoor recreation. As such, user days taken in these activities may have been at state funded facilities. The other six were excluded from the study because of their general nature and the lack of state involvement in their provision. Table 7 summarizes the results of this aggregation.

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<sup>23</sup>This section will deal only with gross transfer payments. The discussion of benefits and burden is left to the following sections.

<sup>24</sup>Reference will be made to allocation of state administered expenditures in proportion to visitor days taken. This will be true for all categories of expenditure except payment of debt service on recreation bonds. The allocation of this type of payment will be discussed fully later in this section.

Participation by Income Class: The NRS contain the most complete information available on the outdoor recreation participation of various income groups on an activity basis. This stems from the fact that the data collected were from household surveys drawn from a representative sample of the American population over twelve years of age.<sup>25</sup>

The NRS were taken in 1960 and 1965. The intention is to use a portion of the data to approximate user days taken by income class in 1967. Use of the data in this manner, however, has several difficulties. First, the possibility that use patterns may shift over time must be recognized. Second, the fact that the NRS interviews were with persons within a household, not the household itself, must be evaluated. Finally, the national rather than regional or state orientation of the survey results must be considered.

Because of the possibility that use coefficients for the respective activities and income classes may change over time,<sup>26</sup> data sources dated close to the time period for the study were desirable. Thus, the 1965 NRS appeared to be the most logical data source. However, the 1965 survey emphasized collection of data for the summer quarter only, whereas the 1960 survey covered all four quarters of the survey year. Since data on an annual basis were desired, the 1960 survey data were utilized but data from the 1965 survey were used to adjust the results.

The adjustments were made in the following way. First it was assumed that any changes in use from 1960 to 1965 which took place during the summer quarter reflected changes which occurred throughout the year. Then, the magnitude and direction of these summer quarter changes were calculated by taking the proportion of 1965 summer use to that of 1960 summer use. For example:

$$\Delta \text{swimming}_i = \frac{\text{1965 summer user days of income class } i \text{ (swimming)}}{\text{1960 summer user days of income class } i \text{ (swimming)}}$$

<sup>25</sup>Three other sources which have considered this problem on a smaller scale are: George Katona, James Morgan, Jay Schmiedeskamp, John A. Sonquist, "1967 Survey of Consumer Finances," (Ann Arbor, Michigan: Survey Research Center, 1967), pp. 91-118;

Elwood L. Shaefer, Jr., "Socioeconomic Characteristics of Adirondack Campers," Journal of Forestry (September 1965);

U. S. Bureau of Labor Statistics, "Survey of Consumer Expenditures, 1960-61, Consumer Expenditures and Income," (Washington: Government Printing Office), June 1964.

<sup>26</sup>There are at least two potential reasons why the same income groups may take different amounts of activity over time. The first is the possibility of changing tastes and preferences. Secondly, the whole distribution may have shifted over time and people moved from one class to another, but brought their old recreation preferences with them.

The value,  $\Delta$  swimming, is an indicator of change over the years 1960 to 1965 for swimming by income class  $i$  for the summer quarter. Multiplying the total 1960 user days taken for swimming by income class  $i$  by  $\Delta$  swimming, gives the 1960 figures adjusted for 1965. The same procedure was used on all activities. For hunting and skiing, where the activity was predominantly a fall or winter sport, the 1960 day use figures were not adjusted since using summer quarter data to make adjustments may have introduced biases.

Second, although individuals answered survey questionnaires, these responses were used to approximate, by income class, recreation use by households. This procedure was used because the income class to which the individual respondent was assigned was defined by household and not individual income. Finally, although the NRS were done on a nationwide basis, it is possible to select a representative sample of respondents for given geographic regions and utilize the data obtained from such a sample. Results for the Northeast Region<sup>27</sup> were, therefore, used to approximate use of recreation facilities in New York State.

Utilizing the NRS data base, the number of activity days taken by each income class was calculated and is presented in Table 7. The absolute number of user days shown are for the Northeast Region, summed over all four quarters of 1960 (adjusted for 1965 use data) and all vacations, trips and outings.<sup>28</sup> It is assumed that the proportions represented by these absolute figures apply to New York as well as the Northeast Region.

Determination of Use Coefficients: The data summarized in Table 7, however, were not the final basis for determining use coefficients. The user day figures represent total days taken at all state, local, federal and private locations. Since this study is concerned only with the state of New York's contribution to this package, methods were used to separate the state component from the other three. The federal provision of facilities in New York State is so small that its importance can be ignored for the purposes of this study.<sup>29</sup> However, a survey was made to determine the extent and use of

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<sup>27</sup>The states in the Northeast Region are: Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania.

<sup>28</sup>The following definitions are given by ORRRC 19 for vacations, trips, and outings. A trip occasion was defined as an overnight excursion or longer; a vacation was defined as the most important trip; an outing occasion was defined as an excursion including the better part of a day.

<sup>29</sup>The only two major federal facilities which were federally operated in New York State in 1967 were the Hector Grazing Area and the Fire Island National Seashore. There are other federal facilities, but they do not offer the possibility of mass recreation.



TABLE 7

TOTAL USER DAYS OF EACH NRS ACTIVITY TAKEN,  
BY INCOME CLASS, IN THE NORTHEAST REGION, 1960 ADJUSTED FOR 1965 USE<sup>a</sup>  
(UNITS=29,600)

Activity \ Income Class	under \$3,000	\$3,000-5,999	\$6,000-9,999	\$10,000-14,999	\$15,000 and over	Total
BOATING <sup>b</sup>	95	1048	1792	1553	695	4461
Canoeing	4	31	231	76	19	361
Sailing	5	67	167	557	293	1089
Water Skiing	2	159	247	153	34	595
Other Boating	84	791	1147	767	349	3138
FISHING <sup>b</sup>	547	1658	2105	649	737	5696
HUNTING <sup>b</sup>	266	680	488	87	22	1443
SKIING <sup>b</sup>	15	45	71	14	8	153
HISTORIC SITES <sup>b</sup>						
Sightseeing	1457	2975	6104	3239	1335	15110
FOREST-BACKWOODS <sup>b</sup>	404	1332	1191	294	272	3383
Mountain Climbing	3	15	40	10	14	5
Hiking	211	163	276	105	168	923
Horseback Riding	118	863	356	116	15	1468
Camping	72	291	519	63	75	987
DAILY USE <sup>b</sup>	10551	19523	22534	17230	11141	73959
Outdoor Games	6630	11596	12887	8645	7157	46915
Swimming	1014	3793	5973	4752	2477	18009
Nature Walks	1971	1619	2114	2696	209	8609
Picnics	936	2515	1560	1137	1298	426
WINTER SPORTS <sup>b</sup>	178	996	691	110	103	2078
Snow Sledding	112	676	242	29	36	1095
Ice Skating	66	320	449	81	67	983
EXCLUDED ACTIVITIES						
Attending Concerts						
Walking						
Driving						
Tennis <sup>c</sup>						
Golf <sup>c</sup>						
Bicycling						
Attending Sports Events						

<sup>a</sup> Calculated from NRS data.

<sup>b</sup> Activity category used in this study.

<sup>c</sup> For summer 1965 only.

municipal facilities in the state. A questionnaire was sent to each county agent in an effort to obtain useable information necessary to allocate portions of the user day totals to municipal areas. What resulted was the conclusion that municipal facilities were only important in the provision of swimming and picnicking facilities. This conclusion was further substantiated by ORRRC Report 1.<sup>30</sup> Thus, all municipal contributions other than swimming and picnicking were eliminated from consideration. However, the state granted over \$5 million to municipalities in 1967-68 through the budget, federal transfers and the Bond Program. If municipalities spent most of this money on picnicking and swimming facilities, then the \$5 million had to be allocated to the different income classes. In view of data limitations, user days were left unadjusted for local swimming and picnicking facilities and the assumption was made that the ratio of use between income groups is the same for both state and local facilities of this nature.

The next question which was examined was what effect private recreation may have on use patterns. Although many possible alternatives were considered, the only source that offered consistent information was the 1960 NRS survey. This was found in the question which asked people to state whether they had taken their recreation on public or private land. With this information it was possible to subtract that portion of user days taken at private facilities from total user days as shown in Table 7. This procedure adjusted total days taken by a private use factor. NRS data on public-private use was used for swimming, hunting, and camping and is shown in Table 8.

An adjustment for use of private facilities was also made in the boating category. However, in this case no NRS data were available. Therefore, an alternative adjustment process was necessary. The Statewide Comprehensive Outdoor Recreation Plan states that in New York State a large part of the docking facilities are private.<sup>31</sup> While no specific ratio of public to private facilities was stated, the study suggested that about one-third of all boating activity originated at private facilities.<sup>32</sup> It was assumed, however, that the lowest income group did not participate in using these private

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<sup>30</sup>Outdoor Recreation Resources Review Commission, "Public Outdoor Recreation Areas - Acreage, Use, Potential," ORRRC Study Report 1, (Washington: U. S. Government Printing Office, 1962), p. 63.

<sup>31</sup>New York Statewide Comprehensive Outdoor Recreation Plan, The Role of Private Enterprise, New York State Department of Conservation, 1965.

<sup>32</sup>It must be noted that this refers only to the mooring of boats and not use of boats. Many people, however, do not moor boats, but only take them to state owned launching facilities. Therefore, it was felt that 1/3 was a fair approximation of what proportion of boating days taken originate from private mooring facilities.

TABLE 8  
USE OF PUBLIC VS. PRIVATE FACILITIES  
(UNITS=29,600)

Income Class	Total Days	Percent Public	Percent Private
Camping			
under \$3,000	72	10	90
\$ 3,000 - \$ 5,999	291	89	11
6,000 - 9,999	519	73	27
10,000 - 14,999	63	95	5
15,000 and over	75	95	5
Hunting			
under \$3,000	266	30	70
\$ 3,000 - \$ 5,999	680	23	77
6,000 - 9,999	488	52	48
10,000 - 14,999	87	36	64
15,000 and over	22	33	67
Swimming			
under \$3,000	1014	79	21
\$ 3,000 - \$ 5,999	3793	74	26
6,000 - 9,999	5973	69	31
10,000 - 14,999	4753	61	39
15,000 and over	2477	54	46

Source: ORRRC survey data.

facilities, so no adjustment was made for this group. Otherwise the assumption was made that the other income groups used private facilities in proportion to total boating use. This resulted in the public-private breakdown for boating days shown in Table 9.

Fishing, skiing, historic sites and winter sports were not adjusted for private use. In each case the reasoning was that the proportion of private and public use was the same for each income class, so the effect on the resulting user proportions would be eliminated.

One other adjustment possibility had to be considered: that of interstate travel. Interstate travel may affect the assignment of burdens and positive dollar transfers. People who are traveling through the state or who leave the state to pursue a particular activity may reap rewards or bear burdens and not be accounted for

TABLE 9  
USE OF PUBLIC VS. PRIVATE BOATING FACILITIES  
(UNITS=29,600)

Income Class	Percent Days at Public	Percent Days at Private
under \$3,000	100	0
\$ 3,000 - \$ 5,999	79	21
6,000 - 9,999	65	35
10,000 - 14,999	69	31
15,000 and over	86	14

when computing the net income effects of recreation. It was assumed, however, that this factor had no effect on the use ratio between income classes that was suggested by the NRS data (adjusted for a private component). While this may seem arbitrary, upon more careful study, it appears to be a reasonable assumption. This is true for several reasons. First, the use data is for the Northeastern United States. Therefore, adjustments for travel to and from New York would be redundant since large portions of the travel in and out of New York can be assumed to result from Northeast users. Second, it can be assumed that the number of recreationists who come to New York from the Northeast is about the same as the New Yorkers who leave the state. If this is the case, the burdens and rewards of New York State's recreation program which fall on out of state vacationers are neutralized by the New Yorkers who receive recreation rewards and bear burden outside the state.

Third, the number of people who leave the state for trips and outings should be small. The Great Lakes to the North and West provide natural barriers to entry and exist from the state for short time periods. Lake Champlain and the forests in the Adirondack area perform the same sort of function in the Northeast corner of the state. In the New York City area a good portion of the trip and outing activity must stay in the state since large portions of Connecticut and New Jersey are still in the New York metropolitan area which has limited outdoor recreation capacity. Furthermore, the huge crowds on Long Island beaches on a warm summer day indicate that many New Yorkers from the city stay in the state for this activity. NRS data substantiates the fact that users travel only short distances for trips and outings and as such, will not travel around natural barriers or travel through many miles of megalopolis.<sup>33</sup>

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<sup>33</sup>NRS indicates that about 80% of people travel less than 100 miles for trips or outings. In most cases this would not take a recreationer beyond the metropolitan area unless he went North into New York State or onto Long Island. Furthermore, traffic congestion moving out of the city into Connecticut or New Jersey may put a time constraint as well as distance constraint on the individual.

Travel across the southern border with Pennsylvania remains to be considered. A recent study of the Whitney Point Reservoir which lies very close to the New York-Pennsylvania line, has shown that even here most of the users were New York residents.<sup>34</sup> For these reasons it was felt that the NRS data, unadjusted for interstate travel, were a fair approximation of user days taken by income classes in the state (after adjustment for private facilities).

In view of the previous discussion, the only adjustment made in the data on total user days taken by the various income classes, as shown in Table 7, was for use at private facilities. The results of this adjustment, utilizing the information tabulated in Tables 8 and 9 and aggregated on the basis of the broader budget categories used in this study, are shown in Table 15 on page 29. The aggregation was done by summing the user days (after adjustments) for the NRS activities which fell under each of the classifications.

Finally, use coefficients, which are a measure of the proportion of the activity days provided by state operated and funded facilities taken by each income class, were calculated using the following formula:

$$U_{ij} = \frac{D_{ij}}{\sum_{i=1}^5 D_{ij}} \quad \therefore \quad \sum_{i=1}^5 U_{ij} = 1$$

where:

- $U_{ij}$  = use coefficient of income class  $i$  for activity  $j$ ;
- $D_{ij}$  = total adjusted user days taken by income class  $i$  at activity  $j$ ;
- $i$  = income class 1, 2, 3, 4, 5 (1 = under \$3,000; 2 = \$3-5,999; 3 = \$6-9,999; 4 = \$10-14,999; 5 = \$15,000 and over);
- $j$  = activity 1, 2, 3, 4, 5, 6, 7, 8 (1 = Forest and Backwoods; 2 = Boating; 3 = Fishing; 4 = Hunting; 5 = Skiing; 6 = Historic Sites; 7 = Daily Use; 8 = Winter Sports).

The results of these calculations are found in Table 15 on page 29.

Distribution of Payments from Bond Debt Service: Activities considered previously are provided by expenditures for either the operation or construction of recreational facilities. Debt service on bonds, on the other hand, are the interest payments (and refunds

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<sup>34</sup>Robert C. Hirman, The Economic Impact of Reservoir Recreation on the Whitney Point Microregion of New York State, (unpublished M.S. thesis, Department of Agricultural Economics, Cornell University).

of principal) which are made to the holders of Outdoor Recreation Development Account Bonds. These expenditures do not go into provision of services in a direct sense, and so they cannot be allocated to those who use recreation services. Instead, they must be allocated as transfers to those who hold the bonds. The objection may be raised that bond debt service payments are not expenditures for recreation. However, without the sale of bonds, recreation facilities may not have been provided. Therefore, any payments which must be made to those who purchased the bonds can be viewed as the expense incurred in collecting capital for recreation expenditures. Normal financial procedure is to consider the cost of acquiring capital as a legitimate expenditure in pursuit of a given objective. Therefore, the cost of acquiring capital for recreation bonds must be seen as a legitimate recreation expenditure.

The next question then becomes: who receives this money when it is paid out? This will be answered by an argument for the tax advantages of state bonds. State securities have an advantage over private securities since interest income from these sources is not subject to the federal income tax. They also have a disadvantage in that their rate of return is relatively low. Therefore, as long as the taxable income of an individual is low, he is better off buying private securities at a higher interest rate and paying the tax on the interest income which accrues to him. However, the progressive nature of the tax system makes it less advantageous to take a higher rate of return in the form of interest payments as total income increases. That is, at some point the advantage gained in purchasing higher interest bearing securities is offset by the disadvantage of having to pay progressively higher taxes on the income received. This point is where the after tax rate of return of private securities falls below the rate of return on state securities which pay no tax. It is significantly above the \$15,000 lower limit of the upper income bracket as used in this study. This would imply that all the interest payments which go to those who hold recreation bonds should go to the upper income group. However, this assumes perfect knowledge of both the advantages and drawbacks of state bonds. Also, it assumes that only individuals buy these bonds while it is possible that other institutions such as trust funds may purchase them. However, it seems unlikely that the payments would reach the class below \$10,000 per year income. Therefore, 10 percent of total payments were allocated to the \$10,000 to \$14,999 income class, while 90 percent were allocated to the highest income group.

Determining the Level of State Controlled Expenditures: With the use coefficients available for allocating state administered expenditures, a measure of the extent of such expenditures was needed. These expenditures divide into three general groups:

1. Expenditures which are funded from some established efforts of the state government such as tax or license fee revenue.
2. Expenditures which are funded from the Recreation Bond Account. This account receives its funds from park user

fees, interest income, the Motor Boat Regulation Fund and an earmarked amount of the motor-fuel tax.

3. Expenditures which are funded by grants from federal sources.

Information on state expenditures from state revenue sources was obtained from the fiscal 1967-68 PPB budget for the New York State Department of Conservation. Data included expenditures by the state for capital construction, local assistance grants and operating expenses. The total Conservation Department budget was not all related to recreation, however. The program categories were:

1. General Administration
2. Water Resources
3. Mineral Resources
4. Forest Resources
5. Fish and Wildlife Resources
6. Outdoor Recreation.

With the assistance of several officials in the Department, portions of this total budget were defined as recreation expenditures. It was these portions (Table 10) which, when reduced to the budget subcategory and element level, were allocated to the eight defined activity breakdowns.

Water Resources and Mineral Resources were excluded from having any impact on recreation expenditures. This was done since neither category had any stated objective which related to recreation. Furthermore, although water quality management may have effects on recreation, this was not seen as a primary objective of the Water Resources Division according to the Conservation Department. They felt that the Division was just becoming involved in these problems and could be excluded from consideration.

TABLE 10

EXPENDITURES IN FISCAL 1968 BY THE NEW YORK STATE  
CONSERVATION DEPARTMENT

Category	Total Expenditures	Expenditures to Recreation
General Administration	\$5,586,170	\$3,629,960
Water Resources	9,830,114	-
Mineral Resources	188,000	-
Forest Resources	6,373,324	2,104,470
Fish and Wildlife	8,209,623	8,209,623
Outdoor Recreation	41,358,895	40,842,715
Total	\$71,906,126	\$54,786,768

The portion of Forest Resources allocated to recreation was in accordance with the stated objectives of the Division of Forest Re-

sources. There were areas where it was stated that the land was being used for recreation, multiple use or support of wildlife. These were state forest areas and so expenditures for state forests and a proportional amount for administration of state forest lands were allocated to recreation.

Expenditures for Fish and Wildlife were taken intact as expenditures for recreation. Except for the exclusion of the mineral water bath and bottling facilities at Saratoga Springs, the whole Outdoor Recreation Category was left intact.<sup>35</sup>

General Administration expenditures for recreation were arrived at by assuming that the proportion which recreation is of the total budget is the proportion of General Administration which goes to recreation. This was done by removing General Administration from the total budget to get a budget subtotal. Recreation, defined by some Forest Resources expenditures, Fish and Wildlife and Outdoor Recreation made up a fraction of this subtotal and this fraction was used to represent the proportion which recreation is of the total budget.<sup>36</sup>

As was mentioned earlier, the PPB figures represent only a part of total state expenditure on outdoor recreation. Also to be considered are Federal Grant funds and spending from the Outdoor Recreation Development Account. The amount of federal grants and the purpose of these grants is shown in Table 11. These figures were obtained from the Coordinator for Recreation Land Acquisition and Development at the Division of Parks.

The third source of funds is the Outdoor Recreation Development Bond Account. This program provides for grants to municipalities for acquisition of land as well as providing funds for state expenditures. The account operates essentially as an independent unit. In 1967-68 estimated expenditures were \$18,315,000 of which \$6,971,000 was for debt service on bonds outstanding. Table 12 presents the financial accounting of this account for 1967-68. Table 13 gives a summary of all state administered expenditures for recreation in fiscal 1968.<sup>37</sup>

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<sup>35</sup>Both these actions were taken in accordance with recommendations of officials in the Conservation Department.

<sup>36</sup>This proportion turned out to be .80. Therefore, 80% of all General Administration expenditures were placed in the recreation category.

<sup>37</sup>There do exist some user fees which are taken in at the park districts and never make their way back to Albany, but are put back into the district. The amount of these fees is unknown. Therefore, it was assumed that those who pay the fee get the rewards of park use and so the effect on net distribution of recreation rewards is zero.



TABLE 11  
EXPENDITURES FOR RECREATION BY NEW YORK STATE  
TAKEN FROM FEDERAL GRANT MONEY  
(Federal Fiscal 1968)

Grant	Amount
Land and Water Conservation Fund (Local and State Land Acquisition and Development)	\$3,859,393
Dingle-Johnson Funds (Fish and Wildlife)	430,000
Pitman-Robinson Funds (Fish and Wildlife)	1,396,270
Department of Interior, Division of Fisheries, Trout and Salmon Research	217,000
Total	\$5,902,663

TABLE 12  
ESTIMATED EXPENDITURES OF THE OUTDOOR RECREATION  
DEVELOPMENT ACCOUNT FOR FISCAL 1968 <sup>a</sup>

Balance, Start of Year	\$19,578,000
Income	
Fees, Charges, Interest	\$9,300,000
Motor Fuel Tax Proceeds	4,500,000
Expenditures	
Debt Service on Bonds	6,971,000
Transfer to Capital Construction Account for Reimbursement of First Instance Advances <sup>b</sup>	11,344,000
Balance, End of Year	\$15,063,000

<sup>a</sup>These are estimated expenditures, (1) because the accounting period used differs from the one used in this study and (2) because at the time this table was developed, it was not clear how much would actually be spent from the account.

<sup>b</sup>Reimbursement of a first instance advance occurs when, in the preceding time period, the capital construction account spends money for recreation with the consent of the bond account and is repaid in the following accounting periods.

TABLE 12--Continued

Source: New York State, Governor (Rockefeller), The Executive Budget, (Albany, New York: 1968/69), p. M158.

TABLE 13

TOTAL NEW YORK STATE ADMINISTERED  
RECREATION EXPENDITURES, 1967-68

Source	Amount
Federal Grants	\$5,902,663
Outdoor Recreation Development Account	18,315,000
State Budget Expenditures	54,786,768
Total	\$79,004,431

The next step is to allocate the \$79 million of total fiscal 1968 New York State administered outdoor recreation expenditures to the various activities groupings outlined earlier. This was done in accordance with the way the money was assigned in the PPB budget, Federal grants and bond expenditures. Table 14 summarizes the results of the allocation process.

TABLE 14

NEW YORK STATE ADMINISTERED RECREATION EXPENDITURES  
BY ACTIVITY

Activity	Expenditures
Boating	\$1,942,692
Fishing	5,636,539
Hunting	6,045,989
Skiing	1,184,127
Visiting Historic Sites	1,570,702
Forest and Backwoods	20,586,503
Daily Use	34,617,302
Winter Sports	445,229
Debt Service on Bonds	6,971,000
Total	\$79,000,083 <sup>a</sup>

<sup>a</sup>Total differs from total in Table 13 due to rounding

Determination of Impact: All the information necessary to allocate state administered expenditures for outdoor recreation to income groups is now available. The next step is to carry out the allocation procedure. The coefficient of use for each activity and each income class is multiplied by total expenditures on that activity. This gives expenditures which went to that class. The results of this process are given in Table 15. The following summarizes the procedure for completing the table.

$$U_{ij} E_j = e_{ij} \quad : \quad \sum_{i=1}^5 e_{ij} = E_j$$

where:

- $U_{ij}$  = use coefficient of income class  $i$  for activity  $j$ ;
- $E_j$  = total state administered expenditures on activity  $j$ ;
- $e_{ij}$  = expenditures on activity  $j$  which go to income class  $i$ .

The final step is to sum the transfers to each income class over the eight different activities as defined in this study. This would give the total dollar value of state administered recreation expenditures which went to each income class. The results which are found in Table 16 were calculated in the following manner.

$$\sum_{j=1}^8 e_{ij} = e_i^*$$

where:

- $e_{ij}$  = expenditures on income class  $i$  for activity  $j$ ;
- $e_i^*$  = total recreation expenditures which go to income class  $i$ ;

and,

$$\sum_{i=1}^5 e_i^* = \text{total state administered recreation expenditure.}$$

TABLE 15  
 GROSS TRANSFERS ACCRUING TO EACH INCOME CLASS  
 FROM EACH ACTIVITY  
 (UNITS=29,600)

Income Class	Total Days, NRS	Private Adjust-ment	Total Days Adjusted	Coeff. of Use	Spending for Activity	Total Transfers to Class
<u>FOREST AND BACKWOODS</u>						
under \$3,000	298	64	234	.127	-	\$ 2,614,486
\$ 3,000 - \$ 5,999	555	50	505	.273	-	5,620,115
6,000 - 9,999	871	207	664	.360	-	7,411,141
10,000 - 14,999	190	3	187	.101	-	2,079,237
15,000 and over	259	3	256	.139	-	2,861,524
Total	2173	327	1846	1.000	\$20,586,503	\$20,586,503
<u>BOATING</u>						
under \$3,000	95	-	95	.056	-	\$ 108,741
\$ 3,000 - \$ 5,999	1048	715	333	.195	-	378,825
6,000 - 9,999	1792	1222	570	.333	-	646,918
10,000 - 14,999	1553	1059	494	.289	-	561,437
15,000 and over	695	476	219	.127	-	246,720
Total	5183	3472	1711	1.000	\$1,942,692	\$1,942,642
<u>FISHING</u>						
under \$3,000	547	-	547	.096	-	\$ 541,108
\$ 3,000 - \$ 5,999	1658	-	1658	.291	-	1,640,233
6,000 - 9,999	2105	-	2105	.370	-	2,085,519
10,000 - 14,999	649	-	649	.114	-	642,565
15,000 and over	737	-	737	.129	-	727,114
Total	5696	-	5696	1.000	\$5,636,539	\$5,656,539
<u>HUNTING</u>						
under \$3,000	266	186	80	.151	-	\$ 912,944
\$ 3,000 - \$ 5,999	680	523	157	.296	-	1,789,613
6,000 - 9,999	488	234	254	.478	-	2,889,983
10,000 - 14,999	87	55	32	.060	-	362,759
15,000 and over	22	14	8	.015	-	90,690
Total	1543	1012	531	1.000	\$6,045,989	\$6,045,989
<u>SKIING</u>						
under \$3,000	15	-	15	.094	-	\$ 111,308
\$ 3,000 - \$ 5,999	45	-	45	.283	-	335,108

TABLE 15--Continued.

Income Class	Total Days NRS	Private Adjust-ment	Total Days Adjusted	Coeff. of Use	Spending for Activity	Total Transfers to Class
<u>SKIING (Cont'd)</u>						
6,000 - 9,999	71	-	71	.472	-	558,908
10,000 - 14,999	14	-	14	.113	-	133,806
15,000 and over	8	-	8	.038	-	44,997
Total	153	-	153	1.000	\$1,184,127	\$1,184,127
<u>HISTORIC SITES</u>						
under \$3,000	1457	-	1457	.096	-	\$ 150,787
\$ 3,000 - \$ 5,999	2975	-	2975	.197	-	309,428
6,000 - 9,999	6104	-	6104	.404	-	634,564
10,000 - 14,999	3239	-	3239	.214	-	336,130
15,000 and over	1335	-	1335	.089	-	139,793
Total	15110	-	15110	1.000	\$1,570,702	\$1,570,702
<u>DAILY USE</u>						
under \$3,000	10551	213	10338	.138	-	\$ 4,777,188
\$ 3,000 - \$ 5,999	19523	976	18547	.247	-	8,550,474
6,000 - 9,999	22534	1796	20738	.276	-	9,554,375
10,000 - 14,999	17230	1853	15377	.205	-	7,096,547
15,000 and over	11141	1139	10002	.134	-	4,638,718
Total	80979	5977	75002	1.000	\$34,617,302	\$34,617,302
<u>WINTER SPORTS</u>						
under \$3,000	178	-	178	.086	-	\$ 38,290
\$ 3,000 - \$ 5,999	996	-	996	.479	-	213,265
6,000 - 9,999	691	-	691	.333	-	148,261
10,000 - 14,999	110	-	110	.053	-	23,597
15,000 and over	103	-	103	.049	-	21,816
Total	2078	-	2078	1.000	\$445,229	\$445,229
<u>BOND DEBT SERVICE</u>						
under \$3,000				-	-	\$ -
\$ 3,000 - \$ 5,999				-	-	-
6,000 - 9,999				-	-	-
10,000 - 14,999				.100	-	697,100
15,000 and over				.900	-	6,273,900
Total				1.000	\$6,971,000	\$6,971,000

TABLE 16

TOTAL POSITIVE DOLLAR TRANSFERS FROM EXPENDITURES ON RECREATION  
IN NEW YORK STATE BY INCOME CLASS IN 1967-68 (IN 1967 DOLLARS)

Activity	Income Class					Total
	under \$3,000	\$3,000- 5,999	\$6,000- 9,999	\$10,000- 14,999	\$15,000 and over	
Boating	\$ 108,791	\$ 378,825	\$ 646,918	\$ 561,437	\$ 246,720	\$ 1,942,692
Forest and Backwoods	2,614,486	5,620,115	7,411,141	2,079,237	2,861,524	20,586,503
Hunting	912,944	1,789,613	2,889,983	362,759	90,690	6,045,989
Skiing	111,308	335,108	558,908	133,806	44,997	1,184,127
Historic Sites	150,787	309,428	634,564	336,130	139,793	1,570,702
Daily Use	4,777,188	8,550,474	9,554,375	7,096,547	4,638,718	34,617,302
Winter Sports	38,290	213,265	148,261	23,597	21,816	445,229
Fishing	541,108	1,640,233	2,085,519	642,565	727,114	5,636,539
Bond Debt Service	-	-	-	697,100	6,273,900	6,971,000
Total	\$9,254,902	\$18,837,061	\$23,929,669	\$11,933,178	\$15,045,273	\$79,000,083

## THE BURDEN OF PAYMENT

After determining the gross impact of state administered recreation expenditures, the next step was to determine who bore the burden for providing funds for these expenditures. In order to obtain a complete picture of the impact of recreation expenditures on personal income, it is necessary to know not only who received the dollars spent, but also who provided these dollars.

To quantify how this burden was distributed, a series of steps was followed. First, the sources providing funds for the almost \$80 million spent by the state for recreation in 1967 were determined. Then, how the process of taxation imposed burdens on each of the various income groups was investigated. Finally, the total impact of all burdens was obtained by summing the individual burden by income class for all revenue sources.

Sources of Funds: Funds for state administered expenditures on outdoor recreation come from three sources: the New York State budget, federal grants and Outdoor Recreation Development Account Bonds. Table 17 gives a general breakdown of these three major categories and shows the sources of funds for each. They will be discussed in more detail below.

TABLE 17

## STATE EXPENDITURES BY SOURCE OF FUNDS

General Expenditure Categories	Sub-Categories	Fund Source
BUDGET EXPENDITURES	General Fund	State Taxes
	Motor Boat Reg. Fund	Registr. of Motor Boats
	Conservation Fund	License Fees
FEDERAL GRANTS	Land & Water Cons. Fund	Motor Boat Fuel Tax
	Other Funds	Federal Tax Revenue
BOND EXPENDITURES	Motor Fuel Tax	Tax Revenue
	Park User Fees	Parking & Camping Fees
	Interest Income	Interest on Federal Bonds
	Motor Boat Reg. Fund	Registr. of Motor Boats
	From Bond Account	Future Bond Revenue

Budget Expenditures: The General Fund is the initial assignment for all state collected tax revenues, after earmarked taxes have been removed. The money is then parceled out from the General Fund to the various expenditure categories in line with the enacted state budget. All general fund moneys come from tax and fee revenues.

The Motor Boat Regulation Fund, until January 1, 1968, was used to provide service for marine activities in the state. After this date its revenues were to be transferred to the Outdoor Recreation Development Account.<sup>38</sup> These fees are collected for the licensing of motor boats and the collection of fines for violation of motor boat laws.

The Conservation Fund is an amount which each year goes directly to the Division of Fish and Game. Any further revenues which are needed by this division come from the General Fund. The money for this fund comes entirely from fishing and hunting license sales revenues.

Federal Grant Funds: Federal Grants for recreation expenditures come from accounts funded by tax revenues and from the Land and Water Conservation Fund which raises its money mainly through a tax on motor boat fuel and sale of surplus federal land. One problem is that the federal government also has interest income as well as obtaining funds through debt financing. Therefore, it could be argued that part of the federal grant money is from these sources and not tax revenue. While this may be true, it was felt that these factors were a relatively small portion of federal grant money. Therefore, the assumption was made that tax revenues were the only source of general revenue for the federal government.

Outdoor Recreation Development Bond Account: The money for expenditures which come from the balance of the bond account is raised by the sale of bonds in earlier time periods. These bonds must be repaid within 15 years and the most important sources of revenue for the account are user fees, interest income, and the motor fuel tax. The Motor Boat Regulation Fund, which was explained above, also provides revenue to the bond account.

User fees are paid for parking privileges at state parks and for facilities in the state camping areas. These fees, in total, are credited to the Outdoor Recreation Development Account.

Interest Income is revenue which the bond account obtains from investments in short-term federal securities. The federal government raises revenue to pay this interest from the taxpayers.<sup>39</sup>

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<sup>38</sup>New York State, Governor (Rockefeller), The Executive Budget (Albany, New York: 1968/69), p. 347.

<sup>39</sup>Just as with federal grants, it is assumed that interest income and debt financing are not part of federal revenue.



Amount of Funds: Table 18 indicates the absolute dollar value each of the accounts shown in Table 17 contributed to total New York State recreation expenditures. Although the total recreation expenditures by the State were given in the previous section, a more detailed breakdown of revenue by source was needed for burden allocation. The derivation of these figures will be discussed below.

TABLE 18

AMOUNT OF NEW YORK STATE ADMINISTERED RECREATION EXPENDITURES  
BY REVENUE SOURCE

BUDGET EXPENDITURES		\$54,782,420
General Fund		\$47,336,196
State Taxes	\$46,945,296	
Motor Boat Regulation	390,900	
Conservation Fund		7,446,224
License Fees	7,446,224	
FEDERAL GRANTS		5,902,663
Taxes	5,902,663	
BOND EXPENDITURE		18,315,000
Motor Fuel Tax	4,500,000	
User Fees	6,500,000	
Interest Income	2,669,700	
Motor Boat Regulation	130,300	
From Bond Account	4,515,000	
Total		\$79,000,083

The amount of Federal Grant money was derived from New York State Conservation Department data. The total amount of Bond Funds, as well as the breakdown of this total from the Motor Boat Regulation Fund, the Motor Fuel Tax, and the Balance of the Bond Account was obtained from the Executive Budget.<sup>40</sup> However, the budget contained a combined category (which has been separated in Table 18) of user fees and interest income. There was no precise revenue figure available for either of these categories. An estimate of \$6.5 million for the user fees portion was obtained from Albany.<sup>41</sup> Since no better estimate or source could be found, this figure was used and the remainder of the category was assumed to be interest income.

<sup>40</sup>New York State, Governor, m 158, 323.

<sup>41</sup>This figure was obtained in a telephone conversation with the Coordinator for Recreation Land Acquisition and Development, Bernard DeKay.

The other major source of funds was the State budget. The Conservation Fund total and the Motor Boat Regulation Fund total were taken directly from the Executive Budget.<sup>42</sup> This left state taxes as the only unknown quantity. Since total state administered expenditures were known along with all elements of total expenditures except state taxes, the amount from the general fund which went to recreation was easily obtained by subtraction.

With the source of funds and their amounts known, allocation of the burden for providing these funds to the various income classes could proceed. The remainder of this section will examine this process.

Budget Expenditures: The following discussion will explain the methodology used to allocate the burden of recreation expenditures to each income class. The burden of state taxes will be discussed first. This will be followed by a discussion of the burden of the Conservation Fund and the Motor Boat Regulation Fund.

Determination of the Burden of Taxation: A large portion of the money spent for recreation in New York State comes from state tax revenues. Therefore, to discover who bears the burden for a large part of state recreation expenditures, methods must be used to determine the incidence of the New York State tax structure.

A differentiation must be made here between legal burden and actual burden. The legal burden of the tax represents the statutory distribution of liabilities, while the actual burden represents the change in income distribution as a result of the general adjustment process in response to a change in budget policy.

The actual burden considers how the tax has affected consumption and investment patterns, and how this in turn affects both the rate at which consumers can substitute one good for another (the uses of income) and earnings which accrue to various factors of production (the sources of income). In practice, then, the legal liabilities never fully represent the actual burden imposed by a tax. This difference between actual and legal liabilities results from shifting of the tax burdens.<sup>43</sup>

This general equilibrium approach was not applied to the problem investigated in this study. In the first instance, the data requirements to carry out this type of analysis would be immense. Secondly, this study refers only to a small portion of the state budget and as such the difference between the actual and legal burdens would have to be looked at for the whole tax structure and then a proportion of this result attributed to recreation expenditures. This was beyond the scope of the study, so it was assumed that the taxes which go to

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<sup>42</sup>New York State, Governor, 323.

<sup>43</sup>See: Musgrave, The Theory of Public Finance. . .

just recreation would have little effect in the operation of the economy. However, some general comments about the impact this budget policy may have on the sources and uses of income will be made in the concluding section.

It therefore became necessary to simplify the analysis of burden. It was assumed that in the process of taxation, a tax is imposed on a person or institutional entity. It may be borne by this entity or transferred, in whole or part, to another. It then may be borne by this second entity or passed on yet again. This process could continue through many steps. Therefore, the entity who originally pays the tax may be able to recoup his financial losses by, for example, raising the price of his products. "The process of the transfer of a tax is known as the shifting of the tax, while the settlement of the burden on the ultimate taxpayer is called the incidence of the tax. The incidence of the tax is therefore the result of shifting."<sup>44</sup> A third term which is often used is impact. The impact of a tax is "the immediate result of the imposition of a tax on the person who pays it in the first instance."<sup>45</sup>

Referring back to the original definitions of legal and actual burdens, we are now concerned with neither in the true sense. All the interactions of the economy which must be considered in order to determine actual burden are assumed away, yet some shifting of the legal burden is allowed. In the true sense, shifting may involve income losses or gains which are not equal to tax revenue. In this study, even after shifting, total income loss or gain to all groups must equal total tax revenue. These distinctions should be borne in mind when considering the meaning of the terms burden, incidence and shifting.

There seems to be general agreement in the field of public finance that the legal burden of certain types of taxes are not shifted. The personal income tax and sales tax are of this nature. There is no clear consensus among tax economists, however, as to who bears the burden of business taxes. The arguments in the literature over the corporation income tax claim that anywhere from none to over 100 percent of this tax is shifted. Furthermore, there is no agreement among those who believe that some shifting exists about whether the tax is shifted forward to the consumer as higher prices, or backward to laborers as lower wages. In order for any empirical study such as this to proceed, some judgments must be made about, if not what is the "truth" about tax incidence, at least about what the majority of

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<sup>44</sup>E. R. A. Seligman, "Introduction to the Shifting and Incidence of Taxation," A. E. A. Readings in the Economics of Taxation, ed. Richard Musgrave, Carl Shoup (Homewood, Illinois: Richard D. Irwin, Inc., 1959), p. 202.

<sup>45</sup>Ibid., 202.

tax economists feel. The literature on this subject was thoroughly reviewed although by no means exhausted.<sup>46</sup> Yet it did indicate the scope and issues of the debate. However, the sort of conclusions which arose from the review were not clear. It seemed unlikely that a business tax is shifted 100 percent or retained 100 percent. Still, the empirical and theoretical studies all suffer "because we cannot conceptually or statistically hold constant all the relevant variables except corporate tax rates."<sup>47</sup> The shifting assumptions used in this study were made under the following assumed conditions. First, the tax is shifted to some extent in the long run since it becomes part of the cost structure of the firm, and goes into the marginal decisions about capital acquisition, price and output. Second, the tax can not be shifted in the short run since there is not enough time to incorporate it in the firms cost structure. Third, if the tax is shifted, it is shifted only forward to the consumer, since the bargaining power of labor makes it impossible to shift it backward to workers. Fourth, since there had been no change in the New York State corporate income tax rate for several years prior to 1968, the New York State business tax structure could be viewed as a known long run cost to industry. Fifth, since no consensus is apparent about what percent of the tax is shifted, and opinion ranges from zero to one-hundred percent, it will be assumed that 50 percent is shifted forward to consumers and 50 percent is retained and borne by corporate dividend holders. This 50 percent figure has two bases. First, it splits the difference in

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<sup>46</sup> Charles E. Marberry, "On the Burden of the Corporate Income Tax," National Tax Journal, XI (December, 1958).

B. V. Ruthford and P. B. Han, "The Burden of the Corporate Income Tax," National Tax Journal, X (December, 1957).

Eugene M. Lerner and Eldon S. Hendrickson, "Federal Taxes on Corporate Income and the Rate of Return on Investment in Manufacturing, 1927-1952," National Tax Journal, VII (September 1955).

John C. Clendenin, "Effects of Corporate Income Taxes on Corporate Earnings," Taxes, XXXIV (June 1956).

M. A. Adleman, "The Corporate Income Tax in the Long Run," Journal of Political Economy, LXV (April 1957).

Arnold C. Harberger, "The Incidence of the Corporation Income Tax," Journal of Political Economy, XL (June 1962).

M. Kryzaniack and R. A. Musgrave, The Shifting of the Corporation Income Tax (Baltimore: Johns Hopkins Press, 1963).

John Cragg, Arnold Harberger and Peter Mieszkowski, "Empirical Evidence on the Incidence of the Corporation Income Tax," Journal of Political Economy, LXXV (December, 1967).

Richard Goode, "Rates of Return, Income Shares, and Corporate Tax Incidence," Effects of Corporation Income Tax, ed. Marian Kryzaniack (Detroit: Wayne State University Press, 1966).

<sup>47</sup> Goode, 238.

the prevailing argument. Second, several studies on the incidence of taxation have used this allocation formula.<sup>48</sup>

The Amount of Taxes: The first step in allocating any tax burden is to determine the magnitude of the burden. The Annual Report of the New York State Tax Commission for fiscal 1968 (along with its statistical supplement) provided the information which was needed. In the fiscal year which ended in March 1967 (and provided funds for fiscal 1968) \$3,861,970,799 in tax revenue was collected. It was distributed to the General Fund, the War Bonus and Mental Health Account, the Highway Account, the Outdoor Recreation Development Account, and portions of the Motor Vehicle Fees were returned to the counties of origin. Table 19 shows the distribution of these funds.

TABLE 19  
DISTRIBUTION OF STATE TAX AND FEE REVENUE  
TO VARIOUS ACCOUNTS

Account	Amount
General Fund	\$3,534,075,207
War Bonus and Mental Health Account	191,521,350
Highway Account	90,497,697
Outdoor Recreation Development Account	4,500,000
Motor Vehicle Fees Returned to Localities	45,876,275
Total Tax Revenue	\$3,861,970,799

An earmarked amount of the motor fuel tax provided income to the bond account. Otherwise, the only tax money which went to recreation was from the general fund. This figure of \$46,945,296 to recreation was determined earlier. In order to allocate the burden of payment for this \$46.9 million, the portion coming from any given tax had to be determined. To do this, the proportion of the \$46.9 million spent on recreation to total revenue available for spending was calculated. The proportion was approximately .0133. Using this

<sup>48</sup>For example see: Tax Foundation, Tax Burden and Benefits of Government Expenditures by Income Class 1961 and 1965 (New York: 1967), or George A. Bishop, "The Tax Burden by Income Class, 1958," National Tax Journal, XIV (March, 1961), p. 41.

proportion it was assumed that 1.33 percent of any given tax went to recreation. The reasoning behind this was that the General Fund can be likened to a bucket of water being filled by many spouts. When a portion of it is ladled out, it is impossible to tell from which spout the water in the ladle came. The only possible estimate of this is how much each spout contributed to the total volume in the bucket. Likewise, it is impossible to differentiate the sources of tax revenue for recreation expenditure except by the total amount contributed to the General Fund from each tax source. Table 20 illustrates how much of each tax (1.33%) went to recreation from the General Fund.

Table 20 provides an estimate of the total burden broken down by type of tax. The next step is to allocate the burden for each tax to different income classes. To carry this out, coefficients which indicate burden by income class for each tax must be determined.

**The Coefficients of Burden:** The basic notion which will be used can be best illustrated by the example of the cigarette tax. This tax is not shifted. The full burden is borne by the consumer and so the amount of cigarettes consumed reflects the amount of cigarette tax paid. To allocate burden a source was needed which would indicate the dollar value of various taxable items owned, purchased, or used by each income class.

The Bureau of Labor Statistics (BLS) study on consumer expenditures and income was used most frequently to determine the extent of such household expenditures. When this source was inadequate, the Survey of Consumer Expenditures of the Michigan Survey Research Center was used. To determine who paid personal income taxes, the New York State Statistics of Personal Income was used.<sup>49</sup> Finally, the burden of the corporate income tax, left unshifted, was assigned to classes in proportion to dividend income in 1966 as taken from the Internal Revenue Services 1966, Statistics of Income - Personal Income Tax Returns.

While the BLS study gave specific data on cigarette consumption, for example, it did present some problems. It was done for the year 1960-61 and the year of this study is fiscal 1968. Furthermore, the income classes are defined by money income after taxes, not before as is the income base used in this study. Finally, the data available is for the Northeast, while this study is for New York State.

In order to make the years of study for the BLS survey and this study agree either the data had to be adjusted or the relationships of 1960 had to be assumed to hold for 1967. It was assumed that expenditures per household for each income class remained constant over time. For example, a household with income of \$3,000 per year

<sup>49</sup>New York State Department of Taxation and Finance, Office of Tax Research, Tax Statistics Bureau, Analysis of 1966 New York State Personal Income Tax Returns.

TABLE 20

TOTAL TAX FROM GENERAL FUND ELIGIBLE FOR RECREATION EXPENDITURE  
AND THAT AMOUNT OF EACH TAX WHICH WENT TO RECREATION

Tax	Total Tax from General Fund Eligible for Recreation Expenditure	Expenditures on Recreation from Each Tax Category		
Taxes on Consumption & Use	\$1,275,336,374			\$16,961,973
Sales and Use	604,327,031		\$8,037,550	
Motor Vehicle Fees <sup>a</sup>	137,628,683		1,830,461	
Motor Fuel <sup>b</sup>	180,810,364		2,404,778	
Diesel		\$ 122,644		
Gasoline		2,282,134		
Alcoholic Beverages	133,227,989		1,771,932	
Cigarette <sup>c</sup>	196,607,537		2,614,880	
Highway Use	22,734,770		302,372	
Taxes on Transfers & Other	264,953,394			3,523,880
Estate	116,029,108		1,543,187	
Parimutual, Boxing	148,924,286		1,980,693	
Personal Income Tax <sup>d</sup>	1,357,410,291			18,053,557
Corporations, Article 9	109,931,407			1,395,855
Corp. Reorganization	1,708,382		22,721	
Ag. Cooperatives	83,710		1,113	
Foreign Corp. Licenses	314,508		4,183	
Public Utilities	102,824,807		1,367,839	
Airline	606,334	8,064		
Electric and Gas	54,730,452	727,915		
Misc. Utilities	1,909,847	25,400		
Pipeline	1,178,079	15,668		
Railroad	989,016	13,154		
Telephone	40,937,938	544,745		
Truck	1,669,489	22,204		
Water	656,995	8,738		
Water Transportation	146,657	1,951		
Other Corporate Business	123,169,067			1,638,149
Bank Tax <sup>e</sup>	39,963,665		531,517	
Insurance Tax	83,205,402		1,106,632	
Corporations, Article 9-A	357,136,438			4,749,911
Agriculture	392,845		5,225	
Construction	11,356,779		151,045	
Finance, Ins., Real Estate	48,421,187		643,241	
Credit Agencies <sup>f</sup>	6,454,872	85,850		
Insurance Agents <sup>f</sup>	2,598,897	34,565		

TABLE 20--Continued.

Tax	Total Tax from General Fund Eligible for Recreation Expenditure	Expenditures on Recreation from Each Tax Category		
Security Brokers	\$ 11,538,646	\$153,464		
Real Estate	27,771,587	369,362		
Manufacturing	191,058,180		\$2,541,073	
Mining	1,678,517		22,324	
Retail Trade	28,320,518		376,663	
Services	25,499,180		339,139	
Services to Trans., Communication & Util.	10,321,697		137,271	
Wholesale Trade	40,145,121		533,930	
Unincorporated Business	46,638,236			620,288
Ag., Fish., Mining	1,305,871		17,368	
Construction	2,285,274		30,394	
Finance, Ins., Real Estate	18,375,465		244,394	
Finance		161,789		
Insurance		15,152		
Real Estate		67,453		
General	186,553		2,481	
Manufacturing	4,383,994		58,307	
Retail Trade	7,555,394		100,487	
Services	6,855,820		91,182	
Wholesale Trade	5,689,865		75,675	
Total plus	3,529,575,207			46,943,610 <sup>g</sup>
Earmarked Funds	332,395,592			
Total Tax Revenue	\$3,861,970,799			

<sup>a</sup>This figure does not include \$45,876,275 which was immediately returned to localities.

<sup>b</sup>This figure does not include \$4,500,000 earmarked for the Outdoor Recreation Development account or \$90,497,967 earmarked for the Highway account.

<sup>c</sup>This figure does not include \$21,845,064 earmarked to the War Bonus and Mental Health account.

<sup>d</sup>This figure does not include \$169,676,286 which was earmarked for the War Bonus and Mental Health account.

<sup>e</sup>This figure includes \$57,145 collected as tax on Special Banking Services under Article 9.



TABLE 20--Continued

## Other Corporate Business.

<sup>ε</sup>This figure differs slightly from the \$46,945,296 which was needed, however this is explained by rounding in the process of breaking the total tax structure down. Furthermore, the proportion .0133 was rounded down from .01330055. This also may lead to discrepancies.

in 1960 would spend the same proportion on food as a household with \$3,000 income in 1967. The weaknesses in this procedure include the need to ignore relative price level changes and changes in tastes that may occur over a six year period. However, to make total income class consumption patterns conform more closely with the notion of burden as defined in this study, each of the average household expenditure figures given by BLS were weighted by the number of estimated consumer units in each income class in New York State in 1967. The problems of income base and regional origin of the data, however, were assumed away since no means of adjustment was available.

In some cases, the BLS studies did not provide sufficient data for the allocation process. In these instances, the Michigan Survey Research Center study was used. Each year this center publishes a monograph on consumer purchases and buying intentions. Included in this study are details about the distribution of major consumer outlays. It defines the household and the income base in the same manner as is done in this study. The year of the survey, 1967, coincides well with this study, but it was done for the entire nation. Therefore, in the few places this survey was used, it became necessary to make the assumption that its conclusions were representative of New York State.

One major source of burden was that portion of the corporate income tax which falls upon stockholders. According to the shifting assumptions used here, fifty percent of all the corporate income tax is borne by stockholders. The question, then, is what income classes hold corporate shares. The method of approximating this was to look at 1966 Federal Tax Returns and see how much dividend income was reported by each class. This could serve as a basis for allocating the burden of the corporate tax.

The New York State statistics of Personal Income list the tax liability by class for the New York State personal income tax. This source was used to allocate the burden of this tax.

In general, the procedure for determining burden was carried out as follows:

$$b_{ij} = c_{ij} (D_j)$$

where:

$b_{ij}$  = burden of tax  $j$  on income class  $i$ ;  
 $c_{ij}$  = coefficient of burden for tax  $j$  on income class  $i$ ;  
 $D_j$  = dollars of tax  $j$ 's revenue to recreation; (see Table 20)

and

$$B_i = \sum_{j=1}^n b_{ij}$$

where:

$B_i$  = total tax burden on income class  $i$ .

The allocation of state taxes is only part of the burden which must be examined, however. There were other sources of funds for the state budget which needed to be allocated as well as trying to determine the burden for Federal Grants and bond funds.

The Burden of the Conservation Fund: This fund receives its revenues from sporting license fees sold in the previous year. The total balance of the fund is then used by the Division of Fish and Wildlife. License sales from the next year replenish the account. It was felt that the best way to allocate the burden for providing these funds was to place it on those who purchase fishing and hunting licenses. Since information of this nature was not available by income class, the next best alternative was to use fishing and hunting days taken by income class as a measure of licenses purchased.

The Burden of the Motor Boat Regulation Fund: The Division of Motor Boats is responsible for the registration of boats in New York State. Fees paid for boat registrations until December 31, 1967 were retained by the account to carry out its designated duties. Its duties were recorded as part of the state budget. As of January 1, 1968 all motor boat fees collected are deposited in the Outdoor Recreation Development account.

Since one-fourth of fiscal 1968 activities provided funds for the bond account, only one-fourth of the revenues are allocated to this account. The larger portion goes to budget expenditures. It was felt that the best proxy for boat ownership would be days taken by income class in the "other boating" category of the NRS.

Federal Grant Funds: The following discussion will allocate the burden for providing revenue to the federal government to the five income classes. First, coefficients for burden will be calculated and then the burden will be allocated.

The Coefficients for Burden: Revenue for federal grants is raised by federal taxes for all the grants except Land and Water

Conservation Fund money. This money was raised in three ways, the sale of federal lands, revenues from a tax on motor boat fuel and sale of Golden Eagle Passes to federal parks. The sale of these passes was for all intentions negligible and the program was phased out in 1969. There are few federal lands in New York State and so sale of any of these seems unlikely. This implies that the bulk of the revenues from New York which went to this fund were from motor-boat fuel taxes. New York is a state in which federal taxes exceed federal grants and, therefore, the whole burden for provision of funds to New York through the Land and Water Conservation Fund falls on New Yorkers who purchase motorboat fuel. The NRS data for "other boating" (this category is mainly motor boating) were used to allocate the burden of \$3,859,393.

The source of funds for other federal grants is tax revenues. Thus, the burden for providing these funds must fall on the federal taxpayer. It is necessary then to find some way to allocate the federal tax burden by income class. As noted above and substantiated by the State Executive Budget, New York ranks second in the nation in per capita income, but 49th in federal aid as a percent of state and local government revenues.<sup>50</sup> This implies that federal grants to New York are paid for by New York taxpayers. There is no income redistribution from other states to New York.

Since it is clear that the burden for these Federal Grants falls entirely on New Yorkers, a way is needed to allocate the burden between income classes. It would obviously be quite impractical to do a study of the incidence of the entire federal tax structure, so an approximation of the burden it imposes was needed. Fortunately, the New York State personal and corporate income taxes conform quite well to their federal counterparts in both the definition of income and the way the tax is levied, although there is not exact complimentary. Therefore, the proportion of total state tax paid by income class on personal and corporate income was used to determine the coefficient of burden for federal taxes.<sup>51</sup>

Bond Expenditures: This source of funds is the last which must be allocated. Bond funds come from several sources and each of these is discussed in turn.

The motor fuel tax of \$4.5 million is earmarked for the bond account. Determining the burden for providing this money by income

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<sup>50</sup>New York State, Governor (Rockefeller), The Executive Budget (Albany, New York: 1969/70), p. M10.

<sup>51</sup>The total tax referred to here is total tax to recreation. However, since the tax to recreation is the same proportion of all taxes, this was used to determine these coefficients. The procedure assumes that the proportion of revenue taken in by each tax is the same for the state and the federal governments. Although this may not be the case, it should give a close approximation of the tax burdens.

class was quite simple. The motor fuel tax was not shifted and the coefficients of burden calculated for this tax earlier were used for the allocation of burden. The \$80,708 of the Motor Boat Regulation Fund which went to the bond account was allocated to the various income classes according to boating days taken.

Park user fees were estimated at \$6.5 million for fiscal 1968. The burden of the fees falls on those who use state facilities and the estimation of use by income class was made by analyzing the NRS data for days taken of daily use activities plus camping and hiking. The burden for providing interest income to the bond account falls on the federal taxpayer who must provide revenue for the interest paid by the federal government.

The sources of funds for bond account balances are the motor fuel tax, user fees, and interest income of future years. It was assumed that the proportions of total returns to the account represented by each of these sources would remain constant over time. Therefore, the relationship among sources in 1968 was assumed to remain constant to 1978 when the bonds would be repaid. The proportions can then be used to determine where the money to repay the bond account balances will come from.

The Total Burden: This completes the examination of how the individual taxes and funds impose burdens on each income class. In Table 21 the results of the calculations and the burden by income class are displayed.

TABLE 21

TOTAL BURDEN BY INCOME CLASS FOR PROVISION OF FUNDS  
FOR STATE ADMINISTERED RECREATION EXPENDITURES

Sources of Burden	Income Class					Total
	under \$3,000	\$3,000- 5,999	\$6,000- 9,999	\$10,000- 14,999	\$15,000 and over	
<b>Budget Funds</b>						
State Taxes	\$1,311,085	\$5,421,522	\$11,478,651	\$10,109,792	\$18,660,812	\$46,981,862
Motor Boat Reg.	10,554	98,507	143,069	95,380	43,340	390,900
Conservation Fund	878,654	2,390,238	2,650,856	752,069	774,407	7,446,224
<b>Federal Grant Expenditures</b>						
Land & Water Cons. Fund	104,204	972,567	1,412,538	941,692	428,392	3,859,393
Other Federal Grants	44,952	206,370	429,087	365,745	997,116	2,043,270
<b>Bond Account Expenditures</b>						
Motor Fuel Tax	126,000	828,000	1,831,500	1,246,500	468,000	4,500,000
Motor Boat Reg.	3,518	32,836	47,690	31,793	14,463	130,300
User Fees	851,500	1,566,500	1,826,500	1,365,000	890,500	6,500,000
Interest Income	58,733	269,640	560,637	477,876	1,302,814	2,669,700
Bond Balances	342,033	836,720	1,314,971	1,054,952	966,324	4,515,000
<b>Total Burden</b>	\$3,731,233	\$12,622,800	\$21,695,499	\$16,440,799	\$24,546,218	\$79,036,549 <sup>a</sup>

<sup>a</sup>This total differs slightly from that in Table 18 because of rounding errors.

A METHOD TO CONSIDER THE INCOME DISTRIBUTION EFFECTS  
OF STATE ADMINISTERED RECREATION EXPENDITURES FOR  
NEW OR EXPANDED FACILITIES

In view of the multidimensional nature of the social welfare function, the public decision-maker may want to know the present value equity effects of a state investment program. In fact, the state's capital investments will bring forth benefits and impose costs on various income groups into the future and this may be of major concern in the decision-making process.

In this section, how additions to the state recreation program, in the form of capital investment in state operated facilities, provide benefits and impose burdens over time on different income classes will be examined. No attempt will be made to include the development effects of state expenditures. For example, the impact on the construction industry will be neutral since it will be assumed that New York State was operating at full employment. Likewise, the multiplier effects of increased recreational trade will not be considered. In a sense, the state can be pictured as taking money from the population which is demanding recreation and spending it for them. The question then becomes, what is the equity effect of the state program?

The approach to this question required unique data which were not readily available, as well as new empirical methods. Yet the potential results of such an approach would be quite useful in the decision-making process. In view of this, assumptions were made where necessary to rework the data previously used. Additional data sources were used when necessary.

It may be argued that the data used have many flaws. However, the procedure offers a new approach to the old distribution question and, in view of this, the best data available was used in hopes that gaps will be highlighted and more complete data will be available in the future.

The Model: The basic procedure will be to net out present and future costs to each income class for provision of recreation facilities against a measure of present and future benefits. The idea of netting out benefits and costs conforms to the procedure for finding net transfer payments and so offers some basis for comparability between the two approaches, both within an income class and between classes.

The costs and benefits from the future which result from current expenditures are viewed as diminishing in present value over the life of the investment. To account for this, the costs and benefits to each class are discounted using a given interest rate ( $i$ ) and time horizon ( $T$ ). The costs referred to are operating and maintenance costs ( $O$ ). There exists also the capital cost ( $K$ ) of the investment which must be considered on the cost side of the formulation. This fixed investment occurs in the year of the expenditure only and is therefore not discounted.

For any given investment there exist total benefits and costs. The present value of total cost is:

$$C = \sum_{t=1}^T \frac{O_t}{(1+i)^t} + K$$

The present value of benefits is:

$$B = \sum_{t=1}^T \frac{B_t}{(1+i)^t}$$

However, any given income class receives only some portion of these benefits and bears some part of the costs. Let  $b_j$  equal the proportion of benefits to income class  $j$  and  $c_j$  equal the proportion of costs to income class  $j$ . In this case the costs to income class  $j$  are:

$$C_j = \sum_{t=1}^T \frac{(c_j) O_t}{(1+i)^t} + (c_j) K$$

The benefits to income class  $j$  are:

$$B_j = \sum_{t=1}^T \frac{(b_j) B_t}{(1+i)^t}$$

The value of  $B_j$  minus  $C_j$  gives the net benefit effects of capital investment to income class  $j$ .

It should be noted that the approach used here is similar to the application of benefit cost analysis which is used to measure efficiency of government projects.<sup>52</sup> In this instance, efficiency is not the question being asked. The question is rather one of equity. Thus, each income class is analyzed independently. However, the benefit-cost type of formulation allows for the process of discounting over time and it examines only new investment. Therefore, its basic procedures were well suited to the needs of this study.

The Discount Rate: When using this method, a discount rate must be chosen. It was decided that the most acceptable rate to use would be 4-5/8 percent, the current rate used to analyze federal government

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<sup>52</sup>See for example Otto Eckstein, Water Resources Development (Cambridge, Mass.: Harvard University Press, 1965), p. 56.

investments.<sup>53</sup> Since the approach to be used in this study is derived from benefit-cost analysis and since government capital investments are being analyzed, it was felt that this discount rate would be a suitable choice.

This rate, in view of many economists, does not reflect the social opportunity cost of capital.<sup>54</sup> A more realistic rate would be substantially higher and would diminish the present values of total benefits and costs. However, the relative relationship of net benefits between classes would be unaffected by raising or lowering the discount rate. If a different discount rate were used for each class, the rate chosen would be of significance.

The Time Horizon: There exists a good deal of uncertainty in the projections and assumptions which were necessary to undertake this type of analysis. The estimation of benefits and costs are made using 1968 data and, over a period of time, these data will no doubt change. The method also assumes that the proportional distribution of income units between income classes will not change radically. This too is a highly uncertain assumption.

One method of handling uncertainty is to adjust the time horizon.<sup>55</sup> In most governmental studies, the time horizon used is at least 50 years. This, however, may be too long in view of the uncertainties described. To allow for this fact, two time horizons will be used. Fifty years will be used since this is normally the practice and, then, the analysis will be based on 25 years to account for uncertainty of the projections.

This approach to uncertainty has been criticized as being too arbitrary.<sup>56</sup> The argument is that shortening the time horizon penalizes projects with long term streams of benefits when they are compared with other projects. This argument does not hold here, however, since no attempt is made to compare alternatives.

Costs and Benefits: The following discussion will illustrate the methods by which the benefits and costs to be used are determined. As was suggested earlier, all the data needed were not available and so some data had to be generated which approximated the needs of this procedure. Capital costs are discussed first.

<sup>53</sup> Since this analysis was completed, the discount rate has been raised to 4 7/8%. See: 18 CFR Part 704.

<sup>54</sup> William J. Baumol, "The Social Rate of Discount," Amer. Econ. Review, Vol. LVIII (Sept. 1968), pp. 788-802.

<sup>55</sup> Eckstein, 82.

<sup>56</sup> Ibid.



Capital Costs: Funds for capital expenditures come from three sources: the state budget, federal grants and the bond account. The state budget expenditures for fiscal 1968 were \$54,782,420. This total included capital construction, local assistance and operating expenses. Operating expenses and local assistance totaled \$44,925,035.<sup>57</sup> Thus, \$9,857,385 was left for capital construction from this source. This figure checks with the capital construction budget which estimates capital expenditures at \$9.8 million.<sup>58</sup> This money was spent on various activities in the following way:

Boating	(14%)	\$1,380,034
Fish and Wildlife	(1%)	98,574
Historic Sites	(9.4%)	926,594
Forest Recreation	(8.8%)	867,450
Daily Use	(66.8%)	6,584,733

The percentage figures were obtained by determining the total authorization for capital construction in each of the above categories. This was taken from the state budget.<sup>59</sup>

Federal grants for capital investment came from the Land and Water Conservation fund. One-half of the \$3,859,393 went to localities and was therefore not considered. The remaining \$1,529,697 was allocated according to the following percentages recommended by the Conservation Department.

Game Management-		
Hunting	(30%)	\$578,909
Forest Recreation	(30%)	578,909
Daily Use	(40%)	771,879

All bond funds go to capital projects and so they were considered here. The allocation method is the same as that used in the section on "The Distribution of State Administered Recreation Expenditures by Income Class."

Forest Recreation	\$3,690,282
Daily Use	5,383,718

Total expenditures on Daily Use facilities differ from that previously used since local grants have been removed. Total capital investments are summarized in Table 22.

Operating Costs: Since there was no way to determine operating costs on projects described by the general categories used in Table 22,

<sup>57</sup>New York State Governor (Rockefeller), The Executive Budget, 1968/69, 323.

<sup>58</sup>Ibid., 1035.

<sup>59</sup>Ibid., 1036-50.

TABLE 22  
TOTAL CAPITAL INVESTMENT BY ACTIVITY<sup>a</sup>

Activity	Federal	State	Bond	Total
Boating	-	\$1,380,034	-	\$1,380,034
Fishing	-	49,287	-	49,287
Hunting	\$578,909	49,287	-	628,196
Historic Sites	-	926,594	-	926,594
Forest Recreation	578,909	867,450	\$3,640,282	5,086,641
Daily Use	771,879	6,584,385	5,383,718	12,739,982

<sup>a</sup>Skiing and Winter Sports had no appreciable amount of capital construction and so were not included.

another approach had to be used. Estimates of average operating cost per visitor day were made and multiplied by the visitor days which would be provided by the installed facilities.

Data were available for operating costs of all state parks, daily use and camping facilities. The operating costs included personnel, maintenance and general operations. Along with operating costs for each year was given attendance figures for the year. Dividing attendance into cost gave operating cost per visitor day for the year. This was done for three years, as follows:<sup>60</sup>

1967-68	\$ .554
1968-69	.524
1969-70 (projected)	.517

Since the available data were limited and somewhat arbitrary, it appeared that \$.52/day would be a legitimate figure to use. This was true for two reasons. Both 1968-69 and 1969-70 were close to this figure. Also, 1967-68 was an odd year in that park attendance unexpectedly went down slightly and it appeared that expenditures for that year had been planned for a larger volume of use, thus accounting for the higher cost figure. The Historic Sites category had no data to work with but a \$.52 per day operating cost was assumed to exist for this category also.

Thus, the \$.52/day figure was used for all activities except fishing, hunting, and boating. Data were available on the operating

<sup>60</sup>New York State Governor (Rockefeller), The Executive Budget, 1969/70, 262.

expenses of the Division of Fish and Wildlife.<sup>61</sup> Data were also available on the number of hunting days taken in New York State in 1967-68.<sup>62</sup> However, the fishing and hunting components had to be separated. The only way to achieve this was to halve the budget for the Division of Fish and Game. This gave the approximate operating expenses for hunting.

$$\frac{\text{Operating Costs for Hunting}}{\text{Hunting Days}} = \frac{\$5,910,918}{\$6,754,232} = \$.875/\text{day}$$

It was possible to determine operating costs per boat from data available. The cost of licensing and policing of all registered boats in New York was given in the state budget.<sup>63</sup> The number of boats registered with the U. S. Coast Guard was given in the New York State Statistical Abstract. From these two sources cost of regulation per registered boat was estimated at \$1.40.

$$\frac{\$715,156}{510,750 \text{ boats}} = \$1.40/\text{boat}$$

This, however, reflected only a part of the cost. It was also necessary to include the cost for maintenance of marine facilities. There were no data available on this, however. Still, since some figure was needed, it was assumed that the cost of maintaining a boating facility over the year was equal to the cost of regulation--\$1.40. Therefore, total cost of maintenance and operation was \$2.80/boat.

It should be noted here that the discussion of costs refers to average and not marginal cost. Since the purpose of this procedure is to look at an increment in state expenditure, it would make sense to examine the marginal cost of operation. This approach was not possible due to data limitations. However, the use of average cost data is not necessarily a mistake. The average cost referred to is for state park regions only. There is no effort made to include costs of administration in Albany and it is there that economies of scale may be realized which would lead to decreasing marginal cost. In the park region, itself, it does not seem unreasonable to assume that each new visit requires operating expenditures independent of previous expenditures, (i.e., removal of waste, repairing of damage and so forth). It is on this assumption that the use of average cost data is defended.

There is an operating cost which has not been discussed yet. This is the cost of acquiring capital for the bond account. A cer-

<sup>61</sup>Ibid., p. 259.

<sup>62</sup>New York State Division of the Budget, New York State Statistical Yearbook 1967 (Albany, New York, 1968), p. 231.

<sup>63</sup>New York State Governor (Rockefeller), The Executive Budget, 1969/70, p. 265.

tain amount of interest must be paid on the bonds which have been floated. This interest payment is the cost of acquiring capital. In order to determine the amount of these operating costs, the interest rate of the bonds as well as the term had to be known. The Department of Audit and Control in Albany indicated that these bonds were sold at three different times, however, the last issue, which is the one of interest, was in 1963 and was for 15 years. The coupon rate on the bonds is 3-3/4 percent per year, however, after considering premiums paid to the state, the actual cost in interest payments was 2.8748 percent.<sup>64</sup> It is assumed that since the bonds are issued for a relatively short term, they are held for the full 15 years and interest is paid on them for the whole period. Therefore, the \$9,024,000 spent for state capital investment in fiscal 1968 implied that the state had to pay 2.8748 percent interest or interest repayments of \$259,421 per year.

**The Number of Days Provided:** The capital investment of the state provides a certain number of days of various types of recreation. In order to obtain total operating costs, the number of user days provided by the new investment must be determined. The number of user days is also necessary to estimate benefits. It will be assumed that this is the number of users which will use the facility in question over its projected life.

**State Parks and Forest Recreation:** According to the bulletin which announced the "Next Step" bond proposition, expected annual increases in visitors to state parks and forest recreation areas would mean an additional 31,000,000 visits per year in 1980 as compared with 1960.<sup>65</sup> The \$100 million bond issue, which is where the bond money of this study comes from, was designed to aid in the acquisition of land to meet this demand. It was assumed that the proportion of this authorized expenditure spent in any one year was meant to accommodate the same proportion of projected demand, that is, for example, each tenth of the total which was spent would supply a tenth of the demand.

This section concerns itself only with expenditures at state facilities, however. Therefore, the portion of the \$100 million which went to municipalities must be deducted. This was estimated at about 2.3 million dollars out of every 10 million of bond money in 1968, and, according to Albany, would remain about this proportion.<sup>66</sup> Thus, total bond money for state expenditures was \$77 million.

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<sup>64</sup>This information was obtained in a telephone conversation with Mr. Fearon of the Division of Audit and Control in Albany.

<sup>65</sup>State of New York, The Next Step - Planning for Outdoor Recreation, Pamphlet (Albany, 1966).

<sup>66</sup>This figure of 2.3 million dollars was obtained in a telephone conversation with Mr. Bernard Dekay in the Division of Parks. The assumption that it would remain constant was made for this study.

The process now is straight forward. First, the proportion which 1968 bond expenditure is of total expenditure is calculated. Then this proportion is multiplied by the expected increase in use.

$$(1) \frac{\$9,024,000}{\$77,000,000} = .1172$$

$$(2) (.1172) \cdot (31,000,000 \text{ days}) = 3,633,200 \text{ visitor days/year}$$

This approach assumes that the expenditures from the bond account accurately reflect the intentions of the total state program. Since the bond investments are such a large portion of the total capital expenditure, this is probably a safe assumption.

**Boating:** For this category the number of boats is needed. According to the state budget for 1969/70, the increase in boats registered at state facilities from 1967/68 to 1968/69 was 5,182. Since it is assumed that all state boating facilities previously were used to capacity, this 5,182 represents the additional capacity provided by the capital investment.

**Historic Sites:** The process used above was not applicable to this category. However, according to the state budget, six new sites were provided in fiscal 1968 and these sites provided 142,038 user days (visits) or an average of 23,673 visits per site. It was assumed that these sites resulted from 1968 capital investment and that the number of visits to these sites will remain constant.

**Hunting:** There were 311,387 hunting licenses sold in 1967 and there were 6,991,571 hunting days taken according to the New York State Statistical Abstract, an average of 22.453 days per hunting license. Furthermore, for the three years preceding 1968, a yearly increase in license sales of 6,600 took place. It was assumed that this trend would continue and the increased expenditures on hunting were meant to serve this need. Thus, the 6,600 more licenses which were expected represented 148,190 more hunting days which would be taken (22.453 days/license  $\cdot$  6,600 licenses).

**Fishing:** There were no data available on fishing. Since it was such a small part of total capital investment, it was ignored in the rest of the analysis and the expenditure to this source was included under the hunting category.

**Value of a User Day:** For this study the guidelines set forth in Senate Document 97 will be used to value a day's recreation. According to this document, a general recreation day should be valued at \$.50 to \$1.50. A general recreation day involves "primarily those activities attractive to the majority of outdoor recreationists and which generally require the development and maintenance of convenient access and adequate facilities."<sup>67</sup> It is assumed that state expenditures provide

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<sup>67</sup>The President's Water Resources Council, Policies, Standards, and Procedures in the Formulation, Evaluation and Review of Plans for

for this type of general recreation day. For this study the \$1.50 per day value was used. A recent study indicates that this may in fact be a floor and that a recreation day has a higher dollar value.<sup>68</sup>

The Number of Days: In the discussion on costs, the number of days provided by investments in all functions except boating were estimated. These estimates are reproduced below.

Daily Use and Forest Recreation	3,633,200
Hunting	148,190
Historic Sites	142,038

In addition, the NRS data indicated that 92,884,800 days of boating were taken in the Northeast in 1965. The population of New York is 37.5 percent of the total Northeast region and so it was assumed that 37.5 percent of the days, 34,831,800, were taken by New Yorkers. Furthermore, one-third of this 34.8 million days was taken at private facilities. This left 23,226,134 days which originated at state facilities. In 1965 there were 125,000 boats in New York State registered by the Division of Motor Boats. This meant that 185 days per registered boat were taken. This figure, when multiplied by new boats at state facilities (5,182), gives 958,670 days provided by new state investments (185 · 5,182).

The Results: All the data needed are now available to do the necessary equity calculations for each income class. These data are displayed in the following four tables. Table 23 gives the annual benefits resulting from state recreation investment during fiscal 1968. Table 24 gives the total investment and resulting annual operating costs. In both cases this is on an activity basis. Use coefficients for the four activities by income class were taken from those calculated in a previous section. When these coefficients are multiplied by the total benefits in Table 23, benefits by income class result. These are shown in Table 25.

The coefficients for burden, calculated previously for each income class, can be multiplied by the cost figures in Table 24 to give costs by income class. The results of this process are shown in Table 26. From the summation of benefits and costs by income class, net benefits can be determined. These results along with the net transfer effects will be presented in the next section.

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Use and Development of Water and Land Related Resources (Senate Document 97, 87th Congress, 2nd session, Supplement 1, 1964), p. 4.

<sup>68</sup> Robert J. Kalter and Lois E. Gosse, Outdoor Recreation in New York State: Projections of Demand, Economic Value and Pricing Effects for the Period 1970-1985, Cornell Univ. Special Bul., Dec. 1969.

ANNUAL BENEFITS FROM NEW YORK STATE  
FISCAL 1968 OUTDOOR RECREATION INVESTMENTS

Activity	Days	Dollar Benefits/Day	Total Annual Benefits
Daily Use-Forest and Backwoods	3,663,200	\$1.50	\$5,494,800
Boating	958,670	1.50	1,438,005
Historic Sites	142,038	1.50	213,057
Hunting	148,190	1.50	222,285
<b>Total</b>	<b>4,912,098</b>	<b>1.50</b>	<b>7,368,147</b>

TABLE 24

CAPITAL AND ANNUAL OPERATING COSTS  
FROM NEW YORK STATE FISCAL 1968 OUTDOOR RECREATION INVESTMENTS

Activity	Capital Costs	Personnel, Maintenance, & Operating Costs/Day	Annual Interest Costs	Days	Total Personnel, Maintenance, & Operating Costs	Total Annual Operating Costs
Daily Use-Forest and Backwoods	\$17,826,623	\$ .52	\$259,421 <sup>a</sup>	3,663,200	\$1,904,864	\$2,164,285 <sup>b</sup> 1,904,864 <sup>c</sup>
Boating	1,380,034	2.80/boat	--	(5,182 boats) 958,670	14,509	14,509
Historic Sites	926,594	.52	--	142,038	73,860	73,860
Hunting	677,483	.85	--	148,190	125,962	125,962
<b>Total</b>	<b>\$20,810,734</b>	<b>--</b>	<b>--</b>	<b>4,912,098</b>	<b>--</b>	<b>\$2,378,616<sup>b</sup> 2,119,195<sup>c</sup></b>

<sup>a</sup>This interest is paid for only 10 years.

<sup>b</sup>For the first 10 years of the investment.

<sup>c</sup>For the remaining life of the investment.

TABLE 25

ANNUAL BENEFITS BY INCOME CLASS FROM NEW YORK STATE  
FISCAL 1968 OUTDOOR RECREATION INVESTMENTS

Income Class	Daily Use-Forest and Backwoods	Boating	Historic Sites	Hunting	Total
under \$3,000	\$ 758,282	\$ 80,528	\$20,453	\$ 33,565	\$ 892,828
\$3,000 - \$ 5,999	1,362,710	280,411	41,972	65,796	1,750,889
6,000 - 9,999	1,527,554	478,856	86,075	106,252	2,198,737
10,000 - 14,999	1,115,445	415,583	45,594	13,337	1,589,959
15,000 and over	730,809	182,627	18,963	3,334	935,733
Total	5,494,800	1,438,005	213,057	222,284	7,368,146

TABLE 26

CAPITAL AND ANNUAL OPERATING COSTS BY INCOME CLASS FROM NEW YORK STATE  
FISCAL 1968 OUTDOOR RECREATION INVESTMENTS

Source of Funds	Income Class				Total
	under \$3,000	\$3,000- 5,999	\$6,000- 9,999	\$10,000- 14,999 and over	
Capital Investment <sup>a</sup>	\$1,182,326	\$3,637,472	\$6,011,562	\$4,489,868	\$20,810,734
Budget Funds	453,424	1,409,556	2,552,973	1,961,550	3,479,534
Federal Funds	52,102	486,284	706,269	470,846	1,929,697
Bond Funds	676,800	1,741,632	2,752,320	2,057,472	9,024,000
Operating Costs <sup>a</sup> t=1 to 10	109,416	340,142	616,062	473,345	839,651
Operating Costs <sup>a</sup> t=10 to T	97,483	303,045	548,872	421,720	748,075
					2,119,195

<sup>a</sup>These are the figures used for the analysis.



## SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This section will draw together all the results of the analysis undertaken previously. First, however, a discussion of the notion of welfare is presented and a method is suggested for measuring the welfare effects of the state outdoor recreation program. This will provide an additional basis on which to draw conclusions. Then, the results of the net transfer payment and the net benefit approaches are given. Finally, a discussion of the results and the underlying assumptions is presented and serves as a basis for conclusions and policy recommendations.

Welfare and Welfare Weights: There exists in the literature of economics a good deal of agreement that money income is at best only a proxy for economic welfare. Also, it is argued that welfare economics may be incomplete if the distribution of income is ignored. This section suggests even more, that is, that the distribution of income does not measure the adequacy of economic means to satisfy wants and likewise, a redistribution of dollars to different income classes may not be an adequate measure of a redistribution of welfare. The missing factor is the measurement of utility.<sup>69</sup>

However, the whole notion of differing marginal utilities of income is not without criticism. It is entirely conceivable that if wants are viewed as a function of means, and Galbraith suggests this may be the case, then the utility of an extra dollar to any man, rich or poor, is likely to be the same.<sup>70</sup> It may also be argued that these judgments of utility are individual decisions and the comparisons of utility between individuals is more in the realm of psychology than economics.<sup>71</sup>

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<sup>69</sup>Net transfer and benefits are not income in the sense of real currency. They are, however, a form of nonmonetary income. The application of utility to this type of income is justifiable, however, since in the absence of governmentally provided recreation, for example, the individual would have to pay for recreation from his own budget. If he paid one dollar, then the recreation is gained was worth the utility of the dollar he spent. Thus, when a transfer or benefit of a dollar is gained, a utility weight may be attached to it.

<sup>70</sup>Galbraith labels this concept "the dependence effect." See John K. Galbraith, The Affluent Society (Boston: Houghton Mifflin Co., 1958), pp. 124-131.

<sup>71</sup>Lerner states that "we may have good reason for believing that one consumer is better off than he was before and that another is not as well off as he was before, but we have no more reason for supposing that the old situation is better than the new one . . . than from supposing that the new one is better than the old one." Abba P. Lerner, The Economics of Control (New York: The MacMillan Company, 1944), p. 24.

However, there still seems to exist in our society a belief that "rich" men do not need as much additional income as "poor" men to satisfy their wants. While Galbraith's dependence effect may suggest that a third television set would make a rich man as happy as a first television set would a poor man, the evidence exists that society does not agree. "There appears to be substantial evidence that Congress does, in fact, value income flows to individuals of varying wealth positions differently."<sup>72</sup> The progressive tax structure suggests that an additional dollar of income to a poor man has a higher value than it would to a rich one, and this is what the concept of diminishing marginal utility is about. There exists one major difference, however, between examining the tax structure to make judgments about utility and the approach of the economic theorist. The theorist argues that the individual, in his own mind, feels less satisfaction from increasing income, whereas the tax structure approach implies that the individual's satisfaction is dictated by the society as a whole and not from within himself. This, in itself, invalidates calling the congressional valuation of income the marginal utility of income in the normative economic sense.

The above discussion notwithstanding, the purpose of this study is to examine the income and welfare effects of a government program from several points of view. This tends to justify the use of "governmentally imposed" utilities to measure satisfaction from government expenditure. This is what will be done. The federal personal income tax structure will be used to determine the marginal utilities of income to the five income classes used in this study. The assumption is necessarily made that income and welfare between units within a class are normally distributed.

Determination of Welfare Weights: The use of the income tax structure to determine the utility of income has been done previously. Eckstein suggests that the economist may interpret "the effective marginal rates of the personal income tax at different income levels . . . as implying a marginal utility of income curve."<sup>73</sup>

Haveman uses this approach in his evaluation of Corps of Engineers' projects. The process by which he determines welfare equivalent weights will also be used here.

Assuming that Congress, in establishing the Federal personal income tax structure, acted on the principle of equimarginal

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<sup>72</sup>Robert H. Haveman, Water Resource Investment and the Public Interest (Nashville, Tenn.: Vanderbilt University Press, 1965), p. 133.

<sup>73</sup>Otto Eckstein, "A Survey of the Theory of Public Expenditure Criteria," Univ. Natl. Bur. Comm. for Econ. Res., Public Finances: Needs, Sources and Utilization (Princeton, N. J.: Princeton Univ. Press, 1961), pp. 447-448.

sacrifice, its evaluation of the relative marginal utilities of income of individuals of different income levels can be estimated by the inverse of the effective marginal tax rates at these levels . . . . If, for example, at a gross income level of \$5000, the marginal effective tax rate was .25, and at a gross income level of \$20,000, the marginal tax rate was .5, then . . . Congress valued the marginal utility of an individual in the lower income class to be equal to twice the marginal utility of an additional dollar of income to an individual in the higher income class.<sup>74</sup>

In Table 27 the effective marginal tax rates for each income class in 1966 are presented.<sup>75</sup> These rates were calculated by dividing the change in income per return, by income bracket, into the change in tax paid per return.

TABLE 27  
EFFECTIVE MARGINAL RATES  
OF FEDERAL PERSONAL INCOME TAXATION, 1966

Income Class	Rate
under \$3,000	.0620
\$ 3,000 - \$ 5,999	.1019
6,000 - 9,999	.1137
10,000 - 14,999	.1593
15,000 and over	.2791

The inverse of these rates gives a relative system of welfare weights for additional income. From this general ranking a marginal utility of income function must be derived. Haveman argues that the implied marginal utility of income of an individual receiving the average income is equal to 1. Accepting this income level "as numeraire, the marginal utility of income of an individual receiving any annual gross income level can be stated in terms of it."<sup>76</sup> This process was used in Table 28 and the marginal utility of income for each class was calculated. Average gross income in New York State was \$7,475. This fell approximately midway in the \$6,000-9,999 income class. This class was numeraire.<sup>77</sup>

<sup>74</sup>Haveman, 134.

<sup>75</sup>Data for more recent years were unavailable.

<sup>76</sup>Haveman, 134.

<sup>77</sup>To assume that the marginal utility of a dollar to the person of average income is equal to one is to implicitly argue that if utilities remained constant as they now are, income would be redistributed

TABLE 28

THE MARGINAL UTILITY OF INCOME - A SYSTEM  
OF WELFARE WEIGHTS, 1966<sup>a</sup>

Income Class	Inverse of Effective Marginal Rate	Welfare Weights
under \$3,000	16.1290	1.834
\$ 3,000 - \$ 5,999	9.8135	1.115
6,000 - 9,999	8.7950	1.000
10,000 - 14,999	6.2774	.714
15,000 and over	3.5829	.407

<sup>a</sup>Based on the marginal effective federal personal income tax rates.

This, then, determines the welfare equivalent weights. They can now be used to gain another perspective on the income redistribution effects of state recreation expenditures.

Results of the Analysis: In the previous sections, transfers, benefits, and burden for each income class were calculated. The results of these calculations can be used to determine the net effects of New York State administered recreation expenditures. These results are displayed in Table 29.

Discussion of Results: Columns 1 through 5 in Table 29 show the results of the net transfer payment approach. This approach is the one which has been used in past studies to discover the equity impact of governmental actions. It has the weakness of examining only one year even though capital investments produce benefits for a longer period of time. As was pointed out, however, this is the "classical" approach to income redistribution questions. Examination of column 1 reveals that total net transfers between classes have a redistribution effect. The two upper income groups realize negative transfer effects and the lowest income groups reap positive transfers. Furthermore, the lowest two groups receive the largest positive effect while the upper income class makes the greatest sacrifice. Total figures, however, may be misleading since the number of households between classes differs. To account for this problem, transfers have been put on a per household basis in column 2. The resulting effects do not differ greatly from the conclusions which were drawn with the total figures.

until everyone had equal income. Yet, income equalization does not appear to be a desirable social goal. However, this study takes a static look at the problem. For one point in time, such as the year of this study, this approach is valid. The argument is not that these utilities will remain constant over time, but for this one year they are true. Over time changes in the distribution of income may force changes in the tax rate which will prevent completely equal income distribution. However, for one point in time, it will be argued that average income for everyone is a desirable goal.

TABLE 29

## RESULTS OF THE ANALYSIS

Form of Analysis	1				
	2	3	4	5	
Income Class <sup>a</sup>	Net Transfer Payments <sup>b</sup> Household	Gross Transfer Payments Per Household	Net Transfer Payments Using Welfare Weights	Net Transfer Payments Per Household Using Welfare Weights	
under \$3,000 (1)	\$+5,542,966	\$+9.72	\$+10,165,800	\$+10.68	
\$3,000-5,999 (2)	+6,797,029	+15.27	+7,578,687	+6.14	
6,000-9,999 (3)	+2,836,236	+14.00	+2,836,236	+1.66	
10,000-14,999 (4)	-4,256,761	+10.29	-3,039,327	-2.62	
15,000 and over (5)	-10,955,936	+22.04	-4,459,066	-6.53	

<sup>a</sup>Number in parentheses is income class number.

<sup>b</sup>Does not sum to zero because of rounding.

TABLE 29--Continued.

Form of Analysis  Income Class <sup>a</sup>	6	7	8	9	10	11
	Net Benefits (50 Time Horizon)	Net Benefits (25 Time Horizon)	Gross Benefits (50 Time Horizon)	Gross Benefits (25 Time Horizon)	Net Benefits Using Welfare Weights- (50 Time Horizon)	Net Benefits Using Welfare Weights- (25 Time Horizon)
under \$3,000 (1)	\$14,127,891	\$10,367,573	\$17,292,089	\$13,070,883	\$25,910,533	\$19,014,405
\$3,000-5,999 (2)	24,112,285	17,267,019	33,910,813	25,632,779	26,885,197	19,252,724
6,000-9,999 (3)	25,414,229	17,613,824	42,584,634	32,189,213	25,414,229	17,613,824
10,000-14,999 (4)	17,730,209	12,206,912	30,793,860	23,276,710	12,659,451	8,715,797
15,000 and over (5)	-2,575,194	-3,462,419	18,123,058	13,699,004	-1,048,099	-1,409,203

The progression from positive to negative transfers as income increases is, however, smoother on the per household basis. That is, the lowest group receives the largest positive effect and this positive effect decreases then turns increasingly negative as income rises.

Column 3 examines the gross transfer effects on a per household basis. In this case, the lowest income group receives the smallest amount of transfers with the upper income group receiving the greatest. These results will be used later for a discussion of the ability to pay vs. benefit principles of government finance.

Columns 4 and 5 provide the same type of information as columns 1 and 2. The difference here is that the welfare equivalent weights have been applied to both the positive transfers and burden. The results, as compared with columns 1 and 2, are the same in direction but differ markedly in magnitude. Both with and without the use of welfare weights, the upper income levels, in a sense, support the recreation of the lower income groups. However, a difference in magnitude of support becomes clearer using the weights. The burden as measured by sacrifice decreases substantially when welfare weights are applied. Furthermore, the summed effects of total transfers from column 1 is zero, while the summed transfer effects of column 4 are positive. This would indicate a positive increase in total welfare.<sup>78</sup>

The results of the investment approach to the question of redistribution are shown next. In columns 6 and 7 the net benefits by income class are presented after discounting to a present value with a  $4 \frac{5}{8}\%$  discount rate. Column 6 presents benefits using a 50 year time horizon and column 7 has benefits with a 25 year time horizon. In both cases the implications are the same.<sup>79</sup> The upper income class realizes a total disbenefit, while the other four classes realize positive net benefits. In both cases, the lowest income class receives the smallest net benefit, with the second and third income classes receiving the highest. Shortening the time horizon had only a very slight effect on the relationship between classes with respect to net benefits.

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<sup>78</sup> As long as the assumptions necessary to make statements about marginal utility have been made, it is possible to sum welfare effects and see if they are positive or negative. As long as the dollar gains in welfare are greater than the dollar losses, the effect is to increase total welfare.

<sup>79</sup> Because the interest of this study is mainly in the relative impact on income groups, it makes no difference what time horizon or discount rate is used since it will be used uniformly for all income classes. As such, the relative relationship between net benefits to various income groups remains constant as long as flexible time streams of benefits and costs do not occur. It is, however, interesting to note the effect that changing the time horizon has on absolute benefits.

In columns 8 and 9 total benefits are presented. The difference in the two columns lies in the time horizon which was used for the calculation. In both cases total benefits are smallest for the lower income group and largest for the middle income group. Per household benefits are not given since the absolute number of households in each class will vary over the time horizon.

Attachment of welfare weights to benefits and costs alters the net benefit results. When these weights are attached, the lowest three income classes receives approximately equal net benefits. The fourth income class receives positive net benefits, but of a smaller order than before the application of welfare weights. The implications of these results are the same regardless of the time horizon used.

Some Further Comments on the Results: This study has quantitatively tried to measure the impact of New York State administered recreation expenditures on the distribution of personal income. However, as with any quantitative study, some factors were not readily quantifiable and so have been left from the analysis until now. In this section these factors will be discussed and the type of effects that they may have on the results will be explored.

Quality of Experience: There is, no doubt, a difference in the quality of the facilities which the state provides. Cost and availability of land around urban areas means that the wilderness experience, or even just the ability "to get away from it all", is missing or, at least, impaired in the urban park. Furthermore, even if this problem is ignored, the nonavailability of land within the urban environment forces the park location to the urban fringe areas. Thus, all things being equal, the urban dweller obtains a different type of recreation experience. However, all things are not equal. The higher income individual has the choice of leaving the urban areas and taking his fishing day, for example, in the stream of the Catskills or Adirondacks rather than in the muddy pond at the local park. This is not the option of the poor man. His income will not allow travel for a different recreation experience. The notion of good or bad recreation need not be introduced. It is not necessary. The denial of the option alone indicates that the poor man in the city is most likely worse off than the richer man. This problem is probably not as acute in rural areas. Yet such a large and ever increasing portion of our population live in urban areas that it must be borne in mind.

The allocation process (the use coefficient) used in this study was not adjusted to compensate for this problem. A dollar of fishing (benefits or transfers) is the same no matter where the activity was taken. In the net benefit calculations, for example, benefits were all set at \$1.50 per day. While no other alternative was presently possible, it should be borne in mind that differences in the quality of facilities may result in different values being placed on an experience.

The Notion of Need: From primitive times to the present, history has left traces of the relationship of man's leisure to his cul-



ture.<sup>80</sup> Mrs. Lyndon B. Johnson said in her dedicatory remarks for the Redwoods National Forest that "perhaps the best tribute anyone can offer is to walk away from these forests a little straighter, a little taller, embracing life a little more calmly and joyfully . . ." This sort of statement demonstrates the belief that people need recreation, but it does not establish it as fact. The mental and physical health benefits which may flow from outdoor recreation remain to be empirically proved. Professional opinion, however, strongly suggests such a correlation exists.<sup>81</sup> Beyond mental and physical health, the importance of outdoor play in the American way of life is pervasive. Middle class America camps, hunts, fishes and so forth, and our educational and status systems often require knowledge of the outdoor recreation experience.<sup>82</sup> This all implies that needs for outdoor recreation are very nearly equal among individuals. The question of how well these needs are provided for can be approached by examining the gross transfer payment and gross benefit figures in Table 29. As far as provision of service goes, aside from the quality problems outlined previously, the poor get much less.

Two further points on the concept of need can be made. First, assume a need for any type of facility in an area and that this need is not provided. Quite obviously the ability of the higher income groups to go to a substitute area is much greater than that of the poorer groups. This is similar to the situation involving the ability to travel to quality recreation areas. Secondly, it is quite likely that the upper income groups have less need for government provided facilities. Suburban homes, backyard pools and the like diminish the need for recreation provided by an outside party (government or private), although the quantity and quality of the recreation experience need not suffer.

Benefit vs. Ability to Pay for Government Service: The above points lead to some interesting conceptual and practical considerations. There are two basic principles of taxation in the theory of public finance. The first is the benefit principle. In the benefit approach, the state is viewed as supplying goods and services which the taxpayer "buys" with his tax payments. This form of taxation incorporates one point of view on what is fair; you get what you pay for. In a market economy such as the United States this seems to be a logical criterion. In fact, the results of this study measure benefits of government

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<sup>80</sup> Charles K. Brightbill, Man and Leisure (Englewood Cliffs, N. J.: Prentice Hall, Inc., 1961), p. 40.

<sup>81</sup> John D. Hunt, "Americas Outdoor Recreation Areas . . . Playgrounds for the Affluent," a Paper prepared for the Annual Meeting of the Rural Sociological Society, San Francisco, Calif., August 28-31, 1969, p. 14.

<sup>82</sup> Hunt, 16-20

action against what people paid.<sup>83</sup>

There is another notion of the role of government, however, and that is to make the distribution of income more equitable. The equity idea leads to the ability to pay principle of taxation. Adam Smith's first canon of taxation stated that "the subjects of every state ought to contribute to the support of their government . . . in proportion to their respective abilities."<sup>84</sup> The rich pay more than the poor.

This study has actually concerned itself with the benefit principle. Does any one income group receive more than they pay? The answer has been that the lower groups, by all criteria, do better in this respect than the upper groups.

However, there is more to payment for recreation facilities than taxes. There are costs of equipment and transportation to and from the facilities. The gross transfer payment and the gross benefit results in Table 29 suggest that the poor do not make these types of expenditures. They take less recreation than other groups. Extending the concept of ability to pay beyond the taxation which pays for public recreation expenditure but to the cost of the whole recreation experience may present a different picture.

Knetsch notes that:

By and large the present supply of free public parks in this country is less adequate in crowded city areas where people are poor . . . the really poor people do not own private automobiles which are necessary to get to most state parks . . ., nor can they in most cases afford other travel costs of such visits.<sup>85</sup>

However, even assuming the costs of attending a state park, excluding taxes, are the same for all income classes, it is reasonable to assume that the ability to pay this cost decreases with income. This study has not attempted to measure if the taxes for recreation are progressive or not. It seems obvious, however, that costs other than taxes are regressive. This sort of fact should temper any equity conclusions which may be drawn from looking at the results of this study which are based on the benefit principle of taxation, since equity may also be considered in terms of ability to pay.

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<sup>83</sup>See: Herbert Newman, An Introduction to Public Finance (New York: John Wiley and Sons, 1967), pp. 321-326.

<sup>84</sup>This quote taken from "Paying for the Future," Fact Sheet 4, Stage I, Operation Advance, New York College of Agriculture, Ithaca, 1961.

<sup>85</sup>Jack Knetsch, "Financing Public Outdoor Recreation," Proceedings: National Conference on Policy Issues in Outdoor Recreation (Logan, Utah: Utah State University, 1966), p. 90.

This section has tried to highlight some of the considerations which must be made when examining the results in Table 29. One common thread runs through all these considerations, the data, procedure and approach used tend to make the poor look better off than they actually are and the rich look like they bear most of a burden. Quality differences are nonexistent, needs of each individual are satisfied regardless of the provision of facilities, and the concept of ability to pay is not of concern. If all these conditions are true, then the results of Table 29 represent a boundary for the income redistribution consequences of state recreation expenditure. Allowances for any one of the factors discussed can only serve to make the poor worse off and the rich better off.

It is, of course, possible that federal or municipal facilities may alleviate some of these problems. However, in New York federal facilities are few. Municipal facilities may provide for some aspects of need. They also will have marked effects of the ability to pay question since their costs of use to local residents, including the poor, are quite low. This was not considered in the analysis.

Conclusions and Policy Recommendations: Some definitive conclusions can be drawn from Table 29. From the point of view of the benefit principle of taxation, the lower income groups are receiving more than they pay for at the expense of upper income classes. Therefore, in this sense there is a definite redistribution effect. It is interesting to note that the middle income groups, who often claim the tax system discriminates against them in particular, do receive positive net transfers. It should also be noted, however, that the large disparity in benefits from new investment between the lower and upper income groups and those in the middle threatens to progressively alter the net transfer effects over time. The people trapped in the lowest group will have little power over a potentially worsening situation. Even now gross transfer payments indicate that the lowest class receives the least impact of the state program.

Welfare weights were tried as an experiment to determine if the situation is significantly changed. What these weights demonstrate is that the upper income groups have less of a burden to bear in terms of a decrease in welfare while the lower groups realize a gain. Using these weights there appears to be a total increase in welfare as a result of the recreation program. This, of course, is a relative statement. The real question is: is the absolute change in total welfare sufficient? This question cannot be answered in a quantitative sense. However, the views of the poor may suggest that the increase is not sufficient.

There is a lot of talk in this country about recreation, about parks, about playgrounds, camping sites. If you are rich, if you have got wheels, if you aren't trapped by shanties or slums, maybe then all that talk means something to you. But to the poor people of America, . . . those programs might as well be trips to the moon.

These remarks were made by Ralph Abernathy to former Secretary of the Interior Udall during the Poor People's Campaign on May 1, 1968.<sup>86</sup> The National Advisory Commission on Civil Disorders indicates that lack of recreation facilities is one of the major grievances of the ghetto dweller (See footnote 8).

In satisfying the needs of the poor something is missing even though they receive more than they pay.<sup>87</sup> The needs are still not fulfilled. A picnic in the country side is better than one in a city park. "These poor people like to swim, to cool off from the summer heat, to picnic in a green area."<sup>88</sup>

It is entirely conceivable that the policy conclusions which could arise from the results of this study will contradict directly the ones which will be put forth. A more conservative interpretation of the results suggests that all is well when people get what they pay for; in fact, the upper income groups may be justified in lodging complaints about being "overcharged." Thus, things should at least be left as they are. This is not the conclusion which was drawn. It was concluded that the system, while more equitable than some believed, still does not provide for many people. There are factors at work which cause people who appear to get more than they pay for to be dissatisfied. These factors are the three which were discussed earlier. How can the problems which they pose be overcome?

Policy Recommendations: Equality of opportunity for all people in this country is, on paper at least, a national goal. Equal opportunity for a good education and a job are goals which our government attempts to provide since government, unlike private enterprise, is run to benefit the society and not to maximize profits. One way to equalize the opportunity to receive government recreation benefits is for the state to provide access to state parks for those who find the opportunity closed to them because they lack the ability to pay the costs of transportation.

The lack of a car, the high cost of gasoline and tolls for a round trip of even 100 miles and other related costs restrict a poor household from traveling where quality recreation is found. The opportunity to go to a forest area, if such an activity is so desired, must be assured to all people and a subsidized transportation system for the state parks may provide an answer.

The state has recently instituted a program "to provide public transit facilities to metropolitan area state parks for disadvantaged

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<sup>86</sup>As taken from Hunt, 1.

<sup>87</sup>It seems likely that considerations of quality would not invalidate the fact that the lower class receives positive transfers or benefits.

<sup>88</sup>As taken from Hunt, 1.

citizens in the urban core."<sup>89</sup> For fiscal 1969, \$435,000 was spent on this program. This was .5 percent of total state administered recreation expenditures. While it is a start, it is quite a small amount for this purpose. A diversion of funds from some state park programs into provision of reduced rate or free transportation should be considered. It is recognized that cutting back on existing programs may be a political impossibility. Therefore, it is suggested that a large portion of the annual increase in Conservation Department appropriations be allocated to the provision of transportation facilities to the poor. In this way, existing programs need not suffer a cutback in size although for a time their rate of growth may be slowed. It is also recognized that this sort of a program may seriously aggravate crowding problems for two reasons - the increased use from lower income people and the slowdown in expansion of facilities as funds are diverted to the transportation program. It should be recognized that problems are going to arise from this program, but a greater problem presently exists in our cities where people have inadequate recreation opportunities.

There may also be a problem posed by entrance fees to parks. While they are normally quite low, a charge as low as fifty cents may be a great burden to someone with a very low income. The cost of recreating at state parks is mainly in these two areas and, in both cases, action by the state could go a long way toward alleviating the problem.

A third recommendation involves placing more emphasis on location of state parks in urban areas. It seems, however, that lack of available land to create state park facilities in the core city is a problem. Perhaps the only time parks will be located in our cities and poor areas is when the cities are renewed. This does not imply that homes should be cleared away to make room for parks. However, if a renovation of the city does come to pass as urban renewal and not "poor removal," then the state should be prepared to put large sums of their recreation budget into the city area.

In the meantime, local grants-in-aid should be increased, at the expense of operating some state facilities if this need be, for renovation and improvement of local parks. These parks may then help to provide for some of the recreation needs of the poor.

The recommendations made so far require diversion of state funds from ongoing programs. The argument has been made that some of our best recreation land is fast disappearing and it should be purchased now to assure adequate supply for the future. However, these lands could continue to be acquired, but their immediate development forestalled until such time as the inequities in the present program are remedied.

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<sup>89</sup> New York State Conservation Department, PPBS Budget of New York, Fiscal 1968, (Working Draft), p. 84.

There has been little discussion of the rural poor. The feeling is that the recreation experience is not lacking as much in these areas. These people are probably closer to state parks if they choose to use them. If they do not, the opportunity for recreating in other areas is good. Furthermore, in New York State in 1960, over 81 percent of the under \$3,000 income group lived in urban areas.<sup>90</sup> This further indicates that discussing the urban poor is not a misplacement of priorities.

All of the proposals suggested have been made in many places, many times before. Yet the results of this study indicate that they have had little effect. Perhaps, the real problem lies in how our nation approaches the problems of the poor - in a piecemeal fashion. The real question to be asked is: are the proposals of free or subsidized admittance and transportation just one more addition to an unworkable and complex welfare system? If our goal is assurance of equal opportunity, perhaps all the inequality in our system, recreation included, which stems from inequality in income is best eliminated through some form of income maintenance. This, however, is not a question to be answered here. The proposed policies are made to conform with conventional thinking about welfare. If at any time this thinking changes, these recommendations too may change.

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<sup>90</sup>U. S. Bureau of the Census, Census of Population, Characteristics of the Population, New York (Washington, D. C.: U. S. Government Printing Office).