HISTORICAL LANDMARK PRICING IMPACTS ON LOCAL ECONOMIC DEVELOPMENT: A BISBEE CASE STUDY.

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HISTORICAL LANDMARK PRICING IMPACTS ON LOCAL ECONOMIC DEVELOPMENT: A BISBEE CASE STUDY

by

Gary Rutherford

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This thesis has been approved on the date shown below:

David L. Barkley — 11-22-82

D. L. BARKLEY
Professor of Agricultural Economics

Date

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TABLE OF CONTENTS

TABLE OF CONTENTS--Continued

TABLE OF CONTENTS--Continued

LIST OF TABLES

LIST OF TABLES--Continued

LIST OF TABLES--Continued

LIST OF ILLUSTRATIONS

ABSTRACT

The purpose of this study is to investigate the influence of historical landmark pricing on community development. It is theorized that landmark prices could affect tourist expenditures from: 1) attracting more tourists to the area; 2) influencing tourists' expenditure patterns; and 3) affecting future tourism through current tourist recommendations.

Tourist interviews in Bisbee, Arizona showed that lower (greater) prices at the Queen Mine Tour would increase (decrease) local tourism. Additionally, tour attendance stimulated greater food expenditures than planned, and greater (lesser) tour savings (willingness to pay for the tour minus cost) increased (decreased) lodging expenditures. In the Bisbee case, landmark price and attendance were not factors in the tourists' decision to recommend, or return to, the community.

This study showed that the profit-maximizing price for the Queen Mine Tour is greater than the price which maximizes total community revenue. Therefore developmental goals can be affected by landmark pricing.

CHAPTER 1

INTRODUCTION

Since the early 1960's interest in rural area development has led to the formation of many federal, state, and local agencies whose programs are designed to encourage or assist economic development.[1] The focus of many of these programs is on the role tourism can play in providing employment opportunities and raising the incomes in rural communities. These agencies' activities have ranged from mailing brochures to potential tourists to the actual construction of tourist facilities and attractions. In addition, agencies not directly concerned with rural economic development (e.g., Federal Bureau of Water and Power, Forest Service) have often implemented plans which have impacts on tourism in rural communities.

Rural Arizona has participated in several projects whose purposes were to stimulate economic development through tourism. Some of these projects had nondevelopmental primary goals (e.g., flood control, preservation of scenic areas, recreation), but local economic development became a byproduct of the projects. Other projects were initiated for the purpose of development. Examples of the former include: (1) state and national monuments and parks (Grand Canyon, Chiricahua National

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1. Examples of agencies for economic development include Federal (Economic Development Administration, Farmers Home Administration), state (Arizona Office of Economic Planning and Development), regional (Councils of Government, Regional Planning Commissions), and local (Chambers of Commerce).

Monument, Tombstone Courthouse); (2) recreation projects oriented to the consumer or resulting from other needs such as provision of water services (Glen Canyon Dam, Hoover Dam, Roosevelt Dam). Examples of rural Arizona projects planned directly to bring tourist expenditures to a local community include: (1) many local businesses specializing in specific crafts which may attract tourists (Tubac, Bisbee, Sedona, Jerome); (2) development of periodic attractions to induce visitors into the area (Bisbee's coaster and bicycle races, Tombstone's Helldorado Days, and Willcox's Rex Allen Days); (3) development of a specific site to attract tourists desirous of physical activity (Sunrise ski resort); and (4) specific renovations or project developments designed to attract tourists on the basis of education or historical interest (Tombstone, Bisbee, Jerome).

This study focuses upon a historical landmark (Bisbee Queen Mine Tour) reconstructed with the intent to attract tourists. The primary purpose of this study is to investigate the influence of the landmark and its pricing upon the objective of community development. It shall be shown that in the case of the Bisbee Queen Mine Tour, landmark price affected tourist spending within the community. Greater (lesser) quantities of money saved from the tour (a customer's willingness to pay for the tour minus the tour price) influenced the tour patrons to increase (decrease) their lodging expenditures in the community. Additionally, tour attendance stimulated greater food expenditures than planned compared to non-landmark visitors. In the Bisbee case, landmark price and attendance were not factors in the tourists' decision to recommend, or return to, the community, although the desire to

participate in the tour was frequently a factor in the initial decision to come to Bisbee. Finally, current landmark price was lower than the tour profit-maximizing price. However, the tour profit-maximizing prices will result in lower total community revenues.

The findings underlying the above conclusions are presented in the following chapters. First, a summary of pertinent literature is provided. Second, a theoretical analysis of the impact of landmark prices on landmark revenues and community development is presented. Third, the data collection procedures are discussed. Fourth, the statistical procedure and empirical results are shown. Finally, interpretations and conclusions derived from the statistical findings are suggested.

CHAPTER 2

LITERATURE REVIEW

The impact of historical landmark pricing on local community development has not been addressed in economic literature. However, methods and techniques have been developed concerning consumer benefits and community development for other forms of recreation (e.g., parks, water, camping). While the patron usage of traditional recreation facilities differs from that of historical landmarks (customers usually will visit a landmark only once), studies of recreational facilities provide techniques which can be adopted for this analysis of historic landmarks.

Most recreational studies are concerned with determining the market demand and dollar value of recreational goods. The major techniques for determining recreational demand (travel cost and willingness to pay) will be presented in the first two sections of this chapter. However, a limited literature pertaining to recreation's impact on local economies also exists. A summary of the methodology employed in these community impact studies is provided in the final section.

Travel Cost Method

The travel cost method was initially suggested by Hotelling in 1949 and refined by Clawson in 1959. This method assumes that landmark users would react to changes in costs at the landmark as they would

react to differing travel costs. Zones are established by drawing concentric circles around the study site. Average travel costs from each zone to the site are estimated. Visitors to the recreation site are questioned as to their origin and then assigned to one of the zones. From this information, a per capita demand curve can be derived with per capita visits as the dependent variable, and travel cost as the independent variable.

Ullman and Volk (1961) expanded the travel cost method for the purpose of identifying the consumer benefits of constructing a new reservoir in the Ozarks. They questioned patrons of an existing reservoir as to which reservoir they would attend after the new reservoir was constructed. Utilizing rates of use and the travel costs saved, they derived a "conservative" estimate of the benefits to consumers of a new reservoir. Romm (1969) adapted this technique to identify site value for water recreation in a reservoir at Whitney Point, New York. Interviewers asked visitors at Whitney Point how much further they would have been willing to travel for the recreational experience. That distance was converted into travel costs and portrayed as the price a visitor would pay for the site. Thus travel costs to the site, plus the additional travel costs the tourist was willing to incur, represent the total recreational benefit of the site to the tourist. However, Romm felt that the results were questionable because people stated how much further they would drive after they got to Whitney Point. If the decision was made before they left home, their stated distance may not have been the same.

Clawson and Knetsch (1966) noted the need to expand the travel cost method to include other variables. Factors such as substitutable sites and activities as well as income disparities between zones needed to be included in the analysis. Additionally, the time cost of the trip, and the nature of the drive itself, are important variables that were previously ignored. The cost of travel time was addressed by several works on the travel cost method. Cesario and Knetsch (1970) attempted to combine a distance and travel cost variable to overcome some of the limitations of earlier models. Brown and Nawas (1973) examined the impact of using individual observations rather than zonal observations for distance and cost. Their work showed that the significance of the variables increased under the individual observation method.

Bishop and Heberlein (1979) compared the accuracy of the travel cost method with actual behavior. They mailed one to 200 dollars to some Wisconsin hunters. The hunters were told to either return the money or their goose hunting permits. This methodology resulted in computation of a permit value of 63 dollars. In contrast, the travel cost method was used to determine the value of goose hunting permits to hunters. This method resulted in the estimate that permits' values ranged from 11 to 45 dollars depending on what travel time cost method was utilized (methods ranged from considering time cost as zero, to considering time cost as one-half the median wage rate). Therefore, their study concluded that the travel cost technique tends to understate how an individual would actually value a recreational site. Bishop and Heberlein felt that the travel cost method did not accurately portray an individual's value of a recreation site because the model is unable

to reliably evaluate travel time costs. Similarly, the model is not able to adequately include differing substitute activities between population zones.

Willingness to Pay Method

The willingness to pay approach is designed to determine the user's value of the site once he has arrived. The patron is asked the maximum he will pay rather than be excluded from participation. The responses can be graphically portrayed, showing the quantity of tourists who would participate at each price. This method was utilized by Davis in a study of the Maine woods in 1963, and became widely used by recreation economists.

There are several potential problems which may arise from utilization of the willingness to pay technique. First, Knetsch and Davis (1966) identified the basic problem of the interviewees' gaming approach to the procedure. If the interviewee felt the study may affect his activities at the site (price or admission), his response may be biased. For example, a downward bias to their willingness to pay could occur if a consumer felt user fees would be implemented at the site, or an upward bias could occur if a potential consumer felt a recreation area would be constructed utilizing funds from general tax revenues. Bohm (1972) examined the probable outcomes of gaming and suggested that the optimal method to eliminate bias would be to confuse the interviewee as to how the results of the study would be used. If he is unaware of the impact of his answer, Bohm theorized, he would be more likely to respond honestly. However, Bohm felt that the actual differences

attributable to strategic behavior by the interviewee would be small. Brookshire and Crocker (1978) asserted that previous studies had not empirically proven that consumer strategic behavior significantly affected willingness to pay results. In instances where consumer action may differ from previously stated willingness to pay, the authors suggested that a change in conditions (such as new information) could more readily explain the discrepancy rather than ascribe it to deliberate deceit by the consumer.

Second, existing prices and a consumer's belief of how prices should be may affect an interviewee's willingness to pay response. Romm's 1969 study of Whitney Point, New York, concludes that tourists are strongly conditioned by existing prices (in this case, parking fees) for recreation sites in the region. In addition, he found that responses were often generated as a result of what people thought government's role in the provision of recreational services should be. Answers ranged from "all parks should be free" to "government should not be in the recreation business."[1] In these cases, a true value of what the site meant to the patron could not be derived.

Finally, McKenzie (1977), working in the area of market research, found that interviewer attitudes can affect the results of a survey. His work indicated that the bias of the interviewer can find its way into the response of the interviewee through the tone and form of the question asked.

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1. Romm 1969, p. 46.

A comparison of the results of the willingness to pay technique with actual behavior was conducted in a recent study. Bishop and Heberlein (1979), in the previously mentioned Wisconsin goose hunting survey, found that the willingness to pay technique understated the actual value of hunting permits. The actual actions of the hunters indicated a demand of $63.00 per permit, whereas based on the willingness to pay questionnaires, a permit value of $21.00 was derived. The authors utilized a willingness to sell technique (how much the hunter would accept not to participate) in questionnaire form, which resulted in a value of $101.00 per hunting permit. The authors concluded that willingness to pay and willingness to sell appear to establish reasonable lower and upper bounds of consumer value.

Despite the previously mentioned shortcomings to the willingness to pay technique, the method has been identified as being superior to the travel cost method for certain recreational studies. Dwyer, Kelly, and Bowes (1977), in a survey of existing literature, compared the benefits measured by the willingness to pay methodology with those of the travel cost method. They found that in two principal situations the willingness to pay method was definitely superior. First, when comparing the cost of site quality changes with its benefits, the willingness to pay technique can give a more accurate interpretation of what the quality alteration will do in terms of consumer expected benefits. Second, when the site is one of many destinations on a trip, the willingness to pay technique avoids the joint cost problem faced by the travel cost method. This study will use the willingness to pay method because Bisbee tourists usually plan to visit neighboring areas (e.g.,

Tombstone), such that the travel cost method would encounter a joint cost problem.

Impact of Recreation on Local Economies

Tourism has been considered as a method to encourage regional economic growth. The most prominent study emphasizing tourism for development of depressed areas was conducted for the Appalachian Regional Commission in 1966. Later, definition of specific areas which could successfully use tourism for regional economic growth was the impetus for the study of Harper, Schnudde, and Thomas (1966). Harper et al. examined the concept of threshold analysis for recreational enterprises, and suggested that a model be derived which would determine the ability of rural areas to serve as recreation for nearby urban areas. They concluded that the major opportunity for revitalization of many rural areas of the country is to gear toward recreation for urban residents.

Prior to 1966, empirical work evaluating recreation's actual contribution to local economies was based on total visitor expenditures. However, Clawson and Knetsch (1966) noted that these earlier studies were inaccurate in computing local benefits for four reasons. First, expenditures were not categorized such that their impact on different sectors of the economy could be measured. Second, expenditures were not differentiated geographically, therefore the specific area economic impacts could not be adequately measured. Third, expenditures were not

evaluated in terms of local jobs or value added. Finally, a local multiplier was not included; therefore, only first round effects were examined.

One method devised to overcome the previously mentioned measurement problems is to compare the local economy the year before and the year after the enterprise. Kalter's (1968) study of Walworth County, Wisconsin, concluded that projects should be evaluated by examining the economy prior to a recreational enterprise. Then the researcher should estimate local construction benefits, visitor expenditure gains, and the multiplier effects which could be expected to result from the enterprise. The results would enable project benefits to be compared with costs. Garbacz (1971) examined the local economic impact of Greers Ferry Reservoir in the Ozarks in a similar fashion. He compared employment, land values, and tourist home construction before and after the dam was built. Garbacz concluded that recreation gains to the local economy had previously been inadequately measured and understood.

Researchers have also employed input-output models to analyze the benefits of tourism in some areas. The input-output model shows the flow of dollars, and thus the interdependencies, between regions and sectors of the local economy. Hinman (1969) examined recreational economic impacts upon Whitney Point, New York. He noted that previous literature did not include "the spread of economic impacts originating in any one sector to other sectors."[1] Through a user survey he determined tourist expenditures, and through a business-government survey he

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1. Hinman 1969, p. 26.

measured intersectoral relationships. The results indicated that at Whitney Point tourism was only a mild area stimulant.

Extensive input-output analysis has also been conducted in the Manitoba Interlake Region. MacMillan, Lu, and Framingham (1975) employed an input-output model to examine the regional economic benefits derived from different government resource policy alternatives. Questionnaire data from tourists and local businesses were used to generate the model. They concluded that while tourist development did stimulate construction work and seasonal work, other methods of resource development appeared to be more productive. Furthermore, they determined that attributing traveler purchases to a recreation site is improper, since many of the tourists stated they would have come to the area regardless of the construction of recreational facilities. This is an important consideration, especially in areas with existing tourist attractions.

Two studies of Bisbee, Arizona, have been conducted. Ayer and Layton (1972) estimated the economic impact of the closure of Phelps Dodge mining operations in Bisbee. Utilizing an input-output model, the loss of employment and value added in each sector was calculated. The authors estimated the necessary quantities of manufacturing industries, tourists, or retirees that Bisbee must attract before the income and employment levels which existed prior to the closure of Phelps Dodge operations could be realized. They conclude that it is unrealistic to assume that redevelopment policies will be able to overcome the loss of Phelps Dodge operations. Therefore, a policy concern should be to train and assist people for jobs outside of the Bisbee area.

After studying the resources of Bisbee and its proximity to other tourist towns (most notably Tombstone), Gibson et al. (1975) concluded that tourism had potential to alleviate some of the local economic hardships the Bisbee community was facing. The study examined Bisbee's historic attractions, and concluded that the development of tourist support facilities (e.g., recreational vehicle park, motel) was critical to attracting tourists to Bisbee. This study was instrumental in Bisbee's successful efforts to obtain an Economic Development Administration grant of $800,000 to begin the mine tours, provide restroom facilities for tourists, and upgrade and paint some of the downtown public structures.

In conclusion, literature has examined recreational enterprises from the perspectives of area feasibility and total economic impacts. The impact of recreation pricing upon local community development has not been examined. Clawson and Knetsch (1966) emphasized the need to consider the impact of entrance fees upon development. While they did not engage in empirical analysis, they did state that a change in price could result in shifts in visitors' expenditures and deter potential visitors from the community. The present study will examine these possible effects for a historical landmark.

CHAPTER 3

THEORETICAL FOUNDATIONS

Introduction

There are several pricing strategies available to the owners of historical landmarks. The specific strategy selected may depend on the characteristics of the landmark owners (local, state, or federal government, or public historical foundations) and their objectives (profit maximization, sales maximization subject to a target profit level, cost covering, congestion alleviation, or public education). Prices may also vary depending on the time preference of the owners (short or long run) and the owners' attitudes toward tourist spending in other sectors of the local economy (hotels, restaurants, gift shops).

The purpose of this chapter is to theoretically demonstrate how different objectives, time preferences, and attitudes toward tourist spending in the community may lead to different optimal entrance fees. First, the characteristics of a historical landmark's demand and cost functions will be discussed. Second, a comparison of the optimal prices under different single period pricing strategies is presented. Third, it shall be demonstrated that the price that achieves the owner's objective in the one period case may not be the price that achieves the same objective for the multiperiod situation. Finally, the influence of historical landmark prices on tourist activity in the community will be examined.

Demand and Cost Functions

Demand Curve

Historical landmarks' demand functions differ from those of normal recreational goods, such as park usage, fishing, and water recreation. First, a historical landmark is primarily a point-of-interest which is usually visited by an individual only once, whereas "normal" recreational goods are more frequently characterized by repeated usage by the same individual. Second, there is presumed to be less substitutability of sites for historical landmarks than for "normal" recreational activities. This occurs because there is something unique about the landmark site which has made it historically significant, whereas the necessary facilities for many forms of recreation (swimming, fishing) can be reproduced, albeit not exactly, at a variety of locations. Both of these points of distinction have important ramifications in the landmark owners' pricing decision.

The limited quantity of available historic sites represents a significant barrier to market entry for potential competitors such that the market form of historical landmarks is restricted to imperfect competition (monopolistic competition, oligopoly, monopoly). Monopolistic competition appears to be a realistic market structure for these sites, because individual historic sites may compete with other sites and forms of recreation in their efforts to attract tourists. However, the difficulty in determining demand changes in response to other site prices reduces the strength of monopolistic competition as an explanatory model. Similarly, the oligopolistic approach is deemed infeasible

because of the difficulty of price determination when interdependencies exist. Therefore, the simplified model of monopolistic firms is assumed. This model approximates reality and serves as a good analytical device from which to examine the pricing decision.

The landmark owner will be confronted with a demand curve which changes over time, regardless of what type of market he faces. In the immediate time period, landmark prices affect the quantity of visitors who will attend. However, in the long run, changes in other factors as well as current landmark prices may shift the demand curve. Factors beyond the landmark owner's control would include transportation costs, the prices of complementary and substitute goods, and changing consumer preferences. However landmark owners do control current prices which may affect future demand in two ways. First, the price will be a factor in the patron's decision to return to the landmark. However, it may be that most historic landmarks will have few repeat visitors, therefore this effect may be minimal. Second, many landmarks can be expected to partially rely on word-of-mouth advertising. Present satisfaction with the value received from the tour could affect their recommendations, which in turn would impact on the decision of their friends to attend.

Cost Curves

The cost curve can be expected to differ between the short and long run. In the short run, costs can be divided into the categories of fixed and variable. Fixed costs ensue in the time period under consideration regardless of whether the monopolist continues operation. Variable costs are a function of the number of patrons and can be adjusted within

that time frame. Typical fixed costs for a historical landmark include real estate taxes, rent, and insurance. Variable costs would include wages and utilities.

The short run cost curves of historical landmarks will differ between those landmarks which are self-guided and landmarks which provide tour guides. Landmarks which are self-guided (Fig. 1) may be expected to have constant fixed costs and admissions personnel costs, but maintenance costs will rise after quantity Q_1 of visitors is reached. Therefore, total variable costs (consisting of maintenance and admission personnel costs) and total costs (total variable costs and total fixed costs) will increase if more than Q_1 customers attend. Fig. 1b shows that marginal cost ($\frac{d\ TVC}{d\ Q}$) will be zero until Q_1, when it will begin to rise. Average variable cost ($\frac{TVC}{Q}$) will decline until intersecting with marginal costs, at which point it will rise. In contrast, a landmark with guides can be expected to have stepwise total cost curves (Fig. 2a). While total fixed costs and maintenance costs will exhibit the same characteristics as those of a self-guided tour, tour and admission personnel costs will be constant for a given tour, but rise with each successive tour. The "steps" may be assumed to rise less steeply as labor specializes, until a point where crowding conditions cause steeper rises in the "steps." The slopes of the total variable cost and total cost curves of a landmark can be expected to rise after Q_1 as a result of increasing maintenance costs. Fig. 2b shows that average variable costs will rise with each new tour, declining with each additional customer until an extra tour for additional visitors is necessitated. Initially, marginal costs are zero, rising at points

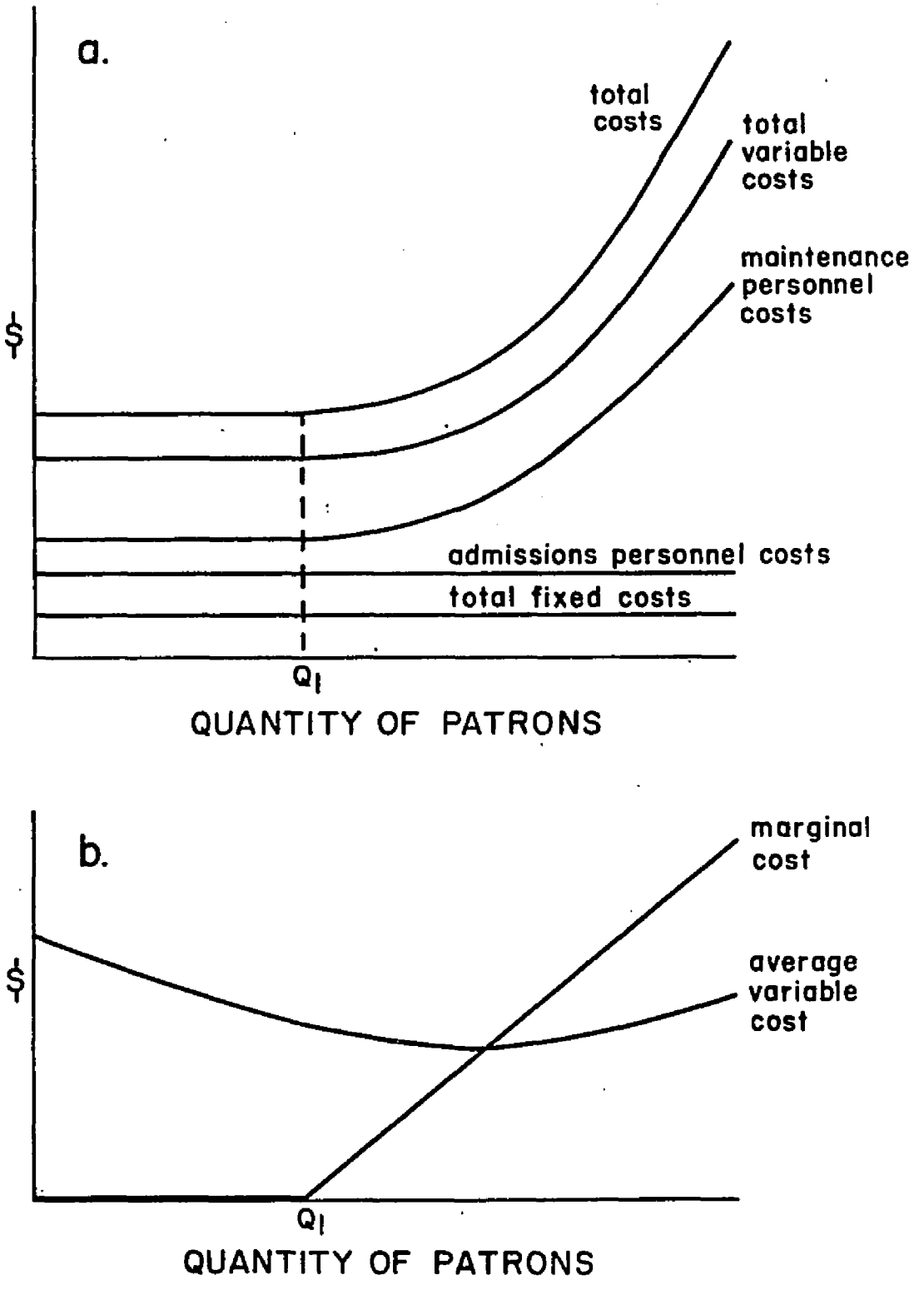

Fig. 1. Short run cost curves (self-guided tour).

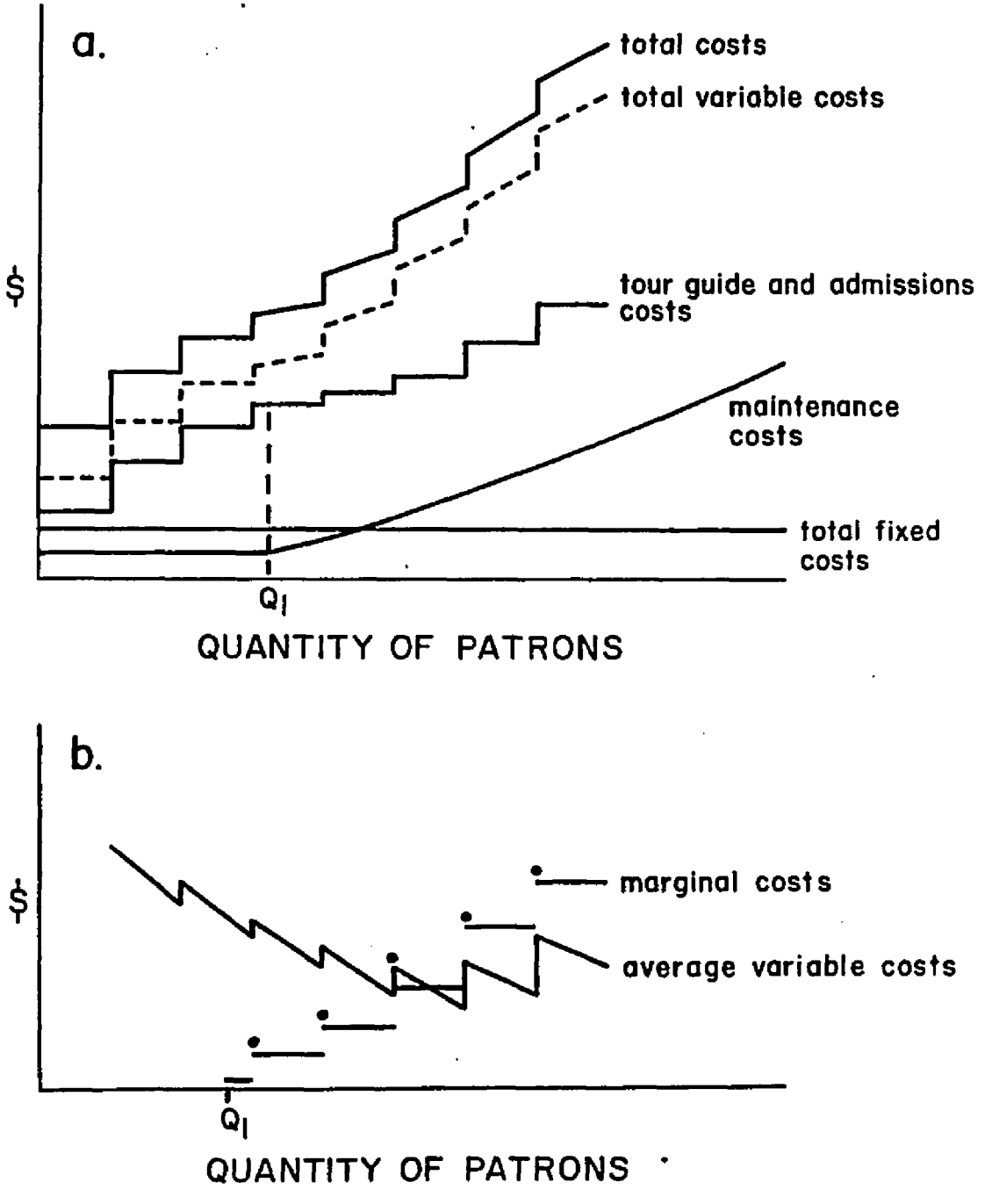

Fig. 2. Short run cost curves (guided tours).

where the quantity of customers necessitates another tour. After Q_1, patrons' marginal costs will rise with each additional tour, intersecting with the average variable cost curve at its lowest point. In both the self-guided and tour-guided historical landmarks, the size of the facility places a short run limitation on the scale of operation.

In the long run, all costs are variable. The site may be expanded for additional tourists or contracted to reduce utility and insurance costs.[1] Long run average and marginal cost functions can be expected to exhibit the typical "U" shape, resulting from initial economies of scale (due to labor specialization) and later diseconomies of scale (due to difficulties in coordinating labor). Pricing strategies in the next section will not utilize long run costs, but will be concerned with short run costs.

Single Period Pricing Strategies

This section will analyze the impacts of different landmark pricing strategies upon the number of patrons, admission price, and profit. The following simplifying assumptions will be utilized:

1. Continuous cost curves will be used for expository purposes, although stepwise cost curves would not alter the analysis. Therefore, the figures will depict the case of the self-guided tour.
2. Demand curves are linear for expository purposes.

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1. An example of site changes which could alter capacity in the long run is the extension of the railcar system into other tunnels in the Bisbee Queen Mine. However, some historical landmarks such as the Tombstone Courthouse have a fixed site size.

3. The market is monopolistic.[1]
4. The monopolist is unable to price discriminate.
5. The historic landmark owner has a single time frame preference. Therefore, the short run demand and cost curves will be used.

Case 1: Historic Landmark Owner as Profit Maximizer

To achieve profit maximization, the historic landmark owner would operate at the level where marginal costs equal marginal revenue. Fig. 3 depicts the profit maximizing price and quantity of visitors. The landmark would have Q_1 visitors and charge price P_1. The area P_1^{ABD} represents the landmark's profit.

Southern Arizona has several privately owned landmarks which may operate in a profit maximizing manner. Examples of this type appear to include Colossal Cave, and the OK Corral and Bird Cage Theatre in Tombstone.

Case 2: Historic Landmark Owner with a Break Even Objective

The ownership of a historic landmark with a break even objective is more likely public than a landmark with a profit maximizing objective. The landmark owner is operating to maximize participation without the need for subsidies. On Fig. 4 the break even objective is met at price P_3 and quantity of visitors Q_3, where average costs equal average

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1. Pricing strategies will exhibit similar relationships to the monopolistic market although actual prices will not be the same as in the monopoly case. It should be noted that the monopolistic case is less efficient than the competitive case.

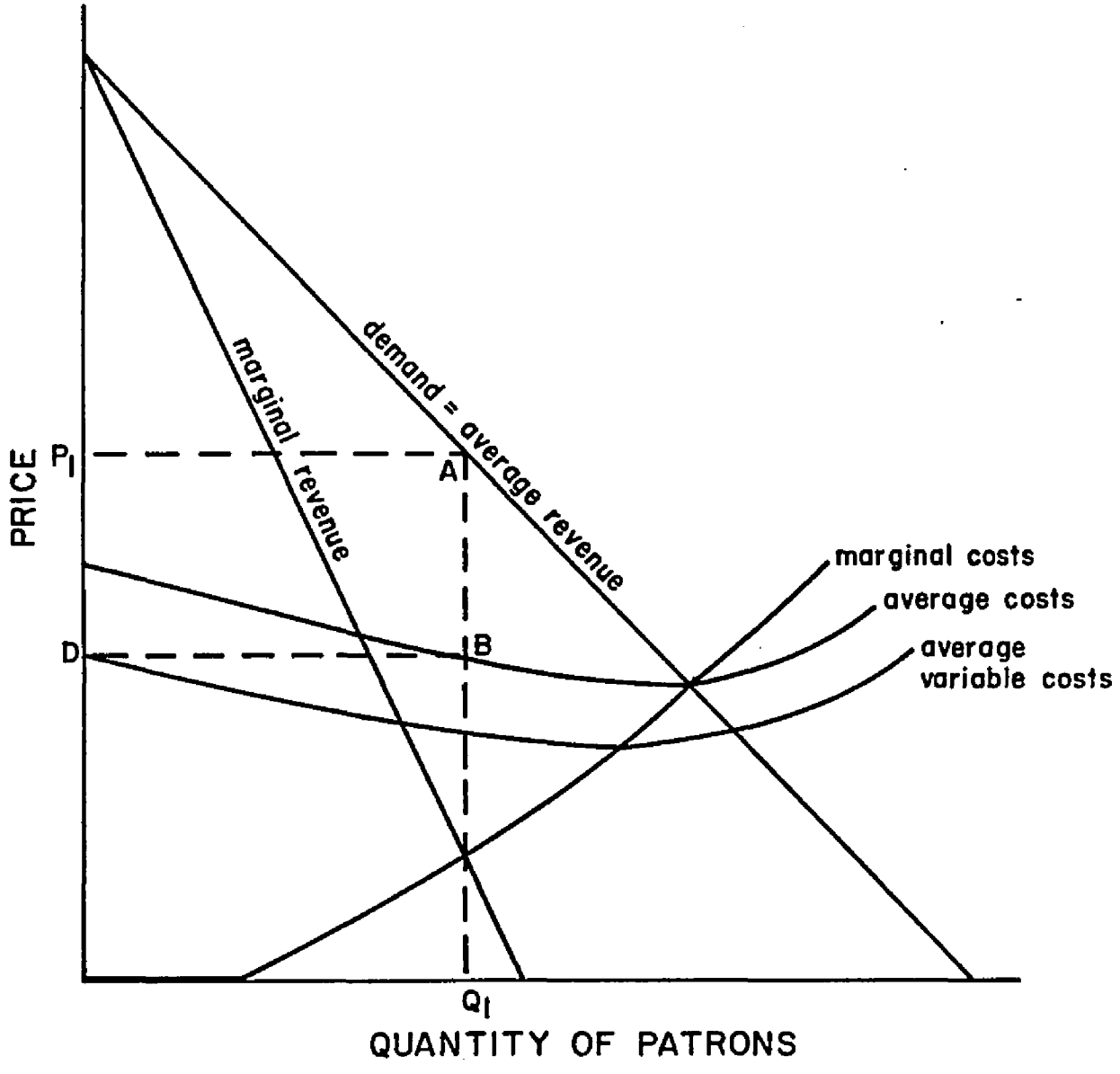

Fig. 3. Profit maximizer.

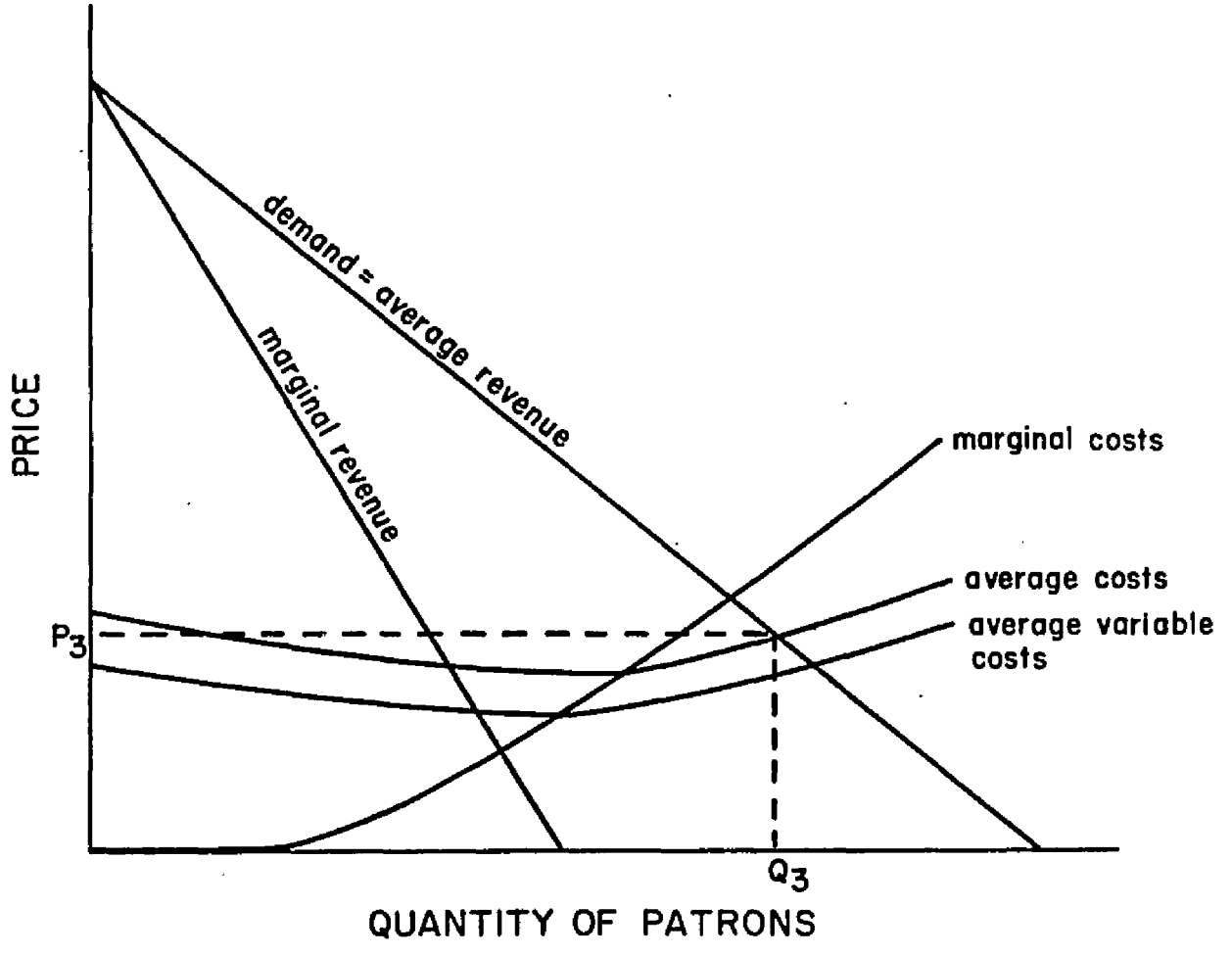

Fig. 4. Break even objective.

revenues. An example of this type of pricing may be found in the Bisbee Queen Mine Tour.

Case 3: Historic Landmark Owner with a Target Profit Objective

A historic landmark owner operating under a target profit objective could be considered a satisficer. The owner may receive utility from both income and the number of patrons visiting the landmark. Therefore, the owner may try to maximize landmark visitors subject to a minimum profit level. On Fig. 5 a target profit of π_0 would result in a maximum visitor level of Q_2. The price can be derived by dividing the total revenue necessary to achieve the target profit, by the quantity of patrons necessary to generate the desired revenue (TR_2/Q_2). The resulting price will be less than or equal to the profit maximizer, but greater than the cost coverer. The resulting quantity of patrons will be greater than the profit maximizer, but less than the cost coverer.

Case 4: Subsidization of Historical Landmarks

In this case the owner or society may feel that the historical landmark produces positive externalities; i.e., a visit to the historical site benefits a group larger than the landmark patrons (Fig. 6). This concept underlies much of our educational and museum systems. Rather than providing the landmark free of charge, this viewpoint is often tempered with the concept that the individual patron benefits more than the members of society who have not attended the landmark. Therefore, a user payment is combined with a subsidy. Subsidies may be from the owner, public agencies, or charitable institutions. The Tombstone Courthouse is

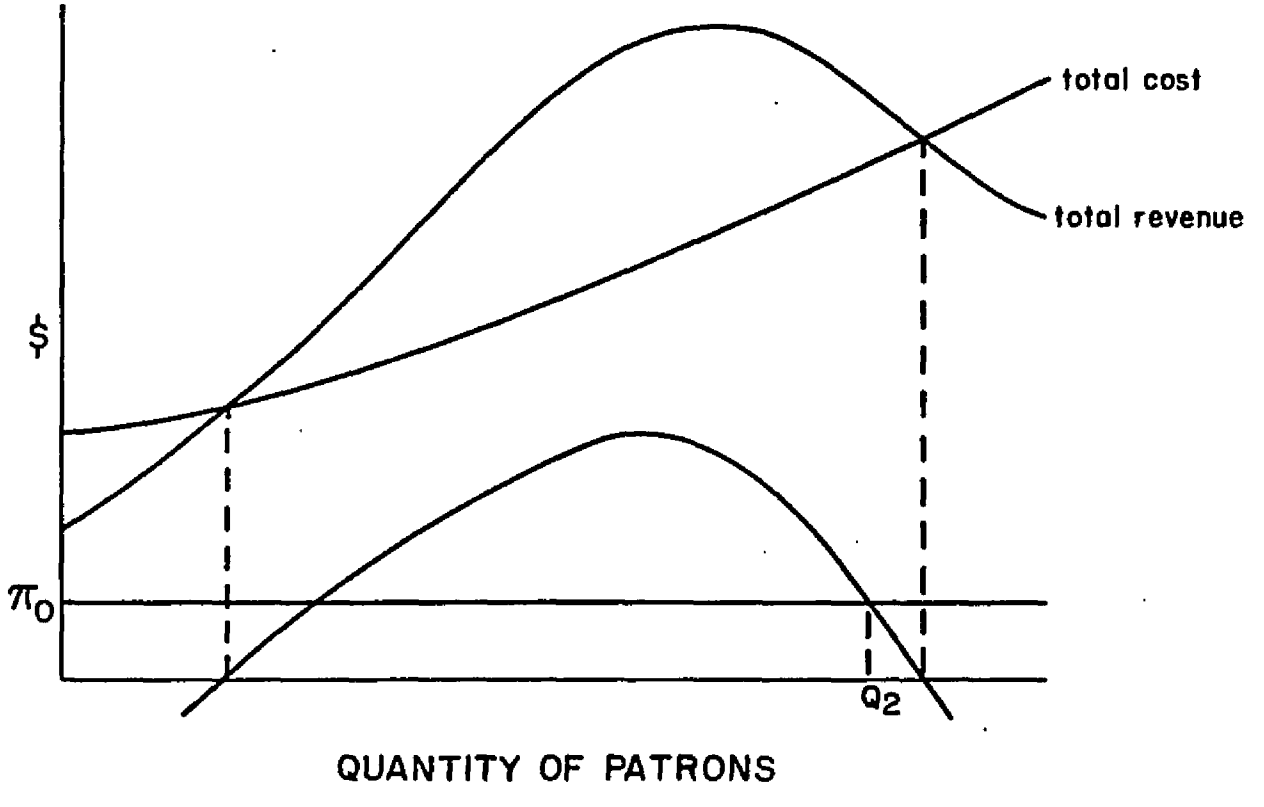

Fig. 5. Target profit objective.

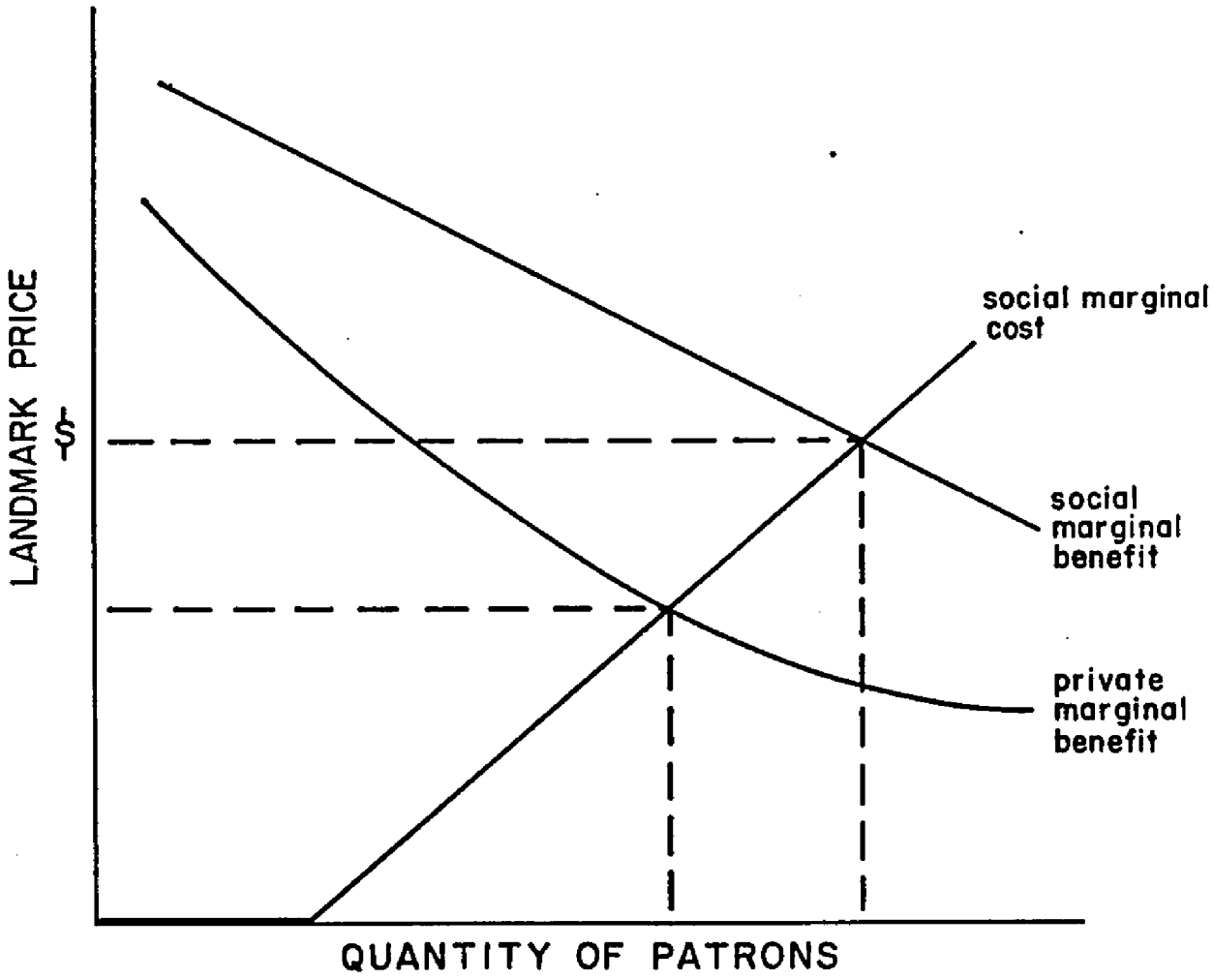

Fig. 6. Social benefit objective.

an example of a nominal fee being set for the user, while public taxes support the remaining costs.

User fees are sometimes treated in the form of donations from patrons. The patron theoretically pays according to his perceived benefit from the landmark and his ability to pay for the landmark. However, patrons can become free riders by avoiding payment entirely (Fig. 6). The Bisbee Mining Museum, Bisbee Restoration Museum, and Boothill Cemetery utilize this method to pay a portion of their operating costs.

Case 5: Historical Landmark Congestion Pricing

The price consumers are willing to pay for a landmark may be altered by the impact of congestion upon their experience. Historic landmarks which rely on guides have capacity limits on how many patrons a guide may "reasonably" handle. Furthermore, the capacity of historic landmarks may be set by insurance or public safety guidelines. However, people may experience congestion prior to reaching these capacity limits. The historic landmarks simply may have too many people visiting the various elements at the site, resulting in a reduction in consumer utility.

Congestion imposes costs on all patrons by reducing the utility they derive from the experience. Each additional user imposes costs on current users and they impose costs on him. The introduction of congestion costs appear as indicated on Fig. 7. In this example, congestion costs are assumed to be the only costs and homogeneous taste for congestion among consumers is assumed. Marginal congestion costs

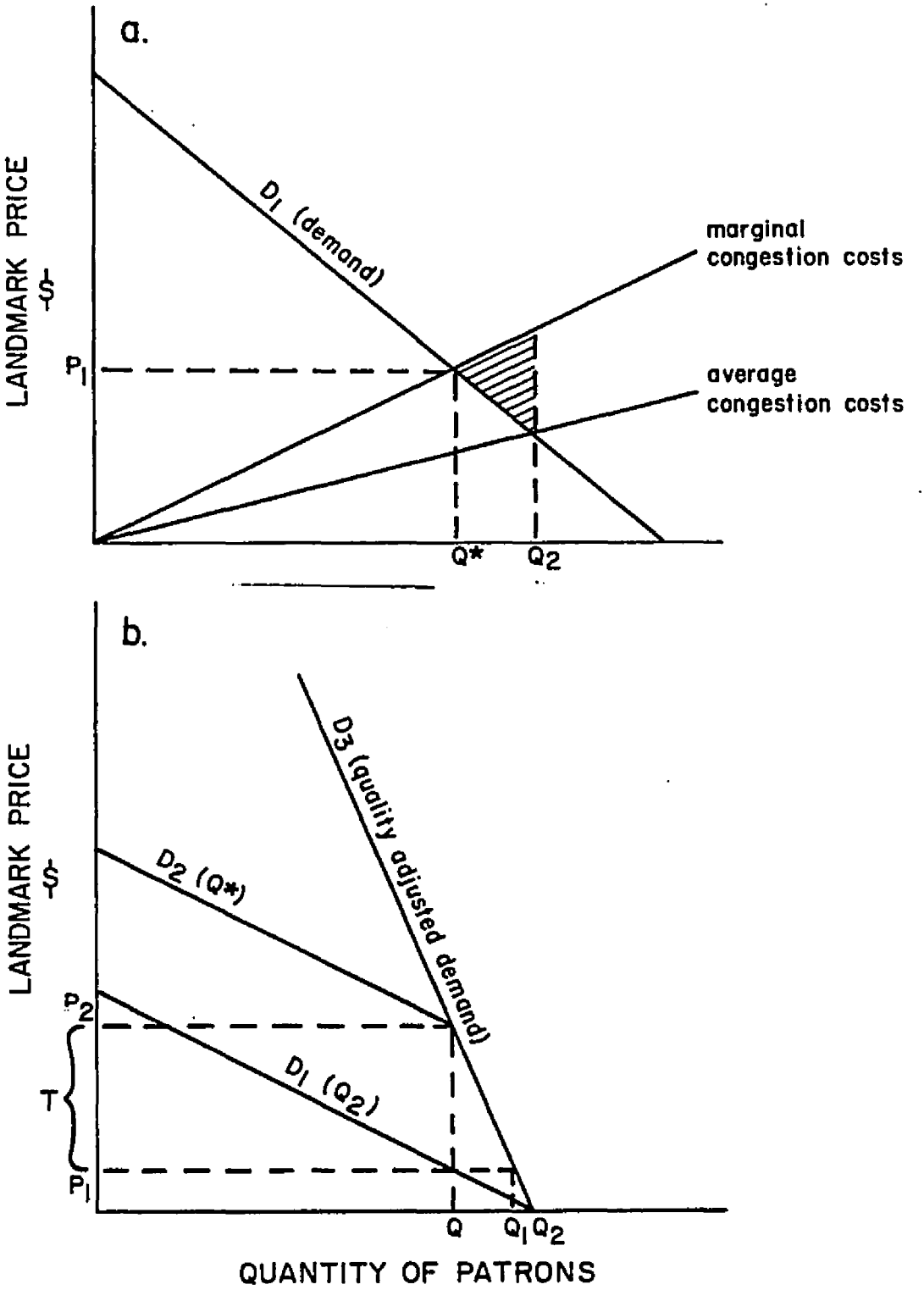

Fig. 7. Congestion costs and quality adjusted demand curve.

are rising twice as fast as average congestion costs. Quantity Q^* is the optimum quantity of landmark visitors, since any quantity greater than Q^* imposes greater congestion costs on all users, than the additional user benefits.

Freeman and Haveman (1977) emphasize that when an individual states a willingness to pay, the stated amount is an uncongested willingness to pay minus an average or expected congestion cost.[1] Changes in average or expected congestion result in changes in the demand curve. Fig. 7 depicts demand curves (D_1,D_2) at various levels of congestion. The connection of the observed points creates a hypothetical quality adjusted demand curve (D_3) from which the effects of price increases upon congestion can be determined. Note that by setting a price to achieve a visitor level of Q^* using the demand curve at the present congestion level of the facility, the resulting Q_1 is greater than Q^*. An additional charge of T would be necessary to achieve the optimum quantity of patrons. Therefore, price is one method of reducing congestion costs.[2] For more discussion on this technique see Freeman and Haveman (1977).

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1. For facilities, such as historic landmarks, where repeated usage is not a characteristic, many patrons will not have a feel for average congestion effects and their willingness to pay will not be as affected as those forms of recreation characterized by repeated usage.

2. A congestion limiting method employed by many public agencies is setting absolute limits on the quantity of visitors in any period of time. This method is used in Aravaipa and parts of the Grand Canyon in Arizona.

Summary

The objective of the landmark owner will influence his short run pricing decision. Fig. 8 indicates the respective prices and quantity of patrons of the profit maximizer and the cost coverer. The profit maximizer would operate at price P_1 with quantity of tourists Q_1. The cost covered would operate at price P_3 and quantity of tourists Q_3. A landmark owner acting toward a target profit would select a price between the other two, the exact price being dictated by the specific profit objective. A landmark owner subsidizing his patrons would operate at a price lower than P_3 with a quantity greater than Q_3, the specific amount depending on the magnitude of the subsidy. A landmark owner who is attempting to achieve the optimum number of customers with respect to congestion will be responding to the demand curves at various congestion levels, such that price and quantity cannot be determined from Fig. 8.

Multiperiod Pricing Strategy

If the present price affects future demand by influencing the patron's recommendations and decision to return to the landmark, then a multiperiod pricing strategy may yield a different price for the landmark than would result if the owner reacted only to the single period pricing effects. Therefore it may be expected that the landmark owners' time preference could affect current landmark pricing.

A steady state model is used to examine the long run pricing decision of the historic landmark owner. The price which the profit maximizer would choose in the short run is compared with that which would be chosen in the steady state case. The following assumptions will be

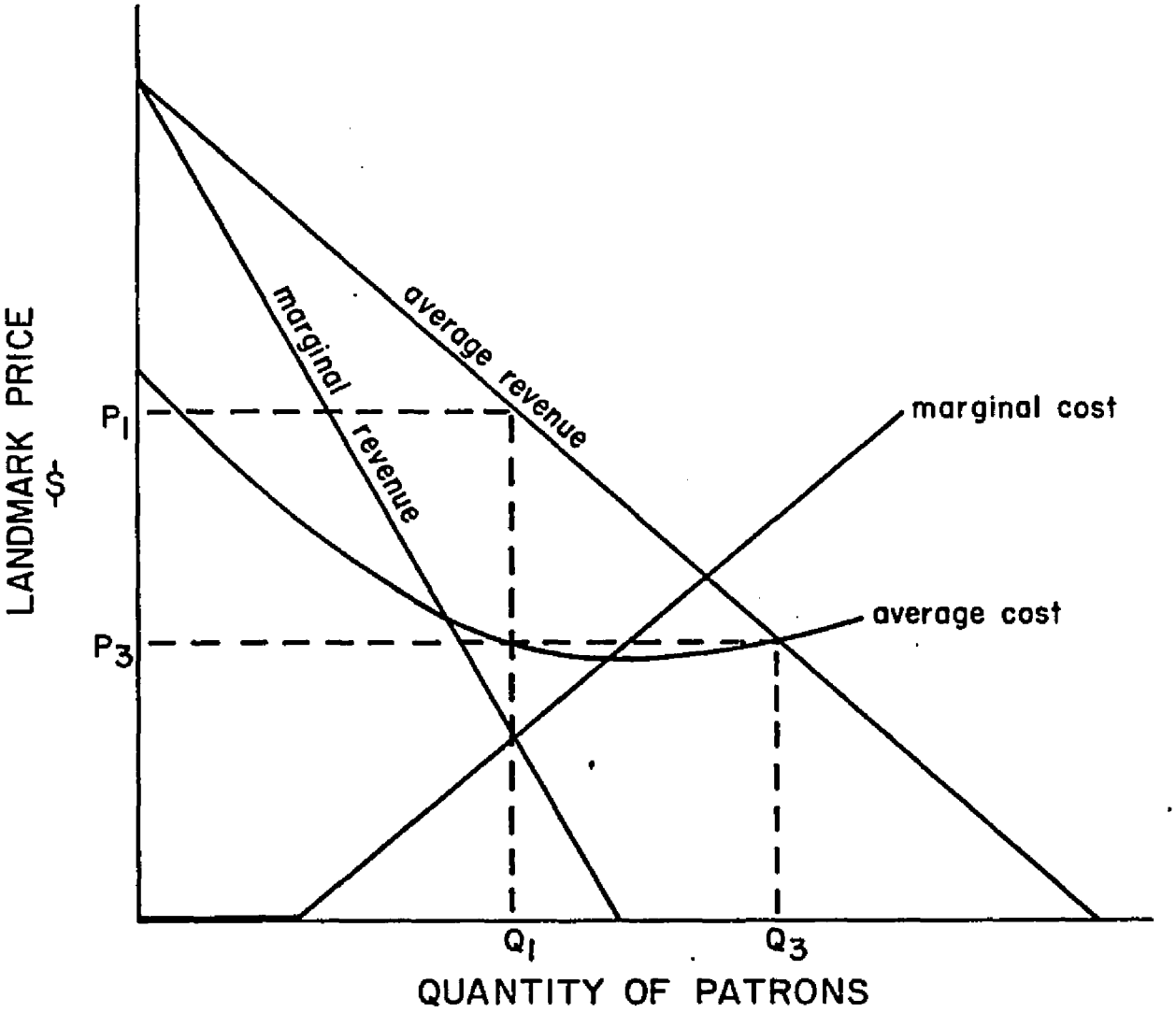

Fig. 8. Comparison of profit maximization with break even objective.

used for the steady state model:

1. The price over the long run is constant.
2. The landmark owner seeks a constant level of customers.
3. Costs are only a function of Q (and not time).

The following symbols will be utilized:

Q_t = patrons at time t

P_t = price at time t

π = profit

C = cost, where C = f(Q)

P_{t-1} = price in previous time period

Q_{t-1} = patrons in previous time period

In the short run current time period the demand curve is represented by $Q_t = a+bP_t$. Profit is represented as $\pi = P_t \cdot Q_t - C_t(Q_t)$. After solving for P_t and making the necessary substitutions:

$$\pi = \frac{Q_t^2}{b} - \frac{aQ_t}{b} - C(Q_t), \text{ therefore:}$$

$$\frac{d\pi}{dQ_t} = \frac{2Q_t}{b} - \frac{a}{b} - \frac{dC}{dQ_t}$$

Setting the equation equal to 0, solving for Q_t, and substituting into:

$$P_t = \frac{Q_t}{b} - \frac{a}{b}, \text{ the optimal one period profit maximizing price is:}$$

$$P_t = \frac{1}{2} \cdot \frac{dC_t}{dQ_t} - \frac{a}{2b}$$

In the multiperiod situation, the landmark owner is faced with the possibility that past prices and tourist volume may affect present volume. Thus:

$$Q_t = a+bP_t + gP_{t-1} + hQ_{t-1}$$

Since price and quantity are constant throughout the steady state:

$P_{t-1} = P$; and $Q_{t-1} = Q_t$. Profit is represented as:

$$\pi_t = \frac{1-h}{b+g} Q_t^2 - \frac{a}{b+g} Q_t - C_t(Q_t), \text{ therefore:}$$

$$\frac{d\pi_t}{dQ_t} = \frac{2(1-h)}{b+g} \cdot Q_t - \frac{a}{b+g} - \frac{dC_t}{dQ_t}$$

Setting this equation equal to zero, solving for Q_t and substituting for P_t, the optimal multiperiod price is found to be:

$$P_t = \frac{1}{2}C'\left(\frac{a}{1-h} + \frac{b+g}{1-h} P_t\right) - \frac{a}{2(b+g)}$$

Examining the effect of a change of P_t with respect to g shows that:

$$\frac{dP_t}{dg} = \frac{1}{2} \frac{dC}{dQ_t} \cdot \frac{1}{1-h} P_t + \frac{2a}{(2b - 2g)^2}$$

As g becomes less negative (approaches zero) price rises. Therefore, if current tourist volume is sensitive to past landmark prices (g is a negative number), the long run profit maximization price should be less than the single period profit maximizing price.

Examining the change of price with respect to the quantity of past landmark visitors shows that:

$$\frac{dP_t}{dQ_{t-1}} = \frac{1}{2} \frac{d^2C}{dQ^2}(Q_t[1-h])$$

Therefore: if $C''>0$ and $1>h>0$ than $\frac{dP_t}{dh}>0$

if $C''>0$ and $h>1$ than $\frac{dP_t}{dh}<0$

if $C''>0$ and $h<0$ than $\frac{dP_t}{dh}>0$

Examination of the long run price elasticity of demand shows:

$$\varepsilon_0 = \frac{b+g}{1-h} \cdot \frac{P}{Q} \text{ ; therefore,}$$

$\frac{b+g}{1-h} < 0$, if a downward sloping demand curve exists.

Since b and g are less than 0, then h must be a number between 0 and 1.

In conclusion, the steady state price will differ from the single period price as a result of the influence of past price and attendance. The influence of past price and attendance in the long run are not exclusive to the profit maximizing model. Regardless of the objectives of the owner, if the coefficients of g and h are not zero, the single period pricing strategy differs from the multiperiod strategy. More specifically, if future tourist levels are positively related to past landmark attendance ($1>h>0$), then the long run profit maximizing price will be greater than that price which maximizes short run profit. Also, if future tourist levels are negatively related to past landmark prices ($g<0$), then the long run profit maximizing price will be less than that price which maximizes short run profit.[1]

Landmark Prices and Spending in the Community

Price Effect of Landmark on Tourism Expenditures

Pricing of the landmark may have some relationship with tourist spending in the community. There are four primary ways by which this may occur.

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1. The reader should note that g represents the effect of past price on people's recommendations and decisions to return. In contrast, h constitutes an information effect of the tour quality as perceived by past patrons in their recommendations to future potential patrons.

First, if the price of the tour or landmark is less than that which the individual was willing to pay, income has been saved. It is hypothesized that the money saved due to prices being less than customers' maximum willingness to pay is related to local tourist expenditures. Mathematically, the influence of the landmark price on landmark visitors' local expenditures is represented as:

$E = f(WP-P)$, where:

E = local expenditures

WP = willingness to pay for landmark attendance

P = price of landmark

It is expected that: $\frac{dE}{dP}<0$.

Second, landmark prices may deter potential customers. This could alter the propensity to spend locally by the tourist for several reasons. The landmark could alter its patrons' expenditures from those of other tourists as a consequence of the extended time the patron may stay at the landmark, such that he makes additional food or lodging purchases. Additionally, items displayed at the landmark may arouse the patron's interests and stimulate his expenditures on crafts and souvenirs. Alternatively, the landmark visitor's expenditures in the community may be lower than other tourists if the time spent at the landmark detracted from the time available for other activities in the town.

Third, people who come to town solely from interest in the landmark may be deterred from visiting the community by high landmark prices. The expenditures which these potential patrons would have made in the community are not realized if a beforehand knowledge of landmark price influenced them not to come to the community.

Finally, the price of the landmark may influence its patrons' desires to return to the community or their decision to recommend the trip to others. Additionally, those excluded from the landmark because of price may have different perceptions of the community than those who went to the landmark. If either of these conditions exists, the price of the landmark will affect future tourism and thereby future tourist expenditures in the community.

Maximizing Tourism Spending in the Community

Landmark pricing strategies may have effects on total expenditures by tourists in the community. This section analyzes the possible effects of historic landmark pricing on tourist spending. The analysis could be approached from the perspective of profit maximization behavior for the landmark, but for clarity and simplicity, it will be assumed that the landmark owners are revenue maximizers.[1]

The landmark maximizes total revenue at price P_1 as depicted in Fig. 9. If a negative relationship exists between the price at the landmark and spending in local business establishments, higher landmark prices will result in lower community tourist expenditures as depicted in Fig. 10 (the total community revenue curve is represented linearly for simplicity).

The objective of the landmark owner toward community development will influence his pricing decision. If the objective is to maximize community revenues, the price selected may be lower than that which would

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1. Many landmarks can accommodate greater or fewer visitors with little appreciable change in cost.

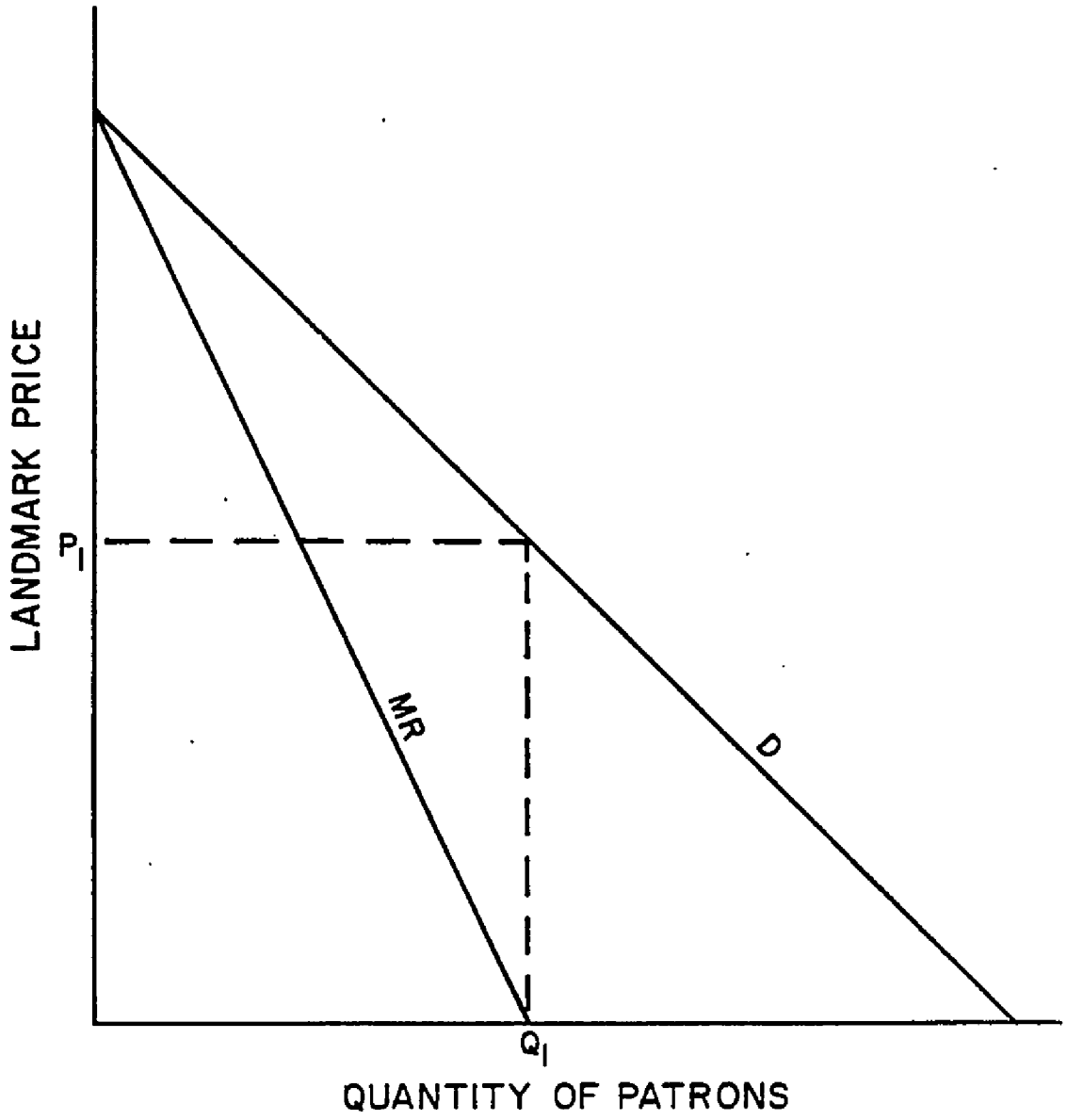

Fig. 9. Revenue maximizing price for historic landmark.

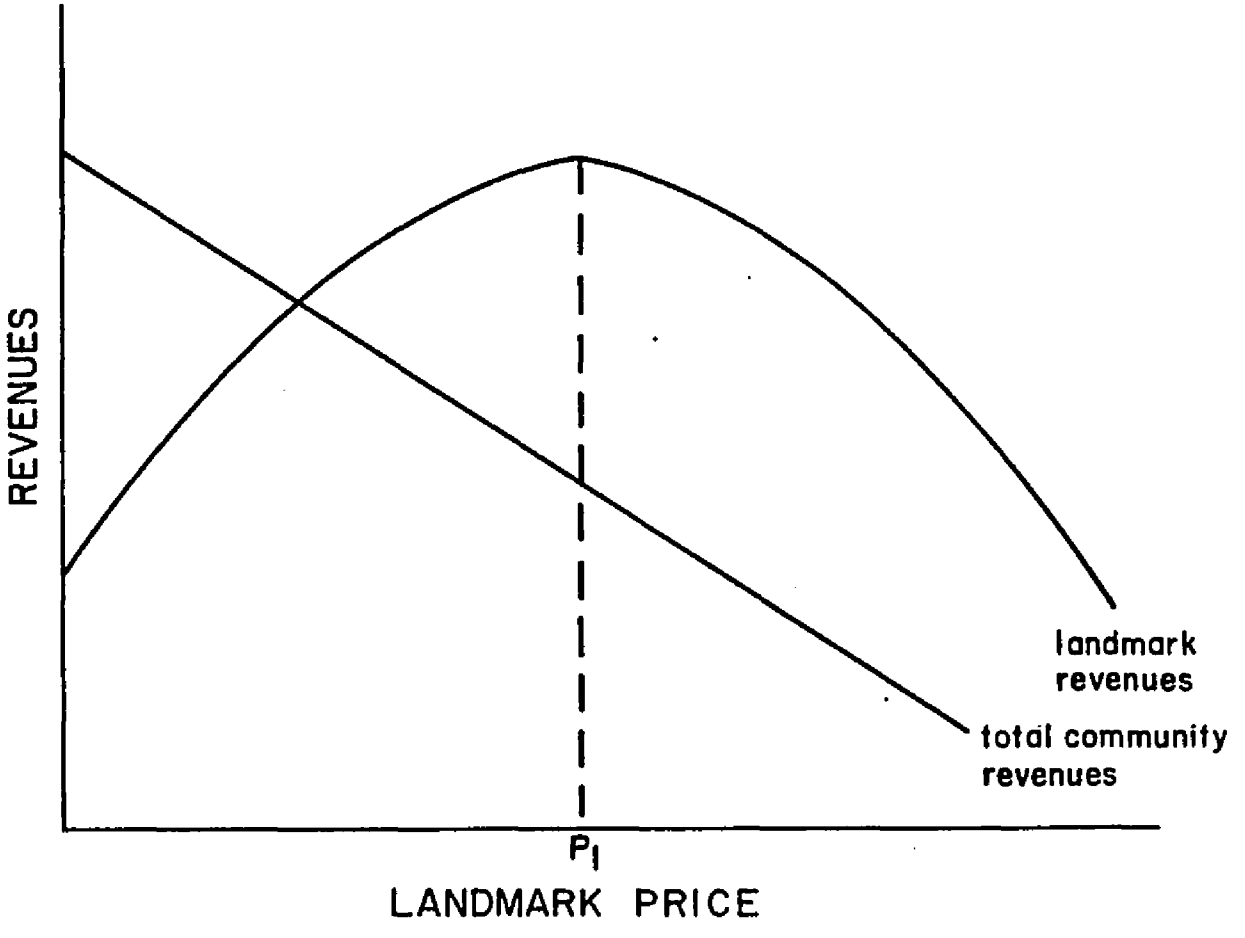

Fig. 10. Landmark and business tourist total revenues at varying landmark prices.

maximize landmark revenues. Fig. 11 portrays this relationship. The optimum price for community revenue is at the intersection of the marginal revenue curve for the landmark, and the marginal loss curve for community businesses (P*), since any price other than P* will result in a decrease in potential total community revenue. Therefore, the optimum price for maximizing community revenue will be less than that for maximizing landmark revenue, if a negative relationship exists between local business revenues and price at the landmark.

Landmark Price Effect on Community Employment

Public landmark pricing may also have impacts on employment at the landmark, local private businesses, and local government. Decreases in landmark employment may be associated with increases in landmark price (Fig. 12). Similarly, higher landmark prices may be associated with lower employment in the local private sector (Fig. 13). Finally, the impact of landmark prices on total government employees may vary with the landmark profit level associated with each price (Fig. 14).[1] For example, greater landmark profits may be associated with greater governmental employment of non-landmark employees (for expository purposes, taxes are not included in this analysis).[2]

Fig. 15 presents the change in community employment (marginal employment) resulting from a change in landmark price. If local business and landmark employment are negatively related to landmark

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1. Profit maximization is utilized for expository purposes.

2. Larger landmark profits may be translated into lower taxes or additional local projects rather than governmental employment, which would not affect the analysis.

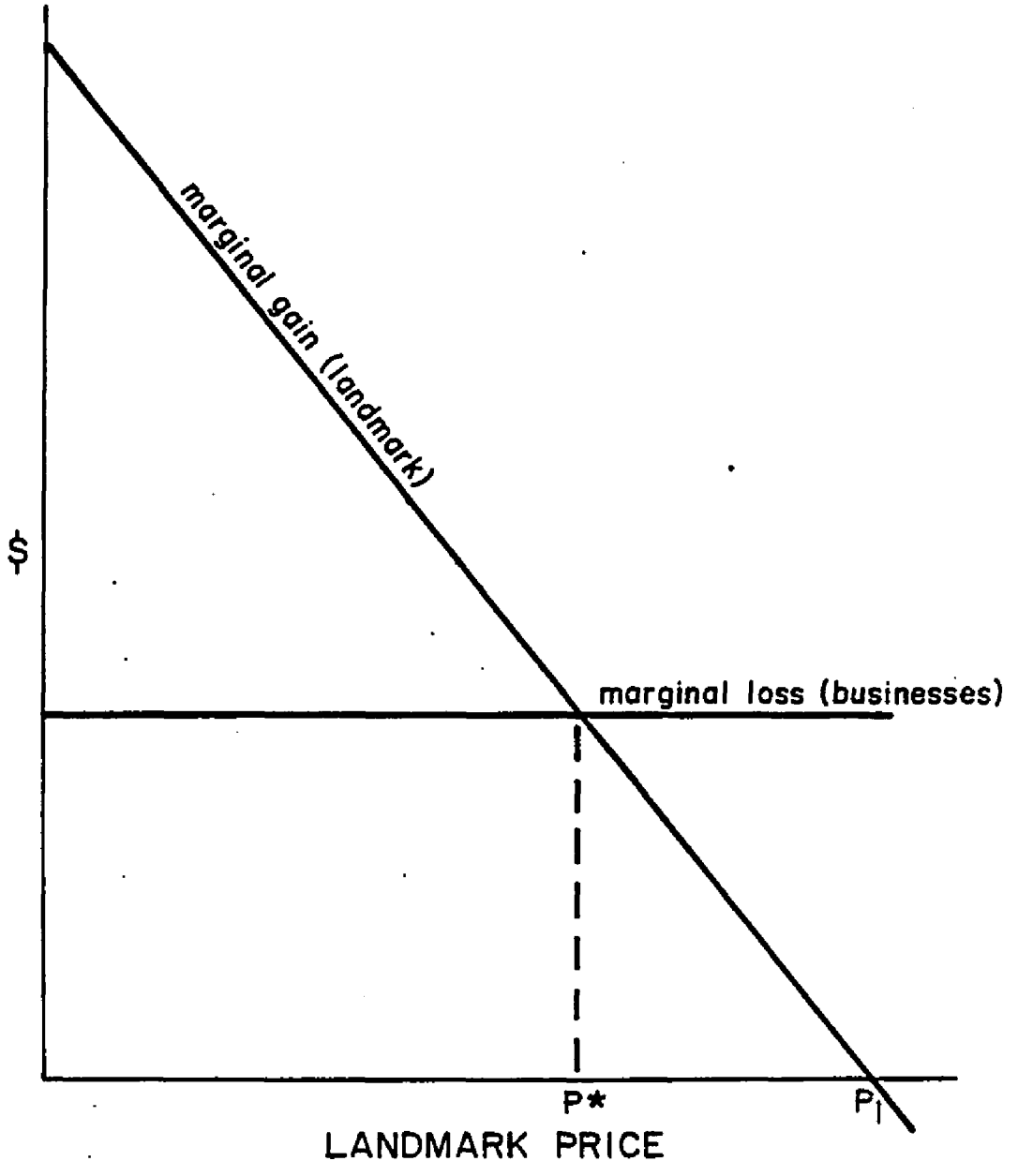

Fig. 11. Landmark and business tourist marginal revenues at varying landmark prices.

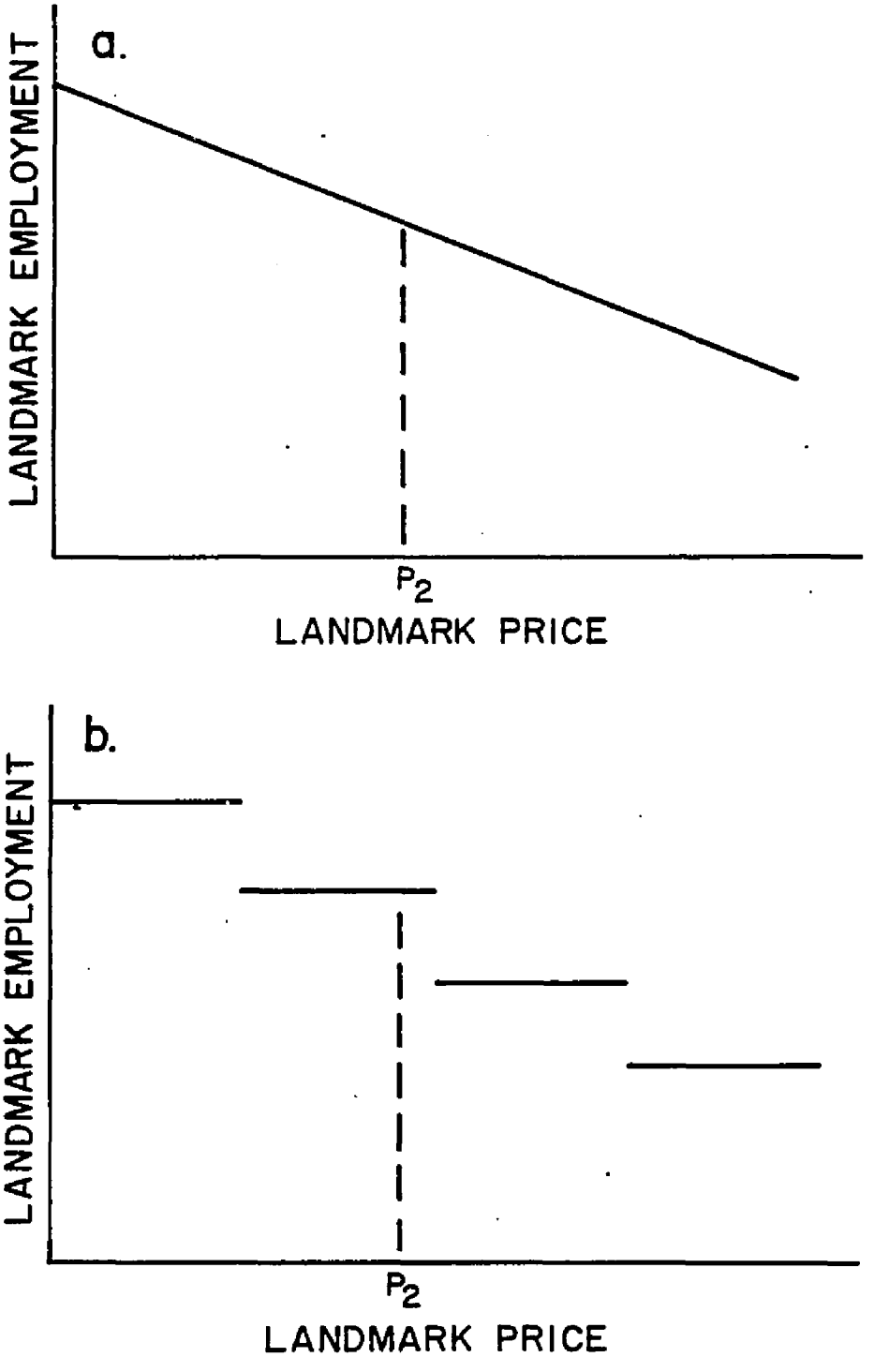

Fig. 12. Relationship between landmark price and landmark employment.--a. self-guided tour; b. guided tour.

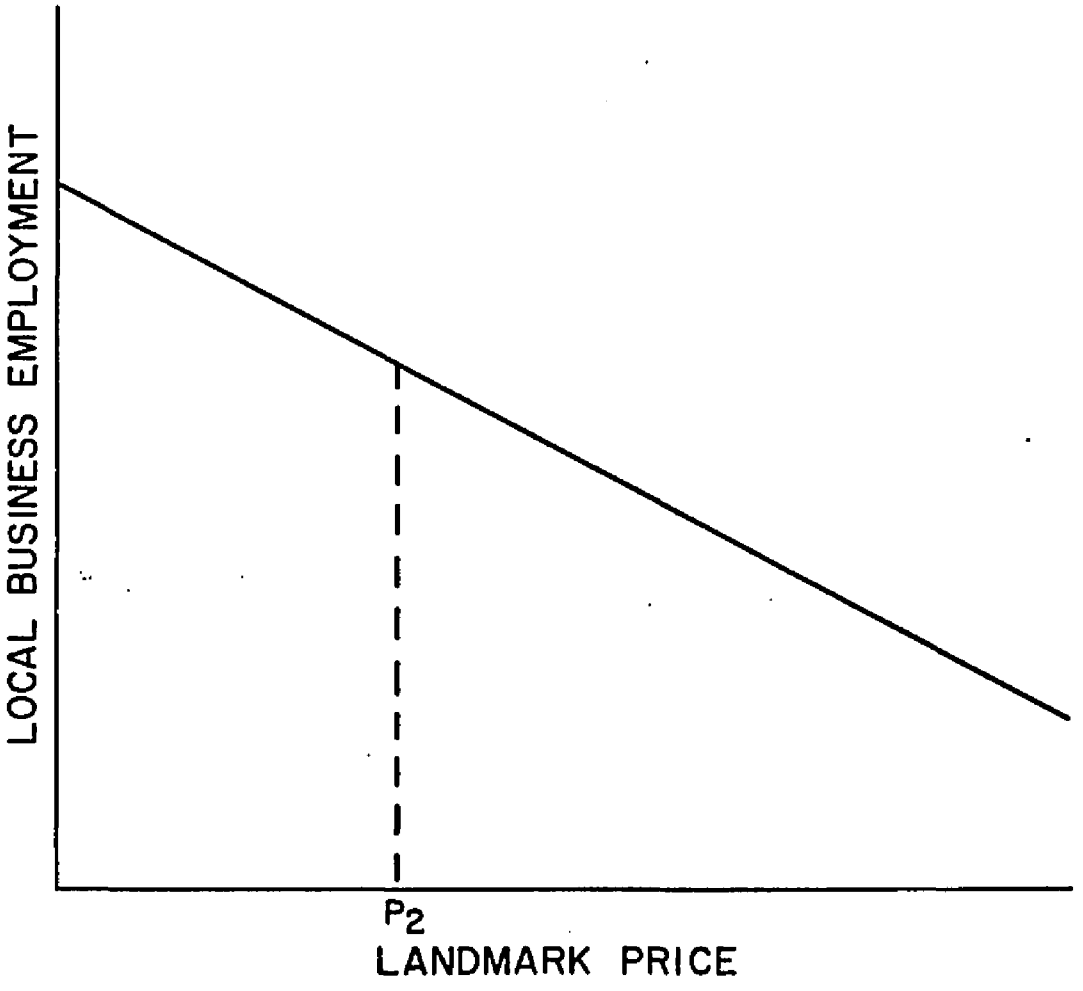

Fig. 13. Local business tourist-related employment at varying landmark prices.

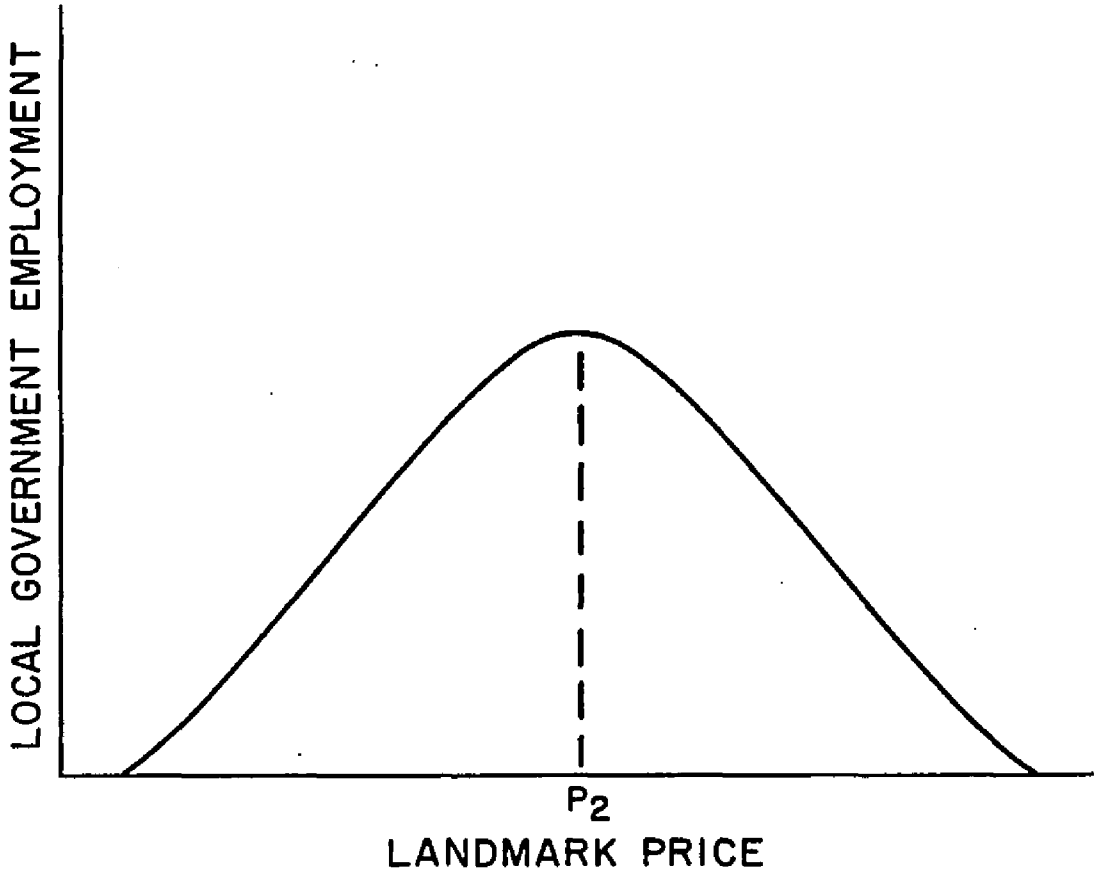

Fig. 14. Local government employment as a consequence of varying landmark prices.--Excluding landmark employees.

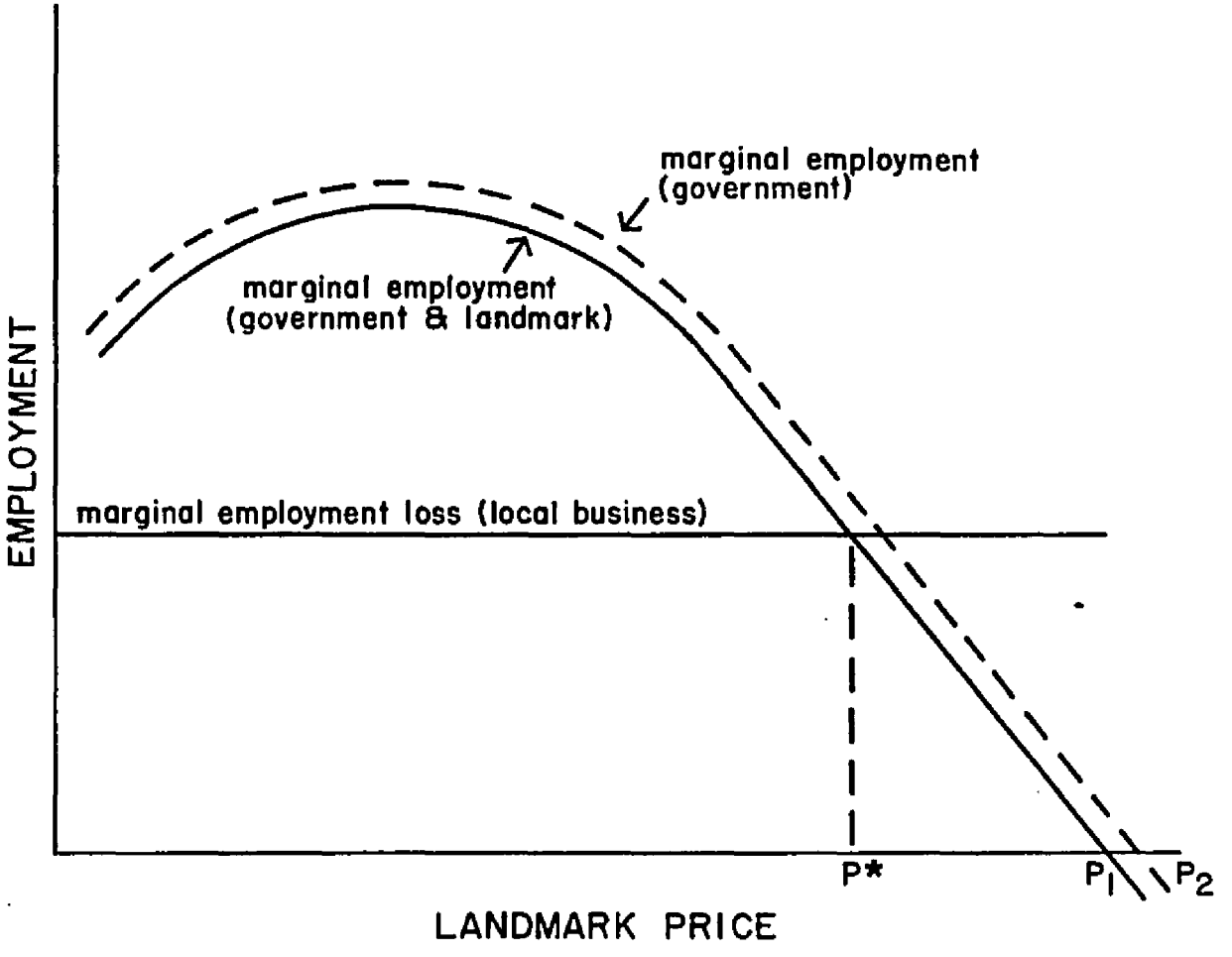

Fig. 15. Landmark, Local government, and business tourist-related marginal employment at varying landmark prices.

price, the employment maximizing price for community employment (P*) will be lower than the profit maximizing price for the landmark (P_2). This conclusion is consistent with that obtained from the community revenue perspective, where it was shown that if local business revenues are negatively related to landmark price, the community revenue maximizing price was lower than the landmark revenue maximizing price.

Conclusion

This chapter has stressed that differing objectives of public landmark owners will lead to differing landmark pricing strategies. Revenue and profit objectives, time period preferences, community revenue, and employment objectives have been addressed.

It was found that landmark owners who desire to maximize profits will have higher landmark prices than those who desire to cover costs. Landmark owners with target profit objectives will establish higher prices than cost coverers, but lower prices than profit maximizers. Owners utilizing subsidies will use lower landmark prices than the cost coverer.

Also, landmark owners with a greater preference for long run profits will tend to have lower prices if future attendance is affected by past quantity of visitors.

If community employment and revenue levels are negatively related to landmark price, the community development objectives of public landmark owners will affect price. Those landmark owners whose objective is to maximize total community revenue or employment will

establish a lower landmark price than profit or revenue maximizing landmark owners.

This study will measure the effect of different objectives on landmark price in a specific case. The impact of differing Queen Mine Tour prices on landmark revenues, future tourism, and revenues in the city of Bisbee will be examined.

CHAPTER 4

DATA SOURCES AND SURVEY METHODS

The methodology employed to gather and utilize data will be described in this chapter. Presented will be data sources and usage, as well as qualifying factors related to the data.

The chapter is divided into several parts. Initially, the criteria for a historical landmark is examined, followed by an analysis of why the Queen Mine Tour was selected for the study. Next, the methodology employed to derive a demand curve is discussed with emphasis upon the reasons for choosing the willingness to pay technique over the travel cost method. Finally, a description of the methods of collecting data pertaining to landmark costs, tourist attitudes, and expenditures is provided.

Selection of Queen Mine Tour

The Bisbee Queen Mine Tour was selected as the site for this study. The Queen Mine has a rich history dating back to the 1880's when prospectors discovered both copper and silver in the area. The Phelps Dodge Company purchased the majority of mining rights in the area and focused operations on copper extraction.

The electricity boom in the 1890's brought copper into great demand. The Queen Mine expanded to meet the increase in demand and Bisbee's population grew to nearly 20,000 by the turn of the century.

To reduce transportation costs of the final product Phelps Dodge built a wood smelter in town and a spur connecting to the main rail line in Fairbanks, Arizona.

Mining techniques continued to change, and in 1950 the Lavender Pit Mine was opened in Bisbee. This was an open pit mine unlike the Copper Queen Mine. After the mining processes had extracted approximately two billion dollars worth of copper, Phelps Dodge closed the Lavender Pit on December 14, 1974 and the Queen Mine on June 13, 1975.

In an attempt to alleviate unemployment resulting from the mine closures, Bisbee turned to tourism. With assistance from the Economic Development Administration and in cooperation with Phelps Dodge, the Queen Mine Tour and the Lavender Pit Tour were developed; downtown city buildings were restored; public restrooms were provided; and the mining museum was renovated. Bisbee also designated several buildings as historic sites. The town itself was declared a state historic site in 1977. Businesses began to develop a tourist orientation. New business activities undertaken to serve the tourists include the development of local arts and crafts industry, restoring the Copper Queen Hotel, and constructing another motel and trailer park.

The Queen Mine Tour consists partly of a railcar ride into the old mine and a walk through underground tunnels. The methods of mining from past to present are depicted by artifacts and descriptions by tour guides. The Lavender Pit Tour is a bus tour of the open pit and the modern copper processes.

The Queen Mine Tour and Bisbee were selected over other nearby landmarks and communities (such as Tombstone and Fort Bowie) for the following reasons. First the Queen Mine Tour meets the criteria for a historical landmark: (1) it is a type of recreation in which the customer's activity is primarily that of a listener or viewer (the purpose of the visit is not to participate in physical activity or games); (2) the site has man-made historical significance, such that it educates or portrays history to the viewer; and (3) the landmark is site-specific, differentiating it from a museum or collection of historical artifacts.

Second, the mine tour is an attraction in and of itself. Tombstone has many attractions, and the name of the town is probably more synonymous with history than any other individual site. Bisbee does not share this image, and until recently it lacked any major impetus toward developing a tourist-based economy. Furthermore, Bisbee advertisements are specifically designed to attract tourists on the basis of the tour. Other areas, such as Fort Bowie, also have attractions but no nearby community, therefore it would be difficult to measure community benefits.

Third, the tour was developed with funding from the Economic Development Administration, with the purpose of assisting the local economy. Currently, the tour is owned by the municipality. However, economic development is still a major consideration in its operation.

Fourth, the tour takes approximately one hour and 15 minutes. It represents a substantial investment in time by the tourist.

Therefore, the patrons' impressions of the tour could influence their opinion of Bisbee.

Derivation of Historical Landmark's Demand Curve

In order to determine the impact of changes in entrance fees on the number of patrons visiting and the financial position of a historical landmark, a demand function must be derived. There are two principal methods that may be used to estimate demand curves for historic landmarks. These are the travel cost method and the willingness-to-pay techniques.[1]

Travel Cost Method

The travel cost method recognizes that the actual landmark visit is only one part of the trip experience. Other aspects include preparation for the trip, travel to the landmark, travel from the landmark, and recollections of the experience. Site value, according to Clawson, must be separated from these other trip factors. The travel cost method determines total transportation costs for a given trip and assumes them to be the same for each visitor from a given zone. By plotting travel costs against each zone's visits per population, the demand curve is derived. The site demand curve assumes that landmark users would react to changes in costs at the landmark in the same manner in which they react to changes in costs for travel.

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1. A more detailed discussion of the travel cost and willingness to pay techniques can be found in Chapter 2.

The travel cost method has two major shortcomings. First, it often assumes equality among zones after correcting for population differences. Even when corrected for income and education effects, the travel cost method has problems accounting for the substitute sites and activities which may differ from zone to zone. Second, travel costs are substituted for site value, but they are not entirely monetary. Travel conditions and the amount of time required for the trip may have negative or positive effects on an individual's utility.

The travel cost method is additionally problematic in the Bisbee case. First, landmarks may be expected to have a wider geographic range of tourists than many recreational forms (park usage, picnicking). Therefore, the range of travel costs may be quite large due to the difficulty of delineating zones. Second, there is a joint cost problem. Many Bisbee tourists visit Tombstone and other nearby landmarks on the same trip. Additionally, many Queen Mine Tour visitors came to Bisbee for reasons other than the tour. How these joint travel costs are to be allocated greatly complicates analysis using the travel cost method; therefore it was not used in this study.

Willingness to Pay Technique

The willingness to pay method was chosen as the most appropriate technique for this study. This method involved interviewing tourists at the entrance to the Queen Mine Tour and the Lavender Pit Tour. Respondents were asked to indicate whether they would attend the mine tour at various price levels. The interviewer continued to suggest prices to the tourist, until a maximum willingness to pay could be

determined. Data pertaining to tourist characteristics, planned activities, and interests were obtained through the interviews.[1] Linear multiple regressions measured the impact of these factors on willingness to pay for the tour. The variables and results of the analysis are provided in Chapter 5.

There are four potential problems inherent in the willingness to pay method. These problems, and the measures undertaken to minimize them, are presented below. First, a downward or upward bias on willingness to pay for the tour can be created either through the interviewer or interviewee. The tone of the interviewer, his method of presentation, or length of the questionnaire may influence the interviewee's response. The potential patron's response may be affected by the initial price stated or a desire to terminate the interview. To minimize these problems, the interviewer stated prices to potential customers, and asked for a positive or negative response as to whether they would attend. The interviewer alternated between stating a price of seven dollars per person and proceeding to lower prices, and stating a price of two dollars per person and proceeding to higher prices. After obtaining data related to the interviewee's personal characteristics, the interviewer would restate their maximum willingness to pay for their verification.[2] The total time of the interview was approximately four

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1. The reader should refer to Appendix A for samples of the oral and mailback questionnaires.

2. This was done with the phrase: "When you get to the cash register, if you find the tour costs X (where X = $ .50 higher than patron's stated willingness to pay), then you would not go on the tour."

minutes. Therefore, time length is not expected to bias a customer's response.

Second, patrons may be expected to have a downward bias when stating their willingness to pay for the tour since they may expect the future price to be affected by their response (Clawson et al. 1966). Literature (Bohm 1971) has pointed to devices used to cloud the issue and confuse the interviewee as to the impact of his answers. However, historic landmarks, such as the Bisbee Mine Tour, rarely have repeat patrons. Therefore a tour visitor's concern with future prices should have minimal impact on the consumer's response.

Third, a patron may be biased toward existing prices or prices of similar goods (Rohm 1969). Because few customers are expected to attend the tour more than once, it was expected that previous knowledge of prices would not be a major factor. However, potential customers were often able to determine the price prior to the interview, such that bias toward that price could occur. To measure the effect of this type of bias, mine tour interviewees were asked to state whether they were aware of the price prior to the interview.

Finally, willingness to pay a given amount is specific to the point in time at which the interview takes place. Changing prices of substitute and complementary activities may alter this relationship. It is difficult to correct for these possible effects, but this study attempted to determine the impact of current local substitution effects. This was done by surveying customers on July 4th when local coaster races and drilling contests were occurring. In addition, the survey

questioned respondents as to their willingness to pay for a competing open pit mine tour in town. The study measured the effect of offering the pit mine tour free upon willingness to pay for the Queen Mine Tour.[1]

Cost and Capacity Information

The derivation of profit maximizing, target profit and cost covering prices require the inclusion of a cost curve, as well as demand curves. Cost data were obtained from the city of Bisbee. These data were broken down into monthly costs and revenues for the major categories of payroll, utilities, supplies, and insurance. Table 1 shows cost and revenue data for May 1980.[1] Variable costs in the short run are primarily wages and utilities. These variable costs will change if tours are reduced in terms of either quantity per day or days of operation. While the data are primarily obtained through monthly reports submitted by the head of the mine tour to the city council, data pertaining to insurance rates were procured from the city clerk Jeff Freudenberg. Insurance was initially set at $6800 for 1980. Insurance premiums are based on 8% of the previous year's revenue.

The Queen Mine Tour has an upward limit on congestion. The tour has a current railcar capacity of 30 people. Tours are conducted four

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1. The Lavender Pit tour occurs on Phelps Dodge Company property, although it is run by the City of Bisbee. Restrictions by Phelps Dodge on the tour's operating hours have been primarily responsible for the low quantity of tours. The pit tour has operated a maximum of six times a month in the past year.

2. In addition, it was noted that many hidden costs exist which are not accounted for in this data. This includes summer and youth employment, probably obtained through federal funding.

Table 1. Queen Mine Monthly Report for May 1980.*

a.	Total Tours	126
	(1) Total persons mine tour	1,896
	(2) Total persons pit tour	78
	(3) Number of mine tours	120
	(4) Number of pit tours	6
b.	Revenues	
	(1) Mine	$ 5,289.25
	(2) Pit tours	195.00
	(3) Displays	192.50
	(4) Vending machines	84.00
	(5) Late charge	31.50
	(6) Tokens	20.00
	(7) Calendars	12.00
	(8) Maps	5.00
	Total	$ 5,829.25
c.	Expenses	
	(1) Payroll ending 5/10/80	$ 1,808.30
	(2) Payroll ending 5/24/80	1,992.18
	(3) Mt. Bell	15.16
	(4) Ariz. Water	21.56
	Total	$ 3,837.20
d.	Total Net Profit	
	Revenues	$ 5,829.25
	Expenses	3,837.20
	Profit	$ 1,992.05

*Submitted to the Mayor and Common Council from the Mine Tour Manager.

times daily and seven days a week. Current capacity under these operating procedures is 840 per week.

Tourist Recommendations and Expenditures

Tourists' Recommendations

In Chapter 3 it was demonstrated that if current and past landmark prices and landmark attendance affect future attendance, a reduction in the current price may increase attendance, revenues, and profit over the long run. To determine whether the landmark's owners should consider multiperiod pricing techniques, data pertaining to the relationship between tour attendance and tourists' impressions of the community were collected. These data were obtained through a mailback portion of the questionnaire. The questionnaire was distributed to both those attending the tour and those electing not to participate. On the questionnaire, the tourists were asked to indicate their recommendations of Bisbee on a scale of 1-4: 1 and 2 were negative, 3 and 4 positive, the lower number being the least positive (or most negative). A similar system was used to determine the likelihood of the person returning to Bisbee.[1]

If attendance on the tour affects tourists' recommendations or willingness to return, the ordinal rankings provided by those who did not attend the tour should differ from those rankings provided by the participants on the Queen Mine Tour. Furthermore, if the price paid by

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1. The reader should refer to Appendix A for samples of the oral and mailback questionnaires.

the tour's patrons, versus their stated willingness to pay, affects a tourist's recommendations, or willingness to return, this relationship should also be captured by the return questionnaire.

Tourist Expenditure Data

Chapter 3 hypothesized that the price of a tour or the patron's decision to participate in a tour may affect their expenditures in the local community. Therefore, expected and actual expenditure data were collected and compared for tourists and tour visitors.[1] Expenditure data were obtained in two ways. In the verbal interview both tour patrons and other tourists were asked for their expected expenditures in the categories of crafts and souvenirs, food and drink, and lodging. In the mailback portions of the questionnaire they were asked for their actual expenditures in these categories. The effects of tour price and attendance on local expenditures could be measured from the questionnaire responses. Additionally, tourists were asked if they would have come to Bisbee if the mine tour was not available. In this manner, the tourists who were attracted to the community by the mine tour and their local expenditures could be determined.

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1. The reader should note that no tourists interested in the Queen Mine Tour were deterred by price. Other tourists were interviewed to compare the impact of tour attendance on expenditures.

CHAPTER 5

RESULTS

The purpose of this chapter is to test the hypotheses presented in Chapter 3. More specifically, will the landmark owners' objectives, time preferences, and attitudes toward tourist spending in the community lead to different optimal entrance fees. First, the characteristics of the landmark's demand and cost functions will be presented. Second, a comparison of optimal prices in the single and multiple time periods for different pricing strategies will be discussed. Finally, the impacts of pricing strategies upon tourist spending in the community will be examined.

Willingness to Pay, Demand and Cost Functions

Willingness to Pay Functions

Through personal interviews with Bisbee tourists, information was collected concerning: (1) the tourists' maximum willingness to pay for the Queen Mine tour; (2) the characteristics of the tourists; and (3) the activities of the tourists.[1] Utilizing the above data, linear

1. Examples of tourists' characteristics include: number of adults and children in group, income of family, education of group leader, and state residence of group. Planned activity and interest factors include: planned length of stay, planned expenditures, plans to visit Tombstone or the Bisbee Mining Museum, willingness to pay for the Lavender Pit Tour, and whether the group knew of the tour prior to arrival in Bisbee.

multiple regressions were run to determine the influence of tourist characteristics, planned activities, and differences in interview conditions on willingness to pay for the Queen Mine Tour; that is:

WP = f(A,C,Y,E,S,W,J,H,P,T,M,K,L,U,Q,B), where:

WP = willingness to pay for the Queen Mine Tour

A = number of adults in group

C = number of children in group

Y = income

E = education (group leader)

S = whether the group had an out-of-state member

W = whether the group came on a weekday

J = whether the group came on July 4th

H = amount of time the group planned to stay in Bisbee (hours)

P = expected expenditures in Bisbee (exclusive of tour)

T = whether the group planned to visit or had visited Tombstone

M = whether the group planned to visit the Bisbee Mining Museum

K = whether the group knew of the Queen Mine Tour before arriving in Bisbee

L = how much the group would be willing to pay for the Bisbee Lavender Pit Tour

U = whether prices were stated to the interviewee in a high-to-low fashion

Q = whether the questionnaire was written

B = whether the group was aware of price before the interview

Two regressions, employing different techniques, were run. The first regression (Table 2) excluded interviews where an individual failed to respond to a question, resulting in a sample size of 139. The second

Table 2. Willingness to pay for the Queen Mine Tour as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Adults in group	-.0843	.8406
Children in group	-.1075	1.0822
Income	.00002	4.2631**
Education	.3143	.5550
Arizona resident[a]	-.0554	.0569
July 4th interview[a]	-.5639	2.3292
Weekday interview[a]	-.2424	.9461
Planned stay (hours)	-.0072	1.1114
Planned Bisbee expenses	.0025	1.9638
Not planning to visit Tobmstone[a]	.1669	.4729
Planning to visit Bisbee Mining Museum[a]	.3172	2.1049
No previous knowledge of tour[a]	-.2858	.8070
Willingness to pay for Lavender Pit Tour	.1121	4.2943**
Interviewer progressed from high to low price[a]	.3802	2.5864
Interviewee was given written questionnaire[a]	-.5213	2.2772
Interviewee was unaware of tour price[a]	.4513	3.6864*
Y-intercept	3.5755	25.0247***

Mean willingness to pay = $4.64, R^2 = .2390.
F-significance = 2.3950***, adjusted R^2 = .1392.
[a]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

regression (Table 3) included all interviews, using a weighted average of the mean for each unanswered question. The sample size for the second method was 176. However, despite the larger sample size, the first regression technique is considered more reliable because the averaging technique distorts such important variables as income and length of stay.[1]

In both regressions, the tourist characteristic which was most significantly correlated with willingness to pay for the tour was income. As expected, income was positively correlated. Other tourist characteristics less significantly correlated include number of children, number of adults, state of residency, and education. These variables had the following influence on willingness to pay for the tour: (1) larger group size (adults and children in group) appears to be related to lower willingness to pay; (2) Arizona residents tend to state a lower willingness to pay, possibly indicating that those from out-of-state felt that this would be their only chance to participate; and (3) the educational level of the group leader had positive (Table 2) and negative (Table 3) impacts on willingness to pay. However, in all the above cases the F-significance level is less than the .10 level.

In both regressions the tourist variable most significantly correlated with willingness to pay for the Queen Mine Tour was

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1. The direction of the bias created by weighted averaging is not known a priori. This method assumes that the independent variable which was not measured in a given questionnaire is equal to its mean in cases where it was measured.

Table 3. Willingness to pay for the Queen Mine Tour as a function of the listed independent variables (all interviews at tour site).

Variable	Coefficient	F-significance
Adults in group	-.0468	.3042
Children in group	-.1269	1.6999
Income	.00002	6.7340***
Education	-.0073	.0400
Non-Arizona resident[a]	.1382	.4329
July 4th interview[a]	-.5337	2.7055*
Weekday interview[a]	-.1433	.4251
Planned stay (hours)	-.0073	1.6271
Planned Bisbee expenses	.0029	2.6615
Not planning to visit Tombstone[a]	.0395	.0309
Not planning to visit Bisbee Mining Museum[a]	-.2365	1.4505
Previous knowledge of tour[a]	.4454	2.6505
Willingness to pay for Lavender Pit Tour[a]	.1345	7.6647***
Interviewer progressed from low to high price[a]	-.2425	1.3225
Interviewee was given written questionnaire[a]	-.6957	4.5316**
Interviewee was unaware of tour price[a]	.4229	4.1438**
Y-intercept	3.9367	35.8427***

Mean willingness to pay = $4.59, R^2 = .2327.
F-significance = 2.5022***, adjusted R^2 = .1397.
[a]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

willingness to pay for the Lavender Pit Tour.[2] The correlation shows a positive relationship. Another important variable is the day the patron came to Bisbee. While tour visitors arriving on weekdays had no significant difference in their willingness to pay for the tour than those on weekends, July 4th arrivals had a lower willingness to pay which was significant at the .10 level (Table 3). July 4th patrons may have had a lower willingness to pay because of the availability of competing activities (coaster races, drilling contests). Other tourist variables related to planned activities and interests with less significant correlation to willingness to pay included planned stay, expected expenditures, whether a Tombstone visit was planned, whether a mining museum visit was planned, and whether the group knew of the Queen Mine Tour before coming to Bisbee. These variables had the following influence on tour patrons' willingness to pay: (1) length of planned stay was negatively correlated, indicating that those remaining in Bisbee for longer periods had other things attracting their attention (i.e., friends, shopping, sightseeing); (2) planned expenditures in Bisbee were positively correlated with how much the group was willing to pay for the tour; (3) planned Tombstone stops were negatively correlated, indicating Tombstone may compete with the Queen Mine Tour for tourists' time and money; (4) visits to the Bisbee Mining Museum were positively correlated, indicating a complementary relationship; and (5) knowledge of the Queen Mine Tour prior to arrival in Bisbee was positively

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1. The reader should note that the Lavender Pit Tour was not in operation during this period and, due to time and budget constraints, it has never run more than six tours a month in the last year.

correlated. None of these five variables had an F-significance as great as the .10 level in either regression.

Two factors measuring the impact of the method and timing of the interview were included in the regressions. It was anticipated that if the interviewer progressed from a high-to-low price the interviewee would indicate a higher willingness to pay than if the inverse method were used. The resulting coefficients support this contention, but the results were not statistically significant at the .10 level. However, those who took a written questionnaire rather than an oral interview indicated a lower willingness to pay than those who had an oral interview (where the interviewer states prices in a high to low fashion as indicated in Table 3). These results are based on a small sample that occurred over the time period July 4th to July 5th, when many visitors were hurrying to get into the tour before it was filled to capacity. Therefore, these results may not be directly attributable to the fact that the questionnaire was taken in written form. Finally, those who were aware of the price prior to the interview were theorized to be biased toward existing prices. Romm (1969) emphasized this tendency in his Whitney Point, New York, study. Data from the Queen Mine Tour patrons support his conclusion. Those who knew price prior to the interview stated a significantly lower willingness to pay than those who had no prior knowledge of the price.

Demand Curves

In order to determine the effect of pricing on patronage and profits at the Queen Mine Tour, a demand curve was derived. Fig. 16

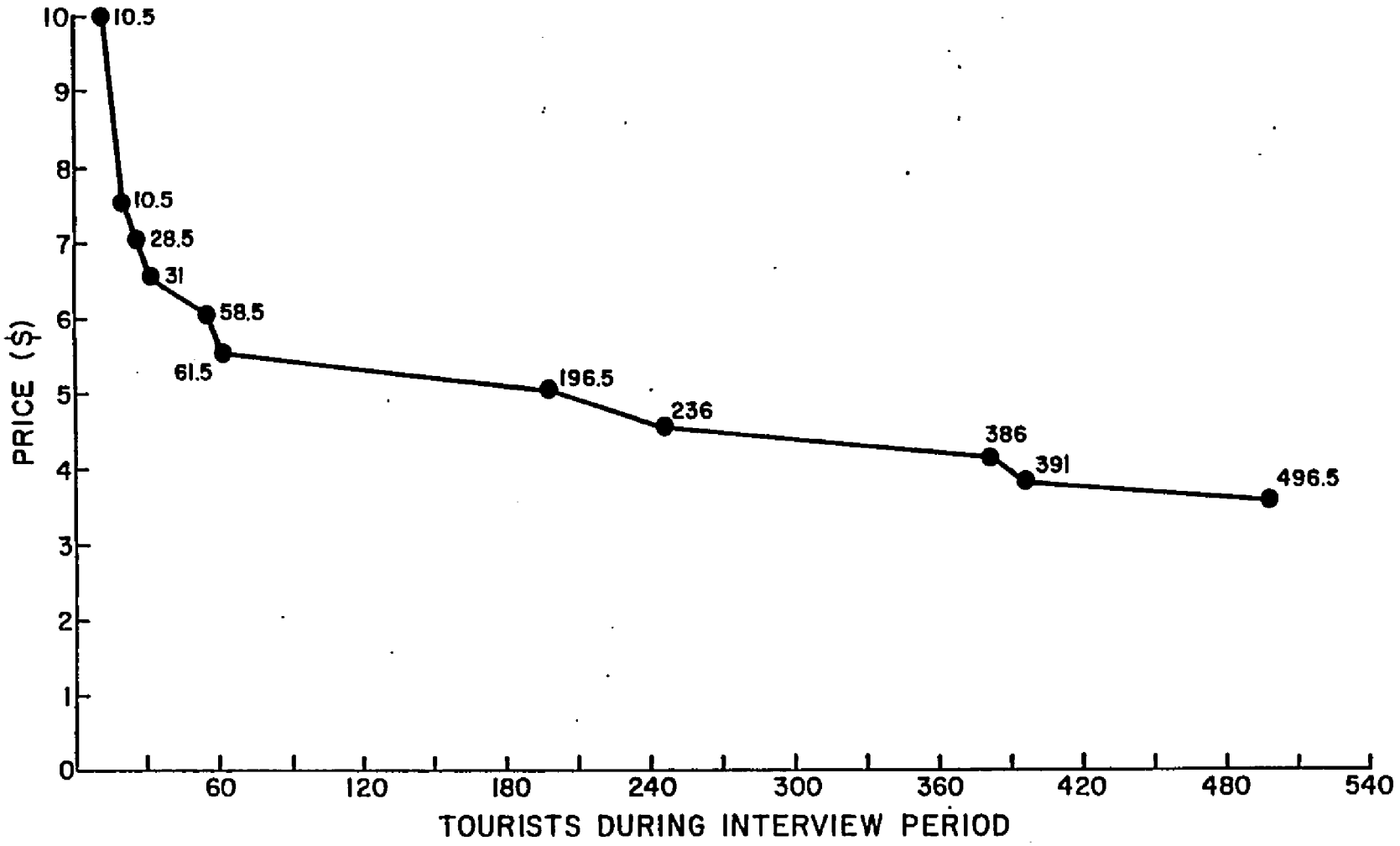

Fig. 16. Demand curve for all those visitors interviewed at the Queen Mine Tour.--Children under 12 are counted at .5 tour.

depicts the composite demand curve for all those interviewed at the Queen Mine Tour.[1] The demand curve represented is composed of several discrete points which are interconnected for display purposes only.[2]

In the previous section, regression coefficients indicated that the patrons' knowledge of the price prior to the interview resulted in a downward bias on their stated willingness to pay for the Queen Mine Tour.[3] The willingness to pay responses between those who knew and those who did not know the price prior to the interview are depicted in Fig. 17. To avoid bias toward existing prices, only those interviewees who were unaware of the price will be utilized in the formation of demand curves.[4]

In the first part of this chapter it was found that weekend and weekday usage did not alter a person's willingness to pay for the Queen

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1. Children between the ages of six and 12 are charged one-half the adult price of $3.50; therefore, each child is counted as one-half of a patron.

2. The demand curve represents the time interviewed. Extrapolating these figures on a monthly basis results in an increase in tourists of approximately 3.5 times those interviewed at each price level.

3. Groups obtained prior price knowledge in three ways. First, 29 groups of those interviewed had a member who was aware of the Queen Mine Tour price prior to arrival in Bisbee, usually as a result of a prior visit to Bisbee. Second, the price awareness of some other groups can be attributed to inquiries at local hotels and the Chamber of Commerce office. Finally, the primary method of obtaining price information prior to the interview was that people saw the price at the mine tour site.

4. Using log-log regression analysis where Q = f(WP), when WP = willingness to pay and Q = quantity of patrons, an elasticity of -3.76 is derived. This indicates that increases in tour price will result in decreases in revenue. However, this elasticity appears to be more appropriate for prices above $4.00, than between $3.50 and $4.00. Table 4 shows that $4.00 is the maximum revenue position.

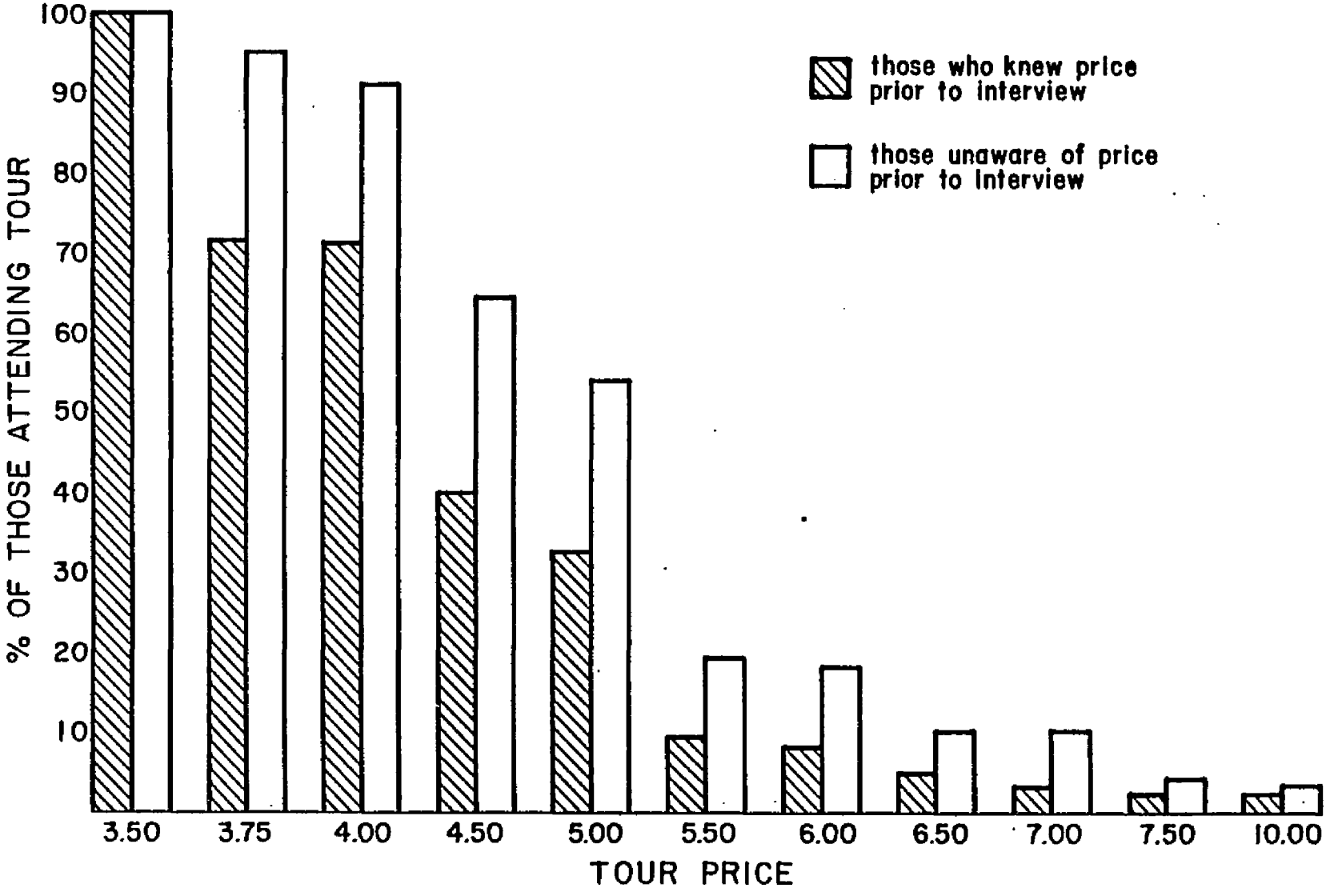

Fig. 17. Percentage of interviewees who would attend tour at each price level.--Children under 12 are counted as .5 tour.

Mine Tour. However, if weekend or weekday users have significant personal characteristics (e.g., income) which differ, weekend-weekday demand curves may not be identical. Therefore willingness to pay for the tour was examined with respect to the quantity of customers on weekends, weekdays, and July 4th. Table 4 (utilizing only the questionnaires of those who were unaware of prices at the time of the interview) depicts optimum revenue maximization prices for weekday ($3.75), weekend ($4.00), and July 4th ($3.50). The optimum revenue maximization price for the combined time periods is $4.00.[1]

The interviews conducted in this study occurred during the spring and summer months. It may be expected that the typical summer tourist may differ from the average winter tourist. A survey conducted in Tombstone (Wallace et al. (1980) compared the summer-winter differences of visitors there. Tombstone is only 22 miles from Bisbee, and the mine tour survey found that 76% of its patrons stopped in Tombstone. Therefore, it is expected that the summer-winter Tombstone visitor differences would be reflective of similar differences in Bisbee. The Tombstone study found that most groups in the summer consisted of three or more people, whereas in the winter they consisted primarily of less than three. The study indicates that the expenditures of winter visitors tend to be slightly higher than those of summer visitors. Additionally, Wallace et al. found that incomes of winter tourists tended

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1. The minor revenue differences between the days do not appear significant (Table 4). Results from utilizing all questionnaires regardless of whether price was known previously showed that maximum revenue was obtained at the same price regardless of the day of the survey.

Table 4. The impact of mine tour prices upon visitors and revenues over weekends, weekdays, and July 4th (excluding those who were aware of price prior to the interview).[a]

Tour Price	Visitors			Revenues				
	July 4th	Weekend	Weekday	July 4th	Weekend	Weekday	Total	Marginal
$10	0	2	3	0	$ 20.00	$ 30.00	$ 50.00	
$7.50	0	4	3	0	$ 30.00	$ 22.50	$ 52.50	+$ 2.50
$7	0	13	3	0	$ 91.00	$ 21.00	$112.00	+$ 49.50
$6	0	25	3	0	$150.00	$ 18.00	$168.00	+$ 56.00
$5.50	0	25	6	0	$137.50	$ 33.00	$170.50	+$ 2.50
$5	9	44.5	32.5	$45.00	$222.50	$162.50	$430.00	+$259.50
$4.50	18.5	44.5	39	$81.00	$200.25	$175.50	$456.75	+$ 26.75
$4	20.5	71	53.5	$82.00	$284.00[b]	$214.00	$580.00[b]	+$123.25
$3.75	20.5	71	58.5	$76.88	$266.25	$219.37[b]	$562.50	-$ 17.50
$3.50	23.5	76.5	58.5	$82.25[b]	$267.75	$204.75	$554.75	-$ 7.75

[a]children under 12 are counted as ½ tour.
[b]indicates revenue maximizing price.

to be slightly lower than their summer counterparts. Referring to Table 2 (willingness to pay), it appears that the effect of these different characteristics may be countervailing. Smaller winter groups and higher expenditures may indicate a higher willingness to pay at the mine tour, but lower incomes would indicate the inverse. As a consequence, there is no conclusive evidence to suggest that winter mine tour demand will differ from that experienced in the summer months. Therefore, it would appear unnecessary to determine separate optimal entrance fees for the summer and winter tourist seasons.

Costs

It is necessary to derive cost functions in order to determine optimum pricing from the landmark owner's perspective. Short run costs for the Bisbee mine tour consist of wages, utilities, and insurance. In the long run, additional costs may be incurred if the facility is expanded (more railcars, expanding underground tunnels).

Theoretically, short run costs can be divided into fixed and variable. The Bisbee Queen Mine Tour has a fixed annual insurance cost of $6800.[1] However, insurance costs are based on the previous year's (1979) gross receipts (at a rate of 8%). Therefore, while insurance is fixed during a given year, the gross receipts of that year are a factor in determining insurance costs of the next year. Variable costs are a function of how many tours are conducted. Currently there are four tours a day for seven days a week. In May 1980, total variable costs

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1. Recently insurance has been increased by approximately $2100 due to increased liability coverage.

120 tours was $3,837.20 ($15.16 telephone, $21.56 water, $3,800.48 wages), or $31.95 per tour.[1]

One method of deriving variable and marginal costs with respect to quantity of tour visitors would be to assign the cost of each tour to the tour's first patron. Since tour capacity is 30 people, marginal cost would be $31.98 for the first person, zero for the next 29 customers, and $31.98 for the 31st patron (this pattern would continue with every 30th patron being assigned a tour cost). Average variable cost falls from $31.98 for the first patron to $1.06 for the 30th, and then rises with the 31st patron to $2.06. This pattern will continue with each successive rise becoming smaller within the relevant range of patrons.

However, there are two reasons why this method of assigning variable cost to the first tour patrons is not appropriate for the Bisbee Queen Mine Tour. First, tours must leave at designated times. Therefore, the quantity of tour patrons varies with each tour. Second, to determine optimal pricing strategies, costs and demand need to be measured on a per tour basis. However, data gathering constraints prevent the measurement to demand on a per tour basis.

To overcome the above problems, this study will examine average variable and marginal cost with respect to quantity of patrons on an average customers per tour basis. In May 1980, there were 120 tours and

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1. Demand curves indicate that lowering price will have little impact on attendance, and current maintenance duties are performed by the tour guides. Therefore it is assumed that price changes will have very little impact upon maintenance costs.

1,866 patrons, an average of 13 visitors per tour. Average variable cost is declining throughout the relevant range of potential customers. The first and every 13th person thereafter will be assumed responsible for the tour costs. The marginal cost for these patrons will be $31.98 whereas the marginal cost is zero for all other customers. Therefore, this study will treat marginal cost as zero within the quantity of visitors currently attending.

Single Period Optimal Pricing Strategies

Chapter 3 indicated that optimal pricing policy will vary according to the goals of the historic landmark owner. This section will examine pricing policy from the viewpoints of the profit maximizer and the cost covered, since these pricing strategies appear to most closely represent the objectives of landmark owners. Chapter 3 examined the theory of target profits and subsidies. These are not empirically evaluated in the present chapter because there was no set target profits or subsidy specifications to work toward. However, it should be noted that the target profit price would fall somewhere between the cost coverer's price and the profit maximizer's price, whereas if the landmark was subsidized, the price would be lower than that of the cost covered. Additionally, Chapter 3 examined how congestion might affect pricing policy. However, the Bisbee Queen Mine Tour has a capacity of only 30 customers. Furthermore, most customers had not been on the tour and were unable to anticipate congestion effects. Therefore, a congestion pricing strategy was not analyzed with respect to the Queen Mine Tour. Finally, Chapter 3 indicated that goals for public entities may include

lower taxes (such that the profit maximization model would be appropriate) or maximizing total community income. The latter goal will be discussed in the conclusion.

Costs will be assumed fixed in the short run as was emphasized in the previous section. The bias upon the demand curve created by knowing the prices prior to the interview will be eliminated by utilizing only the questionnaires of those who did not know price beforehand.

The Profit Maximizer

The Queen Mine Tour owners, acting as profit maximizers, would select the quantity of visitors where marginal revenue equals marginal costs. Since marginal costs are zero, the landmark owners will pick a price where the demand curve has unitary price elasticity (i.e., revenues are maximized). Table 4 provides the tour attendance and revenues at each price. The short run profit maximizing price would be $4.00,[1] and 145 of those interviewed would participate in the tour at this price.

The Cost Coverer

The Queen Mine Tour owner acting as a cost covered would desire to operate at the point where average cost is equal to average revenue. As discussed previously, the average cost curve continually declines

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1. The reader should not that the analysis is restricted to those interviewed who were not aware of the Queen Mine Tour price before the interview. Using all questionnaires, regardless of whether the interviewees were aware of the cost prior to the interview, results in a profit maximizing price of $3.50.

from the y-intercept in the relevant range of tour visitors. To determine the price the cost coverer would charge at the Queen Mine Tour, monthly costs could be divided by expected attendance. For example, during the month of May, 1,806 patrons visited the tour. Costs, including insurance for the month, were $4,403.87. Therefore, the cost covering price would be $2.44. This price can be expected to be the maximum price required to cover costs.[1] However, utilizing the year's averages, which include the winter months of higher utilities and frequently lower customers, the cost covering price would be $3.01.

Multiperiod Pricing

In Chapter 3, theoretical models were constructed which demonstrated that the current landmark profit maximizing price may not be the price that maximizes profits over the long run. More specifically, if: (1) a high (low) current price causes patrons to be less (more) willing to recommend the tour or return to the tour; or (2) those individuals who toured the landmark are more willing to recommend the town or tour than those who did not participate, then the price that maximizes long run profits would be less than the optimal price for short run profit maximization.

To determine if current tour attendance or prices affect future tourist levels, the following four multiple linear regressions were run:

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1. The survey showed that at landmark prices lower than the existing price of $3.50, there would be little change in total visitors (of the 158.5 visitors interviewed who did not know prices prior to the interview).

(1) R = f(WP,A,C,Y,S,E,W,J,H,CS,Z,M,T)

(2) RT = f(WP,A,C,Y,S,E,W,J,H,CS,Z,M,T)

(3) R = f(D,A,C,Y,S,E,W,J,H,CS,Z,M,T)

(4) RT = f(D,A,C,Y,S,E,W,J,H,CS,Z,M,T), where:

R = level of recommendation (1 = wouldn't recommend; 2 = would probably not recommend; 3 = probably would recommend; 4 = would recommend)

RT = level of desire to return (1 = won't return; 2 = probably won't return; 3 = probably will return; 4 = will return)

WP = willingness to pay minus cost of the mine tour

D = whether the patron went on the tour

A = quantity of adults in group

C = quantity of children in group

Y = income

S = whether tourist was from Arizona

E = education (years)

W = whether the interview occurred on a weekday

J = whether the interview occured on July 4th

H = hours of length of stay

CS = hours of change in stay from planned

Z = actual Bisbee expenditures

M = whether the tourist went to the mining museum

T = whether the tourist visited Tombstone

Regressions were run two different ways on (1) and (2) in order to determine the impact of price and attendance on tour patrons' recommendations and decisions to return to Bisbee. First, only the responses of those who did not know the price prior to the interview

were included in the regressions (Tables 6 and 9). Second, regressions (Tables 5 and 8) utilizing all tour customers with complete questionnaires were run. The latter regression is considered more reliable because the sample size is larger (86 as compared with 27). Additionally, tour price knowledge prior to the interview was shown not to influence willingness to pay for those who mailed back questionnaires. Therefore, utilizing all respondents who returned questionnaires will not bias the results.[1]

Variables Influencing Tourists' Recommendations of Bisbee

The price of the Queen Mine Tour was found to have a positive but insignificant effect upon tourists' recommendations of Bisbee. Tour patrons who had a higher willingness to pay for the tour did not exhibit a tendency to more highly recommend Bisbee than others with a lower willingness to pay (Tables 5 and 6). Additionally, tourists who participated in the tour did not recommend Bisbee more highly than those who did not participate (Table 7).

The results of the regressions measuring the influence of tour patrons' characteristics and planned activities on their recommendation of Bisbee are provided in Tables 5 through 7. Those variables which were significant at the .10 level and negatively correlated to a tour

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1. The results from utilizing a weighted averaging technique for unknown independent variables in a regression are not presented. While this method increases the usable sample size, the proportionately larger numbers of important variables which would have to be averaged will distort the results. Regressions utilizing this method showed that mine tour attendance and tour price have no significant impact on consumer recommendations and return decisions.

Table 5. Intensity of tour visitors' recommendations of Bisbee[a] as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Willingness to pay minus the actual price of the Queen Mine Tour	.0586	1.8345
Income	-.000007	1.9358
Adults in group	.0532	1.3680
Children in group	-.1028	3.0187*
Arizona resident[b]	-.0279	.0574
Education	.0078	.1180
July 4th interview[b]	.2562	1.9417
Weekday interview[b]	-.0993	.6750
Length of stay (hours)	.0045	1.7090
Change in stay from planned (hours)	.0055	.2882
Actual Bisbee expenditures	.0009	1.4433
Went to Bisbee Mining Museum[b]	.0383	.1226
Did not stop in Tombstone[b]	-.2649	4.9449**
Y-intercept	3.5599	96.9316***

Mean level of recommendation = 3.686, R^2 = .2408.
F-significance = 1.7568*, adjusted R^2 = .1037.
[a]intensity measured by: 1 = wouldn't recommend, 2 = probably would not recommend, 3 = probably would recommend, 4 = would recommend.
[b]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table 6. Intensity of tour visitors' recommendations of Bisbee[a] as a function of the listed independent variables (excluding those who knew price prior to the interview and incomplete questionnaires).

Variable	Coefficient	F-significance
Willingness to pay minus actual price of the Queen Mine Tour	.0318	.0916
Income	-.00003	5.5256**
Adults in group	.0634	.4617
Children in group	-.0961	.5615
Arizona resident[b]	-.2479	1.3200
Education	.0356	.3825
July 4th interview[b]	.3740	.4719
Weekday interview[b]	.2666	1.4227
Length of stay (hours)	.0105	1.3023
Change in stay from planned (hours)	-.0445	.2180
Actual Bisbee expenditures	.0041	1.4828
Went to Bisbee Mining Museum[b]	.2177	.9992
Stopped in Tombstone[b]	-.1265	.2258
Y-intercept	3.3654	24.6050***

Mean level of recommendation = 3.667, R^2 = .6337.
F-significance = 1.7302, adjusted R^2 = .2675.
[a]intensity measured by: 1 = wouldn't recommend, 2 = probably would not recommend, 3 = probably would recommend, 4 = would recommend.
[b]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table 7. Intensity of tourists' recommendations of Bisbee[a] as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Did not attend Queen Mine Tour[b]	-.1415	1.1759
Income	-.000001	.0734
Adults in group	.3076	.4919
Children in group	-.1159	5.8142**
Arizona resident[b]	.0800	.5535
Education	-.0137	.5654
July 4th interview[b]	.1870	.9941
Weekday interview[b]	-.1245	1.1445
Length of stay (hours)	-.0006	.0623
Change in stay from planned (hours)	.0019	.0385
Actual Bisbee expenditures	.0017	4.7726**
Did not go to Bisbee Mining Museum[b]	-.0476	.2115
Did not stop in Tombstone[b]	-.1368	1.4753
Y-intercept	3.8813	171.49074***

Mean level of recommendation = 3.646, R^2 = .1733.
F-significance = 1.5973*, adjusted R^2 = .0648.
[a]intensity measured by: 1 = wouldn't recommend, 2 = probably would not recommend, 3 = probably would recommend, 4 = would recommend.
[b]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table 8. Plans of tour visitors to return to Bisbee[a] as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Willingness to pay minus actual price of Queen Mine Tour	-.0003	.00002
Income	.00001	2.9351*
Adults in group	.0457	.4340
Children in group	-.1307	2.0991
Arizona resident[b]	-.0218	.0151
Education	-.0241	.4836
July 4th interview[b]	.1738	.3840
Weekday interview[b]	-.3879	4.4270**
Length of stay (hours)	.0026	.2412
Change in stay from planned (hours)	.0096	.3751
Actual Bisbee expenditures	.0019	1.0096
Went to Bisbee Mining Museum[b]	.3094	3.4360*
Did not stop in Tombstone[b]	-.0507	.0778
Y-intercept	3.0019	29.6341***

Mean desire to return = 3.163, R^2 = .2406.
F-significance = 1.7549*, adjusted R^2 = .1035.
[a]plans to return measured by: 1 won't return, 2 = probably won't return, 3 = probably will return, 4 = will return.
[b]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table 9. Plans of tour visitors to return to Bisbee[a] as a function of the listed independent variables (excluding those who knew price prior to interview and incomplete questionnaires).

Variable	Coefficient	F-significance
Willingness to pay minus actual price of Queen Mine Tour	0.0090	.0036
Income	-.00002	1.7950
Adults in group	-.0485	.1350
Children in group	-.2844	2.4639
Arizona resident[b]	-.3993	1.7148
Education	.0629	.5961
July 4th interview[b]	1.3213	2.9484
Weekday interview[b]	.2713	.7376
Length of stay (hours)	.0045	.1218
Change in stay from planned (hours)	-.0218	.0261
Actual Bisbee expenditures	.0120	6.2410**
Went to Bisbee Mining Museum[b]	.0538	.0306
Stopped in Tombstone[b]	.2797	.5523
Y-intercept	2.4896	6.7394**

Mean desire to return = 3.148, R^2 = .6725.
F-significance = 2.0535, adjusted R^2 = .3450
[a]plans to return measured by: 1 = won't return, 2 = probably won't return, 3 = probably will return, 4 = will return
[b]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

patron's recommendation were number of children in the group and if the group did not stop in Tombstone (Table 5). Additionally, the regression (Table 6) utilizing only those who were unaware of price prior to the interview indicates that income is negatively correlated with recommendations of Bisbee at the .10 level of significance.

The significant (.10 level) independent variables affecting Bisbee recommendations by all tourists were their expenditures in Bisbee, and number of children in a group (Table 8). Children were negatively correlated with recommendations, whereas expenditures exhibited a positive correlation with recommendations.

Variables Influencing Tourists' Decision to Return to Bisbee

The price of the Queen Mine Tour was found to have an insignificant effect upon tourists' plans to return to Bisbee. Tour patrons who had a higher willingness to pay for the tour did not exhibit a tendency to plan to return to Bisbee more than others with a lower willingness to pay. Additionally, tourists who participated in the tour did not exhibit more desire to return to Bisbee than those who did not participate. In both cases, the coefficients indicate that higher tour prices would lead to less likelihood of returning to Bisbee, but the results were insignificant.

The results of the regressions measuring the influence of tourist characteristics and planned activities on their desires to return to Bisbee are provided in Tables 8 through 10. Table 8 shows that those variables which are positively correlated (at the .10 level

Table 10. Plans of tourists to return to Bisbee[a] as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Did not attend Queen Mine Tour[b]	.1420	.6147
Income	.00001	4.0558**
Adults in group	.0023	.0014
Children in group	-.1979	8.8048***
Arizona resident[b]	.1949	1.7050
Education	.0218	.7415
July 4th interview[b]	.0658	.0638
Weekday interview[b]	-.3357	4.3183**
Length of stay (hours)	.0016	.2540
Change in stay from planned (hours)	.0162	1.4201
Actual Bisbee expenditures	.0014	1.6902
Did not go to Bisbee Mining Museum[b]	-.2472	2.9617*
Did not stop in Tombstone[b]	.1035	.4387
Y-intercept	2.6462	41.3797***

Mean level of plans to return = 3.1770, R^2 = .2392.
F-significance = 2.3943***, adjusted R^2 = .1393.
[a]plans to return measured by: 1 = won't return, 2 = probably won't return, 3 = probably will return, 4 = will return.
[b]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

of significance) to tour customers' willingness to return to Bisbee are income and attendance at the Bisbee Mining Museum. Weekday visitors are negatively correlated to willingness to return to Bisbee. When regression (Table 9) data is restricted to those tour participants who were unaware of price before the interview, the tourists' Bisbee expenditures are positively correlated with plans to return to Bisbee.

The significant (.10 level) independent variables affecting tourists' decision to revisit Bisbee were number of children in the group, weekday arrivals, visiting the Bisbee mining museum, and income. Income and visiting the museum were positively correlated with the decision to return, whereas the quantity of children in the group and weekday visitation are negatively correlated.

Implications

In Chapter 3, the hypothesis was developed that current landmark pricing will affect future tourism at the landmark and in the community. In this case, the regression results show that future tourism in Bisbee is not sensitive to current Queen Mine Tour pricing or attendance. The results do not support the theory that current landmark pricing influences future community tourism. However, this does not support the conclusion that in the majority of instances the theory is false. In the Bisbee case it is probable that other attractions exist which have positive impacts on tourists' impressions. Therefore tour attendance will not alter the generally positive Bisbee experience. The multiperiod, then, need not be considered in the pricing decision of the Queen Mine Tour.

Single Period Landmark Pricing Impacts on Local Tourist Spending

The pricing of historical landmarks may have ramifications that go beyond impacts on the landmark owner. These include effects on tourists' activities within the community and, therefore, the community itself. In Chapter 3, theoretical models were constructed which demonstrated that pricing at the landmark may affect tourist spending in the community in three ways. First, tourists who patronize the tour may feel that if tour costs are low compared with their willingness to pay, they would be apt to spend more in the community. Second, tourists who are excluded from the tour because of price may spend more or less in the community as a result. Third, price may deter tourists from coming to the community at all if their primary interest was the tour.

This section analyzes the above relationships.[1] Part one examines the effect of tour price on tourist lodging expenditures. The second portion analyzes the effect of tour price on food and drink expenditures. Part three estimated the impact of tour price on craft

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1. The reader should note that regressions comparing the patrons' willingness to pay for the tour with actual and changes in planned expenditures were run in two ways. First, tour participants who responded to all questions were included. The second is a subset of the first, where regression data is restricted to those who were not aware of price prior to the interview. The first regression technique is considered more reliable because sample size is larger (86 as compared with 27). Additionally, the former method should not be biased as a result of including questionnaires of those who knew price prior to the interview. Restriction of data to those who returned questionnaires, shows that previous knowledge of tour price was not a significant factor with respect to willingness to pay for the tour. However, Appendix B shows the impact of willingness to pay minus tour price on Bisbee expenditures for those who were unaware of price prior to the interview.

and souvenir expenditures. Finally, the relation of tour price to tourists' attraction to the community is discussed.

Effect of Tour Price on Lodging Expenditures

Four linear regressions were run to test the hypothesis that landmark price affects tourist lodging expenditures in Bisbee. That is:

(1) L = f(D,Y,A,C,S,W,J,H,M,E)

(2) L = f(WP,Y,A,C,S,W,J,H,M,E,)

(3) CL = f(D,Y,A,C,S,PL,W,J,CS,M)

(4) CL = f(WP,Y,A,C,S,PL,W,J,CS,M), where:

L = actual lodging expenditures

CL = change in lodging expenditures (represented by expected minus actual lodging expenditures)

WP = willingness to pay minus cost for the mine tour (savings)

D = whether the tourist went on the Queen Mine Tour

PL = planned lodging expenditures

Y = income

A = adults in group

C = children in group

S = whether the groups were from Arizona

W = whether the group came on a weekday

J = whether the group came on July 4th

CS = changes in stay (represented by planned stay minus actual stay)

H = hours of actual stay

M = whether the group went to the mining museum

E = education (group leader)

Influence of Tour Price on Tourists' Total Lodging Expenditures

The correlations of the independent variables with tourists' lodging expenditures are presented on Tables 11 and 12. Regression results show that actual tourist lodging expenditures were not affected by landmark price or attendance. The coefficients indicate that tour attendance (Table 11) and greater differences between the tour patrons' willingness to pay and tour price (Table 12) were correlated with larger expenditures for lodging, but the results were not significant at the .10 level. Therefore there is insufficient evidence that tour price affects total lodging expenditures.[1]

Influence of Tour Price on Tourists' Changes in Lodging Expenditures

Independent variables which are correlated to tourists' changes in lodging expenditures are presented on Tables 13 and 14. The regression results (Table 13) show that attendance at the mine tour has no impact on changing tourists' planned lodging expenditures. However, the difference between tour patrons' willingness to pay and the price of the Queen Mine Tour appears to influence the customer to change his lodging expenditures (Table 14).[2] More specifically, if tour price increases

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1. Regression results utilizing only tour patrons who had not known the price of the tour prior to the interview indicate that actual lodging expenditures are not sensitive to changes in tour price (see Appendix B).

2. The conclusion that tour price influences tour patrons to alter lodging expenditures is supported by regressions run utilizing only tour patrons who were unaware of price at the time of the interview (see Appendix B). Additionally, regressions which utilized all respondents by weighting the mean of those independent variables which were not answered, support this conclusion.

Table 11. Tourists' actual lodging expenditures as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Did not attend Queen Mine Tour[a]	-3.9404	.9590
Income	.0003	6.7280**
Adults in group	-.2298	.0279
Children in group	-1.0734	.5045
Arizona resident[a]	7.2458	4.8018**
July 4th interview[a]	-6.0290	1.0863
Weekday interview[a]	-4.4548	1.4879
Length of stay (hours)	.3131	22.9768***
Did not attend Bisbee Mining Museum[a]	-3.9167	1.5048
Education	.3226	.3233
Y-intercept	-8.1332	.8106

Mean lodging expenditure = $7.58, R = .3126.
F-significance = 4.6383***, adjusted R^2 = .2452.
[a]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table 12. Tour patrons' actual lodging expenditures as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Willingness to pay minus actual price of Queen Mine Tour	.7485	.2558
Income	.0001	.3389
Adults in group	.3911	.0622
Children in group	-1.1791	.3337
Arizona resident[a]	6.3342	2.5988
July 4th interview[a]	-5.4243	.7507
Weekday interview[a]	-2.4382	.3408
Length of stay (hours)	.5957	33.1684***
Did not attend Bisbee Mining Museum[a]	-3.4860	.8469
Education	1.3677	3.2515
Y-intercept	-24.2262	4.3650**

Mean lodging expenditure = $8.92, R^2 = .4170.
F-significance = 5.3647***, adjusted R^2 = .3393.
[a]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table 13. Tourists' changes in planned lodging expenditures[a] as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Did not attend Queen Mine Tour[b]	-.4476	.0452
Income	-.00005	.5499
Adults in group	1.5315	4.8220**
Children in group	.3413	.1927
Arizona resident[b]	-1.8374	1.2173
Planned lodging expenditures	.1200	6.6215**
July 4th interview[b]	-.3646	.0147
Weekday interview[b]	-.0455	.0006
Change in stay from planned (hours)	1.0754	45.9066***
Did not go to Bisbee Mining Museum[b]	.5303	.1026
Y-intercept	-3.4660	1.4884

Mean change in lodging expenditures = $.17, R^2 = .4225.
F-significance = 7.4629***, adjusted R^2 = .3659.
[a]changes in lodging expenditures measured as planned minus actual expenditures.
[b]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table 14. Tour visitors' changes in planned lodging expenditures[a] as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Willingness to pay minus actual price of Queen Mine Tour	-1.8162	5.1342**
Income	-.00003	.1505
Adults in group	1.5490	3.5225*
Children in group	-.0168	.0002
Arizona resident[b]	-1.6220	.5917
Planned lodging expenditures	.1199	5.2732**
July 4th interview[b]	-2.6675	.6364
Weekday interview[b]	.1442	.0043
Change in stay from planned (hours)	1.2017	42.5328***
Went to Bisbee Mining Museum[b]	.6258	.0935
Y-intercept	-1.3857	.1387

Mean change in lodging expenditures = -.2209, R^2 = .5153.
F-significance = 8.0058***, adjusted R^2 = .4580.
[a]changes in lodging expenditures measured as planned minus actual expenditures.
[b]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

(decreases) groups of tour customers will decrease (increase) their lodging purchases by 1.8 times the change in tour price.[1]

Examination of Bisbee's motel system shows that this is possible. Bisbee has several motels with differing lodging rates. The Copper Queen Hotel (which is popular among tour patrons) has double occupancy rates at two dollar intervals from $22 to $34 per room. Therefore, tourists can increase the quality of their motel room at a given occupancy level in response to a perceived savings in tour price.

Effect of Tour Price on Food and Drink Expenditures

Four linear regressions were run to test the hypothesis that landmark price affects tourist food and drink expenditures in Bisbee. That is:

(1) F = f(D,Y,A,C,S,W,J,H,M,E)

(2) F = f(WP,Y,A,C,S,W,J,H,M,E)

(3) CF = f(D,Y,A,C,S,PF,W,J,CS,M)

(4) CF = f(WP,Y,A,C,S,PF,W,J,CS,M), where:

F = actual food and drink expenditures

CF = changes in food and drink expenditures (represented by expected minus actual food and drink expenditures)

WP = willingness to pay minus cost for the mine tour (savings)

D = whether the tourist went on the Queen Mine Tour

PF = planned food and drink expenditures

Y = income

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1. The 95% confidence interval for a group of patrons' change in lodging expenditures resulting from a change in tour price is from $.22 to $3.41.

A = adults in group

C = children in group

S = whether the groups were from Arizona

W = whether the group came on a weekday

J = whether the group came on July 4th

CS = changes in stay (represented by planned stay minus actual stay)

H = hours of actual stay

M = whether the group went to the mining museum

E = education (group leader)

Influence of Tour Price on Tourists' Total Food and Drink Expenditures

The correlation of the independent variables with actual food and drink expenditures are presented in Tables 15 and 16. Regression results show that actual tourist food and drink expenditures may be affected by landmark price and attendance. Those who attend the Queen Mine Tour may have higher food and drink expenditures than those who do not (Table 15). The conclusion is supported at the .108 significance level. Additionally, those who have higher willingness to pay minus tour price differences spend more for food and drink (Table 16). Tests show that this conclusion is supported at the .046 level of significance.[1] However, the reader should note that higher differences between willingness to pay and tour price are correlated with higher planned food and drink expenditures. There is no reason to assume that higher willingness to pay for the tour

1. Regression results utilizing only tour patrons who had not known the price of the tour prior to the interview indicate that actual food and drink expenditures are not sensitive to changes in tour price (see Appendix B).

Table 15. Tourists' actual food and drink expenditures as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Did not attend Queen Mine Tour[a]	-7.5805	2.6229
Income	.0004	8.5992***
Adults in group	-1.1529	.5189
Children in group	.3967	.0509
Arizona resident[a]	10.1084	6.9065***
July 4th interview[a]	-3.7171	.3052
Weekday interview[a]	-3.4637	.6647
Length of stay (hours)	.4945	42.3621***
Did not attend Bisbee Mining Museum[a]	2.2060	.3528
Education	.2742	.1725
Y-intercept	-5.6791	.2921

Mean food and drink expenditure = $17.10, R^2 = .4137.
F-significance = 7.1964***, adjusted R^2 = .3562.
[a]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table 16. Tour patrons' actual food and drink expenditures as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Willingness to pay minus actual price of Queen Mine Tour	3.1767	4.1356**
Income	.00003	.0385
Adults in group	-.1256	.0058
Children in group	1.1191	.2698
Arizona resident[a]	7.1709	2.9899*
July 4th interview[a]	1.0394	.0247
Weekday interview[a]	.4289	.0095
Length of stay (hours)	.8526	60.9931***
Did not attend Bisbee Mining Museum[a]	4.3645	1.1917
Education	.9646	1.4519
Y-intercept	-18.7288	2.3417

Mean food and drink expenditure = $19.06, R^2 = .5450.
F-significance = 8.9842***, adjusted R^2 = .4844.
[a]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

causes both higher planned and actual payments for food and drink. Instead, it appears that the Bisbee expenditure plans of tour patrons may be influential in willingness to spend more for the tour and plans to spend more on food and drink.

Influence of Tour Price on Tourists' Changes in Planned Food and Drink Expenditures

Independent variables which were correlated with tourists' changes in food and drink expenditures are presented in Tables 17 and 18. The regression results (Table 17) indicate that attendance at the mine tour does influence tourists to change their planned food and drink expenditures; more specifically, a tourist's attendance at the Queen Mine Tour is correlated with higher expenditures for food and drink than was originally planned. The increase attributable to mine tour attendance is $5.03.[1] Regression results (Table 18) show that there is no significant correlation between the amount a tour patron saves (willingness to pay minus tour price) and a change in food and drink expenditures from planned.[2] In conclusion, higher tour prices which deter potential customers can be expected to reduce food and drink expenditures, although the price will not affect expenditures of tour patrons.

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1. The 95% confidence interval for tourists' change in food and drink expenditures is from -$.39 to $10.42. It is significant at the .10 level. Additionally, data using all questionnaires and a weighted average of missing independent variables found this at the .11 level of confidence.

2. Regressions utilizing data only from those who were not aware of tour price at the time of the interview support the conclusion that there is no correlation between changes in food and drink expenditures and the difference between a customer's willingness to pay for the tour and tour price (Appendix B).

Effect of Tour Price on Craft and Souvenir Expenditures

Four linear regressions were run to test the hypothesis that landmark price affects tourists' crafts and souvenir expenditures in Bisbee. That is:

(1) C = f(D,Y,A,C,S,W,J,H,M,E)

(2) C = f(WP,Y,A,C,S,W,J,H,M,E)

(3) CC = f(D,Y,A,C,S,PC,W,J,CS,M)

(4) CC = f(WP,Y,A,C,S,PC,W,J,CS,M), where:

C = actual craft and souvenir expenditures

CC = change in craft and souvenir expenditures (represented by expected minus actual crafts and souvenir expenditures)

WP = willingness to pay minus cost for the mine tour (savings)

D = whether the tourists went on the Queen Mine Tour

PC = planned craft and souvenir expenditures

Y = income

A = adults in group

C = children in group

S = whether the groups were from Arizona

W = whether the group came on a weekday

J = whether the group came on July 4th

CS = changes in stay (represented by planned stay minus actual stay)

H = hours of actual stay

M = whether the group went to the mining museum

E = education of group leader

Table 17. Tourists' changes in planned food and drink expenditures[a] as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Did not attend Queen Mine Tour[b]	5.0277	3.4511*
Income	-.0002	4.0617**
Adults in group	2.9129	10.5205***
Children in group	-.8831	.7789
Arizona resident[b]	.8188	.1423
Planned food and drink expenditures	.1210	6.4724
July 4th interview[b]	1.1300	.0858
Weekday interview[b]	.5021	.0443
Change in stay from planned (hours)	.3482	2.9750*
Did not go to Bisbee Mining Museum[b]	-1.6955	.6405
Y-intercept	-7.1951	3.8572*

Mean change in food and drink expenditures = -$1.14, R^2 = .2217.
F-significance = 2.9059***, adjusted R^2 = .1454.
[a]changes in food and drink expenditures measured as planned minus actual expenditures.
[b]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table 18. Tour visitors' changes in planned food and drink expenditures[a] as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Willingness to pay minus actual price of Queen Mine Tour	-.5535	.2978
Income	-.0001	.9686
Adults in group	3.2447	9.6865***
Children in group	-1.0536	.6066
Out-of-state resident[b]	-1.7147	.4092
Planned food and drink expenditures	.0853	2.2260
July 4th interview[b]	.6346	.0229
Weekday interview[b]	.9461	.1189
Change in stay from planned (hours)	.3437	2.2089
Went to Bisbee Mining Museum[b]	3.3444	1.7123
Y-intercept	-8.0417	1.5132

Mean change in food and drink expenditures = -2.2441, R^2 = .2091.
F-significance = 1.9833**, adjusted R^2 = .1037.
[a]changes in food and drink expenditures are measured as planned minus actual expenditures.
[b]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Influence of Tour Price on Tourists' Total Craft and Souvenir Expenditures

The correlation of tourists' craft and souvenir expenditures with measured independent variables is presented in Tables 19 and 20. The coefficients for tour attendance (Table 19) and differences between tour patrons' willingness to pay and tour price (Table 20) indicate a positive correlation with expenditures for crafts and souvenirs. However, the results are not significant at the .10 level. Therefore, there is insufficient evidence that tour price affects total craft and souvenir expenditures.[1]

Influence of Tour Price on Tourists' Changes in Craft and Souvenir Expenditures

Tourist changes in craft and souvenir expenditures were analyzed as a function of the independent variables presented in Tables 21 and 22. The coefficient representing the relationship of attendance at the Queen Mine Tour and changes in craft and souvenir expenditures indicates that mine tour attendance contributed to higher craft and souvenir expenditures than originally planned (Table 21). However, the F-significance test shows that this is not significant. Regression results (Table 22) show that there is no significant correlation between the amount a tour

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1. Regression results utilizing only tour patrons who had not known the price of the tour prior to the interview indicate that actual crafts and souvenirs expenditures are not sensitive to change in tour price (see Appendix B).

Table 19. Tourists' actual craft and souvenir expenditures as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Did not attend Queen Mine Tour[a]	-3.9083	.0893
Income	.0005	1.3132
Adults in group	.3484	.0061
Children in group	5.7578	1.3741
Arizona resident[a]	10.3117	.9206
July 4th interview[a]	14.4299	.5890
Weekday interview[a]	15.9282	1.8006
Length of stay (hours)	.3220	2.3003
Did not attend Bisbee Mining Museum[a]	2.5633	.0610
Education	.2517	.0186
Y-intercept	-26.0733	.7886

Mean craft and souvenir expenditure = \$10.38, R^2 = .09.
F-significance = 1.0096, adjusted R^2 = .0009.
[a]dummy variable
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table 20. Tour patrons' actual craft and souvenir expenditures as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Willingness to pay minus actual price of Queen Mine Tour	2.4005	.1991
Income	.0002	.1674
Adults in group	.8083	.0201
Children in group	8.0102	1.1655
Arizona resident[a]	12.1453	.7231
July 4th interview[a]	17.2633	.5755
Weekday interview[a]	20.1015	1.7532
Length of stay (hours)	.5908	2.4694
Did not attend Bisbee Mining Museum[a]	3.5625	.0669
Education	1.2049	.1910
Y-intercept	-46.7331	1.2293

Mean craft and souvenir expenditure = $13.40, R^2 = .1050.
F-significance = .8803, adjusted R^2 = 0.
[a]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table 21. Tourists' changes in planned craft and souvenir expenditures[a] as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Did not attend Queen Mine Tour[b]	-.4037	.0081
Income	-.0001	1.1155
Adults in group	-.4833	.1050
Children in group	.2072	.0154
Arizona resident	-3.0704	.7448
Planned food and drink expenditures	.1305	17.9446***
July 4th interview[b]	-14.4464	5.0968**
Weekday interview[b]	-6.1881	2.4826
Change in stay from planned (hours)	-.2121	.3986
Did not go to Bisbee Mining Museum[b]	-1.0193	.0840
Y-intercept	7.5584	1.5586

Mean change in craft and souvenir expenditures = $1.21, R^2 = .2022.
F-significance = 2.5864***, adjusted R^2 = .1241.
[a]changes in craft and souvenir expenditures measured as planned minus actual expenditures.
[b]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table 22. Tour visitors' changes in planned craft and souvenir expenditures[a] as a function of the listed independent variables (excluding incomplete questionnaires).

Variable	Coefficient	F-significance
Willingness to pay minus actual price of Queen Mine Tour	2.4087	1.7076
Income	-.0002	1.6523
Adults in group	.1146	.0036
Children in group	1.0821	.1890
Out-of-state resident[b]	5.5862	1.3233
Planned craft and souvenir expenditures	.1265	12.4362***
July 4th interview[b]	-12.0025	2.4684
Weekday interview[b]	-7.2901	2.1718
Change in stay from planned (hours)	-.1963	.2151
Went to Bisbee Mining Museum[b]	.9959	.0458
Y-intercept	-.3323	.0016

Mean change in craft and souvenir expenditures = -1.6162, R^2 = .2250.
F-significance = 2.1779**, adjusted R^2 = .1217.
[a]changes in craft and souvenir expenditures measured as planned minus actual expenditures.
[b]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

patron saves (willingness to pay minus tour price) and a change in craft and souvenir expenditures from planned expenditures.[1]

Landmark Pricing Effects on Deterring Tourists

Clawson (1966) emphasized the need to consider the lost community revenues resulting from increases in recreational prices which deterred tourists from coming to the community. Potential tourists interested only in the tour can be divided into three groups: (1) those who came and knew the price; (2) those who came and didn't know the price; and (3) those who were deterred from coming because they knew the price.

The Bisbee study found that 40 of the 1976 groups came specifically for the tour. The "typical" proportion may be higher, since part of this survey was conducted on July 4th, when other activities (coaster races, drilling contests) attracted people to Bisbee. Thirty-one of these groups didn't know the price, thus price will not deter the majority of potential tourists from coming to the community. Those who were deterred from coming because of the cost (hence their local expenditures were not realized by Bisbee) cannot be precisely measured. It is assumed they are minimal for four reasons: (1) only nine groups coming for the tour knew the price ahead of time; (2) only two groups would not have come if the price was higher than the current price of $3.50; (3)

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1. The conclusion that tour attendance and tour savings (willingness to pay minus tour price) are not influential in a tourist's decision to change craft and souvenir expenditures is supported by using all questionnaires with weighted averages for missing independent variables. Using results from only those who were unaware of price before the interview indicates a correlation between tour savings and higher than planned craft and souvenir expenditures (see Appendix B). However, the small sample size makes this conclusion subject to question.

during the interview period no group who stopped at the tour entrance was deterred by tour entrance fees; and (4) tour entrance costs would be a small portion of total expenses for most people coming just to go on the tour.

CHAPTER 6

CONCLUSIONS AND IMPLICATIONS

Net Tourist Expenditures in Bisbee

The price of the Queen Mine Tour will influence tourist expenditures in Bisbee. It was demonstrated in Chapter 5 that tour patrons' lodging expenditures are affected by the tour price, and that tourists' expenditures for food and drink are related to tour attendance. More specifically, when tour prices change, tour visitor groups on the average reduce (increase) lodging expenditures by 1.82 times the decrease (increase) in the difference between their willingness to pay and the tour price. Tourists' attendance of the tour increases their average group food and drink expenditures from their initial plans by $5.03 compared with non-tour patrons.

It was shown in Chapter 5 that the profit maximizing price for the Queen Mine Tour is $4.00 per adult, which is $.50 greater than the current price. However, if the City of Bisbee were to raise prices at the mine tour to $4.00, local lodging, food and drink establishments would experience over $7,000 losses in revenues. Table 23 shows estimated changes in community tourist revenues resulting from changes in the price of the Queen Mine Tour. Any change in the mine tour price would result in a decrease in total community revenues (inclusive of mine tour and all other revenues). Note that differing multipliers

Table 23. Changes in tourist expenditures in Bisbee as mine tour prices are changed from the base price of $3.50 (utilizing data from those who were unaware of price prior to the interview, and multiplying by the percentage of total tours).

Price	Change in Tour Revenue	Change in Lodging Revenue	Change in Revenue from Tourists Not Coming to Bisbee	Change in Food and Drink Revenue	Net Change in Total Community Revenue
$5.00	-$13,859.73	-$8,878.78	-$1,852.50	-$13,803.18	-$38,394.19
$4.50	-$10,887.80	-$6,949.31	-$1,625.00	-$10,757.54	-$30,219.65
$4.00	+$ 2,805.28	-$4,977.20	-$ 162.50	-$ 2,665.63	-$ 5,000.05
$3.50	base	base	base	base	base
$3.00[a]	-$ 8,804.68	-$5,459.45	unknown	0[b]	-$ 3,345.23

[a]prices below $3.00 were not computed since at $.50 intervals the change would be increased by the amounts in the $3.00 tour price row.
[b]although tour attendance affects food and drink expenditures, lowering tour price will not increase tour attendance.

between tour revenues and local businesses have not been included in this analysis.

The City of Bisbee has considered closing the Queen Mine Tour in the past. This alternative was examined because the tour was losing money at the time. If the tour were closed, this study indicates that spending in the community exclusive of entrance fees would decline by $51,116.49 per year, resulting from fewer tourists coming to Bisbee and reduced expendtiures by those tourists who came.

The Queen Mine Tour has brought income into the community but has not proven to be a significant development effort. Increased business spending and tourist entrance fees have brought an estimated $119.244.00 per year into Bisbee. Assuming a multiplier of 1.5, revenues derived as a result of the tour equal $178,866.73 per year or $25.00 per person in Bisbee. This represents less than 1% of the total income of Bisbee.

Policy Implications for Bisbee

The goals of the City of Bisbee, as reflected in the Queen Mine Tour pricing, will impact upon local businesses in the single time period. Additionally, changes in the mine tour price will alter the distribution of the tourist expenditures. If the goal of maximum net community tourist expenditures is adopted, the current price of $3.50 would be recommended. However, if the City of Bisbee seeks to maximize its income from the mine tour, a price of $4.00 should be implemented.

Several policy tools could be implemented which would compensate the city for retaining the current price of $3.50 at the Queen Mine Tour.

Examples would include: (1) a restaurant and motel tax designed to recoup all or a portion of the city revenue foregone as a result of retaining the existing Queen Mine Tour price, or (2) a system of direct subsidies from restaurants and motels to the mine tour. Additionally, a system of cooperation between the mine tour and local businesses which might stimulate sales in the community, could be initiated. For example, restaurants and motels could give discounts to mine tour patrons when purchases exceed certain amounts, or tourists whose local expenditures reach a given amount could receive discounts for the Queen Mine Tour.

In conclusion, the objectives of the City of Bisbee will influence the pricing decision of the Queen Mine Tour. Furthermore, the range of bargaining alternatives between the city and local businesses may influence the Queen Mine Tour price selected.

Implications for the Evaluation of Recreation's Impacts on Local Economies

Local tourism and its resulting economic benefits from recreational enterprises will vary according to the price at the recreation site. The present study supports the theory that tourists may reduce (increase) other community expenditures in response to higher (lower) site prices. Similarly, the study provides evidence that site prices which deter visitors may lower tourists' local expenditures. Additionally, increases in site price will deter tourists from visiting the community, if they previously knew the price and planned to visit specifically for that recreational good. Furthermore, it can be expected

that the increases in the price of recreational sites characterized by a tourist's repeated usage will result in greater numbers of tourists not coming to the area than sites to which a tourist only goes once.

The present study found no correlation between existing price and a tourist's desire to recommend or return to Bisbee. However, it is expected that this may not be the case in all areas. Communities which depend primarily on one site for the attraction of tourists may have a greater likelihood of multiperiod tourist revenue effects from current landmark pricing.

In conclusion, agencies and researchers whose goal is economic development need to analyze the impacts of changing public recreational prices upon a specific community's development. Different recreation prices can be expected to cause differing tourist total expenditures and alter the distribution of tourist expenditures. The public recreation site owner should evaluate his goals and objectives with respect to community development prior to determining a price. The price which brings the most money to the public agency or to the community may be good from their respective efficiency standpoints, but from the perspective of equity it needs to be re-evaluated. Equity is concerned with how benefits are distributed or a sense of "fairness." While there is no absolute moral position that can set policy in this regard, by shifting the question to who benefits and how much under each system of objectives, policy issues are better defined in the community.

In cases where public landmark pricing has direct impacts on other community businesses, there is potential for businesses to

subsidize the landmark to keep prices down (or in some cases for the public to compensate businesses for raising prices). The interrelationships and potential for such cooperation will vary with the legal and political conditions in the respective community.

APPENDIX A

QUESTIONNAIRE

BISBEE QUESTIONNAIRE
(given in person)

A. 1. Date_____

2. Time of day: morning_____ noon_____ afternoon_____

Name_____

3. Where is your hometown?_____

4. How many people are in your group? adults_____
children under 12_____

5. How did you arrive in Bisbee? bus_____ private car_____

6. When did you arrive in Bisbee?_____

7. How long do you expect to stay in Bisbee?_____

8. Origin of today's trip_____

9. Destination of today's trip_____

10. Did you or will you stop in the Tombstone Historic District on this trip?_____

11. Is this your first trip to Bisbee?_____
Have you ever been on the Queen Mine Tour?_____
Have you ever been on the Lavender Pit Tour?_____

12. Were you aware of the Queen Mine Tour before coming to Bisbee?_____ Its price?_____
Would you have come to Bisbee if the tour was not available?
_____
How did you become aware of the tour? friends or relatives_____
billboards_____ magazine or newspapers_____
other (specify)_____

13. Were you aware of the Lavender Pit Tour before coming to Bisbee?_____
How did you become aware of the tour? friends or relatives_____
billboards_____ magazine or newspapers_____
other (specify)_____

14. Were you aware of the Bisbee Historical Mining Museum?_____
Are you planning to visit it?_____

B. We have no influence over the pricing of this establishment. This study is to obtain tourist characteristics, activity patterns, and valuations for predictive purposes. As such, your answers will not be used to set prices. Please answer honestly.

Note: For the following questions, assume children under the age of 12 can participate at half price. The Queen Mine Tour takes approximately 60 minutes. The Lavender Pit Tour takes approximately 90 minutes.

1. Are you willing to spend the time to go on both tours?_____

2. Are you aware of the price for the Queen Mine Tour?_____

3. Are you aware of the price for the Lavender Pit Tour?_____

4. Assuming that the Lavender Pit Tour is free, would you go on the Queen Mine Tour if the adult fare were (0-.50-1.00...)?

5. Assuming that there was no Lavender Pit Tour, would you go on the Queen Mine Tour if the adult fare were (0-.50-1.00...)?

6. Assuming that the Queen Mine Tour were free, would you go on the Lavender Pit Tour if the adult fare were (0-.50-1.00...)?

7. Assuming that the Queen Mine Tour was closed, would you go on the Lavender Pit Tour if the adult fare were (0-.50-1.00...)?

8. Assume that the Queen Mine Tour and the Lavender Pit Tour are offered only in a joint tour package but you do not have to participate in both. Would you purchase tickets to this joint tour if the adult fare were (0-.50-1.00...)?

C. 1. What is your occupation?_____

2. What is your highest level of education?_____

3. How much does your group expect to spend in Bisbee for:
lodging_____ food and drink_____ crafts and souvenirs_____ gasoline_____ other (specify, if possible)_____

4. While this is personal, it helps us in terms of a complete analysis and will be kept confidential. What was your total household income in 1979?
up to $10,000_____ $30,001-40,000_____
$10,001-20,000_____ $40,001+_____
$10,001-30,000_____

BISBEE QUESTIONNAIRE
(to be returned by mail)

City of Bisbee Tourism Questionnaire
c/o Agricultural Economics Department
University of Arizona
Tucson, AZ 85721

Your assistance in promptly completing and mailing this questionnaire would be greatly appreciated. Please mail it as soon as possible, preferably prior to departing Bisbee.

1. Did you go on the Bisbee Bus Tour?_____

2. Did you go on the Queen Mine Tour?_____

3. Did you visit the Bisbee Historical Mining Museum?_____

4. How much time did you spend in Bisbee (hours)?_____

5. To the best of your knowledge, how much did your group spend in Bisbee for:
   lodging_____
   food and drink_____
   souvenirs and crafts_____
   other (please specify)_____
   _____

6. Will you make a return trip to Bisbee?
   definitely yes_____
   probably yes_____
   probably not_____
   definitely not_____

7. Will you recommend Bisbee to your friends and relatives?
   definitely yes_____
   probably yes_____
   probably not_____
   definitely not_____

APPENDIX B

LINEAR REGRESSIONS UTILIZING GROUPS WHO WERE UNAWARE OF TOUR PRICE BEFORE INTERVIEW

Table B-1. Tour visitors' actual lodging expenditures as a function of the listed independent variables (excluding those who knew price prior to the interview and incomplete questionnaires).

Variable	Coefficient	F-significance
Willingness to pay minus actual price of the Queen Mine Tour	-2.6136	.6315
Income	.0004	1.4010
Adults in group	3.5381	1.2476
Children in group	-.0592	.0002
Arizona resident[a]	11.4793	2.2124
July 4th interview[a]	-3.7732	.0367
Weekday interview[a]	-3.5350	.2088
Length of stay (hours)	.3292	1.4067
Did not go to the Bisbee Mining Museum[a]	-7.8269	1.0829
Education	-1.9691	1.2472
Y-intercept	13.9720	.3175

Mean lodging expenditure = $5.41, R^2 = .4166.
F-significance = 1.1426, adjusted R^2 = .0520.
[a]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table B-2. Tour visitors' changes in planned lodging expenditures[a] as a function of the listed independent variables (excluding incomplete questionnaires and those who knew price prior to the interview).

Variable	Coefficient	F-significance
Willingness to pay minus actual price of the Queen Mine Tour	-4.8875	4.0793*
Income	.00008	.1640
Adults in group	1.0487	.2611
Children in group	4.0608	2.0729
Arizona resident[b]	-.7093	.0195
Planned lodging expenditures	.1771	1.1761
July 4th interview[b]	4.4478	.1377
Weekday interview[b]	2.5593	.2800
Change in stay from planned (hours)	-3.1684	3.1205*
Did not go to the Bisbee Mining Museum[b]	.7979	.0285
Y-intercept	-4.5742	.2670

Mean change in lodging expenditures = -1.4815, R^2 = .3817.
F-significance = .9877, adjusted R^2 = 0.

[a]Changes in lodging expenditures are measured as planned minus actual expenditures.
[b]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table B-3. Tour visitors' actual food and drink expenditures as a function of the listed independent variables (excluding those who knew price prior to the interview and incomplete questionnaires).

Variable	Coefficient	F-significance
Willingness to pay minus actual price of the Queen Mine Tour	-3.5917	1.9096
Income	.0001	.2273
Adults in group	.6581	.0691
Children in group	1.1310	.1158
Arizona resident[a]	6.5758	1.1625
July 4th interview[a]	-18.1935	1.3675
Weekday interview[a]	-7.5141	1.5109
Length of stay (hours)	1.1959	29.7347***
Did not go to the Bisbee Mining Museum[a]	2.2128	.1386
Education	.9466	.4616
Y-intercept	-8.2979	.1793

Mean food and drink expenditure = $16.41, R^2 = .7887.
F-significance = 5.9703***, adjusted R^2 = .6566.
[a]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table B-4. Tour visitors' changes in planned food and drink expenditures[a] as a function of the listed independent variables (excluding those who knew price prior to the interview and incomplete questionnaires).

Variable	Coefficient	F-significance
Willingness to pay minus actual price of the Queen Mine Tour	-.5393	.0333
Income	-.0001	.3265
Adults in group	3.4920	1.8604
Children in group	.4392	.0140
Arizona resident[b]	7.9526	1.4588
July 4th interview[b]	12.7897	.6920
Weekday interview[b]	11.4509	3.6525*
Change of stay (hours)	-.8804	.1456
Did not go to the Bisbee Mining Museum[a]	-1.7807	.0932
Y-intercept	-17.8134	2.4625

Mean change in food and drink expenditures = -$1.52, R^2 = .4055.
F-significance = 1.0911, adjusted R^2 = .0339.
[a]changes in food and drink expenditures are measured as planned minus actual expenditures.
[b]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table B-5. Tour visitors' actual craft and souvenir expenditures as a function of the listed independent variables (excluding those who knew price prior to the interview and incomplete questionnaires).

Variable	Coefficient	F-significance
Willingness to pay minus actual price of the Queen Mine Tour	3.1712	1.3931
Income	.00005	.0379
Adults in group	1.4770	.3258
Children in group	-3.6467	1.1266
Arizona resident[a]	-4.9577	.6184
July 4th interview[a]	-2.6197	.0265
Weekday interview[a]	5.0836	.6472
Length of stay (hours)	-.0103	.0021
Did not go to the Bisbee Mining Museum[a]	.3860	.0039
Education	-2.3560	2.6758
Y-intercept	30.7127	2.2987

Mean craft and souvenir expenditure = $4.96, R^2 = .2845.
F-significance = .6363, adjusted R^2 = 0.
[a]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

Table B-6. Tour visitors' changes in planned craft and souvenir expenditures[a] as a function of the listed independent variables (excluding those who knew price prior to the interview and incomplete questionnaires.

Variables	Coefficient	F-significance
Willingness to pay minus actual price of the Queen Mine Tour	-5.4953	3.1464*
Income	.0003	1.2503
Adults in group	1.1491	.1998
Children in group	3.0129	.7195
Arizona resident[b]	6.9831	1.2309
Planned craft and souvenir expenditures	-.2391	.1925
July 4th interview[b]	1.4399	.0091
Weekday interview[b]	-8.1994	1.8566
Change in stay from planned (hours)	1.7934	.6327
Did not go to the Bisbee Mining Museum[b]	-5.1027	.7582
Y-intercept	-4.0498	.1349

Mean change in craft and souvenir expenditures = $3.44, R^2 = .4024.
F-significance = 1.077, adjusted R^2 = .0289.
[a]changes in craft and souvenir expenditures are measured as planned minus actual expenditures.
[b]dummy variable.
*significant at .10 level.
**significant at .05 level.
***significant at .01 level.

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