travel

and the national parks

an economic study

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Ernst W. Swanson

contents

summary

The purpose of this study is to investigate the economic impact of our National Park System upon the national economy. The computations made show that national parks contribute as much as $6.4 billion to the sales of a multitude of firms throughout the Nation. From this amount, personal income of $4,762,500,000 is generated. Another major contribution of the National Park System to the national economy lies in the Federal taxes accruing from park visits. The U.S. Treasury Department makes a rough estimate that 20 percent of total personal income goes into Federal taxes. At this rate, travel to the National Park System resulted in $952 million in taxes for the Federal Government in 1967. Recognition is here given to both direct and indirect effects upon personal income formation.

These results do not represent the further indirect effects upon regions in which national parks are located. *Over a period, other spending results from expansion of local activities directed toward creating attractions in addition to the natural beauties and wonders of the region.* Thus, specialized provisions for hunting, fishing, boating, swimming, skiing, picnicking, and a host of related activities are often undertaken through the stimulus of the flow of visitors to national parks.

Since data are not available, except for isolated cases, the effects of this extra expansion are difficult to determine. In Colorado, economists there estimate that possibly over $1.2 billion accrue from hunting and fishing alone. These outlays result in some $900 million of added personal income. Around 50 percent of the income of such counties as Coconino, Ariz., and Montezuma, Colo., may be attributed largely to the presence in Coconino County of Grand Canyon, Wupatki, Walnut Canyon, and other parks; and of Mesa Verde National Park and Aztec Ruins National Monument in or near Montezuma County.

Since 1947, visits to the National Park System have nearly quadrupled. Concurrently, per-person expenditures for such trips have nearly doubled.

The American public, now more wealthy, with increased leisure-time, and increasingly sophisticated, looks to new places for new interests and knowledge. The urban population "explosion" has fostered new intellectual and psychological wants, which are an offshoot in no small part of frustrations stemming from the crowded cities and their inability to stimulate modern man.

As established by law, the National Park Service has as its main purpose the preservation and maintenance of the national parks, monuments, and numerous historic sites of the United States. This purpose, now long recognized, ensues from the fact that throughout the Nation, there are many land, water, and wilderness resources, and antiquities, which are best managed under the concept of their perpetuation for the use and observation by our children and their children. They represent conditions under which the parks, monuments, and historic sites are deemed *irreplaceable assets.* They have brought and continue to bring to all Americans a deep understanding of nature, our culture, and the beginnings of this Nation and the continent on which it is situated.

In this sense, no dollar value can be placed upon our National Park System. Dollar signs can, however, be attached to the economic activities stimulated by the System in the Nation and locales wherein the expenditure on travel, camping, and visits occur; even though such values may pale in significance when compared with the knowledge and pleasure gained. Yet, in this development, we find a criterion which may give us some adequate measure of their value to the degree

that the System stimulates visits and travel. We may capitalize the personal income stated above. By capitalization we mean that we may find the principal sum which would reflect the income yield. Assume that the going rate of interest is 4 percent, then the capitalization factor is 100 ÷ 4, or 25. The personal income of $4,762,530,000 is multiplied by this factor, to give a value of $119,058,750,000. National income, however, is only a part of the total gross national product. Historically, gross national product runs about 1.2 times national income. To be more exact, income generated by travel to the national parks contributes around $5.71 billion to gross national product. Multiplication of this amount by the capitalization factor, 25, yields a capitalized value of the Park System of $142,750,000,000. Let it be recognized that these values do not reflect the total of indirect effects such as those which derive from expansion of the economy into new industries which produce goods for park visitors that formerly were imported. Many regions already have expanded into the production of products essential to travel and the multiplier effect sometimes has been sizeable. In net, the Park System has helped to generate new sources of important elements of income, which far exceeded the annual appropriations for the System.

The National Park System with appropriations of around $102 million contributes at least 45 times this amount to the American people in the way of increased income — or more than 55 times the appropriations when income is stated as gross national product. Add to such amounts the indeterminable but probably large values growing out of the cultural and historical contributions, as well as the stimulation of economic growth, we then see in our National Park System an asset structure few others may eclipse.

chapter 1

the growing value of our national parks

After a lecture tour in this Nation well over a century ago, Charles Dickens is alleged to have observed that "Americans are the most peripatetic people on earth, even outdoing my own country-men." Were he to reappear in this age, he would be hard put to characterize our now far greater tendencies to roam. Moreover, we wander not so much to find "greener pastures," as we seek to make good use of an ever-increasing leisure-time

In 1967, around 140 million visits were made to the national parks. They provided a new understanding of our vast land and its historical and cultural sites. Traveling by automobile, pickup camper, private auto-coaches, and specialized camping trailers, millions succeeded in jamming up parks and other sites, as well as the approaches thereto. In several instances, our national parks were in effect forced to close their doors or to limit access, because day after day, the park capacities were strained far beyond their limits to absorb the visitors. Through these almost frenzied pilgrimages, American (and people from other lands) managed, furthermore, to spend in 1967 more than $6.4 billion.

Such propensities to travel and to spend should alone demonstrate how the demand for the services of our Nation's parks and monuments is growing; in fact, to a degree that it has straightaway "impaled" the National Park Service "upon the horns of a dilemma." While we may grant that all Americans should have an opportunity to enjoy the many wonders our natural, historical, and cultural assets hold for us, a most pertinent question ensues: Can we afford a burden of visits so immense as to threaten the very existence of our parks? To this question there is an answer — although gratuitous — on a constrained argument that our parks and monuments are such powerful generators of a sizeable amount of national income that there is no convincing reason why we should not be properly prepared to maintain, operate, and perpetuate these valuable assets. It would truly appear that any other recourse would be more than an inadvertent destruction of them.

As established by law, the National Park Service has as its main task the preservation and maintenance of the national parks, monuments, and historic sites of the United States. This purpose, now long recognized, derives from the fact that throughout the Nation there are numerous land and water resources which are best managed

under *the concept of perpetuation,* for the use and observation by our children and our children's children, whatever State may be the place of their residence. They represent conditions under which the parks, monuments, and historic sites are deemed *irreplaceable assets.* As such, they serve us in the understanding of nature, our cultural background, and the beginnings of this Nation and the continent on which it is situated. And their future cannot be left to haphazard, uncompromising use.

No one can possibly build another Grand Canyon, a forest of giant trees such as is found in Sequoia National Park, the vast hot springs of Yellowstone National Park, or Independence Hall and Gettysburg National Military Park, each with its own brand of history. Nor can we reconstruct with full import the cliff dwellings of Mesa Verde National Park, nobly poised in a historical-archeological setting. The series of events which gave birth to them are once-and-for-all happenings in the history of mankind and our Nation and its creation.

Yet, all these assets are, in the minds of many, intangible. All of them possess ambivalent characteristics. On the one hand, they are the sources and stores of history, anthropology, archeology, zoology, climatology, and geology. Dollar signs cannot be attached to knowledge so significant that it can never be found again in another place or time, and in the vast potentials of learning thus created. Dollar signs can, however, be hitched to the economic activities arising from their presence, the value to the Nation of the travel outlays, and expenditures arising from visits to these assets — even though they pale in significance with the knowledge and pleasure gained. These values alone would justify our continued care of the assets.

In this review of the services of our parks and monuments, we treat primarily their economic value, since economic value, fortunately or unfortunately, has been made the criterion by which the funds essential to their maintenance, operation, and perpetuation are justified. To paraphrase upon the late Hugh Dalton, former Chancellor of the Exchequer for the United Kingdom, there are those expenditures in the interest of a nation which essentially can only be supported by public funds. Among them are the outlays for what he termed "the national trust." *Our national parks and monuments are in essence a form of* "national trust."

chapter 2

meeting the demand on the national park service

Whether we should gage the "output" of our national parks and monuments by the amount of income created by visits or by the growing number of visits is not at issue. Either tends to show the demand of Americans for these truly remarkable assets. The more comprehensible significance of the goals so evidenced is, however, probably best shown by the willingness to spend, and dollars so spent are a generally accepted measure of the value of anything desired. To state the matter otherwise, they tend to "reveal the preferences" for one activity over another. Hence, we shall largely be concerned with how many dollars have actually been expended for such travel. The number of visits as a criterion is secondary and is discussed later in this study.

Speaking in a strictly social sense, we look to the ends which people seek to fulfill, and travel for pleasure, recreation, and knowledge (even though sometimes vicarious) has fast become a major goal of modern industrialized society. Modern industrialized society has become so affluent that it has been caught in its own trap: More and more goods can easily be produced, but the manner of output that would meet the interests of all cannot be determined by an emphasis on "more." The vast proliferation is much too much to enable us to firmly define the best possible aggregate of goods and services from the standpoint of a good society. Indeed, it tends to lead to a decline in the satisfactions expected to be derived from their acquisition, to the point where we find ourselves confused over how well we are truly expanding total economic satisfactions. Thus, too little attention has been paid to the utility of this vast proliferation, especially to the related quality of environment. Here we find ourselves in a quandary over what are better ways of living, as well as of effective economic activity. Among

these better ways of living are growing needs for improvement of our general environment and of natural resources management, particularly from the standpoint of the use of natural and related recreational resources in effecting balance between work and leisure.

In our society, the demand for recreation has reached heights which a decade ago could be only sketchily foretold. The great velocity and precipitousness of economic growth has generated this demand. Hordes of both urban and rural people have found it possible to lessen the pace of the workaday world, and they converge upon such recreation facilities as are available. In most regions, private enterprise has been too slow in grasping the significance of this demand and adaptation to it at best has been spasmodic. The tale is the same as in *Alice in Wonderland:* We have succeeded in running only fast enough to stay in one place, so that demand continues to exceed supply.

Both government and private enterprise will have to quicken their paces to meet this great need. What we seek is a new form of integrated economic activity, in which both private enterprise and government strive to increase recreational services. From the standpoint of the National Park Service, the problem is how to meet the demand in the light of the fundamental functions which, by law, it is intended to serve.

In our society, the goals which we treat here are no longer to be viewed as luxuries. They are more and more a part of our socio-psychological makeup and they cannot be shunted aside as trivia. At the same time, there are only so many parks, and an increase in their output can come only from an increase in the variables — the men and women who staff the parks, and such machinery as would make them efficient.

chapter 3

basic economics of our national park system

Total money spent for travel by Americans for 1967, the latest year on record, for all purposes is estimated by various sources to run from $25 to $35 billion. Some portion of this outlay has, of course, flowed into the regions in which national parks are situated, as well as into other regions which may serve travelers to parks. How much of these expenditures are thus formed is not so much our problem as how much income they have helped create.

Our most widely accepted measure of economic well-being is income. Hence, our real purpose is to measure the amount generated by the original outlays of visitors to our National Park System. First, therefore, in reviewing the basic economics of the Park System we must get at some of the meanings of income. Income is defined for our purpose as either *personal income* or *gross national product.* Personal income is the accumulation of the amounts of dollars and cents paid out in the form of salaries and wages and their supplements, rents, interest, and net proprietary income. We exclude corporate income, since there are too many delays in the payment of dividends; to adjust these payments to a given period is imponderable. Gross national product is the total net output by society of interbusiness transactions and certain transfer payments.

It is the total net value added to our well-being in the form of goods and services. In this sense, it may be considered a flow of real goods and services as distinct from a flow of money income. Visitors to our National Park System spend money, but not all this money reaches us as income, because there are interbusiness transactions.

If we look to individuals' welfare or well-being, we concern ourselves primarily with personal income. If we review the national economy's well-being, we are more concerned with gross national product (GNP) rather than personal income. GNP is essentially an "overall" figure, applicable to business, individuals, and governments.

The dollar spent by a park visitor leads, after certain adjustments (to be developed later) to *direct income.* This dollar, as it enters the money flow, first of the region and then of the Nation, generates addi-

tional income through the spending process. How much additional income is created depends upon how much of it "leaks" out of the money flow into savings and imports. Savings may not be invested immediately in the form of real goods and services, so that some money lies idle for a time. Imports into a region or nation lead to an income outflow from their economies so that residents of a region or nation are simply exchanging their money incomes for "foreign" goods and services — foreign in the sense that the region does not gain from the production of these goods and services. (This process is not necessarily evil; it may in some situations lead to the best use of money and general resources.)

Both personal income and GNP are composed of *direct* and *indirect* income. This composition arises from the money which remains in a region or a nation, and as it turns over again and again in the spending process, it creates new indirect income in addition to the direct. Again, the amounts so generated depend upon the extent of leakages into savings and imports.

If goods and services can be efficiently produced within regions in which national parks are located, the sale of such goods and services to park visitors leads to new direct income. Such industries as are engaged in this production are "basic" industries in the sense that they can compete with producers in other regions or nations, and they generate the income through exporting of the goods and services which formerly were imported. In this sense, park visitors are importers. Among these basic industries are motels, hotels, farms, restaurants, service stations, garages, and firms producing artistic, photographic, and cultural objects. Thus, the Navajo Nation is known for its rugs and handcrafted jewelry, most of which is exported by sale to visitors in the vicinity of the national parks.

The greater the local production of such goods and services, the greater is the "multiplier" effect upon income. The final total amount so created in the form of income is related to the entry of a dollar (or dollars) into the money flow; and the relationship between the first

dollar laid out and the final dollars and cents which the original dollar creates in total is called the multiplier. (More will be said about the way in which the multiplier is computed in chapter 5.)

To the economist, the fundamental problem in estimating the effects of expenditures on income lies in judging the sensitivity of the total economic structure to the flows of money that come about indirectly through each succeeding step of spending. We first note that we cannot be completely certain about the sensitivity to the direct outlays in *all* industrial sectors. (A sector comprises, by definition, a group of related activities.) On the one hand, we cannot *fully* separate the expenditure effects which arise from the outlays for one or several purposes as against, say, expenditures which originate through tourism and park visits. On the other hand, there is much variability in the economic structures among regions. Hence, multipliers tend to vary in size with the shape of the economic structure.

We tend, however, in this study to subsume this variability by treating total effects through the use of a national multiplier. Such action is justified on the ground that the singular effects of a particular region do eventually affect or influence the magnitude of a national multiplier, as spending goes beyond the confines of the region, and what may have been importing for a region becomes exporting for the national economy. In addition, desires to spend vary from region to region, but their differences are averaged at the national level.

From a survey of the literature on the nature and size of multipliers which reflect spending on recreation and relaxation, it appears valid that a multiplier of 2.5 will trap the above variations and give us a measure of the effect on the national economy of expenditures by park visitors. It shapes itself to variations in industrial structures and tends to capture most of the indirect (or side-effect) expenditures by an averaging.

On the latter score, let us note that the greater percentage of variations falls by chance in those regions which enjoy relatively high multiplier effects. In the East, the majority of parks lie fairly close to States where a high order of manufacturing and related services is predominant. What we should note is that the side effects of expenditures are felt more strongly in economies that are diversified, while the impact may be far less in fairly highly specialized regions.

If there is an exception to this principle in the East it may be seen in the effects of expenditures upon indirect income around Great Smoky Mountains National Park. While visitor expenditures in the surrounding areas may run around $90 million annually, the chances are that a fairly high percentage of the side effects reach into such bordering regions where diversified manufacturing and rendering of services is of a highly advanced order, e.g., Ohio, Indiana, Pennsylvania, and New York. The nearby regions in Tennessee, North Carolina, and South Carolina are primarily specialized in agriculture and

textile and related manufacturing so that the side effects of visitor expenditures tend to be relatively minor. Except for handicraft activities at Gatlinburg, Tenn., and Cherokee, N.C., much of the goods sold in the Great Smokies area are imported, sometimes from great distances. In time, should these latter States widen their manufacturing and services base, they will gain more and more of the indirect or side effects. A decade from today, Great Smoky Mountains National Park may very well become a source for North Carolina, South Carolina, and Tennessee of a high level of income, as a byproduct of use of the Great Smokies.

In the West, on the other hand, change towards diversification is well advanced, perhaps more so in the Pacific Coast States than in the Rocky Mountain States. The parks and monuments situated in the West tend to generate high-impact expenditures for several States. California may thus gain considerably from the Western parks and monuments whether they lie in the Rocky Mountains or within the State itself. Yet, it should be noted that in Arizona, New Mexico, and Colorado, the industrial structure is fairly rapidly changing so that in a decade high multipliers should be operating in these States. It may be supposed that even today the Denver, Phoenix, and Albuquerque standard metropolitan areas gain much from outlays by visitors to the parks and monuments in the Rocky Mountain States.

Industrial diversification itself is of a singular nature. We learn from numerous studies on the nature of economic growth that the group of specialists who comprise a particular level of intelligence, peculiar skills, and creativeness fitted to modern social structure tend to reap, next to the entrepreneurial group, the highest possible incomes. Among them are scientists (social and physical), engineers, product design personnel, administrators of complex research projects, medical research personnel, marketing and sales specialists, and numerous others who have achieved recognition for their creative work. On the other hand, the person who possesses only relatively low skill and ability tends to pocket a much smaller income than do the above-mentioned, highly trained personnel. The extent to which a region or nation achieves these levels of diversification determines its general level of income. This is the nature of contemporary society.

Now, as leisure-time grows, many of the skilled tend to seek new uses for their vacations, holidays, and weekends. They come to place a demand upon special qualities in the regions in which they spend their leisure. In the old days, the focus of search for use of leisure-time was the city core with its theatres, music halls, art centers, etc. Today, while such attractions continue to delight many, others seek a new focus. For those with families, the unity and wholeness of the family is captured more and more through travel in such areas where a large variety of satisfactions may be fulfilled. Among these are parks where nature's bounty serves to fill the wants left unfilled by metro-

politan living — lakes and rivers where those who like the outdoors and find communion in it may be satisfied; and historical and cultural sites where those highly inquisitive about man and society gain satisfaction. A new world of specialization is arising in which the satisfying of a diversity of human interests is possible.

In time, expenditures for these satisfactions will come to have the same stature as do others where skills are demanded. But these are new skills, those of the historians of ancient and more recent times, archeologists who can tell the inquisitive public of the sources of much of our early ways of living, aided by anthropologists who may recite with authority the reasons for the successes and failures of our civilization, geologists who can state with fair measure of exactness the way in which our continent and parts of it came into being; and still others. The national parks and monuments and their personnel can go far to help restore the loss of balance between man and nature, a requisite, indeed, to the survival of our own civilization.

Those regions which in time will develop this kind of diversity of skills along with the skills of production and distribution of general goods and services — to the extent possible under the resources — will be the successful regions, successful in the sense that they contribute to the ecological needs of our time. If a region has not progressed socially, and knowledgeably, it economically cannot compete with those who succed in this progress.

It is possible that, in a few years, regions which benefit from the presence of a national park may be placed in a strong position to gain this new diversity and will expand. To mention but a few: Tulare, Kerr, and King Counties, Calif.; Coconino County, Ariz.; Montezuma, Boulder, and Larimer Counties, Colo.; Sevier County, Tenn.; and Swain County, N.C.

chapter 4

problems of estimation of the national park system's contributions to income

To what degree the effect of the outlays by visitors to the National Park System upon national income may be judged valid depends largely upon the assumptions we make and accept. We assume, *first,* that visits have increased at a rate much higher than the rate of growth of the Nation's population. Since 1947, the year following the close of World War II, total visits have nearly quadrupled relative to the growth in population. (A measure of this relationship is set forth in chapter 6.) *Second,* Americans have taken advantage of the interstate highway system and the modern high-speed automobile to travel distances that on the average are measurably greater than those travelled before the war. *Third,* higher incomes for the lower mid-income classes have made increased travel possible (as well as having increased other recreational activities). *Fourth,* the desire for pleasant and beautiful surroundings for recreation has spilled over considerably into visits to national parks and monuments. In a sense, Coney Island is no longer "a happy hunting ground" for millions. (Whether this spillover is desirable must be debated elsewhere; the fact is that park and monument visits have for this reason gained greatly, while crowding there is rampant.)

Therefore, in 1967, some 140 million annual visits to parks and monuments were recorded. The peak months of visits were June, July, and August, the period of school vacations. This increase has also contributed measurably to gross travel outlays, and, obviously, to national income.

The purpose of this portion of this study is to trace insofar as possible the direct and indirect effects upon national personal income of travel outlays. Both extensive and intensive conditions, as may be judged from the above assumptions, have been operative in the generation of this growth. The intensity is to be seen, at least on the surface, in the traffic jams encountered in a large number of national parks and some monuments and historic sites. To find a parking place at the major points of interest at Sequoia, Yosemite, Grand Canyon, Glacier, Mesa Verde, Great Smoky Mountains, Rocky Mountain, and other parks in summer is virtually an impossibility.

This study is greatly circumscribed by time and the need for immediate findings. Certain further broad assumptions in the evaluation of available data are therefore made.

First, the findings about the impact upon the national economy reflect basically the direct and indirect effects for each region in which national parks and monuments are located, but as though each is geared to the national economy. The findings do not necessarily reflect adequately the purchases made by travelers in their States of origin. The outlays for automobiles, camping and other equipment, food, and lodging on the way to a park or monument cannot be wholly accounted for. Thus, in a large sense, the findings reflect the accumulations of regional estimates. *Second,* what proportion of the purchase price of durable goods (depreciation aside) is to be allocated to a given region (where a park is situated) is an almost incomprehensible task. Only a guess as to the proportion so allocable may be offered, and the statistical significance of such allocation is debatable. (Were a relatively recent 4-5 digit (SIC) national input-output matrix at hand, then and only then could a fairly reasonable estimate of these allocations be effected. The most recent matrix is for 1957 and it applies only to a 2-digit industry classification so that estimates by it are at best grievously tenuous.) Hence, as far as the Nation is concerned, the summations implicit in the findings offered here are probably underestimates of outlays properly attributable to the parks. For the Nation this variability is reduced, however.

Nevertheless, one point must be emphasized at this time. The income figures arrived at do tend to show with good judgment how much parks as a group contribute directly and indirectly in total to the well-being of the regions in which they are situated. Thus, we may say that at Grand Teton National Park travel expenditures find their way into the pockets of merchants and their employees of Jackson Hole and adjacent communities, service station owners and their employees, hotel and motel owners and their employees, restaurant owners and their employees, sightseeing bus owners and their employees, etc. Moreover, these people spend money in the local area for goods and services which partly generate further income (through the multiplier effects of spending) and for imports of goods and services only a minor portion of which (returns to importing organizations) is gross income to the region. The final "sum" for all parks of the *direct* and *indirect* personal incomes thus provides us an approximation to the localized effects upon the Nation of travel to parks.

It is of value to note, that some locales or regions which enjoy the facilities and virtues of a national park derive much of their "living" from the presence of the park. In the case of the Jackson Hole country, for example, the local residents depend more than 50 percent for their "living" upon the travel expenditures in the area surrounding Grand Teton National Park. The same may perhaps be said for Flagstaff,

Sedona, and Coconino County, Ariz.; for Holbrook, Winslow, and Navajo County, Ariz.; for St. George and Washington County, Utah; Manteo, Nags Head, and Dare County, N.C.; for Gatlinburg and Sevier County, Tenn., and for numerous other similar areas. To illustrate, consider the particular case of Cortez and Montezuma County, Colo. Today, the biggest business in Cortez and Montezuma County is the servicing of travelers through motels, restaurants, service stations, and souvenir shops.

Within the city of Cortez, for example, there are 342 motel units plus a hotel of 50 units. This number represents a 25 percent increase within the past 5 years. Yet, these many accommodations have proven inadequate. Some 130 to 150 parties have been turned away each night during the travel season. Since each party averages 3.5 persons, about 1,100 travelers are accommodated. But 435 to 525 individuals have not been able to find lodgings.

For this community of around 7,000 permanent inhabitants, the ratio of travelers to population is high. The daily income to it from travelers and visitors runs as much as $15,000 during the peak of the season. In the offpeak, this amount falls by nearly half. Motels, hotels, restaurants, service stations, and souvenir shops all share in this wealth.

The amount of direct and indirect income cannot be fully determined, since there is no regional input-output matrix that applies to this area directly. But as a matter of judgment, let us say that the people of Cortez gain around $12,500+ per day from travel and visits, or well over $1 million during the peak season. During the rest of the year, additional income of more than $1.5 million may be expected to accrue. Were it possible to diversify industry or recreation activity in Montezuma County, these amounts could be measurably increased.

The growth in visits at Sequoia, Kings Canyon, and Yosemite National Parks beggars description. These parks have become the chief outlet for California on vacation and weekend holidays. California is, as is well known, one of the fastest growing States in the Nation. The demand for recreation and natural environments has greatly exceeded the capacities of these parks. Some rerouting of camping traffic may help to alleviate the drain on the abilities of park management and personnel. But the capacities of management and personnel have been severely strained through restricted budgets. It is not uncommon to see large weekend overflows of visitors at Yosemite, and startling traffic conditions at Sequoia and Kings Canyon. In these cases, we note especially the lack of balance between the needs of an affluent society for advanced forms of recreation and the supply of such services as are essential to this modern society.

As we may very well characterize them, such parks tend to be a means of attaining an ecological balance of man, his workday, and his leisure-time. Families too closely geared to metropolitan living perhaps all too much "go out of their way" to find means of restoring the balance between good living and working. In California, families will some-

times spend $110 per week for rental of a pickup camper, plus $7 to $10 service charge. Some rent large travel coaches for $200 a week, plus service charges. (In other sections of the Nation these rents run from $50 to $100 a week for pickup campers, plus varying service charges.) With an average party of nearly four, these totals approximate $10 a day per person, which is as much or more than a night's lodging for a family at a high-class motor inn. To be sure, this means of travel and lodging has a certain flexibility to it that for many makes the trip more enjoyable.

Particularly notable are the amounts which travelers will spend for vacations. In California alone, Californians themselves spend around $2 billion yearly on vacations. Visitors to this State spent in 1967 another $900 million. In Colorado, preliminary estimates indicate that hunters and fishermen spend more than $1,200 million annually. Many of the travelers have as their goal the national park or parks situated within a day's drive. Many will travel three times this distance. (Estimates made by the California Travel Bureau and the Colorado State University at Fort Collins substantiate these figures.)

Visits to a national park thus have launched chains of reaction, first by the park visits, then spreading to other economic activities so that imports into the region tend to grow at a slower rate, as local entrepreneurs undertake the manufacture of goods at an increasing rate. Once existing and possibly new stimuli develop, there is a tendency for economic growth to become self-generative. Thus, in States such as Arizona, California, New Mexico, Nevada, Florida, and Colorado, travel has induced economic growth and has continued to stimulate it even as new industries develop. Often, these new industries are travel-based, but as the region grows, other industries appear. The great value of a travel-based economic structure, especially when individuals with relatively fixed incomes constitute a significant part of the region's business population, is that a floor is built for the region's economy so that spending is fairly stable even during falling business cycles. (Studies by the business research staff at the University of Florida and other universities reinforce this contention. Research papers on the subject have been read at meetings of the Southern Economic Association.)

Hence, we may say that there are perhaps two concepts which permit a pragmatic estimate of the economic impact of tourist expenditure in national parks and monuments. They are: (1) the amount of national (or regional) *personal income* generated by tourist expenditures, and (2) the amount of employment generated in turn by such expenditures. Evidence has it that the employment multiplier matches in size the income multiplier. In those States where recreation is the main activity, the employment multiplier runs as high as 3.5, however.

There is fairly general consensus that these two criteria under existing economic theory and method are among the best indicators of the state of *economic health* of a region. Since it is in conformity with good economic analysis we primarily treat the first concept.

chapter 5

computation of income effects of visitor spending in the national park system on national economy

Given such data as are available, we may now attempt to measure the impact of the park visitor spendings upon personal income. We cannot overemphasize that we are working in essentially virgin territory. In our measurement, we take the following steps:

A. Determine the number of visitors who spent major amounts by staying overnight at or near a given park. (One-day visitors are omitted because we cannot make any valid assumption as to their spending behavior.) The difficulty in effecting such accounting should be patent. But, under presumptions based upon a number of single-park studies as a fair sample of major national parks, and a review by this writer of dozens of park and regional spending patterns, a reasonable average figure may be derived.

To adjust for day visitors, we propose that total visits may be reduced by 25 percent. Thus, transients and double counting may be largely omitted. (In an attempt to be more accurate, the writer assigned weights, ranging from 0.50 to 0.95, to each of the parks' visits, and summed the resulting adjusted visits. No significant difference between this multiple weighting and weighting by the factor 0.75 was found.)

B. Establish expenditures per person who on his trip stays for more than a day in the State in which the park is situated. Such expenditure is a reflection primarily of the average length of stay and the outlay per diem. At the present state of knowledge, some of these data are at best crude. But by comparing the results from their use with totals and averages now known, we may find ourselves on less shaky ground than what at first was supposed. We shall use $15.12 as the daily outlay. (It could very well be larger.)

C. Once adjusted visits are computed they are multiplied by the per-person daily expenditures (for the length of stay) to yield a gross total. This figure might be judged fairly comparable to the debit side of an income and expense account, thus, the variable costs plus some overheads at the receiving end of the spending process. The result is no more than an approximation to total costs of doing business. It is necessary to extract from this total such leakages as imports of goods

and services into the region, business savings, and similar items that do not lead directly to personal income (our supposedly best measure of the economic impact of visits). Tax revenues to a State are implicitly considered but the amounts are not necessarily complete, because of tax rate variations. In effect, therefore, the total expenditures arrived at include most major elements of taxes (excise and sales), but not necessarily all. While taxes may be included in the price of goods purchased, they also act to change personal income negatively. Hence, we tend to wash out the tax-revenue effect by our present treatment.

D. Having computed the *direct* personal income, a further step is essential, for we need also to add the *indirect income.* Hence, as stated earlier, we apply a multiplier which reflects the effect of spending out of *direct* personal income upon personal incomes of others who serve the firms in the tourist trade; and so on and on, until leakages (by savings especially) from ensuing expenditures of income finally exhaust the initial outlays of recipients of *direct* income.

Evidence garnered from a host of studies on this subject show that this multiplier varies from 1.12 to around 2.8. As noted earlier, the variation in the multipliers is associated with the size of the region serving a given park.

The multiplier 2.5 used here is an "in-between" value, based upon the findings of several research groups, e.g., Robert R. Nathan Associates, the research groups of the Universities of Utah, Colorado, Memphis State, and Wyoming, and of the Colorado State University at Fort Collins.

For the reader who is not versed in the nature of the multiplier, the following description of it is offered. What happens in an economy, region, or nation, is that as funds from expenditures are first put into operation, they tend to be used over and over again. They help create and lend force to an already existing flow of monies being expended for a vast variety of purposes. An initial outlay is used over and over again until leakages from it become savings and other income-hiding effects. The first spending of $1 contributes $1 to the flow. But if savings, etc., are at a rate such that individual households spend only,

say, 70 percent of the incomes received from the initial spending, then the amount returned to the flow is 70 cents. If this rate of withholding of spending (the marginal propensity to consume) continues to operate, then the third amount returned to the flow is, ($0.70) (.70), 49 cents. The fourth amount is, ($0.70) (.49), 34.3 cents, and so on until *leakages wipe out the final amount put into the flow of monies.*

Given the withholding rate of 0.30, the multiplier turns out to be

$$m = \frac{1}{(1\text{-}0.70)} = 3.333$$

For our purposes, however, this rate is perhaps much too high. What evidence we gather from a variety of research studies is that the rate of withholding as applies to travel-derived income runs about 0.60. Then, the multiplier we seek is

$$m = \frac{1}{(1\text{-}0.60)} = 2.5$$

The mathematics for this formula is treated adequately in a number of books on income formation. (See bibliography.)

We should bear in mind that the multiplier usually treated is called "the investment multiplier," whose effects tend to depart from those of spending for travel and recreation. Ours is stated as a "recreation multiplier."

The analysis of the spending process in the sense of the kinds of expenditures made by travelers and park visitors is subject to debate. Expenditures usually are classified according to income classes. Unfortunately, travel expenditure data so categorized does not afford us an understanding of the expenditures flow in travel and visits to parks. For this reason another mode of classification may be made according to the kinds of lodging sought in travel and visits. Indirectly, we thus note some reflection of income effects, but by this method we get at the spending pertinent to our purpose. The "Montana Study" serves to lay out the broad dimensions of this approach. We turn to it only as illustrative of what may be done in expenditure estimation. But, to get at the Nation as a whole we must await findings of additional studies now in progress. Reference is to the research at Colorado State and Denver Universities and at the Midwest Research Institute. These findings will become available within a year or two and should be exceedingly helpful in future expenditure analysis.

The rate of flow of tourists determines the total expenditures in Montana, due in no small part to the presence in the general area of Glacier, Yellowstone, Bighorn Canyon, and similar parks in the National Park System. It should be manifest that the amount which a tourist spends in a State also depends upon the attractions in or adjacent to the State, his income, and the length of his vacation, and how he proposes to divide it among these and other attractions. The best that we can do to place him is to classify him according to the kind of lodgings he used. As noted, luxury or lack of it in lodgings is, in part,

a reflection of his income status and his interest in park attractions. In this case, we shall classify the tourist according to whether he stays at a hotel, motel, cabin or cottage, trailer camp, or tourist home.

The confining of this investigation for the moment to Montana, aside from the availability of information, permits us indirectly to reflect some upon the attractiveness of Glacier and Yellowstone National Parks. Although we have before us secondary data only, it still may be possible to derive from these data and additional information on other parks, a measure of income that is fairly plausible.

The experience in Montana in most cases is that motels, cottages and/or cabins, and hotels account for the greater share of stays and services rendered visitors to a park or monument. Evidence suggests that in time the tourist home, a fairly inefficient form of lodging, will disappear, to be superseded by more motels and a growing demand for camping facilities to accommodate trailers and/or specialized camper vehicles. But it is also likely that there may be a saturation point for these last two forms of lodging. This point is determined by the rising depreciation charges of this mode of lodging, and by the fact that the parks can absorb only so many campers, for space is limited. Moreover, there is strong evidence that campers and trailer parties lead to heavy wear and tear on nature, far more perhaps than brought by tourists who stay at motels, cottages, and hotels. What is more, the desire for roughing it is fortunately at a minimum, since a large part of the traveling public increasingly consists of elderly or retired persons who prefer a minimum of physical exertion.

Once having settled upon the most frequent modes of lodging used, we may next classify the tourist according to levels of daily expenditures, as in table 3. These data are taken from the very fine analysis, *Five Years of Tourist Studies in Montana* (1958-1962), prepared by the Montana State Highway Commission in cooperation with the U.S. Bureau of Public Roads. Table 1 shows the percentages of those who stay in the categories listed above for tourists who visit national parks and monuments and related attractions in Montana. These tables, along with table 2, lay the foundation for our analysis of the generation of personal income in the State. (No other region or State appears to have come up with such advanced information as is derived from the Montana study and here collated in tables 1, 2, and 3.)

To bring the Montana findings up to date we shall inflate the expenditures per person per night (table 3) by the differences in the price level from 1962 to 1967. We multiply the several figures in the column by 110 (percent) on the (fairly reasonable) assumption that the increase in cost of travel has increased by 10 percent over the intervening period (table 4), and arrive at $10.51 per day per person.

The average of $10.51, however, does not reflect two developments: (1) the high percentage of use and continued rise in use of motels, and (2) the shift to pickup campers and travel coaches, both of which approach the average cost of staying at motels, the predominant mode of lodging.

table 1 **type of lodging used, montana, 1962**

type of lodging*	percent of use, actual	percent of use, normalized**
camping	12.6	14.2
friends and relatives	13.4	15.0
hotel	5.6	6.3
motel	48.8	54.8
tourist home	1.7	1.9
trailer	6.9	7.8
total	89.0	100.0
average	14.8333	

*Excluded are sleepers in cars and other means, since these constituted but a few, and no exact data on their expenditures are available.

**To adjust "actual" to 100 percent.

From *Tourist Studies in Montana* and checked against the *Cape Cod Tourist Study,* 1963.

table 2 **nights in state by types of lodging, montana, 1962**

type of lodging*	number of nights
camping	3.2
friends and relatives	5.7
hotel	3.3
motel	2.4
tourist home	4.6
trailer	5.4

*Users of cars and other types of lodging are omitted.
Other means of overnight sleeping are not included. The average stay is really less than shown here.

From *Tourist Studies in Montana.*

size of party by type of lodging and reported total expenditures by party and person, per diem, montana, 1962 table 3

type of lodging	persons	total expenditures per party	total expenditures per person	expenditures per night per person
camping	3.8	$ 54.52	$14.35	$ 4.48
friends and relatives	3.4	177.67	52.26	9.17
hotel	2.6	121.78	46.84	14.17
motel	3.2	105.94	33.11	13.80
tourist home	3.6	191.64	53.23	11.57
trailer	3.8	86.64	22.82	4.23
average	3.4			$ 9.61

The assumption here is that single overnight visits are on a per person basis, so that persons staying and adjusted visits are essentially equivalent.

From *Tourist Studies in Montana.*

expenditures per night adjusted to reflect price changes table 4

type of lodging	expenditures per person per night	adjusted figure*
camping	$ 4.48	$ 4.93
friends and relatives	9.17	10.08
hotel	14.17	15.59
motel	13.80	15.10
tourist home	11.57	12.73
trailer	4.23	4.65
average		$10.51

*The adjusted figure is equal to the expenditures per person per night times 110 percent.

The preliminary evidence so far garnered from forthcoming studies supports the proposition that per-person-per-day expenditure is more than $15. We therefore apply a finding based upon an observation of trends in several locales, or $15.12, rather than $10.51.

Let us now track down the relationship of distance traveled to length of stay. According to Clawson, in the case of Glacier National Park, 77 percent of visitors come from homes more than 300 miles distant, and 57 percent come from homes more than 500 miles away. On the basis of those percentages, let us say that, generally speaking, 25 percent could have been visitors who come for 1-day or a few-hours visit. This should be a conservative estimate. To travel 600 miles a day (under the 300-mile radius) and at the same time to visit a park the size of Glacier (or Yellowstone) in the same day seems a virtual impossibility. Hence, we may argue with good reason that all who travel at least 300 miles one way will stay overnight in the State or at the park (if possible). It should be added that some authorities consider a 200-mile radius the line of demarcation. For some States, where road congestion is high, even a 100-mile radius may force an overnight stay, all dependent upon place and traffic patterns. Because of the size of the State, California visitors, for example, stay a night and, more often, several nights.

We are now ready to estimate the total personal income attributable to national parks and monuments. In 1967, total visits to national parks came to 139,675,600. Since this figure is close to 140 million let us use this amount instead, for it will not change our findings noticeably and will make the computations more easily understandable than would the first amount. We multiple $140{,}000{,}000 \times 0.75 = 105{,}000{,}000$ net visitors who may be said to make the primary percentage of contributions to the national economy; that is, these net data state the great percentage of spendings. Spending on 1-day visits may run from zero to a few dollars per person. This amount is at its best a pure guess, so evanescent in fact as to only obscure the basic spending. *In effect, we can only treat as pertinent and as valid those visitor expenditures which contribute the highest possible proportional amounts to the visits, now to be regarded as an industry, whose services in a given region are rendered to tourists who live beyond the immediate bounds of day-to-day travel to the locale of a particular park.*

The amount, 105 million visits, supposedly constitutes such visits as denote "real" contributions in the way of exports of services to those visitors whose homes are beyond the relatively immediate vicinity of the park. Let us call these visits the *net or adjusted visits.* They are basically sensitive to the park as is any income-generating tourism.

The choice of the factor, 0.75, has been given much attention by this writer. At first, as noted above, he chose 0.70 as the factor. But after

visits to most of the major parks of the National Park System, he concluded that it was too low. In the case of some parks, say, Yosemite, Sequoia, and Kings Canyon, the truly income-generating visitor probably runs no more than 0.55. This factor was accepted by park superintendents and their administrations as the most likely. But in the case of Grand Canyon, Zion, Rocky Mountain, Grand Teton, and Glacier, among others, the real income-generators among visitors run in all likelihood as much as 0.95. Therefore, after a review of all parks, relative to their location away from major population centers, it became apparent that 0.75 is still a conservative deflator, one with which only a few knowledgeable analysts should quarrel. (Indeed, a factor of 0.80 might be deemed plausible.)

The next step involves the multiplication of 105 million by the daily expenditures per person by length of stay. The average daily expenditures are estimated to run approximately $15.12. (Franklin Mullaly has pointed out that this expenditure figure is not far from that chosen by Clawson.) The computation is as follows:

1. Average expenditures per visit for nine different areas are available. But this average has varied with the year of each study. The argument offered here is that the prime changer of the amounts spent is the price level. The averaging of each State average is then subjected to a price level adjustment. Nine studies for that many areas and their corresponding years are:

Arizona, 1954	Yosemite, 1950
Montana, 1962	Yellowstone, 1950
Great Smoky Mountains, 1956	Glacier, 1951
Cape Cod, 1963	Rocky Mountain, 1952

The average expenditures (per person) for each of these are respectively, $9.12, $9.85, $6.32, $9.94, $5.60, $11.17, $11.70, $5.52, and $8.10. The range then is from a low of $5.52 (Glacier) to $11.70 (Yellowstone). We find, in addition, three levels of consistency: (1) $9.12, $9.85, $9.94; (2) $11.17 and $11.70; and (3) $5.60, $5.52, and $6.32. One figure $8.10, for Rocky Mountain National Park, appears to be a maverick. Had there been less visits from the standard metropolitan area of Denver, it could have reached the average of group (2). But why the amount of $5.52 for Glacier is so low as it is, is indeed puzzling. This amount is perhaps a reflection of statistical classifications used, with the result that certain items of expenditure have been excluded. So it and the amount for Denver are omitted in the "inflation" of each average to current price levels.

2. Inflating reflects price level differences arising for the various dates of the studies. Thus, a larger inflator is applied to a 1950 average expenditure than that which is applied to a 1963 average expenditure.

The price level has been rising since 1950 so that a 1967 price is much higher than a 1950 price. The inflated data, with the above-stated omissions, are:

$ 6.28	$10.86
6.32	11.94
9.94	16.33
10.66	17.10

(Note the average found for these values is $11.18. The reciprocal of the income deflator of the Department of Commerce is used.)

In some cases the arithmetic average of the average expenditures may be a valid representative of this group. Let us, however, make an assumption that may come closer to reality than would the arithmetic average. *We suppose that by 1967, the year we set for the most recent computation, travel prices throughout the United States would have been equalized or might have approached equalization.* Economically speaking, this idea is quite plausible. With the spread of automobile travel through the constantly growing interstate highway system, prices generally should be forced into alinement with the rising demands, even for those parks in relatively low income regions. Hence, let us take the average of the last three values in the array as a plausible national average, or $15.12. This higher value is much more in line with the experience of this writer who over the last two or three decades has moved well into the 100,000-mile class of travelers, and except for Hawaii and Alaska, his visits have been to nearly all major regions of the Nation. Certainly, it is not an extreme value by almost any experience.

3. *Next,* we compute the effects of tourist travel among the national parks and monuments on 1967 national personal income. Three steps are involved.

(a) *The derivation of the adjusted visits* (see above):

$$140{,}000{,}000 \times 0.75 = 105{,}000{,}000 = \text{net visitors}$$

(b) *The derivation of gross expenditures:* For this purpose, let us use 4 days as the average length of stay in an average locale. This number is based upon several recent studies, notably, the study by Midwest Research Institute, work now in progress at Colorado State University, and data provided by the Fred Harvey Company, all checked against conversations by this writer with members of numerous travel groups. Then: 105,000,000 × $60.48 = $6,350,000,000 gross outlays by tourists, where $60.48 = 4 × $15.12, or the average length of stay times the average per person expenditure.

(c) *The derivation of the direct personal income and indirect personal income:* (1) $6,350,000,000 × 0.30 = $1,905,000,000, the direct income; $6,350 million cannot be considered income. Actually it included purchases by wholesalers, retailers, service stations, etc., of goods from outside the area. Other items excluded are corporate undistributed profits, or the sale of goods as may be manufactured in the region of the park, and business savings. The amount, $1,905 million, constitutes

income payments to merchants, retailers, and service station operators, and all of each of these businesses' employees, rents, and related items.

But direct income is a once-and-for-all amount. Actually, its recipients spend out of it monies to buy goods and services, so that the money income turns over, again and again, until, as argued above, it is completely exhausted by leakages through imports and savings.

The factor 0.30 is based upon the earlier relation, as found between gross outlays and national income. This information is again provided through the analysis of input-output matrices, a highly technical job associated with the process of analyzing income flows. Only net values added may be included as income.

(2) The derivation of direct and indirect personal income. $1,905,000,000 × 2.5 = $4,762,500,000, the total of direct and indirect personal income. As developed earlier, the 2.5 multiplier reflects both the effects of initial spending and the spending which follows as the direct income gets into the money flow of the economy. We could, of course, have selected 2.6 or 2.7 as the multiplier, but since some parts of the Nation (the least developed) have small multipliers, and large parts of the Nation enjoy multipliers as large as 2.8 or 3.0, it was deemed appropriate to elect 2.5 as the multiplier best representative of the Nation. The United States as a whole has a higher pattern of population density and per capita income than do some parts of it. Let us say that 2.5 is an approximation which would reflect a balancing out of the highly developed, populous areas with the poorly developed and sparsely populous areas. In a strict sense, 2.5 is not an average but a judgment based upon knowledge of the economic conditions of the region where the parks and monuments are located.

Had we selected a multiplier of 3.0, a figure supported by some writers, influenced by their knowledge about the Keynesian multiplier, then the total contribution to *direct* and *indirect* personal income of the national parks and monuments would have reached $5,715 million.

To be sure, all of these estimates are subject to debate, but it is only through debate that the issues involved will be threshed out and the need for better data will be made clear. Refinements in method would take place as data improve.

Until one has traveled to the majority of the national parks, it is difficult to realize how much money is actually spent by the traveling public. To go to Grand Canyon, say, from Washington, D.C., by automobile, to stay at *reasonably* priced motels, to eat at *reasonably* priced restaurants, and to pay more than 40 cents a gallon for gasoline in several regions of the West, two people will find that daily out-of pocket costs for travel will easily run as much as $30. Two people will barely get away with spending less than $600 for the trip, if a week or so is spent at the park. Of course, depreciation on automobile, camping equipment, and personal property are not included in this estimate. Hence, $15+ is hardly an exaggeration, since relatively few with incomes less than $5,000 travel great distances. (At this income bracket, only a few can afford such outlays.)

chapter 6

an index of the national park system's degree of use

34 Table 5 presents a possible *measure of the degree of use* of all national parks and monuments. The index, as derived, shows the rate of growth of park use indirectly and directly, or the rate of degree of use. No attempt has been made to adjust for additions of new parks and monuments for the period covered, 1947-1966. Relatively speaking, the index may therefore overstate intensity a bit, but hardly significantly enough to warrant going through the necessary adjustments.

It will be noted that from the base period (1947-49 = 100) park and monument usage has increased almost unbelievably. The index number for 1966 stands at 340 as compared to 90 for 1947. Current data on park and monument outlays indicates that the averaging out of the

table 5 **an index of the degree of use of all national parks and monuments, 1947-1966**

year	visitation÷population	index	year	visitation÷population	index
1947	17.7	90.1	1957	34.6	175.0
1948	20.4	103.2	1958	33.1	167.5
1949	21.2	107.3	1959	35.5	179.6
1950	21.9	110.8	1960	40.2	203.4
1951	24.3	122.9	1961	43.2	218.5
1952	26.5	134.1	1962	47.6	240.8
1953	28.9	146.2	1963	49.9	252.4
1954	29.4	148.7	1964	53.6	271.2
1955	30.3	153.3	1965	57.8	292.4
1956	32.7	165.4	1966	67.9	343.5

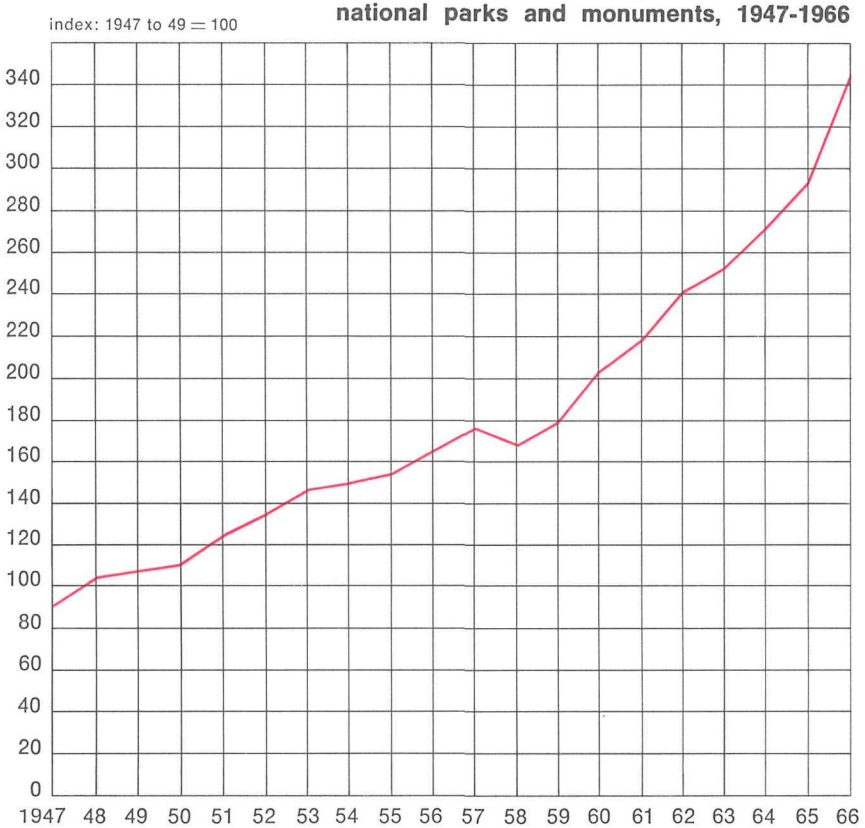
The base period is the average for the years 1947 through 1949. The index is then derived by dividing each year by the average (actually, a reciprocal is used to multiply each value).

per unit costs, relative to rising visits, has declined from 70.4 cents per visit in 1957 to 52.0 cents in 1967.

All in all, the index may be applied as a *measure of effectiveness.* Perhaps in time, a more sophisticated measure could be devised.

graph 1

an index of the degree of use of all national parks and monuments, 1947-1966



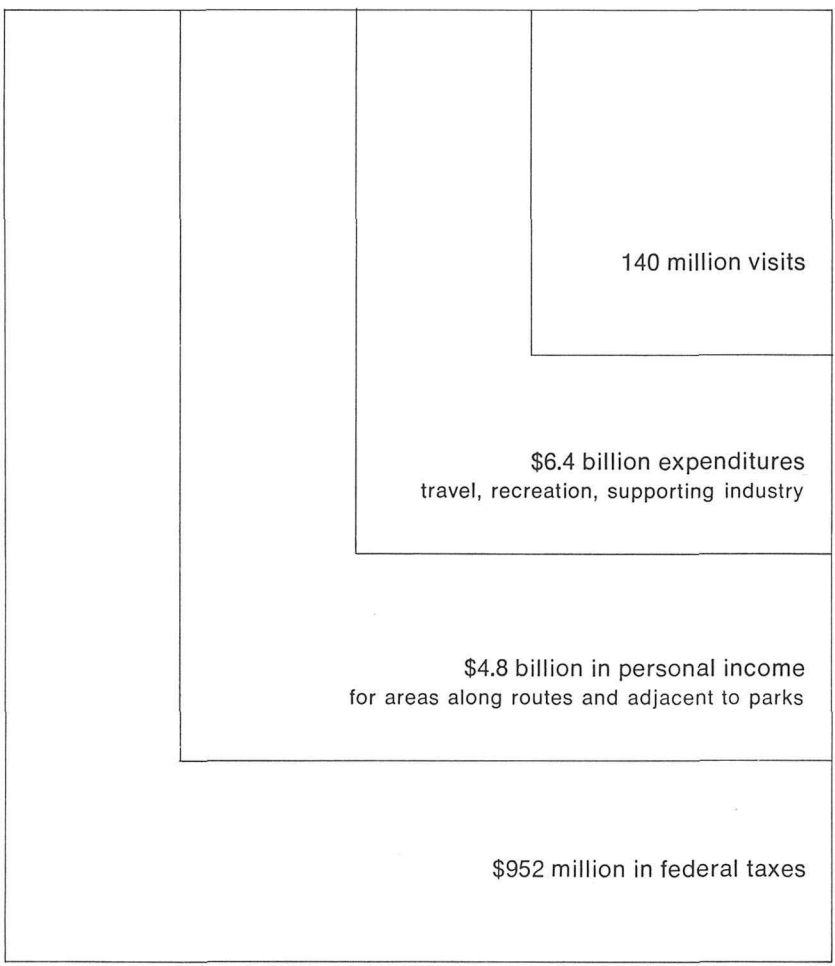
chapter 7

a final word

From the standpoint of the Federal Government, taxes naturally are an important item. They are treated in this study only implicitly in the sense that taxes become a part of the prices of the goods and services purchased by park visitors. It may be noted, however, that the Federal Government shares in these taxes to the amount of $952 million. This amount is, of course, significantly greater than the appropriations for the National Park System.

To conclude, our national parks and monuments contribute much to the national personal income, and there is no reason to think that the amount so contributed will not grow. Its growth depends upon two considerations: the rising economic well-being of many people, and the extent to which the parks and monuments can expand their services without affecting adversely the state of such irreplaceable assets. How best to deal with this blending of the good and the bad is a matter of wise budgetary policy.

economic impact of the national park system, 1967 chart 1



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