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USE OF IMPLAN WITH PUBLIC AREA RECREATION VISITOR SURVEY (PARVS) PRETEST DATA: FINDINGS AND RECOMMENDATIONS

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<p>The Public Area Recreation Visitor Survey (PARVS) is an interagency effort involving four Federal and a number of State agencies. The input/output model IMPLAN was selected for economic impact analyses using the PARVS data. Since IMPLAN is a sophisticated model, it was decided that a preliminary analysis would be conducted using the pretest data. The purpose of this analysis was to: (a) ensure that the data collected with the PARVS form met the requirements of IMPLAN, and (b) develop procedures to simplify the IMPLAN analyses of the "real" PARVS data. The results of the preliminary analysis are summarized in this report.</p>					
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Preface

During September 1984, the Public Area Recreation Visitor Survey (PARVS) was pretested. The pretest was conducted, in part, to obtain data to test the compatibility of the survey instrument with the economic impact model IMPLAN. This report contains a description of the steps followed in conducting the IMPLAN analyses on the pretest data, the results of these analyses, and recommendations for analysis procedures for the final PARVS questionnaire.

This report was written by Dr. Dennis B. Propst, Michigan State University, under a cooperative agreement between the US Army Engineer Waterways Experiment Station (WES) and the US Forest Service, Southeastern Forest Experiment Station. During the conduct of this study, Ms. Janet Fritschen, Environmental Laboratory (EL), WES, was Project Monitor. The study was supervised first by Mr. William J. Hansen, then by Mr. H. Roger Hamilton, as Chiefs, Resource Analysis Group, and Dr. Conrad J. Kirby, Chief, Environmental Resources Division, EL. Dr. Adolph J. Anderson, EL, was Manager of the Natural Resources Research Program. Dr. John Harrison was Chief, EL.

COL Dwayne G. Lee, CE, was the Commander and Director of WES. Technical Director was Dr. Robert W. Whalin. Mr. Andrew Davison and Mr. Phil Parsley, DAEN-CWO-R, were, consecutively, technical monitors with Mr. Robert Daniel, DAEN-CWP-D, Office, Chief of Engineers, US Army.

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Contents

	<u>Page</u>
Preface	1
Comments by the US Army Engineer Waterways Experiment Station	3
Introduction	4
Study Rationale	4
Study Data and Approach	5
IMPLAN/PARVS Pretest Data Results	5
REGION	6
Outputs	6
Data requirements	6
Example	6
SCALE	7
LISTER	7
INVERT	8
IMPACT	8
Data requirements	8
Results	19
Bridge table for the final PARVS instrument	20
Summary	22
Appendix A: Input Data for the IMPACT Module	A1
Appendix B: Bridge Table for PARVS Trip Expenditures	B1
Appendix C: Trip Expenditure Questions from the Final PARVS Survey Form	C1

Comments by the
US Army Engineer Waterways Experiment Station

The Public Area Recreation Visitor Survey (PARVS) is an interagency effort involving four Federal and a number of State agencies. The survey questionnaires were designed to address several issues, one of which is the economic impact of recreation. One instrument selected for the economic impact analyses is IMPLAN, an input/output model developed by the US Forest Service. IMPLAN is a flexible model; a wide variety of economic impact questions can be addressed simply by selecting different components of the model and/or different types of expenditure and visitation data.

Prior to the development of the final PARVS questionnaires, two intermediate versions were tested at five locations. The data from this test were analyzed using IMPLAN. This preliminary analysis was conducted to:

(a) ensure that the data collected with the PARVS forms met the requirements of IMPLAN and (b) develop procedures to simplify the IMPLAN analyses conducted with the "real" PARVS data.

The decisions made by the author concerning the impact region and the type of expenditures to include were not important to this effort and do not necessarily reflect the decisions that will be made in the final PARVS data analyses. In addition, following the submission of this report by the author, a meeting was held to discuss the procedures and assumptions described herein. During that meeting it was agreed to change certain procedures for the future IMPLAN analyses, though these changes are not described here.

USE OF IMPLAN WITH PUBLIC AREA RECREATION VISITOR SURVEY
(PARVS) PRETEST DATA: FINDINGS AND RECOMMENDATIONS

Introduction

From August 1, 1984, to October 31, 1985, the Department of Park and Recreation Resources at Michigan State University (MSU) entered into a Cooperative Agreement (No. 29-127 and Modification No. 1 to No. 29-127) with the US Forest Service Southeastern Forest Experiment Station and the US Army Engineer Waterways Experiment Station. One requirement of Modification No. 1 to the agreement was to satisfy the following objective:

To input Public Lands Visitor Survey (PLVS) into Forest Service IMPLAN input/output model and prepare letter report summarizing application. [Note: the name of the survey was later changed to Public Area Recreation Visitor Survey, PARVS.]

This report is intended to satisfy the objective stated above.

Study Rationale

A primary objective of the PARVS was to generate the spending data needed to determine the economic impacts (jobs, income, etc.) of public agency expenditures for recreation facilities and services. The Forest Service's input/output (I/O) model, IMPLAN, was selected for this task. Since the developers of the PARVS were breaking a great deal of new ground, they decided that extensive pretesting of the instrument and methodology was indispensable. The developers also agreed that it was necessary to analyze the pretest data using IMPLAN in order to account for any unanticipated problems that might affect the design of subsequent PARVS instruments. An important and intentional by-product of IMPLAN analysis of the PARVS pretest data was the development of training materials and examples for those who would need to learn how to perform economic impact analyses with the final PARVS data. Thus, this report is intended to provide materials and insights useful to those who will be using IMPLAN and PARVS data to assess the economic impacts of recreation.

Study Data and Approach

Five locations were chosen for the PARVS pretest: John H. Kerr Reservoir on the Virginia/North Carolina border, the Pisgah National Forest in North Carolina, the Blue Ridge Parkway in North Carolina, and two Tennessee State Parks. During September of 1984, 222 recreationists at these locations completed the PARVS. The survey data were coded, edited, and analyzed by Dr. Alan Watson at Georgia Southern College and personnel of the US Forest Service Southeastern Forest Experiment Station. Floppy disks containing the PARVS pretest data were mailed to the principal investigator at MSU. The principal investigator subsequently unloaded the data to the MSU Cyber 750 mainframe computer and further processed the data for input into IMPLAN.

IMPLAN is maintained on a UNIVAC computer at the US Department of Agriculture's (USDA) Fort Collins, Colo., Computer Center. To use IMPLAN it is necessary to establish an account with the computer center and to learn the system. Training courses on IMPLAN are offered periodically by the Forest Service. Also, it is advisable to have access to a high-speed printer, as a large amount of paper output is generated by IMPLAN runs.

IMPLAN/PARVS Pretest Data Results

To prevent a thorough description of the procedures needed to input PARVS data into IMPLAN, the steps outlined in the IMPLAN User's Guide are followed here. The IMPLAN User's Guide and the IMPLAN Analysis Guide provide useful and essential documentation of the system. Both are currently being revised and updated and will soon be available from the Forest Service's Systems Application Unit of the Land Management Planning Division in Fort Collins.

Briefly, the IMPLAN system contains a data base, software to build models for any area in the United States, and an analysis program to interact with models that are built. Within the system there are a minimum of five program modules that must be used to build a model for assessing the economic impacts of recreation on a given region: REGION, SCALE, LISTER, INVERT, and IMPACT. Each module has certain commands and data requirements. The data required to build one regional model are presented below. Specific commands and costs are covered sufficiently in the User's Guide and will not be

repeated here. Other program modules (besides the five listed above) shorten the time required to perform certain tasks (e.g., transform expenditures into constant dollars), permit more sophisticated analyses, and reduce the amount of printed output (e.g., SMASH module). Only the basic principles and procedures are covered in the example below. Users will want to employ some of the other program modules and IMPLAN features as they become experienced and develop more sophisticated questions.

REGION

Execution of this module is the first step in constructing a regional I/O model. The first task the analyst must perform is to delineate the boundaries of the impacted region. The smallest unit of analysis in IMPLAN is the county (i.e., it is possible to build an I/O model for one county). Thus, the only limitation in delimiting regions using IMPLAN is that county boundaries must be followed. Other than that, the impacted region may be composed of several counties, an entire state, a portion of a state, portions of several states, and so on.

Outputs. In terms of results, REGION produces a stored data file and printed outputs (if desired) that represent a "snapshot" of the regional economy at one point in time. Once IMPLAN contains updated census data (near the beginning of 1986), that point in time will be 1982. More specifically, REGION shows (1) employment; (2) payments to households, industries, and units of government; and (3) expenditures by households, units of government, foreign exports, etc., for all industries within the designated region for the base (currently 1977).

Data requirements. At this point, all the analyst must provide to execute REGION are the county FIPS (Federal Information Processing Standards) codes for the counties in the region of interest. These codes are contained in an appendix to the IMPLAN User's Guide.

Example. For the purpose of using the PARVS pretest data, REGION was asked to display the economic structure for a six-county region surrounding John H. Kerr Reservoir. The six counties included in the region were: Granville, Vance, and Warren in North Carolina and Charlotte, Halifax, and Mecklenburg in Virginia. Selection of John H. Kerr Reservoir as a resource around which to build a regional model was purely arbitrary. Delineation of the region as the six counties surrounding the reservoir was based on simplicity

(keeping the amount of input data to a minimum), the desire to show impacts on a local economy, and the way in which visitor expenditure data were obtained. As to this last point, the expenditure portion of the PARVS pretest asked visitors to state the amounts they spent for various items within 50 miles of Kerr Reservoir. For illustrative purposes only, it was assumed that the six counties represented a 50-mile (80-km) geographic region around the reservoir. Once visitors whose permanent residence was greater than 50 miles from the reservoir were identified, their expenditures were treated as "new" money within the six-county region. This new money goes by various names in the economic impact literature: basic income, exports, nonresident expenditures, or exogenous spending. It is this nonresident spending which generates additional jobs and income, or economic impacts, within a given region. The procedure for separating resident from nonresident expenditures will be discussed under the IMPACT program module.

SCALE

SCALE uses the economic structure generated by REGION to produce I/O accounts, by industry, for the impact assessment area. No printed output is generated by SCALE, only a stored data file containing the matrix of I/O accounts for each industry in the impact area. LISTER, the next module discussed, must be used to generate printed reports from SCALE execution.

SCALE requires only one piece of information from the user: the population of the designated region. This information is also contained in the IMPLAN User's Guide. For the six-county region in this example, the population was 155,585.

LISTER

LISTER is essentially a report generator for the SCALE module. LISTER can generate over 12 separate reports, which are described in the IMPLAN User's Guide. Only three LISTER reports were requested for the six-county region: Reports 3.310 and 3.320 (summaries of final demand, final payment, gross output, employment, and personal income by industries) and Report 3.610 (IMPACT expenditure worksheet). Reports 3.310 and 3.320 provide a good overview of the I/O accounts within the designated area; in other words, these reports provide a summary of the baseline economy before nonresident spending is injected. For example, the economy of the six-county region contains 136

of IMPLAN's 466 industry sectors, including numerous textile and wood product industries. Report 3.610 is a matrix with blank cells into which the analyst places some of the data needed for the IMPACT run.

The only input required for LISTER are 1's and 0's to indicate whether or not each printed report is desired by the analyst.

INVERT

This module requires no additional user input. INVERT uses the data files created by SCALE to compute the Leontief inverse matrix for the regional model. This matrix is used to derive impacts (i.e., output, income, and employment multipliers) during execution of the IMPACT module.

INVERT generates a number of reports besides the Leontief inverse matrix, including per capita personal consumption expenditures (an indicator of regional propensity to consume) and Type I, II, and III income and output multipliers. These reports are adequately described in the IMPLAN User's Guide, but require some experience and training to interpret. All of the INVERT reports were deemed necessary for the six-county model, as they helped paint a clear picture of the baseline economy of the impacted region.

IMPACT

The IMPACT program module estimates the economic impacts created by various planning alternatives. IMPACT can provide the answers to a variety of questions, including the employment and income impacts of given recreation alternatives (the focus of the PARVS pretest data and the example used herein), determination of employment coefficients (e.g., the number of jobs created per 1,000 recreation days), and labor force utilization (sources of employment and amount of local unemployment).

Data requirements. This is where the heaviest demands are made in terms of user input. Three basic pieces of information are needed to execute IMPACT: (1) average amount spent by nonresidents in each of the expenditure categories (e.g., gas and oil); (2) a list of IMPLAN sectors impacted by these expenditures; and (3) the proportion of nonresident spending allocated to each sector.

1. Average nonresident trip spending: First, in order to have a large enough sample size for analysis, it was assumed that all 222 visitors in the pretest were interviewed at John H. Kerr Reservoir. Of the 222 interviewees,

84 met the criteria of: (a) being at their primary destination (90% of the sample), (b) permanently residing 51 miles or more from the site (46% of the sample), and (c) paying their own expenses (89% of the sample). The reason for selecting only nonresidents has been explained above under REGION. Visitors who said that the interview location was not their primary destination were also eliminated from the analysis. These visitors still create an impact (they spend new money in the region), but if their primary destination is elsewhere, then impacts should be attributed to the other destination, not to the survey site. Those who were not paying any of their own expenses were not included in order to avoid possible inaccurate estimates of trip expenditures. On the final PARVS instrument there is an item asking visitors to state the perceived accuracy of their spending estimates. It is recommended that this also be used as a screening question. In other words, screen out those visitors who say that their spending estimates are "not very accurate for most items."

The finding that approximately one-third (84/222) of the visitors remained in the impact analysis after this screening process may be one guideline to follow in determining sample size for future case study applications. It was generally not the purpose of the PARVS pretest or the current PARVS to collect enough data at any one site to estimate the economic impacts of recreation at just that site. Instead, aggregated data from several sites within relatively large regions will be used to estimate regional impacts. However, if the purpose was to determine the impacts of a given site, then 300 would be a good ballpark minimum sample size to achieve as long as the sample was representative of the entire population using the site. To the extent that the pretest data are indicative of future events, a sample of 300 would leave approximately 100 visitors from which to calculate average expenditures for IMPACT analysis.

Table 1 contains the average trip expenditures by category for the PARVS pretest sample of 84 nonresidents selected in the manner described above. The following categories were eliminated because no expenditures were recorded: rental homes, rental RV sites, other lodging, auto rental, taxicab, bus, airline, train, equipment rental fees, other entertainment purchases, miscellaneous repair services, other retail purchases, and all other trip expenses. In addition, certain categories, i.e., public camping fees and fees paid to John H. Kerr Reservoir, were eliminated because they represented payments to

Table 1. Average Trip Expenditures

<u>Expenditure Categories</u>	<u>Average Expenditure</u>
Hotels, motels, etc.	\$22.77
Private camping fees	11.00
Restaurants and bars (onsite purchases)	23.10
Food and beverage (nonalcoholic) purchased for offsite consumption	30.58
Liquor stores	9.36
Gasoline and oil	30.09
Auto or vehicle repair	0.76
Boat fares	0.55
Boat gas, oil, and repairs	3.87
Bait and tackle	1.74
Tickets for attractions and tours	2.05
Admissions to spectator sports	6.23
Commercial amusements	0.30
Equipment and supplies	3.31
Gifts, souvenirs, and film	6.23
Clothing and shoes	1.78
Business services	0.15
Personal services	0.21

government, only a portion of which may return to the region as "new" money. In future analyses of this type, it would be useful to know how much of the public area's revenues the government returns to the area. This amount could then be included in the impact analysis.

2. Average nonresident annual spending: A somewhat different approach was taken to calculate average annual expenditures for recreation equipment, supplies, and so on. The problem lies in deciding how much of these annual expenditures should be counted as new money generated in the region by the existence of a given resource. The principal investigator reviewed some of the scant literature that pertains to this issue and concluded that the procedure for making this allocation was basically the same; that is, most other analysts used much personal judgment blended with many assumptions and the tendency to produce conservative estimates. The same approach was taken here. This approach is not necessarily "correct" but is open to discussion and change by the reviewers of this work. Some decisions must be made concerning annual expenditures before future impact analyses using the PARVS data base occur.

The formula used to compute the proportion of average annual nonresident expenditures attributable to the reservoir region was:

$$AMT = ((Cost - (Cost * (CNTY/100))) * REDUCE)/3.8$$

where

AMT = the amount (in dollars) of nonresident annual expenditure generated by John H. Kerr Reservoir;

COST = the total amount spent by nonresidents on various recreation goods and services during the previous 12 months;

CNTY = the percentage spent on each item by nonresidents in their county of residence;

REDUCE = a reduction factor representing the number of times an annual expenditure equipment item was used at the reservoir versus the number of times it was used anywhere (data obtained from item C.1. in the pre-test, equipment used on the trip); this factor was 0.285 for all fishing and boating annual expenses, 0.20 for waterskiing-related expenses, and 0.43 for camping-related annual expenses. To illustrate, it was learned from item C.1. that, of their total use during the last year, the 84 nonresidents said they used their tents and camping vehicles 43% of the time at John H. Kerr Reservoir. Thus, a reduction factor of 0.43 was applied to the annual expenditures for camping-related equipment.

3.8 = the number of trips made by the 84 nonresidents to the reservoir each year; this puts annual expenditures on a per-trip basis so that they may be added to trip expenditures (item D) to arrive at a total.

To summarize, this formula represents three reductions to the total amount of annual expenditures by nonresidents: (1) only those annual expenses which occurred outside the county of residence were included with the assumption that the remaining expenditures were made in the impact region; (2) this figure was further reduced by the proportion of time a given equipment class was used onsite versus elsewhere during the year; and (3) the last reduction occurred by dividing everything to this point by the average number of trips to the reservoir taken during the previous year. It is felt that conservative figures result from this formula, but their accuracy is not known. By applying this formula to the pretest data, average annual expenditures attributable to John H. Kerr Reservoir* were obtained. These are displayed in Table 2. Categories on the pretest instrument which are not listed in the tables either contained no entries or represented payments to government (e.g., fishing licenses, licenses, and registrations).

3. Allocation of expenditures to IMPLAN sectors: The next step in the IMPACT process is to distribute average trip and annual expenditures to the appropriate IMPLAN sectors. Recall that of 466 possible IMPLAN sectors, the six-county region contains 136. Not all of these will be impacted by nonresident expenditures, and some that are impacted will not be present in the designated region. In economic impact jargon, expenditures must be assigned to those sectors which represent the point of final consumption for that product. In recreation, the point of final consumption by many visitors is retail or wholesale establishments. In this case, only the markups, or trade margins, are allocated to the wholesale or retail sectors. The remaining amount is allocated to the sectors that ultimately produce the good or service. This process is known as "marginizing" the expenditures and is a key element of assessing economic impacts of recreation.

User expenditures are assigned to IMPLAN sectors through the use of the "Detailed Input-Output Commodity Composition of Personal Consumption Expenditures" (Bureau of Economic Analysis, unpublished). Basically, the Personal Consumption Expenditure (PCE) system contains 107 possible spending categories which cover US consumer spending for all goods and services produced. For

* These figures should not be considered accurate representations of actual expenditures, as data from other survey sites were included to increase the sample size.

Table 2. Average Annual Expenditures*

Category	Amount
FISHING**	
Rods and reels	\$ 2.33
Other fishing equipment and supplies	2.02
Boat fuel	1.37
Boat repair	0.86
Boat storage	0.39
Boat accessories	2.55
Other fishing	52.26
WATERSKIING	
Water skis, belts, jackets, and ropes	0.29
Boat fuel	2.53
Boat repair	4.24
OTHER BOATING	
Boat fuel	1.50
Boat repair	1.73
Boat storage	14.46
Boat insurance	1.08
Boat accessories	1.94
CAMPING	
Equipment	4.68
Fuel	4.23
Repairs	4.68
Vehicle insurance	0.10
Other	0.03

* These figures should not be considered accurate representations of actual expenditures, as data from other survey sites were included to increase the sample size.

** On the pretest questionnaire, expenditures were divided according to type of activity (e.g., boat fuel and boat repairs appear under "Fishing," "Waterskiing," and "Other Boating"). As it was believed that this led to data inaccuracies, the divisions by activity type were eliminated on the final PARVS questionnaire.

example, one PCE category which covers a great deal of spending on recreation equipment is called "wheel goods, durable toys, sports equipment, boats, and pleasure aircraft." An appendix to the IMPLAN User's and Analysis Guide contains the PCE categories relevant to recreation, the IMPLAN sectors pertaining to each, and proportions indicating how much of user expenditures to allocate to each sector.

The allocation procedure, then, consists of three steps: (1) pick the appropriate PCE category for each user expenditure item on the PARVS survey; (2) multiply expenditures per trip for each PCE category by the percentages corresponding to each IMPLAN sector; and (3) allocate these disaggregated expenditures to the appropriate IMPLAN sector (this becomes a key part of the data requirements for the IMPACT run). This procedure allocates expenditures not only to the producing sectors but assigns margins to retail, wholesale, and transportation sectors as well.

The allocation of expenditure categories to PCE elements and IMPLAN sectors forms a "bridge table." This means that survey expenditure items are "bridged" to IMPLAN sectors via PCE categories and allocation percentages. For the PARVS pretest data, the expenditure items and corresponding PCE categories are listed in Tables 3 and 4.

In some cases, average expenditures in categories that were given the same PCE categories were summed. For example, food and beverage (nonalcoholic) for offsite consumption and liquor stores are items on the PARVS pretest instrument that fall under the same PCE category, "food purchased for off-premise consumption." Thus, the average expenditures for these two categories were summed before allocation to IMPLAN sectors occurred. However, the analyst may want to keep certain expenditures separate to show the impacts of each. This is the reason why the principal investigator chose to leave expenditures for hotels, motels, etc., separate from private camping fees in the example.

The easiest way to understand the data requirements of IMPACT is to work through one example. Recall that for the trip to the reservoir (excluding annual expenses), nonresidents spent an average of \$30.09 for gasoline and oil for their vehicles and \$3.87 for gas, oil, and repairs for their boats. The \$3.87 figure falls into two separate PCE categories--Gas and Oil; Repair, Greasing, etc. Without any specific rationale to the contrary, 50% of \$3.87 (\$1.94) was allocated to gas and oil and 50% (\$1.93) was allocated to repair,

Table 3. PCE Categories Corresponding to Trip Expenses

Trip Expenses	PCE Category
Hotels, motels, etc.	Other housing
Private camping fees	"
Restaurants and bars (onsite)	Eating and drinking places
Food and beverage (nonalcoholic) purchased for offsite consumption	Food purchased for off-premise consumption
Liquor stores	"
Gasoline and oil	Gasoline and oil
Auto or vehicle repair	Repair, greasing, washing, parking, storage, and rental
Boat fares	Other purchased intercity transportation
Boat gas, oil, and repairs	50% gasoline and oil; 50% repair, greasing, etc.
Bait and tackle	Nondurable toys and sport supplies
Tickets for attractions and tours	Commercial participant amusements
Admissions to spectator sports	Admissions to spectator sports
Commercial amusements	Commercial participant amusements
Equipment and supplies	Nondurable toys and sport supplies
Gifts, souvenirs, and film	Other recreation
Clothing and shoes	25% footwear; 37.5% women's and children's clothing; 37.5% men's clothing
Business services*	
Personal services*	

* These categories were much too general to work with; for example, appropriate analysis would have required the allocation of \$0.15 average spending for business services among 11 separate PCE categories and numerous IMPLAN sectors; a similar situation was found for personal services. These two categories were subsequently dropped from the analysis.

Table 4. PCE Categories Corresponding to Annual Expenses

Annual Expenses	PCE Category
FISHING	
Rods and reels	Nondurable toys and sports supplies
Other fishing equipment and supplies	"
Boat fuel	Gasoline and oil
Boat repairs	Repair, greasing, etc.
Boat storage	Other recreation
Boat accessories	Nondurable toys and sports supplies
Other fishing	Too vague; deleted from analysis
WATERSKIING	
Waterskis, belts, jackets, and ropes	Nondurable toys and sports supplies
Boat fuel	Gasoline and oil
Boat repairs	Repair, greasing, etc.
OTHER BOATING	
Boat fuel	Gasoline and oil
Boat repairs	Repair, greasing, etc.
Boat storage	Other recreation
Boat insurance	Other personal business
Boat accessories	Nondurable toys and sports supplies
CAMPING	
Equipment	Nondurable toys and sports supplies
Fuel	Gasoline and oil
Repairs	Repair, greasing, etc.
Vehicle insurance	Other personal business
Other	Too vague; deleted from analysis

greasing, etc. Thus, the total average expenditure for gas and oil was \$32.03 (\$30.09 + \$1.94) per trip. The PCE category for gas and oil contains eight IMPLAN sectors. Those sectors and the percentage allocations to each are presented in Table 5.

Table 5. IMPLAN Sectors for PCE Category "Gas and Oil"

<u>IMPLAN Sector Number and Description</u>	<u>Percent of Expenditure Allocated</u>
211 Petroleum Refining and Manufacturing	66.433
420 Railroads and Related Services	00.288
422 Motor Freight Transportation	01.013
423 Water Transportation	00.922
424 Air Transportation	00.004
425 Pipelines, Except Natural Gas	00.898
432 Wholesale Trade	15.266
433 Retail Trade	15.176

The percentages in sectors 432 and 433 represent, respectively, the wholesale and retail markups for gasoline and oil. It is clear from the percentages above that most of what consumers spend for gas and oil goes to the Petroleum Refining and Manufacturing, Wholesale Trade, and Retail Trade sectors. The six-county region around Kerr Reservoir contains all but two of these eight sectors: sector 211 (Petroleum Refining and Manufacturing) and sector 425 (Pipelines, Except Natural Gas). Thus, 67.331% (66.433% + 00.898%) of what nonresidents spend on gasoline and oil in the six-county region escapes and does not have an impact. This means that \$21.57 ($\32.03×0.67331) must be discarded from the IMPACT input data. However, \$4.86 ($\32.03×0.15176) remains in the region as a direct impact on the Retail Trade sector (primarily gasoline stations).

As an aside, the total average expenditure across all categories was \$153.72 per trip. Of this total, \$45.47 (29.6%) had to be discarded because the production sectors were not contained in the region. Thus, an average of \$108.25 per trip stays in the region as direct impact. Comparable figures for annual expenditures were: of the \$27.18 average annual expenditures by nonresidents attributed to the site, 14% (\$3.84) leaks out of the region

immediately, leaving \$23.34 as direct impact. As a caution, recall that because of the many assumptions placed on the data, these dollar figures are by no means intended to represent the "true" situation at Kerr Reservoir. They merely represent the type of output that the analyst can expect from IMPLAN and show that economic impact assessment yields more information than just multipliers. In this case, the analyst would be able to list those sectors which receive the greatest impact from tourist spending and those that pull a great deal of money away from the region. If tourism development was a regional goal, planners may want to encourage those industries directly and indirectly linked to tourism to locate in the region for maximum economic impact. This analysis also illustrates a key principle in regional economics: as the economic diversity of a region (regardless of size) increases, so do the direct impacts of exogenous spending. Oftentimes, economic diversity is positively correlated with the size of the region such that, all else being equal, as the size of the region increases, so do diversity and, hence, direct impacts.

To continue the example, \$4.86 of nonresident spending on gas and oil is allocated to IMPLAN sector 433, Retail Trade. Many other categories of recreation spending also contribute to the impact on the retail trade sector in the six-county region. In the next step in preparing data for IMPACT, the amounts from all spending categories allocated to sector 433 (and all other impacted sectors in the region) are summed. For the Retail Trade sector, this sum is \$16.92 per trip in direct impact across all spending categories in the PARVS pretest. Another IMPLAN module, EXPEND, would normally be employed at this point to convert total expenditures into constant dollars. However, documentation for EXPEND was not available at the time of this analysis. It would have taken a great deal of time to convert the figures by hand; thus, this step was not followed. The resultant dollar figures are, therefore, overestimates of the impacts that would have been derived by converting everything to 1977 dollars (the year of the current data base in IMPLAN).

Since IMPLAN outputs are reported in millions of dollars, total impacts by sector must be converted into the same units before being input as an IMPACT data file. Dividing \$16.92 by 1,000,000 would result in a cumbersome figure with many zeroes: 0.00001692. Therefore, total impacts are first put on a 1,000-trip basis and then divided by 1,000,000. In the example, \$16.92 per trip \times 1,000 trips = \$16,920; \$16,920 divided by 1,000,000 = 0.01692.

This figure, 0.01692, is the final number required for entry into the IMPACT module for sector 433. Similar calculations were performed for all impacted IMPLAN sectors in the six-county region for both trip and annual expenditures. The result was that 42 sectors were impacted by trip expenses alone and 43 sectors were impacted when trip and annual expenses were combined. The IMPACT input data from the PARVS pretest are contained in Appendix A.

Results. A feature of IMPACT of great importance to planners is the ability to see what would happen to the regional economy under alternative development scenarios. For the example, two alternatives were considered:

Alternative A--the current 1,000 trips per year status quo situation;

Alternative B--a new development or management practice which increased visitation 10-fold to 10,000 trips per year.

Thus, four sets of results were developed for illustrative purposes: the trip expenditure and trip plus annual expenditure analyses for both alternatives.

IMPACT has the ability to generate a number of reports. Since a goal of this report is to show the impacts of alternatives based on changes in final demand (i.e., the expenditure profiles generated by the PARVS pretest), reports in the 6.200 series were requested. These reports yield the direct, indirect, induced, and total (direct + indirect + induced) impacts on total gross outputs (employee income, property income, value added, and number of jobs) by sector for the region of interest based on nonresident expenditures. In other words, these reports provide income, value added, and employment multipliers for each sector in the impact assessment area.

For the six-county region surrounding Kerr Reservoir, recall that \$108.25 was retained as direct impact per trip. IMPACT analysis of Alternative A (1,000 trips) revealed that an additional \$66.66 in total employee income (direct, indirect, and induced) is generated when \$108.25 per trip is spent in the region. On a 1,000-trip basis, comparable figures would be \$66.660 in total employee income produced by nonresident spending of \$108,250. Thus, the employee income multiplier for the six-county region is \$66,660 divided by \$108,250, or 0.62. This means that \$0.62 in additional employee income is generated for each dollar of nonresident spending retained in the region (caution: this does not necessarily mean that all of the new income generated is retained in the region). In terms of employment, 9.11 new jobs were created by the \$108,250 in nonresident spending. In other words, one new job is created in the region for roughly every \$11,900 in nonresident visitor

spending. Again, these figures are not intended to represent reality for this six-county region, but merely to illustrate the types of outputs and interpretations possible.

The results of the analysis for Alternative B (10,000 trips) and total expenditures (trip plus annual) for both alternatives were:

Alternative B (10,000 trips), with trip expenditures from pretest:

- \$688,400 in additional employee income
- employee income multiplier of 0.64
- 93.87 new jobs created
- one new job for every \$11,500 in nonresident spending

Alternative A (1,000 trips), with trip plus annual expenditures from pretest:

- \$80,300 in additional employee income
- employee income multiplier of 0.61
- 10.82 new jobs created
- one new job for every \$12,200 in nonresident spending

Alternative B (10,000 trips), trip plus annual expenditures from pretest:

- \$829,700 in additional employee income
- employee income multiplier of 0.63
- 111.53 new jobs created
- one new job for every \$11,800 in nonresident spending

Thus, accounting for annual expenditures as well as increasing the number of trips to Kerr Reservoir increases substantially the total amount of employee income and number of jobs. However, note that in all cases, the income multiplier and amount of exogenous spending required to create one new job remain roughly constant. IMPACT also reports the income and employment impacts on each sector within the designated region.

Bridge table for
the final PARVS instrument

One step in the above analysis was to develop a table which bridged PARVS pretest expenditure categories to IMPLAN sectors. PCE categories and percentages were used as cell entries in this bridge table. Once such a table is developed, it does not change. Thus, any analyst desiring to perform an economic impact assessment using the PARVS data would merely need a copy of

the bridge table to save a great deal of time. Since analysts across the United States will be using data from the final PARVS instrument, which differs a great deal from the pretest instrument, the principal investigator has developed a bridge table for the final version of the PARVS instrument (see Appendix B).

The current intent is to store this table in the IMPLAN system at Fort Collins so that the user will have to supply only the expenditure information; a computer program will automatically allocate spending data to the appropriate sectors. This will provide a time-saving device for the user. Also, there is no need for each user to go through all the calculations needed to prepare the pretest expenditure data for IMPLAN. The table in Appendix B serves a second purpose of demonstrating how the raw PARVS data can be further analyzed to ease IMPLAN analysis. For example, the expenditure categories across the top of the table indicate one possible way to prepare the trip spending profiles for the IMPACT run. That is, some categories are combined into one because all expenses are allocated to the same PCE group, some are disaggregated even further (e.g., note how parking fees and road tolls have been separated), and some remain as they are on the survey instrument. Once the categories across the top of the table are agreed upon, a central unit in charge of all the PARVS data could provide IMPLAN users with expenditure profiles that match the bridge table and thereby save even more time.

The bridge table is not quite complete (i.e., there are some missing cells, as indicated by X's). However, the table is stored as a microcomputer spreadsheet file and can therefore be readily updated once the information is available. The incompleteness is a result of not being able to find an appropriate PCE category for certain expenditures (e.g., film purchases, film developing, and live bait). The IMPLAN staff at Fort Collins is currently assisting the principal investigator in finding the information needed to complete this table. An alternative to using PCE categories is to allocate expenditures directly to IMPLAN sectors. There is an appendix to the IMPLAN Analysis Guide which shows the linkages between Standard Industrial Classification (SIC) codes and IMPLAN sectors. Since the SIC codes for each PARVS expenditure category are known, one can assign the expenditure directly to the IMPLAN sector. For example, the bridge table shows that "film purchases" fall into the SIC code 3861. This corresponds to IMPLAN sector 399, Photographic Equipment and Supplies. However, there is still one missing ingredient: the

retail and wholesale margins. Once these margins are known, appropriate percentages can be applied to the amount spent on film purchases. The staff at Fort Collins has access to information that will permit the calculation of the margins. Since this information is on the UNIVAC computer in a form not readily available to outside users, the principal investigator was unable to complete the table. Before any future IMPLAN/PARVS training sessions occur, however, the Fort Collins staff and the principal investigator will complete the bridge table.

Also note that the bridge table is for trip expenditures only (Part C of the mailback portion of the survey). A similar table is needed for annual expenditures (Part D). In the interest of time, the principal investigator was unable to prepare a bridge table for annual expenditures but will attempt to do so before future IMPLAN/PARVS training sessions.

Summary

The purpose of this report was to describe the findings from an IMPLAN analysis of the PARVS pretest data. Some important points and recommendations bear repeating here as they will affect future analyses using the full PARVS data base.

1. Using the IMPLAN system and PARVS pretest data, a six-county regional model showing the economic impacts of nonresident spending was developed. Development of this model serves as a useful training device as actual data were used. Many assumptions were used to build this model, and many data manipulations were made. Thus, the "real" economic situation around Kerr Reservoir was not depicted; Corps decision makers should not use the results in this report for planning purposes.

2. For any agency unit to perform its own IMPLAN analyses, three components are necessary: an account with the Fort Collins Computer Center, the appropriate hardware (terminal, modem, and high-speed printer) and software (for communications), and someone trained in the use of IMPLAN. All components imply the commitment of resources (time and money).

3. At a minimum, five IMPLAN program modules must be executed to assess the economic impacts of recreation: REGION, SCALE, LISTER, INVERT, and IMPACT. The application of these modules and the data requirements of each are illustrated in this report. IMPACT requires the most data from the user:

nonresident visitor spending in the impacted region by expenditure category, the IMPLAN sectors impacted by this spending, and proportions of each spending category to allocate to each sector. This last data requirement calls for the development of "bridge" tables and the use of "margining" to allocate expenditures. Examples of both are given.

4. As the user's experience grows and questions become more complex, he or she will want to employ some of IMPLAN's time-saving and more sophisticated analysis procedures. This will require additional training and someone to whom questions can be directed. Decisions need to be made regarding this latter point; that is, which agency unit or units will be responsible for fielding the questions that new IMPLAN/PARVS users will raise as they attempt to build their own models?

5. Important screening variables on the PARVS pretest which should not be excluded in future data-gathering efforts are: distance of permanent residence from the site, whether or not the site was a primary destination, whether or not interviewees were paying their own expenses, perceived accuracy of respondents' expenditure estimates, number of previous trips, equipment type, and how often equipment was used at the site versus total use.

6. For case study applications at one specific site or resource (e.g., one Forest Service District), a minimum sample size of 300 recreationists is recommended.

7. For future impact assessments, it will be necessary to include as input data agency employment information (e.g., salaries and number of employees in the impacted region) and the amount of government expenditure in the designated region.

8. Agreement must be reached regarding the manner in which annual nonresident expenditures are allocated to the impact region. One approach is presented in this report, but this approach needs to be reviewed and possible changes made before full implementation occurs.

9. IMPLAN fulfills the goal of demonstrating the economic impacts of nonresident recreation spending. However, careful interpretation of the results (e.g., multipliers) is required. This implies the need for training not only in IMPLAN use but in interpreting the results for decision-making purposes as well.

10. A bridge table for the final PARVS instrument is provided (Table 1). This table is for trip expenditures only (Part C of the PARVS) and awaits further review as to its appropriateness and completeness.

11. Reliable visitation figures are a must. It does little good to develop accurate multipliers if there is nothing accurate by which to multiply them.

Appendix A: Input Data for the IMPACT Module

<u>IMPLAN Sector</u>	<u>Trip Expenditures*</u>	<u>Trip + Annual Expenditures*</u>
2	0.00043	0.00043
3	0.00015	0.00058
5	0.00011	0.00011
7	0.00049	0.00049
8	0.00070	0.00070
10	0.00003	0.00003
11	0.00028	0.00068
12	0.00015	0.00058
72	0.00036	0.00036
75	0.00010	0.00010
79	0.00002	0.00002
85	0.00090	0.00090
92	0.00142	0.00142
107	0.00001	0.00001
121	0.00001	0.00001
122	0.00001	0.00001
127	0.00061	0.00061
181	0.00003	0.00007
191	0.00001	0.00003
222	0.00019	0.00019
419	0.00003	0.00007
420	0.00037	0.00038
421	0.00003	0.00003
422	0.00099	0.00109
423	0.00058	0.00060
424	0.00013	0.00016
426	0.00053	0.00053
427	0.00054	0.00208
428	0.00017	0.00066

(Continued)

* Figures represent millions of dollars expended per 1,000 trips.

<u>IMPLAN Sector</u>	<u>Trip Expenditures*</u>	<u>Trip + Annual Expenditures*</u>
432	0.00949	0.01037
433	0.01692	0.01951
441	0.03443	0.03631
442	0.00082	0.00318
444	0.00099	0.00382
447	0.02273	0.02273
448	0.00267	0.00567
449	0.00013	0.00013
450	0.00617	0.00938
453	0.00056	0.00215
454	0.00342	0.00342
455	0.00001	0.00027
458	-	0.00001
464	0.00041	0.00156

Appendix B: Bridge Table for PARVS Trip Expenditures

(Part C of the Survey) (Expenditure Category, Corresponding PCE or SIC Codes,
and Percent of Expenditures Allocated to Each IMPLAN Sector*)

IMPLAN Sec- tors	Private Lodg- ing (all of a. and pri- vate part of c.)	Food & Beverage Offsite only; incl food and liquor (d.1 and d.2)	Food & Beverage- Purchased on- site only (d.3)	Auto, RV, Boat Gas and Oil (e.3 and e.6)	Auto, RV, Boat Repairs and Rental (e.1, 2, 4, 7, and 1/2 of e.5; Park- ing Fees and Tolls)
	PCE 27	PCE 3	PCE 4	PCE 70	PCE 69
2		.01068			
3					
5		.00270			
7		.01218			
8					
9		.00005			
10		.00070			
11		.00193			
12					
44		.00001			
56					
57					
59		.06273			
60		.05437			
61		.01901			
62		.00308			
63		.00163			
64		.02001			
65		.00677			
66		.00711			
67		.05091			
68		.00604			
69		.01186			
70		.02752			
71		.00484			
72		.00894			
73		.00244			
74		.02753			
75		.00253			
76		.00926			
77		.00644			
78		.01538			
79		.00048			
80		.00140			

(Continued)

* The characters in parentheses refer to the categories on the final PARVS form, a portion of which is reproduced in Appendix C. The letters are printed on the form; the numbers are assigned consecutively within each category.

IMPLAN Sec- tors	Private Lodg- ing (all of a. and pri- vate part of c.)	Food & Beverage Offsite only; incl food and liquor (d.1 and d.2)	Food & Beverage- Purchased on- site only (d.3)	Auto, RV, Boat Gas and Oil (e.3 and e.6)	Auto, RV, Boat Repairs and Rental (e.1, 2, 4, 7, and ½ of e.5; Park- ing Fees and Tolls)
	PCE 27	PCE 3	PCE 4	PCE 70	PCE 69
81		.00073			
82		.03823			
83		.01344			
84		.00709			
85		.02243			
86		.00549			
87		.00324			
88		.03361			
90		.00824			
91		.02266			
92		.03563			
93		.00451			
95		.00058			
98		.01823			
99		.00725			
100		.00063			
101		.00361			
102		.02497			
107					
108					
109					
110					
113					
118					
121					
122					
126					
127					
130					
131					
133					
135					
167					
174					
180					
181					
191		.00004			
200		.00025			
211				.66433	
212					
214					

(Continued)

IMPLAN Sec- tors	Private Lodg- ing (all of a. and pri- vate part of c.) PCE 27	Food & Beverage Offsite only; incl food and liquor (d.1 and d.2) PCE 3	Food & Beverage- Purchased on- site only (d.3) PCE 4	Auto, RV, Boat Gas and Oil (e.3 and e.6) PCE 70	Auto, RV, Boat Repairs and Rental (e.1, 2, 4, 7, and 1/2 of e.5; Park- ing Fees and Tolls) PCE 69
215					
217					
221					
222					
223					
224					
225					
226					
227					
228					
293					
296					
299					
305					
347					
361					
371					
375					
380					
383					
384					
386					
388					.00006
389					
397					
399					
405					
406					
407					
413					
414					
419					
420		.00664	.00025	.00288	
421					
422		.01574		.01013	
423		.00130		.00922	
424		.00059	.00114	.00004	
425				.00898	
426					
427					
428					
432		.09903		.15266	.00192

(Continued)

IMPLAN Sec- tors	Private Lodg- ing (all of a. and pri- vate part of c.) PCE 27	Food & Beverage Offsite only; incl food and liquor (d.1 and d.2) PCE 3	Food & Beverage- Purchased on- site only (d.3) PCE 4	Auto, RV, Boat Gas and Oil (e.3 and e.6) PCE 70	Auto, RV, Boat Repairs and Rental (e.1, 2, 4, 7, and 1/2 of e.5; Park- ing Fees and Tolls) PCE 69
433		.22772		.15176	.00675
437					
438		.00001			
441	1.00000				
442					
443					
444					.00055
446					
447			.98414		
448					.98865
449			.00584		
450			.00863		.00180
451					
452					
453					
454					.00027
455					
458					
464					
466					

(Continued)

<u>IMPLAN Sectors</u>	<u>Parking Fees and Tolls (½ of e.5 only) PCE 71</u>	<u>Taxi Fares (e.8) PCE 75</u>	<u>Bus Fares (e.9) PCE 79</u>	<u>Airline Fares (e.10) (PCE 80)</u>	<u>Train Fares (e.11) PCE 78</u>
2					
3					
5					
7					
8					
9					
10					
11					
12					
44					
56					
57					
59					
60					
61					
62					
63					
64					
65					
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
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77					
78					
79					
80					
81					
82					
83					
84					
85					
86					
87					
88					

(Continued)

<u>IMPLAN Sectors</u>	<u>Parking Fees and Tolls (½ of e.5 only) PCE 71</u>	<u>Taxi Fares (e.8) PCE 75</u>	<u>Bus Fares (e.9) PCE 79</u>	<u>Airline Fares (e.10) (PCE 80)</u>	<u>Train Fares (e.11) PCE 78</u>
90					
91					
92					
93					
95					
98					
99					
100					
101					
102					
107					
108					
109					
110					
113					
118					
121					
122					
126					
127					
130					
131					
133					
135					
167					
174					
180					
181					
191					
200					
211					
212					
214					
215					
217					
221					
222					
223					
224					
225					
226					
227					
228					

(Continued)

<u>IMPLAN Sectors</u>	<u>Parking Fees and Tolls (½ of e.5 only) PCE 71</u>	<u>Taxi Fares (e.8) PCE 75</u>	<u>Bus Fares (e.9) PCE 79</u>	<u>Airline Fares (e.10) (PCE 80)</u>	<u>Train Fares (e.11) PCE 78</u>
293					
296					
299					
305					
347					
361					
371					
375					
380					
383					
384					
386					
388					
389					
397					
399					
405					
406					
407					
413					
414					
419					
420					1.00000
421		1.00000	1.00000		
422					
423					
424				1.00000	
425					
426					
427					
428					
432					
433					
437					
438					
441					
442					
443					
444					
446					
447					
448					
449					

(Continued)

<u>IMPLAN Sectors</u>	<u>Parking Fees and Tolls (1/2 of e.5 only) PCE 71</u>	<u>Taxi Fares (e.8) PCE 75</u>	<u>Bus Fares (e.9) PCE 79</u>	<u>Airline Fares (e.10) (PCE 80)</u>	<u>Train Fares (e.11) PCE 78</u>
450					
451					
452					
453					
454					
455					
458					
464	1.00000				
466					

(Continued)

<u>IMPLAN Sectors</u>	<u>Boat Fares-not fish- ing charters (e.12) PCE 81</u>	<u>Other Transp. (e.13) Varies</u>	<u>Fishing--Prepared Bait, Fishing lines, etc. and Other Fish. Equip. (f.1, 5, & 6) PCE 85 (?)</u>	<u>Fishing-- Live Bait (f.2) SIC 0279</u>	<u>Fishing-- Charters (f.3) PCE 97</u>
2					
3				X	.02443
5					
7					
8					
9					
10					
11			.01545		.01954
12					.02461
44					
56					
57			.01506		
59					
60					
61					
62					
63					
64					
65					
66					
67					
68					
69					
70					
71					
72					
73					
74					
75					
76					
77					
78					
79					
80					
81					
82					
83					
84					
85					

(Continued)

<u>IMPLAN Sectors</u>	<u>Boat Fares-not fish- ing charters (e.12) PCE 81</u>	<u>Other Transp. (e.13) Varies</u>	<u>Fishing--Prepared Bait, Fishing lines, etc. and Other Fish. Equip. (f.1, 5, & 6) PCE 85 (?)</u>	<u>Fishing-- Live Bait (f.2) SIC 0279</u>	<u>Fishing-- Charters (f.3) PCE 97</u>
96					
87					
88					
90					
91					
92					
93					
95					
98					
99					
100					
101					
102					
107					
108					
109					
110					
113					
118			.00199		
121					
122					
126					
127					
130					
131					
133					
135					
167					
174			.00395		
180					
181			.00535		
191			.00223		
200			.00559		
211					
212					
214					
215					
217			.00305		
221					
222					
223					

(Continued)

IMPLAN Sectors	Boat Fares-not fish- ing charters (e.12) PCE 81	Other Transp. (e.13) Varies	Fishing--Prepared Bait, Fishing lines, etc. and Other Fish. Equip. (f.1, 5, & 6) PCE 85 (?)	Fishing-- Live Bait (f.2) SIC 0279	Fishing-- Charters (f.3) PCE 97
224					
225					
226					
227					
228					
293					
296					
299					
305					
347			.00058		
361			.02531		
371					
375			.01316		
380					
383					
384					
386					
388					
389					
397					
399			.05815		
405			.19500		
406			.05795		
407			.10198		
413					
414					
419			.00645		
420			.00167		.00022
421					
422			.00440		.00266
423	.04547		.00207		.00012
424			.00037		.00194
425					
426	.95453				
427					.03728
428					.01797
432			.10398		.00582
433			.36333		.04773
437					.00022
438					
441					.00060
442			.00033		.00007

(Continued)

IMPLAN Sectors	Boat Fares-not fish- ing charters (e.12) PCE 81	Other Transp. (e.13) Varies	Fishing--Prepared Bait, Fishing lines, etc. and Other Fish. Equip. (f.1, 5, & 6) PCE 85 (?)	Fishing-- Live Bait (f.2) SIC 0279	Fishing-- Charters (f.3) PCE 97
443					
444					.15874
446					
447					
448					
449					
450					.18098
451					
452					
453					.08976
454					
455					.00207
458					
464					.06521
466					

(Continued)

<u>IMPLAN Sectors</u>	<u>Hunting All Except Licenses (f.7, 8, & 9) PCE 85 (?)</u>	<u>Other Rec. Equip.-- Tents, etc. (f.11) PCE 86 (?)</u>	<u>Other Rec. Equip.-- Other Sport- ing Goods (f.12) PCE 85 (?)</u>	<u>Equip. Rental Fees (f.13) PCE 95</u>	<u>Guides and Outfitters (f.14) PCE 97</u>
2					
3					.02443
5					
7					
8					
9					
10					
11	.01545		.01545		.01954
12					.02461
44					
56		.03400			
57	.01506		.01506		
59					
60					
61					
62					
63					
64					
65					
66					
67					
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35					
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37					
38					

(Continued)

<u>IMPLAN Sectors</u>	<u>Hunting All Except Licenses (f.7, 8, & 9) PCE 85 (?)</u>	<u>Other Rec. Equip.-- Tents, etc. (f.11) PCE 86 (?)</u>	<u>Other Rec. Equip.-- Other Sport- ing Goods (f.12) PCE 85 (?)</u>	<u>Equip. Rental Fees (f.13) PCE 95</u>	<u>Guides and Outfitters (f.14) PCE 97</u>
90					
91					
92					
93					
95					
98					
99					
100					
101					
102					
107					
108					
109					
110					
113					
118	.00199		.00199		
121					
122					
126					
127					
130		.00264			
131		.01189			
133					
135		.00629			
167					
174	.00395		.00395		
180					
181	.00585		.00585		
191	.00223		.00223		
200	.00669		.00669		
211					
212					
214		.00130			
215					
217	.00905	.00063	.00905		
221					
222					
223					
224					
225					
226					

(Continued)

<u>IMPLAN Sectors</u>	<u>Hunting All Except Licenses (f.7, 8, & 9) PCE 85 (?)</u>	<u>Other Rec. Equip.-- Tents, etc. (f.11) PCE 86 (?)</u>	<u>Other Rec. Equip.-- Other Sport- ing Goods (f.12) PCE 85 (?)</u>	<u>Equip. Rental Fees (f.13) PCE 95</u>	<u>Guides and Outfitters (f.14) PCE 97</u>
227					
228		.01089			
293		.00791			
296		.00156			
299		.00033			
305		.01512			
347	.00058		.00058		
361	.02531		.02531		
371		.00024			
375	.01316		.01316		
380		.03114			
383		.00880			
384		.19058			
386		.10058			
388					
389		.01849			
397		.00504			
399	.05815	.05806	.05815		
405	.19500	.01544	.19500		
406	.05795		.05795		
407	.10198	.06840	.10198		
413					
414					
419	.00645	.00100	.00645		
420	.00167	.00069	.00167		
421				.01606	.00022
422	.00440	.00580	.00440		.00266
423	.00207	.00156	.00207	.08872	.00012
424	.00037	.00035	.00037	.03019	.00194
425					
426					
427					
428					.08728
432	.10398	.07592	.10398		.02797
433	.36833	.30104	.36833		.00532
437					.04773
438					.00022
441					
442	.00033		.00033		.11002
443					.12197
444		.01967			
446					.13874
447					

(Continued)

<u>IMPLAN Sectors</u>	<u>Hunting All Except Licenses (f.7, 8, & 9) PCE 85 (?)</u>	<u>Other Rec. Equip.-- Tents, etc. (f.11) PCE 86 (?)</u>	<u>Other Rec. Equip.-- Other Sport- ing Goods (f.12) PCE 85 (?)</u>	<u>Equip. Rental Fees (f.13) PCE 95</u>	<u>Guides and Outfitters (f.14) PCE 97</u>
448					
449					
450					
451				.86323	.18098
452					
453					.08976
454				.00180	
455					.00207
458					
464					.06522
466		.00464			

(Continued)

<u>AMFLAN Sectors</u>	<u>Motion Pictures (f.15) PCE 91</u>	<u>Admissions-- ½ only (f.16) PCE 93</u>	<u>Admissions-- ½ only (f.16) PCE 95</u>	<u>Amusement Parks (f.17) PCE 95</u>	<u>Other Amusements (f.18) PCE 95 (usually)</u>
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(Continued)

<u>IMPLAN</u> <u>Sectors</u>	<u>Motion Pictures</u> (f.15) PCE 91	<u>Admissions--</u> <u>‡ only</u> (f.16) PCE 93	<u>Admissions--</u> <u>‡ only</u> (f.16) PCE 95	<u>Amusement Parks</u> (f.17) PCE 95	<u>Other Amusements</u> (f.18) PCE 95 (usually)
90					
91					
92					
93					
94					
98					
99					
100					
101					
102					
107					
108					
109					
110					
113					
118					
121					
122					
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127					
130					
131					
133					
135					
167					
174					
180					
181					
191					
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211					
212					
214					
215					
217					
221					
222					
223					
224					
225					
226					
227					
228					
293					
296					

(Continued)

IMPLAN Sectors	Motion Pictures (f.15) PCE 91	Admissions-- 1/2 only (f.16) PCE 93	Admissions-- 1/2 only (f.16) PCE 95	Amusement Parks (f.17) PCE 95	Other Amusement: (f.18) PCE 95 (usually)
299					
305					
347					
361					
371					
375					
380					
383					
384					
386					
388					
389					
397					
399					
405					
406					
407					
413					
414					
419					
420					
421			.01606	.01606	.01606
422					
423			.08872	.08872	.08872
424	.00802		.03019	.03019	.03019
425					
426					
427					
428					
432					
433					
437					
438					
441					
442					
443					
444					
446					
447					
448					
449	.98222				
450		.45168	.86323	.86323	.45323
451					
452					
453					

(Continued)

IMPLAN Sectors	Motion Pictures	Admissions--	Admissions--	Amusement Parks	Other Amusements
	(t.15) PCE 91	‡ only (t.16) PCE 93	‡ only (f.16) PCE 95	(f.17) PCE 95	(f.18) PCE 95 (usually)
454	.00976	.54832	.00180	.00180	.00180
455					
458					
464					
466					

(Continued)

<u>IMPLAN Sectors</u>	<u>Film Purchase (g.1) SIC 2861</u>	<u>Film Developing (g.2) SIC 7395</u>	<u>Footwear (g.3) PCE 12</u>	<u>Clothing-not for hunting or fishing, ‡ <u>only</u> (g.4) PCE 14</u>	<u>Clothing-not for hunting or fishing, ‡ <u>only</u> (g.4) PCE 15</u>
2					
3					
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7					
8					
9					
10					
11					
12					
44					
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57					
59					
60					
61					
62					
63					
64					
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72					
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87					

(Continued)

IMPLAN Sectors	Film Purchase (g.1) SIC 3861	Film Developing (g.2) SIC 7395	Footwear (g.3) PCE 12	Clothing-not for hunting or fishing, ‡ only (g.4) PCE 14	Clothing-not for hunting or fishing, ‡ only (g.4) PCE 15
88					
90					
91					
92					
93					
95					
98					
99					
100					
101					
102					
107				.01014	.00200
108				.00067	.00040
109				.00118	.00132
110				.00066	.00013
113				.00001	
118					
121				.01628	
122				.00340	.02083
126				.00698	.00154
127				.39379	.50633
130					
131					
133				.00008	
135				.00088	.00045
167				.01765	
174					
180				.00293	
181					
191					
200					
211					
212					
214					
215			.06886		
217				.00130	.00159
221			.00002		
222			.42653		
223			.01528		
224				.00044	.00559
225				.01049	.00370
226				.01660	
227				.00527	.00362
228					

(Continued)

<u>IMPLAN Sectors</u>	<u>Film Purchase (g.1) SIC 3861</u>	<u>Film Developing (g.2) SIC 7395</u>	<u>Footwear (g.3) PCE 12</u>	<u>Clothing-not for hunting or fishing, ‡ only (g.4) PCE 14</u>	<u>Clothing-not for hunting or fishing, ‡ only (g.4) PCE 15</u>
293					
296					
299					
305					
347					
361					
371					
375					
380					
383					
384					
386					
388					
389					
397					
399					
405					
406					
407					
413				.00020	.00004
414				.00150	.00031
419				.00118	.00122
420			.00023	.00085	.00073
421					
422			.00214	.00118	.00143
423			.00124	.00025	.00026
424			.00021	.00087	.00100
425					
426					
427					
428					
432			.05710	.03095	.04069
433			.42839	.47427	.40282
437					
438					
441					
442					
443					
444		X			
446					
447					
448					
449					
450					

(Continued)

<u>IMPLAN Sectors</u>	<u>Film Purchase (g.1) SIC 3861</u>	<u>Film Developing (g.2) SIC 7395</u>	<u>Footwear (g.3) PCE 12</u>	<u>Clothing-not for hunting or fishing, ‡ <u>only (g.4)</u> PCE 14</u>	<u>Clothing-not for hunting or fishing, ‡ <u>only (g.4)</u> PCE 15</u>
451					
452					
453					
454					
455					
458					
464					
466					

(Continued)

IMPLAN Sectors	Souvenirs and Gifts	Personal Services	Business Services	Health Services	Other
	(g.5) PCE 97	(g.6) SIC 72 and 723-4	(g.7) SIC 732-9 (excl. 7396	(g.8) SIC 801-3, 8041 806, 8049, 805, 807-9	Misc. Varies
2					
3	.02443				
5					
7					
8					
9					
10					
11	.01954				
12	.02461				
44					
36					
37					
39					
60					
61					
62					
63					
64					
65					
67					
68					
69					
70					
71					
72					
73					
74					
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88					

(Continued)

IMPLAN Sectors	Souvenirs and Gifts	Personal Services	Business Services	Health Services	Other Misc. Varies
	(g.5) PCE 97	(g.6) SIC 72 and 723-4	(g.7) SIC 732-9 (excl. 7396	(g.8) SIC 801-3, 8041 806, 8049, 805, 807-9	
90					
91					
92					
93					
95					
98					
99					
100					
101					
102					
107					
108					
109					
110					
113					
118					
122					
122					
126					
127					
130					
131					
133					
135					
167					
174					
180					
181					
191					
200					
211					
212					
214					
215					
217					
221					
222					
223					
224					
225					
226					
227					
228					
293					

(Continued)

IMPLAN Sectors	Souvenirs and Gifts	Personal Services	Business Services	Health Services	Other Misc. Varies
	(g.5) PCE 97	(g.6) SIC 72 and 723-4	(g.7) SIC 732-9 (excl. 7396	(g.8) SIC 801-3, 8041 806, 8049, 805, 807-9	
296					
299					
305					
347					
361					
371					
375					
380					
383					
384					
386					
388					
389					
397					
399					
405					
406					
407					
413					
414					
419					
420	.00022				
421					
422	.00266				
423	.00012				
424	.00194				
425					
426					
427	.08728				
428	.02797				
432	.00582				
433	.04778				
437	.00022				
438					
441	.10662				
442	.13107	X			
443		X			
444	.15874		X		
446					
447					
448					
449					
450	.18098				
451				X	

(Continued)

IMPLAN Sectors	Souvenirs and Gifts	Personal Services	Business Services	Health Services	Other Misc. Varies
	(g.5) PCE 97	(g.6) SIC 72 and 723-4	(g.7) SIC 732-9 (excl. 7396	(g.8) SIC 801-3, 8041 806, 8049, 805, 807-9	
452				X	
453	.08976			X	
454					
455	.00207				
458					
464	.06522				
466					

Appendix C: Trip Expenditure Questions from the Final PARVS Survey Form

	Column A	Column B	Column C
Type of Expense	Amount spent while preparing for trip or trip related expenses upon return	Amount spent traveling to and from (location)	Amount spent while visiting (location) or the immediate area
EXAMPLE: hotel expenses	___ 0	___ 1 2 5	___ 4 5
a) LODGING, PRIVATELY OWNED (non-government)			
hotels/motels/ inns/tourist homes/bed & break- fasts/cottages/ cabins	___	___	___
rental homes	___	___	___
rental RV sites	___	___	___
camping (RV/tent/camper)	___	___	___
b) LODGING, PUBLICLY OWNED (government)			
hotels/motels/ inns/tourist homes/bed & break- fasts/cottages/ cabins	___	___	___
rental homes	___	___	___
rental RV sites	___	___	___
camping (RV/tent/camper)	___	___	___
c) OTHER LODGING Specify:			
1) _____	___	___	___
2) _____	___	___	___

- continued on next page -

	Column A	Column B	Column C
Type of Expense	Amount spent while preparing for trip or trip related expenses upon return	Amount spent traveling to and from (location)	Amount spent while visiting (location) or the immediate area
d) FOOD & BEVERAGE			
food purchased at a store (food stores/fruit markets/etc.) for off-site consumption	-----	-----	-----
alcoholic beverages purchased at a store for off-site consumption	-----	-----	-----
food and drinks purchased at restaurants and bars	-----	-----	-----



	Column A	Column B	Column C
Type of Expense	Amount spent while preparing for trip or trip related expenses upon return	Amount spent traveling to and from (location)	Amount spent while visiting (location) or the immediate area
e) TRANSPORTATION			
automobile rental	-----	-----	-----
recreation vehicle (RV) rental	-----	-----	-----
auto or RV gas & oil	-----	-----	-----
auto or RV repair & service	-----	-----	-----
parking fees & tolls	-----	-----	-----
boat gas & oil	-----	-----	-----
boat repair & services	-----	-----	-----
taxi fares	-----	-----	-----
bus fares			
a) package tours	-----	-----	-----
b) any other bus fare	-----	-----	-----
airline fares			
a) package tours	-----	-----	-----
b) any other airline fare	-----	-----	-----
train fares			
a) package tours	-----	-----	-----
b) any other train fare	-----	-----	-----

-continued on next page -

	Column A	Column B	Column C
Type of Expense	Amount spent while preparing for trip or trip related expenses upon return	Amount spent traveling to and from (location)	Amount spent while visiting (location) or the immediate area
TRANSPORTATION (continued)			
boat fares (not fishing charters)			
a) deep seas	-----	-----	-----
b) lakes, rivers, and canals	-----	-----	-----
c) others (ferries, sightseeing boats, etc.)	-----	-----	-----
other: specify			
1) _____	-----	-----	-----
2) _____	-----	-----	-----
f) ACTIVITIES/ENTERTAINMENT			
Fishing			
fishing bait, prepared	-----	-----	-----
fishing bait, live	-----	-----	-----
fishing boat charters	-----	-----	-----
fishing licenses	-----	-----	-----
fishing lines, fly lines, fish nets, minnow traps & seines	-----	-----	-----
other fishing equipment (rods, reels, poles, creels, lures, hooks, and others)	-----	-----	-----
NOT CLOTHING OR WADERS	-----	-----	-----

Type of Expense	Column A	Column B	Column C
	Amount spent while preparing for trip or trip related expenses upon return	Amount spent traveling to and from (location)	Amount spent while visiting (location) or the immediate area
ACTIVITIES/ENTERTAINMENT (continued)			
Hunting			
rifles, shotguns, muzzle-loaders, pistols, handguns	-----	-----	-----
ammunition and handloading materials (shells, shot, casings, wads) NOT HANDLOADING MACHINERY	-----	-----	-----
bows, arrows, and other archery equipment	-----	-----	-----
hunting licenses	-----	-----	-----
Other Recreation Equipment			
tents, sleeping bags, backpacks	-----	-----	-----
other athletic and sporting goods (golf equipment, skates, skin diving equipment, skis and skiing equipment, and others) EXCEPT FISHING EQUIPMENT, CLOTHING, FIREARMS AND AMMUNITION	-----	-----	-----



continued on page 13
(following our return address)



	Column A	Column B	Column C
Type of Expense	Amount spent while preparing for trip or trip related expenses upon return	Amount spent traveling to and from (location)	Amount spent while visiting (location) or the immediate area
ACTIVITIES/ENTERTAINMENT (continued)			
Other Activity Expenditures			
rental fees for recreation equipment (bicycles, golf carts, boats, canoes, horses, and others)	-----	-----	-----
guide services or outfitters	-----	-----	-----
admission to motion pictures	-----	-----	-----
admission to spectator sports, tourist attractions, and tours	-----	-----	-----
amusement parks	-----	-----	-----
other commercial amusements (bowling, billiards, dancing, skating, golf, ski tours, video games) Specify:	-----	-----	-----
1) _____	-----	-----	-----
2) _____	-----	-----	-----
3) _____	-----	-----	-----

