

SKIING TRENDS

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Abstract.--A brief historical overview of skiing is presented, followed by a review of factors such as energy, population trends, income, sex, occupation and attitudes which affect the future of skiing. A. C. Neilson's Sports Participation Surveys show that skiing is the second fastest growing sport in the country. Skiing Magazine's study indicates there are approximately 14 million active skiers in the United States. The U.S. Forest Service's nation-wide study of the skier market indicates there are another 13 million potential skiers.

Demand is increasing at a much faster rate than supply is. Regionally the West is experiencing an imbalance of demand exceeding supply, while the East and Midwest are approaching equilibrium. Without an increase in supply, skiing may suffer a decrease in popularity. The paper concludes with a list of future trends.

INTRODUCTION

Historical Overview¹

Recreational skiing has ancient roots, with skiing being traced back to prehistoric times where man used primitive skis and sleds to cover vast snow covered areas in the Scandinavian countries. Archeological findings have placed skis in Sweden and dated them by pollen analysis at 2,000 B.C. Skiing provided a means of travel between isolated communities, provided a technique for the hunter which aided his survival in snow-bound regions, and was also used in conducting war in Norway as early as 1184 A.D. As could be expected, use of skis led to racing, and Norwegian military contests involving downhill racing were held during the late 18th Century.

The Norwegians developed steering and stopping techniques, which elevated Alpine skiing and ski jumping in Scandinavia to the high status it holds today. Skiing as a sport followed the migration of Norwegian skiers around the world. Hannes Schneider from the Arlberg region of Austria developed techniques emphasizing speed, edging and the shifting of weight from ski to ski, which made skiing easier and more attractive for the average alpine visitor. Sir Henry Lunn, an Englishman, is credited with starting the promotion of winter tourism by inviting some influential British friends to France for a winter holiday in 1898.

Skiing was further enhanced by the military use of skis and by the first Winter Olympics at Chamonix, France, in 1924. Great improvements were made in ski equipment and in the development of transportation devices to carry a skier or pull a skier uphill--rope tows, T-bars, trams and chairs. The first chair lift in the U.S. was developed in 1938 at Sun Valley and its current popularity is well-known, as it dominates uphill transporta-

¹ Smith, Kenard E. Location Analysis of High-Volume Skiing in Western United States, Xerox University Microfilms, Ann Arbor, Michigan 48106, 1975, pp. 1-55.

tion. Ski trains became popular in Winter Park, one of the first ski areas in Colorado, when the area was reached by skiers who came through the Continental Divide via the Moffat Tunnel.

As interest picked up in skiing, early ski resorts developed in response to the desire to ski, particularly at areas near large urban markets. A few ski resorts such as Sun Valley, were developed far from urban markets, offering complete lodging, dining and entertainment at the ski slopes--very typical of today's destination ski resorts. Eastern ski areas thrived on skiing's new popularity and efficient train service. Consequently, despite the depression, skiing grew from participation by a small hardcore group--ski jumpers and college club students--to a \$200 million enterprise prior to World War II.

The post-World War II impact was dramatic. The skiing industry capitalized on new equipment developed, ranging from snow vehicles and ski clothing to improved boots and skis. The members of the Tenth Mountain Division returned to the mountains where they trained to virtually build a major industry. Approximately 90 ski areas, primarily with rope tow installations, were in existence in 1947. During the 1950s, the number of ski areas grew to over 200, and this rapid growth has continued with skiing gaining mass appeal. It is an "in" thing to do, and leading ski resorts thrive. Skiing has become not only a form of recreation, but a big business. Resorts, ski clothing, ski equipment, transportation, and real estate have all become part of making skiing a major winter recreation industry.

During the 1960s and 1970s, skiing has reached high volume proportions. The 1960 Winter Olympic games held at Squaw Valley, California, received live television coverage which greatly enhanced the U.S. public's interest in skiing. Today we find that ski areas in the United States and Canada are catalogued in the White Book of Ski Areas, published by Interski Services, P.O. Box 3635, Georgetown Station, Washington, D.C. 20007. This book lists approximately 925 ski areas with 725 being in the United States and 200 in Canada. They acknowledge that there are additional areas of a small nature, primarily rope tow, which are not listed and which do not operate consistently from year to year.

Today, in 1980 we find that skiing closed out the 1970s with a rush. Recent studies put the number of U.S. residents skiing at over 14 million. In 1976, retail sales of snow and skiing equipment totaled over \$404 million. The 1977-78 ski season was the best in history all across the continent. The industry is

estimated to be growing at approximately 7.5-9 percent per year. In 1978-79, Colorado led the nation in lift tickets issued, with 7,215,316. Participation in skiing has been growing at a rapid rate. The A. C. Neilson Company's Sports Participation Survey conducted in 1979 shows an overall increase of approximately 40 percent from the numbers in the 1976 study and the 1976 study was up by approximately the same amount over the 1973 study.

FACTORS AFFECTING THE FUTURE OF SKIING

There are certain basic factors that affect the market for skiing. Since these are general factors, they also affect the market for other outdoor recreation activity to an almost equal degree. Since our task is to look at trends in skiing, we will focus on these factors from a skiing perspective. Readers should recognize they may apply equally as well to other forms of outdoor recreation.

Like any other product, skiing requires people with income and a willingness to spend in order to generate successful markets. Some of the major factors that affect the market for skiing are population trends, income, sex, education, occupation, time, attitudes, fashion, custom, habit, tradition, life styles, and energy. This brief list is illustrative of major factors affecting tourism that the ski area manager must be concerned with.

Population Trends

It takes people to create a skiing market, and as we all know the population in the United States has been increasing rapidly. Although the growth rate has slowed considerably in the last decade, the numbers are still increasing and will continue to do so. As of July 1, 1975, the U.S. population was estimated to be approximately 214 million. In 1980 it is expected to be 222 million; in 1985, 233 million; in 1992, 244 million. These population numbers indicate that the trend is favorable for the future of skiing. More important to the future of skiing than just sheer population numbers is the mix or profile of ages.

Age

The age factor is probably of greater interest to ski area managers than any other population figure. Here we have both some plusses and minuses.

Teenage Segment. The teenaged population is now declining after record growth in the 1960s. Even so, this group bears close exami-

nation. This is a group from where future skiers come. While the total population in the U.S. is projected to grow about 10 percent during the next ten years, there will be something like a 7 percent decrease in the number of teenagers. In spite of this decrease, they will still number around 25 million in 1990, versus approximately 29 million today.

The Young Adult Segment. The number of people 20-34 years old is expected to increase from about 57 million in 1980 to 62 million by 1985. The 20-34 year olds who now comprise the largest segment of the adult population will still be the largest group by 1985 and will continue to dominate up to 1990. These figures make the future of skiing very bright indeed, because this is the heart of the skiing market. This is the group that is important for ski marketers to get on the slopes, as evidence shows that they will continue to ski until they are approximately 50 years of age.

The 35-49 Segment. The 35-49 year old group will increase over 30 percent to approximately 46 million in the United States by 1987. This is another very important group for the future of skiing. This group tends to heavily populate destination ski resorts and travel by air.

Senior Citizen Segment. Another major population category that deserves to be watched is the Senior Citizen group. The number of people over 65 will increase about 20 percent to 27 million in the 1980s. This group tends to be the least mobile of our population, and tends not to ski. With the increasing numbers in this segment, perhaps it deserves more attention than it has received in the past, as the over-60 age group at ski areas show relatively steady percentages. Ski area operators need to examine how these numbers can be increased.

Income

Buying power is another critical factor affecting the demand for skiing. The skier typically tends to be high scale, earning above the average income of the U.S. population. The 1977 National Travel Survey shows a direct relationship between family income and travel. Families with incomes over \$25,000 per year were heavy travelers, taking almost five times as many trips as those with incomes of less than \$5,000. A similar situation exists in skiing, where income correlates closely with participation in the activity.

Sex

Throughout history, skiing has been

dominated by the male sex and it continues to be. However, the trend that should be observed is that more and more women are skiing, and the future will see larger and larger numbers of women on the slopes. Almost 53 percent of the adult population are women, and their longevity continues to increase. The women's movement has dramatically changed the role of women. During the past five years, the number of single adult women rose approximately 40 percent to over 8 million; 71 percent are 20-34 years old; half of them have incomes of \$10,000 or more; almost half have gone to college; and almost 70 percent are working. For many women, the home has ceased to be a full-time occupation. Women have earned increasing responsibilities in the traditional work of men, leading to new levels of female education and economic and social independence. Consequently, women represent a tremendous potential for skiing.

Education

Education has always been a factor which stimulated travel. It affects skiing the same way with skiers being a very highly educated group. Trends in education show greater and greater proportions of the adult population to complete additional years of education. The Census Bureau projects that by 1990, 74 percent of people 25 and over will have four years of high school, compared to 65 percent in 1977. In 1977, 29 percent of the adult population had completed one or more years of college, while at least 33 percent are expected to have done so by 1990.

Occupation

Occupation is a factor that is closely related to income and education. There are also certain life styles associated with occupations, and this has an impact on whether individuals are likely to ski or not. Studies have shown that the occupational classification of the household head producing the greatest number of ski trips were in the professional, technical and managerial areas. The 1977 National Travel Survey shows the same occupational classifications produced the greatest number of person trips, as well. During 1970 to 1980 there was a 40 percent increase in combined numbers of professional, technical and managerial workers--twice the percentage increase for the labor force as a whole. This obviously speaks well for the future of skiing.

However, there are more workers in other occupational categories. Income is growing more quickly among lower socioeconomic strata. This group typically has not skied. However, there is no question that today they are

moving into the same income classes that skiers come from. Market analysis shows that consumers no longer fit neatly into categories of income, age, sex, and occupation. Plumbers, for example, may now have the income of university professors, but their spending habits are quite different. The potential is there, however, for this market to emerge as active skiers.

Attitudes

Attitudes toward leisure and recreation have changed over the years. We have moved from a Protestant work ethic to a leisure ethic. The length of the work day in the United States has been compressed from about 12 hours to 8; the number of days worked per week has declined from 7 to 5 or even fewer; and the population's attitude toward travel, leisure and recreation has shifted from being a luxury to a necessity. It seems quite clear that future generations will view leisure quite differently than those of the past. They will view it as a right, as one of the most meaningful aspects of their lives, and this attitude change will greatly enhance skiing.

Time

Another factor affecting skiing is free time. Not only does it take money to ski, but it also takes time. The amount of free time or leisure time available to the average person in the U.S. will continue to increase, which will assist in the further growth of skiing. The practice of granting paid vacations and holidays will continue to grow, and it will be these blocks of free time that will assist the growth of the ski industry. The Uniform Monday Holidays Act provided additional blocks of time, and it is interesting to note that for most ski areas, the three-day weekend in February including President's day tends to be the peak ski day of the year. Christmas, another typical vacation period when the family is required to stay home because of school, is another major peak time.

Fashion

Fashion is another factor affecting skiing, as fashion is universal in U.S. marketing today. It applies not only to women's clothing, but virtually every product and service you can mention, including recreation and transportation. Skiing is a fashionable activity in today's society. Ski clothing has a definite fashion element. It appears that for the near term, skiing will continue to be a very fashionable and popular activity.

Energy

Energy is a factor we have not had to deal with in skiing until 1974. It is one of those irregular factors that can come into the picture and dramatically affect all the usual factors, such as population, buying power, etc. There is no question but what today one would be remiss in not talking about the energy situation as a major factor affecting skiing and other forms of outdoor recreation. The majority of skiers still arrive at the ski area by automobile. In the study, The U.S. Skiing Market: A Nation-Wide Study of Skier Behavior Attitudes and Motivations Among Alpine and Nordic Skiers, conducted by Opinion Research Corporation for Skiing Magazine in 1978, the personal car is shown as the most popular means of transportation used by eight out of ten current skiers. Each of the other means of transportation--bus, rental car and train--are used by less than four percent of skiers. Because of this, the fear of not being able to buy gasoline will be a major travel deterrent. Consequently, long-term trends that may result from energy problems are: (1) an increase in package tours and increased tour groups which are energy efficient and provide transportation security for the skier; (2) an increase in smaller, less comfortable, more energy-efficient automobiles; (3) an increase in travel to ski areas closer to home; (4) less frequent trips, but an increased length of stay.

An impact which may have considerable importance to the sport of skiing is the result of high heating costs in northern states changing the traditional school year pattern. There has been talk of having vacation time during the coldest winter months to save energy and to have four day school weeks during the winter with the times made up during milder weather. If these actions take place, it would provide additional time for ski vacations and could be a real boon for skiing. When it comes to energy priorities, it is believed that consumers will give up other activities before relinquishing their vacation and recreation activities.

Changing Life Styles

Income does not ski, occupation does not ski, education does not ski--people ski. The decision to ski or not to ski involves an intricate set of wants, needs, desires and expectations. These belong to people who are constantly changing. It is clear that skiing remains a major option for affluent, educated people to choose to occupy their free time, but skiing is only one of many options available. Today more people are concerned with self-fulfillment, trying out new life styles,

and searching out new pleasures. In this environment, skiing has become a competitor, bidding against other leisure time activities for the consumer's attention and a share of his time and dollars. Today there is a great merging of recreational life styles, with little distinction between social classes, as millions of people become more financially and physically mobile. While income is still a good indicator for marketers, an analysis of income is no longer a sure guide to the patterns of recreational usage.

The ski area planner must examine and keep up with changing life styles. The fact that young adults are a growing force in our economy, with their new values and attitudes, must be analyzed. Take marriage, for example. The attitude of young people is quite different from today's 35-49 year old age group when they were young. Today's young people are getting married later, if they get married at all, and this is creating growing numbers of single people. In the past five years, the singles market has grown from 10 million adults under the age of 35, to 15 million. This enormous singles market is continuing to grow. There is also the divorced segment of the singles market, approximately 11 million people in the U.S. are divorced or separated. Recent figures indicated that there was one divorce for every two marriages. The singles life style appears to be very compatible with outdoor recreation activities such as skiing.

Conclusion

The factors that have been sampled point out that in the skiing market place it is necessary to recognize that people will change in coming decades. Their customs, values and life styles will go through the usual metamorphosis of time. If the ski area planner is to forecast trends with a profitable foresight, he must be a student of the factors affecting the skiing scene.

SKIING TREND INFORMATION

It's time to move from the general to the specific and talk directly about skiing and what has been going on in the sport of skiing. When we talk about skiing, we typically think of alpine or downhill skiing, but today with the rapid growth of cross-country skiing, it needs to be included in any analysis of the sport.

Just as skiing has come a long way from its small beginnings, so has ski research and information on the industry. For years, skiing was plagued by the lack of good information, but today we are fortunate to have a

number of studies on the industry which provide valuable insights into the skier, the market place, actives, inactive, nonskiers, and potential skiers.

One of the benchmarks on the sport of skiing is provided by the A. C. Neilson Company with their 1979 Neilson Sports Participation Survey. This survey is the fourth in a series of three year measurements designed to monitor the participation of the public in major sports activities. Neilson conducted their first nation-wide sports participation study in 1970, covering 13 sports categories. In 1973 they launched their second survey, making it much more comprehensive measuring 25 sports and conducting the survey via telephone. In 1976, the third survey was conducted with the number of sports covered increasing to 27, and the project was patterned after the one in 1973 to enable trends in sports participation behavior to be traced. The 1979 survey follows the same data collection techniques that were designed in the 1973 and 1976 studies, and it covers 30 sports categories. The interviewing was performed during the March-April period, dovetailing the time of the data collection in the 1976 study. This had the advantage of holding seasonal variables to a minimum and being virtually the ideal time to collect skiing data. Consequently, Neilson's data provides an important benchmark from which to explore skiing.

In any study, it is important to learn what definitions are used, and the A. C. Neilson people note that a participant/player for the purposes of their study is defined as an individual who participates in an activity or plays a sport "from time to time" during the past year. Neilson's data indicates that snow skiing is a very popular sport increasing participation at a very rapid rate. There was approximately a 40 percent increase in participation in skiing in 1979 over 1976, on top of an approximately 40 percent increase between 1973 and 1976. This has brought current participation in this sport of snow skiing to a level of 6.8 percent among individuals, which projects to approximately 14.6 million skiers. This figure is very close to the figures published by Skiing magazine in their U.S. Skiing Market study and by the Forest Service in their Nationwide Skier survey. Slight differences in totals exist because different age groups were included, but when these differences are accounted for the study results are remarkably similar.

More important than the numbers participating is the makeup of those numbers. For example, a beer manufacturer wishes to know who his light, medium and heavy users are. The same should be true in skiing. You want

to attract the heavy skiers or serious skiers to your resort. About 20 percent of the skiers account for about 60 percent of the participation. Light skiers skiing 5 days a year or less amount to about 45 percent of the participants and account for about one-eighth of the participation. Heavy skiers ski twenty days or more per year.

Important benchmarks to remember are that of the approximately 76 million households in the United States, 12.4 percent have one or more family members who ski. This is up from 1976 when the incidence was 8.6 percent. On the average, each skiing household contains 1.6 members who ski.

Highlights show that the average downhill snow skier has been skiing for over six years, and cross-country participants have been skiing for about 3.75 years. In 1976 downhill skiers averaged slightly over six years of activity in skiing. The number of miles traveled in order to reach snow ranged from less than one mile, to 1,000 miles or more, with the average one-way trip representing a distance of slightly over 200 miles. This compares to a similar average of nearly 200 miles in 1976. Cross-country skiers do not travel quite as far--an average of 83 miles. The automobile continues to be the primary mode of transportation used to travel to the downhill snow skiing area, at 87 percent, while 73 percent of the cross-country skiers use the automobile. Each downhill trip lasts an average of nearly three days, while cross-country skiers average about 1.7 days per ski trip.

Fourteen percent of the downhill snow skiers and 24 percent of the cross-country skiers stated that they purchased skis during the past 12 months. The average price for a pair of downhill skis was \$170, while the average price for a pair of cross-country skis was \$90.

Another benchmark study was the previously mentioned U.S. Skiing Market Survey conducted for Skiing Magazine by Opinion Research Corporation. This study found that almost 10 million adults do some snow skiing each year, either Alpine or cross-country or both. In addition, there are over four million teenaged snow skiers, for an overall total of almost 14 million people aged 12 or over who skied during the 1976-77 season. They found that 58 percent of all adult skiers are male, and 42 percent are female. Skiers who ski alpine exclusively account for 72 percent of all skiers, while 11 percent engaged in cross-country only, and the remaining 17 percent skied both alpine and cross-country.

Skiing enthusiasts are demographically different from the total U.S. population, as

has been shown in many other studies. For example, their study showed that males account for 59 percent of all Alpine skiers, 53 percent of all cross-country skiers, but only 48 percent of total U.S. adult population. Approximately one-half of all skiing enthusiasts are single, compared to only one in five U.S. adults who are single. Approximately seven out of ten adult skiers are under 30, but only three out of 10 adults in the U.S. population are under 30. The skier has a higher level of education; approximately 20 percent of alpine skiers and 30 percent of cross-country skiers have achieved post-graduate levels of education, while less than 10 percent of adults in the total U.S. population have done any post-graduate work. Skiers also have high income levels compared to the U.S. population, with 32 percent of alpine skiers and 26 percent of cross-country skiers living in households with \$25,000 and over annual income, while only 16 percent of the total population live in such households. Employment dovetails income, and skiers tend to hold more prestigious occupations; approximately 60 percent of skiers are in a professional or managerial capacity while less than 30 percent of employed adults in the U.S. are in professional/managerial occupations.

This survey also covered motivations for skiing, which it grouped into three major categories: (1) those related to health/esthetic factors; (2) activity/sports related factors; and (3) personal/social factors. The three types of factors were about equally important to Alpine skiers while the health/esthetic factor was by far the most important to cross-country skiers. Skiing is a social activity, and the Skiing magazine survey points out the importance of this, revealing that six out of ten skiers were introduced to skiing by friends and almost four out of ten by family members.

It is common in ski surveys to ask skiers to classify themselves according to their level of experience or ability. This is always an interesting exercise and one wonders how the rating would compare with an instructor or a ski patrolman's. In any event, in the Skiing magazine survey, 25 percent of the Alpine skiers classified themselves as beginners, 25 percent as intermediates, and 50 percent as advanced or expert.

Well over 50 percent of the Alpine skiers took overnight skiing trips during the 1976-77 season and averaged close to eight skiing trips during the 1976-77 season, while cross-country skiers averaged over nine trips. Alpine skiers spent an average of 11 days, and cross-country skiers approximately 13 days, on skiing trips. As mentioned previously, the personal car is the most common means of transportation to the ski area, being utilized

in 82 percent of the cases.

The three leading states for Alpine skiers were Vermont, New York and Colorado, while the three leading states for cross-country skiers were Vermont, New York and New Hampshire. There were 6.5 million skiing households with one or more adults during the 1976-77 season. The average expenditure by these households on ski trips was \$395, for a total expenditure of approximately \$2.6 billion. Transportation and lodging each accounted for 25 percent of the total household expenditures on skiing trips, with fees, lifts and rentals accounting for 29 percent; and food, beverage, amusement, etc., accounting for the balance of 21 percent. Six percent of the skiers feel that the cost of skiing in the past five years has increased less than most things they buy, while 63 percent feel that it has increased as much as most things they buy, and 31 percent feel that it has increased more than most things purchased.

The Skiing Magazine survey also included information on past skiers. They estimated that there were 7 million past skiers--adults who skied during the four-year period of 1972 to 1976 but did not ski during the 1976-77 season. Comparing past skiers to current skiers, both differences and similarities showed up. The main differences were in sex, marital status and age, with past skiers more likely to be female (48 versus 42 percent); married (58 versus 42 percent); and over age 30 (37 versus 29 percent). There were no noticeable differences in education, income and employment. The past skier had been active in the market for approximately six years, and about half of them were at the intermediate or higher skiing level. Past skiers most often cited expense, 43 percent, and time, 36 percent, as their reasons for not having skied last season. Close to one-third of the past skiers reported not having skied because ski conditions were not good enough in the 1976-77 season. Fifty-five percent of the past skiers planned to resume their skiing during the 1977-78 season.

A final area explored was leisure time activities. This showed that the skier is a physically active person who engaged in numerous leisure time activities. The most popular other activity was swimming, followed by bicycling and tennis. In comparing the segments of the skiing market, the serious alpine, other alpine and cross-country skiers, all of them favor the same top five leisure time activities: swimming, tennis, bicycling, camping and fishing.

Another benchmark study is the Growth Potential of the Skier Market by the U.S. Forest Service, a nation-wide study of the

skier market conducted cooperatively in 1978 by the Northeastern Forest Experiment Station, U.S. Forest Service, under contract with Sno-Engineering Inc. and Opinion Research Corporation. This telephone survey in the spring of 1978 provided data from 2,191 active, potential, and inactive skiers drawn from 7,106 households. This comprehensive examination of skiing includes regional descriptions of the present skiers, former skiers and people who would like to take up skiing in the future. It also provides estimates of the sizes of the various skier market segments, detailed descriptions of public images and attitudes toward skiing, its cost, attractions, facilities and market needs.

This study essentially verified the results of the earlier studies regarding the number of active skiers in the U.S. In 1978, 11.2 million individuals considered themselves downhill skiers and another 1.7 million stated they were cross-country skiers, equalling a total of 12.9 million active skiers 16 years of age and over.

The inactive skiers were broken down into two groups: (1) the permanently inactives, and (2) the temporarily inactives. Among the latter group there were identified 6.4 million downhill skiers and 400,000 cross-country skiers, for a total of 6.9 million. This figure is over one-half as large as the active skier base.

The third major class, the high potential skier, was persons 26 years old or younger who expressed a strong interest in skiing and had friends who skied. A total of 7.3 million persons were identified as having a high probability of trying either downhill or cross-country skiing.

Collectively as many as 27.1 million people could be skiing in the future. This would represent an increase of over 100 percent in the number of currently active skiers. See Table 1.

The mobility of skiers has an important bearing on the future demand. Based upon the U.S.F.S. study, skiers in the East and West tend to ski within their region. Southern and Midwestern skiers visit areas out of their own region. About 80 percent of Southern skiers skied in areas other than the South in 1977-78. Thirty-nine percent visited the West and 32 percent skied in the East. Thirty percent of the Midwestern skiers went out of region to ski during the 1977-78 season, with 22 percent skiing in the West and 8 percent visiting the East. During that season, the West accounted for 43 percent of all vacation skier visits, while the East (32 percent) and Midwest (19 percent) hosted the bulk of the remaining

Table 1.--Regional distribution of major skier market classes and skier days, 1977-78

	North			
	West	Central	South	Northeast
Potential ^a	20%	30%	34%	16%
Active	31	25	14	30
Inactive ^b	31	25	20	24
Skier Days	38	15	3	44

^a High potential only.

^b Temporarily inactive only.

visits. The implication is that the West is the most highly used ski region of the country and among potential skiers it is the most frequently mentioned region in which this class of skier would like to ski.

SUPPLY OF SKIING

Introduction

As has been discussed in the previous section, the latent or potential demand as well as the existing demand for skiing as expressed by psychographics is very strong. Such factors as disposable income, competing activities, life style changes and age cohort shifts may act as mitigating forces holding back the realization of only the most optimistic projection for skier growth. However, the most severe constraint on demand will not come from the demand side of the equation at all, but rather from the supply side--the ski facilities being unable to meet the potential increase in skier activity. In assessing the future growth of skiing, capacity and utilization of existing areas must be considered as well as the probability of new areas coming on line with additional capacity.

A ski area is similar to an airplane--once the plane has left the ground, the empty seats can't be sold. Likewise, unused capacity that existed on a Saturday on a ski hill can't be saved for Sunday. Ski area capacity is a function of a multitude of variables: length of season, quality and quantity of snow, proximity to metropolitan areas, mountain terrain, capacity, lift capacity, availability of lodging and weather. All of these elements may cause a downward adjustment of the design capacity of an area.

Ski areas are capital intensive facilities that require long lead times for design, approval and construction. Historical performance of ski areas has not been good enough

to promote a strong and active investment pool for new areas. Energy, environmental consciousness, lack of competitively attractive sites and the high cost of capital are all potential deterrents to new area development.

Two questions arise which have a strong bearing upon the future growth of skiing. The first, "Does existing capacity meet the projected demand for skier visits?" Secondly, "Is the demand great enough to encourage developers to take the risks necessary to bring new areas on line?"

Historical Supply

In 1960 there were approximately 240 ski areas in the U.S. By 1968 the number had grown to 600, an increase of 360 areas or 150 percent in eight years. However, in the next ten years between 1968 and 1978 only 100 new areas were built. The 12 percent per annum growth rate which produced an average of 45 new areas per year during the early 1960s leveled off rapidly after 1968 and slowed to 1.5 percent per annum and 10 new areas annually through 1978.

In 1960 38 percent of the areas were in the East, 15 percent in the Midwest and 47 percent in the West. By 1968 with the rapid development of new areas, 52 percent of all areas were in the East, 17 percent in the Midwest, and only 31 percent in the West. Ten years later the percentages remain approximately the same due in part to the decreased activity in area development and also to the greater capacity of the Western areas.

The total number of ski areas expresses the availability of opportunity. If the number of areas is defined geographically, the relationship between ski areas and population centers can be generally related. However, while the number of new areas added over time may express the relative interest in ski development, it does not define the change that occurs in skier capacity. A more precise measurement tool is required if we are to accurately portray the increase in capacity as well as the geographic distribution of that capacity.

The most explicit measurement would come from the execution of a comfortable carrying capacity (CCC) analysis of each new area as well as each expanded area. Unfortunately, the data base does not exist in sufficient detail to undertake this approach, whereby the lift capacity, trail acreage and round trip interval of the skier are evaluated to arrive at an area's CCC.

Vertical Transport Feet per Hour (VTFH)² and total number of lifts installed provide a measure of capacity though not as definitive as CCC. Analysis of lift construction figures over the past 20 years provides a benchmark for evaluating the growth in capacity as it relates to the geographic dispersion of lifts. Coupled with VTFH, a fairly accurate picture of the industry's growth can be drawn.

Table 2, Historical Growth of Ski Lifts, depicts the last two decades activity of new ski lift development by region. During the nine-year period from 1960-1968, 1,140 new lifts were built, an average of 143 lifts per year. During the next 10 years, only 995 lifts were added, or 100 per year, a decrease of over 30 percent per year. The initial thrust of development activity (1960-1968) took place in the East where a 10 percent increase in total share of lifts was realized at the expense of the West during the period. By the end of 1978 the West's growth had once again outpaced the East's, as had the Midwest's, and the distribution of lifts was equal East and West, each accounting for 41 percent.

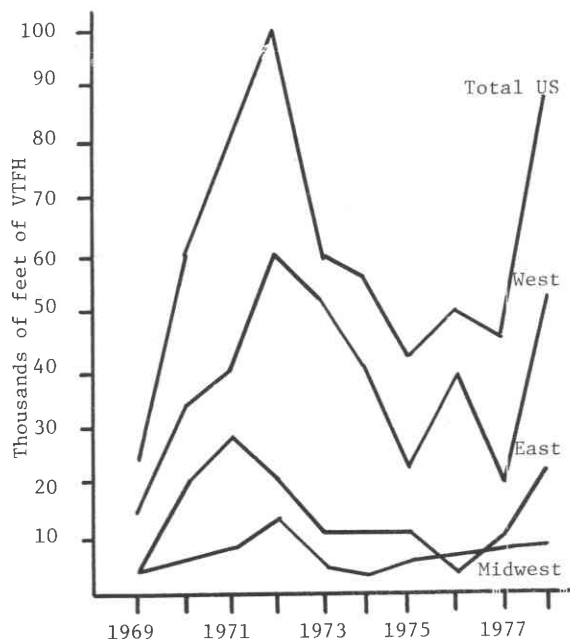
Table 2.--Historical growth of ski lifts.

	1960		1968		1978	
	#	%	#	%	#	%
East	175	36%	740	46%	1,067	41%
Midwest	75	16	250	15	464	18
West	225	49	625	39	1,079	41
Total	475		1,615		2,610	

VTFH is an expression of the quantity of uphill capacity provided by a lift or system of lifts. It therefore is the best estimate of the capacity increases that have occurred over time. From 1969 through 1978, 618,800 VTFH were added to the supply of U.S. skiing. Figure 1, Ten Year Growth Summary of VTFH, demonstrates the rate of growth by region that has occurred over the 10-year period. During this period the West has been adding an average of 12 lifts per year more than the East, and as is shown in the figure, the West added 150 percent more VTF during the period. The average capacity per new lift in the East was 579 VTFH, while in the West it was 983 VTFH per lift.

² Vertical transport feet per hour--the number of skiers who can be transported 1,000 feet in one hour.

Figure 1.--Ten year growth summary of VTFH



Source: Various Ski Area Management magazines.

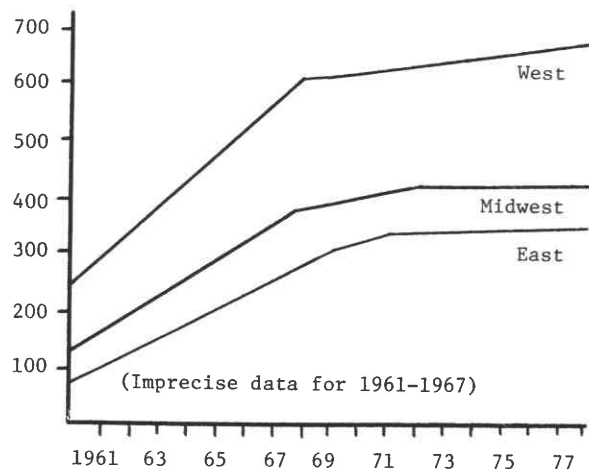
The sharp rises and falls of new VTFH construction by year demonstrates the industry has not added capacity at a steady rate either nationally or regionally. In attempting to correlate added VTFH/year with new areas coming on line, it was revealed that only in a very general way was there a positive relationship between the two. When many new areas were built, the average VTFH per area tended to be low. On the other hand, in years when few areas were added (as was the case in the middle 1970s) the average VTFH per area was much greater. New lifts at existing areas as well as replacement of old lifts diminish the total capacity increase as a result of additional VTFH.

This factor when coupled with the lack of a smooth growth curve VTFH suggests that the supply of skiing has not been empirically responsive to demand. Rather exogenous variables, such as availability of investment capital, expansion potential of existing areas, good snow years, Federal and local governments, approval of new areas and developer interest are factors contributing to the expansion of capacity.

Figure 2, Ski Area Development 1960-1978, depicts the growth and distribution of ski areas in the U.S. Coupled with Figure 3, Ski Lift Inventory 1960-1978, the picture of the historical development and current supply

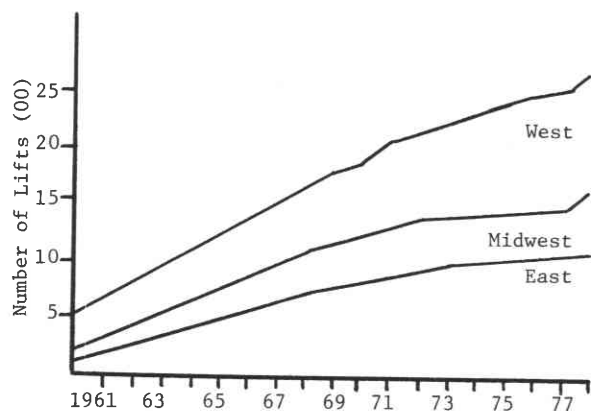
of ski facilities in the U.S. is portrayed.

Figure 2.--Ski area development, 1960-1978.



Source: Various Ski Area Management issues, Sno-engineering, and U.S.F.S.

Figure 3.--Ski lift inventory, 1960-1978.



Source: Various Ski Area Management issues, lift manufacturers, and Sno-engineering.

Utilization

Understanding utilization of facilities is paramount to determining the need for additional capacity. It is also extremely difficult to define and accurately measure. The number of variables considered is great and the precision with which some of them can be measured is no better than judgmental. One must consider: total acreage of ski terrain, density per acre of skiers by

ability class, ability of lift systems to transport skiers, length of season, length of day, quality of snow, VTFH required by various skill levels of skiers, waiting time in lift lines, number of down days per season and availability of night skiing just to highlight the list.

The Forest Service has developed a scheme for estimating daily and seasonal capacity that is a reasonably good general model useful for analyzing the demand supply relationship. Under the U.S. Forest Service model, uphill capacity, slope capacity, food and beverage capacity and parking lot capacity are evaluated, calculated, and consensus daily capacity estimates derived. To arrive at seasonal capacity the 100 days generally agreed upon as constituting the "high season" (the period from December 16, 1978-March 25, 1979, for example) is multiplied by the daily capacity to yield a seasonal capacity estimate. Within the truncated season are two time periods which historically exhibit different use characteristics--weekdays comprising 71 percent of the season and weekends comprising 29 percent of the season.

The truncated season may, in fact, represent the entire season in some years for certain regions of the country such as the East and Midwest. In other parts of the country, primarily the far West, the truncated season may represent only 60 percent of the total season. An evaluation of utilization of areas during the truncated season by weekend and weekday as well as a comparison of the percent of total visits accommodated during the truncated season to the entire season produces an estimate of total utilization. Discussion of this analysis in light of future demand will begin to permit insight into future supply requirements needed to yield a balanced supply-demand equation for downhill skiing.

In Table 3, Analysis of Truncated Season, a representative sample of ski areas operating on U.S. Forest Service land is enumerated along with the operating characteristics of the areas during the truncated season. A selection of those areas and their operating characteristics are included in Table 4, U.S.F.S. Ski Area Operating Characteristics, in order to highlight the key findings of the skier visit data.

In the East and Midwest the 29 percent of the truncated season occurring on weekends produced an average of 50 percent of all skier visits. Those areas with destination skiing tended to have a lesser proportion of their skier visits occurring on weekends. Weekend utilization rates in the East fell in the 55-65 percent range and weekday utilization was in the mid- to high 30 percent

Table 3.--Analysis of truncated season.

Area	Percent of Skier Visits Occurring on Weekends	Percent of Total Skier Visits	Area	Percent of Skier Visits Occurring on Weekends	Percent of Total Skier Visits
<u>California</u>			<u>Michigan</u>		
Holiday Hill	41%	89%	Caberfae	48%	95%
Sierra Ranch	48	80	Indianhead	50	85
Kirkwood	46	75	Blackjack	66	93
Mammoth	44	73	<u>Minnesota</u>		
Heavenly Valley	38	85	Lutsen	54	90
<u>Washington</u>			<u>Colorado</u>		
Alpental	48	92	Loveland	50	63
Crystal Mountain	56	82	Vail	33	86
Mt. Baker	74	83	Aspen	28	89
Ski Acres	47	88	Eldora	43	73
<u>Oregon</u>			Purgatory	41	88
Mt. Bachelor	47	76	Copper Mountain	39	85
Mt. Hood	49	91	<u>Montana</u>		
Multnorpor	56	98	Red Lodge	53	76
<u>New Hampshire</u>			Big Mountain	38	80
Mt. Attitash	46	100	Big Sky	40	85
Loon	56	98	<u>Wyoming</u>		
Waterville	44	89	Medicine Bow	64	82
Wildcat	52	88	Jackson Hole	42	92
Bretton Woods	52	100	<u>New Mexico</u>		
Cannon	48	100	Taos	39	81
Gunstock	47	100	Red River	43	93
<u>Maine</u>			Sierra Blanca	50	87
Sugarloaf	50	93	<u>Arizona</u>		
<u>Vermont</u>			Arizona Snow Bowl	44	90
Bromley	46	92	<u>Utah</u>		
Mt. Snow	48	96	Brianhead	50	84
Sugarbush	35	98	Alta	40	71
Mt. Mansfield	35	98	Snowbird	36	71
Killington	42	90	<u>Idaho</u>		
			Sun Valley	32	91

Table 4.--U.S.F.S. ski area operating characteristics.

Region/Area	Skier Visits on Weekends	Weekend Utilization	Weekday Utilization	Overall Utilization	Total Visits Truncated Season
<u>East</u>					
Sugarbush, VT	35%	49%	39%	41%	98%
Loon Mountain, NH	56	69	35	45	98
Sugarloaf, MA	50	56	35	45	93
Cannon Mt., NH	48	50	23	31	100
Killington, VT	42	65	39	47	90
<u>Midwest</u>					
Indianhead, MI	50	71	29	42	85
Caberfae, MI	48	66	28	40	95
Lutsen, MN	54	86	30	47	90
<u>West</u>					
Aspen, CO	28	56	61	59	89
Vail, CO	33	102	87	92	86
Snowbird, UT	36	68	53	57	71
Mammoth, CA	44	88	48	60	73
Heavenly Valley, CA	38	71	49	55	85
Mt. Baker, WA	74	246	37	100	83

Source: U.S.F.S. Pricing Study Printout, August 1979.

range. Overall utilization levels were in the mid-40 percent range. Generally, the East is in a position of having excess skiing capacity over the entire season with weekday capacity allowing for more than a doubling in skier visits. It is apparent that the length of season in the East generally coincides with the 100-day truncated season and little opportunity to accommodate skiers outside this time period exists.

In the Midwest, weekend use of the areas was high and the weekday utilization extremely low. The net effect is that overall utilization was about the same as experienced in the East during the 1978-79 season. The greatest opportunity for accommodating additional skiers in the region occurred during the week when more than a doubling of skier visits can be realized before excessively high utilization would result. A secondary opportunity for additional skier visit accommodation would be to increase the use of the shoulder seasons on either end of the truncated season. Based on a rather limited sample of the Midwest areas (only those operating under U.S.F.S. leases) the supply of available skiing appears to be adequate to meet the current and projected demand assuming a shift in demand away from weekend use can be effected.

The West, as would be expected, is the most difficult region to assess. The large geographic distribution of ski facilities coupled with the complex nature of the skier mix makes generalization of the regions ski facility analysis inappropriate. Those areas serving a predominately local day skier market exhibited characteristics similar to those experienced in the East and Midwest--a large proportion of overall skier visits occurred on weekends and weekend utilization rates were so high as to virtually preclude additional skier visits on weekends. Several areas in Washington, in addition to the example of Mt. Baker, realized greater than 100 percent utilization on weekends. Many of the California areas had mid-80 percent to low 90 percent utilization of facilities. In Colorado, Vail operated at 102 percent weekend use and most other front range areas operated above 80 percent on weekends.

Several destination areas realized higher midweek utilization and decreased weekend use. This is a result of the destination skier arriving on the weekend and not starting skiing until Sunday or Monday. At areas such as Aspen, weekend skiing accounted for only 28 percent of the total visits to the area. The destination areas in the West achieved better than 60 percent utilization during the weekday period. These areas will find it difficult to increase weekday skier

visits in the future.

Overall utilization for all types of areas in the West was generally found to be greater than 50 percent and at least 15 percent higher than in the East and Midwest. The percent of skier visits occurring within the truncated season was low enough to suggest that some limited growth in demand could be accommodated during the shoulder seasons.

Because of the same list of variables enumerated above regarding establishment of capacity such as snow conditions, equipment shutdowns, and difficulty of redirecting skier behavior to go skiing early and late season, 60 to 70 percent utilization is generally accepted as full utilization. Based upon this standard many areas have no excess capacity for future demand. The ski areas of the West have reached the situation where many of them have achieved effectively full utilization.

This region of the country has become the major supplier of skier visits for the demand created nationwide. If skier behavior continues to dictate Western skiing as the norm, additional facilities will be required to meet the future demand. If, on the other hand, and it seems unlikely, skiers can be persuaded to ski within their region--especially the Midwestern skier, then in the short run (3 to 5 years) existing capacity in the West along with new facilities to be discussed subsequently will be adequate to accommodate the anticipated growth nationwide.

New Development

In the next five years, daily capacity in the West could increase by 30,000 skiers per day through the development of five major areas and expansion of many existing facilities. If this projected new daily capacity comes on line, three million additional skier visits during the truncated season and as many as 600,000 skier visits during the shoulder season could be realized. The potential for several other areas presently in the planning stages to be developed exists. However, with the exception of Beaver Creek near Vail, Colorado, no other proposed Western area is a certainty. A myriad of issues cloud the future development of skiing in the U.S.

Constraints to Development

As has been noted, 1969 marked the leveling out of the rapid growth of ski facilities. The year the National Environ-

mental Policy Act (NEPA) went into effect was also 1969. This single piece of legislation heralded a new era in the U.S. and one that has had significant impact upon ski area development in the country. The environmental consciousness that has grown over the last ten years has placed new ski area construction in limbo all over the West. Questions are being asked, the answers to which often signal the demise of a new area proposal.

Through the Environmental Impact Statement Process, proscribed by the NEPA legislation, government agencies (primarily the U.S.F.S.) are being held accountable to the general public for all decisions regarding ski area expansion and new area development. No longer does an area operator sit down with the forest supervisor and prepare a plan for his area. The would-be developer since 1969 has had to enter into the NEPA process and be prepared to spend five or more years and invest upwards of \$1 million to reach a "go" or "no-go" decision.

All over the West the last decade has witnessed major new development proposed only to see them denied. In California, San Geronio, Mineral King and Moses Maggie have been turned down. Independence Lake is apparently headed towards the same fate. In Montana Ski Yellowstone successfully weathered the protests raised through the EIS process after nearly nine years, only to find the backers so strung out by the effort the project is in jeopardy of moving ahead. Heritage Mountain near Provo, Utah, has experienced similar problems in getting off the ground.

In Colorado the score card stands at one success and several losses with uncertain outcomes on many other proposals. Beaver Creek will open eight years after it was initially proposed. Little Annie, on the backside of Aspen Mountain, was first proposed in 1965, after entering into the Colorado Joint Review Process in 1978 a decision will be forthcoming by 1982. The Hospital Building and Equipment Corporation proposed Adam's Rib near Eagle, Colorado, in 1973. Six years and \$15 million later the project is at a virtual standstill. The Aspen Skiing Corporation, operators of four areas in Colorado, made the decision that no new areas were going to be approved in Colorado and began development of Early Winters in Washington. After five years the project was abandoned and the company took the development dollars to British Columbia where they will open the first phase of a 14,000 skier per day mountain in 1980, only four years after embarking upon the project.

The ten-year effect of the NEPA legislation has been to effectively stop ski area development on Federal land since 1971. This has occurred at a time when demand for skiing has been growing at 8-10 percent per year.

Recently a potentially more restrictive action was mandated by Congress--Rare II. Conceptually, Rare II, the Roadless Area Review and Evaluation program was based on a sound premise--inventory and evaluate U.S. Forest Service lands for Wilderness Consideration. Some 46,948,000 acres were evaluated and now are in a state of "defacto wilderness" until the management decisions are completed. The impact of Rare II has been to withdraw millions of acres of Federal land from consideration for ski area development. The myriad of conditions necessary for a successful ski facility hinge upon one virtually immutable key element--suitable terrain. Sno-engineering has inventoried ski terrain over the entire U.S. and Canada for over 25 years and its President, James Branch, has concluded that less than 0.1 percent of the mountainous terrain of the U.S. and Canada is suitable for commercially viable ski area development. Potential new ski sites are less likely to be found than new Wilderness areas. Yet identification of ski potential was not a charge of the Rare II program. Skiing was treated as a residual consideration in reaching recommendations for land use, but site inventories were not carried out as part of the Rare II process.

The NEPA, Rare II and a new-found consciousness directed towards environmental preservation has in ten years virtually brought ski area development to a standstill in the Western U.S. This has occurred at a time when strong demand for facilities has been documented through numerous studies. Additional demand has been directed towards the region most able to provide skiing--the West. The result of the demand curve's upslope and the supply curve's flattening has been overcrowding of existing facilities and a crushing pent-up demand for new areas. With 14 million skiers and approximately 700 ski areas, at present, there is one area for every 20,000 skiers.

Future Prospects

Demand has outstripped supply on a national basis. The Midwest and East appear to have sufficient capacity to meet regional demand for the next three to five years. In the West the need for immediate and major new facility development is apparent.

Without new development which if approved today could not come on line before 1983-84,

the East and Midwest will be over capacity in less than five years and millions of potential skiers will have been involuntarily rechanneled into other leisure time activities.

Ticket prices will most likely continue to increase at least the historical 7.9 percent rate due to the over demand that will continue to exist, and the increased operating costs that will be incurred by areas as a result of over-use and crowding of present facilities.

Cross-country skiing will increase in popularity in part because of the limited availability of downhill facilities and rising costs. Energy conservation measures may spur interest in cross-country skiing because of the ready access of ski touring terrain in many parts of the country. Emphasis on U.S.F.S. planning should focus on winter use of trails, picnic areas and campgrounds. Increase conflict between user groups primarily snowmobiles and cross-country skiers will become a major management problem in the future. Greater winter facilities and operating budgets will be required to meet the increased use of the forests by ski tourers.

The concept of winter multiple recreation use of federal lands will become increasingly important over the next five years. Planning and budgeting to accommodate this demand should have begun five years ago. A method to investigate the national priority that should be placed upon downhill ski development should be devised and implemented quickly.

HIGHLIGHTS AND TRENDS

The paper has covered a great deal of information on current trends in the demand for and supply of skiing. This section concludes the paper, highlighting some of the more notable findings and trends.

1. Skiers are demographically different from the U.S. population. Ski studies show males account for about 60 percent of the skiers and 48 percent of the adult population; about one-half of skiers are single, but only 20 percent of U.S. adults are single; about 70 percent of the adult skiers are under 30, while only 30 percent of the U.S. adult population is under 30; about 20 percent of adult skiers have postgraduate education, compared to less than 10 percent of the U.S. adult population; and about one-third of the alpine skiers live in households with

\$25,000 and over annual income, while only 16 percent of the total population live in such households.

2. Present population and demographic trends favor the continued growth of both downhill and cross-country skiing.
3. The dramatic increase in singles will continue to boost the skiing market.
4. Women will move into skiing in greater and greater numbers.
5. Downhill skiing will continue to grow by 7 to 10 percent per year over the next five years.
6. The participation rate in the sport of skiing will continue to rise. The long-run growth of the industry will depend on increasing the participation rate as there will be a substantial decrease in the teenage segment of the population which has been feeding large numbers into the sport.
7. Cross-country skiing will grow at a faster rate than downhill skiing. As new equipment, clothing, etc., continue to develop, the growth of cross-country skiing will mirror that of downhill skiing in the 1960s. New cross-country ski centers and more abundant supply will spur this growth.
8. The fastest growing ski market in the country is the South.
9. The closer people live to skiing, the more likely they are to ski.
10. The automobile will continue to be the major method of transportation to the ski area; however, energy considerations will make air become a more important mode of transportation for the destination skier. Fly/drive packages will become more common.
11. The demand for skiing is outstripping supply. Utilization of ski areas will increase until limitation plans will have to be developed to match capacity with skiers.
12. Future supply will be constrained by environmental legislation, lack of capital and government regulation, and will not keep up with demand.
13. The West is the most highly used ski region in the country and the most frequently mentioned as the place potential skiers would like to go. The West must have expansion if growth in demand

is to be satisfied.

14. The Eastern and Midwestern ski areas can accommodate limited growth in activity.
15. The U.S. society is moving from a "work ethic" to a "leisure ethic." The youth of the country are demanding recreation and leisure as a right. Consequently, winter recreation planning is necessary if land use management policies are to be responsive to demand created by all user groups.

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