EVALUATION OF AN INQUIRY PROJECT AT FRANKENMUTH, MICHIGAN

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ABSTRACT

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Expansion of a tourism market depends on tourism advertising. A brochure is one of many tourism advertising tools designed to attract potential visitors' attention and to generate additional destination visits. Evaluation of the effectiveness and efficiency of brochure advertising is essential in understanding the performance of a brochure. Since advertising budgets are limited, the development of forecasting models is essential for cost effective advertising to potential tourists.

Frankenmuth, Michigan was selected as the focus for this research. The objectives of this study were to (1) identify factors that influence different tourist market segment's decision to make trips to Frankenmuth after requesting information from the Frankenmuth Chamber of Commerce and Visitor Bureau (FCCVB) and (2) develop models that estimate the probability that different market segments will visit Frankenmuth. Information useful for developing marketing and/or advertising strategies was obtained through a cross-section mailed survey which resulted in 595 usable questionnaires for: 1) descriptive analyses that produced profiles of different market segments, 2) testing for significant differences between segments, and 3) developing models that predict the propensity of different segments to visit Frankenmuth. Stepwise logistic regression analyses (LRA) were applied to develop two models to predict the propensity to visit Frankenmuth. Model 1

results indicate that travel distance to Frankenmuth, in-state vs. out-of-state, perceptions of the quality of the brochure received in response to inquiries, elapsed time between the inquiry and receipt of the information, and level of education most influenced whether an inquiry was followed by a visit. The overall correct prediction rate for Model 1 is 68.32%.

Model 2 was developed to predict the probability of repeat visits to Frankenmuth. The results indicate that the likelihood of a repeat visit is influenced by travel distance to Frankenmuth, satisfaction with previous Frankenmuth (travel) experiences, and ranking of Frankenmuth as a travel destination. The overall correct prediction rate for Model 2 is 78.13%.

In conclusion, this study presents operative approaches to predicting visits to Frankenmuth among inquiries to FCCVB and revisits to Frankenmuth among current visitors. The major conclusion drawn form the results of this study is that, with only a modest additional investment, conversion studies (a standard approach to evaluating advertising effectiveness) can yield for more useful marketing information than is commonly obtained.

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CHAPTER I

INTRODUCTION

For both domestic and international tourism, the consumption of tourism exceeds US $2 trillion which represents about 12% of the world's economy (Waters, 1988). According to Holecek (1993), in 1989 the tourism industry provided more than 100 million jobs, generated $166 billion in tax revenues and accounted for 7% of the world's exports. Both suppliers and promotional organizations in the tourism industry spend significant amounts of money on different types of promotion to increase destination travel and to capture its economic benefits. These expenditures are directed at "advertising, personal selling, public relations, publicity, and sales promotions such as trade shows, point of purchase, and store displays" (McIntosh and Goeldner, 1990). Because of the growing economic importance of tourism, state governments have increased tourism promotion spending (Kreisman, 1982). For example, the U. S.. Travel Data Center reported that the 1994-95 advertising budgets for 44 states totaled $114,134,154, an average of $2,593,981 per state (See Table 1). Their advertising budgets accounted for 29% of their total budgets ($399,152,053) for fiscal year 1994-95 (U. S. Travel Data Center, 1995).

Much tourism related advertising research has been aimed at determining the effectiveness of promotional campaigns in converting inquirers into visitors (Burke &

Table 1. 1994-1995 Projected State Advertising Budget by Rank

Rank	State	Money	Rank	State	Money
1	HI	$16,384,000	26	NM	1,350,000
2	TX	7,600,000	27	RI	1,330,000
3	IL	6,200,000	28	NV	1,284,700
4	AR	5,414,215	29	UT	1,260,000
5	VA	5,406,984	30	VT	1,188,477
6	LA	5,205,000	31	MN	1,099,014
7	SC	4,376,498	32	AL	990,000
8	WI	4,100,000	33	OH	977,575
9	MO	3,754,400	34	ND	837,739
10	FL	3,608,700	35	MD	828,420
11	MA	3,449,720	36	IN	779,937
12	MI	2,976,532	37	NH	772,525
13	CT	2,737,250	38	ID	750,000
14	CA	2,705,000	39	IA	622,500
15	MS	2,689,850	40	ME	573,750
16	AZ	2,650,000	41	WA	461,855
17	OK	2,563,097	42	OR	450,000
18	MT	2,517,777	43	NE	430,000
19	TN	2,513,900	44	KS	230,000
20	WV	2,260,000			
21	PA	2,080,000			
22	AK	2,033,300			
23	KY	1,777,000			
24	SD	1,462,661			
25	WY	1,452,778			
				Grand Total	$114,135,154
				Average	$2,593,981

Source: U. S. Travel Data Cneter

Gitelson, 1990; Manfredo et al., 1992). Inquiry conversion research measures the impact of advertising in the tourism industry. According to the U.S. Travel Data Center, approximately "22 million inquiries were received by all of the states during 1993, or 464,550 inquiries per state" (U. S. Travel Data Center, 1995). Inquiry conversion research is used to evaluate the performance of promotional programs. This research is based on information gathered in response to inquiries generated as a result of advertisements placed in various media (Woodside & Reed, 1974; Woodside & Ronkainen, 1982; Perdue, 1985).

Inquiry conversion research relies upon the direct action of inquirers who must return reader service cards, call a toll-free telephone number, or take similar action to obtain tourism information. Several months after their inquires are received, a survey of inquirers is typically conducted to determine whether they visited the destination from which they received information. A sampling of the total number of inquiries is used to determine the pattern of visitation. The overall goal of conversion studies is to provide information that can be used to guide the tourism agencies or managers in planning and designing strategies for future advertising and promotion efforts that will yield maximum returns on investments in them.

Objectives of Inquiry Conversion Research

The primary objective of inquiry conversion research is to evaluate the performance of advertising campaigns and to determine the return on investment from advertising. Inquiry conversion research data are usually used to: (1) estimate the number

of inquirers who have visited the destination as well as those who plan to visit in the near future; (2) understand the socioeconomic, demographic and psychographic characteristics of the inquirers and those who visit after inquiry; (3) evaluate the effectiveness of different media ads and advertisements; (4) assess the influence of media information on decision making by inquirers; (5) calculate the amount of revenue and spending generated from visitors to a destination area; and (6) determine the return on investment (ROI) for the advertising campaign.

Advertising continues to be an important factor in vacationers' awareness of destination, image of destination, visitation to destination, and informing visitors of changes in the tourism product at the destination (Ellerbrock, 1981; Woodside 1981; Hunt and Dalton, 1983; Ballmen et al, 1984; Woodside and Ronkainen 1984; Mok, 1990; Woodside, 1990; Burke and Gitelson 1990; Perdue and Pitegoff, 1990; Siegel and Ziff-Levine, 1990). Conversion research is often used by state and local tourism associations to determine the percentage of destination inquirers that actually make a visit/trip. The data are used to determine the effectiveness in converting "inquiries" into "visitors". Conversion studies are conducted to answer the question of how many inquirers, generated from travel ads, were converted to visitors and the converters' demographic and travel-behavior characteristics. This includes length of stay, place of lodging, party size, and destination expenditures.

Conversion Study Methods and Limitations

It has been over two decades since the first publication of an inquiry conversion study in the *Journal of Travel Research* by Woodside and Reid in 1974. The authors used revenue per inquiry (RPI) to compare with cost per inquiry (CPI). For example, if the total number of inquiries was 1000 and the proportion of respondents who visited was 50%, the estimated total number of parties would be 500 (e.g., 1000 x 50% = 500). Then, if the estimated total number of parties is multiplied by an $100 average expenditure per party, the estimated total expenditures for inquiries would equal $50,000. The estimated total expenditures is then divided by the total number of inquiries to produce the RPI (e.g., $50,000/1,000 = $50). With a CPI of $10, the ratio of return on investment is 4 (e.g., RPI-CPI/CPI = [$50 - $10] / $10 = 4). This means that a $1 advertising expenditure will produce $4 in visitor expenditures.

Many inquiry conversion studies have been published in advertising, marketing, and tourism journals (Woodside and Motes, 1981; Silberman and Klock, 1986; Ronkainen and Woodside, 1987; Davidson and Wiethaupt, 1989; Burke and Lindblom, 1989; Perdue and Pitegoff, 1990; Woodside and Soni, 1990; Burke and Gitelson, 1990; Perdue and Gustke, 1992). While a few authors have expressed concern about the traditional methods of conducting conversion research and have offered suggestions for their improvement, little has been done to comparatively test methods or validate suggested improvements (Ellerbock, 1981; Woodside, 1981; Hunt and Dalton, 1983; Woodside and Ronkainen, 1984; and Ballman et al, 1984).

Most advertising conversion research studies are inadequately designed and implemented to provide valid answers as to whether an advertising and marketing campaign generates "new" visitors and produces new income for the destination. The above-mentioned studies identify common difficulties with conversion studies, such as, nonresponse bias caused by improper sampling techniques, sampling imprecision, and failure to account for individuals who decided to visit the destination prior to being exposed to the advertising (Woodside and Ronkainen, 1984; Silberman and Klock 1986).

Rather than identifying a specific causal relationship, conversion studies may be limited to making descriptive statements about the relationship between the advertisement and the search for information. According to Burke et al. (1984), " what caused decisions to be made and how much can be credited to the advertising campaign are separate and highly complex issues". To measure the effectiveness of advertising, a well designed true experiment method is necessary (Woodside, 1990). The results of a typical conversion study may be misleading and produce inflated estimates of the return on an advertising investment.

Thirty-one states performed advertising effectiveness/ conversion research studies during 1993-94 (U. S. Travel Data Center, 1995). The difficulty in measuring the effectiveness of tourism advertising campaigns is the tenuous causal link between promotions and tourist behavior. Many persons requesting information from state and local tourism associations have already decided to visit the area before receiving the promotional materials (Woodside & Ronkainen, 1994). They are looking for help in planning "what to do", not "where to go".

Furthermore, many inquirers who request information are return visitors. Therefore, the conversion rate for initial visitation may be overestimated (Ballman et al., 1984). For example, Gitelson's study (1986) showed that two-thirds of the inquirers had visited a travel destination before requesting information. By not taking into account the full costs associated with advertising campaigns such as postage, phone, printing, and material handling /distribution, the majority of conversion studies do not reflect actual costs and result in inflated estimates of return on investment.

In sum, conversion studies have attained wide use because they obtain managerially useful information at a reasonable cost. Perhaps their greatest advantage is in providing relative measures useful for examining trends or comparing different methods of advertising (Manfredo et al., 1992). However, when applying a conversion study, the researcher needs to take the following into consideration: how to select a sample?, how to determine the precise sample size?, how to deal with nonresponse bias?, how to deal with recall bias in reported expenditures?, how to identify new visitors?, and how to measure the costs and return on investment?.

A more appropriate method and analysis is needed to determine the extent to which the information received by first-time visitors influence their choices of travel destination, recreation participation, accommodation choices, length of stay, and spending patterns. In addition, factors which influence destination choices such as motivations, preferences, image of the destination, and the decision-making process should be investigated to extend understanding and knowledge of tourists' behavior.

Statement of the Problem

Does advertising increase visitation? Although research methods are available to test advertising's impact on sales, there are no scientific studies dealing with advertising's role in stimulating visitation (Woodside, 1990). A purpose of tourism advertising is to attract potential visitors' attention and to generate additional destination visits. A brochure/booklet is one of many advertising tools. The basic objective of a brochure/booklet is "to communicate a favorable impression of the product advertised and the benefits it can offer" (Coltman, 1989). Evaluation of the effectiveness and efficiency of brochure/booklet advertising is essential in understanding the performance of a brochure.

Although conversion studies have been conducted by a number of authors to evaluate the effectiveness of promotion/advertising, the relationship between brochure/booklet advertising and sales is still difficult to assess precisely. There is no "one best" evaluation method that can be successfully applied to all products or promotions. The lack of effective advertising evaluation increases the cost of promotion/advertising. Furthermore, there is no research available which links the impact of media and visitor vs. non-visitor characteristics and/or first-time visitors vs. repeat visitors. This information would assist managers or agencies in understanding the process of destination choice by inquirers, allocating advertising budgets more efficiently, targeting the highest potential markets, and designing more effective and appropriate advertising campaigns.

In summary, there is a need to identify interactions among different travel stimuli, such as prior experience at a destination, "word of mouth" recommendations by friends and relatives, and other factors that may influence destination decisions. In addition,

further study is also needed to better understand relationships between independent variables such as the impact of media, brochure design, characteristics of inquirers, choice of travel destination, and spending patterns in a destination area and the dependent variable travel decision.

Study Site

Frankenmuth, located off I-75 between Flint and Saginaw, Michigan, was selected as the study site. Its geographic setting is depicted in Figure 1. Frankenmuth was founded in 1845 by a group of fifteen German Lutheran missionaries who came to this area for the purpose of teaching Christianity to the Chippewa Indians. "Franken" depicts the province from which the settlers came and "Muth" means courage in German. The name Frankenmuth means "Courage of the Franconians."

Today, Frankenmuth is a thriving community of 4,400 residents who take great pride in preserving the German heritage. Area homes, businesses, and surrounding farms remain neat and clean reflecting thier German ethic. Well-tended flowers and lush greenery abound in what many visitors describe as the most authentic Bavarian architecture to be found anywhere in the United States.

Frankenmuth is famous for good food. Two of the country's largest family restaurants, dating from 1856 and 1888, combine to serve nearly two million dinners each year. Bronner's Christmas Wonderland, the world's largest Christmas store, covering five acres under one roof, is also located in Frankenmuth. In addition, pretzel, cheese and sausage factories, woolen mills, leather shoes, fudge and candy kitchens, an art gallery and

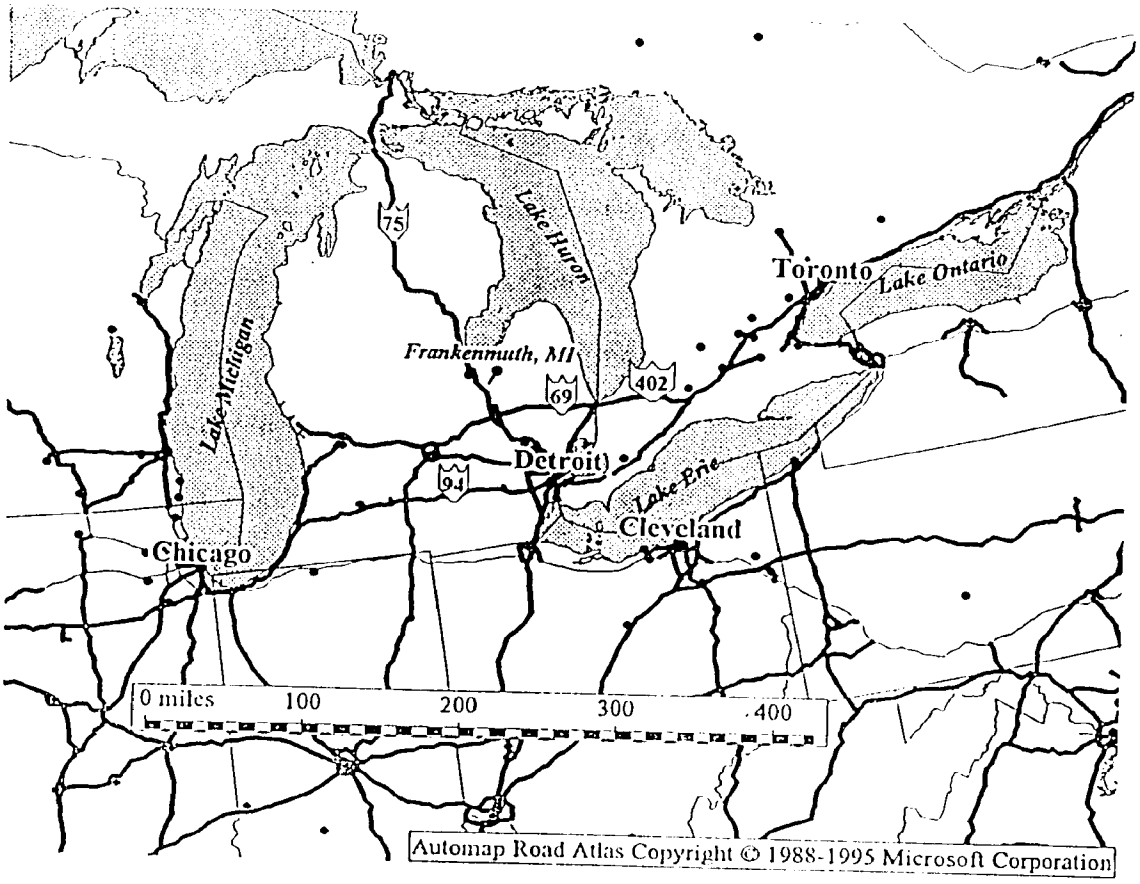


Figure 1. Location of Frankenmuth, Michigan

museums all combine with 100 quaint village gift shops and attractions to make Frankenmuth the most visited spot in Michigan with over three million visitors each year. The primary economic base of Frankenmuth is in tourism and recreation activities.

As early as 1906, community leaders were organizing to promote cooperation and town improvement. The local Board of Trade grew into a Chamber of Commerce that is acknowledged as "the largest and most active Chamber of Commerce in the United States among communities with under 5,000 residents." (Frankenmuth Chamber of Commerce and Convention & Visitors Bureau, 1994). In 1994, the Frankenmuth Chamber of Commerce and Visitor Bureau (FCCVB) provided service to over 30,772 visitors inside the visitor information center, answered 29,590 telephone inquiries, and mailed over 15,810 information packets. For the 1994 promotion campaigns, the FCCVB spent over $33,000 on print advertising, $88,000 on radio promotion, and $6,000 on television advertising. The mission of the FCCVB is "to promote Frankenmuth and the prosperity of all businesses in the community through a unified organization." Therefore, effective and efficient promotion campaigns are crucial to achieving the FCCVB's mission.

Study Objectives and Hypotheses

The purpose of this research is to enhance the understanding of travel behavior with a special focus on identifying variables that influence the travel decision. One objective of this study is to gain insight into who requests travel information and how this information is utilized in travel decision making. Another objective of this study is to identify relationships among travel decisions, elapsed time between inquiry and receiving

information, elapsed time between receiving information and making a trip, brochure quality, and individual traveler characteristics including socioeconomic and demographic information. Finally, the Logistic Regression Analysis (LRA) model will be employed to identify variables which predict the propensity to travel to a destination.

In summary, this study not only provides the traditional conversion study results for a better understanding of conversion based on the promotional literature, but also identifies the key variables influencing destination choices of tourists in different market segments (e.g., visitors vs. non-visitors and first-time vs. repeat visitors). It provides better knowledge for the utilizing of promotional tools, allocating budget resources, and predicting the probability of future trips to the destination.

Objectives

In order to derive information which may eventually be used in the development of marketing strategies and the prediction of future visits to Frankenmuth, this study was designed around the following four objectives:

Objective 1: To identify factors that influence the decision (visitors vs. non-visitors) to visit Frankenmuth after requesting travel information from the Frankenmuth Chamber of Commerce and Visitor Bureau (FCCVB).

Objective 2: To provide a descriptive profile of the characteristics of first-time and repeat visitors to include: information sources used, travel behavior, and satisfaction with the travel experience.

Objective 3: Develop a model to predict the propensity to visit Frankenmuth among inquirers.

Objective 4: Develop a model to predict the propensity for repeat visits to Frankenmuth among current visitors.

Hypotheses

Null Hypothesis 1.

There are no significant differences in destination-decision making between visitors and nonvisitors with respect to: familiarity with the destination, state/province of residence, distance to the destination, readership of advertising literature, elapsed time between inquiry and receipt of information, interest in the advertising literature, quality of the literature, and socioeconomic and demographic characteristics of inquirers.

Null Hypothesis 2:

There are no significant differences in destination decision making between parties who are familiar with the travel destination and those who are first-time visitors in terms of: residence status, distance to the destination, medium/media used, travel behavior, travel satisfaction, brochure readership, on site brochure consultation, elapsed time, spending patterns, brochure quality; and socioeconomic and demographic characteristics of inquirers.

Definition of Terms

The terms used throughout this study are defined below.

An inquirer: An individual who is not a resident of Frankenmuth and who requested information from the Frankenmuth Chamber of Commerce.

A visitor is an individual who made a trip to Frankenmuth after requesting information.

A non-visitor is an individual who did not make a trip to Frankenmuth after requesting information.

A first-time visitor is an individual who had not visited Frankenmuth before requesting information and actually did visit Frankenmuth..

A repeat visitor is an individual who had visited Frankenmuth before requesting information.

Quality of brochure as measured by how inquirers rated the overall quality of the brochure mailed to them by the Frankenmuth Chamber of Commerce.

Stimulation of the brochure as measured by responses to the quiry "to what extent did the brochure influence your interest in visiting the destination."

CHAPTER II

LITERATURE REVIEW

The decision to visit a particular destination can be seen as the individual 's solution to the problem, "where should I go for my holiday?" For the tourist, the decision entails a series of choices, including the budget for the holiday, the time available, who to travel with, and forecasts of the benefits they are likely to experience at each possible destination. In general, destination purchases can be distinguished from other purchases by: (1) the interval of time which elapses between purchase and the consumption of a destination, (2) the high cost of travel compared with most other purchases, and (3) the difficulty of knowing what to expect in a distant, unfamiliar place (Laws, 1995).

According to Dann (1981), the choice of a destination is viewed as a process in which the various "pull" factors (or attributes) of a destination are analyzed and compared with similar destinations on a competitive basis. In the same vein, a number of authors have proposed the concept of opportunity set that is presented in Figure 2. An opportunity set is defined as "destinations available at a particular time." The opportunity set includes: 1) a perceived opportunity set which includes all destinations known to the tourists, 2) an attainable opportunity set which depends on what tourists can afford and 3) a realizable opportunity set which combines both perceived and attainable opportunity sets together

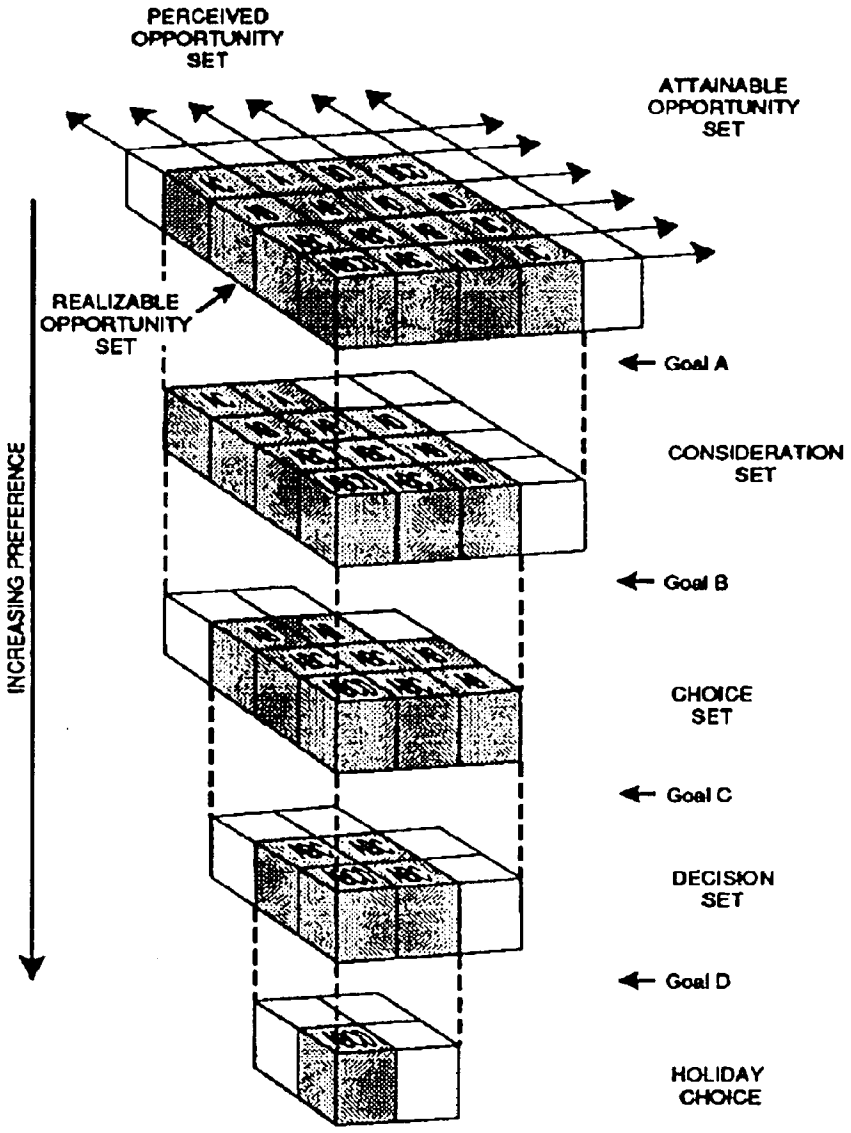


Figure 2. Three-dimensional opportunity set matrix in holiday (destination) choice (adapted from Kent, 1990)

and provides the knowledge to recognize the supply opportunities and constraints on access to destinations in the opportunity set. The extent of the realizable set differs among tourists. It serves to bring the number of possible destinations down to a manageable level from which tourists can make an informed selection. This set is then further reduced through a screening process in which the traveler's goals are matched to her/his expectations with respect to each destination ultimately leading to a final decision set from which the ultimate destination is selected. Decision sets are likely to contain no more than seven choices, often fewer (Moutinho, 1987; Woodside & Sherrell, 1977).

The study of destination choice as a cognitive process has important implications for the tourism industry in marketing its products. Destination choices derive from bundles of attributes (e.g., destination information, destination accommodations, travel mode..etc.) combining different benefits and costs to tourists. A tourist's awareness of the destination, attitude toward the particular destination, and expectations of the destination will influence her/his individual image of the destination.

To better understand the destination choice process, this literature review focuses upon some of the factors which other researchers have found to influence the destination choice process. Literature relating to definitions of tourism , market segmentation in tourism, the importance of brochure use in tourism, information-seeking behavior in tourism, consumer behavior in tourism, the importance of repeat visitors to the tourism industry, and influence of socioeconomic factors on tourism and travel are first reviewed. Then, the concept of logistic regression (LR), the linear regression model, function of

logistic regression, and a comparison of LR with other analytical tools (e.g., linear regression analysis and discriminant regression analysis) will be discussed and presented.

Tourism Definitions

Tourism is the largest business in the world. It is also a complex process comprised of many parts and interconnections. Tourism involves not only the tourists and the process of their spatial mobility but also the host community/destination. It also includes economic, psychological, social, cultural and other attributes. Because of its complexity, tourism can not be precisely defined. For example, Przenclawski (1986) places tourism, based on the behavior of the tourist, into one of the following categories: cognitive tourism, recreational tourism, health tourism, creative tourism, educational tourism, professional tourism, pilgrimage tourism, family-bound tourism, sex tourism and profit-making tourism.

Because tourism means many different things to different people, Wall (1992) suggested that the discussion of tourism must be moved from a mono-phenomenon to an examination of types of tourism. He used tourism typology to explain tourism based on attraction type, location, spatial characteristics, and development status. Many disciplines have developed an interest in tourism; these include: psychology, sociology, anthropology, economics, marketing, ecology, political science, and planning, but no common definition has yet emerged.

Ryan (1991. p. 6) defined tourism based on an economic activity point of view as:

> ***"a study of the demand for and supply of accommodations and supportive services for those staying away from home, and the resultant patterns of expenditure, income creation and employment."***

This definition identifies two approaches to tourism research: 1). tourism as a scientific process to investigate the hypothetical relationships between causal and determined variables; and 2) tourism as a subset of a business problem.

McIntosh and Goeldner (1990, P. 4)) summarize tourism as:

> ***"the sum of the phenomena and relationships arising from the interaction of tourists, business suppliers, host governments, and host communities in the process of attracting and hosting these tourists and other visitors."***

The authors point out that tourism is a composite of activities, services, and industries that deliver a travel experience and other hospitality services to those people, individuals or groups, traveling away from their residence.

Fridgen (1990) indicated that tourism is behavior influenced by internal forces (e.g., attitudes, motives, perceptions, personality, learning, social and family role) and external forces (e.g., social class, culture, subculture, reference group, environmental conditions). In other words, tourism is a process of decision-making influenced by different dimensions. These dimensions may be psychological, social and cultural, economic, and environmental.

Mill and Morrison (1992) stated that tourism includes activities and impacts occurring when a tourist travels. Planning of the trip, traveling to the place, staying in the

place, returning from the place, and post-trip memory are part of the experience. In addition, tourism includes all the interactions between hosts and guests in the destination community.

Mathieson and Wall (1982) suggested that the tourism industry is composed of three basic elements: (1) a dynamic element that involves travel to a selected destination, (2) a static element that involves a stay at the destination, and (3) a consequential element that is concerned with effects on the economic, physical, and social subsystems in which the tourist makes contact either directly or indirectly.

Due to its heterogeneous nature, tourism has been defined in numerous ways. It is a complex, global activity and a significant global socioeconomic phenomenon supported by changes in lifestyle, higher incomes, higher levels of education, and greatly enhanced mobility (Mill &.Morrison, 1992; U.S. Travel Data Center, 1991). No single definition can completely capture the tourism phenomenon. Thus, different tourism definitions are needed to enhance understanding of tourism's multiple dimensions. Knowledge of a broad range of tourism definitions will help agencies deliver tourism opportunities, benefits, and experiences to the tourist and provide "the means of transport, goods, services, accommodations and other facilities for travel out of the home community for any purpose not related to local day-to-day activity" (U. S. Travel Data Center, 1987).

Market Segmentation in Tourism

Market segmentation is a technique used to divide a heterogeneous market into homogeneous sub-groups or market segments. It is based on the idea that a market is

composed of subgroups of people and that each of these subgroups has different, specific needs and wants (Barnett, 1969). A number of authors have suggested that market segmentation is a tool for enhancing understanding of consumer behavior. Through market segmentation, one can adjust a product or service and its price, promotion and distribution to meet the needs and wants of distinct target segments (Wind, 1978; Stynes, 1985; Morrison, 1989).

According to Hsieh and O'Leary (1993), market segmentation is a management strategy based on assumptions that among a population subgroup a homogeneous behavior exists within the larger heterogeneous behavior. Market segments have most frequently been based on demographics, geographic, and behavioral characteristics (Lewis and Chambers, 1989). Both demographics and geographic segmentation modes have a common limitation: they are largely nonproductive because they are "post hoc". The needs and wants motivating the behavior of these tourists, however, are still largely unknown. Thus, understanding tourists' attitudes and their behavioral characteristics can assist in developing marketing strategies focusing on a particular market segment.

Market segmentation is an important element of any tourism marketing strategy. Much literature has been published in the tourism field based on the different approaches to market segmentation. For example, Woodside and Jacobs (1985) compared three nationality groups with respect to trip behavior, demographics, trip characteristics, accommodations, attractions visited, and benefits realized. Woodside et al. (1986) segmented the timeshare resort market into owners and non-owners. Perdue (1985) segmented travel information inquirers based on whether information was acquired before

or after the vacation destination choice was made. Calantone and Johar (1984) found that pleasure travelers sought different benefits from their trips throughout different seasons. Spotts and Mahoney (1991) segmented visitors based on the amount of money they spent in a destination region. Snepenger (1987) used the degree of novelty sought by vacationers as a segmentation base. Similarly, Davis and Sternquist (1987) used travelers' judgments of the availability and importance of vacation destination attributes in a cluster-based segmentation analysis.

In order to achieve an efficient use of marketing resources, Kotler (1984) and Morrison (1989) suggested the following criteria for effective segmentation:

1. Measurable: It is inadvisable to pick target markets that can not be measured with a reasonable degree of accuracy.
2. Accessible: The essence of market segmentation is being able to select and reach specific customer groups.
3. Substantial: A target market must be big enough to be worth considering for market segments.
4. Defensible: The marketer must be sure that each group receives individual attention.
5. Durable: Some market segments are short term or medium term, meaning they exist for less than five years. The prudent marketer should be convinced that each target market has long-term potential.
6. Competitive: The competitiveness of this service is relative to a particular market segment. The more precisely the service fits the needs of a

particular segment, the more likely it is to succeed. On the other hand, if a service does not match the needs well, there is little point in pursuing the segment.

Importance of Brochure Use in Tourism

Tourism marketing is made up of a variety of activities designed to meet the needs of travelers. Promotion is recognized by many as a critical element of tourism marketing. The travel brochure is a most important and widely utilized element in destination promotion programs (Holloway & Plant, 1988). For years, travel brochures have been used by national, state, and local convention and visitors' bureaus as an inexpensive and adaptable communication medium. Moss (1977) defined promotion through the use of brochures as "a booklet or pamphlet used in sales solicitations or promotion activities." The author suggested that sales promotion materials must do more than just remind consumers of the existence or value of a service.

Consumers are known to use brochures in making travel destination decisions. Coltman (1989) commented that potential customers "will compare the brochure of one destination or supplier with the brochure of its competitors, and it is likely that the one with the best brochure will receive the business." In other words, brochures can convey the quality of destinations to the potential customers. However, this is not always true.

According to Wicks & Schuett (1991), an individual tourist conducts an internal and external information search to help fulfill his/her need to learn about the tourism product under consideration for purchase. An internal search is the recall of information, such as memories of a previous visit to the site or a similar destination. An external search

is the process of seeking new information through communication with others including the media or travel brochures from the destination. Gitelson and Crompton (1983) indicated that external searches are important in the tourism industry because a trip is a high risk purchase and involves the use of discretionary money during a individual's free time. In addition to money and time, the tourist is unable to actually observe the potential purchase, especially if it is a new destination. Therefore, brochures or secondary sources must be used.

Etzel and Wahlers (1985) reported that destination-specific travel literature (DSTL) including booklets, brochures and pamphlets " is an attractive promotion alternative because it presumably affords the marketer a more accurate reach and a potentially greater impact than mass circulation broadcast media alternatives." They also note that "DSTL represents an opportunity to provide the prospect with a significantly greater number of strong selling messages as compared to a magazine ad or a short radio or television commercial."

Although external information is not used in all purchasing situations, the relative ease and low cost of obtaining travel brochures makes them an attractive information source for many vacation decision makers. In addition, the travel brochure may serve as a long-term reminder or reference for those information-seekers who keep it. Furthermore, the brochure may be passed on to others, thus multiplying its effectiveness.

Consumer Behavior In Tourism

Tourism destination choice can be influenced by a number of different factors. Among the key factors believed to be involved are: a combination of needs and desires, availability of time and money, supply of opportunities, image of the destination, perceptions and expectations built on experiences and information gathered. A number of authors have produced publications that stress actions involving a balance of biological, social and psychological needs (Woodside & Sherrell, 1977; Parker, 1983; Kripperdorf, 1987; McIntosh & Goeldner, 1990; Um & Crompton, 1990;). Furthermore, McIntosh and Goeldner (1990) explain that tourism can be ethnic, cultural, historical, environmental, recreational and business tourism. These approaches focus on outcome or activities rather than process.

Relatively little is known about the motivation for the travel, the length of stay, the on site activities or post-consumption benefits sought from travel (Middleton, 1988; Jefferson & Lickorish, 1988). Although Murphy (1985) provides a historical review of the major trends in tourism by using motivation, ability and mobility to account for the growth of tourism, his approach focuses much more on sociological changes than on motivational changes. A distinction should be made between the role of motivations (push a tourist to make decision) and the attraction exercised by destination images (pull the tourist towards a particular destination). Breaking from work, escaping from a routine, or respite from everyday worries are examples of motivation. The stimulus of new places and attractions available at destinations are examples of destination images..

To explain travel behavior, one must first understand travel motivations. Understanding what motivates people to travel allows is to better define the values sought from travel. The term motive has been used to refer to internal forces and external goals and incentives that guide, direct, and integrate a person's behavior for future and potential satisfaction (Murray, 1964; Iso-Ahola, 1982; Pyo and Uysal, 1990). Therefore, motivation is an interpersonal phenomenon. This fact has positioned leisure travel as a psychological experience (Dann, 1977, 1981; Chon, 1989).

Mill & Morrison (1985) indicate that motivation comes from people's needs and desires. Therefore, tourists must determine their preferences and set their goals to identify the most satisfactory option from among the current available travel destinations. On the one hand, needs are intrinsic, an innate condition arising from a lack of something necessary to the individual's well-being. On the other hand, wants are extrinsic, a feeling that the individual would get pleasure or satisfaction from doing something. Together, needs and wants determine motivations.

Kotler (1982) identifies three stages of "need arousal" (p. 236). The first stage includes internal or external stimuli which trigger a leaning toward a particular product class. The second stage is activating existing needs that might be served by the product class. The third stage is the specific wants that become activated by the recognized needs.

Iso-Ahola identified motivational forces for optimal stimulation and arousal (equilibrium) as being approach (seeking) or avoidance (escaping) in nature. He indicated that people pursue leisure activities for feelings of mastery and competence or to leave the routine environment. He, therefore, suggested two motivational forces that become

determinants of tourism behavior: (1) The desire to leave the everyday environment behind - escaping personal and /or interpersonal environments, and (2) The desire to obtain psychological or intrinsic rewards through travel to a contrasting environment - seeking personal and/or interpersonal intrinsic rewards.

In addition to Iso-Ahola's social/psychological motivational forces, the concept of push and pull factors has been examined by a number of authors (Dann, 1977; Crompton, 1979; Pearce and Caltabiano, 1983; Yuan and McDonald, 1990). Push factors that have been identified include: socioeconomic variables, demographic variables, and attitudes, interests, and opinions that the traveler possesses, along with knowledge about the market (Smith, 1983). Specific push factors could include: age, gender , income, education, family structure and size, occupation, and other personal variables that influence the traveler's decision to travel. Pull factors are destination attributes that respond to and reinforce push factors or motivations. According to Smith (1983), destination attributes can either be tangible resources or the perceptions and expectations of the traveler.

Plog (1974, 1990) used the Psychocentrism/Allocentrism approach to examine travel behavior and motivation. He classified the U.S. population along a psychographic continuum delineating personality types, ranging from the psychocentric at one extreme to the allocentric at the other. He found that psychocentrics tend to prefer familiar destinations, including areas that promote relaxation and low-level activities. On the other hand, allocentrics tend to be self-confident and enjoy discovery, new experiences, and new areas, and they like to travel to different or even exotic destinations.

Moutinho (1987) used the concept of social influence to explain travel decisions. He suggests that travel decisions are very much affected by forces outside the individual, including the influences of other people. He divided social influence into four major areas: (1) role and family influence, (2) reference groups, (3) social classes, and (4) culture and subculture. Social influence has a tremendous impact on motivating an individual to travel. Therefore, this influence on travel decision behavior and travel motivation is extremely important in understanding the overall tourism industry.

Hill et al. (1990) studied the relationship between motivation and family life cycle. The life cycle involves grouping people based on their stage in life, rather than simply classifying them by their chronological age. Hill et al. examined how the different motivations toward the resort vacation cross four different life cycle stages: (1) single without children, (2) married without children, (3) single with children, and (4) married with children. They found no significant difference between life cycles for the relaxation and escape motivation and the novelty, education, and prestige motivations. However, the motivation of enhancement of kinship relationships is more important to those who are married than those who are single.

In summary, motivation is just one of the many variables that contribute to explaining and predicting tourist behavior. Travel decisions are the result of several motives. Although several different types of needs and motives have been mentioned to help explain the push or psychological motivations for travel, there is no single theory of travel motivation that can completely explain tourist behavior. Understanding the tourist's motivations is important to destination areas. Such understanding would enable providers

to create the activities, attractions, and services which fulfill the needs of each individual traveler.

Information search in Tourism

For many tourists, gathering, processing, and evaluating information is an integral part of the travel experience. Information search activities help to fulfill vacation motives such as achievement, social affiliation, culture experience, escape from the everyday environment, relaxation and novelty seeking (Plog, 1974; Crompton, 1979). Furthermore, an information search is essential before deciding among alternative destinations, attractions, activities, and lodging choices.

The marketing literature generally distinguishes between internal and external information searching behaviors. Gitelson and Crompton (1983) found that tourists like to search external sources in order to learn about alternative destinations which may meet their needs, the characteristics and attributes of those destinations, and their relative desirability.

Etzel and Wahlers (1985) assert that the extent of consumers' information-seeking depends on factors such as: the perceived utility of the information, the amount of uncertainty involved, the perceived importance of the decision, and the cost of acquiring information. Similarly, Fesenmaier and Johnson (1989) indicate that tourists use more technical sources when making more involved decisions. Chon (1991) indicates that significant differences exist among tourists with regard to their socioeconomic circumstances and their travel-information-seeking behavior. Travel-information-seeking

behavior has been found to be influenced by the following variables: (1) gender; (2) age; (3) previous visitation to the destination area; (4) type of lodging accommodations used; (5) frequency of vacation trips taken per year; and (6) the likelihood of repeat visits to the same destination.

Since identifying and understanding information seeking behavior can assist in planning promotional campaigns, it is highly important to identify who requests travel information and how it contributes to tourism decision-making.

As Gunn (1987, p171) notes:

> ***"Communications of all types are becoming more and more important to link the consumer to the product, Simply, if tourists do not know about travelways, attractions, services, and facilities, and do not know how to get to them, tourism can be less than satisfactory for both consumers and suppliers. Certainly, the planning for tourism must include understanding of the essential component of promotion/information".***

Importance of Repeat Visitors to the Tourism Industry

Competition in the tourism industry is intense. Unlike most other retail purchases, the tourist can neither directly observe what is being bought, nor try it out inexpensively. Tourists have high quality expectations of their forthcoming vacation and also demand value for their money. This trend is increasingly evident as value-conscious consumers seek destinations that offer the best value (Reid and Reid, 1993). Frequent-Flyer programs offered by airlines and Frequent-Stayer programs offered by hotels were introduced to attract repeat patronage.

According to Gitelson and Crompton (1984), building repeat visitation is a means by which tourism suppliers can increase revenues and decrease costs. It can also reduce

reliance on the difficult task of attracting new visitors. In other words, focusing on repeat business permits tourism industries to target a particular segment and solicit direct responses to promotions. Furthermore, suppliers can more effectively measure promotional success and accurately forecast revenue from promotion investments.

Haywood (1989) reported that it is five times more expensive to obtain a new customer than it is to retain a current customer. Although the figure is speculative, it is generally agreed that it is cheaper to promote to current visitors than to promote to those not familiar with a destination. Fakeye and Crompton (1991) examined destination image differences held by prospective, first-time, and repeat visitors to the Rio Grande Valley in Texas. They report that repeat visitors appear to have greater awareness of social opportunities, attractions and may have enhanced social networks, leading to a more complex image of the destination.

Gyte and Phelps (1989) reported that repeat visitors are more likely to return to the same destination the following year. They also indicate that tour operators wishing to cultivate repeat business need to ensure that clients have a good holiday experience and visit on each and every visit to a given destination.

In sum, repeat visitors to tourism destinations constitute an unique market segment and one which can be effectively exploited at relatively low cost. Destinations should stress external and internal marketing communications directed at the repeat visitor segment to capture this profitable market (Reid & Reid, 1993).

Influence of Socioeconomic Factors on Tourism and Travel

Income is probably the most significant determinant of a household's probability of traveling and upon its level of travel expenditures (Hagemann, 1981). The top 20% household income bracket accounts for almost one-half of total expenditures for pleasure travel (Linden, 1980). Mak, Moncur and Yonamine (1977) reported that higher income visitors to Hawaii spent more per day and stayed longer than did their lower income counterparts. Similarly, Ethridge (1982) suggested that international travel originates in areas of greater economic development.

Education also influences the propensity to travel. Jorgenson (1976) reported that 45% of travelers in the 1972 National Travel Survey had completed some college, whereas only 22% of the total population had a similar level of education. Educational attainment of the "head of household" is likely to significantly influence travel behavior. A higher education increases one's awareness of the world and appears to be a powerful predictor of a household's propensity to travel (Hagemann, 1981).

Just as education influences the propensity to travel, it also influences vacation expenditures. Mak, Moncur, and Yonamine (1976) reported that visitors to Hawaii who were more highly educated spend less on average per day than did less educated visitors. Linden (1980) and Hagemann (1981) approached the issue of education as an influencing factor on vacation expenditures from a macro perspective. Both researchers found that persons with higher educational attainment spent more on travel than did less educated persons. When examining the influence of a graduate education on travel expenditures, the research findings differed. Hagemann (1981) found that households in which the head had

attended graduate school spent less on travel than at the next lower level. Conversely, Linden (1980) reported that: " Dollar expenditures for vacations by householders whose head has more than four years of college runs two-and-a-half times higher than the all-country average."

Children also influence travel behavior. The presence of small children tends to act as a physical constraint on the family. Hagemann (1981) noted that family size is negatively correlated with travel. In other words, larger families have a decreased propensity to travel and take shorter pleasure trips. The presence of children younger than six had a more negative effect on travel than did children in the intervening years. Also, the greater the number of children under 18 years, the lower were household expenditures for travel (Hagemann, 1981). In fact, spending on vacation trips for families with children under six years of age is approximately 30% below the national averages. Once the youngest child reaches 18 years of age, however, vacation expenditures exceed the national average by almost 50% (Linden, 1980).

Age is another influencing factor in one's propensity to travel. The National Travel Survey revealed that only one-third of those persons under 25 years reported any travel during the survey period. Sixty-percent of all travelers were in the 25-64 age category. Age was also found to be a significant variable in a study of domestic travelers to Hawaii. Age was found to influence length of stay and the amount of expenditures while in the test area. Persons in the young and the retired age groups stayed significantly longer than those in the middle years although they spend significantly less per day (Mak et al., 1977). While it is important to be aware of the influence of demographics on the travel industry,

it should be noted that demographic and socioeconomic characteristics, while enabling certain kinds of consumer behavior, are not sufficient to guarantee a particular behavior.

Logistic Regression: Overview

Logistic regression (LR) is a robust statistical procedure for modeling the relationship between one dichotomous dependent variable and several independent variables. Since the Framingham study by Truett, Cornfield, and Kannel (1967), logistic regression has become the standard method for regression analysis of dichotomous data. The logistic regression model has been applied in many fields, especially by economists and epidemiologists, but it has been infrequently used by tourism and travel researchers. Since it is often the most appropriate approach for analyzing dichotomous variables, the technique should be familiar to tourism researchers so that their work can keep pace with improvements in the field of statistical analysis.

In this study, logistic regression was used to examine the relationship among visitors and to predict the propensity to visit Frankenmuth in the near future. This section begins with a brief but necessary description of linear regression, discriminant analysis, and logistic regression. Comparisons are made among these types of statistical analysis.

Linear Regression Model : Functions and Violations

Regression is a set of statistical procedures that can be used to make predictions about one variable (called either predicted, criterion, or dependent variable) based on the knowledge of another variable (called the predictor or independent variable). Linear

regression tests whether two or multiple variables are linearly related and calculates the strength of the linear relationship, if the relationship between the variables can be described as:

$$Y = \alpha + \beta x$$

Where

Y: dependent variable
α*: intercept, presents the value of Y when X is zero*
β *: slope of the line, presents the change in Y associated with a one-unit increase in X.*
X: independent variable

Normally, the regression procedure involves three steps: (1) identify two or multiple variables that are correlated to establish the regression equation, (2) estimate the goodness-of- fit of the regression equation, and (3) apply the regression equation to data from subjects not included in the original sample to predict the outcome or dependent variable.

For more than one independent variable, regression analysis involves investigating the dependence of Y on the independent variables (X_1 X_2 X_3 ....X_p). The ordinary multiple linear regression model may be written as

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_p X_p + \varepsilon$$

where

α *represents the intercept, the value of Y when X is zero;*

$\beta_1, \beta_2, \ldots \beta_p$ *represent the regression coefficients or partial slopes that characterize the relationship between the independent variables,* X_1 , X_2 ,....X_p , *and the dependent variable Y ; and*

ε *represents the error term, a random variable representing the error in predicting Y from X.*

For an individual case i, $Y_i = \alpha_i + \beta_{1i}X_{1i} + \beta_{2i}X_{2i} + \ldots + \beta_{pi}X_{pi} + \varepsilon_i$, the subscript indicates that the equation is predicting values for specific cases, indexed by i (i = 1 for the first case, i = 2 for second case, etc.). This equation is used to calculate the value of Y for a particular case, i, rather than describing the relationship among the variables for all of the cases in the sample or the population.

Estimates of the intercept, α , and the regression coefficients, β or $(\beta_1, \beta_2, \ldots, \beta_p)$, are obtained mathematically using the method of ordinary least squares (OLS) estimation. These estimates produces the equation $\hat{Y} = \hat{a} + \hat{b}X$, or in the case of several predictors, $\hat{Y} = \hat{a} + \hat{b}_1X_1 + \hat{b}_2X_2 + \ldots + \hat{b}_pX_p$, when $\hat{Y}$ is the value of Y predicted by the linear regression equation, $\hat{a}$ is the OLS estimate of the intercept α , and $\hat{b}$ (or $\hat{b}_1, \hat{b}_2, \ldots \hat{b}_i$) is the OLS estimate for the slope β(or the partial slopes $\beta_1, \beta_2, \ldots, \beta_p$). Residuals for each case, ε_i , are equal to $(Y - \hat{Y}_i)$, where $\hat{Y}_i$ is the estimated value of Y for case i.

The basic assumptions of the OLS regression model are:

(1) ε_i (error term) is a random variable with mean zero and variance σ^2, that is $E(\varepsilon_i) = 0$, $V(\varepsilon_i) = \sigma^2$; and

(2) ε_i and ε_j are not correlated, $i \neq j$ so that $Cov(\varepsilon_i, \varepsilon_j) = 0$; thus the variance of $Y_i = \sigma^2$; and Y_i and Y_j where $i \neq j$ are not correlated. A further assumption which is not necessary for estimation, but is required in order to apply statistical tests such as the T-test or F-test, is that $_i$ is a normally distributed random variable with zero mean and variance ^{2}, that is $\varepsilon \sim N(0, \sigma^2)$ (Fraper and Smith, 1966).

However, a number of authors have noted several inadequacies and limitations of the linear regression model in cases where the dependent variable is dichotomous (Cox, 1970; Anderson, 1980; Bull and Donner, 1987). The main disadvantages of the linear

regression model are violations of assumptions that Y_i's are normally distributed with mean θ_i and variance σ^2, and θ_i is linearly dependent on X_i's. The limitations and the disadvantages of the linear model when the dependent variable is dichotomous are summarized below:

1. It is quite possible that the predicted values of $_i$ will exceed one or take on a negative value.
2. Since Y_i takes only the values 0 and 1, then $Y_i^2 = Y_i$ and variance of $Y_i = \theta_i (1 - \theta_i)$. This violates the assumption of the least squares estimate that variance $(Y_i) = \sigma^2$ (i.e., the assumption of homoscedasticity).

Using the OLS estimate could give us an unbiased estimate of $_i$, but it is not an efficient estimator. This problem has led to the development of the logistic regression model which addresses the above problems by transforming the probability of success into a continuous variable that can take on any value along the real line $(-\infty, \infty)$.

Logistic Regression: Function and Modeling

Predicting whether an event will or will not occur, as well as identifying the variables useful in making the prediction, is important in most academic disciplines and in the "real" world. A variety of multivariate statistical techniques can be used to predict a dependent variable from a set of independent variables. Multiple regression analysis and discriminant analysis are two related techniques used to develop such predictions. However, these techniques are problematic when the dependent variable can have only two values: an event occurring or not occurring.

Logistic regression represents an alternative method of classification to consider when the multivariate normal model is not justified. The logistic function describes the mathematical form for the base of the logistic model. The function is given by 1 over 1 plus e to the minus z. as follows:

$$\text{Probability(event)} = P(Y=1) = \frac{1}{1+e^{-(\alpha+\beta_1 X_1+\beta_2 X_2+\cdots+\beta_p X_p)}} = \frac{1}{1+e^{-Z}}$$

where

e is the natural logarithm

z varies from $-\infty$ to $+\infty$.

Thus, the value of logit P(Y=1) is in the range between 0 and 1, regardless of the value of z. Therefore, it is not possible to obtain a risk estimate either above 1 (e.g., absolutely certain) or below 0 (e.g., totally impossible) which explains why the logistic model is often the first choice when a probability is to be estimated.

The logistic regression model is also the solution to a problem involving the distribution of normal errors with binary outcomes. In fact, this model was designed for analyzing binary data (Cox, 1970). One can directly estimate the probability of an event occurring for a single independent variable where (Y_i) takes the value "0" and "1" . The expected value of Y_i is $E(Y_i) = P(Y_i)$ and $Y_i = 1$.

where

$P(Y_i)$ represents the probability of Y_i equal to 1

(Probability of event occurring)

$1-P(Y_i)$ represents the probability of Y_i equal to 0

(Probability of event not occurring)

We could try to model the probability that $Y = 1$ as $P(Y=1) = \alpha + \beta X$, but we would run into the problem that although observed values of $P(Y=1)$ must lie between 0 and 1, predicted values may be less than 0 or greater than 1.

A step toward solving this problem would be to replace the probability $Y = 1$ with $Odds(Y = 1)$. Here $Odds(Y = 1)$ is the ratio of the probability that $Y = 1$ to the probability that $Y = 0$. $Odds(Y = 1)$ is equal to $P(Y=1)/1-P(Y=1)$. For example, if the probability of event occurring equals 0.2, then the probability of event not occurring is 0.8 and the resulting odds calculation is 0.2/0.8 or one-fourth. The meaning of odds in the context is that the probability of the event occurring is one-fourth the probability of the event not occurring.

An odds ratio greater than 1 indicates an increased likelihood of the event occurring, while an odds ratio less than 1 indicates a decreased likelihood of the event occurring. A further transformation of the odds term produces a variable that varies from negative infinity to positive infinity which is called the *logit of Y*. It is the natural logarithm of the odds term written as $ln\{P(Y = 1)/1-P(Y = 1)\}$. The transformation of $logit\ P(Y=1)$ yields the following equation:

$$E(Y_i) \quad P(Y = 1) = \theta_i \qquad \frac{e^{\alpha+\beta_1 X}}{1+e^{\alpha+\beta_1 X}} = \frac{\exp(\alpha+\beta_1 X)}{1+\exp(\alpha+\beta_1 X)}$$

where α and β_1 are coefficients estimated from the data, X is the independent variable, and e is the base of the natural logarithms which is approximately 2.718. For a single level, the logit transformation (θ_i'), in terms of θ_i, is defined as follows:

$$\theta_i' = \text{logit}\ (\theta_i) = \ln_e\left[\frac{\theta_i}{1-\theta_i}\right] = \ln_e\left[\frac{\frac{1}{1+e^{-(\alpha+\beta_1 X)}}}{1-\frac{1}{1+e^{-(\alpha+\beta_1 X)}}}\right] = \ln_e\left[\frac{\frac{1}{1+e^{-(\alpha+\beta_1 X)}}}{\frac{e^{-(\alpha+\beta_1 X)}}{1+e^{-(\alpha+\beta_1 X)}}}\right]$$

$$= \ln_e[e^{(\alpha+\beta_1 X)}] = \alpha + \beta_1 X$$

For more than one independent variable, the model can be written as:

$$\theta_i = \frac{e^{\alpha+\beta_1 X_1+\beta_2 X_2+\ldots+\beta_p X_p}}{1+e^{\alpha+\beta_1 X_1+\beta_2 X_2+\ldots+\beta_p X_p}} \quad \text{or equivalently} \quad \theta_i = \frac{1}{1+e^{-(\alpha+\beta_1 X_1+\beta_2 X_2+\ldots+\beta_p X_p)}}$$

The logistic regression model is represented as follows:

$$\theta_i' = \text{logit}(\theta_i) = \ln_e\left[\frac{\theta_i}{1-\theta_i}\right] = \alpha + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_p X_p$$

Logistic regression is a type of log-linear analysis used with a binary dependent variable. Logistic modeling is based on the assumption that the underlying relationship between the dependent and independent variables is an S-shaped function called a sigmoid curve (See Figure 3). The values for the dependent variable are presented as probabilities that range between 0 and 1 with the maximum slope of the curve in the mid-range. This implies that the independent variable has its greatest impact at some midpoint, where the slope of the curve is the greatest, and less impact at the ends of the range where the slope of the sigmoid curve is smaller.

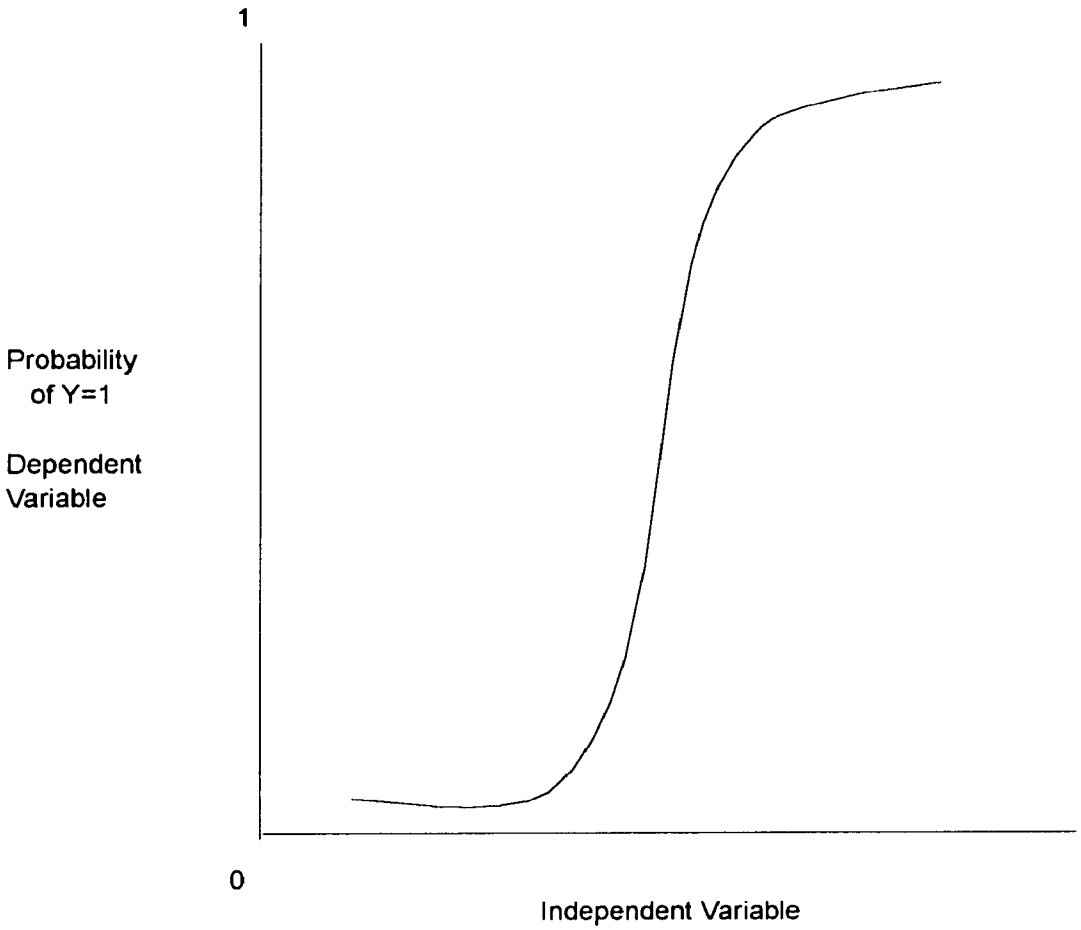


Figure 3: The Logistic Function: Sigmoid or S-Shaped Model

As the value of an independent variable changes, the value of the exponent changes, and the change in the dependent variable is exponential. Thus, the logistic function is nonlinear, and a unit change in an independent variable has a different impact on the dependent variable at different values of the independent variable.

The logistic regression model is a sensible method for regression analysis of dichotomous data for two primary reasons: "1) it is an extremely flexible and easily-used function and 2) it lends itself to a substantively meaningful interpretation" (Hosmer & Lemeshow, 1989). However, it is important to understand that the probability, the odds, and the logit are three different ways of expressing exactly the same thing. The logit form of the probability is the best one to analyze dichotomous dependent variables, although the probability or the odds is more easily understood.

Comparison between Discriminant Analysis and Logistic Regression

Discriminant analysis (DA) is a statistical procedure for identifying characteristics that are important for distinguishing among groups. It is similar to multiple regression in investigating the relationship between dependent and independent variables except the criterion is dichotomous rather than continuous (Ghiselli, 1981) To minimize the rate of misclassification errors, the discriminant function distinguishes between pre-defined groups by maximizing between-group variance relative to within-group variance.

Discriminant analysis is appropriate when the discriminating variables have: (1) a multivariate normal distribution, and (2) equal within-group covariance matrices. Without an underlying normal distribution, the statistic can be very misleading such that

individual group classification rates will be distorted. A number of authors have concluded that when within-group covariance matrices are not equal, discriminant functions can include meaningless variables, produce inconsistent coefficient estimates, have a poor fit to the data, and generate substantial bias (Fienberg, 1991; Gilbert, 1969). Therefore, another multivariate technique for estimating the probability of an event occurring, the logistic regression model, was applied in this study. This model requires fewer assumptions than does discriminant analysis, and, even when all the assumptions related to discriminant analysis are satisfied, logistic regression is as efficient as discriminant analysis..

In linear regression, the least squares method is usually applied to estimate the parameters of the regression model. This means that regression coefficients that result in the smallest sums of squared distances between the observed and the predicted values of the dependent variable are selected. Unfortunately, when the method of least squares is applied to a model with a dichotomous outcomes, the estimators no longer have these smallest sums of squared distance between the observed and the predicted values of the dependent variable.

In logistic regression, the parameters of the model are estimated using the maximum - likelihood estimation (MLE) method. That is, the coefficients that make our observed results most "likely" are selected. However, logistic regression is a mathematical modeling approach that can be used to describe the relationship of one or several independent variable(s) to a dichotomous dependent variable.

In general, with the goal being the assignment of observations to correct categories, DA is used to identify a set of predictors which best discriminates two groups

of observations. Logistic Regression (LR) is used to make inferences about the relationship of an independent and dependent variable, and the interpretation of the effect of the independent variable is straightforward.

When choosing between DA and LR, the researcher should consider: (1) whether an investigation's primary purpose is classification, description, or prediction, (2) the characteristics of the sample, and (3) the assumptions of methods.

In sum, the advantages of logistic regression are: (1) there are no necessary assumptions about independent variables and (2) logistic regression can accommodate an extremely skewed distribution of the dependent variable.

In building a model, Klecka (1980) recommended that " unless there are strong theoretical reasons for keeping them, it is advisable to eliminate weak and redundant variables. Their presence only complicates the analysis and they may even increase the number of misclassifications." One objective of this study is to predict the propensity to take a trip to Frankenmuth. Therefore, LR is better than DA because LR requires fewer assumptions, and it is more parsimonious to build a simple and plausible model for the data presented and to estimate the effect of each explanatory variable on the dependent variable (Hanushek and Jackson, 1977).

CHAPTER III

METHODS

In this study, the cross-sectional mail survey method was employed. A survey design provides a quantitative description of some fraction of the population -the sample- through the data collection process of asking questions of people (Fowler, 1988). This data collection enables a researcher to generalize the findings from the sample to the full population. According to Babbie (1990), the purpose of survey research is to generalize from a sample to a population so that inferences can be made about some characteristic, attitude, or behavior of this population.

Therefore, through the careful design of data collection, a representation sample can be selected from the population. Instruments are used to collect data. In addition to data collection, independent and dependent variables are selected to correspond with study objectives and hypotheses to be tested. Furthermore, appropriate data analyses are employed and findings are presented. Finally, models are developed to predict the dependent variable, in this case, for example, the propensity to visit Frankenmuth.

The procedures used in this study include: sample design, data collection, variable selection, statistics used in data analyses, and the research models used to predict travel decisions.

Sampling Design

The main objective of a sample design is to insure that the sample selected is representative of the population from which it is drawn. Sampling designs may be divided into two basic classifications: namely probability and non-probability sampling. The essence of probability sampling is that each member of the sample population has a known probability of being selected. Probability sampling permits one to generalize from sample results to the population. Basic types of probability sampling include simple random sampling, stratified random sampling, systematic sampling, cluster sampling, and multi-stage sampling. The most frequently used methods of non-probability sampling are purposive or judgmental sampling, and quota sampling. However, these non-probability sampling methods are not commonly used in tourism research. In this study, probability sampling was used.

As was noted in Chapter I, the population of interest in this study is people who requested travel information from the Frankenmuth, Michigan Chamber of Commerce. Specifically, the sampling frame consisted of the 5,967 Americans or Canadians who requested information via a toll free call or by mail from the Frankenmuth Chamber of Commerce between September 1, 1993 and March 15, 1994. According to Woodside and Soni (1988), the highest quality of inquiries come from toll-free call campaigns that may attract more upscale respondents in terms of income, education, and occupational status. For this study, inquirers from businesses and institutions (e.g., travel agencies, tour brokers, libraries), and inquirers from Mexico and overseas countries were excluded from the sample frame because the focus was on English speaking pleasure travelers. The

questionnaire was sent via certified mail to a systematic sample of 1263 individuals randomly selected from the above frame. Of the 1263 surveys mailed, 53 were returned due to insufficient addresses, and 595 completed and usable questionnaires were returned. The response rate based upon the 1210 questionnaires delivered was thus 49.2%.

This response rate is above average for a mail survey of this kind and is especially high considering the length of the questionnaire and the absence of follow-up mailings. Follow-up mailings were not employed because their impact on response rate was assumed to be minimal given that the initial mailing was sent via certified mail. However, there is the potential for non-response bias in this study's results. Non-response bias is a systematic error that occurs when a sample is not fully representative of the population from which it was drawn. It results from respondents differing from non-respondents on key variables measured in the survey. For example, respondents may have been more likely than non-respondents to have visited Frankenmuth and/or to have spent relatively large sums of money there, possibly resulting in exaggerated estimates of the percentage of inquirers who visited Frankenmuth and/or their average expenditures. In the tourism research field, it has been observed that non-visitors are sometimes less inclined to respond to a survey of this type due to a feeling that, since they did not visit, their participation in the survey is unimportant. (To minimize this potential error the cover letter explicitly encouraged non-visitors to respond).

Review of the Questionnaire Design

The questionnaire was designed to obtain the following general information:

- familiarity with the destination; especially, had respondent visited Frankenmuth either before or after requesting information
- kinds of media used to obtain the phone number or address used in requesting information and other information sources used
- travel behavior of visitors (e.g., number in party, purpose of trip, length of stay, and accommodations used)
- level of visitor satisfaction (e.g., satisfaction with the visit to Frankenmuth, intention to visit again, recommendation of Frankenmuth as a travel destination to others, and overall ranking of Frankenmuth as a travel destination)
- elapsed time between inquiry, receipt of information, and visit to Frankenmuth
- expenditures during the visit to Frankenmuth
- brochure quality (e.g., usefulness of brochure, interesting to read, attractiveness of brochure, accuracy of brochure, and overall quality of brochure)
- brochure effects (e.g., increased interest in visiting Frankenmuth, influenced decision to visit Frankenmuth, and increased spending in Frankenmuth)
- demographic and socioeconomic characteristics of inquirers (e.g., gender, residence, employment status, age, and income level)

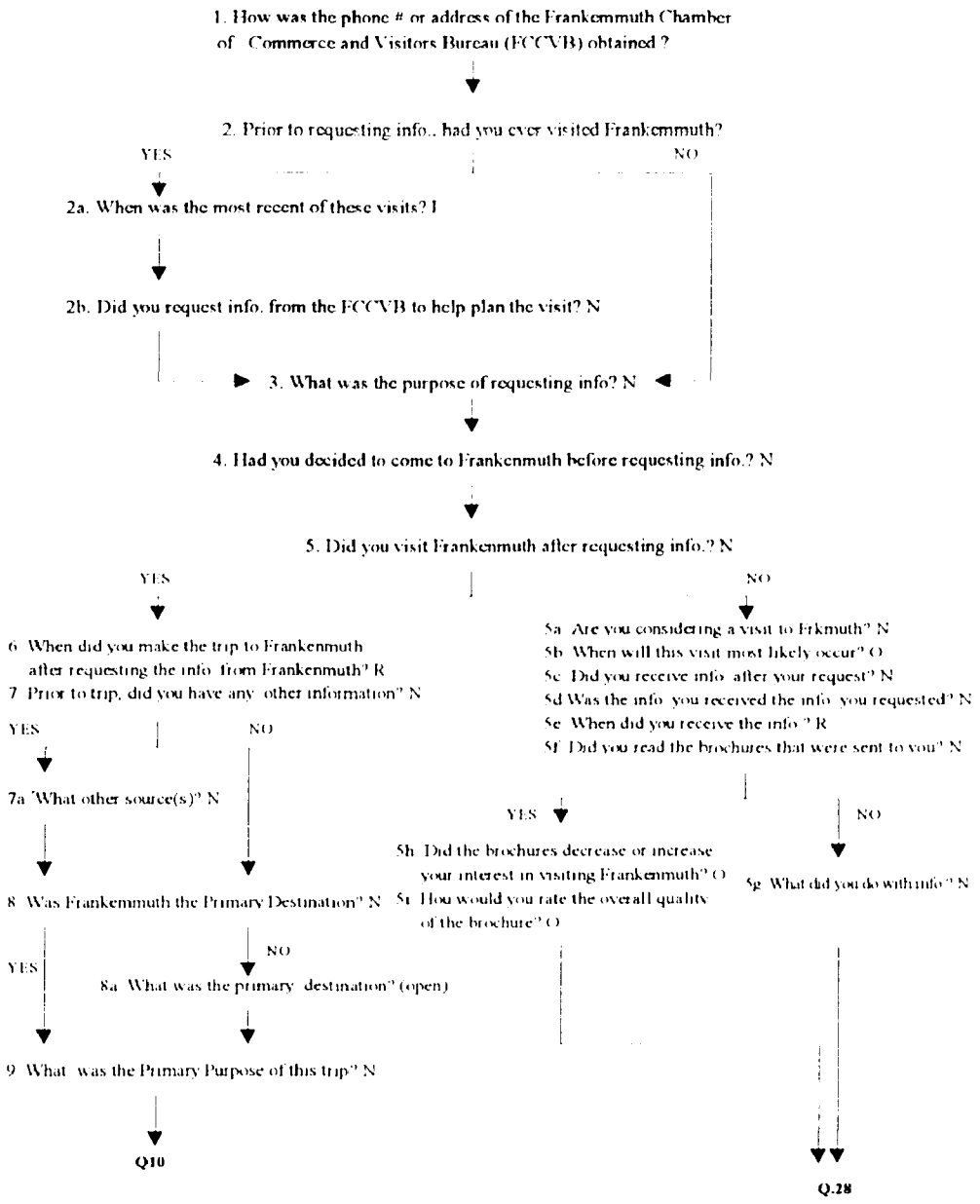
The full set of questions included in the questionnaire is contained in Appendix A. Note that responses are tabulated and included with each question in Appendix B. As can

be seen in Figure 4, a rather complex survey design was required to obtain the information required for the study from respondents. The nature of the data obtained (nominal, ordinal, interval, and ratio) is noted with each question in Figure 4.

Data Collection

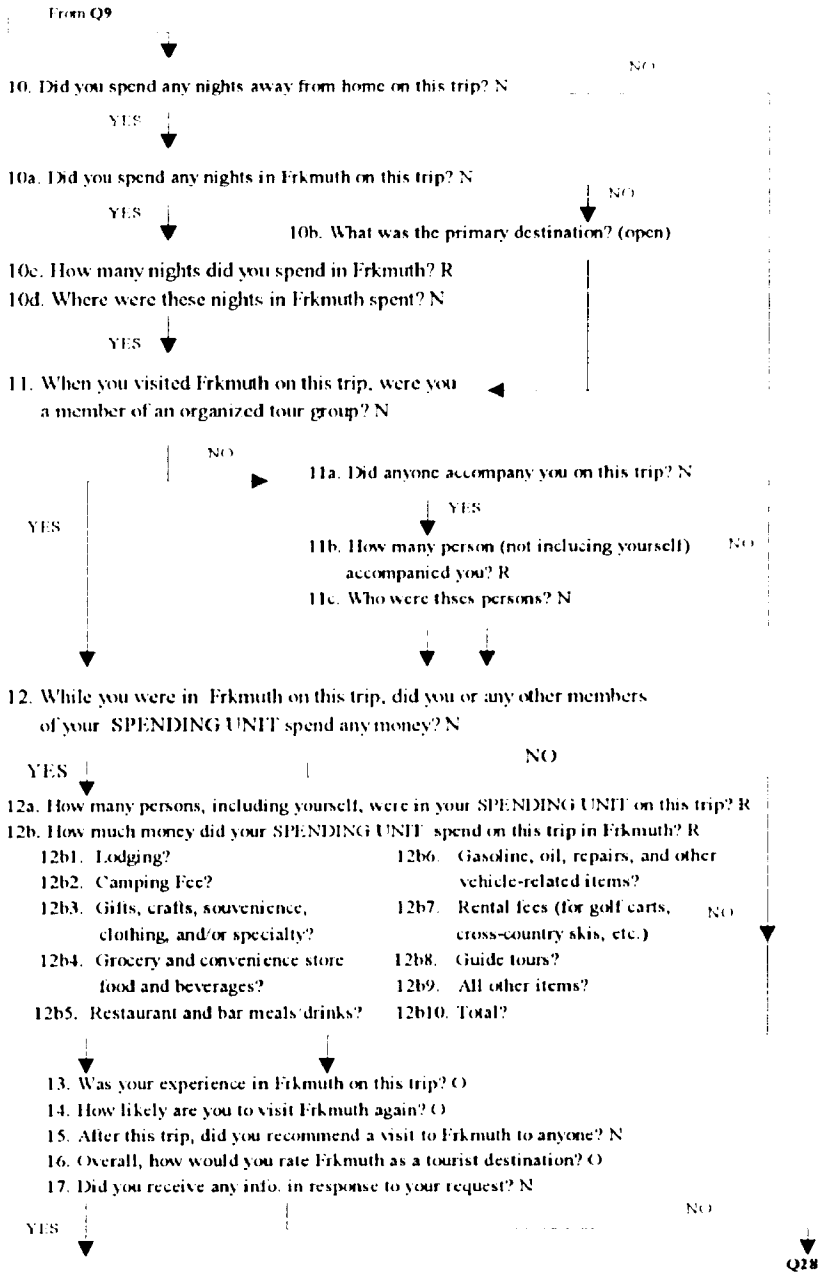
As been mentioned earlier, a mail survey was applied to collect data for this study. The mail survey is an important and extensively used data collection technique of both industry and academic researchers. The advantages of mail surveys include geographic flexibility, relatively low cost, lack of interviewer bias, respondent convenience, respondent anonymity, and relative speed of completion. Although there are several disadvantages of the mail survey, low response rate is probably mentioned most frequently. One of the unfortunate side effects of a low response rate is the potential for non-response bias.

Many techniques have been designed and utilized to increase response rate. Linsky (1975) divided these techniques into three categories: (1). Mechanical and perceptual techniques that include pre-contact, postcard enclosure, follow-up, types of mailing for outgoing and return envelopes, length of the questionnaire, printed versus mimeographed questionnaires, pre-coded versus open-ended questionnaires, and color of the questionnaires; (2). Broad motivational techniques that include anonymity, cover letters, letterhead, sponsoring organizations and titles, and use of deadlines; (3). Direct motivational techniques/rewards that include cash rewards, enclosure of prizes premiums and other non-cash rewards.



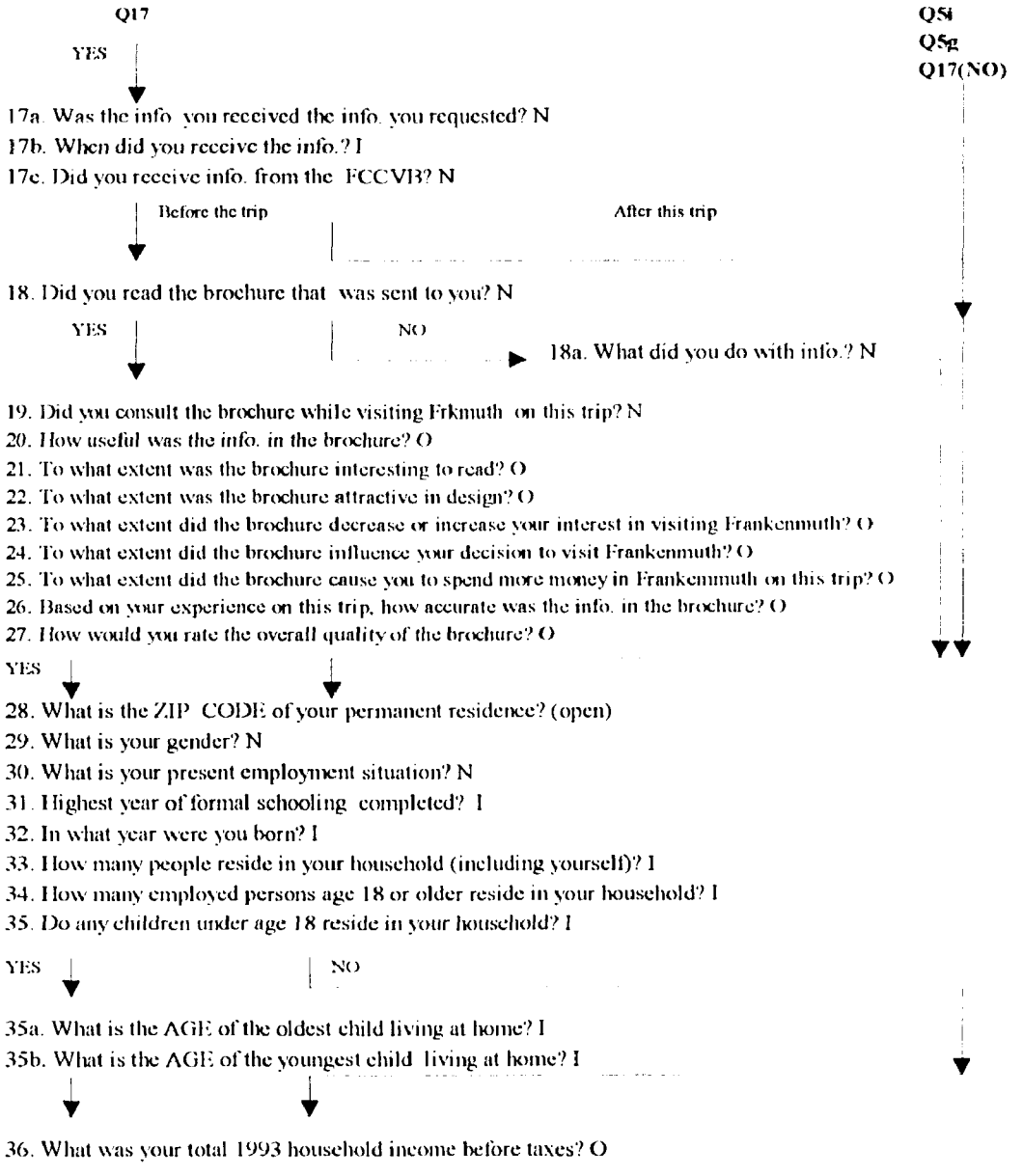
N = Nominal data **O = Ordinal data**
I = Interval data **R = Ratio data**

Figure 4: Flowchart of Questionnaire Design



N = Nominal data **O = Ordinal data**
I = Interval data **R = Ratio data**

Figure 4 (cont'd)



N = Nominal data **O = Ordinal data**
I = Interval data **R = Ratio data**

Figure 4 (cont'd)

In this study, cover letters with letterhead were personalized and individually signed. The questionnaires were mailed with a stamped return envelope via certified mail to the designated sample. Coupons and other incentives were enclosed with the questionnaire. In addition, three prizes were sent to respondents that were selected from returned questionnaires. As has been noted, follow-up mailings were not part of the sample design, rather available project funds were allocated to response rate boosting strategies, such as using certified mail, which have proven more effective in enhancing response rates in mail survey. A total of 595 usable questionnaires were returned. The response rate was 49.2% after an adjustment for undeliverable mail was made.

Data Preparation

Data preparation is the procedure of organizing data for use in statistical analysis. All data to be entered into the computer must be given a structured form or format so that they can be processed by a computer. The document explaining how the data were coded and the form of the file, is called a code book. In coding data, each unit for which data is collected is called a case. There are a number of methods for assigning values to each piece of information. The process of assigning values to an item is known as scoring. The different kinds of values that are assigned are known as "level of measurement". The analysis technique used to answer a researchable question will depend upon the level of measurement employed. The level of measurement indicates the ordering of the information or the facts, and the distance of one value from another.

Data may be characterized as either discrete or continuous. In this study, for example, the variable relative rating of brochure attractiveness was measured on a 7 point scale ranging from 1 (very unattractive) to 7 (very attractive) and thus is a discrete variable. The actual distance respondents travel away from home is an example of a continuous variable used in this study. Four levels of measurement (nominal, ordinal, interval, and ratio) are commonly used in survey research applications. Definitions of these four levels of measurement follow. Nominal data are those where values assigned do not relate to the characteristics of a case nor the relationship of one case to another. The numbers are merely labels. An example of a nominal variable used in this study is gender (e.g., coding male = 1 and female = 2 would be a nominal scale; males do not come first; two males do not add up to a female). Ordinal data are those which can be ranked according to some hierarchical scheme but whose absolute position with respect to the other values can not be assigned. An example from this study of an ordinal variable is "satisfaction after trip" (Question 13). Scores on this attitude scale are assigned 1 as "much worse than expected", 2 as "somewhat worse than expected", 3 as "about expected", 4 as "somewhat better than expected", and 5 as "much better than expected". The difference between the ranks need not be equal. Interval measurements also utilize numbers to describe conditions, but these numbers have more meaning than do ordinal measurements. Interval data are those where the exact distance between each value and the magnitude of this distance are known. The most common example of an interval measurement is the Fahrenheit temperature scale. The difference between 70 degrees and 80 degrees is the same as the difference between 50 degrees and 60 degrees. Ratio data

have all the characteristics of interval data, but they have the additional characteristic of a true zero value. In comparison with the Fahrenheit temperature scale, the Kelvin temperature scale is a ratio measurement. Thus, while 40 degrees Fahrenheit is not twice as warm as 20 degrees Fahrenheit, 200 Kelvins is twice as warm as 100 Kelvins. In this study, age, length of stay, travel party size, and year of attaining school are examples of ratio measurement.

The data preparation procedures used for this study are described below. Questionnaires were returned to the Travel, Tourism and Recreation Resource Center (TTRRC) at Michigan State University. Returned questionnaires were dated and checked for completeness. SPSS for Windows Release 6.1 was employed to conduct data entry and data analysis. SPSS for Windows Release 6.1 brings the full power of the mainframe version of SPSS to the personal computer environment. It enables one to perform many analyses on a PC that were once possible only on much larger machines. A code book was prepared to guide coding. The total number of questionnaires received was 600. Five useless questionnaires were deleted. Hence, the 595 questionnaires were available for analyses by the program.

The frequency statistics method was applied to perform data cleaning. In addition, several crosstabulation tests were performed to further enhance data quality. In order to obtain useful data for analysis, data transformation procedures were employed. Data transformations are often used to collapse categories of nominal or ordinal data to obtain a smaller, more useful number of categories. For example, in this study, household income (Question 36) wass collapsed from 12 levels into 5 levels in comparisons of

socioeconomic characteristics between visitors and non-visitors. Binary type data, such as male/female, yes/no, were coded as a dummy variable (e.g., male = 1 and female = 0, yes = 1 and no = 0) to perform data analyses. Several other data transformations and recoding processes were employed as needed to perform desired statistical analyses.

Variable Selection

1. Medium/media sources: These include: newspaper article, newspaper advertisement, magazine article, magazine advertisement, radio advertisement, television advertisement, friend/relative/co-worker, Frankenmuth area business, travel show, travel agent, Michigan Travel Bureau, regional tourist association, telephone directory, brochure, and others. These data were assigned as dummy variables (e.g., 0 = did not choose this medium as an information source and 1= did choose this medium as an information source).

2. Travel behavior variables: These variables include party size, length of stay in Frankenmuth, accommodations used in Frankenmuth, and purpose of trip. Party size and nights stayed in Frankenmuth are ratio data. Accommodations used and purpose of trip are nominal data.

3. Travel satisfaction variables: These variables include trip experience rating, intention to visit again, recommendation to others, destination ranking. Experience, intention, and destination ranking were measured using a Likert scale and thus are ordinal data; and recommendation is a nominal variable.

4. Brochure readership variables: These variables include "read" brochure and "consult" brochure. Both are nominal variables.

5. Elapsed time variables: These variables include time between inquiry and receipt of information for all inquirers and time between information receipt and the visit for visitors. These variables are continuous (ratio) variables.

6. Spending pattern variables: There involve the actual dollars spent by parties during their stay in Frankenmuth. They consist of the following categories: money spent on lodging, camping fees, gifts, grocery and convenience store purchases, restaurant and bar spending, gasoline and auto-related purchases, rental fees, guided tours, and all other items. All these variables are continuous (ratio) variables.

7. Brochure variables: These variables include brochure: usefulness, interest, attractiveness, influence, accuracy, and quality. All of these variables are ordinal variables.

8. Socioeconomic variables: These variables include: sex, age, employment status, educational background, household size, and household income. Age, educational background and household size are continuous variables. Household income is an ordinal variable. Sex and employment status are categorical variables (nominal variables).

Data Analysis

In general, analytic techniques are used to gain an understanding of phenomena by discovering relationships between variables which are thought to affect the phenomena. The proper approach for examining data is to draw on prior empirical studies and theoretical knowledge and insight about the social processes that might be involved and

then to test whether the data in question exhibit the characteristics expected from prior research and accepted related theory. In other words, to guide the search for patterns in the data, we can use theoretical models of what might be happening. A model is a theory or set of hypotheses which attempts to explain the connections and interrelationships between concepts (Gilbert, 1969).

What particular statistical test should be used to decide whether a result is statistically significant or not depends on: (1) Are the variables related or from the different groups?; (2) Are the variables categorical or non-categorical?; (3) Are the variables normally distributed or distribution free?; (4) Do the two or more groups being compared consist of different individuals (unrelated) or ones which are the same or have been matched (related)?; and (5) How many variables groups are compared?

In order to study the individual characteristics of inquirers and test the factors that influence their travel decisions, inquirers were divided into: (1) those who made a visit after inquiry and those who did not make a visit after inquiry , and (2) first-time visitors (those visitors who had not visited Frankenmuth before) and repeat visitors (those visitors who had been to Frankenmuth before). The research was designed to further understanding of : (1) behavior differences between visitors and non-visitors; (2) behavior differences between first-time and repeat visitors; and (3) factors that influence travel decision making in general. Data analyses included the following procedures: (1) descriptive statistical analysis for the overall data; (2) statistical significance tests were applied to test for differences between visitors and non-visitors, and first-time and repeat visitors; (3) relationship tests were conducted to investigate association between factors

and travel decision making; and finally (4) Logistic Regression Analysis (LRA) was used to predict future visits.

Descriptive Statistics

Descriptive statistical analyses involve procedures used to summarize, organize, and describe quantitative information. Univariate analysis is one of the descriptive statistics procedures used for gaining understanding of the nature of and characteristics of a single variable. The most common way to present data in tabular form is as a frequency distribution. In addition to the real numerical values for items in the distribution, their percentage of the total is often also included. Another type of univariate analysis is the examination of the distribution of the observation to include providing measures of central tendency exhibited by the data. There are three measures of central tendency that may be used for this purpose: mode, median, and mean. The mode and median generally can be read directly or easily estimated from the frequency table. Descriptive statistics used in this study include: frequency counts, percentages, modes, medians, and means. In addition, cross-tabulations, also called contingency tables, were used to explore individual characteristics across different segments.

Statistical Significance Tests

A bivariate analysis is conducted to examine the significance of the relationship or association between two variables. A bivariate analysis is used to test hypotheses developed to guide analyses. In general, bivariate analysis is based on two concepts:

correlation and cross-tabulation. Correlation coefficients indicate the degree to which variation in one variable is related to variation in another variable (e.g., pearson product moment correlation and Spearman rank-order correlation). A cross-tabulation is a joint frequency distribution of two variables that are at the nominal or ordinal level of measurement.

Correlation coefficients can be either positive or negative. A positive relationship between two variables indicates that a high score on one variable is associated with a high score on the variable correlated with it. A negative relationship or correlation indicates that a low score on one variable is associated with a high score on the other variable. Correlation may be high or low between variables. Low correlation coefficients may be either due to the fact that the variables are not associated or that the variables are related but in a non-linear relationship.

To determine whether a statistically significant relationship exists between variables, an analysis of nominal data with a two-variable cross-tabulation could be conducted using the chi-square (X^2) statistic as the decision criterion. The chi-square test for independence provides a standard for deciding whether two variables are statistically independent. In other words, chi-square provides a measure of how much the observed and expected frequencies differ for two variables. But, how much difference between observed frequencies and expected frequencies is needed to reject the null hypothesis? The choice depends on two additional considerations: the degrees of freedom (*df*) involved in the data set and the desired level of significance (P). According to Reynolds (1984), the chi-square test involves the same logic as advanced multivariate procedures. The

chi-square analysis consists of four parts: (1). the null hypothesis (H_0); (2) expected frequencies derived under the assumption that the null hypothesis is true; (3) a comparison of these expected values with the corresponding observed frequencies; and (4) a judgment about whether or not the difference between expected and observed frequencies could have arisen by chance.

However, when a statistically significant relationship is found it only indicates an association between two variables and does not imply that a causal relationship exists between the two variables. In this study, chi-square was applied to test for differences between two variables (e.g., first-time vs. repeat visitors) in terms of media sources used, travel behavior, spending patterns, prior experience with Frankenmuth, intention to visit Frankenmuth, brochure quality, brochure effects, and socioeconomic and demographic characteristics of respondents.

The t-test is used to test the hypothesis that two groups have the same population mean. More generally, whether the difference between two means differs significantly is the basis for the t-test. The procedures for conducting the t-test are as follows: (1) calculate the mean for each group to be compared; (2) subtract one mean from the other to generate the difference between the two; (3) calculate the t statistic by dividing the difference of the two sample means by its standard error; (4) calculate the observed significance level; (5) reject the hypothesis that two means are equal in the population if the observed significance level is small ($P < 0.05$).

Developing a Prediction Functions with Logistic Regression Analysis

The validity of inferences drawn from modern statistical modeling techniques requires that the underlying assumptions of the models are met. A critical step in assessing the appropriateness of such a model is to examine its fit, or how well the model describes the observed data. Without such an analysis, the inferences drawn from the model may be misleading or even totally incorrect.

In the analyses of dichotomous dependent variables, researchers often use an ordinary least squares (OSL) regression procedure and defend its use on several grounds, including its simplicity, robustness, and straightforward interpretation (Cleary & Angel, 1984). However, the use of OLS with a binary dependent variable is technically incorrect because several assumptions of the OLS model are violated. Binary dependent variables are not normally distributed, the dependent and independent variables do not have a continuous linear relationship, and the error terms are not independent nor homoscedastic. Also, the predicted values of the estimated dependent value will not be constrained between 0 and 1, which in essence violates the definition of probability.

Logistic regression and discriminant analysis both could be used to analyze a dichotomous dependent variable. Discriminant analysis is used to assign an observation to two groups (1 or 0 for the dependent variable) based on the predicted value that resulted from applying the discriminant analysis equation. Logistic regression is a technique to analyze the effects of a set of independent variables on a dichotomous dependent variable which involves minimal statistical bias and loss of information (Walsh, 1987). In other words, discriminat analysis assigns observations into two different groups without

prediction, and logistic regression predicts whether or not an event will occur in future. The purpose of logistic regression differs slightly from discriminant analysis. Logistic regression is used to make inferences about the relationship between an independent and a dependent variable. For this study, logistic regression is used as a model to investigate factors that influence destination decision making and to predict the propensity to visit Frankenmuth in the near future.

In summary, this study involved a cross-sectional mail survey research. Data were collected by means of a questionnaire containing 36 questions. The majority of these were Likert-scale items based on a scale from "low degree" to "high degree" and dichotomous items based on a yes/no scale. Five hundred ninety-five questionnaires were used in data analysis. Chi-square analyses and t-tests were performed to test the difference between two groups. In addition, logistic analysis was employed to predict the propensity of visits to Frankenmuth using independent variables identified from applications of chi-square analyses and t-tests.

CHAPTER IV

FINDINGS AND RESULTS

In this chapter, survey findings are presented in the form of descriptive statistics useful in comparing visitors to non-visitors and first time visitors to repeat visitors. Key differences found will be noted and discussed. Data needed to test the study hypotheses will be presented along with results relevant to the statistical tests performed. Finally, results from applying the logistic regression model to the data will be presented along with an analysis of its effectiveness as a predictor of visits to Frankenmuth.

The chapter is divided into the following four major sections: 1) the characteristics of visitors vs. non-visitors; 2) a comparison of the characteristics of first time vs. repeat visitors; 3) the results from testing of the hypotheses; and 4) the results from the application of the logistic regression model to predict visits to Frankenmuth.

Characteristics of Visitors vs. Non-Visitors

There are many internal and external factors that influence an individual's travel behavior. A better understanding of what these factors are is crucial to destination marketers interested in enhancing the effectiveness of their marketing programs. According to Moutinho (1987), acquiring and organizing information play an important role in travel decision-making. Thus, researchers should investigate factors that influence

the process of travel decision-making including elapsed time between when information is requested and when it is received.

Dholakia *et. al.* (1993) asserted that the elapsed time between when information is received and decision-making is an important factor influencing buying behavior. In the case of the tourism industry, a tourist does not want to take the risk and make a visit if s/he does not have enough destination information. An inquirer will choose alternative destinations if s/he has to wait too long to receive requested travel destination information. Therefore, the elapsed time between inquiry and receipt of information is a factor which could influence the decision to visit a destination. Thus, the longer the elapsed time the less likely one is to take a visit .

Results obtained for elapsed time between inquiry and receipt of information for visitors and nonvisitors are presented in Table 2. Fifty-seven percent of all visitors indicated that they received their requested information within 7 days of requesting it whereas only about 33% of nonvisitors received their requested information within one week. The mean elapsed time reported by visitors (9.44 days) was about half that reported by non-visitors (17.92 days). T-test results indicate that this difference is statistically significant. Thus, if one can totally discount factors which may have biased respondents perceptions of elapsed time, results provide convincing evidence of the importance of expediting delivery of information requested.

Table 2. Elapsed Time between Inquiry and Receipt of Information by Visitors and Nonvisitors

Elapsed time	Visitors	Nonvisitors	All Respondents
	%	%	%
1 week	57.1	32.8	43.0
2 weeks	26.6	31.2	29.3
3 weeks	9.8	12.3	11.2
4 weeks	4.3	8.3	6.6
5 weeks	0	2.4	1.4
6 weeks	0	4.0	2.3
7 weeks	0	2.4	1.4
8 weeks	1.1	0.8	0.9
9 weeks	0	0.8	0.5
10 weeks	0.5	0.8	0.7
11 weeks	0	0.4	0.2
12 weeks	0	1.6	0.9
13 weeks and more	0.5	2.4	1.6

* mean elapsed time for visitors (9.44 days) and non-visitors (17.92 days)
* T-test probability is .000 indicating a significant difference between visitors and non-visitors

Crompton (1966) introduced the gravity model to forecast trips between a single origin and a single destination within a specified time period. The gravity model is designed to reflect the relative strength of distance as a deterrent to travel. With his model, Crampon demonstrated that the longer the distance between origin and destination, the fewer the number of trips that will be taken. The gravity model appears to apply to the data collected in this study which is summarized in Table 3. Eighty-percent of visitors

Table 3. Distance between Home and Travel Destination by Visitors and Nonvisitors

Distance	Visitors	Nonvisitors	All Respondents
	%	%	%
under 100 miles	42.2	21.3	30.2
101 - 200 miles	19.3	18.9	19.1
201 - 300 miles	19.7	17.7	18.5
301 - 400 miles	11.5	20.7	16.8
401 - 500 miles	2.5	4.3	3.5
501 - 600 miles	0.8	4.0	2.6
601 - 700 miles	1.6	3.4	2.6
701 - 800 miles	0.8	4.6	3.0
801 - 900 miles	1.2	0.6	0.9
901 - 1000 miles	0	0.6	0.3
more than 1001 miles	0.4	4.0	2.4

* mean distance for visitors (196.98 miles) and non-visitors (336.71 miles)
* T-test probability is .000 indicating a significant difference between visitors and non-visitors

reported that they lived within a 300 miles distance of Frankenmuth, whereas only 58% of nonvisitors indicated that they lived within 300 miles of Frankenmuth. The tendency of visitors to live closer and travel a shorter distance than non-visitors is confirmed by the reported mean distance for visitors (196.98 miles) and non-visitors (336.71 miles). T-test results confirm that the observed difference is statistically significant.

The demographic and socioeconomic characteristics of the total sample, visitors, and non-visitors are presented in Table 4. Results indicate that there are no significant differences across employment status, education, age, and income for visitors and non-visitors. Results also show that the income bracket mode of inquirers was $25,000 to

Table 4. Demographic and Socioeconomic Characteristics of the Sample.

Variable	Visitors (n=255)	Nonvisitors (n=330)	All Respondents (n=595)
	%	%	%
Employment			
Working full time	51.4	54.4	53.4
Working part time	12.5	12.8	12.6
Temporarily unemployed	1.2	1.5	1.3
Homemaker	15.7	9.7	12.1
Retired	14.9	16.7	16.0
Student	2.4	3.3	2.9
Other	1.9	1.5	1.7
Education			
Grade school	1.4	0.9	1.2
Some high school	2.4	2.5	2.5
High school graduate	34.4	33.7	34.0
Some college/university	32.0	31.0	31.2
College/university graduate	17.8	13.8	15.8
Post graduate/advanced degree	11.9	18.0	15.4
Age			
Under 25	4.3	4.0	4.1
25 - 34	20.0	13.3	16.4
35 - 49	41.1	41.5	41.2
50 - 65	24.5	30.0	27.5
Above 65	10.2	11.1	10.9
Income			
Under $25,000	14.8	14.0	14.7
$25,000 - $49,999	38.6	38.8	38.7
$50,000 - $74,999	29.2	30.1	29.6
$75,000 - $104,999	12.1	11.6	11.6
$105,000 and Above	5.3	5.5	5.4

$49,999. The most frequently indicated employment status for visitors and nonvisitors is working full time (51.4%, and 54.4% respectively). The majority of the respondents were in the 34 to 49 year age bracket. Approximately, 33.7% of respondents indicated that they graduated from high school, and 31.2% indicated that they had some college/university education. In summary, demographic and socioeconomic variables are so similar for visitors and non-visitors that they contribute little to understanding of trip decision making in this case and, thus, provide no basis for enhancing marketing program effectiveness.

The distribution of visitors, nonvisitors, and all respondents for the top seven state/province origins is presented in Table 5. Michigan residents accounted for 44% of all respondents. The adjacent states of Ohio, Illinois, and Indiana and the province of Ontario accounted for an additional 40% of all respondents. This information corresponds to the results presented in Table 3 which show that the longer the travel distance the fewer the trips that will be made.

It should be noted, however, that the data in Table 5 are not based totally on gravity distance concept because differential awareness stimulated by advertising is also involved. Thus, where Frankenmuth places advertising influences the geography from which inquiries are received. The geographic sources of inquirers in this case is generally consistent with the Frankenmuth Chamber of Commerce/Convention & Visitors Bureau's geographic advertising/program. In 1994, Frankenmuth Chamber of Commerce spent $33,000 in promoting Frankenmuth as a destination in the Chicago Sun Times, Cleveland Plain Dealer, Columbus Dispatch, Fort Wayne News, Indianapolis Star News, Michigan Living, Saginaw Valley News Magazine and USA Weekend (Frankenmuth Chamber of

Table 5. State/Province of Residence of Respondents: Visitors vs. Nonvisitors.

State/Province	Visitor		Nonvisitors		All Respondents	
	Rank	%	Rank	%	Rank	%
Michigan	1	56.9	1	32.7	1	44.0
Illinois	3	10.6	2	16.1	2	13.3
Ohio	2	12.2	3	14.5	3	13.3
Indiana	4	8.6	4	7.9	4	8.2
Ontario (Canada)	5	4.3	5	6.4	5	5.3
Wisconsin	7	.8	6	2.1	6	2.7
New York	6	1.2	7	2.1	7	1.7

Commerce and Convention & Visitors Bureau, 1994). With the exception of the latter, these are all media with readership concentrated in Michigan and adjacent states. A detailed evaluation of the geographic allocation of Frankenmuth's advertising program budget and its effectiveness would be needed to assess the relative importance of distance and advertising in generating inquirers, and this was not within the scope established for this study.

First-time Visitors and Repeat Visitors

In this section, visitors who were familiar with the travel destination from one or more prior visits and those who were first-time visitors are compared. Note that first-time and repeat visitors here only apply to this sample population (i.e. inquirers who responded to the survey) and not to the general population of visitors to Frankenmuth. The two

groups are compared across the followings variables: residence status, travel information sources used, trip purpose, travel behavior, elapsed time between receipt of information and making the trip, ratings of trip experience and satisfaction with Frankenmuth, perceived quality of the brochure and social economic and demographic characteristics.

During the study period, Frankenmuth received 246 individual/party visits from Michigan and other states or provinces from among inquirers who responded to the survey. Residence of respondents is reported in Table 6. Michigan is the major source of tourists to Frankenmuth. In addition, 32% of visitors come from Ohio, Illinois, and Indiana. However, the distribution of residences of repeat vs. first-time visitors differs markedly with Michigan being the source of almost 75% of repeat visitors and only about 33% of first-time visitors. Proximity would appear to be a major stimulus for repeat visitation. This result offers a marketing opportunity for the Frankenmuth Chamber of Commerce/ Convention and Visitor Bureau. Since repeat and first-time visitors are likely to respond to different marketing stimuli, rather than designing one brochure for both groups, two separate brochures could be designed to service the specific information needs of the two groups. Inquiries received from Michigan residents would be satisfied by sending a "repeat-visitor" brochure. A more refined strategy would be to screen inquiries when feasible regardless of residence into first-time and repeat visitors and then to satisfy inquirers with the appropriate brochure for that group.

Table 6. State/Province of Residence of Respondents of Visitors: Repeat vs. First-time Visitors.

State/Province	Repeat Visitors	First-time Visitors	Total Visitors
	(%)	(%)	(%)
Michigan	73.2	32.6	57.3
Ohio	8.7	16.8	11.8
Illinois	7.4	15.8	11.0
Indiana	4.0	17.9	9.3
Ontario	4.0	2.1	3.3

What are the main sources of information, other than FCCVB's brochures, sought when planning a travel destination? Evidence suggests that the social environment, specifically the influence of friends and family, is instrumental in selecting a travel destination (Table 7). Engel et al. (1990) have observed that "hundreds of studies have found that consumers obtain information about products and services from other people , particularly family members, friends and neighbors, and other acquaintances". Results from this study further confirm the importantce of other peoples' recommendations in the travel decision process. In Table 7, the most frequently used medium by all visitors was "friend, relative, and co-worker". The difference in use of this source between repeat and first-time visitors is dramatic with only 20% of repeat visitors using it vs. 43.75% of first-time visitors.

Given the above noted striking difference in use of friends and relatives as an information source, it is appropriate to explore its root cause in a behavioral sense and its marketing implications. Underlying this behavior is most likely differences in perceived

Table 7. Sources of Information Used by Repeat and First-time Visitors

Sources	Repeat Visitors	First-time Visitors	Total Visitors
	(%)	(%)	(%)
Newspaper article	4.62	3.13	4.12
Newspaper advertisement	3.08	1.56	2.58
Magazine article	8.46	4.69	7.22
Magazine advertisement	10.00	1.56	7.22
Radio advertisement	1.54	1.56	1.55
Television advertisement	5.38	1.56	4.12
Friend/relative/co-worker	20.00	43.75	27.84
Frankenmuth area business	8.46	4.69	7.22
Travel agent	2.31	6.25	3.61
Michigan Travel Bureau	10.00	10.94	10.31
Regional tourist association	4.62	4.69	4.64
Brochure	16.92	7.81	13.92
Other	4.62	7.81	5.67

risks associated with choosing a travel destination with perceived risks being far greater for first-time visitors. Risk avoidance behavior would dictate that first-time visitors would seek out the most creditable information sources available to them. Of the sources listed in Table 7, friends and relatives and the Michigan Travel Bureau would clearly be perceived as the most creditable in part because the others are likely to be perceived as less objective. Half of first-time visitors sought information from friends and relatives or the Michigan Travel Bureau whereas only 30% of repeat visitors used these sources.

The marketing implications of these results are clear; if a destination's focus is on attracting first-time visitors, its strategy should be to stimulate recommendations from prospective visitors friends and relatives and/or the Michigan Travel Bureau. The former are best influenced through on-site marketing to visitors and doing everything possible to insure that visitors leave happy. Working with the Michigan Travel Bureau could include providing it with the most update information about Frankenmuth and providing valuable discount coupons for it to distribute to inquirers.

Visitors, other than day trippers, mainly stayed in a "hotel or motel" during their trip in Frankenmuth (60.4%) (See Table 8). A small portion of visitors stayed in campgrounds (2.2%). The data indicate that the use of accommodations is very similar for repeat and first-time visitors; however, nearly half of repeat visitors were on day trips using no accommodations in Frankenmuth whereas only about 20% of first-time visitors were on day trips. This difference in proportion of day trips is consistent with the earlier finding that repeat visitors are significantly more likely to be in state residents and to travel a shorter distance to reach Frankenmuth. The information needs of first-time visitors are more focused on accommodations than are those of repeat visitors who are more likely to have acquired such knowledge from previous visits and less likely to be seeking such information in any case. Thus, only minimal space in brochures targeting repeat visitors needs to be devoted to accommodations; a brief listing of properties and their locations would probably be sufficient. Whereas brochures targeting first-time visitors should present much more information on accommodations since their interest in such information can be expected to very high.

Table 8. Accommodations used by Repeat and First-time Visitors

Accommodation	Repeat Visitors	First-time Visitors	Total Visitors
	%	%	
Hotel or motel	52.1	76.0	60.4
Bed & Breakfast	0.0	0.0	0.0
Campground	1.7	2.9	2.2
Friend's/relative's home	0.0	0.0	0.0
Second home	0.0	0.0	0.0
Other	0.0	0.0	0.0
None (Day trips)	46.2	21.1	37.4

As shown in Table 9, the reported mode party size was 2 persons. First-time visitors were far more likely to be members of two person parties than are repeat visitors. The average party size was 3.4 persons; however, repeat visitors' party size was found to be larger (3.6 persons) than that of first-time visitors (3.1 persons). As mentioned earlier, day trippers are a very important portion of total visitors, and Table 9 shows that most of visitors were day trippers. The composition of the parties was mainly relatives. The repeat visitors segment included a higher percentage of the "friends and relatives" category. In summary, these results confirm that Frankenmuth is a short stay destination which attracts primarily couples and families. First-time visitors are more likely to be made up of related couples who spend at least one night in Frankenmuth. Overall, first-time visitors are more likely to stay longer than are repeat visitors.

Table 9. Party Size, Length of Stay, and Makeup of Party by Repeat and First-time Visitors

Sources	Repeat Visitors	First-time Visitors	Total Visitors
	%	%	%
Party size			
1	0.0	2.2	0.9
2	37.6	49.5	42.3
3	14.3	17.2	15.4
4-5	34.6	24.8	30.4
6 and more	13.5	6.3	11.0
Length of stay			
0 (day trip)	58.2	47.5	54.1
1 night	21.6	18.8	20.4
2 nights	13.7	19.8	16.1
3 nights or more	6.5	13.9	9.4
Makeup of party			
Friends	18.3	22.1	19.9
Relatives	58.0	70.9	63.1
Friends and relatives	23.7	7.0	17.1
mean of Party size	3.6	3.1	3.4
mean of length of stay (nights)	.76	1.06	.84

In the following section, satisfaction with Frankenmuth as a travel destination among repeat and first-time visitors is investigated. Satisfaction is frequently used to refer to the fulfillment of a motivating state or the meeting of an expectation, through the purchase of a product or service. In this study, satisfaction is the result of interaction between tourists' experiences on the Frankenmuth trip and the expectations that they had prior to visiting Frankenmuth. In other words, satisfaction with the experience depends on how trips are viewed by tourists. Satisfaction is examined in the context of: (1) travel experience, (2) intention to visit again, (3) likelihood to recommend Frankenmuth to

others, and (4) overall ranking of Frankenmuth as a travel destination. As can be seen from the results presented in Table 10, first-time visitors reported a higher level of satisfaction with their trip than did repeat visitors. The Frankenmuth trip exceeded the expectations of the majority of all visitors, but it was somewhat better or much better than expected for almost 70% of first-time visitors but exceeded expectations for only about half (52%) of repeat visitors. This is very good news since such a high performance in exceeding customer satisfaction is indicative of an exceptionally good product offering. However, it may suggest that the brochure used to promote Frankenmuth may be perceived as understating the product Frankenmuth has to offer its visitors.

Reported intentions to visit again is another, but less direct, measure of visitors satisfaction with Frankenmuth as a travel destination. Sixty-one percent of repeat visitors indicated they were certain to visit again while only 33.3% of first-time visitors indicated that they were certain to visit again. Ninety-five percent of repeat visitors indicated that they were "likely to visit again" or "certain to visit again" whereas slightly fewer first-time visitors (81%) indicated such strong intentions to visit again.

Ninety-two percent of all visitors would recommend Frankenmuth as a destination choice to others. First-time visitors are more likely to recommend Frankenmuth to others than are repeat visitors. Approximately, 94.1% of the visitors ranked Frankenmuth as a somewhat better than average destination to visit; 32.2% of all the visitors identified Frankenmuth as an excellent travel destination. Repeat visitors ranked Frankenmuth more often as an excellent travel destination than did first-time visitors.

Table 10. Four Measures of Satisfaction with Frankenmuth: Repeat vs. First-time Visitors

Satisfaction	Repeat Visitors	First-time Visitors	Total Visitors
Experience (this trip)	%	%	%
Much worse than expected	0.0	1.1	0.4
Somewhat worse than expected	5.5	2.2	4.2
About what you expected	42.5	26.9	36.4
Somewhat better than expected	28.1	36.6	31.4
Much better than expected	24.0	33.3	27.6
Intention to visit (again)			
Certain to not visit again	0.7	1.1	0.8
Unlikely to visit again	1.4	1.1	1.2
Uncertain whether visit again	3.4	17.0	8.7
Likely to visit again	33.3	47.9	39.0
Certain to visit again	61.2	33.0	50.2
Will recommend to others			
Yes	81.1	94.6	86.1
No	11.5	2.2	8.3
Don't remember	7.4	3.2	5.6
Overall ranking			
1 - terrible	0.0	0.0	0.0
2	0.7	1.1	0.8
3	0.7	1.1	0.8
4	1.4	8.6	4.2
5	26.8	35.5	29.7
6	33.6	30.1	32.2
7 - excellent	37.7	23.7	32.2

In summary, the experience derived from the tourist product or service evaluated in this study was positive and better than expected by consumers. These results confirm that Frankenmuth is an attractive travel destination which generally exceeds consumer expectations. Repeat visitors appear to be somewhat more satisfied with Frankenmuth than first-time visitors who indicated a lower likelihood for a repeat visit and a somewhat lower overall ranking of Frankenmuth as a desirable destination to visit. For many first-time visitors, Frankenmuth proved to be worth a visit but lacking in what is needed to insure a repeat visit. Thus, in future marketing research, it would be beneficial to assess what changes in the product offering are needed to encourage more repeat visits to Frankenmuth.

Information obtained on the demographic and socioeconomic characteristics of repeat and first-time visitors are presented in Table 11. The mode reported working status of visitors is "working full time" and about twice as many first-time visitors are retired (19.8) as are repeat visitors (11.8%). Respondents are relatively well educated; most (96%) have completed at least high school. First-time visitors are somewhat better educated than repeat visitors. The mode age group of respondents is 35 to 49 years, followed by the 50 to 65 years age segment. First-time visitors are more likely to be senior citizens. The modal income bracket of visitors is $25,000 to $49,999 (39.2%), followed by the $50,000 to $74,999 (30.7%) category. First-time visitors are somewhat more likely to report higher incomes.

Table 11. Demographic and Socioeconomic Characteristics of Repeat and First-time Visitors

Demographic & Socioeconomic Characteristics	Repeat Visitors	First-time Visitors	Total Visitors
	%	%	%
Employment			
Working full time	52.3	50.5	51.6
Working part time	12.4	12.9	12.6
Temporarily unemployed	1.3	1.1	1.2
Homemaker	17.6	12.9	15.7
Retired	11.8	19.8	15.0
Student	2.6	2.0	2.4
Other	2.0	1.0	1.6
Education			
Grade school	2.0	0.0	1.2
Some high school	2.0	2.1	2.1
High school graduate	34.0	34.7	34.3
Some college/university	34.7	29.5	32.6
College/university graduate	17.7	18.9	17.8
Post graduate/advanced degree	9.5	14.7	11.9
Age			
Under 25	4.0	5.3	4.5
25 - 34	21.5	18.1	20.2
35 - 49	41.6	40.4	41.2
50 - 65	24.8	23.4	24.3
Above 65	8.1	12.8	9.9
Income			
Under $25,000	10.0	18.3	13.2
$25,000 - $49,999	38.5	40.2	39.2
$50,000 - $74,999	34.5	24.4	30.7
$75,000 - $104,999	13.1	9.8	11.8
$105,000 and Above	3.5	7.3	5.2

Tests of Hypotheses

As noted in Chapter I, two broad hypotheses were developed to guide pursuit of the objectives of this study. Hypothesis 1, reproduced below, focuses on visitors vs. nonvisitors; Hypothesis 2, presented later in this Chapter, focuses on repeat vs. first-time visitors. For purpose of statistical testing of the two broad hypotheses, each was disaggregated into a series of subhypotheses. Each of these is introduced below followed by the results obtained from testing it. Numerical results for the set of subhypotheses associated with Hypothesis 1 are presented in Table 12 and those related to Hypothesis 2 are provided in Table 13.

Hypothesis 1.

> There are no significant differences in destination-decision making between visitors and nonvisitors with respect to: familiarity with the destination, state/province of residence, distance to the destination, readership of advertising literature, elapsed time between inquiry and receipt of information, interest in the advertising literature, quality of the literature, and socioeconomic and demographic characteristics of inquirers.

Hypothesis 1-1

> Familiarity with Frankenmuth does not influence the decision to visit Frankenmuth.

To operationalize this hypothesis, familiarity was defined by whether or not respondents had made a prior visit to Frankenmuth. The chi-square statistic for visitors and nonvisitors with respect to the familiarity variable is significant. Thus, the null hypothesis is rejected at $p < .05$. This result indicates that familiarity with the destination

Table 12. Significance Test Results for Selected Variables - Visitor vs. Non-visitors

Hypothesis Number	Variables Tested	Visitors	Non-visitors	chi-square Significance	T-test Probability
1 -1	Familiarity with destination[1]	61.2%	50.6%	0.01*	
1 -2	Residence (% Michigan)[2]	57%	33%	0.00*	
1 -3	Miles away from home[2]	196.98 miles	336.71 miles		0.00*
1 -4	Read brochure	99.6%	96.2%	0.01*	
1 -5	Elapsed time between inquiry & receipt of brochure	9.44 days	17.92 days		0.00*
1 -6	Interest in brochure[3]	5.67	5.39		0.01*
1 -7	Quality of brochure[4]	6.05	5.74		0.00*
1 -8	Socioeconomic & demographic				
1 -8.1	Gender (% Male)	27.5%	29.1%	0.69	
1 -8.2	Employment (% Full time)	51.4%	54.4%	0.44	
1 -8.3	Education	14.02 years	14.26 years		0.03*
1 -8.4	Age	44.64 years	47.05 years		0.04*
1.-8.5	Income[5]	5.24	5.20		0.83

* indicates significance at $\alpha = .05$

1. Question 2, "Have you ever visited Frankenmuth?" Precent responding "Yes."
2. "Residence" and "mileage away from home" were obtained via application of Automap PC software to zip codes used to mail questionnaires.
3. The ratings were based on a seven point scale, with 1 representing "greatly decreased my interest" and 7 representing "greatly increased my interest."
4. The ratings were based on a seven point scale, with 1 representing "terrible" and 7 representing "excellent."
5. The rating was based on ordinal scale from 1 to 12, with 1 - under $15,000; 2 - $15,000 to $19,999; 3 - $20,000 to $24,999; 4 - $25,000 to $34,999; 5 - $35,000 to $49,999; 6 - $50,000 to $74,999; 7 - $75,000 to $104,999; 8 - $105,000 to $119,999; 9 - $120,000 to $134,999; 10 - $135,000 to $149,999; 11 - $150,000 to $299,999; 12 - $300,000 or more.

has a significant influence on choosing it. In other words, people have a tendency to select destinations that they have visited before.

Hypothesis 1-2

State of residence does not influence the decision to visit Frankenmuth.

State of residence was defined as the percentage of Michigan residents in the visitor and nonvisitor responding populations. Michigan residents accounted for 57% of visitors and 33% of nonvisitors, and, as indicated in Table 12, the related chi-square statistic is significant. Thus, the null hypothesis is rejected at $p<.05$ indicating that there is a significant difference in decision making by residence status between visitors and nonvisitors.

Hypothesis 1- 3

Distance does not influence the decision to visit Frankenmuth.

This hypothesis was operationalized by applying the t test to the mean distance between residence and Frankenmuth for visitors vs. nonvisitors. The mean of mileage away from home is 196.98 miles for visitors and 336.71 miles for nonvisitors. The average trip mileage away from home is 139.73 miles shorter for visitors compared with nonvisitors' trip mileage. This null hypothesis is rejected at $p<.05$ indicating that there is a significant difference in mileage away from home between visitors and nonvisitors.

Hypothesis 1-4

> Reading the brochure mailed to respondents did not influence respondents' decision to visit Frankenmuth.

Ninety-nine percent of visitors reported that they read the brochure after receiving it while 96% of nonvisitors indicated that they read the brochure after receiving it. Readership of the brochure had a slight positive influence on the decision to visit Frankenmuth and this difference is statistically significant as indicated in Table 12. Thus, the null hypothesis is rejected at $p < .05$. Reading the brochure had a positive influence on respondents' decision to visit Frankenmuth.

Hypothesis 1- 5

> Elapsed time between inquiry and receipt of the brochure did not influence the decision to visit Frankenmuth.

The average elapsed time for visitors is 9.44 days; 17.92 days for nonvisitors. The difference is 8.47 days. While the survey results in this case are strong, there is reason for caution in their interpretation. Since the Frankenmuth CVB seeks to respond promptly to all requests for information, the elapsed time reported by non-visitors appears excessive. Quite possibly non-visitors' perceptions of elapsed time were unrealistically high as a result of a rationalization process for their decision not to visit Frankenmuth. As indicated in Table 12, the mean elapsed time is statistically different for visitors and non-visitors. This null hypothesis is rejected at $p<.05$. Its rejection indicates that elapsed time between request for and receipt of travel information has a significant role in trip decision-making.

Hypothesis 1- 6

Respondents interest in the brochure did not influence their decision to visit Frankenmuth.

A 7 point Likert scale was used to measure interest in the brochure. The reported means for visitors and nonvisitors were 5.67 and 5.39 respectively. As indicated in Table 12, these means were found to be statistically different. Thus, the null hypothesis is rejected at $p<.05$ indicating that interest in the brochure did influence the decision to visit Frankenmuth.

Hypothesis 1- 7

Perceived quality of the brochure received by respondents did not influence their decision to visit Frankenmuth.

A Likert scale question with 1 being terrible and 7 excellent was used to measure respondents' perception of the quality of brochure they received. The reported means for visitors and nonvisitors were 6.05 and 5.74 respectively. T test results reported in Table 12 indicate that these means are statistically different. Thus, the null hypothesis is rejected at $p < .05$ indicating that quality of the brochure did influence the decision to visit Frankenmuth.

Hypothesis 1 - 8

Socioeconomic and demographic variables did not influence the decision to visit Frankenmuth.

Hypothesis 1- 8.1, 1-8.2, 1-8.3, 1-8.4, 1-8.5

> The variables: (1) gender, (2) employment status, (3) educational background, (4) age, and (5) household income did not influence the decision to visit Frankenmuth.

None of these null hypotheses, except 1-8.4 (age), are rejected at $p < .05$. The results show that gender, employment status, educational background, and household income are irrelevant to the decision to visit Frankenmuth. The null hypothesis related to age is rejected at $p < .05$ indicating age of respondents did influence the trip decision.

Hypothesis 2:

> There are no significant differences in destination decision making between parties who are familiar with a travel destination and those who are first-time visitors in terms of: residence status, distance to the destination, medium/media used, travel behavior, travel satisfaction, brochure readership, on site brochure consultation, elapsed time, spending patterns, brochure quality; and socioeconomic and demographic characteristics of inquirers.

This broad hypothesis was disaggregated into a series of sub-hypotheses to facilitate statistical analyses. The related data and test results are summarized in Table 13. Each hypothesis is presented below with an accompanying brief discussion of findings.

Hypothesis 2-1, 2-2

> There is no significant difference in destination decision making between repeat visitors and first-time visitors in terms of (1) state/province of residence or (2) distance from Frankenmuth.

Table 13. Significance Test Results for Selected Variables - Repeat vs. First-time Visitors.

Hypothesis Number	Variables Tested	Repeat Visitors	First-time Visitors	chi-square Significance	T-test Probability
2 -1	Residence (% Michigan)	73%	33%	0.00*	
2 -2	Miles away from home	150.98 miles	266.71 miles		0.00*
2 -3	Media sources used				
2 -3.1	Newspaper article	4.6%	3.1%	0.37	
2 -3.2	Newspaper advertisement	3.1%	1.6%	0.35	
2 -3.3	Magazine article	8.5%	4.7%	0.13	
2 -3.4	Magazine advertisement	10.0%	1.6%	0.00*	
2 -3.5	Radio advertisement	1.5%	1.6%	0.81	
2 -3.6	Television advertisement	5.4%	1.6%	0.10	
2 -3.7	Friend/relative/co-worker	20.0%	43.8%	0.01*	
2 -3.8	Frankenmuth area business	8.5%	4.7%	0.13	
2 -3.9	Travel agent	2.3%	6.3%	0.33	
2 -3.10	Michigan Travel Bureau	10.0%	10.9%	0.62	
2 -3.11	Regional tourist association	4.6%	4.7%	0.68	
2 -3.12	Brochure	16.9%	7.8%	0.01*	
2 -4	Travel behavior				
2 -4.1	Purpose of trip	89.3%	92.6%	0.49	
2 -4.2	Party size (Person)	3.6	3.1		0.04*
2 -4.3	Length of stay (nights)	0.76	1.06		0.01*
2- 4.4	Day trip (% Yes)	35.9%	13.9%	0.00*	
2 -4.5	Accommodations used (Hotel or Motel)	96.8%	96.1%	0.52	
2 -5	Satisfaction				
2 -5.1	Trip experience[1]	3.71	3.98		0.02*
2 -5.2	Intention to visit again[1]	4.53	4.10		0.00*
2 -5.3	Recommend to others	81.1%	94.6%	0.01*	
2 -5.4	Travel destination[2]	6.04	5.63		0.02*
2 -6	Readership				
2 -6.1	Read	99.3%	100%	0.42	
2 -6.2	Consulted on trip	78.4%	94.6%	0.02*	
2 -7	Elapsed time (days)				
2 -7.1	inquiry - receipt	9.73	8.97		0.64
2 -7.2	receipt - visit	28.43	23.60		0.32
2 -7.3	inquiry - visit	35.90	32.51		0.32

(continued on next page)

Table 13 (cont'd)

Hypothesis Number	Variables Tested	Repeat Visitors	First-time Visitors	chi-square Significance	T-test Probability
2 -8	Expenditures (Dollars)				
2 -8.1	Lodging	72.26	93.76		0.24
2 -8.2	Camping fee	0.77	0.18		0.33
2 -8.3	Gifts, crafts, souvenirs	138.25	160.52		0.53
2 -8.4	Groceries	14.24	9.67		0.13
2 -8.5	Restaurants	78.60	106.97		0.24
2 -8.6	Gasoline, vehicle repair	12.13	14.42		0.44
2 -8.7	Guided tours	3.74	1.44		0.19
2 -8.8	Other items	7.20	14.70		0.19
	Total	329.18	401.68		0.23
2 -9	Brochure				
2 -9.1	usefulness[2]	5.79	5.77		0.91
2 -9.2	interesting to read[2]	5.63	5.66		0.87
2 -9.3	attractiveness[2]	5.83	5.82		0.90
2 -9.4	increased interest in destination[2]	5.58	5.86		0.06
2 -9.5	influenced decision[2]	4.18	4.90		0.01*
2 -9.6	increased expenditure[2]	3.30	3.08		0.36
2 -9.7	accuracy[2]	6.17	6.03		0.35
2 -9.8	quality[2]	6.08	6.02		0.60
2 -10	Socioeconomic & demographic				
2 -10.1	Gender (% Male)	31.7%	23.8%	0.23	
2 -10.2	Employment (% Full time)	52.3%	50.5%	0.67	
2 -10.3	Education	13.74	14.45		0.03*
2 -10.4	Age	44.47	45.82		0.46
2 -10.5	Income	5.57	5.03	0.18.	

* indicates significance at < .05

1 The ratings were based on a five point Likert scale with a neutral midpoint, "5" being positive and "1" negative.

2 The ratings were based on a seven point scale. In the order that the variables are listed, poles on the Likert scales are; 1 not at all - 7 very useful; 1 very uninteresting - 7 very interesting, etc.

3 The rating was based on a 12 point ordinal scale, with 1 - under $15,000; 2 - $15,000 to $19,999; 3 - $20,000 to $24,999; 4 - $25,000 to $34,999; 5 - $35,000 to $49,999; 6 - $50,000 to $74,999; 7 - $75,000 to $104,999; 8 - $105,000 to $119,999; 9 - $120,000 to $134,999; 10 - $135,000 to $149,999; 11 - $150,000 to $299,999; 12 - $300,000 or more.

The null hypothesis regarding state/province of residence is rejected at $p < .05$ indicating that there is a significant difference between repeat visitors and first-time visitors with respect to where they reside. The data presented in Table 13 show that 73% of repeat visitors were from Michigan; only 33% of the first-time visitors were from Michigan. Data for the mileage variable indicates that the null hypothesis is rejected at $p < .05$ indicating that distance is a significant variable distinguishing repeat from first-time visitors. The average distance traveled to Frankenmuth is 150.98 miles for repeat visitors and 266.71 miles for first-time visitors.

Hypotheses 2-3.1 -- 2.-3.12

> Repeat and first-time visitors exhibit no significant differences in use of the following 12 sources of travel information: (1) newspaper article, (2) newspaper advertisement, (3) magazine article, (4) magazine advertisement, (5) radio advertisement, (6) television advertisement, (7) friend/relative/co-worker, (8) Frankenmuth area business, (9) travel agent, (10) Michigan Travel Bureau, (11) regional tourist association, and (12) the brochure.

Three of these null hypotheses (2-3.4, 2-3.7, and 2-3.12) are rejected at $p < .05$ indicating that magazine advertisement, friend/relative/co-worker, and the brochure were used differently by repeat and first-time visitors. The data show that magazine articles and brochures have a significant positive influence on repeat visitors. First-time visitors are significantly more likely to rely on information from the friend/relative/co-worker source. Frequency of reported use was similar for the other nine sources listed across repeat and first-time visitors.

Hypothesis 2-4

There are no significant differences in travel behavior between repeat and first-time visitors with respect to: (1) purpose of trip, (2) party size, (3) length of stay, and (4) accommodations used.

Hypothesis 2-4.1

There is no significant difference in "purpose-of-trip" between repeat and first-time visitors.

Eighty-nine percent of repeat visitors reported that recreation/pleasure was their trip purpose; 93% of first-time visitors indicated that purpose of trip was recreation or/and pleasure. Results presented in Table 13 indicated that this observed difference is not statistically significant. Thus, this null hypothesis can not be rejected at $p < .05$ which indicates that there is no significant difference with respect to "purpose-of-trip" between repeat and first-time visitors.

Hypothesis 2-4.2

There is no significant difference in mean party size between repeat and first-time visitors.

The mean travel party size is 3.6 persons for repeat visitors and 3.1 persons for first-time visitors. Repeat visitors have slightly more persons accompanying them to Frankenmuth, and T test results indicate that this difference is statistically significant. Thus, this null hypothesis is rejected at $p < .05$ indicating that there is a significant difference in mean travel party size between repeat and first-time visitors.

Hypothesis 2-4.3

> There is no significant difference in length of stay in Frankenmuth between repeat and first-time visitors.

Average length of stay in the destination area is 1.7 days for repeat visitors; 2 days for first-time visitors. While first-time visitors mean stay is slightly longer than that of repeat visitors, the difference is too slight to be statistically significant. Thus, this null hypothesis can not be rejected at $p < .05$ indicating that length of stay in the destination area can not be used to distinguish between repeat and first-time visitors.

Hypothesis 2-4.4

> There is no significant difference in choosing Frankenmuth as day-trip destination between repeat and first-time visitors.

Repeat visitors are much more likely to choose Frankenmuth as a day-trip destination than are first-time visitors. The percentages choosing Frankenmuth as a day-trip destination is 36% for repeat visitors and 14% for first-time visitors. As indicated in Table 13, this difference is statistically significant. Thus, this null hypothesis is rejected at $p < .05$ indicating that there is significant difference in choosing Frankenmuth as a day trip destination between repeat and first-time visitors.

Hypothesis 2-4.5

> There is no significant difference in accommodations chosen between repeat and first-time visitors.

Ninety-seven percent of repeat visitors and 96% of first-time visitors who stayed overnight stayed in a hotel or motel. The calculated chi-square statistic was not found to be significant, thus this null hypothesis can not be rejected at $p < .05$ indicating that there is no significant difference in choice of accommodations between first-time and repeat visitors.

Hypothesis 2-5

> There are no significant differences between repeat and first-time visitors with respect to how they rated their trip experience, intention to visit Frankenmuth again, inclination to recommend the destination, and ranking of Frankenmuth as a attractive travel destination.

Hypothesis 2-5.1

> There is no significant difference in trip experience rating between repeat and first-time visitors.

Satisfaction with the trip was measured via a five-point Likert scale question with 1 representing "much worse than expected" and 5 representing "much better than expected". The mean trip experience rating was 3.98 for first-time and 3.71 for repeat visitors, respectively. Data in Table 13 indicate that these means are statistically different. Thus, this null hypothesis is rejected at $p < .05$ indicating that there is a significant difference in trip satisfaction between repeat and first-time visitors with respect to their trip experience.

Hypothesis 2-5.2

There is no significant difference between repeat and first-time visitors' intentions to visit Frankenmuth again.

A five-point Likert scale question was used to measure intention to visit again with 1 representing "certain to not visit again" and 5 representing "certain to visit again." Although first-time visitors rated their trip experience higher than repeat visitors, their mean intention to visit again score was less (4.10) than that reported for repeat visitors (4.53). Since this difference is a statistically significant, this null hypothesis is rejected at $p < .05$ indicating that there is a significant difference in intention to visit Frankenmuth again between repeat and first-time visitors.

Hypothesis 2-5.3

There is no significant difference in intention to recommend Frankenmuth as a travel destination between repeat and first-time visitors.

This null hypothesis is rejected at $p < .05$ indicating that there is a significant difference in intention to recommend Frankenmuth as a travel destination between repeat and first-time visitors. First-time visitors are more likely to recommend Frankenmuth than are repeat visitors.

Hypothesis 2-5.4

There is no significant difference in ranking of Frankenmuth as an excellent destination between repeat and first-time visitors.

A seven-point Likert scale was used to rank Frankenmuth's appeal as a travel destination, with 1 representing "terrible" and 7 representing "excellent". The reported mean was 6.04 for repeat visitors and 5.63 for first-time visitors. As indicated in Table 13, these means are statistically significant. Thus, this null hypothesis is rejected at $p < .05$ indicating that repeat visitors rank Frankenmuth higher as a travel destination than do first-time visitors.

Hypotheses 2-6.1, 2-6.2

> There is no significant difference between repeat and first-time visitors with respect to (1) reading the brochure they received or (2) consulting it during their stay in Frankenmuth.

The null hypothesis with respect to reading the brochure can not be rejected at $p < .05$. This indicates that there is no significant difference between repeat and first-time visitors with respect to reading the brochure before their visit. Ninety-nine percent of repeat visitors read the brochure after it was received; 100% of first-time visitors reported that they read the brochure. Thus, the null hypothesis regarding brochure consulting is rejected at $p < .05$. First-time visitors rely more on the brochure than do repeat visitors as can be seen in Table 13. Almost 95% of them consulted the brochure on-site as opposed to 78.4% for repeat visitors, and, as indicated in Table 13, this difference is statistically significant.

Hypotheses 2-7.2, 2-7.2, 2-7.3

> Between repeat and first-time visitors to Frankenmuth, there is no significant difference with respect to elapsed time (1) between inquiry and receipt of information, (2) between receipt of information and visit, and (3) between inquiry and visit.

Based upon the data provided in Table 13, none of these hypotheses can be rejected at $p < .05$. Thus, significant differences were found between repeat and first-time visitors with respect to the above measures of elapsed time.

Hypotheses 2-8.1, 2-8.2, 2-8.3, 2-8.4, 2-8.5, 2-8.6, 2-8.7, and 2-8.8

> There is no significant difference in the amount of money spent on: (1) lodging, (2) camping fees, (3) gifts, (4) groceries, (5) restaurant meals, (6) gasoline and vehicle-related items, (7) guided tours, and (8) all other items, between repeat and first-time visitors during their stay in Frankenmuth.

For repeat visitors, the average amount of money spent on lodging, camping, gifts, groceries, restaurant meals, gasoline and vehicle-related items, guided tours, and all other items was $72.26, $0.77, $138.25, $14.24, $78.60, $12.33, $3.74, and $7.20, respectively. For first-time visitors, the average amount of money spent in these same categories was $93.76, $0.18, $160.52, $9.67, $106.97, $14.42, $1.44, and $14.70, respectively. The average total expenditure for repeat visitors is $329.10 and $401.68 for first-time visitors. Statistically speaking, there is no significant difference in total expenditure between repeat and first-time visitors, although first-time visitors spent $80 dollars more per visit than did repeat visitors. Thus, none of these hypotheses can be rejected at the $p < .05$ indicating that there are no significant differences across expenditures by individual category or in total expenditures between repeat and first-time visitors during their stay in Frankenmuth.

Hypotheses 2-9.1, 2-9.2, 2-9.3, 2-9.4, 2-9.5, 2-9.6, 2-9.7, and 2-9.8

> Between repeat and first-time visitors, there are no significantly differences in rating of the following brochure related variables: (1) usefulness, (2) interesting to read, (3) attractive in design, (4) increased or decreased interest in visiting, (5) influenced decision to visit, (6) influenced expenditures, (7) accuracy, and (8) overall quality.

For all of these variables, seven-point Likert scales were used to obtain rankings. On each scale; 1 represents the lowest ranking and 7 represents the highest ranking (See Table 13, note 2 for more detail or refer to question 20 -27 in the appendix). For repeat visitors, the average score obtained for usefulness, interesting, attractiveness, interest, influenced expenditures, accuracy, and quality are 5.79, 5.63, 5.83, 5.58, 4.18, 3.30, 6.17 and 6.08, respectively. Similarly, the average scores assigned these variables by first-time visitors are 5.77, 5.66, 5.82, 5.86, 4.90, 3.08, 6.03 and 6.02, respectively. Statistical test results presented in Table 13 show that there is only one null hypothesis (2-9.5) which can be rejected at $p < .05$. Thus, it appears that the brochure did have more influence on first-time visitors' decision to visit Frankenmuth but no significance differences in rankings were found between the two groups with respect to the other six brochure related variables examined.

Hypothesis 2-10.1, 2-10.2, 2-10.3, 2-10.4, and 2-10.5

> There are no significant differences between repeat and first-time visitors with respect to (1) gender, (2) employment status, (3) education level, (4) age, and (5) income level.

None of these hypotheses, except hypothesis 2-10.3 (education level), can be rejected at $p < .05$ indicating that there are no significant differences between repeat and first-time visitors with respect to gender, employment status, age, and income level. The null hypothesis with respect to education level is rejected at $p < .05$ indicating that there is a significant difference between repeat and first-time visitors with respect to education level achieved. The average education level of repeat visitors is 13.74 years; the mean for first-time visitors is 14.45 years. First-time visitors have achieved a higher educational level than repeat visitors.

Results of Logistic Regression in Prediction

Results from the logistic regression analysis (LRA) will be presented in the following sections. One of the objectives of developing a logistic regression model was to predict the probability of a visit to Frankenmuth. Another objective of this study was to use LRA to predict the propensity of repeat visits to Frankenmuth from among current visitors who requested information from the FCCVB. This was accomplished by the application of two different models.

The first model was used to predict the probability of visits to Frankenmuth by inquirers in accordance with the third objective in this study. The first model includes the following predictors: individual sociodemographic characteristics, elapsed time between inquiry and receipt of information from the FCCVB, familiarity with the destination area, brochure (quality and interest in reading it), and actual readership of the brochure. This

first model is titled "Model 1: Prediction of the propensity to visit Frankenmuth", and is explained in detail on page 110 (Equation 1).

In order to evaluate the performance of the different variables in predicting the propensity of a re-visit to Frankenmuth, the following four subgroups of variables were considered: (1) sociodemographic characteristic variables, (2) brochure related variables, (3) satisfaction variables, and (4) travel behavior variables. The application of these four subgroups of variables derived from the fourth objective of this study. This second model is titled "Model 2: Prediction of repeat visits to Frankenmuth." It is presented in detail on page 127 (Equation 2).

As discussed in Chapter II, LRA is the best tool to predict a dichotomous dependent variable from a combination of independent variables. The objective of LRA is to find the most parsimonious model to predict the probability of an event occurring. The approach used to develop this model entailed the following four procedures: (1) a forward stepwise process, (2) an examination of the goodness of fit of the model, (3) testing of the estimated significance of parameters, and (4) interpreting the estimated parameters. Upon completing a best model, these procedures were used for predicting visits to Frankenmuth (Model 1) and for predicting repeat visits (Model 2).

Forward Stepwise Procedure

According to Schroeder (1983), there are two general approaches to building a regression model: 1) preselection of variables based on theory and results from previous research in which these variables were explored; or 2) in situations where prior related

research is not available and where related theory is not definitive, stepwise procedures are used to select significant variable(s) for inclusion in the model.

The stepwise method is incremental in that independent variables are explored one at a time for their contribution to explaining variation in the dependent variable. After a variable is entered into the model, the stepwise procedure checks to see if previously entered variables can be removed without loss in the model's explanatory power. The procedure continues until no more variables can be entered or removed to improve the model's explanatory performance. The stepwise procedure uses the score statistic (p=.05) for inclusion and the likelihood-ratio (p=.10) as the test for removal of a variable from the model.

In other words, the forward stepwise procedure entails a systematic evaluation of the interactions among independent variables and a dependent variable. If the addition of a multiplicative interaction term to the logistic regression model is associated with coefficient changes in other predictor variables, an interaction between the new variable and one or more of the other predictors is suspected. Interactions are evaluated by comparing models with and without selected variables included. If a statistically significant improvement occurs ($p < .05$) with the interaction term, the variable of focus remains in the model. If statistically significant changes in predictor coefficients are observed, the model does not contain interaction terms.

The first variable included in this model is the one with the largest acceptable value for the selection criterion. After each variable is entered, all variables in the model are evaluated against a deletion criterion. Alternative methods of entry available in SPSS

are (1) the backward elimination method in which all variables that satisfy the selection criterion are entered simultaneously into the model, and then those meeting the removal criterion are deleted and (2) the simultaneous or direct method in which all variables that satisfy the selection criterion are entered simultaneously into the model.

Goodness-of -Fit in Logistic Regression

In evaluating a linear regression model, researchers need to answer questions such as: How well does the overall model work?; If the overall model works well, how important is each of the independent variables?; Is the relationship between any of the variables attributable to random sample variation? If not, how much does each independent variable contribute to the prediction of the dependent variable?; and finally, Does the form of the model appear to be correct?

In linear regression analysis, the assessment of the significance of coefficients is approached by two sums of squares: total sum of squares (*SST*) and error sum of squares (*SSE*). A third sum of squares is simply the difference between *SST* and *SSE* that is the regression sum of squares (*SSR*=*SST*-*SSE*). The multivariate F ratio, used to test hypotheses H_0: $R^2 = 0$ and H_0: $\beta_1 = \beta_2 = \ldots = \beta_k = 0$, can be calculated as:

$$F_{observed} = \frac{\frac{SSR}{k}}{\frac{SSE}{N-k-1}} = \frac{R^2/k}{(1-R^2)/(N-k-1)}$$

with $df_{reg.} = k$, $df_{res} = N\text{-}k\text{-}1$ and

where;

R^2 *squared multiple correlation coefficient*

k *number of independent variables*

N = *sample size*

The statistical significance (*p*) associated with the F ratio indicates the probability of obtaining an R^2 as large as the observed R^2 , or β coefficients as large as the observed β coefficients, if the null hypothesis is true. Usually, if the calculated *p* is small (< .05) then the null hypothesis is rejected indicating that there is a relationship between the independent variables and the dependent variable that can not be attributed to chance. If the calculated *p* is large (> .05) then the null hypothesis can not be rejected, and it is concluded that there is insufficient evidence to be sure that the variance explained by the model is not attributable to random sample variation.

The coefficient of determination, R^2, is an indicator to judge whether the relationship is strong enough to be captured in the regression equation. For example, if R^2 was 0.14, this means that 14% of the variability in the dependent variable can be explained by the independent variable. R^2 is used to measure the proportion by which use of the regression equation reduces the error of prediction. R^2 ranges from 0 (indicating that independent variables do not help at all to predict the dependent variable) to 1 (indicating that independent variables can be used to predict the dependent variable perfectly). R^2 can be calculated as *SSR/SST*, *(SST-SSE)/SST*, or *1-(SSE/SST)*. The *F* ratio and R^2 can be expressed as function of one another: $F=(R^2/k)/[(1-R^2)/N-k-1]$,and $R^2 = kF/(kF + N-k-1)$.

In a logistic regression model, the log-likelihood is the criterion used for selecting parameters for the model; as the sum of squared errors is the criterion for selecting parameters in the linear regression model. Likelihood is the probability of the observed result given the estimates of the population parameters.

The statistical package usually presents the log-likelihood multiplied by -2 (e.g., -2LL) instead of log-likelihood itself. The reason for using minus twice its log is to create an approximate X^2 (chi-square) distribution to test the hypothesis in order to investigate whether or not a particular independent variable should be included in the LRA model. The value of -2LL for a logistic regression with only the constant included is called "Initial Log Likelihood Function -2 Log Likelihood" (See Table 14). This initial logistic regression is commonly designated as D. For a dichotomous dependent variable (coded as 0 or 1), if $n_{y=1}$ is the number of cases for which $Y = 1$, N is the total number of cases, and $P(Y=1) = n_{y=1}/N$ is the probability that y is equal to 1, then

$$D = -2\{(n_{y=1}) \ln [P(Y=1)] + \ln[1-P(Y=1)]$$
$$-2\{(n_{y=1}) \ln[P(Y=1)] + (n_{y=0}) \ln[P(Y=0)]$$

The value of -2LL for the logistic regression model that includes independent variables and the constant is designated as "-2 Log Likelihood". The statistic D is called "deviance" chi-square by Hosmer and Lemeshow (1989) or "deviation" chi-square by Menard (1994), and it is as an indicator of the model's goodness of fit with all of the independent variables in the equation. The D statistic from logistic regression plays the same role as the error_sum of squares (SSE) plays in linear regression.

To estimate the significance of an independent variable, we can compare the value of D without and with the independent variable in the equation. The change in D ,due to the inclusion of the independent variable in the model, called "Model Chi-Square" under the chi-square column in SPSS output (See Table 14), is denoted as G. The larger the

Table 14. Logistic Regression Procedure with Dependent Variable Visit or not (Full Model)

Total number of cases: 595
Number rejected because of missing data: 176
Number of cases included in the analysis: 419

Dependent Variable Encoding:

Original Value	Internal Value
0	0
1	1

Dependent Variable: Visitor (Visit Frankenmuth after requesting information)
Beginning Block Number 0. Initial Log Likelihood Function -2 Log Likelihood 571.34877
*Constant is included in the model.

Beginning Block Number 1. Method: Enter
Variable(s) Entered on Step Number

Estimation terminated at iteration number 4 because
Log Likelihood decreased by less than .01 percent

-2 Log Likelihood 478.762
Goodness of Fit 435.864

	chi-square	df	Significance
Model chi-square	92.587	11	.0000
Improvement	92.587	11	.0000

Classification Table for Visitor

Observed	Predicted non-visitor	Predicted visitors	Percent Correct
non-visitors	188	53	78.01%
visitors	69	109	61.24%
			Overall 70.88%

Table 14 (cont'd).

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
DIST	-.0018	.0000	7.5230	1	.0061	-.0983	.9982
RESI	.7166	.3031	5.5915	1	.0180	.0793	2.0475
QUAL	.2961	.1159	6.5234	1	.0106	.0890	1.3446
ELAPRI	-.0600	.0131	20.9348	1	.0000	-.1820	.9417
WORK	-.3136	.2420	1.6792	1	.1950	.0000	.7308
EDUC	-.0775	.0427	3.2926	1	.0696	-.0476	.9254
INCOME	-.1363	.2651	.2644	1	.6071	.0000	.8726
AGE	-.0071	.0094	.5608	1	.4539	.0000	.9930
FAMLAR	-.3727	.2556	2.1274	1	.1447	-.0149	.6888
READ	5.5233	13.5051	.1673	1	.6826	.0000	250.4677
GENDER	.0180	.2645	.0046	1	.9459	.0000	1.0181
Constant	-4.9115	13.5517	.1314	1	.7170		

DIST: Distance between Frankenmuth and residence, coded as real mileage.

RESI: Residence status, coded as 1= Michigan and 0 = non-Michigan.

QUAL: Overall quality of brochure, 7-point Likert scale coded as 1 (terrible) to 7 (excellent).

ELAPRI: Elapsed time between inquiry and receipt of information, coded as actual days..

WORK: Employment status, coded as 1 = full time and 0 = other.

EDUC: Educational background, coded as actual years attended school.

INCOME: Household income, coded as 1= equal to or more than $35,000 and 0 = less than $35,000.

AGE: Years old.

FAMLAR: Visited Frankenmuth before, coded as 1 = yes and 0 = no.

READ: Read the material after receiving , coded as 1 = yes and 0 = no.

GENDER: 1 = male and 0 = female.

calculated G the greater the improvement in goodness-of-fit contributed by the associated independent variables.

For the logistic model, G is analogous to the multivariate F test in linear regression. G is used to test the null hypothesis that . If G is $\beta_1 = \beta_2 = \ldots = \beta_k = 0$ statistically significant at the $P < .05$ level, the null hypothesis is rejected indicating that information about the independent variables allows us to make better predictions with the particular independent variables than we could make without the same independent variables.

Testing the Significance of Parameters in Logistic Regression

In logistic regression, there are two ways to test for statistical significance of the estimated parameters: the coefficient to standard error ratio (Coeff/S.E.) and the maximum likelihood estimation (MLE) chi-square statistic. The Wald statistic, which has a chi-square distribution and is used to test the null hypothesis that the coefficient equals zero, is calculated by dividing the coefficient estimate by its standard error and squaring the result (W.=[B/S.E.]^2). For example, the variable RESI's Wald statistic equals (.7166/.3031)^2, or 5.59 (See Table 14). When the ratio (Coeff/S.E.) approaches 2, which would lead to an approximate level of significance of 0.05, there is a case for statistical significance (Hosmer & Lemeshow, 1989).

Because the Wald statistic is unreliable with large coefficients, another approach to testing the significance of an independent variable commonly used is to run two models with likelihood-ratio: one with the full model containing all the variables and one with a

reduced model without the variables to be tested. The difference between the chi-squares for the two models represents the change due to the effect of the individual variable being tested.

For example, the difference between the two models as can be seen in Table 14 and Table 15 is the exclusion of the variable DIST from the full model. The difference is denoted as G, using the definition that was mentioned earlier. The value of the G statistic test in this case is $G = -2[(-247.448) - (-239.381) = 16.134$ which, with 1 degree of freedom, has a p-value of $p[X^2(1) > 16.134] = .0000$. Since the p-value is less than .05, there is a significant difference between the full model and the reduced model. The full model including the DIST variable yields better predictions than the reduced model. Thus, it is advantageous to include DIST in the model.

Table 15. Logistic Regression Procedure with Dependent Variable Visit or not (Reduced Model)

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
RESI	1.1096	.2595	18.2862	1	.0000	.1682	3.0330
QUAL	.3015	.1141	6.9750	1	.0083	.0929	1.3518
ELAPRI	-.0595	.0131	20.5754	1	.0000	-.1796	.9423
WORK	-.2221	.2362	.8836	1	.3472	.0000	.8009
EDUC	-.0626	.0411	2.3215	1	.1276	-.0236	.9394
INCOME	-.1247	.2583	.2333	1	.6291	.0000	.8827
AGE	-.0107	.0092	1.3649	1	.2427	.0000	.9894
FAMLAR	-.2261	.2469	.8387	1	.3598	-.0000	.7976
READ	5.5164	13.5049	.1669	1	.6829	.0000	248.7433
GENDER	.0108	.2576	.0018	1	.9666	.0000	1.0109
Constant	-5.7625	13.5458	.1810	1	.6705		

Estimated Coefficients for a Multiple Logistic Regression Model excluding DIST (Distance) Variable
* Log Likelihood = -247.778

The overall goal of logistic regression is to obtain the best fitting model with the minimum number of parameters. According to Hosmer and Lemeshow (1989), the purpose of logistic regression is to find the model containing only those variables thought to be significant. Then this reduced model is compared with the full model containing all the variables. The results of fitting the reduced model are given in Table 16.

The difference between the two models as can be seen in comparing Table 14 and Table 16 is the exclusion of the variables WORK, INCOME, AGE, FAMLAR, READ, and GENDER from the full model. The difference is G=-2[(-243.637)-(-239.381))=8.512, with 6 degree of freedom, and a p-value of $p[X^2(6) > 8.512] = .21$. Since the p-value is larger than .05, there is no significant difference between the full model and the reduced model. The reduced model is as good as the full model as a prediction tool. Thus, there is no advantage to including WORK, INCOME, AGE, FAMLAR, READ and GENDER in the model.

Table 16. Logistic Regression Procedure with Dependent Variable Visit or not (Goodness-of-fit Reduced Model)

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
DIST	-.0017	.0006	6.8368	1	.0088	-.0919	.9983
RESI	.6581	.2750	5.7269	1	.0167	.0805	1.9311
QUAL	.2885	.1117	6.6661	1	.0098	.0900	1.3344
ELAPRI	-.0577	.0129	19.8641	1	.0000	-.1761	.9440
EDUC	-.0829	.0415	3.9814	1	.0460	-.0587	.9205
Constant	-.0413	1.0358	.0016	1	.9682		

* Log Likelihood = -243.637

Interpreting the Estimated Parameters

In logistic regression., the coefficient ***(B)*** represents the change in the log of the odds of an event that is associated with a one unit change in an independent variable. To facilitate their interpretation, coefficients are expressed as Exp(***B***), which is obtained by computing the natural antilogarithm of the coefficient. In Table 16, Exp(***B***) represents the factor by which the odds - the probability of visiting Frankenmuth to the probability of not visiting Frankenmuth - change as a function of a one unit change (e.g., one more year of school-EDUC) in a particular independent variable.

If the coefficient is positive, Exp(***B***) will be greater than one . For instance, the coefficient for "residence status - RESI" (1 = Michigan resident , 0 = non-Michigan resident) is .6582 (See Table 16), and its Exp(***B***) or odds value is 1.9311. This means that respondents who are Michigan residents are almost 2 times more likely to visit Frankenmuth than those respondents who are not Michigan residents.

On the contrary, if the coefficient is negative, Exp(***B***) will be less than one. For example, the coefficient (***B***) for "years attending school - EDUC" is -.0829 and its Exp(***B***) is .9205. This odds value means that respondents who attended 12 years of school are almost 10% less likely to visit Frankenmuth than who attended 11 years of school. When a coefficient equals zero, Exp(***B***) is one, the odds are not affected by a one unit change in an independent variable.

Interpretation in logistic regression involves estimating the effects of the various independent variables; the direction of the relationship as well as the magnitude of the relationship are of interest as in OLS regression. In logistic regression, the direction of the

relationship is indicated by the sign of the parameter estimate. From the data presented in Table 16, we can see that the reduced form model can be expressed as:

$$logit(Visit) = -.0413 - .0017*DIST + .6581*REST + .2885*QUAL - .0577*ELAPRI - .0829*EDUC$$

Thus, when *REST* (residence status) and *QUAL* (overall brochure quality) increase, the probability of visiting Frankenmuth will increase. On the contrary, when *DIST* (mileage between home and Frankenmuth), *ELAPRI* (elapsed time between inquiry and receipt of information), and *EDUC* (years attending school) increases, the probability of visiting Frankenmuth will decrease.

By using the changes in the log odds associated with an independent variable, interpretations about the effects of that variable can be made. For Equation 1 presented below, each one-unit increase in *DIST* is associated with a decrease of .0017 in *logit(Visit)*. Being a resident of Michigan increases *logit(Visit)* by .6581. Each one-unit increase in *QUAL* is associated with an increase of .2885 in *logit(Visit)*. Each one-unit increase in *ELAPRI* is associated with a decrease of .0577 in *logit(Visit)*. Each one-unit increase in *EDUC* is associated with a decrease of .0829 in *logit(Visit)*.

Model 1: Prediction of the Propensity to Visit Frankenmuth

In order to select the most significant variables in the decision among inquirers to visit Frankenmuth, stepwise logistic regression was applied. The best prediction model was found to be of the following form::

$$logit(Visit) = -.0413 - .0017*DIST + .6851*RESI + .2885*QUAL - .0577*ELAPRI - .0829*EDUC \quad \textbf{--Equation 1}$$

Where the five independent variables are:

DIST: mileage between Frankenmuth and residence

RESI: Michigan resident = 1 , Non-Michigan resident = 0

QUAL: quality of brochure, Likert-scale, 1 represents terrible and 7 represents excellent

ELAPRI: elapsed time between inquiry and receipt of information (days)

EDUC: years attended school (years)

This function shows that increasing trip mileage, years of attending school, or elapsed time between inquiry and receipt of information will result in a decrease in logit(visit) (the probability of visiting Frankenmuth). Living in Michigan or an increased ranking of the overall quality of brochure will result in an increase in logit(visit). The overall probability of correct predictions is 68.32%, which is 18.32 percentage points better than the 50% odds of correct predictions using a pure random process such as tossing a coin. This improved probability to predict the propensity to visit Frankenmuth derives from knowledge of the above five mentioned independent variables. The results indicate that inquirers who are Michigan residents, live near Frankenmuth, who have less educational background, who must wait only a short period of time for information from

the FCCVB and who rank the information as being of high quality are more likely to visit Frankenmuth.

The stepwise logistic regression model can be used for future predictions of who will visit and not visit Frankenmuth. The marketer can predict the probability that an individual inquirer will take a trip to Frankenmuth by using the following equation:

$$P(Y=1/X_{1i}, X_{2i}, X_{3i}, X_{4i}, X_{5i}) = \frac{e^{a+b_1X_{1i}+b_2X_{2i}+b_3X_{3i}+b_4X_{4i}+b_5X_{5i}}}{1+e^{a+b_1X_{1i}+b_2X_{2i}+b_3X_{3i}+b_4X_{4i}+b_5X_{5i}}}$$

Where

P(Y=1): the probability of taking a trip to Frankenmuth

e: the base of natural logarithms.

a: the intercept

b_1x_{1i}: the distance coefficient b_1 multiplied by the distance of individual *i*'s residence from Frankenmuth.

b_2x_{2i}: the residence status coefficient b_2 multiplied by the individual *i*'s resident status value(1 for Michigan residents, 0 for non-Michigan residents)

b_3x_{3i}: the quality of brochure coefficient b_3 multiplied by the individual *i*'s ranking value of quality of brochure (1 representing terrible, 7 representing excellent)

b_4x_{4i}: the elapsed time coefficient b_4 multiplied by the value of days between inquiry and receipt of information by individual *i*.

b_5x_{5i}: the education coefficient b_5 multiplied by the years of school attended by individual *i*.

Predictions for individual cases may be obtained by replacing the variables in the equation with their values for specific cases. For example, for a non-Michigan resident with a bachelors degree (16 years of school) living 200 miles from Frankenmuth, who waited 10 days for requested information, and who gave a ranking of 6 for the overall quality of the brochure, the probability of a visit is calculated as follows:

$$Logit(Visit) = -.0413 - .0017*(200) + .6581*(0) + .2885*(6) - .0577*(10) - .0829*.(16) = -.5537 .$$

This corresponds to a probability of a visit of $e^{-.5537}/(1 + e^{-.5537}) = .365$. Thus, this individual has a less than 50-50 probability of making a visit to Frankenmuth. This information can be useful in understanding and interpreting differences in the Frankenmuth travel market and can help the FCCVB better predict the probability of a visit to Frankenmuth by individual inquirers. But, how could FCCVB actually use this knowledge (Equation 1) to predict the probability of visits to Frankenmuth?; Should it send out different information to different inquirers?; and/or Should it ignore certain inquiries where probability of visit is low? Those questions are very important issues to FCCVB's promotion strategies and budget allocation.

The Equation 1 demonstrated above could be utilized to guide what information to send to inquirers only if the FCCVB could design a system to obtain information from each inquirer for the five variables included in Model 1. Screening inquiries in this fashion would be costly and probably not acceptable to many inquirers. Thus, marketers probably can not use Model 1 to send different materials to different segments of inquirers. However, the model might be exercised to identify market segments with a high

propensity to visit Frankenmuth. Existing secondary data could be analyzed to identify concentrations of best prospects, and the FCCVB could then seek to focus promotion on these concentrations or the promotion itself could be designed to appeal to target segments. Thus, Equation 1 allows the FCCVB to zero in on those particular variables with the greatest prediction power. Furthermore, the model might be simplified to include only independent variables which are simple to access for the FCCVB such as: distance and residence. For example, the FCCVB already must ask inquirers for their address, therefore residence status (RESI) is ready available. Therefore, residence (RESI) is an available independent variable that can be used to divide inquiries into "Michigan" and "Non-Michigan" segments. The probability of visit to Frankenmuth using RESI as an independent variable is .57 for Michigan residents and .33 for Non-Michigan residents respectively. The overall probability of correct predictions using RESI is 62.56% which is 12.56 percentage points better than the 50% odds of correct predictions using a pure random process. In addition, the marketer can estimate the probability of a visit to Frankenmuth using distance as an indicator. For example, the probability of a visit to Frankenmuth is more than .50 if distance to Frankenmuth is under 152 miles. The overall probability of correct predictions is 62.54% which is 12.54 percentage points better than 50% odds of correct predictions using a pure random process. The probability of correct predictions can be enhanced by using residence and distance in combination in an abbreviated version of Model 1. Again, since inquirers' addresses are obtained in order to mail them the information they requested, the variable RESI is available and the variable DIST can be simply calculated. For example, the probability of a visit to Frankenmuth is

more than .50 if distance to Frankenmuth is under 252 miles and the inquirer is a Michigan resident. On the other hand, if the inquirer is not a Michigan resident then no matter how close the inquirer lives to Frankenmuth, the probability of a visit to Frankenmuth is still below .50. However, combining the RESI and DIST independent variables as an abbreviated version of Model 1, the overall probability of correct predictions is 62.89%. This is 12.89 percentage points better than 50% odds of correct predictions using a pure random process.

In addition to using it to target advertising and, in an abbreviated form, to customize information to inquirers. There is a third potential application of Model 1. Even in cases where one does not have a prior information about elapsed time between inquiry and receipt of information, its impact can be explored using Model 1. In essence, Model 1 can be used as a simulation model to explore how increasing or decreasing elapsed time will influence the probability that inquirers will visit Frankenmuth. Simulation results then can be used to evaluate the rate of return from proposed alternative inquiry response strategies with varying impacts on length of elapsed time between inquiry and receipt of promotional materials. For example, results indicate that inquirers would more likely visit Frankenmuth if they received the requested information in 6 days (the probability is .5004). The overall probability of correct predictions using ELAPRI as a predictor is 61.97%, which is 11.97 percentage points better than the 50% odds of correct prediction using a pure random process. By examining values of ELAPRI which are less than 6, marketers can derive estimated of cost-effectives of enhanced inquiry response progams.

Model 2: Prediction of a Repeat Visit to Frankenmuth

A critical first step in the process of building Model 2 was to develop an appropriate definition of the dependent variable. Repeat visitors to Frankenmuth, the dependent variable, could not be directly identified since at the time respondents were surveyed a repeat visit was a future event. However, the questionnaire did include a question concerning intention to visit again. The question was a scaled question with "certain to visit again" and "certain not to visit again" on the opposite poles of the scale. The midpoint on the scale was presented as a neutral point, and the opposite poles on the scale were "likely" and "unlikely to visit again." Since the repeat visit variable could not be measured directly, intention to visit again was selected as the best substitute.

The next question to resolve was whether or not to aggregate "certain to visit again" and "likely to visit again" as the measure of the dependent variable. Aggregating the two may have been appropriate if one was interested in using the model to predict total repeat visitors from among this study population. However, one would expect the "likely to visit again" group of respondents would contain a considerably higher percentage of non-repeat visitors than the "certain to visit again" group which would create a considerable error of estimate (i.e., inflated estimates of who is likely to be a repeat visitor). Using only the "certain to visit again" group as a measure of the dependent variable would, on the other hand, yield a conservative estimate of who is likely to be a repeat visitor.

Considering how the results of Model 2 would most likely to be applied, it was concluded that a conservative approach to defining the dependent variable was preferable.

The model's practical marketing application would most likely involve identifying prospective repeat visitors and then targeting them with special promotion efforts. These will be costly, more costly than a general promotion program, hence it is desirable to direct repeat visitor promotion only at individuals who are the most likely to actually be repeat visitors. This will insure maximum return on investment from a repeat visitor program designed around results of applying Model 2. Thus, in developing Model 2, only respondents who indicated that they were "certain to visit again" were considered to be repeat visitors. All other respondents, including those who indicated that they were "likely to visit again" were considered to be non-repeat visitors.

It was necessary to develop an alternative strategy for building Model 2 than was used for building Model 1 because the list of possible independent variables was larger and the number of observations was smaller in the case of Model 2 vs. Model 1. As can be seen in Table 13, univariate hypotheses tests for examination yielded 15 prospective independent variables for examination in the multivariate logistic model 2 which exceeded the degrees of freedom constraint imposed by the available sample size. In accordance with suggestions found in Hosmer and Lemeshow (1989), logistic regression analyses were performed on the following four subgroups of variables to reduce the number of candidate variables for full model: (1) sociodemographic variables, (2) brochure evaluation variables, (3) satisfaction with the trip, and (4) travel characteristic variables. All variables which entered the four submodels were accepted as the set of candidate variables for evaluation for inclusion in the full Model 2.

Sub-model 2.1: Prediction of Re-visit to Frankenmuth
Using Sociodemographic Variables

As discussed above, the dependent variable was derived from responses to Question 14 "How likely are you to visit Frankenmuth again?". Respondents who answered "certain to visit again" were assumed to be repeat visitors and were assigned the number 1 as part of the data coding process. Zero was assigned to the other four possible choices that could have been selected on the five point scale. Thus, the dependent variable was "repeat visit" (yes = 1, no = 0) to Frankenmuth and the independent variables were seven sociodemographic variables. The relationship can be expressed as:

$$\ln\left[\frac{\text{Probability of Repeat visit}}{1-\text{Probability of Repeat visit}}\right] = f(\text{Sociodemographics})$$

In order to interpret independent variables accurately and to build a useful model with significant variables, a stepwise procedure was applied. The empirical model which was examined using stepwise procedures is presented below:

$$\ln\left[\frac{P_i}{1-P_i}\right] = \sum_{1}^{7} b_j x_{ji}$$

Where:

P_i : the probability that current visitors will visit Frankenmuth in the future

x_{1i} : mileage between Frankenmuth and respondent's residence

x_{2i} gender

x_{3i} : employment status; 1= employed, 0 = unemployed.

x_{4i} : years attended school

x_{5i}: age

x_{6i} : household income; more than or equal to \$50,000 = 1, less than \$50,000 = 0

x_{7i}: residence status; Michigan = 1, non-Michigan = 0

When the stepwise procedure was applied, two variables were selected and placed into the model, The resulting equation is:

Logit (Repeat Visit) = 2.9367 - .005(DIST) - .1467*(EDUC)*

This function indicates that increasing trip mileage and years of attending school causes a decrease in logit(repeat visitors). The overall probability of a correct prediction is 61.04%. Thus, applying the goodness-of-fit logistic regression equation increases the probability of correctly classifying respondents significantly above the 50% expected were a purely random assignment procedure to be used. The results indicate that current visitors who live near Frankenmuth with less educational background are more likely to visit Frankenmuth again. The results of fitting the logistic regression model to these data are given in Table 17.

This best stepwise logistic regression model for predicting the probability that an individual visitor will visit Frankenmuth again using sociodemographic variables then is:

$$P(Y=1/X_{1i}, X_{2i}) = \frac{e^{a+b_1X_{1i}+b_2X_{2i}}}{1+e^{a+b_1X_{1i}+b_2X_{2i}}}$$

Where

P(Y=1): the probability of taking a trip to Frankenmuth again

e: the base of natural logarithms.

a: the intercept

$b_1 x_{1i}$: the distance coefficient b_1 multiplied by the distance of individual *i*'s residence from Frankenmuth.

$b_2 x_{2i}$: the education coefficient b_2 multiplied by the years of school attended by individual *i*.

Table 17. Logistic Regression Procedure with Dependent Variable "Repeat Visit or not" for Sociodemographic Variables (Goodness-of-fit Reduced Model)

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
DIST (X_{1})	-.0050	.0012	18.2728	1	.0000	-.2172	.9950
EDUC (X_{4})	-.1467	.0576	6.4904	1	.0108	-.1141	.8636
Constant	2.9367	.8498	11.9411	1	.0005		

Estimated Coefficients for a Multiple Logistic Regression Model including X_{1} (Distance between residence and Frankenmuth) and X_{4} (actual years attending school)
* Log Likelihood = -155.55

Suppose that we wanted to estimate the probability of a current visitor returning to Frankenmuth if s/he has attended school for 15 years and lives 300 miles from Frankenmuth. By inserting this individual's distance from Frankenmuth and years of education into the above model, her/his probability of a repeat visit would be found to equal 0.31.

Sub-model 2.2: Prediction of a Re-visit to Frankenmuth Using Brochure Evaluation Variables

In this model, the independent variables are brochure evaluation variables based on Question 20 through Question 27 in the questionnaire (See Appendix A). Although the measurements for these questions were taken from 7-point Likert-scales, most respondents rarely selected a ranking of less than point 5. Thus, data were aggregated into two groups based on the median point, responses of 1 to 5 were aggregated into 0 in the analysis, and number 6, 7 were transformed into 1. The relationship between the dependent variable and independent variables thus can be expressed as:

$$\ln\left[\frac{\text{Probability of Repeat visit}}{1-\text{Probability of Repeat visit}}\right] = f(\text{Brochure evaluation variables})$$

Probability of Repeat visit

The empirical model including the eight predictors used in the stepwise regression procedure can be expressed as follows:

$$\ln\left[\frac{P_i}{1-P_i}\right] = \sum_{1}^{8} b_j x_{ji}$$

Where

P_i : the probability that current visitors will visit Frankenmuth in the future

x_{1i} : usefulness of brochure; 1 = yes, 0 = no (Question 20)

x_{2i} interesting to read; 1 = yes, 0 = no (Question 21)

x_{3i} : attractiveness of brochure; 1 = yes, 0 = no (Question 21)

x_{4i} : interest in visiting Frankenmuth; 1 = yes, 0 = no (Question 23)

x_{5i}: influenced decision to visit Frankenmuth; 1 = yes, 0 = no (question 24)

x_{6i} : more expenditure stimulated by brochure; 1 = yes, 0 = no (Question 25)

x_{7i}: accuracy of brochure; 1 = yes, 0 = no (Question 26)

x_{8i}: overall quality of brochure; 1 = yes, 0 = no (Question 27)

After the stepwise procedure was applied, only two variables (x_{4i}: increased interest in visiting Frankenmuth and x_{8i}: overall quality of the brochure) remained in the model. The equation follows:

$$Logit\ (Repeat\ Visit) = -.9905 + .6483*(x_{4i}) + .7620*(x_{8i})$$

This function shows that increasing "increased interest in visiting Frankenmuth by the brochure" and "overall quality of the brochure" result in an increase in logit(repeat

visitors). The overall probability of correct prediction is 61.40%. The results indicate that the current visitors who answered yes to "increase interest in visiting Frankenmuth by brochure" and "overall quality of brochure" are more likely to visit Frankenmuth again. The result of fitting the logistic regression model to these data are given in Table 18.

This model for predicting the probability that a current individual visitor will take a trip to Frankenmuth again using brochure evaluation variables as predictors can be expressed as:

$$P(Y=1/X_{1i}, X_{2i}) = \frac{e^{a+b_1X_{1i}+b_2X_{2i}}}{1+e^{a+b_1X_{1i}+b_2X_{2i}}}$$

Where

P(Y=1): the probability of taking a trip to Frankenmuth again

e: the base of natural logarithms.

a: the intercept

$b_1 x_{1i}$: the interest in the brochure coefficient b_1 multiplied by the value of "increased interest in visiting Frankenmuth created by the brochure" ranked by individual *i*. (1 for yes, 0 for no).

$b_2 x_{2i}$: the quality coefficient b_2 multiplied by the value of "overall quality of brochure" ranked by individual *i*.

For example, if an individual visitor answered "yes" to both "increase interest in visiting Frankenmuth by the brochure" and "overall quality of the brochure", her/his probability of taking a trip to Frankenmuth is 0.60.

Table 18. Logistic Regression Procedure with Dependent Variable "Repeat Visit or not" for Brochure Evaluation Variables (Goodness-of-fit Reduced Model)

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
Interest (X_{4i})	.6481	.2936	4.8772	1	.0272	.0954	1.9123
Quality (X_{8i})	.7620	.3445	4.8932	1	.0270	.0957	2.1425
Constant	-.9905	.2966	11.1504	1	.0008		

Estimated Coefficients for a Multiple Logistic Regression Model including X_{4i} (Interest in visiting Frankenmuth by brochure) and X_{8i} (Overall quality of brochure)
* Log Likelihood = -150.13

Sub-model 2.3: Prediction of a Re-visit to Frankenmuth Using Satisfaction Variables

For this model, the independent variables are satisfaction variables derived from Question 13, Question 15 and Question 16 (See Appendix A). The relationship can be expressed as:

$$\ln\left[\frac{\text{Probability of Repeat visit}}{1-\text{Probability of Repeat visit}}\right] = f(\text{Satisfaction variables})$$

The empirical model used in the stepwise procedure can be expressed as:

$$\ln\left[\frac{P_i}{1-P_i}\right] = \sum_{1}^{3} b_j x_{ji}$$

Where

P_i : the probability that current visitors will visit Frankenmuth in the future

x_{1i} : travel experience (from a 5-point Likert scale with 1 representing "much worse than expected" and 5 representing "much more than expected" (Question 13))

x_{2i} recommendation; 1 = yes, 0 = no (Question 15)

x_{3i}: destination ranking from a 7-point Likert scale with 1 representing "terrible" and 7 representing "excellent" (Question 16)).

After the stepwise procedure was applied in formulating the prediction equation, only two variables remained in the equation: travel experience and destination ranking. The equation follows:

$$Logit\ (Repeat\ Visit) = -7.8458 + .494*(x_{1i}) + 1.0012*(x_{3i})$$

This function indicates that increasing "travel experience" and "destination ranking" will result in an increase in logit(Repeat visit). The overall probability of correct prediction is 72.29%. The results indicate that visitors whose expectations are exceeded and who rank Frankenmuth highly as a travel destination are more likely to visit Frankenmuth again. The results of fitting the logistic regression model are given in Table 19.

The equation for predicting repeat visitors from trip satisfaction variables is:

$$P(Y=1/X_{1i}, X_{2i}) = \frac{e^{a+b_1X_{1i}+b_2X_{2i}}}{1+e^{a+b_1X_{1i}+b_2X_{2i}}}$$

Where

P(Y=1): the probability of taking a trip to Frankenmuth again

e: the base of natural logarithms.

a: the intercept

$b_1 x_{1i}$: the experience coefficient b_1 multiplied by the value of "travel experience" reported by individual *i*.

$b_2 x_{2i}$: the destination coefficient b_2 multiplied by the value of "destination ranking" reported by the individual *i*.

Table 19 Logistic Regression Procedure with Dependent Variable "Repeat Visit or not" for Satisfaction Variables (Goodness-of-fit Reduced Model)

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
Experience (X_{11})	.4940	.1850	7.1271	1	.0076	.1219	1.6338
Recommend (X_{31})	1.0012	.1885	28.2167	1	.0000	.2756	2.7217
Constant	- 7.8458	1.1298	48.2253	1	.0000		

Estimated Coefficients for a Multiple Logistic Regression Model including X_{11} (travel experience) and X_{31} (recommendation ranking)
* Log Likelihood = -138.48

For example, if we wanted to estimate the probability of a current visitor re-visiting Frankenmuth answered 5 to the "travel experience" question and 7 to the "destination ranking" question, applying the above model would yield a probability of repeat visit estimate of 0.84.

Sub-model 2.4: Prediction of a Re-visit to Frankenmuth Using Travel Behavior Variables

In this model, the independent variables are travel behavior variables derived from Question 2, Question 8, Question 9, Question 10 and Question 11b. The relationship can be expressed as:

$$\ln\left[\frac{\text{Probability of Repeat visit}}{1-\text{Probability of Repeat visit}}\right] = f(\text{Travel characteritics})$$

The empirical model used in stepwise regression analysis included five predictors and can be expressed as follows:

$$\ln\left[\frac{P_i}{1-P_1}\right] = \sum_{1}^{5} b_j x_{ji}$$

Where

P_i : the probability that current visitors will visit Frankenmuth in the future

x_{1i} : previous experience; 1 = yes, 0 = no (Question 2)

x_{2i} primary destination; 1 = yes, 0 = no (Question 8)

x_{3i} : primary purpose of trip; 1 = recreation/leisure, 0 = other (Question 9)

x_{4i} : day tripper; 1 = yes, 0 = no (Question 10)

x_{5i}: travel party size; actual travel party size

After the stepwise procedure was applied, only one variable (x_{1i}: previous experience) remained in the model. The equation follows:

$$Logit\ (Repeat\ Visit) = -.5978 + 1.048*(x_{1i})$$

This function indicates that a previous visit can result in an increase in logit(repeat visit). The overall probability of correct prediction is 62.50%. The results indicate that current visitors who had been to Frankenmuth earlier are more likely to revisit Frankenmuth later. The results of fitting the logistic regression model are given in Table 20.

The prediction model derived from travel behavior variables using the stepwise procedure can be expressed as:

$$P(Y=1/X_{1i}) = \frac{e^{a+b_1X_{1i}}}{1+e^{a+b_1X_{1i}}}$$

Where

P(Y=1): the probability of taking a trip to Frankenmuth again

e: the base of natural logarithms.

a: the intercept

Table 20. Logistic Regression Procedure with Dependent Variable "Repeat Visit or not" Using Travel Behavior Variables (Goodness-of-fit Reduced Model)

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
previous visit (X_{1i})	1.0480	.2812	13.8888	1	.0002	.1957	2.8519
Constant	- .5978	.2167	7.6086	1	.0058		

* Log Likelihood = -155.257

$b_1 x_{1i}$: the previous visit coefficient b_1 multiplied by the observed previous visit behavior by individual *i*.

Suppose that we wanted to estimate the probability of an individual visitor revisiting Frankenmuth. If this individual answered "yes" to the "previous visit" question, s/he would have a 0.61 probability of making a future trip to Frankenmuth.

Model 2: Full Model Derived from Sub-model 2.1 - 2.4 Using Sociodemographic, Brochure Evaluation, Trip Satisfaction and Travel Behavior Variables

Having screened out the weakest independent variables via creating four Sub-models, the variables remaining were combined and analyzed using similar procedures to those employed in building the submodels. The significant predictors that remained in earlier mentioned Sub-models included: "distance away from Frankenmuth", "years attended school", "increased interest in visiting Frankenmuth stimulated by brochure", "overall quality of the brochure", "satisfaction with travel experience", "destination ranking", and "previous visit". Before application of the stepwise procedure, Model 2 contained seven predictors, and it can be expressed as follows:

$$\ln\left[\frac{P_i}{1-P_i}\right] = \sum_{1}^{7} b_j x_{ji}$$

Where

P_i : the probability that current visitors will visit Frankenmuth in the future

x_{1i} : distance from Frankenmuth.

x_{2i} education.

x_{3i} : interest in visiting Frankenmuth; 1 = yes, 0 = no

x_{4i} : overall quality of brochure; 1 = yes, 0 = no

x_{5i}: satisfaction with travel experience; 5-point Likert scale with 1 representing "much worse than expected" and 5 representing "much better than expected".

x_{6i} : destination ranking; 7-point Likert scale with 1 representing "terrible" and 7 representing "excellent".

x_{7i}: previous visit; 1=yes, 0 = no.

When the stepwise procedure was applied, three variables (x_{1i}: distance to Frankenmuth, x_{5i}: satisfaction with travel experience, and x_{6i} : destination ranking) remained in the model. The resulting equation follows:

$$Logit\ (Repeat\ Visit) = -8.8774 - .0094*(x_{1i}) + .8741*(x_{5i}) + 1.2170*(x_{6i}) \qquad \textbf{--Equation 2}$$

This function indicates that an increase in "distance away from Frankenmuth" will result in a decrease in logit(repeat visit). Increase in "travel experience" and "destination ranking" result in an increase in logit(repeat visitors). The overall probability of a correct prediction was found to be 78.13%. The results indicate that current visitors who live near

Frankenmuth and register high scores for "travel experience" and "destination ranking" are most likely to revisit Frankenmuth. The results of fitting the logistic regression model are given in Table 21.

After variable screening via first building submodels and applying stepwise procedures to the remaining combined variables, the following best model for predicting repeat visitors resulted:

$$P(Y=1/X_{1i}, X_{2i}, X_{3i}) = \frac{e^{a+b_1X_{1i}+b_2X_{2i}+b_3X_{3i}}}{1+e^{a+b_1X_{1i}+b_2X_{2i}+b_3X_{3i}}}$$

Where

P(Y=1): the probability of taking a trip to Frankenmuth again

e: the base of natural logarithms.

a: the intercept

$b_1 x_{1i}$: the distance coefficient b_1 multiplied by distance from the individual *i*'s residence to Frankenmuth.

$b_2 x_{2i}$: the satisfaction with travel experience coefficient b_2 multiplied by the ranking value of "satisfaction with travel experience" by individual *i*.

$b_3 x_{3i}$: the destination ranking coefficient b_3 multiplied by the ranking value of "destination ranking" by individual *i*.

To illustrate application of the Model 2, suppose that we wanted to estimate the probability of a current visitor's desire to revisit Frankenmuth. If the individual lives 200 miles from Frankenmuth, scored "satisfaction with travel experience" as 3 and "destination ranking" as 7, the probability of revisiting Frankenmuth for this individual is 0.79.

Table 21. Logistic Regression Procedure with Dependent Variable "Repeat Visit or not" -- Full Model (Goodness-of-fit Reduced Model)

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
distance	-.0094	.0017	29.3143	1	.0000	-.2967	.9906
travel experience	.8741	.2267	14.8649	1	.0001	.2036	2.3967
destination ranking	1.217	.2336	27.1472	1	.0000	.2847	3.3770
Constant	-8.8774	1.4106	39.6038	1	.0000		

* Log Likelihood = -101.07

Model 2 results appear to have less potential for direct application by Frankenmuth marketers than was the case for Model 1. A priori data for individual visitors that would be needed to exploit the demonstrated predictive power of Model 2 are not available nor could they be readily obtained from visitors. The exception to this is the distance variable which would appear to offer a moderate basis for singling out repeat visitor prospects. Still, Model 2 does provide some useful general marketing information. Results confirm the importance of insuring that visitors to Frankenmuth receive the best possible service to insure that they leave satisfied. Second, the significance of a high ranking of Frankenmuth as a travel destination points to the need for future research directed at uncovering what factors underly how visitors rank destinations. An improved understanding of these factors would be useful in developing product development strategies with the goal of enhancing

how Frankenmuth is rated as a travel destination. Implementing these strategies would, as the results suggest, stimulate repeat visits by current visitors.

CHAPTER V

SUMMARY, LIMITATIONS AND IMPLICATIONS

The objectives of this study were to (1) identify factors that influence different tourist market segment's (e.g., first-time and repeat visitors) decision to make trips to Frankenmuth after requesting information from the FCCVB and (2) develop models that estimate the probability that different market segments will visit Frankenmuth. Information useful for developing marketing and/or advertising strategies was obtained through: (1) descriptive analyses that produced profiles of different market segments (visitors, nonvisitors, first-time visitors, and repeat visitors), (2) tests for significant differences between segments, and (3) models that predict the propensity of different segments to visit Frankenmuth.

A cross-sectional survey method was employed to collect data used in the study. Random systematic sampling was applied to select the sample of 1263 from a sampling frame consisting of 5,967 Americans and Canadians who requested information via a toll free call to the Frankenmuth Chamber of Commerce and Visitors Bureau (FCCVB) between September 1, 1993 and March 15, 1994. Questionnaires were sent certified mail to these 1263 individuals. This produced 595 usable questionnaires for data analysis.

Two hypotheses were established involving sets of variables which were thought to influence travel decisions to Frankenmuth. Hypothesis 1 tested for differences between

inquirers who did and did not make visits to Frankenmuth after making an inquiry to the FCCVB. Statistically significant differences were found between these two segments for the following variables: familiarity with Frankenmuth, state of residency, distance from inquirers' residence to Frankenmuth, whether inquirers actually read the promotional materials (brochure) they were sent, elapsed time between inquiry and receipt of requested information, interest in the brochure, the perceived quality of the brochure, and the age of those who did and did not visit after an inquiry. Respondents were more likely to visit Frankenmuth if they had visited before, reside in Michigan, live a shorter distance away, received promotional materials sooner after requesting them, read the materials received, found the materials interesting, rate the materials high, and are relatively younger.

Hypothesis 2 tested for differences between visitors who had and had not visited Frankenmuth previous by. Results indicated differences exist with respect to the following variables: state of residence, distance from their residence to Frankenmuth, type of media sources used for information about Frankenmuth, size of travel party, day vs. overnight trips, satisfaction with their Frankenmuth experience, intention to make a repeat visit, intended to recommend Frankenmuth as a travel destination to others, ranking of Frankenmuth as a travel destination, whether visitors utilized the brochure on site, whether or not the brochure influenced current visitors to visit Frankenmuth again, and age of current visitors. Respondents were more likely to be first-time visitors if they were not residents of Michigan, live longer distance away, relied more on word-of-mouth information, had a small travel party size, utilized accommodations in Frankenmuth, derived more satisfaction with their Frankenmuth experience, more likely to recommend

Frankenmuth as a travel destination to others, utilized the brochure on site, were more influenced by the brochure to make visits to Frankenmuth, and had more years of schooling.

A three step process was employed to build the models (1 and 2) that predict the propensity to visit Frankenmuth. First, tests of hypotheses were performed in order to identify (independent) variables that are significantly related to the propensity to visit Frankenmuth. Stepwise logistic regression analyses were then performed to delete variables that did not significantly affect the prediction of propensity of inquirers to visit Frankenmuth. Results from Model 1 indicate that travel distance to Frankenmuth, in-state vs. out-of-state, perceptions of the quality of the brochure received in response to inquiries, elapsed time between the inquiry and receipt of the information, and level of education most influenced whether an inquiry was followed by a visit. The predictive ability of the Model 1 was evaluated using a random selection of the 595 cases. The overall correct prediction of the model is 68.32%. This is 18.32 percentage points better than the expected 50% from a pure random process.

Model 2 was developed to predict the probability of repeat visits to Frankenmuth. The results indicate that the likelihood of a repeat visit is influenced by travel distance to Frankenmuth, satisfaction with previous Frankenmuth (travel) experiences, and ranking of Frankenmuth as a travel destination. The overall correct prediction for this model is 78.13%, which is 28.13 greater than the 50% expected from a pure random process.

Study Limitations

There a number of sampling related limitations associated with this study. First, the sample only consisted of persons who requested information from the FCCVB. Persons who visited Frankenmuth but did not request information were not included in the sample. In addition, the sample frame was limited to persons that made inquiries during a six month period from September 1, 1993 to March 15, 1994. This raises questions regarding the extent to which these findings can be generalized to all visitors to Frankenmuth or even to all those who make inquiries to the FCCVB. This does not mean that the basic structures of the prediction models are not valid. Some variation in coefficients for the variables included in the model and possibly some variation in the sets of independent variables included could result if an expanded sample frame had been used to develop the models. However, there are no obvious intuitive or empirical reasons to suggest that the travel behavior or decision criteria of the sample is significantly different from that of all inquirers or visitors to Frankenmuth.

Another limitation of this study is the potential influence of non-response bias. Non-response bias has been identified as a major limitation of many previous inquiry conversion studies. This is also the single biggest impediment to any survey research based project. Questionnaires were sent to 1263 persons but only 595 usable returns were produced. In other words, slightly less than 50% of the original sample was represented in the analyses involved in this study. While the study design incorporated strategies to increase the response rate (e.g., certified mail), no effort was made (e.g., follow up questionnaires) to determine the extent or direction of non-response bias. As a result, it is

impossible to determine whether the 595 questionnaires are representative of persons that made inquiries.

There are also certain limitations to using secondary data to estimate the logistic models. This original study was not designed to produce data to estimate or evaluate logistic models. Estimation of the models was limited to variables that were included on the original questionnaire. In addition, many of the response categories in the questionnaire were ordinal rather than precise interval scales.

Variable transformation represents another possible limitation in this study. Transformations used in this study involved collapsing categories of nominal or ordinal data to obtain a smaller, more usable number of categories. There is no standard approach or rules to guide the transformation decisions that were necessary in this study. For nominal data, any categories could conceivably be combined, but for ordinal data only adjacent categories should be combined. The decision to collapse (combine) categories always involves a compromise between producing too many categories with some based upon very few respondents (e.g., only three of the 295 respondents were temporarily unemployed and five were students -- Question 30) and collapsing so much that information is lost. For example, the categories relating to "brochure evaluation" were collapsed from the seven possible categories into two categories (yes and no). Although this did not reduce the predictive ability of Model 2, information was lost. However, while all data transformations employed in this study were deemed desirable based upon sample size and other considerations, it is not possible to fully assess the degree to which they may have collectively impacted on overall results.

Implications

This study made progress toward developing a plausible model for examining the factors which influence destination decision-making. The significant positive relationships found between satisfaction and repeat visits to the same destination supports the findings of other studies by Chon (1992, 1990, and 1989). It also verifies the importance of continuous investment in service quality improvement. The significant negative relationship between distance and the decision to visit or not visit supports the findings of a study by Smith (1983). The findings also suggest that first-time visitors have a greater propensity to use word-of-mouth advertising. This may be in part be attributable to the novelty of the visit, and the resulting urge to "pass on" information to family and friends. This could provide a basis for a marketing campaign to provoke word-of-mouth by enlisting first-time visitors as marketing representatives.

The results indicate that customer (not seller) perception of the quality of a promotional piece, in this case a brochure, is an important factor in determining whether potential first time visitors make a trip to Frankenmuth. Information on "how" potential visitors evaluate the quality of promotions should be incorporated into promotional platforms, layout, graphics and copywriting.

The relationship between elapsed time -- between the time of inquiry and receipt of information -- and decisions to visit confirms the importance of timely follow-up to inquiries. The findings indicate that to maximize effectiveness, follow-up information should be sent within three days of receipt of the inquiry. The FCCVB could also enhance

the effectiveness of their inquiry response program by focusing on factors/variables that comprise Model 1.

Model 2 provides a more in-depth understanding of the factors that influence repeat visits to Frankenmuth. Travel distance and satisfaction with their Frankenmuth experiences significantly influence likelihood of repeat visit. These findings can be used to more precisely target marketing aimed at stimulating repeat visits. The results also indicate that the FVCCB should consider tailoring inquiry response packages for different segments of inquirers. For example, packages sent to potential first-time visitors should include relatively more detailed and comprehensive information such as special events (i.e., winter art, snow and ice sculpting, summer music festival), facilities, and services available in Frankenmuth (e.g., accommodations, restaurant, touring). Packages designed for persons that have previously experienced Frankenmuth should focus on new features, programs and amenities.

Model 2 provides a relatively efficient way to predict the probability that person who make inquiries and then visits Frankenmuth will make a repeat visit. It identifies factors that have the greatest influence on repeat visits. This information can also help the FCCVB decide on what types of information to acquire about persons that make inquiries (e.g., whether they have made a previous visit). Although application of the model requires expertise in statistics and computers, this could be obtained from academic institutes or private research firms.

Future Research

While there appears to be no obvious reasons to question the generalizability of the results obtained for Model 1 and Model 2, there is no question that the sample used to estimate the models was limited and may be subject to non-response bias. It would be useful to verify results obtained using data collected from a more representative sample of inquirers and also from visitors that make trips but not pre-trip inquiries. The focus would be on whether the independent variables and/or coefficients change significantly when the models are estimated with data collected from a different (expanded) sample. For example, the sample frame could be clustered into different geographic segments. Based on those geographic segments, a random household survey could be applied to collect similar information to that used in this study. While such a survey would be far more costly that was that used in this study, the costs could be spread by designing the survey to obtain information beyond that required for model verification purposes.

Future research could also be directed to developing and testing methods that generate a representative sample of persons that make inquiries. This could include different sampling schemes, alternative methods for increasing response rate, and methods to assess and correct for non-response bias.

Future research should also be directed toward improvements in questionnaires to generate the data used in this study. For example, it would be useful to use more consistent measurement scales across questions. More consistent Likert scales (e.g., 5-point or 7-point) would simplify or eliminate the need for data transformations. Also, it

would be useful to experiment with ways to generate more interval, rather than ordinal data scales.

The predictive ability of models could also be evaluated by collecting similar information from a sample of those who make inquiries and a separate sample of visitors to Frankenmuth. The visitors would also be asked whether, or not, they made a pre-trip inquiry. This information could be used to assess how well the models are able to predict percent of visits and characteristics of those who visit. If collected on a regular basis, these data could be used to adjust the models over time.

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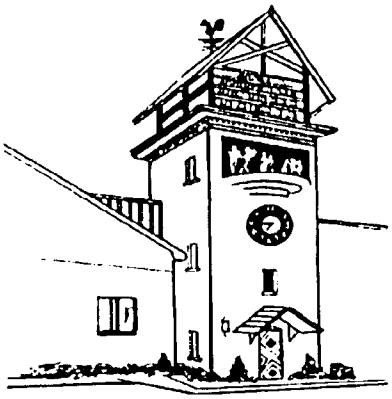
APPENDICES

APPENDIX A

SAMPLE OF FRANKENMUTH INQUIRERS QRUESTIONNAIRE

QUESTIONNAIRE

1994 Survey of Frankenmuth Inquirers



Travel, Tourism, and Recreation Resource Center
Michigan State University

1994 SURVEY OF FRANKENMUTH INQUIRERS

Thank you very much for participating in our study! Please answer the following questions sequentially, unless directed to skip over a block of one or more questions by the statement "GO TO QUESTION. . . ." Please follow these "GO TO" directions very carefully.

1. How did you obtain the phone number or address of the Frankenmuth Chamber of Commerce/ Visitors Bureau?

[ ] Newspaper article	[ ] Friend/relative/co-worker	[ ] Michigan Travel Bureau
[ ] Newspaper advertisement	[ ] Frankenmuth area business	[ ] Telephone directory
[ ] Magazine article	[ ] At a travel show	[ ] Directory assistance
[ ] Magazine advertisement	[ ] Travel agent	[ ] Brochure
[ ] Radio advertisement	[ ] Regional tourist association	[ ] Other; please specify:_____
[ ] Television advertisement		_____

2. Prior to requesting information on _____/_____/_____, had you ever visited Frankenmuth?

[ ] Yes [ ] No ——→ GO TO QUESTION 3

2a. Approximately when did the most recent of these visits occur? (Please provide dates for up to three visits.)

Month	Year	Month	Year	Month	Year

2b. Did you request information from the Frankenmuth Chamber of Commerce/Visitors Bureau to help plan any of these visits?

[ ] Yes [ ] No [ ] Don't remember

GO TO QUESTION 3

3. Was the information you requested from the Frankenmuth Chamber of Commerce/Visitors Bureau on _____/_____/_____ for YOUR USE or for USE BY SOMEONE ELSE?

[ ] For my use [ ] For use by someone else ——→ GO TO QUESTION 28

4. When you requested information, was a visit to Frankenmuth. . . .

[ ] Already decided upon
[ ] Being considered
[ ] Not being considered, but desired information anyway

5. Did you visit Frankenmuth AFTER REQUESTING information on _____/_____/_____ from the Frankenmuth Chamber of Commerce/Visitors Bureau?

[ ] Yes [ ] No →

GO TO QUESTION 6 ON NEXT PAGE

5a. Are you considering a visit to Frankenmuth?

[ ] Yes [ ] No → GO TO QUESTION 5c

5b. When will this visit most likely occur?

[ ] Within the next 3 months
[ ] 4-6 months in the future
[ ] 7-9 months in the future
[ ] 10 or more months in the future

5c. Did you receive any information from the Frankenmuth Chamber of Commerce/Visitors Bureau in response to your request?

[ ] Yes [ ] No → GO TO QUESTION 28

5d. Was the information you received the information you requested? [ ] Yes [ ] No [ ] Partially

5e. Approximately when did you receive the information?

_____ /_____ /_____
Month Day Year

5f. Did you read the brochures that were sent to you?

[ ] Yes [ ] No →

5g. What did you do with them?

[ ] Kept them for future reference
[ ] Discarded them
[ ] Gave them to someone
[ ] Other

GO TO QUESTION 28

In Questions 5h and 5i scales from 1 to 7 are shown. On these scales 1 and 7 represent *extremes* that have been labeled in the case of each question; the values between 1 and 7 represent degrees between these extremes. Please answer each question by circling ONE number in the case of each scale.

5h. To what extent did the brochures decrease or increase your interest in visiting Frankenmuth?

1	2	3	4	5	6	7
Greatly decreased my interest						Greatly increased my interest

5i. How would you rate the overall quality of the brochures?

1	2	3	4	5	6	7
Terrible						Excellent

GO TO QUESTION 28

6. Approximately when did you depart on your first trip involving a visit to Frankenmuth after requesting information from the Frankenmuth Chamber of Commerce/Visitors Bureau on _____/_____/_____?

_____ /_____ /_____
Month Day Year

NOTE: IN THE FOLLOWING QUESTIONS, "THIS TRIP" REFERS TO THE TRIP THAT BEGAN ON THIS DATE

7. Prior to this trip, did you obtain any information about Frankenmuth from any sources other than the Frankenmuth Chamber of Commerce/Visitors Bureau?

[ ] Yes [ ] No → GO TO QUESTION 8

7a. What other source(s)?

[ ] Newspaper article
[ ] Newspaper advertisement
[ ] Magazine article
[ ] Magazine advertisement
[ ] Radio advertisement
[ ] Television advertisement
[ ] Friend/relative/co-worker
[ ] Frankenmuth area business
[ ] Travel show
[ ] Travel agent
[ ] Michigan Travel Bureau
[ ] Regional tourist association
[ ] Telephone directory
[ ] Brochure
[ ] Other; please specify:_____

8. Was Frankenmuth the PRIMARY DESTINATION of this trip?

[ ] Yes [ ] No → 8a. What was the primary destination? _____

9. What was the PRIMARY PURPOSE of this trip?

[ ] Recreation/pleasure
[ ] Business or convention/meeting
[ ] Combined business and recreation/pleasure
[ ] Other; please specify: _____

10. Did you spend any NIGHTS AWAY FROM HOME on this trip?

[ ] Yes [ ] No → GO TO QUESTION 11

10a. Did you spend any nights IN FRANKENMUTH on this trip?

[ ] Yes [ ] No → 10b. In what cities did you spend the night?

GO TO QUESTION 11

10c. How many nights did you spend IN FRANKENMUTH? _____

10d. Where were these nights IN FRANKENMUTH spent? (Check all that apply)

[ ] Hotel or motel
[ ] Bed & Breakfast
[ ] Campground
[ ] Friend's/relative's home
[ ] Second home you own
[ ] Other; please specify:_____

GO TO QUESTION 11

11. When you visited Frankenmuth on this trip, were you a member of an organized tour group, such as a motor coach tour group?

[ ] Yes [ ] No → 11a. Did anyone accompany you on this trip?

[ ] Yes [ ] No → GO TO QUESTION 12

11b. How many persons (not including yourself) accompanied you? _____

11c. Were these persons:

[ ] Friends
[ ] Relatives
[ ] Friends and relatives
[ ] Business associates
[ ] Other; please specify:

_____

GO TO QUESTION 12

We'd also like to know approximately how much (if any) money your "spending unit" spent in Frankenmuth on this trip. A "spending unit" is an individual who purchases things for himself or herself, or a group that purchases things as a group. An individual who pays his or her own expenses is one spending unit whether he or she is traveling alone or with others. Two married couples traveling together are two spending units if they purchase things separately, although they may split some expenses.

12. While you were in Frankenmuth on this trip, did you or any other members of your SPENDING UNIT spend any money?

[ ] Yes [ ] No → GO TO QUESTION 13

12a. How many persons, including yourself, were in your SPENDING UNIT on this trip?

_____

12b. Approximately how much money did your SPENDING UNIT spend on this trip IN FRANKENMUTH on each of the following items?

PLEASE DO NOT LEAVE ANY SPACES BLANK; WRITE "0" TO INDICATE NO EXPENDITURES ON A GIVEN ITEM. INCLUDE ONLY EXPENDITURES MADE IN FRANKENMUTH. EXCLUDE FEES PAID TO MOTORCOACH OPERATORS.

Lodging.....$_____
Camping fees.....$_____
Gifts, crafts, souvenirs, clothing, and/or specialty food items.....$_____
Grocery and convenience store food and beverages.....$_____
Restaurant and bar meals and drinks.....$_____
Gasoline, oil, repairs, and other vehicle-related items..$_____
Rental fees (for golf carts, cross-country skis, etc.)...$_____
Guided tours.....$_____
All other items.....$_____
TOTAL.....$_____

GO TO QUESTION 13

13. Was your experience in Frankenmuth on this trip. . . .

[ ]	[ ]	[ ]	[ ]	[ ]
Much worse than expected	Somewhat worse than expected	About what you expected	Somewhat better than expected	Much better than expected

14. How likely are you to visit Frankenmuth again?

[ ]	[ ]	[ ]	[ ]	[ ]
Certain to not visit again	Unlikely to visit again	Uncertain whether I will visit again	Likely to visit again	Certain to visit again

15. After this trip, did you recommend a visit to Frankenmuth to anyone?

[ ] Yes [ ] No [ ] Don't remember

16. Overall, how would you rate Frankenmuth as a tourist destination on a scale from 1 to 7, where 1 is "terrible" and 7 is "excellent"? Please circle one number on the scale below.

1	2	3	4	5	6	7
Terrible						Excellent

Now we'd like to learn a little more about your request for information from the Frankenmuth Chamber of Commerce/Visitors Bureau on _____/_____/_____.

17. Did you receive any information in response to your request?

[ ] Yes [ ] No ——→ GO TO QUESTION 28

17a. Was the information you received the information you requested?

[ ] Yes [ ] No [ ] Partially

17b. Approximately when did you receive the information?

_____ /_____ /_____
Month Day Year

17c. Did you receive information from the Frankenmuth Chamber of Commerce/ Visitors Bureau BEFORE this trip or AFTER this trip?

[ ] Before this trip ——→ GO TO QUESTION 18
[ ] After this trip ——→ GO TO QUESTION 28

18. Did you read the brochures that were sent to you?

[ ] Yes [ ] No ——→

18a. What did you do with them?

[ ] Kept them for future reference
[ ] Gave them to someone
[ ] Discarded them
[ ] Other

GO TO QUESTION 28

19. Did you consult the brochures while visiting Frankenmuth on this trip?

[ ] Yes [ ] No [ ] Don't remember

In Questions 20 through 27, scales from 1 to 7 are shown. On these scales 1 and 7 represent extremes that have been labeled in the case of each question; the values between 1 and 7 represent degrees between these extremes. Please answer each question by circling ONE number on each scale.

20. How useful was the information in the brochures?

1	2	3	4	5	6	7
Not at all useful						Extremely useful

21. To what extent were the brochures interesting to read?

1	2	3	4	5	6	7
Very un-interesting						Very interesting

22. To what extent were the brochures attractive in design?

1	2	3	4	5	6	7
Very un-attractive						Very attractive

23. To what extent did the brochures decrease or increase your interest in visiting Frankenmuth?

1	2	3	4	5	6	7
Greatly decreased my interest						Greatly increased my interest

24. To what extent did the brochures influence your decision to visit Frankenmuth?

1	2	3	4	5	6	7
Had no influence at all						Actually caused me to visit

25. To what extent did the brochures cause you to spend more money in Frankenmuth on this trip than you would have otherwise?

1	2	3	4	5	6	7
Not at all						A great deal

26. Based on your experience on this trip, how accurate was the information in the brochures?

1	2	3	4	5	6	7
Completely inaccurate						Completely accurate

27. How would you rate the overall quality of the brochures?

1	2	3	4	5	6	7
Terrible						Excellent

Please answer the remaining questions so that we will be able to develop a profile of the types of people who request information from the Frankenmuth Chamber of Commerce/Visitors Bureau. Your responses will, of course, remain strictly confidential; they will simply be combined with those of other respondents to compute percentages and averages.

28. What is the ZIP CODE of your permanent residence? _____

29. What is your gender?

[ ] Male [ ] Female

30. What is your present employment situation?

[ ] Working full time
[ ] Working part time
[ ] Temporarily unemployed
[ ] Homemaker
[ ] Retired
[ ] Student
[ ] Other; please specify: _____

31. Please circle the highest year of formal schooling you have completed.

1 2 3 4 5 6 7 8	1 2 3 4	1 2 3 4	1 2 3 4 5 6 7+
Grade School	High School	Undergraduate college education	Graduate college education

32. In what year were you born? _____

33. How many people reside in your household (including yourself)? _____

34. How many EMPLOYED persons age 18 or older reside in your household? _____

35. Do any children under age 18 reside in your household?

[ ] Yes [ ] No ⟶ GO TO QUESTION 36

35a. What is the AGE of the oldest child living at home? _____

35b. What is the AGE of the youngest child living at home? _____

GO TO QUESTION 36

36. What was your total 1993 household income before taxes?

[ ] Under $15,000
[ ] $15,000 to $19,999
[ ] $20,000 to $24,999
[ ] $25,000 to $34,999
[ ] $35,000 to $49,999
[ ] $50,000 to $74,999
[ ] $75,000 to $104,999
[ ] $105,000 to $119,999
[ ] $120,000 to $134,999
[ ] $135,000 to $149,999
[ ] $150,000 to $299,999
[ ] $300,000 or more

THANKS FOR YOUR HELP! Please return your questionnaire in the postage-paid envelope provided. If you misplaced this envelope, please return the questionnaire to:

1994 Survey of Frankenmuth Inquirers
Travel, Tourism, and Recreation Resource Center
172 Natural Resources Building
Michigan State University
East Lansing, MI 48824-1222

APPENDIX B

RESULTS OF THE SURVEY OF FRANKENMUTH INQUIRERS

RESULTS OF THE 1994 SURVEY OF FRANKENMUTH INQUIRERS

Q1. How did you obtain the phone number or address of the Frankenmuth Chamber of Commerce/Visitors Bureau? (N=573)

[2%] Newspaper article	[10%] Friend/relative/co-worker	[12%] Michigan Travel Bureau
[5 %] Newspaper advertisement	[1%] Frankenmuth area business	[3 %] Telephone directory
[10%] Magazine article	[2%] At a travel show	[19%] Directory assistance
[18%] Magazine advertisement	[2%] Travel agent	[8%] Brochure
[1%] Radio advertisement	[2%] Regional tourist association	[4%] Other
[1 %] Television advertisement		

Q2. Had you ever visited Frankenmuth? (N=594)

[55%] Yes [45%] No

Q2b. Did you requesting information from the Frankenmuth Chamber of Commerce/Visitors Bureau to help plan any of these visits? (N=320)

[21%] Yes [70%] No [9%] Don't remember

Q3. Was the information you requested from the Frankenmuth Chamber of Commerce/Visitors Bureau for your use or for use by someone else? (N=586)

[98%] For my use [2%] For use by someone else

Q4. When you requested information, was a visit to Frankmuth...(N=574)

[30%] Already decided upon

[65%] Being considered

[5 %] Not being considered, but desired information anyway

Q5. Did you visit Frankenmuth after requesting information? (N=585)

[44%] Yes [56%] No

Q5a. Are you considering a visit to Frankenmuth? (N=328)

[93%] Yes [7%] No

Q5b. When will this visit most likely occur? (N=296)

[47%] Within the next 3 month [10 %] 7-9 months in the future

[31%] 4-6 months in the future [12%] 10 or more months in the future

Q5c. Did you receive any information from the Frankenmuth Chamber of Commerce/Visitors Bureau in response to your request? (N=326)

[97%] Yes [3%] No

Q5d. Was the information you received the information you requested? (N=315)

[90%] Yes [2%] No [8%] Partially

Q5f. Did you read the brochures that were sent to you? (N=317)

[96%] Yes [4%] No

Q5g. What did you do with them if you didn't read the brochures that were sent to you? (N=12)

[100%] Keep for future reference [0%] Discarded them
[0%] Gave them to someone [0%] Other

Q5h. To what extent did the brochures decrease or increase your interest in visiting Frankenmuth? (N=304; Mean= 5.4)

[1%] 1 [0%] 2 [3%] 3 [20%] 4 [29%] 5 [23%] 6 [24%] 7

Greatly decreased my interest — Greatly increased my interest

Q5i. How would you rate the overall quality of the brochures? (N= 305; Mean= 5.7)

[0%] 1 [2%] 2 [2%] 3 [11%] 4 [22%] 5 [30%] 6 [33%] 7

Terrible — Excellent

Q7. Prior to this trip, did you obtain any information about Frankenmuth from any sources other than the Frankenmuth Chamber of Commerce/Visitors Bureau? (N=252)

[49%] Yes [51%] No

Q7A. What other sources? (N=119)

[0%] Newspaper article
[0%] Newspaper advertisement
[7%] Magazine article
[7%] Magazine advertisement
[0%] Radio advertisement
[2%] Television advertisement
[33%] Friend/relative/co-worker
[6%] Frankenmuth area business
[1%] Travel show
[5%] Travel agent
[9%] Michigan Travel Bureau
[3%] Regional tourist association
[0%] Telephone directory
[14%] Brochure
[5%] Other

Q8. Was Frankenmuth the PRIMARY DESTINATION of this trip? (N=253)

[83%] Yes [17%] No

Q9. What was the PRIMARY PURPOSE of this trip? (N=255)

[90%] Recreation/pleasure
[4%] Business or convention/meeting
[5%] Combined business and recreation/pleasure
[1%] Other

Q10. Did you spend any NIGHTS AWAY FROM HOME on this trip? (N=255)

72%] Yes [28%] No

Q10a. Did you spend any nights in FRANKENMUTH on this trip? (N=184)

[64%]Yes [36%] No

Q10c. How many nights did you spend IN FRANKENMUTH? (N=116; Mean= 1.84)

Q10d. Where were these nights IN FRANKENMUTH spent? (N=117)

[96%] Hotel or motel [0%] Friend's/relative's home
[1%] Bed & Breakfast [0%] Second home you own
[3%] Campground [0%] Other

Q11. When you visited Frankenmuth on this trip, were you a member of an organized tour group, such as a motor coach tour group? (N=255)

[4%] Yes [96%] No

Q11a. Did anyone accompany you on this trip? (N=241)

[95%] Yes [5%] No

Q11b. How many persons (not including yourself) accompanied you?(N=224; Mean= 2.4)

Q11c. Were these persons: (N=226)

[19%] Friend [0%] Business associates
[63%] Relatives [0%] Other
[18%] Friends and relatives

Q12. While you were in Frankenmuth on this trip, did you or any other members of your SPENDING UNIT spend any money? (N=253)

[97%] Yes [3%] No

Q12a. How many persons, including yourself, were in your SPENDING UNIT on this trip? (N=243 Mean=4.3)

Q12b. Approximately how much did your SPENDING UNIT spend on this trip in FRANKENMUTH on each of the following items? (N=241)

(Mean= $ 81)	Lodging
(Mean= $ 0)	Camping fee
(Mean= $ 147)	Gifts, crafts, souvenirs, clothing, and/or specialty food items
(Mean= $ 12)	Grocery and convenience store food and beverages
(Mean= $ 90)	Restaurant and bar meals and drinks
(Mean= $ 13)	Gasoline, oil, repairs, and other vehicle-related items
(Mean= $ 0)	Rental fees (for golf carts, cross-country skies, etc.)
(Mean= $ 3)	Guided tours
(Mean= $ 10)	All other items
(Mean= $ 356)	TOTAL

Q13. Was your experience in Frankenmuth on this trip... (N=251; Mean=3.8)

[0%] 1. Much worse than expected
[4 %] 2. Somewhat worse than expected
[36%] 3. About what you expected
[32%] 4. Somewhat better than expected
[28%] 5. Much better than expected

Q14. How likely are you to visit Frankenmuth again? (N=253; Mean= 4.4)

[1%] 1. Certain to not visit again
[1%] 2. Unlikely to visit again
[9%] 3. Uncertain whether I will visit again
[40%] 4. Likely to visit again
[49%] 5. Certain to visit again

Q15. After this trip, did you recommend a visit to Frankenmuth to anyone? (N=252)

[86%] Yes [8%] No [6%] Don't know

Q16. Overall, how would you rate Frankenmuth as a tourist destination on a scale from 1 to 7, Where 1 is "terrible " and 7 is "excellent"? (N=251; Mean=5.9)

[0%] 1 [1%] 2 [1%] 3 [4%] 4 [29%] 5 [32%] 6 [33%] 7
Terrible Excellent

Q17. Did you receive any information in response to your request? (N=252)
[99%] Yes [1%] No

Q17a. Was the information you received the information you requested? (N=242)
[96%] Yes [0%] No [4%] Partially

Q17c. Did you receive information from the Frankenmuth Chamber of Commerce/Visitors Bureau BEFORE this trip or AFTER this trip? (N=243)

[93%] Before this trip [7%] After this trip

Q18. Did you read the brochures that were sent to you? (N=232)
[100%] Yes [0%] No

Q18a. What did you do with them? (N=1)

[0%] Kept them for the future reference
[0%] Discarded them
[100%] Gave them to someone
[0%] Other

Q19. Did you consult the brochures while visiting Frankenmuth on this trip? (N=229)
[82%] Yes [13%] No [5%] Don't remember

In Question 20 through 27, scales from 1 to 7 are shown. On these scales 1 and 7 represent extremes that have been labeled in the case of each question; the values between 1 and 7 represent degrees between these extremes.

Q20. How useful was the information in the brochures? (N=232; Mean=5.8)

[0%] 1 [0%] 2 [1%] 3 [10%] 4 [30%] 5 [25%] 6 [34%] 7
Not at all useful Extremely useful

Q21. To what extent were the brochures interesting to read? (N=232; Mean=5.6)

[0%] 1 [0%] 2 [3%] 3 [12%] 4 [31%] 5 [27%] 6 [27%] 7
Very uninteresting Very interesting

Q22. To what extent were the brochures attractive in design? (N=231; Mean=5.8)

[0%] 1 [0%] 2 [1%] 3 [9%] 4 [27%] 5 [33%] 6 [30%] 7

Very unattractive — Very attractive

Q23. To what extent did the brochures decrease or increase your interest in visiting Frankenmuth? (N=232; Mean=5.7)

[0%] 1 [0%] 2 [0%] 3 [15%] 4 [28%] 5 [26%] 6 [31%] 7

Greatly decreased my interest — Greatly increased my interest

Q24. To what extent did the brochures influence your decision to visit Frankenmuth? (N=230; Mean=4.5)

[16%] 1 [3%] 2 [7%] 3 [16%] 4 [21%] 5 [21%] 6 [16%] 7

Had no influence at all — Actually caused me to visit

Q25. To what extent did the brochures cause you to spend more money in Frankenmuth on this trip than you would have otherwise? (N=230; Mean=3.2)

[31%] 1 [8%] 2 [12%] 3 [24%] 4 [13%] 5 [9%] 6 [3%] 7

Not at all — A great deal

Q26. Based on your experience on this trip, how accurate was the information in the brochures? (N=232; Mean=6.1)

[1%] 1 [0%] 2 [0%] 3 [7%] 4 [16%] 5 [29%] 6 [47%] 7

Completely inaccurate — Completely accurate

Q27. How would you rate the overall quality of the brochures? (N=232; Mean=6.1)

[0%] 1 [0%] 2 [0%] 3 [7%] 4 [19%] 5 [35%] 6 [39%] 7

Terrible — Excellent

Q29. What is your gender? (N=594)

[29%] Male [71%] Female

Q30. What is your present employment situation? (N=594)

[53%] Working full time
[13%] Working part time
[1%] Temporarily unemployed
[12%] Homemaker
[16%] Retired
[3%] Student
[2%] Other

Q31. What is the highest year of formal schooling have you completed? (N=590; Mean=14.2)

Q32. What is your age? (N=587; Mean=46.2)

Q33. How many people reside in your household (including yourself)? (N=593; Mean=2.8)

[0%] 0 [10%] 1 [41%] 2 [19%] 3 [20%] 4 [8%] 5 [1%] 6 [1%] 7

Q34. How many EMPLOYED persons age 18 reside in your household? (N=588; Mean=1.6)

[17%] 0 [27%] 1 [43%] 2 [10%] 3 [3%] 4

Q35. Do any children under age 18 reside in your household? (N= 592; Mean=1.6)

[36%] 1 [64%] 2

Q35a. What is the AGE of the oldest child living at home? (N=208; Mean=10)

Q35b. What is the AGE of the youngest child living at home? (N=204; Mean=7.7)

Q36. What was your total 1993 household income before taxes? (N=524)

[4%] Under $15,000	[24%) $35,000 to $49,999	[1%] $120,000 to $134,999
[5%] $15,000 to $19,999	[30%] $50,000 to $74,999	[0%] $135,000 to $149,999
[6%] $20,000 to $24,999	[12%] $75,000 to $104,999	[0%] $150,000 to $299,999
[15%] $25,000 to $34,999	[3%] $105,000 to $119,999	[0%] $300,000 or more