Abstract

The report has an extensive sample and summary of “Taxi” statistics derived from 1995 Nationwide Personal Travel Survey (NPTS) data. In the NPTS, “Taxi” apparently includes most for-hire-with-driver light automotive passenger services. The statistics include: passenger trips, passenger-miles, passenger-hours, and revenue-vehicle-miles, and trip distances, speeds, and vehicle occupancies derived therefrom, by: travel purpose; gender and age, family incomes; month, day of week, and time of day; metropolitan areas by size (particularly the New York MSA); and selected states. It also includes related person, household, worker, and Privately Owned Vehicle information.

Conventions

In tables: (1) gray overlays are a caution signal that the numbers covered are estimates or otherwise may be suspect, (2) a box surrounded by a heavy line means that the enclosed number is the sum of the numbers represented by the enclosed rows and columns.

About the Author

Arthur L. “Pat” Webster was born Saint Patricks Day 1929 within Fortress Monroe, Virginia (now a national historical monument, but for other reasons). He graduated from West Point in 1952, served in the Air Force, and studied graduate electronics at the Air Force Institute of Technology in 1954. From 1959 through 1966 he was one of the early employees in the new Federal Aviation Administration. In 1966 he received a Masters Degree in Industrial Engineering from Stanford University. In 1967, he became one of the initial employees of the new U.S. Department of Transportation and was there until 1978. In 1978 and 1979 he was on the staff of a joint Presidential/ Congressional *National Transportation Policy Study Commission.* Since 1980, as head of his own corporation, and more recently as private citizen, he has contributed to or authored studies and reports, largely on transportation topics.

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Initial Summary

- The 1995 NPTS has a “Taxi” category. It does not have a “Livery” category to cover such transportation as service cars, premium sedans, limousines, and airport services, but it appears much, if not all, reported livery travel was reported as “Taxi. “

- There were slightly more than a thousand survey records with “Taxi” data, more than three times the number in the 1990 NPTS.

- Taxi travel carried the least passenger-miles of any of the for-hire passenger modes, but it accounted for about: 717 million passenger-trips, 3.6 billion passenger-miles, and 2.6 billion revenue-vehicle-miles of travel. Nationwide the average taxi passenger trip length was about 5 miles, the average speed about 21 miles per hour, and the average number of passengers carried was about 1.4.

- “Go Home” was the single largest travel purpose.

- Women used taxis slightly more than men. All age groups (only age 5 or over were surveyed) through the over-85 category used taxis.

- The poor and wealthy ends of the income spectrum tended to use taxis more than the average. Households that did not have a privately owned vehicle used taxis much more frequently than the national average.

- The New York MSA alone accounted for about a third of the nation’s taxi travel though only about 3 percent of its population. Other MSAs with over 3 million residents accounted for another 36 or 37 percent of taxi travel, and roughly the same percent of the population. Twenty percent of U.S. residents lived outside of metropolitan areas, but they accounted for less than 4 percent of taxi travel.

- Though African-Americans were about 12 percent of the nation’s population, they accounted for about 30 percent of taxi travel.

- 47 percent of New York MSA households did not have a Privately Owned Vehicle. This contributed to a unique taxi environment.

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Taxi Travel and the 1995 Nationwide Personal Transportation Survey

PART I, Nationwide

Origin of Report

Several years ago, I was asked to do research on taxicab statistics. The 1990 Nationwide Personal Transportation Survey (NPTS90) was one of the sources I used. The 1995 Nationwide Personal Transportation Survey (NPTS95) had not yet been completed. In early 1998 I received the NPTS95 CD. This report is largely based on the CD and was developed to facilitate the updating of my earlier report. **Taxi and Livery Definitions**

The term taxi is not well defined in either NPTS90 or NPTS95 and Livery vehicles are almost ignored in both.

The NPTS95 code book defines taxi:

> **Taxi** Taxis include the use of a taxicab by a driver for hire, or by a passenger for fare, and airport limousines. The taxi category does not include rental cars if they are privately operated and not picking up passengers in return for a fare."1 Taxis are largely defined and regulated in accord with local or state ordinances that vary from jurisdiction to jurisdiction. However, they typically have enough in common, that users know when they have ridden in one.

The Federal Standard Industrial Classification (SIC) has the following definition:

> **Taxicabs (SIC 4121).** Establishments primarily engaged in furnishing passenger transportation by automobiles not operated on regular schedules or between fixed terminals. Taxicab fleet owners and organizations are included, regardless of whether drivers are hired or rent their cabs or are otherwise compensated. Establishments primarily engaged in furnishing passenger transportation by automobile or bus, to, from, or between airports or rail terminals, over regular routes, are classified in Industry 4111.[2]

Limousines and other types of livery vehicles are not defined in the NPTS. The Federal Standard Industrial Classification (SIC) includes them as part of: "Local passenger transportation, n.e.c. (SIC 4119)," "2. Limousine or auto rental with driver." Livery travel is significant. Livery vehicles include such highway passenger transportation as New York City "Service" and "Black" cars, and non-taxi limousines (The New York Taxicab and Limousine Commission reported these to operate 19,599, 7,968, 1,591 vehicles respectively in 1992).3 The 1992 *Census of Transportation, Communications, and Utilities* reported 40,181 taxis and 17,628 limousine (and other for-hire-with driver-

light-automotive) vehicles in the inventories of establishments that had a payroll. (4) Though the Census survey showed livery vehicles to be less than half the number of taxis, the survey indicated livery revenues were almost the same as taxi revenues (Taxis $992 million, Limousine services $964 million). The Census figures greatly understate the actual numbers of vehicles and revenues for both taxis and livery, because only establishments with employees (a payroll) were included. Many taxis and livery vehicles are owner- or lessee-driven, had no paid employees, and therefore were outside the scope of the Census survey.[5]

All the travel by household members should have been reported in NPTS95, raising the question of where livery was reported in the files. After substantial analysis, it appears both taxi and most livery travel were coded "taxi" as the mode of travel (contrary to the taxi definition in the manual). This is particularly true regarding the almost 20 thousand New York City service cars. They operate similarly to taxis in other cities, and sometimes advertise as taxi service in the Yellow pages. Regressions of vehicles involving population, business establishments, and/or taxi revenue vehicle mile estimates based on NPTS95 had significantly higher R-squares, and lower standard errors when livery vehicles included in the dependent variables. **Things under the label "taxi" in this report should be assumed to be both taxi and livery values.**

Types of NPTS Files

Typically NPTS information is published in reports and the statistical data is distributed in six types of data files. Table 1 summarizes the six types of NPTS data files. The Household and Person files primarily contain demographic and economic data. The Vehicle file focuses on privately owned vehicles (POV) and their use. The remaining: Travel Day Trip File, Segmented Travel Day Trip File and Travel Period Files, each focus on different classes of travel, as broadly described in Table 1.

Though NPTS data is distributed in separate files, records in any file may be associated with records in the other files by using: household, person, vehicle, and trip identification numbers. In developing this report, taxi data in all three travel data files was separated from that of other modes, and combined in a single taxi file. The lack of livery definitions and separable data prevented doing the same thing with Livery.

The following comments expand on those in Table 1:

Travel Day Trips are intended to represent trips taken daily. A Travel day trip was put on a record when a traveler went from one address to another. Each trip record specified a primary mode of transportation used. The primary mode was the one used over the longest distance on the trip.

A separate trip was not counted in two instances:

1. When the sole purpose for the trip was to get to another vehicle or mode of transportation in order to continue to the destination;

2. The travel within a shopping center, mall or shopping areas of 4-5 blocks was considered as travel to one destination.

In some cases small numbers of records lacked entries in some fields. The missing data was

estimated in such a way that nationwide average values would not be change, however the nation-wide totals is this paper may differ a small amount from corresponding values reported by the Research Triangle Institute and/or FHWA.

The Travel Period File contains records of longer trips. In order to capture sufficient longer trips, data was collected over a fourteen day period consisting of the Travel Day and the thirteen preceding ones. The fields of the individual records are similar to those in the Travel Day File. This file played a minor role in developing this report, because it contained no records of taxi trips of more than 75 miles one-way.

A Travel Period trip that occurs on the Travel Day has information collected on both the Travel day and Travel Period portions and is called an “Overlap Trip.” Overlap trips were identified in the Travel Day File so they may could be eliminated to prevent double counting, when Travel Day and Travel Period files were combined. Overlap trips were analyzed in combination with their Period Trips, to show access and egress means used to connect with the modes used on longer trips.

Modification of FHWA Segmented Trip File

For purposes of this paper the FHWA Segmented Trip File was modified.

The FHWA Segmented Travel Day File differed from the Travel Day File in both form and content. A trip was segmented if two conditions were met:

1. There was a change of vehicle or a change of mode on the trips, AND

2. one of the modes used was a public transit mode or Amtrak.

Public transit modes include bus, subway, elevated rail, commuter train, streetcar or trolley car. Thus Taxis, Walking, Bicycling, and “Other” transportation may be found in the file, but only if one or more of the segments was a form of public transit. Public transit excluded taxicabs. Segmented trip data was collected to provide more complete data on multi-modal trips, with particular emphasis on the use of “public transit. “ The other segments may be public transit or any of the other modes covered in the NPTS. Taxicabs and other for-hire-with-driver modes such as limousines (with the possible exception of some limousines used for airport service), service cars, sedans, black cars, etc. were not considered “public transit”.

Trips that did not meet both criteria were not included in the Segmented Travel Day File. These included trips where the traveler went between Privately Owned Vehicles and/or non- public transit vehicles (such as taxis).

Each record in the FHWA Segmented File contained: “... data for up to 4 segments of each Segmented Travel day trip the person made on travel day.” The Segmented Trip Day records averaged about 2.6 segments per record. Thus, the 3,779 Segmented Travel Day records reported selected data on 9,918 segments.

When a travel day trip was segmented, most of the trip information was included on the Travel Day trip records. However, The FHWA Segmented record, which has the same identity variables as the Travel Day Trip record, contained unique information on each of the segments of the trip, such as the mode, start time and duration in minutes. Even though a trip had up to four segments, there was only one segmented trip record. The data for each segment was listed in variables with names like SEG1-M1N, SEG2-MIN, SEG3-MIN, etc. to accommodate the characteristics of up to four segments in one record. For this paper, I restructured the Segmented Day Trip File so that it treated each segment as a separate trip and, to the extent feasible, with the same record fields as the Day Trip File. 5

The Taxi Modified Segmented Trip File and Taxi Day Trip Files were appended. The resulting new file was used to compute many of the taxi travel statistics reported later in this report.

Endnotes & Sources

1. U.S. Department of Transportation (USDOT), Federal Highway Administration (FHWA), October 1997, *User's Guide for the Public Use Data Files, 1995 Nationwide Personal Transportation Survey,* Research Triangle Institute, Research Triangle Park, North Carolina; Publication No. FHWA-PL-98-002, HPM-40/10-97(3M)EW, Washington D.C., Page D-9.

2. U.S. Department of Commerce (USDOC), Bureau of the Census (BOC), March 1995, *1992 Census of Transportation, Communications, and Utilities,* Summary, Geographic Area Series, Bureau of the Census, UC92-A-1, Page A-4.

3. New York City Taxi and Limousine Commission (NYCT&LC), February 1993, *The New York City, For-Hire Vehicle Fact Book.*

4. Op cit USDOC BOC 1992, Table 1, Page 7; and volume Miscellaneous Subjects, Table 4, Page 2-12.

5. Op cit USDOC BOC 1992. Volume Nonemployer Statistics Series, Summary, Table 1, Page 3.

6. Op Cit USDOT FHWA 1997, Page 4-2 as modified with information from text.

7. Op Cit USDOT FHWA 1997, From Chapter 4 text.

8. U. S. Department of Transportation (USDOT), Federal Highway Administration (FHWA), November 1993, *1990 NPTS Databook,* prepared by Oak Ridge National Laboratory, Oak Ridge, TN for FHWA HPM-40. Table 3.1, page 3.4.

9. Op Cit USDOT FHWA 1997, Page A-4.

10. U. S. Department of Commerce (USDOC), Bureau of the Census (BOC), Sept. 1995, *Statistical Abstract of the United States, 1995.* Table No. 82, page 67.

11. Op Cit USDOT FHWA 1997, Page 3-26.

12. U.S. Department of Transportation (USDOT), Bureau of Transportation Statistics (BTS), October 1997, *1995 American Travel Survey, Profile,* BTS/TS95-US.

13. Op Cit USDOC, BOC, pages 961 and 962.

12. New York City Taxi and Limousine Commission (NYC T&LC), May 1994, *The New York City Taxicab Fact Book.*