

NHTS Users and Uses

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Traffic Safety

TRAFFIC SAFETY

Historically, NPTS has been a primary source of data (along with the Fatal Accident Reporting System – FARS) to compute accident rates, analysis of travel risk, alcohol involvement etc. General Estimates System (GES) and the Fatality Analysis Reporting System (FARS), do not contain information on driver or vehicle exposure. In order to obtain appropriate exposure data estimates of vehicle miles driven (VMD) by different drivers using the NPTS are combined with annual crash rates and injury severity information from the GES for a comprehensive assessment of overall risk to different drivers across vehicle classes.

Some of the uses shown in the appendix are highlighted here:

- The use of 1977 NPTS along with data from the Fatal Accident Reporting System (FARS) to examine travel risks of males vs. females by age group. Similarly, the 1983 NPTS was used in conjunction with the Fatal Accident Reporting System (FARS), driver' s license files and population surveys to calculate alcohol involvement rates in fatal crashes.
- The use of NPTS to determine whether the presence of passengers is associated with an increased risk of crashes fatal to 16- and 17-year-old drivers and whether the risk varies by time of day and age and sex of drivers and passengers.
- The use of 1990 NPTS in conjunction with crash data from the Fatal Accident Reporting System (FARS) and the 1990 General Estimates System (GES) to produce crash involvement rates per vehicle-mile. Similarly, the 2001 NHTS data were used to estimate exposure for pedestrians in a fatality risk assessment.
- Development of Survey Frame for Field Operational test: The use of 2001 NHTS data to develop sample recruitment (representative sample of drivers) to conduct a field operational test using passenger vehicles equipped with two automotive technologies.

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Congestion

Travel Behavior

Travel Model

Travel Time Issues/Congestion

Commuting

Economy/Sprawl

CONGESTION

NPTS data are widely used across the nation to analyse travel behavior, build travel models, commuting, travel time, mobility, economy and sprawl issues.

Travel Behavior

1995 NPTS data were used to examine the most important socioeconomic variations in urban travel behavior.

- 1990 NPTS data were used to examine trip duration and frequency in comparison to activity duration and frequency to show arguments in favor of activity based models.
- 1990 NPTS travel data were used to justify a non-motorized transportation plan in Pierce County based on the large percentage of trips of five miles or less.
- NPTS data were used to examine the relationship between land-use patterns and individual mobility from a comparative international perspective.
- NPTS data provided evidence to show that in U.S. cities suburbanization has been the dominant and successful mechanism for coping with traffic congestion. Suburbanization has shifted road and highway demand to less-congested routes and away from core areas, leading to contained areawide average speeds.

Travel Model

- NPTS data were used to examine the travel behavior and related characteristics of multiworker households (MWHs) (defined as households with at least two workers) and how they contribute to the ever-increasing demand for transportation services.
- 1995 NPTS data were used for empirical estimation of model parameters in developing a model of prework trip making and home departure time choice.
- The 2001 NHTS data were used to examine the full range of travel characteristics which were used as a comparison to Florida travel statistics.
- NPTS and NHTS are considered as data sources for forecasting future travel and land needs.
- Many metropolitan planning organizations across the United States have embraced transit-oriented development (TOD) as their regional planning paradigm.
- NPTS (No specified year) data were used to provide time-of-day travel data by trip purpose as well as information on peak travel.
- The 1995 NPTS data were used to investigate the influence of workplace employment density and share of retail employment on VMT to assess personal commercial activities.
- 1990 NPTS data were used to expand the Connecticut Department of Transportation's person forecasting model to estimate peak period link volumes.
- Vehicle Miles of Travel Data were used from previous NPTS and the 2001 NHTS as the basis for predicting several input components for modeling and forecasting future VMT.

Travel time issues/congestion

- The 1969 and 2001 NHTS data were used to show that there has been an increase in discretionary travel.
- 1990 NPTS data were used to support the argument that a disproportionate amount of emphasis is being placed on the reduction of work trips and on fixed rail.
- 1990, 1983, and 1977 NPTS surveys were used to make the case that suburbanization has been the most successful factor in alleviating traffic congestion.
- 1990 NPTS was used to show that traffic congestion is getting worse as a result of the increase in travel as well as other factors such as the change in household structure. People are working much more over the last 40 years, shopping somewhat more on the weekends, and staying at home less.
- The 1995 NPTS data were used to examine the effects of adding road capacity by increasing travel speed as it relates to discretionary and non-discretionary activities of workers and nonworkers.
- 1990 NPTS data were used in a Transportation Research Board Special Report to show that motorists receive free parking for 99% of all motor trips. This report suggests that charging motorists for the use of roads should be considered to help alleviate traffic congestion.

Commuting

- 1983 and 1977 NPTS surveys were used to examine peak travel times.
- The 1995 NPTS data were used to establish the average one way commute distance in the U.S. and also the daily per capita PMT for people between 21 and 65 years of age.
- 1990 NPTS was used to examine transit service levels, travel and parking behavior in the U.S., and the effect of parking regulation by cities.
- 1990 NPTS data were used to estimate the effects of transit service and parking charges on commuter mode choice.
- The 1995 NPTS data were used for analysis purposes in terms of traffic demand management which attempts to improve air quality, mobility and reduce congestion.
- Analyzing the 1983-1990 growth of almost 40% in U.S. vehicle miles traveled (VMT), Pisarski shows that much of it is accounted for by a 35.9% jump in average vehicle trip lengths (the other contributors being population growth, decline in vehicle occupancy, mode shifts to privately operated vehicles, and increased trips per capita). Yet, most of the work trip VMT growth was explained by the almost 27% growth in average distance traveled (from 8.6 to 10.9 miles, one-way). In spite of this and depending on how the data are aggregated, average work trip durations either fell slightly or grew by much smaller percentages than distances. Either way, there were significant increases in average trip speeds. This casts doubt on reports of worsening congestion, such as those emanating from the Texas Transportation Institute (TTI).

Economy/Sprawl

- Based on indirect experience that the largest MSAs have the largest portion of noncentral city work ends, the author associated a variety of work trips with a polycentric urban form thesis. They claim that a decentralized settlement pattern is not necessarily uneconomical.

Travel Behavior

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Travel time issues/congestion

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ENVIRONMENT

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- Similarly, data from the 1995 Nationwide Personal Transportation Survey (NPTS) were analyzed to derive soak times. Detailed analyses were conducted to relate soak time variability to geographic, trip-purpose, and time-of-day variables. The findings reinforce the prevailing general guidance on inputs to modeling the emissions from mobile sources.
- The New York State Department of Transportation (NYSDOT) conducted several analyses of the 1995 Nationwide Personal Transportation Survey (NPTS) to address issues raised by the New York State Department of Environmental Conservation (ENCON), the state's environmental agency, and the NYSDOT. They were identified during the development of the Air Quality State Implementation Plan, and related activities, such as creating VMT inventories, updating ENCON's emission model, and the conformity analyses of the department's transportation program.
- The 1995 NPTS data were used to examine household characteristics and travel patterns of older vehicles in order to identify policies that would be most effective in mitigating the pollution from this older segment of vehicles.
- The 1995 NPTS data were used to analyze soak times in terms of their variability to geographic, trip-purpose, and time of day variables.
- NPTS (No specified year) data were used to distinguish between cold transient and hot transient modes in terms of auto emissions. The first 505 seconds of engine operation are considered to be transient mode.

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Energy Consumption

ENERGY CONSUMPTION

- NPTS was used as a reference in preparing the Energy and Transportation Task Force Report. This is one of seven reports prepared for the President's Council on Sustainable Development. 1996.
- 1977 NPTS data were used to estimate the impact of national energy shortages in six different sized urban areas under numerous future scenarios.
- The 2001 NHTS data are considered as a potential candidate for filling a data gap left by the discontinuation of the Residential Transportation Energy Consumption Survey (RTECS).
- One of the important trends observed in the 1990 Nationwide Personal Transportation Survey (NPTS) data has been the increasing share of vehicle miles of travel generated by the older vehicle fleet. This is a product of two factors: the increasing proportion of the fleet that consists of older vehicles; and the increasing travel activity of these older vehicles.
- NPTS data is the fundamental source to examine the characteristics of the vehicle fleet specifically in terms of age, identify the characteristics of the owners of the vehicles in the aging fleet, and describe the ways in which those vehicles are used.

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1995	Erlbaum, NS.	Erlbaum, NS. Improving Air Quality Models in New York State: Utility of the 1995 National Personal Transportation Survey. Transportation Research Circular E-C026, Pages 515-536. March 2001.
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Demographic Trends

DEMOGRAPHIC TRENDS

- 1990 NPTS was used to show the trend of increasing vehicle life-span, that travel to work and back comprises 32.8 percent of all personal driving.
- The 1995 NPTS data were used to update the Dutchess County Model as well as to support other projects and initiatives by the Council.
- The 2001 NHTS data were the foundation of a discussion that personal automobile continues to be the overwhelmingly dominant mode of transportation among all populations including the poor, elderly and minorities.
- The 1995 NPTS survey was used to examine three specific areas: 1. Growth in personal motor vehicle travel and the sources of that growth. 2. Changes in the characteristics of household vehicles. 3. Determinants of household vehicle utilization patterns and demands for private vehicle use.
- 1995 NPTS data were used to compare travel characteristics between area types such as urban, second city, suburban, town and rural.
- The NPTS data were used to study the transportation problems of low income American households.
- NPTS (No specified year) data were used to show that the average amount of time men and women spend behind the wheel of a car each day.
- 1990 NPTS data were used to examine the affect of population density on vehicle use and ownership.
- The 1995 NPTS data are used to examine the household characteristics and travel patterns of light duty trucks and to question the appropriateness of the current CAFE standards.
- The 1969 NPTS and 2001 NHTS data are used to show that the number of household vehicles in the U.S. has nearly tripled between 1969 and 2001.

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1995	World Resources Institute.	World Resources Institute. World Resources 1996- 97 A Guide to the Global Environment. United Nations Environment Programme, United Nations Development Programme, and The World Bank.

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1990	Wisconsin Department of Transportation.	Wisconsin Department of Transportation. Impacts of Highway Facility Improvements On Travel and Regional Development. Division of Planning and Budget. January 1994.
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Special Population Groups

Elderly

Children's Issues

Race, Ethnicity, And Gender

SPECIAL POPULATION GROUPS

NPTS data is the backbone of analyses on elderly issues, Children's issues, and Race and Gender studies.

Elderly

- The 2001 NHTS data are used to examine trends and travel pattern of older drivers age 70 and over. Some NPTS findings include: (1) Over 1 in 5 people in the United States aged 65 and older do not drive. (2) Over 1/2 of these individuals stay home on a particular day because they do not have transportation options.
- 1995 NPTS data were used to identify personal and community characteristics measured by the survey that are associated with trip making among the non-driving population of age 75 and older.
- NPTS data were used to show that the elderly are the fastest growing component of the U.S. population and the very old are the fastest growing component of the elderly. Most elderly people today are drivers and over three fourths live in low density suburban or non-metropolitan places - places where the use of the private car is either encouraged or absolutely necessary.
- Results of the 2001 survey showed that older Americans travel extensively and rely on personal vehicles as heavily as their younger counterparts. Older Americans conduct 89% of their travel in personal vehicles, and tend to be less mobile in that they take fewer trips, travel shorter distances, and have shorter travel times. This pattern is even more pronounced among older women, who are also more likely to suffer from self-reported medical conditions further limiting their travel.
- Older men and women take long-distance trips at about the same rates and show a strong preference for using personal vehicles. And, while men and women take an equal percentage of their trips by air, older women show a strong preference for bus travel.
- The 1995 NPTS data were used to establish the number of adults age 65 and older who possess a current driver's license as well as their travel trends.

Children's issues

- 1995 NPTS data were used to know how the key attributes of how sprawl (low residential density and extensive travel in private vehicles) affects poor children and their families in comparison with the general U.S. population. The findings show that urban sprawl has allowed those who are able to travel extensively greater economic opportunities. Poor families with children are shown to own fewer vehicles, travel more by walking and public transit, and make shorter trips than households generally.
- The 2001 NHTS data were examined to determine private vehicle travel patterns of children age 5 and under. The data showed a sharp decline in children who walk or bike to school.
- 1995 NPTS data and FARS data to determine the impacts on safety and economics of prohibiting children age 15 and under from riding in the back of pickup trucks.
- The 1995 NPTS data were used to examine how travel behavior changes as teenagers age.

Race, Ethnicity, and Gender

Based primarily on the series of NPTS, a body of literature on travel by people of color has evolved to better understand how Americans of all ethnic backgrounds are using our transportation systems today and to generate ideas to improve transportation mobility. The topics include race, inequality, and travel patterns; demographics; commuting; residential location; mode choice; and gender differences.

- 1995 NPTS was used to examine trip chaining behavior of adult men and women traveling Monday through Friday.
- 1995 NPTS data were used to compare travel characteristics of women 40 - 49 with women 75 and older and men 75 and older. The purpose was to estimate the impact of an aging population on vehicle ownership and Vehicle Miles Traveled.
- The 1995 NPTS data were used in conjunction with the ATS survey, Consumer Expenditure (CES) survey and the Bureau of the census to examine the relationship between race, ethnicity and consumer culture as it relates to travel.
- 1990 NPTS data were used during the 1997 African American Mobility Issues - Forging the Dream, a symposium to discuss travel trends in general and to compare travel trends of African Americans to the general population.
- 1990 and 1983 NPTS data were used to study travel trends of Blacks in the United States.
- NPTS data allowed a comprehensive look at mobility and mode choice behavior of people of color for their non-work travel. Travel by people of color is of strong policy interest because it is a growing and changing share of the total travel market and is expected to continue to grow much faster than overall travel well into the next century.
- 1995 Data were used to examine vehicle ownership characteristics among those households which are below the poverty line.
- 1990 Nationwide Personal Transportation Survey (NPTS) was used in order to identify and evaluate the differences, if any, in the travel behavior of women in different household and family settings today. As women obtain jobs, increase their income, and acquire licenses they drive longer and use the car for more of their trips, just as men in the paid labor force have traditionally done. However, because their work duties are added to their childcare and domestic responsibilities they also exhibit markedly different patterns than working fathers.
- 1990 NPTS was used to examine differences in the travel behavior of women in different household and family settings.

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Race, Ethnicity, and Gender

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- The 1969 NPTS and 2001 NHTS were used to show that there has been a dramatic decline in the percentage of students who walk or bike to school.
- The 1995 NPTS and 2001 NHTS data were used to make a comparison between travel patterns in the U.S. and those in Germany and the Netherlands.
- The use of 2001 NHTS Survey to promote the building of roads and streets to accommodate all modes of transportation including bicycles and pedestrians
- The 2001 NHTS data were used to develop time of day risk profiles for a comparison between walking and motoring.
- The 2001 NHTS data were used to estimate exposure for pedestrians in a fatality risk assessment. The purpose of this paper is to present the results of an evaluation of travel characteristics associated with households and individuals making non-motorized trips.

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Trend Analysis and Market Segmentation

Trend Analysis

Market Segmentation

TREND ANALYSIS AND MARKET SEGMENTATION

Trend Analysis

- 1995 NPTS data were used to understand trends in personal daily travel of U.S. households on trip purpose, means of transportation used, travel time, time of day, day of week, number of people in the vehicle, driver characteristics, and vehicle attributes. It also provides information by subgroups of population, e.g., by age, gender, race, zero-vehicle households.
- VMT predicting formulas were enunciated to enable National Household Travel Survey information to be used to predict input components in forecasting future VMT. Two VMT predictions are provided and compared with a forecast reported in "2002 Status of the Nations Highways, Bridges, and Transit: Conditions and Performance."

Market Segmentation

- The 1995 NPTS data were used in conjunction with the ATS survey, Consumer Expenditure (CES) survey and the Bureau of the census to examine the relationship between race, ethnicity and consumer culture as it relates to travel.
- 1983, 1990, and 1995 NPTS surveys were used to examine travel patterns and characteristics for non-work travel among people of different racial and ethnic groups.
- 1977 NPTS was one of the three most used sources to assess underlying traffic cost in Highway Traffic Forecasting System (HTFS).
- 1995 NPTS data are used to explore subtle differences in ownership and use patterns between light duty trucks and passenger cars.
- A tool was developed for the town of Williston, Vermont to assess the impact of proposed developments on the towns transportation system. The 1995 NPTS data were used to fill in gaps where local data were not available.
- 1995 NPTS was used to show that Americans continue to spend more time in their cars making them a captive audience for the advertising industry.
- Understanding non-work travel is becoming increasingly important due to its growing influence in people's lives and on the transportation system. Non-work travel includes travel for personal and family business, school activities, and religious activities, health care, and social and recreational activities. By 1995, work trip travel declined to about 20% of all local travel. Even during traditional commuting rush periods, non-work travel comprises more than 70% of all trips. Using information from the 1983, 1990, and 1995 NPTS databases, mode choice differences across groups for non-work travel were analyzed by examining how patterns of difference in mode choice vary with personal, household, geographic, and trip characteristics as reported in the 1995 NPTS.

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- The 2001 NHTS data are used to demonstrate that although transit accounts for only 2 percent of all trips nationwide, transit plays a much larger role in urban settings which is not evident by the 2 percent figure.
- The 1995 NPTS Survey was used to show that the transit market is strongly shaped by captive riders without driver' s licenses or vehicles.
- 1995 NPTS data are used to argue against New Urbanism philosophies which promote mass transit systems and higher density populations.
- The 2001 NHTS data were used to analyze transit trip characteristics.
- 1995 NPTS data were used to study the relationship between population density and transit use.

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Policy and Mobility

Policy

Mobility

POLICY AND MOBILITY

Policy

The 2001 National Household Travel Survey (NHTS) confirms most of the same travel trends and variation among socioeconomic groups documented by its predecessors, the Nationwide Personal Transportation Surveys of 1969, 1977, 1983, 1990 and 1995. The private car continues to dominate urban travel among every segment of the American population, including the poor, minorities and the elderly. By comparison, public transportation accounts for less than 2 percent of all urban travel. 2001 NHTS shows the doubling in modal share of walking trips in cities, due to a much improved survey technique that captured previously unreported walks. Overall, the poor, racial and ethnic minorities, and the elderly have much lower mobility rates than the general population. Moreover, the poor, blacks and Hispanics are far more likely to use transit than other groups. Minorities and low-income households account for 63 percent of the nation's transit riders. Different socioeconomic groups also have different rates of carpooling, taxi use, bicycling and walking. All these facts have important consequences for public policy.

- 1990 NPTS data were used to examine non-motor travel in the United States in order to determine what should be done in the future to encourage non-motor modes of travel.
- 1990 NPTS travel data are included in a collection of transportation data from government and private sources.
- NPTS (No specified year) was examined to see how the quality of future transportation data can be improved.
- 1990 NPTS was used to examine transit service levels, travel and parking behavior in the U.S., and the effect of parking regulation by cities.
- The 1995 NPTS data were used to examine the relationship between road capacity and vehicle miles of travel.

Mobility

- 1995 NPTS data are used to examine the most important socioeconomic variations in urban travel behavior.
- The 1995 NPTS was used to make observations and comparisons between different modes of transportation in terms of their travel speed.
1983, 1990, and 1995 NPTS surveys were used to examine travel patterns and characteristics for non-work travel among people of different racial and ethnic groups.
- Data from the 2001 National Household Travel Survey are used to compare travel behavior in rural and urban areas of the United States. As expected, the car is the overwhelmingly dominant mode of travel. Over 97% of rural households own at least one car vs. 92% of urban households.
- The 2001 NHTS data were used to provide statistics on trip modes for travels that involved air travel.
- 1995 NPTS data are used to study how travel times and activity duration are affected by increasing highway capacity.

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Survey and Other Issues

Survey

Others

Holiday/Long Distance Travel

SURVEY AND OTHER ISSUES

Survey

Although the NPTS is a national survey, results and the methodology of the survey are widely used as checks and guidance at the local and state levels. One of the added features of NPTS is to be able to transfer some general trip data to local geography.

- Aggregate data extracted from 1995 NPTS and the North Central Texas Council of Governments Survey of 1996 were used to explore the potential of transferability of transportation planning data used to estimate travel-demand model input.
- The FHWA Travel Survey Manual derives a lot of information from NPTS and provides transportation planners with guidance for developing and implementing the most common types of travel surveys.
- 1995 NPTS results were used as a comparison for the results of an alternative travel survey method for the Lexington Area Travel Data Collection Test.
- An empirical analysis was conducted using a sample drawn from the 1995 Nationwide Personal Transportation Survey in an effort to cast the investigation in the context of a typical, current travel survey. The analysis revealed that Artificial Neural Networks provide a viable alternative method of data imputation for travel surveys.
- Census data from the 1990 Public Use Micro-data Sample (PUMS) and the 1995 NPTS were used in a simulation of trip characteristics in terms of number of trips by purpose, mode, time of departure, and trip length are simulated, using a Monte Carlo type of simulation procedure.
- 1990 NPTS was used for comparison and also as an example in developing some parts of the San Francisco Bay Area 1990 Regional Travel Characteristics WP #4 MTC Travel Survey.
- Nearly one hundred users attended an NPTS symposium in Bethesda, Maryland, in October, 1997 to discuss the results of their work. Lively discussions during the policy panels reflected the continuing need to address mobility, economic development, safety and environmental preservation as part of the transportation program.
- The 2001 NHTS served as the basis for an analysis of telephone survey methodologies.

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- Anthony Downs of Brookings Institution used NPTS as a source in his remarks to the U.S. House Subcommittee on Highways and Transit, March 22, 2001
- 1990 NPTS was used in conjunction with the 1992 Truck Inventory and Use Survey to quantify the uses of light trucks for both personal and commercial purposes.
- The 2001 NHTS data were used to show the percentage of trips made for shopping errands in large vehicles which are beginning to overwhelm the dimensions of current parking lots.
- The 2001 NHTS data are used to help planners and officials better understand current and future requirements of the South Dakota Highway system.

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