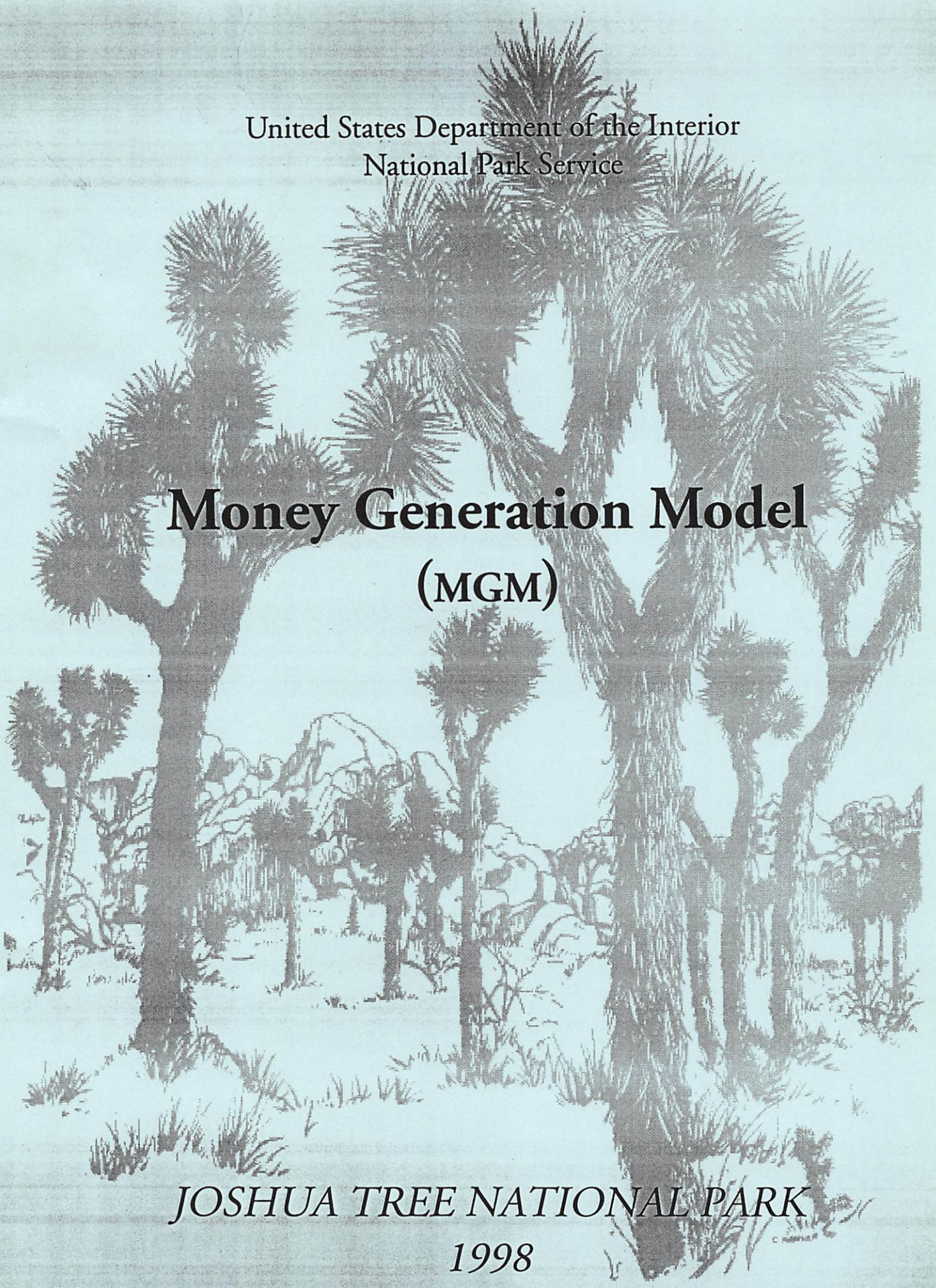
United States Department of the Interior
National Park Service



Money Generation Model
(MGM)

JOSHUA TREE NATIONAL PARK

1998

Money Generation Model for Joshua Tree National Park

1998 Executive Summary

The National Park Service estimates that ***Joshua Tree National Park*** generated almost ***$240 million*** to the economy of Riverside and San Bernardino counties during 1998.

The ***Money Generation Model*** (MGM) provides a statistical analysis of the economic benefits of this National Park Service area to the local economy. Two calculations estimate expenditures of non-local park visitors and Federal Government spending that is related to the park. In other words, the MGM estimates the economic benefits resulting from moneys injected into the local economy from outside sources because of the presence of Joshua Tree National Park.

The MGM examines three types of economic benefits: sales, tax revenue, and jobs.

The ***Sales Benefits*** category determines the income to local area businesses or individuals for goods and services provided to non-local park visitors and the Federal Government.

Tax Benefits consists of the amount of tax income for local governments generated by the Sales Benefits category.

Job Benefits estimates the number of jobs in the local area based upon the above expenditures.

* During 1998, ***park visitors*** contributed more than ***$230 million*** to the local economy. This brought approximately ***$26 million*** through ***taxes*** to State and local governments and supported about ***4600 jobs***.

* The ***Federal Government*** contributed more than ***$9 million*** to the local economy through employee salaries, supplies, services, etc. This generated more than ***$1 million*** in ***tax revenue*** to State and local governments and supported ***184 jobs***.

* ***Combined tourist and Federal expenditures contributed more than $239.5 million to the local economy.***

* ***These expenditures resulted in just over $26.9 million in tax revenue benefits to State and local governments.***

* ***Tourist and Federal dollars supported approximately 4800 jobs.***

MONEY GENERATION MODEL

The National Park Service (NPS) protects almost 800,000 acres of the starkly beautiful landscapes within Joshua Tree National Park that draw visitors from around the world to the area. Two deserts, the low Colorado Desert and the higher, slightly cooler, and moister Mojave Desert, meet in Joshua Tree National Park. Few areas more vividly illustrate the contrast between the high and low desert. The park encompasses some of the most interesting geologic displays found in California's deserts.

While national parks were not established to afford a profit to anyone, they typically contribute a considerable amount of income to nearby gateway communities. Joshua Tree National Park lies within a 3-hour drive of more than 18 million people. Interstate 10 and State Route 62 bring visitors to Joshua Tree National Park through the Coachella Valley and directly through the Morongo Basin. This access offers exposure to many facilities available in the towns situated along the park's boundary.

In 1998, visitation to Joshua Tree National Park exceeded 1.4 million for the first time – an increase of 15 percent above 1997 numbers. International visitors comprise approximately 13 percent of the park's visitation according to a survey conducted in 1991. The survey also indicated that 76 percent of the visitors hail from the State of California. Based upon the survey, we estimate that 74 percent of the park's visitors are non-local. By non-local, we refer to those who travel more than 50 miles to visit Joshua Tree National Park.

The Money Generation Model (MGM) estimates three types of benefits to the local area economy that are derived from expenditures made by tourism (non-local visitors to Joshua Tree National Park) and by the Federal government.

Sales benefits, tax benefits, and job benefits are analyzed for the two money sources as described below:

I. ***Sales Benefits*** is comprised of the dollar value of goods and services purchased from local area businesses or individuals by park visitors or the Federal Government if those expenditures were connected with park-related activities.

II. ***Tax Revenue Benefits*** indicates the increase in the local area tax revenues that result from expenditures by park visitors and the Federal Government if these expenditures were connected with park-related activities.

II. ***Job Benefits*** refers to the number of jobs in the local area established and supported by expenditures by park visitors and the Federal Government if these expenditures were connected with park-related activities.

BACKGROUND INFORMATION ABOUT THE MGM

The NPS's Statistical Office in Washington developed this simple economic model to illustrate how local economies benefit from the presence of NPS sites in their area. The MGM allows parks throughout the nation to use a consistent approach to determine what financial benefits NPS units have on gateway communities.

The MGM has been designed to provide a conservative estimate of the economic influence that a park may have on surrounding communities. It was not designed to be used on a regional or state basis.

This easy-to-apply model produces quantifiable measures of a park's economic benefits. It is essential to remember that the MGM serves as a beginning estimate. It provides a raw, rudimentary approximation of the relationship of a park to the community. It could be considered as the first and lowest rung on a ladder of economic models.

Money generation models do not, however, tell the whole story of economic impacts associated with a park because they do not consider seven important characteristics. These include: adjustments in real estate values; displacement of land use; modification of cultural and recreational opportunities; transformation of the business environment; shifts in population demographics; conversion of demands upon infrastructure; and alteration of the associated communities' lifestyle.

Simplicity of the MGM has allowed it to be uniformly applied to all parks since the early 1990's. It is currently undergoing a peer review, which may result in some changes being made to the model itself or to its application. Thus far, however, the MGM has withstood the tests of time and diverse economic conditions.

ECONOMIC BENEFITS

The MGM provides for the calculation of economic benefits that originate from two sources of money. First, the MGM calculates the economic benefits that result from the ***expenditures of visitors*** who live outside the local area and come into the local communities to visit the park. These expenditures include overnight accommodations, food, souvenirs, interpretive materials, recreational and entrance fees, etc.

Second, the MGM calculates the economic benefits to the local area that result from park-related ***Federal Government expenditures***. These include salaries, park construction projects, supplies, services, fire suppression, payment in lieu of taxes, etc.

Payment in lieu of taxes offsets the loss of property tax revenue to state and local governments caused by the presence of tax-exempt Federal lands, such as Joshua Tree National Park. This program is administered by the Bureau of Land Management, and payment is based upon the number of acres of Federal lands within each county multiplied by a dollar amount per acre that is established by law. The law also establishes a sliding scale of maximum payment in lieu of taxes that may be made to each county based on population. This balances payments to heavily populated counties that may have little Federal land with sparsely populated counties that may have much Federal land.

In 1998, Riverside County received payment of approximately $258,000 in lieu of property taxes and San Bernardino County received approximately $16,500. Throughout the United States, these payments help local governments provide people with fire and police protection, hospitals, public schools, road construction, and search and rescue operations.

Once the source of expenditures has been identified, the sales benefits, tax benefits, and job benefits are analyzed for each money source.

The MGM explores primary and secondary income generation. Primary income results from direct expenditures of visitors or the Federal Government. The secondary income is a function of sales and salary income that arise from indirect and induced spending by visitors.

Indirect impact occurs as businesses purchase goods and services. For example, restaurants purchase food and beverages. Those supplying the restaurant must, in turn, purchase goods and services from their suppliers. This chain of buying and selling continues in the area until the initial tourism dollar completely dissipates out of the area through taxes, purchases from outside the area, business savings, and payment to employees.

To ensure the most accurate reading, the MGM instructions suggest that we adjust factors in the formula to fit the economic conditions prevailing in the immediate area of Joshua Tree National Park. Throughout this analysis, we have used extremely conservative figures.

For example, induced spending is the result of businesses and their suppliers spending part of their earnings in the area. The indirect and induced sales multiplier ranges from 1.2 to 2.8. Based upon data from the Department of Commerce, Bureau of Economic Analysis, "Regional Multipliers," May 1992, the state average for California is 2.32. For the purpose of this report, we have used an average of 2.0. The number of jobs created per million dollars ranges from 10 to 50 with the average being 30. The same report calculates that the job rate for California is 35.60. Because our visitation varies throughout the year, we used a lower figure of 20.

ECONOMIC BENEFITS RESULTING FROM PARK VISITOR EXPENDITURES

In most cases, the year-to-year expenditures by park visitors is considerably greater than park-related expenditures by the Federal Government.

A. The sales benefits from tourism are estimated to be ***$230,338,438***.

The 1991 Visitor Use Survey indicates that 74 percent of our visitors are non-local. The total recreation visitor days of 1,411,135 is multiplied by 74 percent to give us 1,044,240 visitor days for non-local individuals. The 1,044,240 non-local visitor days are multiplied by $110.29 for a total direct sales benefit of $115,169,219, which is then multiplied by the indirect and induced sales multiplier of 2.0 for the total sales benefits from tourism of $230,338,438.

The per-person expenditure data is based upon data from Meal-Lodging Cost Index compiled for each state by Runzheimer International, in Rochester, Wisconsin. For California the index estimates expenditures of $68.79 for lodging and $41.50 for meals. The lodging data included taxes for the first time in 1996.

B. Tax revenue benefits from tourism in the local area are ***$25,913,074***.

To obtain this amount, we multiplied $230,338,438 total sales benefits by a .0775 tax rate multiplier for a total of $17,851,229. We then multiplied $230,338,438 total sales benefits by the taxable income ratio (the taxable portion of salaries and business profits) of .25 and the combined state and local tax rate of .14 for a total of $8,061,845. The tax benefits from tourism were calculated by adding the $17,851,229 and $8,061,845 for a total of $25,913,074.

C. Job benefits from tourism in the local area equal ***4607***.

To obtain this amount we multiplied $230,338,438 total sales benefits from tourism by 0.000020 jobs created per million dollars of taxable profit and salary revenue.

ECONOMIC BENEFITS RESULTING FROM FEDERAL GOVERNMENT EXPENDITURES

A. Total sales benefits from Federal Government expenditures equal ***$9,198,180.***

This figure is based upon Federal Government expenditures in the local area of $4,599,090 multiplied by the indirect sales and induced sales multiplier of 2.0.

B. Tax revenue benefits from Federal Government expenditures equal ***$1,034,795***.

This figure is based upon the Federal Government expenditures in the local area of $9,198,180 multiplied by the combined state and local retail sales tax rate of 7.75 percent for a total of $712,859. We then multiplied $9,198,180 total sales benefits by the taxable income ratio (the taxable portion of salaries and business profits) of .25 and the combined state and local tax rate of .14 for a total of $321,936. The tax benefits from tourism were calculated by adding the $712,859 and $321,936 for a total of $1,034,795.

C. Job benefits from Federal Government annual expenditures equal ***184.***

This figure is based upon the Federal Government annual expenditures in the local area of $9,198,180 times 20 jobs created per million dollars spent.

SUMMARY

The combined sales benefits from tourism and the Federal Government expenditures equaled ***$239,536,618*** in 1998. The combined increased tax revenue benefits from tourism and the Federal Government expenditures equaled ***$26,947,869***. The combined job benefits from tourism and the Federal Government expenditures in the local area equaled ***4791***.

Economic Benefits

Sales Benefits	***$239,536,618***
Tax Benefits	***$ 26,947,869***
Jobs Supported	***4791***

Visitation in 1998 increased by 15 percent over 1997 figures. We anticipate that Joshua Tree National Park's visitation will continue to grow over the coming years, especially with its new national park status.

Recreational Visits

	1994	1995	1996*	1997	1998
annual visits	1,189,175	1,239,982	1,098,789	1,227,225	1,411,135

*Two unprecedented Government shutdowns in late 1995 and early 1996 coupled with a drought-induced dismal wildflower season contributed to lower visitation figures for 1996.