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# ASSESSING THE SEASONALITY OF TOURISM\*

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## ABSTRACT

Seasonal fluctuations are common within the tourist industry. The effects of seasonality upon most tourist communities are considerable. The purpose of this study is to examine the seasonal behavior of tourism as reflected in sales tax collection data for Scottsdale, Arizona. Emphasis is upon how individual types of businesses respond to monthly changes in visitor expenditures. The period of study is 1972 through 1984. The results of the analysis show that businesses are affected quite variably--ranging from strong seasonal responses in some to no apparent response in others.

Tourism is an important economic activity in many American communities. Commonly, tourism is more important during some portions of the year than others. These seasonal variations may be in response to a variety of factors such as climate, school closings, legal holidays, etc. Although numerous economic activities are seasonal in nature, tourism appears to be affected more than most. Indeed, one of the most complex aspects of assessing tourism impacts relates to the seasonality factor. (6)

## INTRODUCTION

The purpose of this paper is to investigate the seasonal impact of tourism. The city of Scottsdale, Arizona, is selected as a study area

because it is a popular tourism destination and similar to many other winter havens in the U.S. Sunbelt.

During the peak season, the population of winter visitors in the city, on a given day, is estimated to be in excess of 28,000. This figure constituted approximately 25% of the city's estimated 1984 resident population of 110,000. This is a major increase in the actual number of people residing within the city during a portion of the year (Part-time Residents Survey, 1985). The Scottsdale Scene reports that the most important reasons for winter visitors being drawn to Scottsdale are: 1) good weather, 2) the presence of local friends and relatives, 3) positive previous experiences in Scottsdale, and 4) property ownership in the area.(4)

The relationship between the seasonal influx of winter visitors into Scottsdale, and the resulting "squeeze" on local institutions are found among many towns across the Sunbelt of the United States. The seasonal impact of tourism will be reviewed in this paper. The primary objective is to examine tourism's seasonality in Scottsdale through measuring the variable economic impact upon selected types of businesses.

Expenditures of out-of-state visitors are an important contributing force to the economy of Arizona. A study by the College of Public Programs, Arizona State University estimates that a total of 16.1 million visitors came to Arizona during 1984 and spent almost four billion dollars.(3) Included in this annual total are winter visitors to the desert portions of Arizona. These are largely retired couples fleeing the frost belt states and Canada during the hostile winter months.(5) Western Savings Foresight Eighty, 1980 edition indicates that the largest concentrations of winter visitors are found in Scottsdale and Mesa/Apache Junction. A recent survey estimates that the Metropolitan Phoenix Area received \$381,000,000 in visitor spending during the 1985-1986 winter tourist season.(1)

Available evidence suggests that considerable seasonality occurs within the state of Arizona's tourist industry.(Table 1) However, very little information exists to show how these seasonal effects are distributed throughout the calendar year in particular destination areas, and among different categories of businesses, or how they may have fluctuated over time. This study examines the seasonality of tourism in Scottsdale, Arizona, for the years 1972 through 1984.

#### AGGREGATED SEASONALITY IN SCOTTSDALE

Figures on sales tax revenues are the principal data set employed in this study. Sales tax collection amounts for major Scottsdale business types are analyzed for the years 1972 through 1984. The business categories identified are: 1) Automotive, 2) Construction, 3) Food Stores, 4) Hotels and Motels, 5) Department Stores, 6) Retail Stores, 7) Rental Properties, 8) Utilities, and 9) Other (city-defined taxable activities such as newspapers and advertisements).

Methodologically, the initial step is to determine which months of

the year constitute the "tourist season". In the interest of simplicity, the calendar year can be divided into "the tourist season", the six months with highest tourism impact and "the nonseason", the six months with lowest impact. (Figure 1)

The data in Figure 1 indicate that the six months with the highest total sales tax collections are March, April, June, October, November, and December. However, individual business subgroups exhibit somewhat different monthly patterns. This study hypothesizes that some business types will experience higher sales activity during the tourist season, while others will be largely unaffected.

A study by Dave Larkin in Scottsdale Scene observes that winter visitors begin arriving in Scottsdale as early as September and as late as March. (4) Another study based on a telephone survey for Apache Junction, a small town a few miles southeast of Scottsdale, indicates October to May as the tourist season for many. (8) Others may designate the transitional months of October and May as the "shoulder season"--the period between the tourist season and nonseason. Nonetheless, some winter visitors arrive in Scottsdale as early as October and leave the city as late as May. the so-called peak season for out-of-state visitors is generally considered to be the months of January, February and March. (3)

Figure 2 shows when individual business categories experience their busiest months (generate their greatest tax revenues). Clearly, the six months of highest tax collection vary among the categories. However, the six months with highest sales tax collection for Hotels, Restaurants and Retail Stores, the most tourist-sensitive of these business classes, occur rather consistently from November through April. Accordingly, in this study the six month period of November through April is considered to be "The Tourist Season". These are the months when any changed impact from tourists will be most in evidence.

#### VARIABLE SEASONALITY AMONG INDIVIDUAL BUSINESS CATEGORIES

Table 2 illustrates that particular categories of businesses are affected differently by seasonality. Those affected most during 1984 were Hotels and Motels, Restaurants, and Food Stores, Department Stores and Retail Stores. Businesses affected less were rental, and other taxable activities. Businesses least affected were Automobiles and Construction. Utilities, also, were affected very much by variations in the number of consumers. But this is not apparent in Table 2 because the greatly reduced visitor population in the summer months is counterbalanced by higher summer electricity rates with commensurately higher sales tax revenues.

In addition, the monthly revenues presented in Table 2 allow for a comparative assessment of the individual business categories vis 'a vis their aggregate and seasonal contribution of tax revenues into City of Scottsdale coffers. In 1984 the monthly sales tax collection of those businesses affected by winter visitors range from \$761,912 (Restaurants) to \$1,751,315 (Retail Stores) during the tourist season, and from

\$594,806 (Others) to \$1,215,330 (Retail Stores) during the nonseason. The differences between the tourist season and the nonseason by type of business range from \$35,179 (Other) to \$671,169 (Hotels and Motels). Other businesses with significant differences are Retail Stores (\$535,985), Department Stores (\$311,137), Restaurants (\$157,447), Food Stores (\$99,394), and Rental (\$89,801).

These findings establish 1) that tourism contributes significant amounts of money into the Scottsdale economy and 2) that some businesses are far more sensitive to the influx of winter visitors than others. It is important to note, however, that fluctuations are not affected by winter visitors alone. Other factors include Christmas sales (Department Stores), lower summer rates (Utilities), or summer discounts (Hotels and Motels) and the different sales tax rate between business classes. Although these factors are recognized as important, it is presumed that their various influences do not dominate the overall pattern of sales tax collection.

Finally, Table 2 illustrates the level of sensitivity of each business class to seasonal winter visitors. Not surprisingly, the 33.61% difference of sales taxes collected between the tourist season and nonseason from Hotels and Motels renders this category the most tourist-sensitive of the ten types. The sales tax from Hotels and Motels for the months of October and May also are high--suggesting that these two months are transition months between the tourist and nontourist seasons. Next in importance after Hotels and Motels are Retail Stores, Department Stores and Restaurants. Mediumly sensitive business classes are Rental and Food Stores.

The business categories with greater seasonal fluctuations in sales taxes during 1984 are shown graphically in Figure 3. The Scottsdale hotel industry reaches its peak in February and March, with a low point in August. Retail Stores peak in December and April with lowest sales occurring in August. Department Stores have a peak in December and a valley in August. Restaurants and Food Stores reach their peak sales in April, while Rental Property experiences up and down sales throughout the year.

Businesses lacking a seasonal pattern that can be related to the winter influx of visitors are resented in Figure 4. The Other category is relatively insensitive while Automobile and Construction are least sensitive to the spending of winter visitors. Figure 4 shows these industries experiencing up and down sales with a slight peak in June (a nonseason month) for Automotive, Construction, and Other taxable activities, while the peak for Utilities occurs in August (also a nonseason month). This pattern does not indicate that Utilities are insensitive to winter visitors, however, but merely that differences between higher summer electricity rates and lower winter charges offset the loss of seasonal reduction in visitors.

In sum, six types of businesses demonstrate at least some evidence of seasonality during the calendar year. These are Retail Stores, Hotels, Restaurants, Rentals, Food Stores and Department Stores. However, no appreciable correspondence with visitor arrivals is the case for Construction, Automotive, Utilities or Others.

## VARIABLE SEASONALITY SINCE 1972

How has the seasonality of visitor expenditures changed over the years? The share of individual business classes for three time periods is shown in Table 3. These figures show that the combined amount of winter visitor sales taxes increased from \$354,138 in 1972-1975, to \$906,955 in 1976-1979, to \$41,780,150 in 1980-1984. Perhaps more importantly, the percentage of total revenue derived from winter visitors increased from 8.43% in 1972-1975, to 12.82% in 1976-1979, and 14.03% in 1980-1984.

Finally, since hotels are the type of business most sensitive to visitor seasonality, historical patterns of hotel-based tax revenues were examined. Monthly mean values of hotel sales tax revenues for the periods of 1972-1975, 1976-1979, and 1980-1984 are graphed in Figure 5. The graph indicates that the hotel business is more seasonal at present than in the early 1970s. Hence, whatever the economic impacts of seasonality, they have been increasing and appear likely to become even greater.

## SUMMARY AND CONCLUSIONS

The purpose of this short paper is to examine the seasonality of tourism in Scottsdale, Arizona. A more specific goal is to explore how particular types of businesses respond to seasonality. A review of Scottsdale sales tax revenue data reveals that, indeed, 1) revenues do increase considerably during the tourist season and 2) many businesses generate far greater revenues during those winter months of the year when visitors to Scottsdale are present in greatest number. Furthermore, examination of past data suggests that the tourist industry has become increasingly seasonal over the years. With evidence showing that tourism, as measured by sales tax collections, is not uniformly distributed throughout the year, nor among individual categories of businesses, the hypothesis that selected businesses will experience higher sales activity during the tourist season can be accepted.

The sales tax data base utilized in this study allows for more than mere confirmation of the time-honored observation that the tourist industry is seasonal (if dissimilarly for individual businesses). Further analyses of such accurate information can lead to an improved understanding of tourist seasons and cycles; thereby permitting fine-tuning of the supportive infrastructure required to facilitate this ebb and flow of visitors. Sales tax data are widely available in U.S. communities such as Scottsdale, and warrant a careful examination by those seeking to understand tourism seasonality and its multiple effects upon local communities.

\*The authors wish to extend their special gratitude to Mr. Michael Stroup, Revenue Director, City of Scottsdale, Arizona, for making

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TABLE 1

## ARIZONA TOURIST EXPENDITURES BY QUARTER 1984

Air Line Travelers					
Category	QUARTER				Total
	I	II	III	IV	
Lodging	\$142,342	\$114,652	\$ 99,780	\$112,606	\$469,380
Food & Beverages	118,772	92,256	79,670	91,661	382,359
Transportation	32,701	27,947	35,470	39,720	135,838
Entertainment	31,387	24,042	21,828	18,332	95,589
Retail Sales	67,818	51,086	46,384	61,108	226,396
Other	15,744	15,025	10,914	6,111	47,794
Total	\$408,764	\$325,008	\$294,046	\$329,538	\$1,357,356

Highway Travelers					
Category	QUARTER				
	I	II	III	IV	V
Lodging	\$131,832	\$150,188	\$161,314	\$112,920	\$556,254
Food & Beverage	143,068	166,268	177,867	157,246	644,449
Transportation	154,538	210,944	221,762	185,445	772,689
Entertainment	37,198	51,055	53,608	40,480	182,341
Retail Sales	85,197	96,111	100,335	70,411	352,054
Other	26,682	19,211	13,519	29,529	88,941
Total	\$578,515	\$693,777	\$728,405	\$596,031	\$2,596,728
Airline/Highway Combined	\$987,279	\$1,018,785	\$1,022,451	\$925,569	\$3,954,084

Source: Vic Heller, The Arizona Travel and Tourism Industry: 1984 Travel and Tourism Studies, College of Public Programs, Arizona State University, Tempe, AZ, 1985.



Table 2

## Monthly Sales Tax in 1984 by Business Classification

Month	Food	Restaur	Departm	Retail	Hotel	Rental	Others	Automot	Constru	Utilit	
November	135380	112731	164342	240404	161130	142673	108352	239235	292961	66610	
December	130790	117524	278131	434723	118734	127771	136587	204923	334325	66294	
January	162067	117872	141946	235409	214662	111888	103819	237515	232174	41466	
February	123188	117018	97381	272944	303907	112242	69858	267050	224420	68522	
March	130225	147087	201419	274934	317274	146698	115407	312000	342029	67647	
April	187922	149680	181681	292901	218289	125886	95962	312087	356777	71477	
Total A	869572	761912	1065900	1751315	1333996	767158	629985	1572810	1782686	382016	
May	141204	105216	101035	212041	184345	111423	77179	308917	242864	64263	
June	113174	107836	165721	227610	99117	123836	145034	344132	399084	87631	
July	118308	95534	105624	186132	81922	115893	120954	192667	299438	79050	
August	114137	85306	63736	156559	62933	97207	57746	259425	271842	92380	
September	135585	110607	170108	215821	96478	128419	93915	211862	345043	88945	
October	147770	99966	148539	217167	138032	100579	99978	265434	310023	57350	
Total B	770178	604465	754763	1215330	662827	677357	594806	1582437	1868294	469619	
C = A + B	1639750	1366377	1820663	2966645	1996823	1444515	1224791	3155247	3650980	851635	
D = A - B	99394	157447	311137	535985	671169	89801	35179	-9627	-85608	-87603	
E = D (%)	C	6.06	11.52	17.09	18.07	33.61	6.22	2.88	-0.31	-2.34	-10.29

Source: Management Services Department, Scottsdale, Arizona

TABLE 3

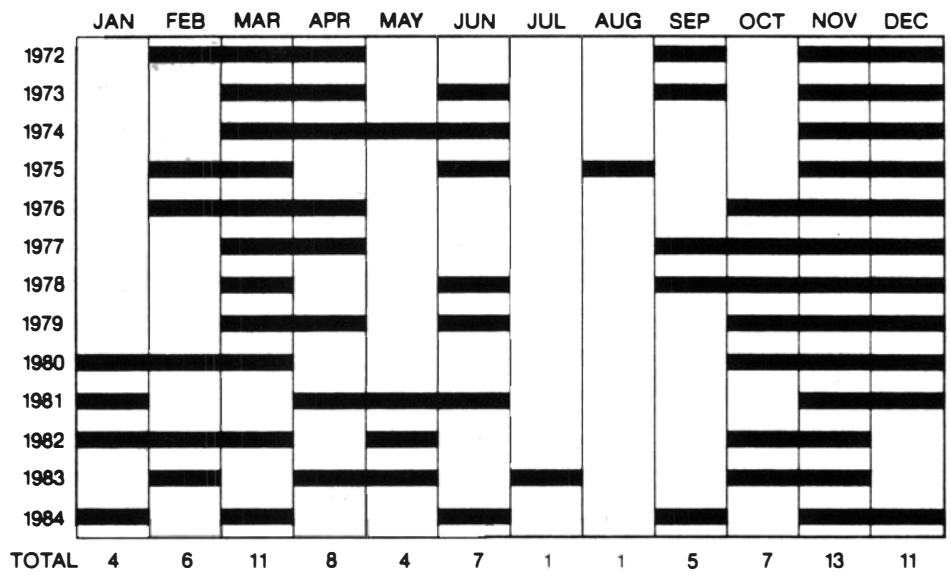
## BENEFIT OF WINTER VISITORS FROM 1972 TO 1984

Business Class	Share of Winter Visitors in Sales Tax		
	1972-1975	1976-1979	1980-1984
1. Hotel	\$70,947	\$385,161	\$997,357
2. Retail Store	90,255	202,297	308,925
3. Department Store	71,410	129,007	160,058
4. Restaurant	41,009	67,544	91,405
5. Food Store	35,490	52,641	125,112
6. Rental	19,438	28,207	70,315
7. Others	25,589	42,098	26,978
Sub Total (in \$)	354,138	906,955	1,780,150
(in %)	8.43	12.82	14.03
Total Tax	\$4,202,630	\$7,074,139	\$12,686,876

- 1) mean annual amount  
 2) since 1978 includes bed-tax

Source: Management Services Department, Scottsdale, Arizona.

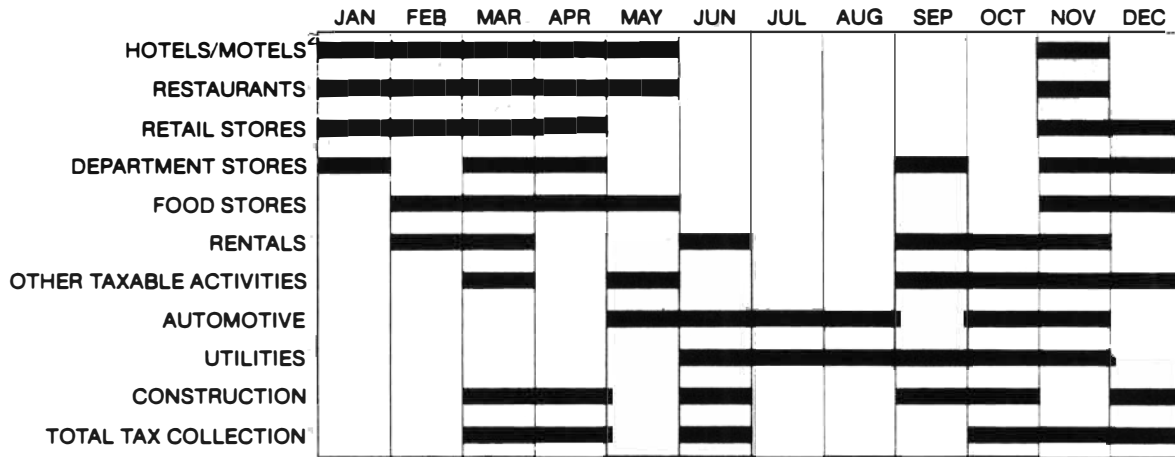
**FIGURE 1**  
**MONTHS<sup>1</sup> WITH LARGEST TOTAL SALES TAX COLLECTIONS,**  
**1972-1984, SCOTTSDALE, ARIZONA.**



<sup>1</sup> The six months with the largest amounts.

Source: Management Services Department, Scottsdale, Arizona.

**FIGURE 2  
MONTHS WITH LARGEST SALES TAX COLLECTIONS,  
BY BUSINESS CATEGORY 1972-1984,<sup>1</sup>  
SCOTTSDALE, ARIZONA**

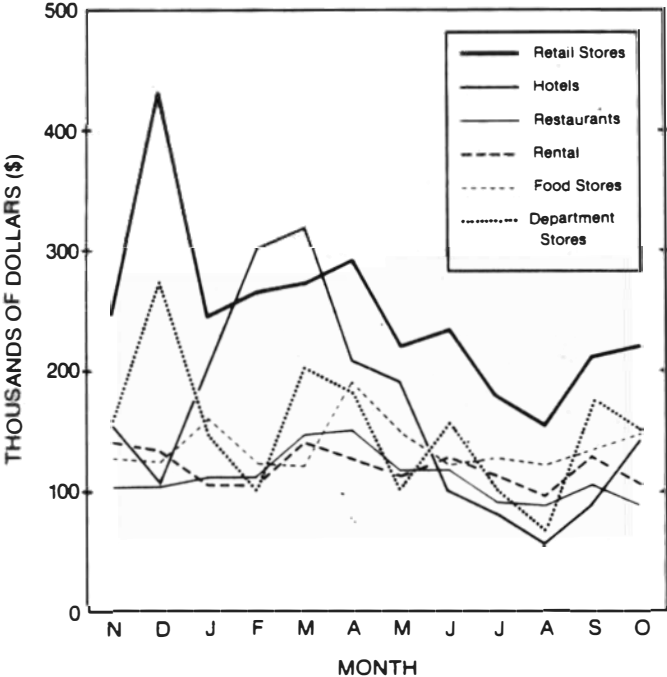


<sup>1</sup>For each business category, twelve monthly means were calculated for the years 1972 through 1984.

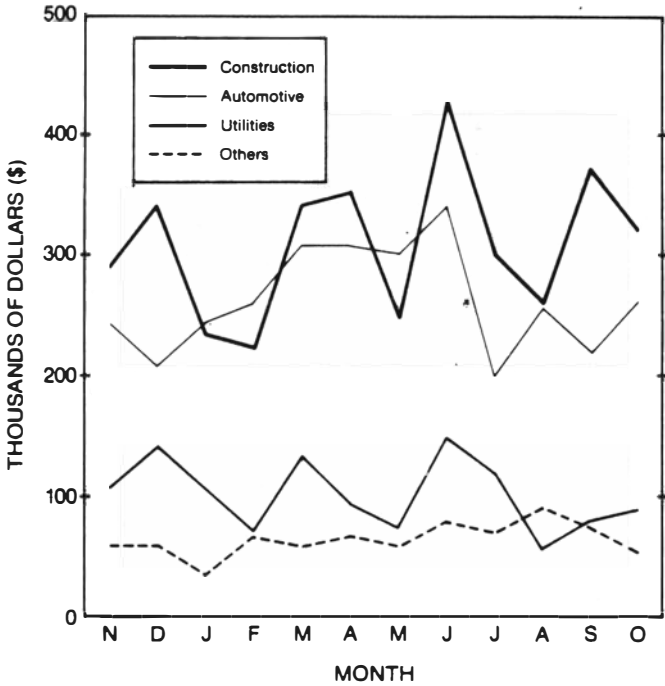
<sup>2</sup>Since 1978, includes bed tax.

Source: Management Services Department, Scottsdale, Arizona.

**FIGURE 3  
BUSINESS CATEGORIES DEMONSTRATING SEASONALITY  
SALES TAX COLLECTIONS, 1984.**



**FIGURE 4  
BUSINESS CATEGORIES LACKING SEASONALITY  
SALES TAX COLLECTIONS, 1984.**



**FIGURE 5**  
**CHANGING SALES TAX COLLECTIONS FOR**  
**SCOTTSDALE HOTELS.**

