Staff Paper Series

Staff Paper P76-23 July 1976

MEASURING METROPOLITAN TRAVEL/TOURISM MARKETS

Uel Blank
Department of Agricultural and Applied Economics
University of Minnesota

Department of Agricultural and Applied Economics

University of Minnesota
Institute of Agriculture, Forestry, and Home Economics
St. Paul, MN 55108

MEASURING METROPOLITAN
TRAVEL/TOURISM MARKETS

Uel Blank
Department of Agricultural and Applied Economics
University of Minnesota

MEASURING METROPOLITAN
TRAVEL/TOURISM MARKETS

Introduction -- The Problem

This paper treats the travel/tourism of metropolitan areas, approaching it from the view of the corporate community. It argues that metropolitan areas are almost certainly the principal generators of travel in the United States. As such their travel/tourism deserves much more attention and better understanding than it has received up until this point.

Unfortunately comprehensive, accurate data of the travel/tourism in American metropolitan areas do not exist. An important reason for this lack is the fact that 85% of trip-travel is by automobile [1]; automobiles do not stop at terminals, nor are there tangible boundaries to be crossed when they enter cities. Even in the case of traffic using terminals -- air, bus, rail -- only limited qualitative information is ordinarily available. As a result comprehensive statistically accurate data about metropolitan travel/ tourists are difficult to generate.

There has long been a felt need for travel/tourism data for metropolitan areas. Since comprehensive, accurate data was not available, such statistics as could be found have been used. Some figures have lacked sufficient base to be believable. Most, even if accurate, have been mis-leading because they have been limited, piece-meal data. Consequently

travel/tourism of Metropolitan areas is seriously underestimated and misunderstood. Most American cities manage their travel sales potential poorly and lack guidelines for developing related facilities, further, large business segments that sell regularly and in substantial amounts to travelers often perform as though they are only vaguely aware of this fact.

The last section of this paper reports empirical findings from a comprehensive, statistically accurate study of Metropolitan highway travel/tourists.

Methods of Travel/Tourism Measurement

A summary review of the major methods used to measure travel/ tourism helps to outline the dimensions and limitations of the current effort to generate data. The methods discussed are employed for varying geographic areas, but all could be applied to SMSA's. Depending upon how the procedures are administered each method will have its own implicit definition of travel, tourism and/or in some cases recreation. Some are more flexible as to definition than others. Each may be perfectly valid and useful in a given setting and for a specific purpose. Unfortunately none -- or even all taken together -- can at present provide all the answers to travel/tourism questions. This limitation is felt to be a problem of the state-of-the-art; the potential for reasonable comprehensiveness and accuracy is thought to exist.

1. Industry Sales Segment Method

Variations of this measurement method are now widely used [2, 3, 4].

It consists of dividing each retail segment's sales into traveler and non-traveler parts and summing. It has the large advantage that sales estimates by SIC sectors are now widely available and often on a quarterly basis. These estimates are usually generated from tax collections. It suffers from the difficulty that the proportion of sales to travelers varies between communities and there are no easy means for its estimation. It is a good first approximation and because of attention devoted to it has been improved rapidly.

2. Special Traveler Definitions

The methods of assembling data from a specially defined group of travelers, for the most part, produce partial data. Where the limitations are recognized, useful data for specific purposes can be produced. In the cases where partial or selective data are naively extrapolated in an attempt to describe the traveler/tourist universe, the most common result is garbage data. Among the variations of this method are:

--- Enumerate and/or interview travelers at specific business and/or activity points. Common among these points are commercial lodging facilities [5], campgrounds [6] and public parks. So long as the implicit definitions are recognized and observed, useful data can result.

--- Interview travelers at special highway-oriented points such as rest stops or information stations. Often the method is used as a simple means of describing all traffic. A one-time attempt

at such projections is likely to produce hash. But if refined

over a period of consistent use, the method can produce

accurate data. Perhaps the best example is that developed

by the State of Florida.[7]

--- Interview and enumerate special traveler segments. The con-

vention trade surveys provide one of the best examples.[8]

--- Interview and enumerate those responding to advertising. This

method provides useful information about effectiveness of

specific advertising efforts and about a specific population's

travel behavior, but most be used with care when generalizing

from it.[9]

--- There are many other variations, such as data generated about

those asking for information at airports and Chamber of

Commerce information stations. New communication technology

may be utilized -- CB radios are now being used to interview

travelers.

3.   Measure Traveler/Tourists at Travel Terminals

The method includes enumeration of traveler use at airports,

bus terminals and railroad stations. Simple enumerations of passenger

loadings are regularly published. As of now, most qualitative informa-

tion must be gathered by ad hoc means.[10]

4.   Assumption of Zero Travel During "Low Month"

This method takes advantage of the seasonality of travel and

assumes that the "low month" for certain travel oriented business or

traffic counts represents only traffic by residents. Higher counts

in other months are assumed to result from travel/tourism. An obvious

weakness is that few locations in the United States have zero travel at

any period of the year. The method has been used to generate data for

pleasure tourists.$\underline{11}$/ Currently the State of Wisconsin is developing a

model based on this method, but with complex adjustments.$\underline{12}$/

5. General Population Survey

This method is excellent for achieving general measures. The

outstanding example is that of the U.S. Travel Surveys of 1963, 1967

and 1972.$\underline{1}$/ The travel model developed by the U.S. Traffic Data Center

depends upon general population surveys for basic interrelationships.

The method depends upon long-range memory, when used to generate

data over a period of months. Because of sample size it may have limi-

tations for use in describing the market of a specific destination area.

6. Traffic Cordon, Border Crossing or Screenline Measures

This method enumerates and/or interviews all travelers when

passing a given point. Properly executed it is the most accurate

means of measuring travelers to a given destination. Its advantage is

that it defines a traveler as anyone who is traveling. With the assembly

of qualitative information, an almost infinite number of traffic seg-

ments can be identified and quantified. This method is most easily

administered for international travelers and for island locations

such as Hawaii. Florida's information station data gathering has been

perfected to the point that it now approximates a "border crossing"

measurement. This paper reports the use of a traffic cordon pro-
cedure to gain insights into the travel market of a metropolitan
area.[13/]

Why do we Need Improved Data for Metropolitan Area Travel/Tourism?

Three major reasons for generating comprehensive accurate metro-
politan area travel/tourism data stand out.

1. There is need for much better understanding of the incidence, impact
    and characteristics of travel/tourism as these relate to the economy
    of metropolitan areas. Most industries are dependent upon travel,
    they know it, but they lack the detailed insights needed to apply this
    knowledge adequately. For many, travel/tourism is not seen as the
    complex interrelationships of business, personal and pleasure pur-
    poses which it is. Nor is it generally recognized that travelers impact
    upon the entire retail segment. When major attractions are to be
    supported, such as a sports center, the community tends to define
    travel narrowly as the "lodging industry" or by some other limited
    concept. There is not the widespread support that is appropriate,
    because the full nature of travel's impact is not understood.

2. Improved guidelines are needed for the development and operation of
    travel facilities and services. Information about traveler/tourists
    exists in many piecemeal parts as proprietary information of specific
    services. These include; carriers, lodging services, and tour operators.
    But many facilities serving travelers such as public parks, retail stores

and restaurants do not identify traveler/tourists as such. At no point is all of this information about traveler/tourists brought together. For example: It is rarely known if a visitor to a sports center also uses commercial lodging; the extent to which business travelers use golf courses is not known. Lacking this information those who make decisions about new investment or operation, whether of public or private facilities, are handicapped.

3. <u>Improved guidelines are needed for metropolitan information-direction systems</u>. Metropolitan areas offer a wide variety of services, but may appear as a confused welter to the traveler who is not familiar with a given city. A result is a limited experience or even dissatisfaction because the traveler lacks information. If travelers' patterns and needs are known, more adequate information-direction systems can be designed.

What We Have; What We Need

Fortunately, in many states, data series are now developed providing readily available, up-to-date information about important aspects of travel/tourism. These include:

1. Airport activities;

2. Road traffic counts;

3. Tax receipts by industry segment

Unfortunately, qualification of these data series to apply to specific definitions of the traveler/tourist is largely lacking. Needed to make these

data series really useful to metro areas as continuous barometers of the tourism weather is detailed information about structural interrelationships. This includes:

1. Market origins;

2. Traveler characteristics;

3. Trip purposes and characteristics;

4. Lodging, spending and activity patterns

5. Information means used

Some Theoretical Considerations

This section poses some general, framework, theoretical propositions about metropolitan areas' relationships to travel/tourism.

1. Metropolitan areas are the major travel destination centers of the USA

This is hardly surprising since 73 percent of the nation's population now resides in the 266 SMSA's (data as of 1973). It is suggested that this dominance by metropolitan areas would persist through a variety of measures such as:

--- Dollars of impact;

--- Person-miles of travel generated;

--- Activity occasions.

2. Metropolitan areas are a multi-faceted complex of travel attractors.

That is, they do not offer simply a single reason for travel, rather they consist of a wide variety of travel magnets many of which reinforce each other in the case of a given trip decision. As an example, a study

in the Minneapolis-St. Paul area found about 10,000 services,

facilities and organizations in 400 categories available to the

traveler and resident for tourism/recreation purposes. [14/]

3. **The above view of metropolitan areas is simply a generalized travel**

   definition of their reality. In specific terms, metropolitan areas are:

   --- Always located at major travel nodes. Often water access

      was an early location factor, but because of the concentration

      of population and economic activity other later travel develop-

      ments focused upon it.

   --- Usually high level concentrations of natural amenities, often

      because of their location on water or at some other natural

      topographic/geologic "edge".

   --- Centers of economic activity -- manufacturing, commerce,

      finance; often production activity figured in early development.

   --- By definition concentrations of population

   --- Agglomerations of cultural, educational, sports, entertainment

      and related activity facilities.

4. **Most travel is multipurpose -- at least to an extent.** One purpose is

   usually dominant, but many other considerations come to bear having

   influence upon the specific travel decision concerning destination or

   destinations, the number in the travel party, their length of stay,

   dollar expenditure and activity pattern. These interact with the

   multiple travel attractors of metropolitan areas.

5. <u>Travelers need everything while traveling that they need at home.</u>
The proportion is very different. But this means that travelers may impact upon any component of the host community.

6. <u>Most travel/tourism-related facilities of metro areas not only serve the traveler but are important ingredients in the living quality of residents.</u> These are often financially supported jointly--by travel/tourists and residents. This means that better quality services and facilities are available to residents than they might otherwise be able to afford. A few examples and brief explanations follow:

--- Transportation systems not only serve the nonresident in traveling to an area but facilitate travel away by the resident.

--- Lodging and food facilities usually serve as meeting places and other community functions.

--- Amusement facilities, cultural features, and sports centers are often jointly enjoyed and supported by tourists and residents.

Propositions 5 and 6 are not further elaborated in this paper. However, the matter of joint use of many facilities and services, that bear upon living quality, by both residents and tourists is directly relevant to questions concerning the role of travel/tourism <u>vis a vis</u> a given community.

A simple model will further illustrate items 1 through 4. Figures 1 and 2 are demand and supply graphs. These are shown from the point of
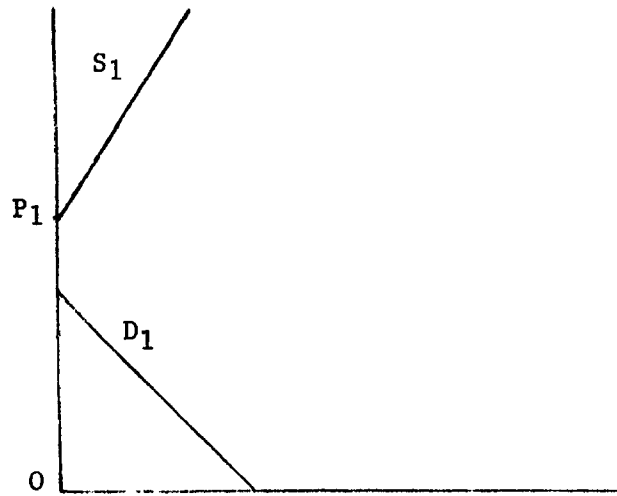
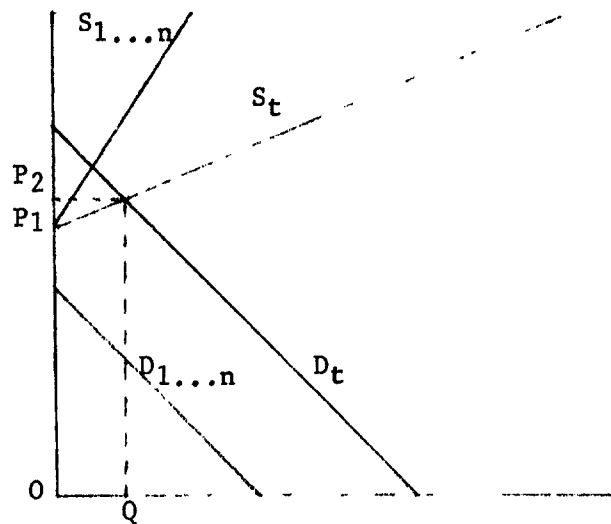11

Fig. 1. City A: Single Purpose Travel.

Fig. 2. City B: Attractions Complex; Multipurpose Travel.

view of consumers. The price or cost of travel/tourism services is shown on the vertical axis and the quantity purchased or consumed shown on the horizontal axis.

Figure 1 illustrates the case of single purpose travel appeal. OP_1 represents the cost of travel from point of origin to city A. D_1 represents the demand schedule for a given class of travelers and S_1 the supply curve that they face. In the given situation travel would not take place. The following traveler types might be illustrated:

Traveler type 1 -- Business salespeople who feel that what they could get -- their demand -- is less than the cost. They might either use the telephone, the mails or simply make no contacts.

Traveler type 2 -- Spouses who might accompany the other member of the marriage partnership; the destination lacks appeal, hence the demand schedule is not sufficiently far to the right.

Figure 2 illustrates a city having the same travel costs as city A; OP_1 in Figure 2 equals OP_1 in Figure 1. But it illustrates the cases of a complex of travel attractors and multipurpose travel. Here the travel attraction supply curve S_1 adds with curves $S_{2....n}$ to form a new supply curve S_t. Similarly the demand for a single travel reason, D_1, adds horizontally with demand for attractions $D_{2....n}$ to form a new demand curve, D_t, which is further to the right. Types of travelers may be represented as follows:

Traveler type 3 -- Wives, who in addition to the appeal and demands for travel, S_1; D_1, are attracted by the shopping opportunities in

in city B. Thus, S_1 + shopping study = S_t and D_1 + shopping demand = D_t. These types will participate in the travel economy to the extent of Q and at price P_2.

Traveler type 4 -- Business men who take vacations to a community and while there also transact business. Many of these might not travel to city B either to vacation or conduct business if limited to single purpose travel.

A Metro Cordon Study -- Empirical Findings From a Study of Total Travel.

Reported in this section are results of a comprehensive survey of the highway traffic mode of a small metropolitan area. The survey is sharply different from most other traveler studies in that a statistically random sample of all traffic was interviewed. The results illustrate some of the insights into structural relationships, market patterns and impact patterns to be gained from such procedures.

The study was conducted in 1972 in the metropolitan area of Duluth, Minnesota and Superior, Wisconsin. These adjoining cities are pictures-quely sited astride the excellent deep seaport formed by St. Louis Bay, in the southwest arm of Lake Superior. Their combined incorporated areas have a population of about 133,000 covering 105 square miles. The study applies only to the incorporated area, not the entire SMSA, which has almost exactly twice the population (265,000) and covers seventy times the land area (7397 square miles). Thus a relatively small, manageable area was selected for this pilot operation.
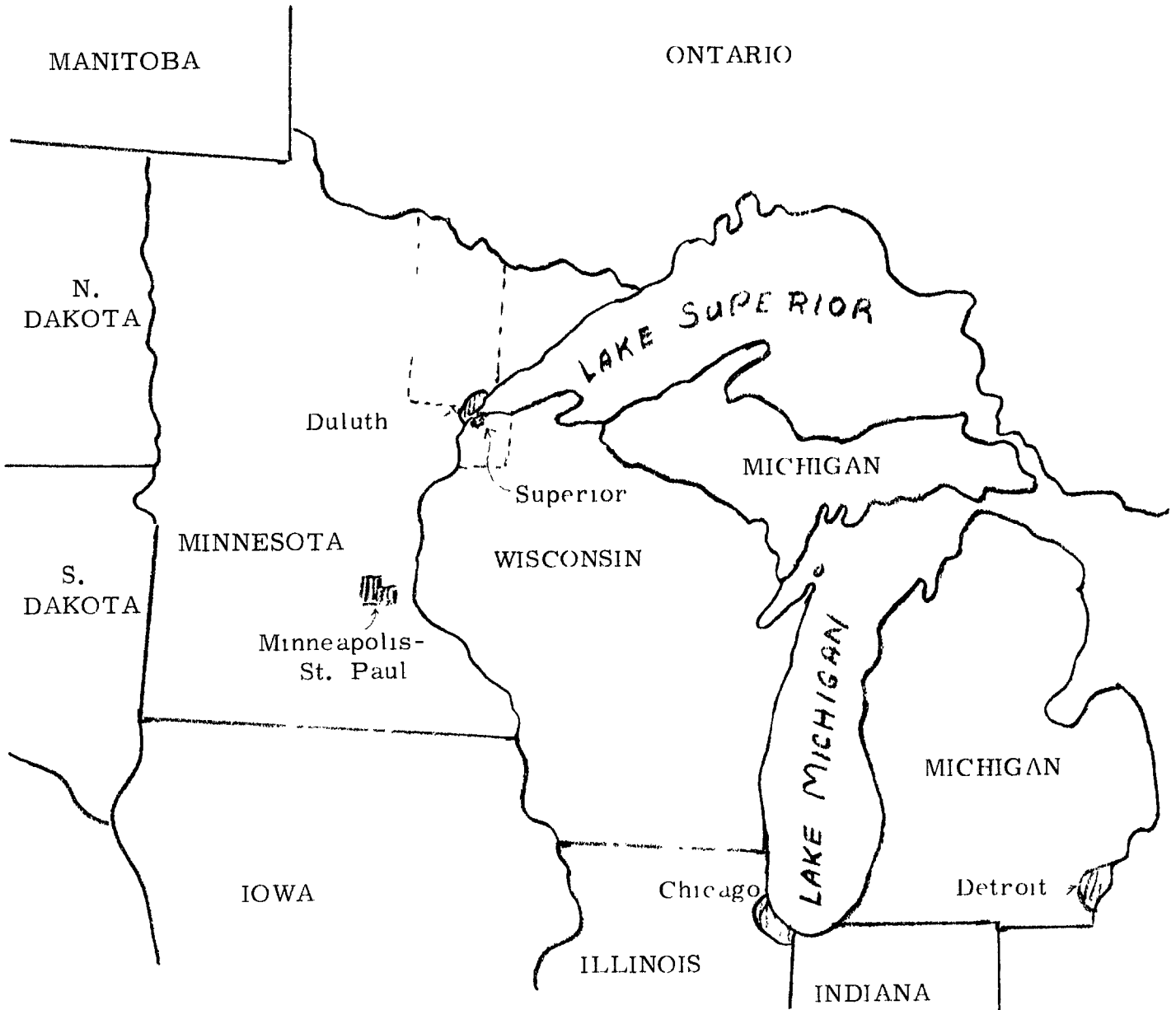
LOCATION OF DULUTH AND SUPERIOR
IN MINNESOTA AND WISCONSIN

(Dotted lines enclose Duluth-Superior SMSA)

The procedure employed was to set up an 8-point cordon at approximately the incorporated city limits. These points covered all major routes. Using standard origin-destination techniques outbound traffic was surveyed for two, half-day periods during the weeks of July 17 and 24, 1972. Each of the two survey periods was conducted on a different day and at different times of the day. In addition, temporary counters were operated for at least seven days at each of the eight cordon points. This made it possible to relate surveyed traffic to the full traffic flow.

The interviews covered standard origin-destination information. In addition the interview form and the External Survey Manual were modified for this study to gather additional information from drivers who were not residents of Duluth/Superior. By surveying only outbound traffic it was possible for travel/tourists to tell about their activities while in the study area. The additional information gathered included:

--- overall or major trip destination;

--- the purpose of a stop, if any, made in Duluth/Superior,

--- the time spent in Duluth and/or Superior;

--- kind of lodging if staying overnight in Duluth/Superior;

--- total dollars spent in Duluth/Superior.

It will be noted that this was not a fully comprehensive study since it covered only highway traffic (but not bus passengers). In order to claim full comprehensiveness, studies of all other modes -- air, bus, and water (there was no rail service in 1972) -- should have been conducted at the

same time. Fortunately an <u>ad hoc</u> airport survey conducted in 1973 genera-

ted impact data for air travelers.[15/] These latter are equal to only about

$1\frac{1}{2}$ percent of highway traveler/tourists in terms of person-trips. But air

travelers had an impact upon dollar expenditures of ten times that amount.

Some of the variety is lacking because bus and water data were not available.

The extent of agency cooperative effort that made the study possible

is of special interest. The 407th Civil Affairs Unit, U.S. Army Reserve,

provided the bulk of the field survey manpower. This was done as a part of

their two-week tour of field duty. In addition, they assisted with editing and

coding. Survey design and much of the follow-up analysis was the joint re-

sponsibility of the Minnesota Highway Department and University of Minne-

sota staff. The Chambers of Commerce of both Duluth and Superior assist-

ed with design and provided valuable information from other travel/tourism

studies. The Highway Departments of both Minnesota and Wisconsin had

direct supervision of the actual field operation. This represents a minimum

of the cooperative effort needed to successfully execute such travel studies.

Overall Impact

One of the more striking findings is the large estimate of the dollar

impact of travel/tourism made using this procedure. An estimate of

$70,000,000 as the direct 1972 spending by highway and air traveler/tourists

in Duluth/Superior resulted (does not include those traveling by bus or water,

or an allowance for other routes than the 8 included in the cordon) This is

almost 19 percent of the combined retail and selected services sales of

Duluth/Superior . It compares with a 1975 preliminary estimate of $62

million for all of St. Louis County, Minnesota, which contains Duluth and

has a population of 221,000. The latter was made by the Minnesota Depart-

ment of Economic Development using procedures similar to those of the

U.S. Travel Data Center. [4, 2/] Considering the difference in areas applicable,

differences in years and the fact that important segments were not included

in the 1972 estimate, the travel mode procedure figure is more than 75 per-

cent larger than the industry segment-based estimate. The finding demon-

strates that travel mode procedures may measure travel impact more com-

prehensively than other methods.

The Lodging Industry the Major Travel Beneficiary?

A popularly-held view is that the lodging industry is really the com-

munity's travel/tourism beneficiary. True, lodging firms are solidly con-

cerned with travel, but these findings revealed that they are far from the

dominant factor. The relationship of lodging firms to the total system of

travel/tourism for the summer months of July and August was found to be

as follows:

--- Only 20 percent of all highway traveler/tourists stayed

  overnight in Duluth/Superior.

--- Slightly over one-half -- 52 percent -- of those staying

  overnight used commercial facilities. Thus only 10 percent

  of the tourists were customers of hotels and motels.

--- The total sales of hotels and motels in Duluth for July and

  August 1972 were $1,079,000. [16/] This compares with $15.4

  million spent by all traveler/tourists in this same period. Those

traveling only for pleasure purposes (vacations, visits, social recreation) spent $7. 6 million. Thus, depending on the definition of a traveler, only 7 to 14 percent of their expenditures were made in the commercial lodging facilities. Note that this data is for Duluth only, and that it understates the situation in that expenditures of neither airline nor bus passengers are included in the $15. 4 million or $7. 6 million figures, but are included in the lodging sales.

Traveler/Tourists Come in Many Variations

The traffic mode procedure allows data display by any kind of traveler/ tourist definition that is appropriate to a given purpose. For example, definitions by origin, by destination, trip purpose, purpose of stop in the given metro area, plus any combination of the above are allowable within the range of statistical reliability of data.

The following are cross-comparisons that may be made:

Major Travel Purpose	Percent of people	Percent of dollar spent
Pleasure (vacation, visits, social recreation)	67	49
Business (work, business, commercial vehicle)	12	13
Personal business and shopping	18	36
Other	3	2
Total	100	100

An example of the multi-purpose nature of present-day travel to metropolitan areas is shown by crosstabulating those who said that they were mainly

traveling on vacation by their major reason for stopping in Duluth-Superior:

--- Three percent of those who were traveling on vacation

and stopped in Duluth-Superior did so for work or

business reasons. This gives empirical evidence of

traveler type 4 noted on page 13.

--- 8 percent stopped to shop

--- 2 percent mainly conducted personal business

--- 0. 5 percent attended a convention in Duluth-Superior

--- 16. 5 percent stopped for recreational activities

--- 10 percent went sightseeing in Duluth-Superior

--- 5 percent stopped to visit friends

--- 15 percent stopped to eat

--- 21 percent mainly bought gasoline

--- 19 percent primarily stopped for overnight.

Thus at any given stopping point during a trip the activity pattern's

relationship to the overall trip purpose may: (1) Conflict -- vacationers

who stopped for business; (2) Complement -- sightseeing vacations and

(3) Supplement -- those stopping to eat, sleep or buy gas.

Other Market Behavior Insights

Specific market behavioral insights were gained by the data generated.

Examples of these are given below:

--- Traveler/tourists from the local states of Minnesota and Wiscon-

sin tended to treat Duluth-Superior as a trade center -- for

business. Trade center-related activities were the major reason

for stopping in the case of 63 percent of Minnesota residents, but only 10 percent in the case of those originating from Illinois, Indiana, Michigan and Ohio.

--- Those from the industrial midwest (states of Illinois, Indiana, Michigan and Ohio) tended to view Duluth/Superior as a travel corridor -- 61 percent of those stopping did so for traveler services. More dramatically, many apparently viewed it as a barrier -- 48 percent did not stop at all; they were intent upon reaching vacation spots in northern Michigan and Canada (as reported by over 70% of these travelers). This lack of appeal to travelers from the industrial midwest should be a serious concern to Duluth/Superior. Citizens from these four states have the highest average incomes of any substantial Duluth-Superior traveler segment, hence they have potential buying power.

--- Travelers from more remote states tend to view Duluth-Superior as a recreational node; 46 percent of this group who stopped did so for pleasure-related purposes.

--- In contrast to the national pattern [17] those traveling in Duluth/ Superior whose major trip purpose was to visit friends and relatives spend an above-average amount per person. They totaled 11.5 percent of all travelers and made 12.6 percent of all expenditures. Further study would be needed to reveal reasons for this variation from the average; it may well be related to the high out-migration rates ot the region.

--- Canadian vacationers were almost as important numerically as vacationers from the industrial midwestern states when compared on the basis of their home population -- .667 per 1000 population for Canadians vs. .683 per 1000 population from Illinois, Indiana, Michigan and Ohio.

Some Concluding Observations and a View Ahead

The purpose of this paper has been to direct attention to the needs for better travel/tourism data for metropolitan centers. Metropolitan areas have a central role as travel destinations and in the servicing of a great diversity of traveler needs. Metropolitan area travel/tourism suffers from the lack of adequate data to enable understanding and guidelines for management.

Needed particularly are comprehensive measures and understanding of structural relationships. It is proposed here that one way to add considerably to the fund of knowledge is through statistically valid studies of all travel modes. A method for accomplishing this requires a combination of (1) survey at terminal facilities for those using commercial carriers and (2) on-the-road surveys for highway travelers (except for bus passengers).

In illustrating the insights gained by the use of a highway cordon, origin-destination survey, the writer is well aware of the limitations as well as the advantages of this procedure. A major advantage is comprehensiveness -- most other methods gather only part of the data and understate the impact of travel/tourism. Other advantages are flexibility of traveler definition and

the wealth of structural insights gained into the nature of the traveler, his trip and his relationship to a given community. By far the most serious disadvantage is cost in terms of manpower, danger of operating on the highways and the wide interagency cooperation needed.

There were limitations and oversights that other such studies should attempt to avoid: The highway traffic findings apply directly only to the summer season; thereas metropolitan areas operate year-round as travel attractors. One oversight was in failure to record the home community for travelers living in Minnesota and Wisconsin; with this information the study could have been made comparable with definitions having travel limits of 50 and/or 100 miles. There are limitations to what information can be obtained in a highway interview; there was no allocation of expenditures to the several supplying industries of the community, since this would have required a lengthier interview.

It is hoped, hereby, to stimulate the genius of those involved in travel research. The method can be improved; better alternative methods can be developed.

Footnotes and References

1. 1972 Census of Transportation, U.S. Department of Commerce.

2. Frechtling, Douglas, Travel Economic Impact Model, Volume 1, Final Economic Analysis Methodology, United States Travel Data Center, October 1975.

3. Rovelstad, James, Analytical Measures of Travel and Tourism for States and Smaller Areas, Bureau of Business Research, West Virginia University, July 1974.

4. The Economic Distribution of Tourist Travel Expenditures in Minnesota by Regions and Counties, Minnesota Research Bulletin Number 6, Department of Economic Development, October 1975.

5. Johnson, Dennis, A Market Analysis of the Lodging Industry In the Twin Cities Metropolitan Area unpublished MS Thesis, Department Of Agricultural and Applied Economics, University of Minnesota, July 1973.

6. Kettke, Marvin, M. Bevins, G. Cole, K. Hock and W. LaPage, Analysis of the Campground Market in the Northeast, Report III A Perspective on the Camping-Involvement Cycle, USDA Forest Service Research Paper, NE 322, 1975. This is only one of at least hundreds of camper market analyses.

7. Florida Tourist Study 1974, Florida office of Research, Division of Tourism, Department of Commerce, January 1975.

8. 1973 IACVB Convention Delegate Expenditure Survey: Analytical Report, United States Travel Data Center.

9. The Vacation Habits of Households Requesting a Minnesota Vacation Kit, Prepared for the Minnesota Department of Economic Development by Midcontinent Surveys, October 1972.

10. A Study of the Socio-Economic Impact of Aviation on Selected Communities prepared for the Minnesota Department of Aeronautics by David Braslau Associates, January 1975.

11. McIntosh, R.W., "The 1964 Tourist and Resort Business in the Upper Penninsula", Mimeo, Michigan State University, 1965.

12. Mueller, Raymond and M. Sharpe, Economic Input of Recreation-Tourism, State of Wisconsin Department of Business Development, Division of Tourism, preliminary 1976.

13. Blank, Uel "The Duluth Tourism Economy" Minnesota Tourist Travel Notes, Vol. 13, No. 1, University of Minnesota, Spring 1975.

14. Blank, Uel, and Elizabeth Numerich, Recreational Services and Facilities of the Twin Cities Metropolitan Area, Unpublished manuscript, of study for Metro Tourism Council, University of Minnesota, 1969.

15. The Socio-Economic Role of Aviation in Duluth, Minnesota, for the Minnesota Department of Aeronautics, By David Braslau Associates, January 1975.

16. Sieloff, Richard, Duluth Hotel-Motel Indicators Bureau of Business and Economic Research, University of Minnesota, Duluth, Vol. VI, No. 2, March 1976.

17. 1972 Census of Transportation, National Travel Survey reports income groupings, those visiting friends and relatives are less affluent than the average and are thus assumed to spend less on their trip. The empirical data given in this paper is the only direct measure available of actual spending by those traveling to visit friends and relatives. Further study may prove the Duluth/Superior situation to not be atypical. (The U.S. Travel Census reports that 61 percent of all person trips were made by persons having family incomes over $10,000, this compares with 53 percent of all person trips made to visit friends and relatives by persons with family incomes over $10,000).