

Economic and Fiscal Impacts of the Alabama State Parks on the State

Samuel Addy, Ph.D. and Ahmad Ijaz
Center for Business and Economic Research
Culverhouse College of Commerce
The University of Alabama

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Economic and Fiscal Impacts of the Alabama State Parks on the State

Executive Summary

- This report presents the economic and fiscal impacts of the State Parks Division of the Alabama Department of Conservation and Natural Resources on the state economy for 2011. The impacts include both those of the expenditures of the State Parks as well as those associated with visits to the park system. The impacts of the 2007-2011 State Parks expenditures only are also presented.
- Output, value-added, earnings employment, and fiscal impacts are presented. Output refers to total or gross business sales and contains value-added (the contribution to gross domestic product (GDP)), which in turn contains earnings impact (the wages and salaries for jobs recognized by the employment impact). The fiscal impacts cover just income and sales taxes and are conservative because other taxes and fees (e.g., utility, rental/leasing, alcoholic beverages, cigarettes and tobacco, and lodgings) are not considered.
- Alabama has 22 state parks offering a wide variety of outdoor recreation opportunities that include hiking, biking, swimming, camping, boating, fishing, horseback riding, lodging options, museums, cave tours, golf, dining, or relaxation. From 2007 to 2011, the parks had \$170.3 million in receipts; \$127.5 million was collected at the parks. Expenditures totaled \$167.8 million and generated statewide economic and fiscal impacts of \$336.1 million in gross business sales, \$203.4 million contribution to GDP, \$125.6 million in earnings to Alabama households for 4,784 direct and indirect jobs, and \$9.5 million in income and sales taxes (\$4.7 million state income tax, \$2.1 million state sales tax, and \$2.7 million local sales tax).
- In 2011, the state parks system had expenditures of \$34.9 million and \$35.9 million in receipts including \$7.7 million state funding. Adding an estimated visitor spending of \$152.4 million, total spending of \$187.3 million was associated with the park system for the year. This created impacts of \$375.2 million in business sales, \$227.0 million contribution to GDP, \$140.2 million in earnings for 5,340 jobs, and \$10.9 million in income and sales taxes (\$5.2 million state income tax, \$2.7 million state sales tax, and \$3.0 million local sales tax).
- Clearly, state funding for Alabama State Parks is an attractive investment as the parks system generates more in tax revenues, promotes tourism, attracts both in-state and out-of-state visitors, creates jobs, and provides numerous educational, recreational, and environmental benefits that are difficult to quantify.

Economic and Fiscal Impacts of the Alabama State Parks on the State

Introduction

This report presents the economic and fiscal impacts of the State Parks Division of the Alabama Department of Conservation and Natural Resources on the state economy for 2011. The impacts are derived from two sources: (i) state parks expenditures and (ii) visitor spending (i.e., spending associated with visits to the park system). Some visitor spending is made at the parks, but the major part is made at other tourism businesses such as restaurants, gas stations, stores, rental facilities, and motels and hotels; some of these businesses depend on the presence and activities of and visitors to the parks for their success. Hence the need to include visitor spending in determining impacts. Economic and fiscal impacts of the 2007-2011 state parks expenditures only are also presented.

The focus in this economic report is on output, value-added, earnings employment, and fiscal (income and sales tax) impacts. Output refers to total or gross business sales and contains value-added (the contribution to gross domestic product (GDP) or the value of goods and services produced on a value-added basis within a specific region or state), which in turn contains earnings impacts (the wages and salaries of the workers recognized by the employment impact). The fiscal impacts focus on income and sales taxes and are conservative because other taxes and fees (e.g., utility, rental/leasing, alcoholic beverages, cigarettes and tobacco, and lodgings) are not considered.

The mission of the Parks Division is to acquire and preserve natural areas; to develop, furnish, operate and maintain recreational facilities, and to extend the public's knowledge of the state's natural environment. The Division's goals are to manage and operate the State Parks system in an economically sound and efficient manner on the most self-sustaining basis possible; to provide and maintain high quality facilities and services to meet the needs of visitors; to provide an opportunity for personal growth and development of individuals through outdoor experiences; to promote use of State Parks facilities; to preserve unique natural features and integrity of State Parks for future generations and to promote good will and enhance the public image of Alabama, and the Alabama State Parks through dedicated, courteous employees.

The State Parks Division has been in service for 75 years. From the beaches of the Gulf Coast to the Appalachian foothills, the Alabama State Parks system reflects every facet of the state's rich natural landscape and history. Downtown parks also have added to the quality of life in cities across the state and helped increase economic development around downtown areas. Alabama has 22 state

parks and most communities are within a one-hour drive from a state park. The state parks system offers a wide variety of outdoor recreation opportunities including:

- Five resort parks featuring lodge, restaurant and convention facilities.
- Ten parks with modern cottages and chalets.
- Twenty-one parks with modern campgrounds.
- Two parks with cave tours.
- The Parks Path Golf Trail.
- The Gulf State Park Fishing Pier and Gulf Adventure Center Hummingbird Zipline.
- Three parks with marinas and many more fishing and boating opportunities.
- Picnic pavilions perfect for any outdoor gathering.
- Various museums highlighting the rich cultural and natural heritage of local communities.
- More than 200 miles of hiking, biking, horseback riding and walking trails.
- Thousands of acres of water-based recreation ranging from mountain lakes and rushing streams to the sandy beaches of the Gulf of Mexico.

So whether it is hiking or biking (roads or trails); camping (RV or tent); fishing (bank, pier or in a boat); golfing (six courses across the state); horseback riding (available at several parks); swimming, water skiing, canoeing, or boating; lodging options; museums; cave tours; family friendly activities; restaurants (with fine dining at resort parks); wildlife and nature watching; or simply relaxing; Alabama State Parks have it all. State parks also provide numerous educational, recreational, and environmental benefits that are difficult to quantify. The National Association of State Park Directors notes that for their host economies (city, county, state, or nation) state parks (i) are catalysts for tourism especially when properly maintained, (ii) provide motivation for business location and expansion by improving quality of life, (iii) are investments in environmental protection and ecological benefits, and (iv) provide savings through better health and lower crime effects.

Financial and employment data provided by the State Parks Division are used to determine the economic and fiscal impacts of the state parks only. A survey of park visitors is ideally suited for determining visitor spending impact. Since a survey was not conducted in this study, visitor spending impacts were estimated by looking at relevant state parks impacts in other states. A literature search revealed that studies for year 2010 economic impacts of state parks in Maryland and Pennsylvania were as comprehensive and objective as desired for this study and also closest to 2011, the year focus. The two studies were therefore used as basis for estimating visitor spending impacts.

Alabama state parks' expenditures and visitor spending generate rounds of spending in the state that are captured by multipliers determined from the Regional Input-Output Modeling System (RIMS II). RIMS II is an input-output model developed and maintained by the Bureau of Economic Analysis

of the U.S. Department of Commerce; the model is available for states, metro areas and county groupings, and counties in the nation. An economic and fiscal impacts model that uses RIMS II multipliers for the museums, historical sites, zoos and parks industry in Alabama was developed and used in this study. Tax revenues are generated from the taxable portions of earnings impacts. About 66 percent of household earnings is subjected to the 5.0 percent state income tax used. Spending on sales taxable items is about 42.4 percent of earnings; sales tax rates used were 4.0 percent state and 5.0 percent local (i.e., combined county and city). Local sales tax rates in Alabama vary between 3.0 to 7.0 percent, but are most frequently at about 5.0 percent. The input-output methodology is detailed in the Appendix.

Economic and Fiscal Impacts: 2007-2011 State Parks Expenditures Only

From 2007 to 2011, the State Parks Division had \$170.3 million in receipts. About 75 percent (\$127.5 million) was generated at the 22 parks. Total expenditures added up to \$167.8 million of which \$139.8 million was for operations at the parks and the remainder for central office activities that included covering the \$12.3 million deficit for the parks. The RIMS II multipliers for the museums, historical sites, zoos and parks industry in Alabama were applied to the five-year total spending to derive the economic and fiscal impacts shown in Table 1.

The \$167.8 million state parks only spending generated a \$336.1 million statewide economic impact in output or economic activity, the gross business sales across all industries in the state economy (Table 1). This means that the direct state parks division spending created an indirect output impact of \$168.3 million. The output impact contains \$203.4 million in value-added impact or contribution to GDP, the value of goods and services produced on a value-added basis within Alabama. The value-added impact in turn contains \$125.6 million in earnings impact to Alabama households, which reflects the wages and salaries paid for 4,784 direct and indirect jobs over the period. Again, these 4,784 jobs are across all industries in the state economy.

Using the fiscal impacts component of the model shows that the \$125.6 million earnings impact generated by the five-year state parks only spending resulted in a total of \$9.5 million in income and sales taxes; \$6.8 million for state coffers and \$2.7 million in local sales tax. The state's portion is composed of \$4.7 million in state income tax and \$2.1 million in state sales tax. It is important to note that the fiscal impacts are conservative because revenues such as lodgings and rental/leasing taxes were not considered. In addition, the economic impacts are for just the state parks expenditures. Generally, because the major part of spending by park visitors is made at other tourism businesses the visitor spending impacts are much larger than those of the state parks expenditures alone. This is demonstrated in the next section on 2011 Alabama state parks impacts.

Table 1. 2007-2011 State Parks Expenditures Only Economic Impacts

Input Data	
Division expenditures	\$167,804,044
Economic Impacts (direct and indirect)	
Output (gross business sales)	\$336,128,281
Contribution to GDP	\$203,361,722
Earnings (wages and salaries)	\$125,601,327
Employment (jobs)	4,784
Fiscal Impacts (direct and indirect)	
State taxes	
Individual income	\$4,129,345
Corporate income	\$568,516
Sales	\$2,130,199
Combined state income and sales	\$6,828,060
Local (city and county) sales tax -- statewide	\$2,662,748
Combined state and local income and sales	\$9,490,808

Note: Rounding errors may be present.

Source: Center for Business and Economic Research, UA and Alabama State Parks Division.

2011 Economic and Fiscal Impacts of Alabama State Parks

In 2011, the state parks system had expenditures of \$34.9 million and \$35.9 million in receipts, which included \$7.7 million in tax revenues. As noted earlier, it is important to include visitor spending in determining state parks economic and fiscal impacts. This is because the major part of park visitors spending is made at other tourism businesses such as restaurants, gas stations, stores, rental facilities, and motels and hotels. The very close relationship makes some of these businesses dependent on the presence and activities of the state parks for their success. In determining the impacts, one must be careful to not double count spending as payments at the parks by visitors provide park financial receipts. Since we know the state parks spending in 2011, off-park visitor spending for the year must be separately identified. This is best done by surveying visitors to the parks, but a survey was not conducted in this study. We conducted a literature search for timely and relevant state parks economic impact studies in other states and found studies for year 2010 economic impacts of state parks in Maryland and Pennsylvania that were as comprehensive and objective as desired for this study and also closest to 2011, the year focus. The studies can be found at <http://dnr.maryland.gov/publiclands/pdfs/economicimpactstudy2010.pdf> for Maryland's and http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_007019.pdf for Pennsylvania's. Specifically, state parks output impacts, GDP, and the impact-to-GDP ratios shown

in Table 2 were used as basis for estimating visitor spending impacts. The 2010 impact-to-GDP ratios of 0.220 percent for Maryland and 0.205 percent for Pennsylvania yielded an average of 0.210 percent. Applying this average ratio to Alabama's \$178.5 billion 2011 GDP resulted in a total Alabama State Parks impact for 2011 of \$375.2 million, which was then used to derive the total and component (state parks only and visitor spending) impacts shown in Table 3.

Table 2. Estimating 2011 Alabama State Parks Output Impact

State (Date)	State Parks Impact	GDP (millions)	Impact/GDP Ratio
Maryland (2010)	\$650,665,073	\$295,981	0.220%
Pennsylvania (2010)	\$1,145,721,000	\$558,818	0.205%
Total	\$1,796,386,073	\$854,799	0.210%
Alabama (2011)	\$375,192,525	\$178,533	

Note: Rounding errors may be present.

Source: Center for Business and Economic Research, UA.

Table 3. 2011 Alabama State Parks Economic and Fiscal Impacts

Input Data	State Parks Only 2011 Impacts	2011 Visitor Impacts	2011 Total State Parks Impacts
Spending	\$34,903,294	\$152,402,644	\$187,305,938
Economic Impacts (direct and indirect)			
Output (gross business sales)	\$69,914,788	\$305,277,736	\$375,192,525
Contribution to GDP	\$42,299,302	\$184,696,764	\$226,996,066
Earnings (wages and salaries)	\$26,125,116	\$114,073,379	\$140,198,495
Employment (jobs)	995	4,345	5,340
Fiscal Impacts (direct and indirect)			
State taxes			
Individual income	\$858,905	\$3,750,345	\$4,609,250
Corporate income	\$118,252	\$516,337	\$634,588
Sales	\$443,082	\$2,164,525	\$2,660,245
Combined state income and sales	\$1,420,239	\$6,431,207	\$7,904,084
Local (city and county) sales tax -- statewide	\$553,852	\$2,418,356	\$2,972,208
Combined state and local income and sales	\$1,974,091	\$8,849,563	\$10,876,292

Note: Rounding errors may be present.

Source: Center for Business and Economic Research, UA and Alabama State Parks Division.

The estimated total state parks output impact implies that combined parks and visitor direct spending of \$187.3 million was associated with the park system for 2011. This created impacts of \$375.2 million in business sales, \$227.0 million contribution to GDP, \$140.2 million in earnings for 5,340 jobs, and \$10.9 million in income and sales taxes (\$5.2 million state income tax, \$2.7 million state sales tax, and \$3.0 million local sales tax). State parks only expenditures of \$34.9 million created impacts of \$69.9 million in gross business sales, \$42.3 million contribution to GDP, \$26.1 million in earnings for 995 jobs, and nearly \$2.0 million in income and sales taxes; \$977,157 state income tax, \$443,082 state sales tax, and \$553,852 local sales tax. Subtracting the state parks expenditures from the total direct spending implies that direct visitor spending was \$152.4 million and created impacts of \$305.3 million in business sales, \$184.7 million contribution to GDP, \$114.1 million in earnings for 4,345 jobs, and \$8.8 million in income and sales taxes—\$4.3 million state income tax, \$2.2 million state sales tax, and \$2.4 million local sales tax.

Conclusions

From 2007 to 2011, the State Parks Division of the Alabama Department of Conservation and Natural Resources and its 22 state parks spent \$167.8 million and generated statewide economic and fiscal impacts of \$336.1 million in gross business sales, \$203.4 million contribution to GDP, \$125.6 million in earnings for 4,784 jobs, and \$9.5 million in income and sales taxes (\$4.7 million state income tax, \$2.1 million state sales tax, and \$2.7 million local sales tax). This is only a small portion of the impacts of the total state parks system over the period as park visitor spending impacts are absent.

A combined \$187.3 million spending in 2011 for the Alabama State Parks Division (\$34.9 million) and its parks-related visitor spending (\$152.4 million) created impacts of \$375.2 million in business sales, \$227.0 million contribution to GDP, \$140.2 million in earnings for 5,340 jobs, and \$10.9 million in income and sales taxes; \$5.2 million state income tax, \$2.7 million state sales tax, and \$3.0 million local sales tax. These are the comprehensive economic and fiscal impacts of the state parks system in 2011. Clearly, state funding for the Alabama State Parks is an attractive investment as the parks system generates more in tax revenues, promotes tourism, attracts both in-state and out-of-state visitors, creates jobs, and provides numerous educational, recreational, and environmental benefits that are difficult to quantify. The Alabama State Parks Division is an asset for the state.

Appendix

Methodology - Economic Impact Analysis

Economic impact analysis measures the effects of a specific economic activity or event on a specified geographic area. Examples include the economic impact on a state or county of a proposed industrial plant, an existing industry, closing a military installation, or expansion of an existing industrial facility. In some cases, federal laws, as well as state and local regulations, require economic impact studies prior to the implementation of a particular policy (relocation of an economic activity, change in tax policy, changes in zoning ordinance, etc.). No matter what the justification, impact studies are designed to provide information for instituting policies to facilitate positive economic impacts and/or mitigate potential negative impacts. Economic impact analysis is therefore an important decision making tool which can enhance the quality of decisions made, as well as the decision making process in both public and private sectors. The analysis typically focuses on one or more of the major economic indicators: output, value-added, employment, and income. The purpose of an impact study usually determines which socioeconomic variable(s) should be monitored. In this study, the primary focus is on output, value-added, earnings, employment, and fiscal (income and sales tax) impacts impact of Alabama State Parks expenditures and associated visitors impact on the State of Alabama.

Economic impacts comprise direct and indirect impacts. Direct impacts are those that are most obvious and include the wages and salaries of the employees who work directly for an economic entity (e.g., firm, industry, or institution) as well as all other expenditures of the entity, including any taxes and investments. Indirect economic impacts, often referred to as the “ripple” or “multiplier” effects, occur because of additional demand arising from new income and expenditures for inputs (products and services) related to the economic entity of focus. New income creates demand for consumer products and services and their associated indirect impacts are often called induced impacts. Indirect and induced impacts may spark demand for the output of the entity under study. For example, expenditures made by Alabama State Parks create impacts on its vendors and also on consumer products and services industries. These industries and their workers in turn make purchases from other vendors in the area, and so forth. In this interconnected manner, businesses increase their production of goods and services to meet the direct and indirect demands created by Alabama State Parks and the visitors who spend their dollars in the state because of these parks and recreation assets. All of this results in development of the economy at both state, metro, county and city levels. The total economic impacts capture all the direct, indirect, and induced impacts effects. The ratio of the total economic impact to the direct effect is the multiplier that can be used to summarize the economic effects of the organization on the region or area of focus.

Economic relationships do not obey strict geographic boundaries as spending by industries and their workers flow across such boundaries enabled by transportation and communication. Thus a portion of the indirect effects of purchases or expenditures may occur beyond the boundaries of the specified region. Such occurrences are called *leakages* and are more likely for small geographic areas while *linkages* (supplier-purchaser relationships) are more likely for large areas. Generally, small geographic areas will have small *absolute* economic impact due to a high likelihood of leakage. A large region will have a bigger absolute economic impact, but a smaller *relative* economic impact. The closure of one plant within a state, for example, may have only a small relative impact even if the plant employs thousands of workers; the absolute impact could be very large. The important

point is that the effect or size of the economic impact is influenced by the size of the study area. If the area is too broadly defined, the relative impact will be small. If narrowly defined, the relative impact will be large.

Determining the Multiplier

Several methodological approaches are used in estimating economic impacts. These include the construction of econometric, economic base, computable general equilibrium (CGE), and input-output (I-O) models. Econometric and CGE models can be very costly and time-consuming to build. Economic base models require a very detailed set of information that is sometimes not available. The other methodological approaches generate slightly smaller multipliers than I-O models because of assumptions on factors such as input substitution and optimization behavior by economic agents. The I-O modeling framework is used in this study. The technique generates multipliers for the economic activity of interest by focusing on economic interactions among all industries and all other economic transactions in the specified region. Interindustry relationships exist in backward (suppliers and other upstream linkages and leakages) and forward (distributors, retailers, customers, and other downstream linkages and leakages) directions. The number and strength of these backward and forward linkages and leakages determines the multiplier effects of the industry. In general, products and services that require a small number of inputs and little additional processing (little value addition) will have smaller multiplier effects than complex products that require lots of inputs and extensive processing.

The four main types of multipliers—output, value-added, income or earnings, and employment—are defined as follows. Output multipliers represent the total dollar change in output that occurs in all industries for each additional dollar of output delivered to final demand (final consumption) by the industry of the economic entity under study. Value-added multipliers are similarly defined except that they represent the total dollar change in value-added across all industries. Earnings multipliers represent the total dollar change in earnings of households employed by all industries for each additional dollar of payroll expenditure (or each dollar of output delivered to final demand) by the industry whose economic impact is being estimated. Employment multipliers represent the total change in the number of jobs in all industries for each direct job (or for each million dollars of output delivered to final demand) by the industry whose economic impact is being estimated.

The nature of the product and technology largely determine the degree of interindustry linkages and leakages (and thus the overall impact), and the specific impact on a region depends upon the degree to which these interindustry relationships are localized. Technology determines inputs and economics determines the geographic source of supply and destination of products or services. Leakage involves purchases outside the economic impact study area and represents activities of local firms that have no economic impact on the local economy. Identifying leakage can provide valuable planning information to local economic development authorities for commercial or industrial development that provides opportunities for “localizing” such impact. An activity’s maximum impact on a specific area is obtained when all interindustry linkages occur within the area. An economywide view is required for impact estimation and the I-O technique permits the incorporation of such a perspective. To estimate the economic impact of Alabama State Parks and its visitors on Alabama, the linkages between the Parks Division spending and all its suppliers and vendors must be traced. This task is greatly facilitated by the Regional Input-Output Modeling System (RIMS II), an input-output model developed and maintained by the U.S. Department of Commerce’s Bureau of Economic Analysis. The model is available for every state, region, county,

and metropolitan area in the nation. This study uses RIMS II multipliers for the museums, historical sites, zoos and parks industry in the State of Alabama.

The RIMS II I-O model covers about 470 industries with data on each industry reflecting the value of inputs used per dollar of output in the production of that industry's output in tabular form. Since the rows (outputs) are produced by specific industries, they are also columns (inputs). Demand for a particular input causes supply from its source industry which in turn creates demand for the materials that are used to produce the particular input, and so on. The round-by-round effects decrease and converge; I-O methodology captures the total effect of the rounds of spending with the multiplier. RIMS II multipliers for an economy account for all linkages in and leakages from that economy. I-O models are based on a table of transaction balances, which ensures economy-wide accounting consistency. Total payments equal total receipts for each producing sector. Aggregate final demand equals aggregate value added.

Multipliers are determined mathematically from I-O tables that are constructed from observed and reported data for the economic area of interest. The economy is divided into a number of producing industries or sectors that sell and purchase goods and services to and from each other with *interindustry* or *intersectoral* flows that are key data. Sector goods and services are purchased by domestic consumers (households), international customers (exports), government (federal, state, and local), and for private investment purposes. These external to production purchases are for direct use and termed *final demand*. For an economy with n sectors, if X_i represents total output for sector i , Y_i represents final demand for sector i products, and z_{ij} represent interindustry flows, then

$$X_i = \sum_{j=1}^n z_{ij} + Y_i \quad (1)$$

If a_{ij} represents the I-O technical coefficients where $a_{ij} = z_{ij} / X_j$ so that sectors use inputs in fixed proportions (the constant returns to scale Leontief production function) then equation (1) becomes

$$X_i = \sum_{j=1}^n a_{ij} X_j + Y_i \quad (2)$$

The standard formulation of the basic I-O model and its application, in matrix notation is:

$$\text{Transactions balance: } X = AX + Y \quad (3)$$

$$\text{Solving for X: } X = (I - A)^{-1}Y \quad (4)$$

$$\text{For a change in Y: } \Delta X = (I - A)^{-1}\Delta Y \quad (5)$$

where X is the gross output column vector, A is the matrix of fixed I-O coefficients, Y is the final demand column vector, and I is the identity matrix. This model enables determination of the output given changes in final demand levels (consumption, investment, government, or exports). The Leontief inverse, $(I - A)^{-1}$, provides the I-O multipliers used to determine impacts. The elements of the matrix are really very useful and important. Each captures in a single number, an entire series of direct and indirect effects. Gross output requirements are translatable into employment coefficients in a diagonal matrix that is used together with the Leontief inverse to generate employment impacts. Similar manipulations generate value-added, income, or earnings multipliers.