

Uses of Census Data in Transportation

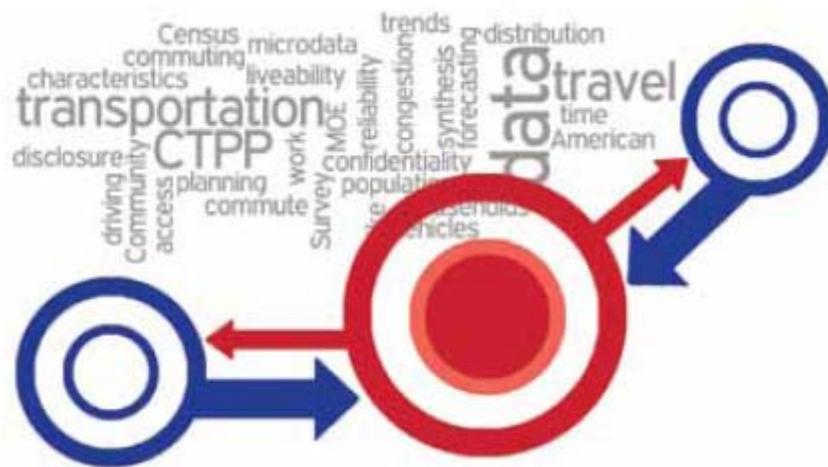
(May 2005 – May 2011)

Prepared for

Using Census Data for Transportation

October 25–27, 2011

Arnold and Mabel Beckman Center of the National Academies
Irvine, California



Introduction

This document summarizes the use and applications of census data in transportation planning and related activities from May 2005 to May 2011. Published papers, presentations, and monographs that cited the use of the Decennial Census or data from the American Community Survey were searched using the Transport Research International Documentation (TRID). TRID is a newly integrated database that combines the records from TRB's Transportation Research Information Services (TRIS) Database and the OECD's Joint Transport Research Centre's International Transport Research Documentation (ITRD) Database. <http://trid.trb.org/>

The search terms used were “Census”, “Transportation” OR “American Community Survey.” A large number of results (above 500) were obtained. The resulting abstracts were examined to select papers/presentations that are most relevant to the conference. Each paper was grouped under the following 11 categories, in line with the sessions planned for the conference.

1. Data Evaluation and Enhancement
2. Descriptive Analysis
3. Energy/Air Quality
4. Environmental Justice
5. Housing location
6. Modeling and Forecasting
7. Non-Motorized Travel
8. Population Dynamics
9. Transit
10. Travel Behavior
11. Other

A one-page description of each citation, including the title, authors, publication date, abstract, search and index terms, and availability are shown.

Acknowledgements

Search and documentation support was provided by Jessica Fomalont and Lisa Loyo (TRB). Nanda Srinivasan (TRB) and Elaine Murakami (FHWA) categorized and formatted the paper abstracts.

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Data Evaluation and Enhancement

A Guidebook for Using American Community Survey Data for Transportation Planning

Authors: McGuckin, Nancy; Ruitter, Earl Cambridge Systematics, Incorporated-100 Cambridge Park Drive, Suite 400 Cambridge, MA 02140 ; NuStats, LLC-3006 Bee Caves Road, Suite A-300 Austin, TX 78746

Publication Date: 2007

Abstract:

Census data have long played a central role in transportation planning and analyses. In particular, the planning community has made extensive use of the Census Long Form. Beginning with this decade, the Census Bureau's American Community Survey (ACS) will replace the Census Long Form. This practitioner's guidebook focuses on incorporating ACS data into the transportation planning processes at national, state, metropolitan, and local levels. The guidebook evaluates ACS data and products and demonstrates their uses within a wide range of transportation planning applications. Transportation planners, travel demand forecasters, and others that conduct population and demographic analyses will find this report of significant use. As these transportation professionals struggle to use the limited local data and changing national data as the basis for transportation plans, the report will provide methods and tools to improve the connection between planning and programming.

Subject Areas and Index Terms

Administration and Management; Data and Information Technology; Planning and Forecasting; Transportation (General); I72: Traffic and Transport Planning
Census; Demographics; Forecasting; Handbooks; Programming (Planning); Surveys; Transportation planning; Travel demand; American Community Survey

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Data Evaluation and Enhancement

Assessing the Accuracy of Agency Population Projections for Texas's Metropolitan Statistical Areas

Authors: Weston, Lisa Marie; Bomba, Michael S Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 87th Annual Meeting

Publication Date: 2008

Abstract:

Long-range, regional demographic projections are a critical component of local government planning for future infrastructure and services. However, because local governments frequently update studies, the accuracy of population projections is often not rigorously challenged. Inaccurate long-range demographic projections can have potentially serious consequences when they are incorporated into the traffic and revenue studies required to sell the commercial bonds needed for the construction of toll roads. Under these circumstances, tolling entities can incur significant expense or even jeopardize their credit worthiness, if grossly inaccurate demographic forecasts overestimate future toll road revenue. Alternatively, exceedingly low demographic projections may make a proposed toll road unable to secure financing or may lead toll agencies to pay higher bond rates than necessary. This paper reports the preliminary results of an ongoing study to assess the accuracy of agency-prepared demographic projections for the largest metropolitan statistical areas (MSAs) in Texas. Twenty different agency population projections prepared between 1958 and 1989 were collected and assessed against U.S. Census data for this study. The researchers found these agency population projections were frequently inaccurate and sometimes with a high margin of error. Not surprisingly, the margins of error tended to be greater in fast growing regions and in regions with volatile local economies. In some instances, population projections for early forecasts periods also had relatively high margins of error, thus reinforcing the assumptions of private sector investors who believe that significant risks exist at the early stages of bond repayment for tolled facilities.

Subject Areas and Index Terms

Data and Information Technology; Finance; Highways; Planning and Forecasting; Terminals and Facilities; I10: Economics and Administration; I72: Traffic and Transport Planning
Bonds; Finance; Revenues; Statistical analysis; Strategic planning; Toll facilities; Toll roads; Texas

Availability: Transportation Research Board Business Office

Data Evaluation and Enhancement

Design Considerations to Mitigate Non-Response in Regional Household Travel Surveys

Authors: Bricka, Stacey Transportation Research Board-500 Fifth Street, NW Washington, DC 20001
10th National Conference on Transportation Planning for Small and Medium-Sized Communities
Publication Date: 2006

Abstract:

Household travel surveys provide demographic and travel behavior details that inform the transportation planning process in general and regional travel demand modeling in particular. They are typically conducted about once every 10 years, based largely on the availability of funding. These surveys document details such as mode of travel, time of day that travel is taking place, and the reasons for travel. The data are used to generate trip rates, build origin-destination tables, and update other assumptions used in the development of a regional travel demand model. They also help to inform policy decisions and prioritize infrastructure investments. Since the late 1970s, most household travel surveys in the US have been conducted using a combination of telephone and mail. Households are randomly sampled, contacted about participating in the study, and, if amenable, are provided with travel logs or diaries for household members to use to document their travel for a specific time period, most often 24-hours. They are either recontacted by telephone to retrieve their travel information or asked to mail these logs back to a central location for processing. The final data sets provide detailed travel behavior information for the region. Despite the importance of this data in planning for the region's mobility needs and addressing critical transportation-related questions, not all sampled households participate in household travel surveys. Some refuse to participate because of the intrusiveness or time associated with the task of recording all travel for the 24-hour period or because they feel disenfranchised. These refusals are sometimes direct ("don't call me again!") and sometimes indirect (they don't answer their phones). A second group of respondents might be interested in responding but are not home when the telephone interviewers attempt to contact them. A third respondent type includes those without telephones or with cellular-only service, who are not included in a random telephone sample so they are not called at all. All these households travel in the region and contribute to the congestion and other problems to be addressed in the planning process. "Non-response" is a term typically used to refer to the phenomenon that not all sampled households opt to participate in a survey. It is typically measured through comparing the demographics of participating households to the study area population (typically using census data). While slight variations between the population and sample are to be expected, certain sub-population groups tend to be consistently under-represented in the sample. Prior research has shown these groups to include one-person/one-worker households, larger households, lower income households, and minority households. The purpose of this paper is to summarize the population subgroups commonly under-represented in travel surveys, focusing primarily on studies in small and medium-sized communities. A synthesis of the non-response findings from those studies is presented and categorized. For each group, specific design and procedural recommendations effective in other studies are presented. This is followed by a case study of how a transportation planner can use census data to pre-identify potential non-responders in a given region, and how to select methods or processes to mitigate non-response in that region's travel survey. The important consideration is that these improvements can be built into the design at the start of the study, thus avoiding costly survey corrections while enriching the representativeness of the final data set in an efficient manner. The result is a step-by-step plan for identifying potential non-respondents up front and ensuring that the travel survey design incorporates measures to attract and maintain these groups in the final data set.

Subject Areas and Index Terms

Data and Information Technology; Highways; Planning and Forecasting; Society; I72: Traffic and Transport Planning; Census; Households; Medium sized cities; Small cities; Transportation planning; Travel surveys; Nonresponse (Surveys)

Availability: Transportation Research Board Business Office

Data Evaluation and Enhancement

Development of Zonal Employment Data for Delaware Valley Region Based on Census 2000

Authors: Zakaria, Thabet Transportation Research Board-500 Fifth Street, NW Washington, DC 20001
Evaluation of Census Transportation Planning Package 2000 for the Delaware Valley Region

Publication Date: 2006

Abstract:

Accurate zonal employment data is required for travel analysis, travel forecasting, transportation planning, and economic development projects. This paper describes the methodology used by DVRPC to develop 2000 zonal employment data or total jobs estimates for the Delaware Valley region based on the census employed persons at work, which are included in the Census Transportation Planning Package 2000 and the journey-to-work traffic flows. A three-step method was used to develop county, municipal, and zonal employment estimates for the region, which includes 9 counties, 355 municipalities, and 1,912 Traffic Analysis Zones. The Census Bureau is the only agency that provides employed persons data at the zonal level. Employment estimates from the Bureau of Economic Analysis, Bureau of Labor Statistics, Pennsylvania and New Jersey Departments of Labor (ES-202), and local data such as the Pennsylvania occupational privilege tax records were used to compare the employment estimates developed by DVRPC. The DVRPC county, municipal, and zonal employment estimates are based on quality data from Census 2000 and are consistent with other federal, state, and county estimates. The 2000 count and characteristics of workers produced by the Census Bureau are reasonable and consistent with the census definition of employed and unemployed persons. Although it does not include the number of total jobs and comparable Standard Industrial Classification sectors, CTPP 2000 data can be adjusted easily and utilized in transportation and regional planning studies such as travel simulation, trend analyses, job access, reverse commuting, and the preparation of transportation plans and programs.

Subject Areas and Index Terms

Data and Information Technology; Highways; Planning and Forecasting; I21: Planning of Transport Infrastructure

Census; Employment; Estimates; Forecasting; Statistics; Pennsylvania

Availability: Transportation Research Board Business Office Order URL:

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Data Evaluation and Enhancement

Evaluation of Census Transportation Planning Package 2000 for the Delaware Valley Region

Authors: Zakaria, Thabet Transportation Research Board-500 Fifth Street, NW Washington, DC 20001
Transportation Research Board 85th Annual Meeting

Publication Date: 2006

Abstract:

In this paper, the Census Transportation Planning Package 2000 (CTPP 2000) for the Delaware Valley region is described, analyzed, and evaluated with special emphasis on the journey-to-work trip data, means of transportation, travel time, employed persons at work, employment, households, vehicle availability, and other data required for transportation planning. The evaluation of Parts 1 and 2 of CTPP 2000 indicated several errors in the data, which were corrected by DVRPC before the data was used in various transportation planning projects. However, data disclosure rules, applied to some tables in Part 3, made the zone-to-zone worker flows by means of transportation totally useless. Except for such tables, CTPP 2000 data is generally accurate and useful for transportation and economic development studies. But, the data should be reviewed and adjusted, if necessary, before they are utilized in transportation planning projects. Based on this evaluation, a set of eight recommendations regarding sample size, nonresponse and imputation, public relations and marketing, place of work coding, processing, data rounding, swapping, and disclosure threshold is proposed. Except for development of a 20 percent sub-sample to improve the accuracy of the responses to the questionnaire, change to rounding rules, and elimination of disclosure threshold, these recommendations are completely consistent with those used by the Census Bureau in Census 2000. Almost all of the CTPP 2000 errors can be avoided if these recommendations are implemented in the future. This is especially important since the overwhelming majority of users cannot review the CTPP data, identify errors, and make appropriate corrections. DVRPC expects the next CTPP to contain accurate data that can be used without any major correction or adjustment. The CTPP is the most efficient and convenient way for obtaining census data to support a wide range of transportation planning studies.

Subject Areas and Index Terms

Data and Information Technology; Highways; Planning and Forecasting; I21: Planning of Transport Infrastructure

Accuracy; Census; Data quality; Statistics; Transportation planning; Census Transportation Planning Package

Availability: Transportation Research Board Business Office Order URL:

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Data Evaluation and Enhancement

Household Travel Surveys with GPS: An Experiment

Authors: Bricka, Stacey; Zmud, Johanna P; Wolf, Jean L; Freedman, Joel

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2009

Abstract:

This paper documents the results of a pilot test done for the Oregon Household Travel Survey. The pilot was designed to enable the Oregon Department of Transportation to determine the role of a Global Positioning System (GPS) in the upcoming survey effort. Specifically, a three-pronged approach was employed. Households were randomly selected for inclusion in the study and then assigned to one of three groups: (a) the traditional survey approach, (b) the traditional approach with GPS, and (c) GPS only. A total of 299 households from the city of Portland, Oregon, were recruited into the pilot, with 235 completing all required activities. A comprehensive evaluation of the similarities and differences in results across the three groups showed differences in respondent burden, completeness of travel details obtained, and costs. Results from this experiment also showed differences in nonresponse bias. The traditional survey had an expected nonresponse for the large households, low-income households, and young adults. Minority participation was on par with census figures. The GPS groups showed higher participation rates for young adults and nonminorities. These data confirmed the general thought that GPS was an effective tool for mitigating nonresponse among young adults. However, the minority nonresponse bias increased significantly with technology, suggesting that other methods would be more appropriate. With regard to completeness of data, geocoding rates are higher for the GPS groups, and there are significant differences in trip departure times, which could affect peak hour and time-of-day modeling. As expected, the costs were higher for the GPS groups, but the expectation is that these costs will fall as processes are standardized across studies and new technologies are introduced.

Subject Areas and Index Terms

Data and Information Technology; Highways; Planning and Forecasting; I72: Traffic and Transport Planning

Bias (Statistics); Costs; Data quality; Demographics; Global Positioning System; Households; Low income groups; Minorities; Pilot studies; Socioeconomic factors; Travel surveys; Young adults; Portland (Oregon); Nonresponse (Surveys)

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Data Evaluation and Enhancement

Longitudinal Employer-Household Dynamics as a Source for Journey to Work Flow Data

Authors: Viswanathan, Krishnan; McWethy, Laura; Tierney, Kevin F Transportation Research Board-
500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 89th Annual Meeting

Publication Date: 2010

Abstract:

The move to the American Community Survey (ACS) will significantly affect how transportation planners access, use, and interpret Census data. Among the various issues that affect transportation planners, one of the main concerns is that the ACS samples 1 in 40 households as compared to the Decennial Census Long Form that sampled 1 in 6 households and the corresponding limitations on data available for public release. Therefore, synthetic data sources such as the Longitudinal Employer Household Dynamics (LEHD) need to be considered as a source of journey to work flow information. Data comparisons at the state, county and block level do not show discernible trends in terms of whether the ACS or the LEHD estimates employment and workplace location better. When considering trip length distribution for home to work, the LEHD consistently has longer trips than the ACS at the county level. However, when considering MPO areas with multiple counties, the trip length distributions are much closer with the LEHD trip length just slightly longer than the ACS in most instances. While the LEHD can be a potential source of data for calculating journey to work flow and enhancing the ACS, further work using microdata at the Census Bureau is needed to conclusively determine whether this potential can be realized.

Subject Areas and Index Terms

Data and Information Technology; Highways; Transportation (General); I72: Traffic and Transport Planning

Census; Data quality; Longitudinal studies; Metropolitan areas; States; Statistical sampling; Transportation planning; Travel time; Trip length; Work trips; American Community Survey

Availability: Transportation Research Board Business Office

Data Evaluation and Enhancement

Model-Based Synthesis of Household Travel Survey Data in Small and Midsize Metropolitan Areas

Authors: Long, Liang; Lin, Jie; Pu, Wenjing

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2009

Abstract:

Household travel data synthesis-simulation has become a promising alternative or supplement to survey data from both small urban areas and large metropolitan regions in which data are expensive to collect or the data required to support the planning process have become outdated. This paper proposes and applies model-based approaches [i.e., small area estimation (SAE) methods] to synthesize household travel characteristics. The proposed methods address the sampling-bias concerns in the existing methods. Specifically, three SAE methods “the generalized regression estimators method, the empirical best linear unbiased predictor (EBLUP) method, and the synthetic method (an EBLUP without random area effects)” are applied to synthesize household travel characteristics at both census tract and individual levels. The SAE framework of synthesizing household travel characteristics is demonstrated with the National Household Travel Survey data and the Census Transportation Planning Package data in the Des Moines metropolitan area in central Iowa. Results indicate that SAE methods are promising approaches to synthesize unbiased aggregate and disaggregate household travel characteristics by incorporating population auxiliary information and local, small-household travel survey data. The proposed data synthesis methods and analysis findings will provide a useful tool for practitioners, planners, and policy makers in transportation analyses. The paper also points out that by linking population synthesis with the travel data simulation framework described here, this method could be of broad application in transportation planning.

Subject Areas and Index Terms

Data and Information Technology; Highways; Planning and Forecasting; I72: Traffic and Transport Planning

Data quality; Households; Mathematical models; Metropolitan areas; Representative samples (Statistics); Transportation planning; Travel demand; Travel surveys; Des Moines (Iowa); Data synthesis; Synthesized travel characteristics

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Data Evaluation and Enhancement

Retrospective Analysis of Population Projections - 25 Years Later

Authors: Baltz, David K Transportation Research Board-500 Fifth Street, NW Washington, DC 20001
11th National Conference on Transportation Planning for Small and Medium-Sized Communities
Publication Date: 2008

Abstract:

One aspect of population projections used for traffic modeling in small and medium sized cities and counties is that agencies seldom if ever go back to evaluate how accurate their long range projections have been. Typically once a new or revised set of projections are made, the old projections are quickly forgotten long before the horizon year is ever reached. This paper and presentation will provide a post horizon-year retrospective evaluation and analysis of a set of 20-year population projections I prepared in the early 1980's for the Stanislaus Area Association of Governments when I was employed by Stanislaus County, California. These projections were important because they set new countywide population control totals, which were later disaggregated to the cities and to traffic analysis zones for land use and transportation planning. The population projections were prepared following the 1980 Decennial Census using three relatively independent methodologies, with several alternatives run for each. These methods can be described as 1) a trend extrapolation method that used past population levels and a simple regression model, 2) an employment based method, which combined employment projections with projections of future labor force participation rates to determine future population, and 3) a cohort component model, which utilized interstate and inter-county migration trends to project the net migration component. In using three different methodologies it was hoped that some consistent future population levels would emerge. This approach was successful in this regard. On the surface, it appears that the 20-year projections prepared in the early 1980's were actually quite accurate. But this analysis will dig deeper into the data to try to determine if this accuracy was attained by the quality of the methods used or merely by random chance. This paper and presentation will look at the various factors that went into the three methodologies and compare assumptions with what actually transpired over the 20-year period. Some of these factors included employment growth, changes in labor force participation rates, net migration to Stanislaus County, and natural increase (fertility and survival rates). The impact of each of these factors on the accuracy of the projections will be evaluated. Projecting is a difficult business. Very seldom are we able to give true estimates or probabilities of the expected accuracy of our projections. This analysis is a once in a career opportunity to try to get a handle on this question of population projection accuracy. Hopefully this paper and presentation can add to a limited literature on the subject.

Subject Areas and Index Terms

Highways; Planning and Forecasting; I72: Traffic and Transport Planning
Labor force; Long range planning; Population forecasting; Population growth; Traffic models;
Transportation planning; Stanislaus County (California); Retrospective analysis

Availability: Transportation Research Board

Data Evaluation and Enhancement

The ACS Statistical Analyzer

Authors: Chu, Xuehao University of South Florida, Tampa-National Center for Transit Research, 4202 East Fowler Avenue Tampa, FL 33620-5375 ; Florida Department of Transportation-605 Suwannee Street Tallahassee, FL 32399-0450 ; Department of Transportation-Office of Re

Monograph

Publication Date: March 2010

Abstract:

This document provides guidance for using the ACS Statistical Analyzer. It is an Excel-based template for users of estimates from the American Community Survey (ACS) to assess the precision of individual estimates and to compare pairs of estimates for their statistical differences. The ACS Statistical Analyzer covers the following four functions and fifteen sub-functions (not listed): (1) To derive other precision measures for published ACS estimates at American FactFinder or from the Census Transportation Planning Products (CTPP), which already have a margin of error (MOE); (2) To derive the precision measures for estimates that do not already have an MOE; (3) To derive the precision measures of new estimates obtained from two or more original estimates that already have an MOE; and (4) To compare pairs of two estimates that already have an MOE. Measures of precision for an estimate include its MOE, relative reliability, and confidence interval. The implementation of the ACS Statistical Analyzer is expected to reduce the agency cost of, and to lessen the technical barriers to, dealing with the precision of ACS estimates when agencies use these estimates. These direct benefits in turn can lead to wider and more effective usage of ACS data.

Subject Areas and Index Terms

Data and Information Technology; Planning and Forecasting; Public Transportation; I72: Traffic and Transport Planning

Estimates; Precision; Public transit; Statistical analysis; ACS Statistical Analyzer; American Community Survey

Availability: National Technical Information Service

Data Evaluation and Enhancement

Transportation Planning Capacity Building Peer Exchange Using ACS Data in Transportation Planning Applications

Authors: American Association of State Highway and Transportation Officials-444 North Capitol Street, NW Washington, DC 20001
Publication Date: 2007

Abstract:

This report summarizes the presentations and discussions at a Peer Exchange held through the FHWA/FTA Transportation Planning Capacity Building (TPCB) Program. The peer exchange was organized by the American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on Planning (SCOP) Census Data Workgroup. Attendees were from AASHTO, state departments of transportation, metropolitan planning organizations and councils of government, universities, Census Bureau, the United States Department of Transportation, and the private sector. Following the keynote addresses, issue-specific sessions were held in which multiple presenters gave short presentations and all participants joined in discussion. Transportation planners and analysts are making or contemplating a transition from using data from the decennial Census “long form” to the new American Community Survey (ACS).

Subject Areas and Index Terms

Data and Information Technology; Highways; Planning and Forecasting; I72: Traffic and Transport Planning
Census; Transportation planning; American Community Survey; Application data; Data sources; Peer exchange; Transportation data

Descriptive Analysis

American Community Survey 2005: San Francisco Bay Area Data Summary

Authors: Metropolitan Transportation Commission-101 Eighth Street Oakland, CA 94607-4700
Monograph

Publication Date: July 2007

Abstract:

This report contains selected tabular summaries of data for the San Francisco Bay Area from the American Community Survey (ACS) 2005. Focus of the report is on the ACS 2005 data and on the comparisons of the ACS 2005 data with that of data from the Census 2000. Tables in the data summary are tabulated according to the following themes: 1) household and population characteristics; 2) race and ethnic characteristics; 3) social/economic characteristics; 4) labor force characteristics; and, 5) commute/journey to work characteristics.

Subject Areas and Index Terms

Data and Information Technology; Economics; Highways; Society; I10: Economics and Administration Census; Commuting; Demographics; Ethnic groups; Households; Income; Labor force; Occupations; Population; Race; Statistics; Tables (Data); Work trips

Availability: Available from UC Berkeley Transportation Library through interlibrary loan or document delivery Order URL: <http://library.its.berkeley.edu>; Metropolitan Transportation Commission

Descriptive Analysis

Computing Job Accessibility with Integrated GIS and DBMS

Authors: Yang, Jiawen American Society of Civil Engineers-1801 Alexander Bell Drive Reston, VA 20191-4400

Seventh International Conference of Chinese Transportation Professionals (ICCTP)

Publication Date: 2008

Abstract:

Accessibility is the key concept for transportation and land use planning. However, the difficulty in computing accessibility measures has prevented it from playing a more central role in planning decision making. This paper explores the possibility to compute several kinds of job-accessibility measures with a coupling of user-friendly geographical information systems (GIS) and high performance database management systems (DBMS). The selected case is the Boston Metropolitan Region. The gigantic dataset, Census Transportation Planning Package (CTPP) for the metropolitan area, is stored in the Oracle sever. Both the database server and the GIS client are programmed to streamline the computation and the interaction with the user. This customized system can provide useful experiences for the public who want to know the accessibility impacts of various transportation and land use decisions.

Subject Areas and Index Terms

Highways; Planning and Forecasting; I72: Traffic and Transport Planning
Accessibility; Database management systems; Geographic information systems; Industrial location; Land use planning; Location; Transportation planning; Boston (Massachusetts); Job access

Availability: American Society of Civil Engineers

Order URL: <http://www.asce.org/bookstore/book.cfm?book=8402>;

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Descriptive Analysis

Emerging Commuting Trends: Evidence from the Chicago Area

Authors: Soot, Siim; Berman, Joost Gideon; DiJohn, Joseph

Journal of the Transportation Research Forum

Publication Date: 2006

Abstract:

This study uses Census data to investigate changes in economic activity and traffic in the 6 counties making up the Chicago area. The analysis shows that intercounty commuting has increased substantially. In the Chicago six-county region, data indicate that 3 of the 6 counties are now (2000) net importers of workers. In the past, only Cook County had a net positive balance of workers. In contrast to past trends, demographic changes now contribute to lower increases in the growth in the number of workers. Specifically, in the 1990s, average household size stopped decreasing for the first time in 100 years. This was partially responsible for a decline in the portion of the population that was commuting, a statistic that had been steadily increasing. In previous decades there was a larger growth in the number of workers than in people, thereby adding substantially to peak period traffic when population growth was modest. This has changed. Furthermore, in past decades, large increases in homeownership rates contributed to the growth of urbanized areas. This suggests that workers made housing choices that added to commuting distances. Employers are now able to attract employees from a larger geographic region due to this willingness to increase commuting distances.

Subject Areas and Index Terms

Data and Information Technology; Economics; Highways; Operations and Traffic Management; Passenger Transportation; Planning and Forecasting; Society; I72: Traffic and Transport Planning Case studies; Census; Commuters; Commuting; Counties; Demographics; Economic factors; Households; Labor market; Traffic; Travel behavior; Trend (Statistics); Chicago Metropolitan Area

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Descriptive Analysis

Employment and Earnings in California's Trade-Dependent Industries

Authors: Monaco, Kristen; Ritter, Kimberly Transportation Research Board-500 Fifth Street, NW
Washington, DC 20001

Transportation Research Board Annual Meeting

Publication Date: 2011

Abstract:

Using data from the 2005 American Community Survey, the earnings of Southern Californians employed in trade-dependent industries (transportation and warehousing, retail trade and wholesale trade) are analyzed. Contrary to prior research, these labor markets show evidence of limited job ladders without substantial educational investment. This leads to questions regarding the community benefits of attracting low-wage jobs with little potential for advancement given the accompanying negative externalities of congestion and pollution.

Subject Areas and Index Terms

Economics; I10: Economics and Administration

Earnings; Economic factors; Education; Employment; Externalities; Retail trade; Transportation; Warehousing and storage businesses; Wholesale trade; Southern California

Availability: Transportation Research Board Business Office

Descriptive Analysis

Employment and Earnings in Southern California Trade-Dependent Industries

Authors: Monaco, Kristen; Ritter, Kimberly METRANS Transportation Center-University of Southern California Los Angeles, CA 90089-0626 ; California State University, Long Beach-Department of Economics Long Beach, CA 90840 ; California Department of Transportation-1120 N Street Sacramento,
Publication Date: Feb 2009

Abstract:

In this report, the authors examine the earnings and employment in manufacturing, retail trade, transportation, and wholesale trade in Southern California. Data sources included the decennial Census and the American Community Survey. The authors determine that the labor markets show evidence of limited job ladders without significant education investment. They also find that clear patterns emerge in the types of jobs held by residents of communities where new logistics facilities are being built. Findings indicate that low skill/low pay jobs are typically held by individuals living and working in the Inland Empire, while high skill/high pay jobs are typically held by workers who live in Los Angeles and Orange Counties.

Subject Areas and Index Terms

Economics; Highways; Society
Earnings; Employment; Job opportunities; Logistics; Occupations; Trade; Travel time; Wages; Inland Empire (California); Los Angeles County (California); Orange County (California); Southern California

Availability: Available from UC Berkeley Transportation Library through interlibrary loan or document delivery

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METRANS Transportation Center; National Technical Information Service;

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Descriptive Analysis

Geographic and Demographic Profiles of Morning Peak-Hour Commuters on Highways in North Metropolitan Atlanta, Georgia

Authors: Nelson, Jennifer Indech; Guensler, Randall L; Li, Hainan

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2008

Abstract:

During the summer of 2006, license plate data on morning peak-hour commuters were collected to assist with the creation of a potential participant pool for the congestion pricing phase of the Commute Atlanta (Atlanta, Georgia) instrumented-vehicle study. The Commute Atlanta study needed to identify census block groups with the highest probability of yielding study participants eligible for recruitment. Approximately 17,000 unique vehicle registration addresses in a six-county area were obtained from the license plates of vehicles observed traveling on several metropolitan Atlanta highways. The data collection enabled further geographic and demographic analyses of peak-hour commuters at the census block group level, providing new insight on limited-access highway commutersheds and demographic characteristics, such as the census block group income distribution, the travel modes, and the travel times of the highway-based commuters who contributed substantially to the region's traffic congestion and worsening air quality. Observation sites were located near the intersections of radial highways and a perimeter highway encircling Atlanta at a 10- to 12-mi radius from the downtown central business district. On average, commuters registered their vehicles (and presumably lived) 13 mi from the observation sites. The registration addresses were located a mean straight-line distance of 4.2 mi from the centerlines of the highways on which they were spotted. Demographically, highway commuter households had incomes 14.4% higher than the average household income, although this percentage varied by observation site. They were less likely to carpool or use nonautomobile forms of transportation on their journey to work, but they were more likely to work at home. Highway commuters were also more likely to report longer travel times to work than their neighbors in the census survey. These findings have implications for congestion pricing and related equity concerns.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Society; I72: Traffic and Transport Planning
Commuters; Congestion pricing; Demographics; Equity (Justice); Peak hour traffic; Transportation policy; Atlanta (Georgia); Atlanta Metropolitan Area

Availability: Transportation Research Board Business Office Order URL:

http://trb.org/news/blurb_detail.asp?id=9856; Find a library where document is available

Order URL: <http://worldcat.org/isbn/9780309113397>

Descriptive Analysis

GIS Models for Analyzing Intercity Commute Patterns: A Case Study of the Austin-San Antonio Corridor in Texas

Authors: Zhan, F Benjamin; Chen, Xuwei Texas State University, San Marcos-Center for Geographic Information Science San Marcos, TX 78666 ; Texas Department of Transportation-Research and Technology Implementation Office, P.O. Box 5080 Austin, TX 78763-5080 ; Federal Highway Administration

Monograph

Publication Date: Oct 2008

Abstract:

The Texas Department of Transportation funded Project 0-5345 to reach a better understanding of intercity commute patterns in Texas and to find regional public transportation solutions for intercity commuting problems. The project's interdisciplinary research team came from Texas Southern University, Texas State University-San Marcos, Texas Transportation Institute (TTI), and Prairie View A&M University. This report summarizes the research activities and accomplishments of the project regarding travel corridors and geographic information system (GIS) commute models, including: development of a set of GIS-based analysis models for the identification of intercity commuting patterns and travel corridors in central Texas; examination of commuting patterns between rural communities and urban areas as well as commuting flows between different counties (cities) in a five-county study area in central Texas based on U.S. 2000 Census Journey-to-Work data; identification of traffic corridors that carry a significant amount of intercity and rural-to-urban traffic in the study area based on U.S. 2000 Census Journey-to-Work data and 2005 TTI external travel survey data; and identification of rural communities that generated the largest numbers of commuting traffic and road segments that carried a high volume of traffic. The research team found that the GIS-based analysis models are effective for analyzing commuting patterns and travel corridors. Commute flows between urban and rural areas account for about 20 percent of the total commute traffic in the study area, and inter-county commute accounts for 13 percent of the total commute traffic.

Subject Areas and Index Terms

Highways; Planning and Forecasting; I72: Traffic and Transport Planning
Case studies; Census; Commuting; Geographic information systems; Intercity travel; Mathematical models; Network analysis (Planning); Rural areas; Transportation corridors; Travel demand; Travel patterns; Travel surveys; Urban areas; Work trips; Austin (Texas)

Availability: National Technical Information Service

Order URL: <http://www.ntis.gov/search/product.aspx?ABBR=PB2009103206>

Descriptive Analysis

Job accessibility and the modal mismatch in Detroit

Authors: Grengs, Joe

Journal of Transport Geography

Publication Date: Jan 2010

Abstract:

Transportation scholars are challenging traditional formulations of the spatial mismatch hypothesis because previous studies have disregarded the considerable difference between travel modes. This case study of the Detroit metropolitan region uses 2000 census data and a gravity-based model of transportation accessibility to test differences in access to jobs among places and people, and provides support for recent calls for reconceptualizing spatial mismatch. It shows that even though Detroit experiences the greatest distance between African Americans and jobs of any region in the country, most central city neighborhoods offer an advantage in accessibility to jobs compared to most other places in the metropolitan region-as long as a resident has a car. Policies aimed at helping carless people gain access to automobiles may be an effective means of improving the employment outcomes of inner-city residents.

Subject Areas and Index Terms

Highways; Public Transportation; Society

Accessibility; Automobile ownership; Case studies; Central business districts; Employment; Gravity models; Job opportunities; Spatial analysis; Transportation disadvantaged persons; Detroit (Michigan)

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Descriptive Analysis

New NCHRP-TCRP Report: Commuting in America III: The Third National Report on Commuting Patterns and Trends

Authors: Pisarski, Alan E

TR News

Publication Date: Nov 2006

Abstract:

This third report on commuting in America offers analyses and findings from tabulations of data from the 2000 census. The data emphasize that work travel is an economic and a social phenomenon, as well as a transportation issue. The author identifies a new stage in commuting patterns, as the baby boom era recedes, and points out patterns to watch in the next decade--such as long-distance commuting and working from home.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Public Transportation; I72: Traffic and Transport Planning
Commuting; Telecommuting; Travel patterns; Trend (Statistics); Work trips; United States; 2000 Census;
Data analysis

Availability: Transportation Research Board Business Office;

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Descriptive Analysis

Optimal Accessibility Landscapes? New Methodology for Simulating and Assessing Jobs-Housing Relationships in Urban Regions

Authors: Horner, Mark W Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 87th Annual Meeting

Publication Date: 2008

Abstract:

Research into land use-transportation relationships through the lens of the ‘jobs-housing balance’ and the closely-related ‘excess commuting’ framework continues to draw substantial interdisciplinary attention. There have been several recent research efforts aimed at extending the excess commuting framework and its GIS-based spatial models to more prescriptive, policy-relevant situations. This paper puts forward the idea of a theoretical ‘optimal’ urban jobs-housing balance and proposes a new spatial model for finding it. The developed model treats the region’s theoretical minimum commute as a baseline indicator of jobs-housing balance. Alternative patterns of workers and jobs are simulated in order to improve this indicator. The model is demonstrated in several scenarios using data from the decennial U.S. Census (2000). Results demonstrate the model’s capability for finding ‘optimal’ spatial distributions of jobs and housing, as well as pointing out the inefficiencies in existing urban structure. Summary remarks and suggestions for future research are provided.

Subject Areas and Index Terms

Planning and Forecasting; Society; Transportation (General); I10: Economics and Administration; I72: Traffic and Transport Planning

Commuting; Employment; Geographic information systems; Housing; Land use; Residential areas; Transportation; Urban areas

Availability: Transportation Research Board Business Office

Descriptive Analysis

Urban Form and Commuting Change in Small Metropolitan Areas: GIS-Based Analysis Using Census Transportation Planning Package (1990-2000)

Authors: Horner, Mark W Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 85th Annual Meeting, 2006

Publication Date: 2006

Abstract:

Understanding issues of growth, especially the spatial nature of recent urban development and its implications for travel patterns has received a great deal of attention. This paper investigates changes in measures of jobs-housing balance, commuting statistics and other indicators for a small MSA based on spatial data obtained from the Census Transportation Planning Package (CTPP) 1990 and 2000. The Tallahassee, FL urban area is analyzed and the key research questions probe whether there were substantial changes in urban form and commuting over the period. A two-tiered approach is taken where change is explored at the regional and local scale using GIS, optimization procedures, and inferential statistical techniques. The results reveal the extent of changes in Tallahassee over the time period and they suggest some stability in its urban structure. These findings are discussed and directions for future work are identified.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Public Transportation; I10: Economics and Administration
Commuting; Geographic information systems; Railroad commuter service; Travel patterns; Urban
growth; Tallahassee (Florida); Census Transportation Planning Package; Data analysis; Jobs-housing
balance

Availability: Transportation Research Board Business Office

Order URL: http://trb.org/news/blurbs_detail.asp?id=1121

Descriptive Analysis

Workers Who Drove Alone to Work: 2007 and 2008 American Community Surveys. American Community Survey Reports

Authors: Fields, A; Jiles, M E Bureau of the Census-14th Between E Street and Constitution Avenue, NW Washington, DC 20231

Publication Date: Sep 2009

Abstract:

This report presents data on the percentage of workers who drove alone at the national and state levels based on the 2007 ACS and 2008 ACS. Workers are civilians and members of the Armed Forces, 16 years and older, who were at work the previous week and self-report that they drove alone to work. People on vacation or not at work the prior week are not included. Respondents were to report their usual transportation method for the previous week, whether or not the information was consistent with their commuting activities for the majority of the year. Data are restricted to the residence-based population as opposed to the workplace-based population.

Subject Areas and Index Terms

Highways; Operations and Traffic Management; I72: Traffic and Transport Planning
Commuters; Commuting; Single occupant vehicles; Statistical analysis; Traffic flow; Travel surveys;
Work trips

Availability: National Technical Information Service

Order URL: <http://www.ntis.gov/search/product.aspx?ABBR=PB2010101223>

Energy/Air Quality

Is Compact Growth Good for Air Quality?

Authors: Stone Jr, Brian; Mednick, Adam C; Holloway, Tracey; Spak, Scott N

Journal of the American Planning Association

Publication Date: 2007

Abstract:

This paper, which is part of a study sponsored by the U.S. Environmental Protection Agency (EPA) on the impact of land use and transportation on future air quality, assesses the effectiveness of compact growth in improving air quality at a geographic scale compatible with secondary pollution formation and transport and over a planning horizon sufficient to capture the longer-term benefits of regional land use change. Future air quality is associated with alternative land development scenarios through the integration of three separate and previously unrelated modeling components. These components consist of a set of standard population projection techniques, a household vehicle travel activity framework, and a mobile source emissions model developed by the EPA. The results suggest that the median elasticity of vehicle travel with respect to density change over time to be -0.35, suggesting metropolitan areas can expect a 10% increase in population density to be associated with a 3.5% reduction in household vehicle travel and emissions. Compactness was associated with greater reductions in vehicle travel than in previous studies, which suggests land use change can play a measurable role in improving regional air quality over time. In addition, vehicle elasticities derived for urban and suburban census tracts across the 11 metro regions suggest density increments within urban zones (-0.43) to be more than twice as effective in reducing vehicle travel and emissions as density increments within suburban zones (-0.19). A comment on this paper appears on pp 418-420 of this issue.

Subject Areas and Index Terms

Energy; Environment; Highways; Planning and Forecasting; Public Transportation; I15: Environment; I72: Traffic and Transport Planning

Air quality; Automobile travel; Land use; Land use models; Land use planning; Metropolitan areas; Pollutants; Population density; Population growth; Real estate development; Smart growth; Suburbs; Travel behavior; Urban areas; U.S. Environmental Protectio

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Energy/Air Quality

Targeting High-Emitting Vehicles: A Multivariate Statistical Analysis with DMV and Census Data

Authors: Wu, Peng; Niemeier, Debbie Transportation Research Board-500 Fifth Street, NW
Washington, DC 20001

Transportation Research Board 89th Annual Meeting

Publication Date: 2010

Abstract:

Older vehicles emit a disproportional share of total vehicle emissions. This study applied clustering analysis and Principal Component Regression (PCR) to target high-emitting older vehicles by knowing who owns them, where they are, and how much they emit. Using the San Joaquin Valley as the study region, this study found that low-income population, minorities and immigrants more likely own older vehicles. Knowing the socio-economic characteristics of older vehicle owners can help make proactive policies to implement car scrappage programs.

Subject Areas and Index Terms

Environment; Vehicles and Equipment; I15: Environment

Environment; Geographic information systems; Multivariate analysis; Socioeconomic factors; Statistical analysis; San Joaquin Valley; High emitting vehicles; Vehicle scrappage

Availability: Transportation Research Board Business Office

Energy/Air Quality

Transportation Energy Data Book: Edition 25

Authors: Davis, Stacy C; Diegel, Susan W Oak Ridge National Laboratory-Department of Energy Oak Ridge, TN ; Department of Energy-1000 Independence Avenue, SW Washington, DC 20585

Monograph

Publication Date: Dec 2006

Abstract:

This statistical compendium was prepared and published by Oak Ridge National Laboratory (ORNL) under contract with the U.S. Department of Energy, Office of Energy Efficiency and Renewable Energy, Vehicle Technologies Program. Designed for use as a desk-top reference, the Data Book represents an assembly and display of statistics and information that characterize transportation activity, and presents data on other factors that influence transportation energy use. The purpose of this document is to present relevant statistical data in the form of tables and graphs. The latest edition of the Data Book is available to a larger audience via the Internet (cta.ornl.gov/data). This 29th edition of the Data Book has 12 chapters which focus on various aspects of the transportation industry. Chapter 1 focuses on petroleum; Chapter 2 - energy; Chapter 3 - highway vehicles; Chapter 4 - light vehicles; Chapter 5 - heavy vehicles; Chapter 6 - alternative fuel vehicles; Chapter 7 - fleet vehicles; Chapter 8 - household vehicles; Chapter 9 - nonhighway modes; Chapter 10 - transportation and the economy; Chapter 11 - greenhouse gas emissions; and Chapter 12 - criteria pollutant emissions. The sources used represent the latest available data. There are also three appendices which include detailed source information for some tables, measures of conversion, and the definition of Census divisions and regions. A glossary of terms and a title index are also included for the reader's convenience.

Subject Areas and Index Terms

Data and Information Technology; Energy; Transportation (General); I15: Environment
Alternate fuels; Economic impacts; Energy; Energy consumption; Greenhouse gases; Statistics;
Transportation modes; Vehicles

Availability: National Technical Information Service

Environmental Justice

Environmental Justice Concentration Zones for Assessing Transportation Project Impacts

Authors: Victoria, Isabel Cristina; Prozzi, Jolanda P; Walton, C Michael; Prozzi, Jorge A

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2006

Abstract:

Environmental justice (EJ) becomes a concern when minority or low-income communities (referred to as EJ populations) are disproportionately affected by transportation projects. The disproportionate impacts may relate to social, economic, or environmental burdens that EJ populations living in affected project areas will be forced to endure. An important component of any EJ assessment methodology is therefore the identification of EJ communities in a project area. The conventional approach classifies communities by means of threshold values into target and nontarget EJ populations. Research has demonstrated, however, that threshold values are largely influenced by the chosen community of comparison. In addition, the spatial distribution of target and nontarget EJ populations within the affected area changed when the scale of geographic analysis changed. Because it has been argued that effective EJ analysis should consider all minority and low-income population groups regardless of their size, this research presents an innovative approach to identify the concentration of EJ individuals in affected project areas. The approach consists of five steps. First, the spatial distribution of minority and low-income populations is estimated by means of census data at the block level. Second, local measures of spatial autocorrelation for EJ populations are computed for each census block. Third, the EJ concentration levels are conceptualized on the basis of spatial-cluster patterns. Fourth, the concentration levels of minority and low-income populations are combined into a single raster model. The outcome is a map in which each cell has a value that represents its concentration level. Finally, these values and specified spatial connectivity criteria are used to define EJ concentration zones. The objective of this paper is to describe the approach and to present the results from testing it.

Subject Areas and Index Terms

Energy; Environment; Highways; Society; I15: Environment

Environmental impact analysis; Environmental justice; Low income groups; Minorities; Geospatial distribution; Raster data; Traffic analysis zones; Transportation projects

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Environmental Justice

Evaluating Pedestrian Risk in Environmental Justice Areas

Authors: Cottrill, Caitlin D; Thakuriah, Piyushimita Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 87th Annual Meeting,

Publication Date: 2008

Abstract:

This paper evaluates pedestrian crash point data against census tracts with high minority populations and/or low median incomes (generally called environmental justice areas) to determine if there is a relationship between these factors. The potential for pedestrian exposure to risk, estimated here by including factors related to land use, population density, and a pedestrian environment factor, must be included in any estimate of crash likelihood, as increased pedestrian trips generally produce a greater number of pedestrian crashes. The Chicago region is utilized as a case study, allowing for the control of spatial autocorrelation. The paper indicates that there is a positive relationship between environmental justice areas and pedestrian-vehicle crashes.

Subject Areas and Index Terms

Highways; Pedestrians and Bicyclists; Safety and Human Factors; Society; I83: Accidents and the Human Factor

Collisions; Environmental justice; Low income groups; Nonmotorized transportation; Pedestrian accidents; Pedestrian movement; Pedestrian safety; Pedestrians; Risk analysis

Availability: Transportation Research Board Business Office

Environmental Justice

Highway Expansion Effects on Urban Racial Redistribution in the Post-Civil Rights Period

Authors: Chi, Guangqing; Parisi, Domenico

Public Works Management & Policy

Publication Date: Jan 2011

Abstract:

Few studies have addressed how the expansion of an existing highway system influences urban racial redistribution in the post-Civil Rights era. This study uses decennial census data for 1970-2000 to examine the role that highway expansion plays in affecting the population redistribution of Blacks and Hispanics at the census tract level within the Milwaukee-Waukesha-West Allis metropolitan area of Wisconsin. The results indicate that the concentration of Blacks and Hispanics in neighborhoods in close proximity to highways that were expanded between 1965 and 1970 increased substantially between 1970 and 2000. Highway expansion promotes Black growth in nearby neighborhoods through its role as an amenity by providing easy access to the transportation network. Although highway expansion also promotes Hispanic growth in nearby neighborhoods, the expansion's role was primarily as a disamenity by decreasing housing prices in immediate neighborhoods. Limitations of this research and directions for future studies are discussed.

Subject Areas and Index Terms

Highways; Society; I72: Traffic and Transport Planning

Census; Environmental justice; Ethnic groups; Highways; History; Neighborhoods; Population growth; Race; Urban areas; Urban population; Milwaukee (Wisconsin)

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Environmental Justice

Methodological Challenges of Environmental Justice Assessments for Transportation Projects

Authors: Hartell, Ann M

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2007

Abstract:

Executive Order 12898 requires federal agencies to conduct environmental justice (EJ) assessments to determine if negative effects from projects will fall disproportionately on minority or low-income populations. This paper uses a case study of a proposed road-widening project in Daytona Beach, Florida, to illustrate how the choices of the reference area, study area, affected groups, and method for determining the decision threshold for a finding of disproportionality have important implications for the outcome of an assessment. A further complication is the use of decision thresholds that are based on measures of centrality in the data, such as a mean value, when the data have a bimodal distribution pattern, as seen in data on the racial compositions of census geographic units. Simple statistical tests are applied to support the methodological choices and the findings of disproportionality for each population. This analysis demonstrates that rather than selecting the precise method a priori, the characteristics and distribution of the data should be considered, and the method that most fairly represents the data should be selected. Conducting genuine EJ assessments not only is required by federal regulations but can head off conflicts, better reveal the true costs of projects, and allow the more equitable distribution of costs and benefits by better targeting mitigation efforts.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Society; I72: Traffic and Transport Planning
Case studies; Decision making; Environmental justice; Evaluation and assessment; Low income groups;
Methodology; Minorities; Programming (Planning); Transportation planning; Daytona Beach (Florida);
Transportation projects

Availability: Transportation Research Board Business Office

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Order URL: <http://worldcat.org/isbn/9780309104395>

Environmental Justice

Safeguarding Minority Civil Rights and Environmental Justice in Service Delivery and Reductions: Case Study of New York City Transit Authority Title VI Program

Authors: Reddy, Alla; Chennadu, Thomas; Lu, Alex

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2010

Abstract:

Federal civil rights and environmental justice (EJ) mandates require transit agencies to provide service without racial or income discrimination and to ensure meaningful access by individuals with limited English proficiency. EJ research generally focuses on long-range planning and capital investment decision making. However, for operating agencies, equity in scheduling, service planning, and tactical service delivery operations is critical to compliance with Title VI legislation and FTA Circular C4702.1A. In 2009, New York City Transit (NYCT) designed a service reductions package in response to the economic downturn. EJ considerations were integral to its planning. The use of ridership performance criteria for route selection resulted in fewer impacts on routes with heavily minority or low-income populations. Quantitative analysis ensured that protected demographics were not significantly adversely affected by proposed service rationalizations. Route and frequency modifications and service span changes were evaluated with statistical t-tests during programming stages, resulting in proposals sensitive to equity concerns. Operationally, NYCT actively monitors service using U.S. census, survey, and routine agency data. The t-test and the chi-square test explicitly demonstrate racial and income equity in all aspects of agency operations on the basis of service standards and policies. As an example, t-tests compared the observed load factors with published guidelines; no significant differences in service delivery between demographic groups were found.

Subject Areas and Index Terms

Planning and Forecasting; Public Transportation; Society; I72: Traffic and Transport Planning
Chi square test; Civil rights; Environmental justice; Equity (Justice); Low income groups; Minorities;
Race; Schedules and scheduling; Social factors; T test; New York (New York); Civil Rights Act Title VI;
New York City Transit Authority; Service deliver

Availability: Transportation Research Board Business Office; Find a library where document is available
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Environmental Justice

Using GIS to Explore Environmental Justice Issues: The Case of U.S. Petroleum Refineries

Authors: Park, Jun Hyun; Fischbeck, Paul S; Gerard, David Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 86th Annual Meeting

Publication Date: 2007

Abstract:

A central issue in environmental policy that is emerging both in the U.S. and internationally is whether the deleterious impacts of development, including the siting of transportation infrastructure, disproportionately impacts poor and minority populations. This paper demonstrates how Geographic Information Systems (GIS) can be used to gather data and characterize potential environmental justice issues in the context of areas surrounding U.S. petroleum refineries. Specifically, the paper develops a national database of U.S. refineries and then integrate GIS with specially-crafted Census data in order to examine current demographic characteristics (e.g., population, percentage white, black, and Hispanic, average income, vacant housing) of neighborhoods surrounding U.S. petroleum refineries, and how those demographics have changed in the period 1980 to 2000. The approach facilitates two types of analysis. The first is to use GIS maps to explore demographic profiles for individual cases. The second is to use the GIS tool to gather and aggregate data to generate descriptive statistics and facilitate statistical analyses. These aggregation is possible in a number of ways, such as based on the refinery size (i.e., production capacity) or location (i.e., urban/rural). The paper finds that there are unquestionably environmental justice issues in certain areas surrounding refineries, but that drawing conclusions at a national level is much murkier.

Subject Areas and Index Terms

Data and Information Technology; Economics; Energy; Environment; Highways; Society; I10: Economics and Administration; I15: Environment
Census; Data collection; Databases; Demographics; Development; Environment; Environmental impacts; Environmental justice; Geographic information systems; Infrastructure; Minorities; Neighborhoods; Petroleum refineries

Availability: Transportation Research Board Business Office

Order URL: http://gulliver.trb.org/news/blurbs_detail.asp?id=7286

Housing location

Built Environment Predictors of Active Travel to School Among Rural Adolescents

Authors: Dalton, Madeline A; Longacre, Meghan R; Drake, Keith M; Gibson, Lucinda; Adachi-Meija, Anna M; Swain, Karin; Owens, Peter M

American Journal of Preventive Medicine

Publication Date: Mar 2011

Abstract:

Most studies of active travel to school (ATS) have been conducted in urban or suburban areas and focused on young children. Little is known about ATS among rural adolescents. The aim of this article is to describe adolescent ATS in 2 predominantly rural states and determine if school neighborhood built environment characteristics (BECs) predict ATS after adjusting for school and individual characteristics. 16 BECs were assessed through census data and onsite observations of 45 school neighborhoods in 2007. ATS and individual characteristics were assessed through telephone surveys with 1,552 adolescents and their parents between 2007 and 2008. Active travelers were defined as those who walked/cycled to/from school @ 1 day/week. Hierarchic linear modeling was used for analysis, conducted in 2009. Slightly less than half (n=735) of the sample lived within 3 miles of school, of whom 388 (52.8%) were active travelers. ATS frequency varied by season, ranging from a mean of 1.7 (SD=2.0) days/week in the winter to 3.7 (SD=1.6) in the spring. Adolescents who attended schools in highly dense residential neighborhoods with sidewalks were most likely to be active travelers. ATS frequency was greater in school neighborhoods with high residential and intersection densities, on-street parking, food outlets, and taller and continuous buildings with small setbacks. The BECs that support safe travel may be necessary to allow for ATS, whereas ATS frequency among adolescents may be influenced by a wider variety of design characteristics. Additional strategies to promote ATS and physical activity are needed in rural areas because of long commuting distances for many students.

Subject Areas and Index Terms

Highways; Pedestrians and Bicyclists; Planning and Forecasting; I72: Traffic and Transport Planning
Activity choices; Adolescents; Commuting; Mode choice; Pedestrians; Rural areas; School children;
School trips; Travel behavior; Walking

Availability: Find a library where document is available

Order URL: <http://worldcat.org/issn/07493797>

Housing location

Do physical neighborhood characteristics matter in predicting traffic stress and health outcomes?

Authors: Song, Yan; Gee, Gilbert C; Fan, Yingling; Takeuchi, David T

Transportation Research Part F: Traffic Psychology and Behaviour

Publication Date: Mar 2007

Abstract:

This study examines whether social, and physical environment characteristics related to urban design interact with individual perceptions of traffic stress to influence individual well-being. The Chinese American Psychiatric Epidemiologic Study data, the US census data, and geographic information system data are employed. Analyses used hierarchical linear modeling. The results indicate that perceived traffic stress was associated with lower health status and higher depression. More importantly, higher density of major streets and greater vehicular burden in the neighborhood pose potential harm to health by reinforcing the negative impacts of perceived traffic stress. On the other hand, more park land in the neighborhood could alleviate the damage of traffic stress on individual's well-being. The implications of the results for future research are discussed.

Subject Areas and Index Terms

Data and Information Technology; Highways; Operations and Traffic Management; Planning and Forecasting; Safety and Human Factors; Society; I72: Traffic and Transport Planning; I83: Accidents and the Human Factor

Census; Environment; Epidemiology; Geographic information systems; Health; Linear equations; Neighborhoods; Psychological aspects; Social factors; Stress (Psychology); Traffic; Urban design

Availability: Find a library where document is available

Order URL: <http://worldcat.org/issn/13698478>

Housing location

Finding Exurbia: America's Fast-Growing Communities at the Metropolitan Fringe

Authors: Berube, Alan; Singer, Audry; Wilson, Jill H; Frey, William H Brookings Institution-Metropolitan Policy Program, 1775 Massachusetts Avenue, NW Washington, DC 20036-2188 ; Living Cities: National Community Development Initiative-55 West 125th Street, 11th Floor New York, NY 10027

Monograph

Publication Date: Oct 2006

Abstract:

Part of the Living Cities Census Series, this publication is a brief for the Brookings Institution in the Cities and Suburbs section. The publication examines the nature, extent and geographical variety of "Exurbs" that are situated in large metropolitan areas in the United States. The publication examines demographic and economic data from 1990 to 2005 and defines exurbs as "communities located on the urban fringe that have at least 20 percent of their workers commuting to jobs in an urbanized area, exhibit low housing density, and have relatively high population growth". Detailed maps and tables are also provided.

Subject Areas and Index Terms

Planning and Forecasting; Public Transportation; Society

City planning; Communities; Land use planning; Suburbs; Urban areas; Urban development; Urban growth; Urban population; Urban transportation; Community development; Community transportation; Exurban areas

Availability: Brookings Institution

Housing location

Immigration, Residential Location, Car Ownership, and Commuting Behavior: A Multivariate Latent Class Analysis from California

Authors: Beckman, Jarad D; Goulias, Konstadinos G
Transportation: Planning, Policy, Research, Practice
Publication Date: Aug 2007

Abstract:

This study uses data from the 2000 Census long form for California to investigate the spatial, social, demographic, and economic determinants of immigrants' joint distribution among travel time, mode choice, and departure time for work. A latent tree structure was used in the analysis. Age, residential location, immigration stage, gender, personal income, and race are found to be the primary determinants in the workplace commute decision-making process. By defining several relatively homogeneous population segments, the likelihood of falling into each segment is found to differ across age groups and geography, with different indicators affecting each group differentially. This analysis complements past studies that used regression models to investigate socio-demographic indicators and their impact on travel behavior in two distinct ways: (a) analysis is done by considering travel time, mode choice, and departure time for work simultaneously, and (b) heterogeneity in behavior is accounted for using methods that identify different groups of behavior and then their determinants. These findings suggest that immigrants are as diverse as the non-immigrant population in their travel behavior. The method used in this study demonstrates that the addition of geographic location and latent segment identification can greatly improve understanding of specific behaviors.

Subject Areas and Index Terms

Data and Information Technology; Economics; Highways; Planning and Forecasting; Society; I72: Traffic and Transport Planning
Automobile ownership; Census; Commuting; Demographics; Economic factors; Mode choice; Multivariate analysis; Residential location; Social factors; Spatial analysis; Travel behavior; Travel time; California; Immigrants

Availability: Find a library where document is available

Order URL: <http://worldcat.org/issn/00494488>

Housing location

Impact of Information on Housing Relocation using Analytical Hierarchy Process and Interactive GIS

Authors: Sriraj, P S; Minor, Mark; Thakuriah, Piyushimita American Society of Civil Engineers-1801 Alexander Bell Drive Reston, VA 20191-4400

Applications of Advanced Technology in Transportation. The Ninth International Conference, 2006
Publication Date: 2006

Abstract:

The problems of the urban poor, especially that of housing/shelter, have been studied and documented by many researchers and social scientists. The state of affordable housing has been a cause for concern in the state of Illinois and especially in the six-county Chicago region. This concern stems from various factors. While studies have show that a significant portion of a household's expenditure is dedicated to housing/shelter, it has also been documented that low-income families that make minimum-wage struggle to cope in the more expensive urban housing markets such as Chicago. This coupled with the inadequate affordable owner-occupied and renter homes is contributing to the complexity of the situation. In such a situation where both the supply and demand are not adequate, one needs to maximize the supply with a judicious reallocation of resources (demand). Knowledge about the location of affordable housing, travel time to job destination, along with familial factors such as quality of local transit access, proximity to daycare centers, schools, crime in a neighborhood are all vies as important attributes in the relocation decision of a household. The lack of clear, transparent, and timely information at a disaggregate geography makes this task daunting. The research team at the Urban Transportation Center (UTC) at UIC, developed a spatial decision support system to facilitate individuals to rank census tracts and in turn neighborhood based on their personal preferences about the various criteria mentioned in the before. This paper extends the concept of this spatial decision support system, by describing the template for a web-enabled interactive spatial decision support system (web-SDDD). The objective of this web-SDSS is to facilitate the housing relocation process for mobility counselors using decision criteria such as transit access, affordable housing, daycare, schools, crime and jobs. These various criteria and sub-criteria are used in a hierarchical manner framed by the Analytical Hierarchy Process (AHP). The web-SDSS is intended for the primary use of mobility counselors assisting individual/families seeking to relocate within the six-county metropolitan Chicago region. The web-SDSS will be designed using Mapserver 4.0 and linked with the decision-support system and the database housed at UTC.

Subject Areas and Index Terms

Economics; Highways; Planning and Forecasting; Public Transportation; Society; I72: Traffic and Transport Planning

Decision support systems; Geographic information systems; Households; Housing; Mobility; Urban transportation; Chicago (Illinois); Affordable housing; Analytical hierarchy process; Interactive systems; Relocation; Supply and demand

Availability: American Society of Civil Engineers;

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Order URL: <http://worldcat.org/isbn/0784407991>

Housing location

Neighborhood Representation in Residential Location Choice Analysis

Authors: Bhat, Chandra R; Guo, Jessica Y Transportation Research Board-500 Fifth Street, NW
Washington, DC 20001

Transportation Research Board 85th Annual Meeting, 2006

Publication Date: 2006

Abstract:

In this paper, we explore different conceptualizations for representing neighborhoods in residential location choice models, and describe three alternative ways for constructing operational units to represent neighborhoods. In particular, we examine the possibility of using the census units to represent the hierarchical 'fixed neighborhood' definition, and the circular units and network bands to represent the hierarchical 'sliding neighborhood' definition. Overall, the network band definition is conceptually appealing. It also is marginally superior to the other two operation representations from a model fit standpoint.

Subject Areas and Index Terms

Economics; Highways; Planning and Forecasting; Public Transportation; Society; I21: Planning of Transport Infrastructure

Location; Mobility; Neighborhoods; Residential areas; Residential location; Transportation planning; Residential choice

Availability: Transportation Research Board Business Office

Order URL: http://trb.org/news/blurbs_detail.asp?id=1121

Housing location

The Effectiveness of Job-housing Balance as a Congestion Relief Strategy

Authors: Ferreira Jr, Joseph Massachusetts Institute of Technology-Department of Urban Studies and Planning, 77 Massachusetts Avenue Cambridge, MA 02139 ; New England University Transportation Center-Massachusetts Institute of Technology, 77 Massachusetts Avenue Cambridge, MA 0

Monograph

Publication Date: Apr 2009

Abstract:

In this research, the author hypothesizes that the selection of job-housing proximity measures can bring about different quantitative relationships between job-housing proximity and commuting. He constructs job-housing proximity measures for sub-regions of Atlanta and Boston using 'journey to work' data from the 1980, 1990, and 2000 censuses as reported (at the census tract level of aggregation) in the corresponding U.S. Census Transportation Planning Packages (CTPP). He then compares the spatial patterns of job-housing proximity, represented by different measures, as well as their relationship to commuting distances. Since different observations about the commuting impacts of job-housing proximity might stem from the selection of different regions or the selection of different years for the same region, the author examines consistent journey-to-work data for 1980, 1990, and 2000 for both metro areas.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Public Transportation; I72: Traffic and Transport Planning
Commuting; Housing; Jobs; Traffic congestion; Trip length; Work trips; Atlanta (Georgia); Boston (Massachusetts); 1980 Census; 1990 Census; 2000 Census; Spatial patterns

Availability: New England University Transportation Center

Housing location

What Neighborhood Are You In? Empirical Findings of Relationships Between Household Travel and Neighborhood Characteristics

Authors: Lin, Jie; Long, Liang

Transportation: Planning, Policy, Research, Practice

Publication Date: Nov 2008

Abstract:

Although there have been several studies regarding the influence of neighborhood characteristics on residential location choice and household travel behavior, to date there has been no uniform, concrete definition of neighborhood in the literature. This paper seeks to fill this gap in the literature by using public data sources to present an alternative way of defining neighborhood and neighborhood type. The paper also investigates the interaction between neighborhood environment and household travel in the United States. A neighborhood here is spatially identical to a census tract. A neighborhood type identifies a group of neighborhoods with similar neighborhood socioeconomic, demographic, and land use characteristics. This is accomplished by performing log-likelihood clustering on the Census Transportation Planning Package 2000 data. Five household travel measures (number of trips per household, mode share, average travel distance and time per trip, and vehicle miles of travel), are then compared across the resulting 10 neighborhood types, using the 2001 National Household Travel Survey household and trip files. Results show that household life cycle status and residential location are positively interdependent. Transit availability at place of residence tends to increase the transit mode share regardless of household automobile ownership and income level. Job/housing trade-offs are evident when mobility is not of concern. The study also reveals racial preference in residential location and contrasting travel characteristics among ethnic groups. There is evidence of significant effects of living environment on household travel and vehicle use. Urban households have comparable vehicle ownership to their suburban and rural counterparts, but higher vehicle miles of travel takes place in rural and suburban areas.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Public Transportation; Society; I72: Traffic and Transport Planning
Census; Cluster analysis; Definitions; Empirical methods; Households; Mode choice; Neighborhoods;
Travel behavior; Travel surveys

Availability: Find a library where document is available

Order URL: <http://worldcat.org/issn/00494488>

Housing location

Work and home location: Possible role of social networks

Authors: Tilahun, Nebiyou; Levinson, David
Transportation Research Part A: Policy and Practice
Publication Date: May 2011

Abstract:

This research explores to what extent people's work locations are similar to that of those who live around them. Using the Longitudinal Employer-Household Dynamics data set and the 2000 decennial census, the authors investigate the home and work locations of different census block residents in the Twin Cities (Minneapolis-St. Paul) metropolitan area. The study aim is to investigate if people who share a residence neighborhood also share work locations to a degree beyond what would be explained by distance and opportunities around them. Using quadratic assignment procedure the authors find a significantly higher joint home and work location choice among residents in eight areas selected for this investigation. Further, using data for the entire metropolitan area, the authors show what socio-demographic variables are associated with higher levels of home-work co-locations. The author hypothesize that a possible reason for the observed patterns is the role neighborhood level and work place social networks play in locating jobs and residences respectively.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Society
Neighborhoods; Quadratic equations; Residential location; Workplaces; Minneapolis (Minnesota); Saint Paul (Minnesota); Twin Cities Metropolitan Area (Minnesota); Social networking; Sociodemographics

Availability: Find a library where document is available

Order URL: <http://worldcat.org/issn/09658564>

Modeling and Forecasting

Advances in Agent Population Synthesis and Application in an Integrated Land Use and Transportation Model

Authors: Pritchard, David R; Miller, Eric J Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 88th Annual Meeting

Publication Date: 2009

Abstract:

Agent-based microsimulation models of socioeconomic processes require an initial synthetic population derived from census data. This paper builds upon the Iterative Proportional Fitting (IPF) procedure's well-understood statistical properties. While typical applications of IPF are limited in the number of attributes that can be synthesized per agent, a new method introduced here implements IPF with a sparse list-based data structure that allows many more attributes per agent. Additionally, a new approach is used to synthesize the relationships between agents, allowing the formation of household and family agents in addition to individual person agents.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Public Transportation; I72: Traffic and Transport Planning Data collection; Land use planning; Microsimulation; Population growth; Public transit; Socioeconomic factors; Statistical analysis; Transit operating agencies; Travel surveys; Agent based models; Iterative proportional fitting

Availability: Transportation Research Board Business Office

Modeling and Forecasting

An area-level model of vehicle-pedestrian injury collisions with implications for land use and transportation planning

Authors: Wier, Megan; Weintraub, June; Humphreys, Elizabeth H; Seto, Edmund; Bhatia, Rajiv
Accident Analysis & Prevention
Publication Date: Jan 2009

Abstract:

There is growing awareness among urban planning, public health, and transportation professionals that design decisions and investments that promote walking can be beneficial for human and ecological health. Planners need practical tools to consider the impact of development on pedestrian safety, a key requirement for the promotion of walking. Simple bivariate models have been used to predict changes in vehicle-pedestrian injury collisions based on changes in traffic volume. We describe the development of a multivariate, area-level regression model of vehicle-pedestrian injury collisions based on environmental and population data in 176 San Francisco, California census tracts. Predictor variables examined included street, land use, and population characteristics, including commute behaviors. The final model explained approximately 72% of the systematic variation in census-tract vehicle-pedestrian injury collisions and included measures of traffic volume, arterial streets without transit, land area, proportion of land area zoned for neighborhood commercial and residential-neighborhood commercial uses, employee and resident populations, proportion of people living in poverty and proportion aged 65 and older. We have begun to apply this model to predict area-level change in vehicle-pedestrian injury collisions associated with land use development and transportation planning decisions.

Subject Areas and Index Terms

Highways; Pedestrians and Bicyclists; Planning and Forecasting; Safety and Human Factors Collisions; Land use planning; Multivariate analysis; Pedestrian accidents; Pedestrian safety; Regression analysis; Spatial analysis; Traffic volume; Transportation planning; San Francisco (California)

Availability: Find a library where document is available

Order URL: <http://worldcat.org/issn/00014575>

Modeling and Forecasting

An Investigation in Household Mode Choice Variability across Metropolitan Statistical Areas for Urban Young Professionals

Authors: Long, Liang; Lin, Jie World Conference on Transport Research Society-Secretariat, 14 Avenue Berthelot 69363 Lyon cedex 07,
11th World Conference on Transport Research
Publication Date: 2007

Abstract:

Contextual effects, especially associated with geographical variability, on travel behavior must be considered in spatial transferability of household travel survey data and demand model coefficients. In this paper a hierarchical modeling approach is applied to quantify geographical variability of household shopping trip mode choice by neighborhood type (defined by census tract) across eight metropolitan statistical areas. Residents of the neighborhoods studied are primarily urban young professionals. The individual level variables come from the 2001 National Household Travel Survey (NHTS) and the neighborhood level variables are derived from the Census Transportation Planning Package (CTPP) 2000. The model results confirm mode choice is dependent on where the household lives after controlling for household characteristics. With the similar household and census tract features the variability of household mode choice across geographic areas can be ignored. Lastly, the model limitations and future research are discussed.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Public Transportation; I72: Traffic and Transport Planning Households; Mode choice; Public transit; Travel behavior; Travel surveys; Trip purpose; Urban transportation; Young adults

Availability: World Conference on Transport Research Society

Modeling and Forecasting

Applying the TRANSIM Model Paradigm to the Simulation and Analysis of Transportation and Traffic Control Systems

Authors: Dixon, Michael P; Chang, Karl; Keecheril, Sajeev; Orton, Brent National Institute for Advanced Transportation Technology-University of Idaho, P.O. Box 440901 Moscow, ID 83844-0901 ; Research and Special Programs Administration-1200 New Jersey Avenue, SE Washington, DC 20590
Monograph

Publication Date: Mar 2007

Abstract:

This report focuses on improving the TRANSIMS transportation planning model. TRANSIMS has been validated to a limited degree for traffic operations due to the lack of readily available standard performance measures and operations data output. This study developed a Traffic Data Extractor Tool (TDET) that provides more useful performance measures than those of TRANSIMS. Validation results for unsignalized intersections concluded that TRANSIMS tends to over estimate control delays and major street left turns are not modeled accurately. For signalized intersections, TRANSIMS performed very well. Compared with the field data, in some cases TRANSIMS surpassed Highway Capacity Software. Transportation planning models are also reliant upon demographic knowledge associated with traffic analysis zones (TAZs). Census data is an obvious choice for "loading" TAZs with demographic data. These demographic input data are limited since TAZs must be either be a size equal to the smallest census data level or composed of combined elements of the census data, forming larger TAZs. Part 2 provides a methodology for incorporating remotely sensed data and local land use zoning data to disaggregate the census block demographics to smaller, user defined TAZs thus providing a higher spatial resolution to the planning model process and increasing model accuracy.

Subject Areas and Index Terms

Highways; Operations and Traffic Management; I73: Traffic Control
Highway capacity; Highway operations; Traffic control; Traffic data; Traffic delay; Traffic simulation; Transportation planning; Travel demand; Unsignalized intersections; Validation; TRANSIMS (Computer model); Traffic analysis zones

Availability: National Technical Information Service

Modeling and Forecasting

California Statewide Exploratory Analysis Correlating Land Use Density, Infrastructure Supply, and Travel Behavior

Authors: Yoon, Seo Youn; Golob, Thomas F; Goulias, Konstadinos G Transportation Research Board-
500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 88th Annual Meeting

Publication Date: 2009

Abstract:

The critical link between land use and transportation is human environment relations. Measurement of the environment includes representation of the spatial opportunities available to engage in activities and the infrastructure accessed by trip makers. In this paper an experiment is reported using travel behavior data from the statewide travel survey in California and a variety of activity opportunity measures at two different levels of geographic aggregation that are the tract and the block group levels covering the entire state. Using regression models the authors find these spatial measures to be significant explanatory variables and that measures from both aggregation levels explain behavior capturing a variety of complex influences. This study is also a demonstration that land use indicators and infrastructure availability can be included in travel behavior equations used in the four step and/or activity based forecasting models with largely available data in the Census Transportation Planning Package, network data available in transportation agencies, and typical regression methods included in statistical packages. Next steps are also outlined in the paper.

Subject Areas and Index Terms

Highways; Planning and Forecasting; I72: Traffic and Transport Planning
Cluster analysis; Land use planning; Population density; Regression analysis; Traffic forecasting;
Transportation planning; Travel behavior; Travel surveys; California

Availability: Transportation Research Board Business Office

Modeling and Forecasting

Development of a Florida Modeling Portal: Summary

Authors: Gan, Albert Florida International University, Miami-Lehman Center for Transportation Research, 10555 W Flagler Street Miami, FL 33174 ; Florida Department of Transportation-605 Suwannee Street Tallahassee, FL 32399-0450

Monograph

Publication Date: Mar 2007

Abstract:

Researchers developed an information portal named FSUTMSOnline (www.fsutmsonline.net). The portal serves as a central location for the exchange and sharing of information, data, and ideas for transportation modelers in Florida. The portal was developed as a weblog application that allows easy and frequent updates by designated administrators who do not need to be familiar with web programming. The developed portal includes individual pages for the Model Task Force (MTF), modeling newsletters, training workshops, model documentation, travel data, research projects, technical support, discussion forum, and useful links. Researchers also created pages for individual FSUTMS standard models to allow model coordinators to post model and data files for easy access by transportation modelers. The system includes a model download permitting process to allow users to make download requests for review and approval by model coordinators. This permitting process is designed to safeguard the use of model files. The portal includes other typical features, such as a mailing list sign-up and quick links to external web pages. A centerpiece of the web portal is a GIS application designed to facilitate the maintenance and extraction of data for FSUTMS model inputs. Developed as an ArcGIS Server 9.2 application, it includes data for the following: highway, transit, and Transportation Analysis Zone (TAZ) networks; roadway inventory information from the Roadway Characteristics Inventory (RCI); census data at the tract, block group, and block levels; employment data from InfoUSA; and multiple years of traffic count data from both permanent and portable traffic monitoring stations.

Subject Areas and Index Terms

Data and Information Technology; Freight Transportation; Highways; Planning and Forecasting; Public Transportation; I72: Traffic and Transport Planning
ArcGIS; Census; Data sharing; Employment; Florida; Geographic information systems; Highways; Information exchange; Inventory; Permits; Public transit; Traffic analysis zones; Traffic counts; Transportation data; Transportation models; Web portals

Availability: Research and Innovative Technology Administration

Modeling and Forecasting

Discrete-Continuous Microsimulation of Development Decisions in a Spatial Market Model

Authors: Abraham, John E; Hunt, John Douglas World Conference on Transport Research Society-Secretariat, 14 Avenue Berthelot 69363 Lyon cedex 07,
11th World Conference on Transport Research
Publication Date: 2007

Abstract:

A microsimulation of development decisions in Ohio is described in this paper where land developers respond to construction costs and floor space rents. The simulation incrementally changes the spatial built form of Ohio over several decades by changing the state variables of 4 acre units of land covering the entire state and a surrounding halo. A mixed discrete-continuous logit model is used, with the utility of the discrete choice of future development type being the expected maximum of the choice of development intensity within the range development type. The utility of one particular development-type/intensity option is a function of construction cost variables and the rent revenue. The continuous formulation is shown to provide appropriate expected values as long as reasonable ranges of intensity are allowed and dispersion parameters are appropriate. Initial residential data consisted of Census data and acres of land by development type. Initial continuous intensities for residential space were developed through a simultaneous two-level optimization procedure. The first level is a Lagrangian optimization of the relative use of development types by zones, the second level a genetic algorithm to determine the average consumption rates of land by different household income and size categories. The residuals of this procedure were interpreted as the variation in intensity within development types. User input data for land attributes consists of discrete distributions by traffic analysis zone (TAZ). Joint distributions of pairs of attributes are sometimes also specified, in which case matrix expansion is used to ensure consistency with the single-variable distributions. From the distributions land is discretized, to support the microsimulation approach and future integration with geographic information system (GIS) grid-cell layers.

Subject Areas and Index Terms

Highways; Planning and Forecasting; I72: Traffic and Transport Planning
Data collection; Development; Discrete systems; Geographic information systems; Land use planning; Microsimulation; Transportation planning; Zoning; Ohio; Discrete choice; Traffic analysis zones

Availability: World Conference on Transport Research Society

Modeling and Forecasting

Exploring Causal Connections Among Job Accessibility, Employment, Income, and Automobile Ownership Using Structural Equations Modeling

Authors: Gao, Shengyi; Mokhtarian, Patricia L; Johnston, Robert A Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 86th Annual Meeting

Publication Date: 2007

Abstract:

Using structural equation modeling, this study empirically examines the causal connections between job accessibility, workers per capita, income per capita, and autos per capita at the aggregate level with year 2000 census tract data in Sacramento County, California. Under the specification of the conceptual model, the model implied covariance matrix exhibits a reasonably good fit to the observed covariance matrix. The direct and total effects show that job accessibility has a negative effect on autos per capita, autos per capita has a positive effect on workers per capita and income per capita, workers per capita has a positive effect on income per capita and autos per capita, and education attainment has a positive effect on workers per capita, income per capita and autos per capita. Job accessibility has a negative total effect on workers per capita, income per capita and autos per capita. These results are largely consistent with theory and/or with empirical observations across a variety of geographic contexts. They suggest that structural equation modeling is a powerful tool for capturing the endogeneity among job accessibility, employment, income and auto ownership, and has other advantages over linear regression in this context.

Subject Areas and Index Terms

Data and Information Technology; Highways; Planning and Forecasting; Policy; I21: Planning of Transport Infrastructure

Accessibility; Automobile ownership; Employment; Income; Industrial location; Land use planning; Regression analysis; Residential location; Spatial analysis; Structural equation modeling; Transportation policy; Travel demand; Sacramento County (California)

Availability: Transportation Research Board Business Office

Order URL: http://gulliver.trb.org/news/blurbs_detail.asp?id=7286

Modeling and Forecasting

Forecasting Pedestrian and Bicycle Demands Using Regional Travel Demand Models and Local Mode Share/Trip Distance Data

Authors: Horowitz, Zachary; Parisi, David; Replinger, John Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 89th Annual Meeting

Publication Date: 2010

Abstract:

Columbia River Crossing (CRC) staff, with input from the CRC's Pedestrian and Bicycle Advisory Committee (PBAC), developed a methodology for forecasting year 2030 pedestrian and bicycle travel demands for an improved non-motorized facility proposed for the replacement Interstate 5 (I-5) Bridge across the Columbia River. Forecasts took into account three primary factors related to pedestrian and bicycle demand: existing and future land uses, percentage of trips by mode, and walking and bicycling trip lengths. During peak summer conditions in 2007, about 80 pedestrians and 370 bicyclists crossed the I-5 Bridge daily. Many other pedestrians and bicyclists are discouraged from doing so because of the existing non-standard facilities on the bridge and connecting multi-modal infrastructure. Future pedestrian and bicycle trips over the I-5 Bridge were forecast using a variety of data, including mode share data from the US Census, information from local travel surveys, results from a bicycle trip study conducted by Portland State University, and travel characteristics associated with the Hawthorne Bridge, the heaviest traveled bridge by pedestrians and bicyclists in the region. Average travel times by mode were converted into trip distances by mode, creating a matrix of pedestrian and bicycle mode shares by trip length. Future scenarios, developed for sensitivity testing, considered the forecasted number of trips from the regional travel demand model and factored them by the respective pedestrian and bicycle mode share percentages. The results were a range of daily pedestrian and bicycle forecasts, all of which showed a substantial increase in travel demand.

Subject Areas and Index Terms

Pedestrians and Bicyclists; Planning and Forecasting; I21: Planning of Transport Infrastructure
Bicycle commuting; Bicycling; Cyclists; Modal split; Pedestrian safety; Traffic forecasting; Travel demand; Walkways; Portland Metropolitan Area (Oregon); Columbia River Bridge; Interstate 5

Availability: Transportation Research Board Business Office

Modeling and Forecasting

Improving Socioeconomic Forecasting for Medium-Sized Metropolitan Planning Organizations in Virginia

Authors: McCray, Danielle R; Miller, John S; Hoel, Lester A Virginia Transportation Research Council-530 Edgemont Road Charlottesville, VA 22903 ; Virginia Department of Transportation-1401 East Broad Street Richmond, VA 23219 ; Federal Highway Administration-1200 New Jersey Avenue, SE Washington, DC 2059

Monograph

Publication Date: Sep 2008

Abstract:

Socioeconomic forecasts are the foundation for long range travel demand modeling, projecting variables such as population, households, employment, and vehicle ownership. In Virginia, metropolitan planning organizations (MPOs) develop socioeconomic forecasts for a given horizon year at a traffic analysis zone level, and the Virginia Department of Transportation (VDOT) uses these forecasts as input to the four-step travel demand model system. This report identifies the socioeconomic forecasting practices currently used by four medium-sized Virginia MPOs, computes the accuracy of socioeconomic forecasts generated by one such MPO, and recommends practices for improving such forecasts. This research found that medium-sized Virginia MPOs are using similar techniques to forecast socioeconomic variables. These techniques are to (1) identify jurisdictional population control totals based on U.S. Census and Virginia Employment Commission data; (2) disaggregate population projections to the zonal level based on comprehensive plans, local knowledge, and historic trends; (3) apply historic ratios of households to population and autos to population to forecast households and autos; (4) use historic trends and local expertise to determine future employment; and (5) revise zone projections through coordination with local jurisdictions. Using a forecast that was developed for the Lynchburg region in 1981 with a horizon year of 2000, the study area percent error was computed as the difference between the forecasted and observed values for the entire study area. While the study area percent error for number of vehicles and employment was less than 10%, the study area percent errors for population and households were 48% and 14%, respectively. Two adjacent zones accounted for approximately 80% of the population error and 90% of the household error, and the error resulted because anticipated development therein did not materialize. The zone percent error is the average difference between forecasted and observed values for each zone. Population, households, and vehicles had similar zone percent errors of 61%, 65%, and 54%, respectively, while the employment zone percent error was 154%. Four recommendations for improving forecasts are given. First, localities should provide updates to MPO or Planning District Commission (PDC) staff as changes in land development occur, and such staff should perform socioeconomic forecasts more frequently than the current practice of every five years. Second, MPOs should consider providing two sets of socioeconomic variables for the travel demand model: (1) the baseline forecast (which is the MPO's best estimate) and (2) the baseline forecast modified by some percentage that accounts for the possibility of forecast error. Third, best forecasting practices should be shared among MPOs through a user's group, a workshop, or some other forum where MPO and PDC staff will be in attendance. Fourth, VDOT should communicate these recommendations to MPO staff who are responsible for completing socioeconomic forecasts.

Subject Areas and Index Terms

Economics; Highways; Planning and Forecasting; Research; Society; I72: Traffic and Transport Planning Accuracy; Automobile ownership; Case studies; Employment; Error analysis; Forecasting; Households; Medium sized cities; Metropolitan planning organizations; Population forecasting; Recommendations; Socioeconomic factors; Travel demand; Lynchburg (Virginia)

Availability: National Technical Information Service

Modeling and Forecasting

Investigating Contextual Variability in Mode Choice in Chicago Using a Hierarchical Mixed Logit Model

Authors: Long, Liang; Lin, Jie; Proussaloglou, Kimon

Urban Studies

Publication Date: Oct 2010

Abstract:

In this paper, a hierarchical random-coefficient mixed logit model is applied to quantify variability in commuters' mode choice in the Chicago metropolitan area, especially concerning the contextual variability by the traits of census tract of residence. It is found that individual mode choice behavior varies considerably across residential locations. Moreover, the contextual effects are found to modify the marginal utility of mode choice. Especially, in-vehicle travel time and gasoline cost are significant covariates of census tract traits (such as percentage of blue-collar residents, ethnicity). Furthermore, random variation is present even after both contextual and individual traits are controlled for, suggesting intrinsic randomness in individual mode choice. The hierarchical structure of quantifying contextual variability proves to be a useful tool in capturing intrinsic heterogeneity in mode choice. The study findings have important implications for integrated land use and transport planning especially at the geographical levels below that of the region.

Subject Areas and Index Terms

Highways; Planning and Forecasting; I72: Traffic and Transport Planning
Commuters; Commuting; Logits; Mode choice; Strategic planning; Travel behavior; Trip length; Chicago (Illinois)

Availability: Find a library where document is available

Order URL: <http://worldcat.org/issn/00420980>

Modeling and Forecasting

Investigating Network Access and Agglomeration Economy Using Spatial Autoregressive Models

Authors: He, Sylvia Y Transportation Research Board-500 Fifth Street, NW Washington, DC 20001
Transportation Research Board 88th Annual Meeting

Publication Date: 2009

Abstract:

Transport network accessibility is a known determinant of employment center growth. Firms value access to the regional transport network and major transportation hubs. However, as the urban form shifts from monocentric to polycentric, the value associated with regional transportation network access may have been significantly reduced. Local accessibility, which would facilitate interactions between firms located in close proximity, may have become more important in the new urban form. In this paper, I calibrate the weights matrices of spatial autoregressive models to examine whether local network access is more important than regional network access in the size of employment centers. The data consist of 541 census tracts inside the 41 employment centers in the Los Angeles region of 2000. Results show that spatial autoregressive models improve the goodness-of-fit compared with OLS. More importantly, autoregressive models with certain calibrated weights matrix outperform others. The outcome suggests that there are stronger economic interactions among intra-center tracts than inter-center tracts. The results shed a new light on transportation planning that policy makers may focus on improving local accessibility through transportation investments to facilitate growth of employment centers.

Subject Areas and Index Terms

Highways; Passenger Transportation; Planning and Forecasting; Public Transportation; I72: Traffic and Transport Planning

Accessibility; Central business districts; Hubs; Public transit; Regional planning; Regional transportation; Transit operating agencies; Travel surveys; Autoregressive models; Employment centers

Availability: Transportation Research Board Business Office

Modeling and Forecasting

Making Best Estimates of Spatial Distribution of Average Household Vehicle Miles Traveled: Assays in San Francisco Bay Area and Boston Metropolitan Region

Authors: Rooney, Michael Steven; Srinivasan, Sumeeta Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 87th Annual Meeting

Publication Date: 2008

Abstract:

This report proposes a technique for estimating the spatial variation of average household vehicle-miles traveled (VMT). The dependent variable, VMT, is estimated for block groups in the metropolitan regions of two cities-San Francisco, CA, and Boston, MA. The independent variables were obtained from the U.S. Census and include variables such as commute time to work and percentage of workers using public transit. Model-predicted values for zip-code-level VMT demonstrate a correlation coefficient of 0.90 with values imputed from Massachusetts state vehicle inspections data. These findings are proposed as evidence that "snap-shot" estimates of urban and regional variations in household VMT may be possible through the manipulation of freely available Census data. However, the results do indicate spatial autocorrelation and future estimates must take into account such spatial anomalies in estimating VMT.

Subject Areas and Index Terms

Highways; Passenger Transportation; Planning and Forecasting; Society; I72: Traffic and Transport Planning

Commuters; Households; Traffic data; Travel surveys; Travel time; Trip purpose; Vehicle miles of travel; Work trips; Boston Metropolitan Area; San Francisco Bay Area

Availability: Transportation Research Board Business Office

Modeling and Forecasting

Methodology to Match Distributions of Both Household and Person Attributes in Generation of Synthetic Populations

Authors: Ye, Xin; Konduri, Karthik Charan; Pendyala, Ram M; Sana, Bhargava; Waddell, Paul
Transportation Research Board-500 Fifth Street, NW Washington, DC 20001
Transportation Research Board 88th Annual Meeting
Publication Date: 2009

Abstract:

The advent of microsimulation approaches in travel demand modeling, wherein activity-travel patterns of individual travelers are simulated in time and space, has motivated the development of synthetic population generators. These generators typically use census-based marginal distributions on household attributes to generate joint distributions on variables of interest using standard iterative proportional fitting (IPF) procedures. Households are then randomly drawn from an available sample in accordance with the joint distribution such that household-level attributes are matched perfectly. However, these traditional procedures do not control for person-level attributes and joint distributions of personal characteristics. In this paper, a heuristic approach, called the Iterative Proportional Updating (IPU) algorithm, is presented to generate synthetic populations whereby both household-level and person-level characteristics of interest can be matched in a computationally efficient manner. The algorithm involves iteratively adjusting and reallocating weights among households of a certain type (cell in the joint distribution) until both household and person-level attributes are matched. The algorithm is illustrated with a small example, and then demonstrated in the context of a real-world application using small geographies (blockgroups) in the Maricopa County of Arizona in the United States. The algorithm is found to perform very well, both from the standpoint of matching household and person-level distributions and computation time. It appears that the proposed algorithm holds promise to serve as a practical population synthesis procedure in the context of activity-based microsimulation modeling.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Public Transportation; I72: Traffic and Transport Planning
Activity choices; Algorithms; Distributions (Statistics); Households; Microsimulation; Systems analysis;
Maricopa County (Arizona); Activity based modeling; Iterative proportional fitting; Person trips

Availability: Transportation Research Board Business Office

Modeling and Forecasting

Mid-Ohio Regional Planning Commission Model Validation: Summary

Authors: Schmitt, David; Donnelly, Robert M; Anderson, Rebekah S

Transportation Research Board Conference Proceedings

Publication Date: 2008

Abstract:

The new Mid-Ohio Regional Planning Commission (MORPC) model is a disaggregate tour-based model applied with the microsimulation of each individual household, person, or tour. The model area is divided into 1,805 internal and 72 external zones and includes Franklin, Delaware, and Licking counties, and parts of Fairfield, Pickaway, Madison, and Union counties. The primary inputs to the model are transportation networks and zonal data, in which each zone has the standard socioeconomic characteristics that would normally be found in a four-step model. The main differences from the prior four-step model are that the new model accounts for travel at the tour level, as opposed to the trip level, and for each individual household and person, as opposed to zonal and market segment aggregates. This summary shows the highway validation statistics, including some of the standard reports as suggested in the "Ohio Department of Transportation Traffic Assignment Procedures." It also shows the validation of the work purpose travel distribution compared with the Census Transportation Planning Package.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Public Transportation; I72: Traffic and Transport Planning
Forecasting; Microsimulation; Travel demand; Validation; Mid-Ohio Regional Planning Commission;
Tour-based models

Availability: Transportation Research Board Business Office

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Modeling and Forecasting

Model-Based Approach to Synthesize Household Travel Characteristics across Neighborhood Types and Geographic Areas

Authors: Lin, Jie; Long, Liang

Journal of Transportation Engineering

Publication Date: Dec 2008

Abstract:

Household travel survey data are crucial in regional travel demand analysis. However, good quality data are not always available owing to financial constraints, privacy concerns, poorly designed sampling schemes, and/or low response rates. Thus, various data synthesis techniques have been proposed in the past. In this paper, we identify the limitations of the existing data updating/synthesis methods and propose a two-level random coefficient model to synthesis household travel characteristics across geographic areas. Then the two-level structure was applied to the sampled households in the 2001 National Household Travel Survey across (consolidated) metropolitan statistical areas of various population sizes. One particular travel characteristic, journey to work vehicle trip rate, is investigated. The study findings confirm the effect of neighborhood (defined at the census tract level) attributes (e.g., intersection density, average auto mobile work trip travel time) on household number of journey to work vehicle trips. This effect is significant on the urban households of study, whereas the suburban counterparts across the country do not seem to be affected by their living environments after controlling for neighborhood type. In general, the two-level structure is shown statistically superior to the one level.

Subject Areas and Index Terms

Highways; Planning and Forecasting; I72: Traffic and Transport Planning
Coefficients; Data processing; Data quality; Geography; Mathematical models; Neighborhoods; Travel patterns; Travel surveys; Work trips

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Modeling and Forecasting

Nonnormality of Data in Structural Equation Models

Authors: Gao, Shengyi; Mokhtarian, Patricia L; Johnston, Robert A

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2008

Abstract:

With the use of census block group data on sociodemographics, land use, and travel behavior, the cutoffs suggested in the literature for trustworthy estimates and hypothesis-testing statistics were tested, and the efficacy of deleting observations as an approach to improving multivariate normality in structural equation modeling was evaluated. It was found that the deletion of enough cases to achieve multivariate normality yielded results that were substantively different from those for the full sample and required that 17% of the sample be discarded. Alternatively, after only a few true outliers were deleted (0.8% of the sample), the measures of univariate and multivariate nonnormalities fell into the acceptable range for maximum likelihood estimation to be appropriate. The pursuit of a multivariate normal distribution by the deletion of observations should be consciously weighed against the loss of model power and generalizability in the interpretation of the results. That is, the analyst should proactively find the balance between the two extremes of (a) a model on the full sample that is unreliable because of extreme nonnormality and (b) a model on a sample that has discarded so many cases to achieve multivariate normality that it is no longer fully representative of the desired population. It is further argued that the process of finding that balance should be exposed to the audience rather than ignored or suppressed.

Subject Areas and Index Terms

Data and Information Technology; Highways; Planning and Forecasting; I72: Traffic and Transport Planning

Data collection; Estimation theory; Maximum likelihood method; Multivariate analysis; Normal distributions; Statistical analysis; Structural equation modeling; Travel behavior; Travel surveys

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Modeling and Forecasting

Population Updating System Structures and Models Embedded Within the Comprehensive Econometric Microsimulator for Urban Systems (CEMUS)

Authors: Eluru, Naveen; Pinjari, Abdul Rawoof; Guo, Jessica Y; Sener, Ipek N; Srinivasan, Sivaramakrishnan; Copperman, Rachel B; Bhat, Chandra R University of Texas, Austin-Center for Transportation Research, 3208 Red River Street Austin, TX 78705 ; Southwest Region University Transportation Center-Texas Transportation Institute, Texas A&M University College Station, TX 77843-3135

Monograph

Publication Date: Oct 2007

Abstract:

This report describes the development of a population update modeling system as part of the development of the Comprehensive Econometric Microsimulator for SocioEconomics, Land-use, and Transportation Systems (CEMSELTS). CEMSELTS itself is part of the Comprehensive Econometric Microsimulator for Urban Systems (CEMUS) under development at The University of Texas at Austin. The research in the report recognizes that modeling the linkages among demographics, land use, and transportation is important for realistic travel demand forecasting. The population update modeling system focuses on the modeling of events and actions of individuals and households in the urban region. An analysis framework is proposed to predict the future-year population characteristics by modeling the changes to all relevant attributes of the households and individuals. The models identified in the analysis framework are estimated for the Dallas-Fort Worth region. The econometric structures used include deterministic models, rate-based probability models, binary logit models, multinomial logit models, and ordered-response probit models. To verify the outputs from these models, the predicted results for the year 2000 are compared against observed 2000 Census data.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Society; I72: Traffic and Transport Planning
Demographics; Econometric models; Forecasting; Land use; Microsimulation; Transportation planning;
Travel demand; Urban areas; Dallas-Fort Worth Metropolitan Area

Availability: National Technical Information Service

Modeling and Forecasting

UPlan: Geographic Information System as Framework for Integrated Land Use Planning Model

Authors: Walker, W Thomas; Gao, Shengyi; Johnston, Robert A

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2007

Abstract:

A geographic information system (GIS) framework is appealing to model supply-side decisions because spatial relationships commonly used by developers to evaluate building sites, such as the proximity to transportation facilities, existing land uses, political boundaries, and environmentally sensitive areas, are defined precisely in the GIS layers. The GIS captures spatial synergisms that are lost in tabulations by traffic zone or larger forecasting districts. Further, the results are defined for individual parcels (grids). This method interfaces directly with the concerns of residents and other interest groups. Uncertainty and error in postmodel allocations from zones to parcels in existing land use models can significantly blur and degrade the relevance of forecasts made with existing models. The development patterns predicted by UPlan, a planning model, tend to be realistic and provide a basis for land use planning and evaluation. A GIS land use survey, supplemented with simulation model networks and census data, was used to calibrate the model. The calibrated UPlan model did a reasonably accurate job of allocating the various categories of land uses to predefined composite growth areas. The generalized UPlan model is applicable in a wide variety of rural, suburban, and urban settings. The model, as presented, was configured as a travel simulation integrated land use planning tool, but the method also can be used as the supply-side component within a comprehensive land use modeling framework.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Public Transportation; I21: Planning of Transport Infrastructure
City planning; Computer models; Geographic information systems; Land use; Land use planning; Urban areas; Urban design; Urban growth; Urban transportation; Integrated models (Planning)

Availability: Transportation Research Board Business Office

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Modeling and Forecasting

Validation of Atlanta, Georgia, Regional Commission Population Synthesizer

Authors: Bowman, John L; Rousseau, Guy

Transportation Research Board Conference Proceedings

Publication Date: 2008

Abstract:

This paper presents the results of initial base-year and back-cast validation of the new Atlanta (Georgia) Regional Commission (ARC) population synthesizer (PopSyn), which acts as the conduit of land use information to the travel demand model. It takes information from the census and the land use model and creates a detailed synthetic population consistent with land use forecasts. A travel demand model can then predict travel for this population. The synthetic population includes a record for each household in the region and a record for each person in the household, so it is well suited for use by travel demand models employing disaggregate microsimulation. Although a PopSyn constitutes a powerful tool, it should be used with caution. By design, it provides misleadingly precise details about every person in the population. Because of limitations of its inputs and its synthesizing procedures, at best only some of the person and household characteristics accurately represent the population at the regional level of geographic aggregation, and many of those characteristics can be imprecise and inaccurate for very small geographic areas such as census tracts. A fundamental goal in the development of a PopSyn therefore is to synthesize as accurately and precisely as possible, for as disaggregate geography as possible, as many variables as possible that determine travel behavior. And a fundamental requirement in the use of a PopSyn should be to rely on it only for the characteristics it accurately represents and to aggregate results to a level at which the synthetic population is precise and accurate.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Public Transportation; I72: Traffic and Transport Planning
Disaggregate analysis; Forecasting; Land use; Land use models; Travel behavior; Travel demand;
Validation; Atlanta (Georgia); Atlanta Regional Commission; Population synthesis

Availability: Transportation Research Board Business Office; Find a library where document is available

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Modeling and Forecasting

Wisconsin Passenger and Freight Statewide Model: Case Study in Statewide Model Validation

Authors: Proussaloglou, Kimon; Popuri, Yasasvi; Tempesta, Daniel; Kasturirangan, Krishnan; Cipra, David

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2007

Abstract:

This paper reports the model validation process for a passenger and a freight statewide model developed for the Wisconsin Department of Transportation. These policy-sensitive planning models are used to understand and quantify passenger and freight flows in Wisconsin and to support system-planning analyses at a statewide level. Examples of policies being tested include the impact of different land use scenarios and transportation projects on highway traffic, the diversion of traffic along key corridors, and the ridership potential of enhanced intercity bus service. The passenger model was estimated by using the Wisconsin add-on for the 2001 National Household Travel Survey (NHTS), and the freight model was estimated by using Transearch commodity flow data. Model validation relied on the NHTS data, statewide automobile and truck traffic counts, intercity transit ridership estimates, and 2000 U.S. Census data including the Census Transportation Planning Package, FHWA's validation manual, and NCHRP Report 365. The Wisconsin statewide models are presented as case studies to highlight the data sources, model estimation and validation methodologies, and results obtained at a statewide level. The passenger and freight validation results support the robustness of the models at a statewide and a corridor level. The methodology and standards discussed for the Wisconsin statewide models provide another data point to help establish guidelines for statewide model validation.

Subject Areas and Index Terms

Highways; Planning and Forecasting; I72: Traffic and Transport Planning
Case studies; Commodity flow; Freight and passenger traffic; Intercity travel; Travel demand; Validation; Wisconsin; Census Transportation Planning Package; National Household Travel Survey; Statewide Modeling and Forecasting

Availability: Transportation Research Board Business Office

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Non-Motorized Travel

Bridging the Gaps: How Quality and Quantity of a Connected Bikeway Network Correlates with Increasing Bicycle Use

Authors: Birk, Mia; Geller, Roger Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 85th Annual Meeting

Publication Date: 2006

Abstract:

This paper describes how, since the mid-1990s, Portland, Oregon has pursued a “build it and they will come” strategy by developing its bikeway network to promote increased bicycle use. Between 1992 and 2005 Portland increased its developed bikeway network by 215%, from 83 miles to 260 miles. During this same period, bicycle use in Portland soared. A comparison of 1990 and 2000 census data shows a doubling of bicycle commute trips citywide, with more dramatic increases in close-in neighborhoods. Annual bicycle counts on Portland’s central city bridges, which connect close-in residential neighborhoods across the Willamette River to the city’s primary commercial and employment center, show a 210% increase in bicycle trips between 1991 and 2004. This dramatic increase in bicycling occurred primarily in those corridors where the city has made significant investment to: improve bicycling conditions on the river bridges; create connected bicycle facilities leading to the bridges; and mitigate for traffic designs that are not particularly bicycle-friendly. The corridors where the network is most connected, and where the quality of the facilities is the highest, display the largest growth in bicycle trips. Data collected by Portland demonstrates a strong correlation between a connected, bikeway system constructed to the highest standards, and increases in bicycle use. The authors believe that the City’s investments in specific facility improvements to its downtown Willamette River bridges, as well as to key bridge access routes and connections, have been the primary impetus behind increasing bicycle use.

Subject Areas and Index Terms

Design; Highways; Pedestrians and Bicyclists; Planning and Forecasting; Safety and Human Factors; Terminals and Facilities; I21: Planning of Transport Infrastructure
Access control (Transportation); Bicycle facilities; Bicycle lanes; Bicycle travel; Bicycling; Bikeways; Cyclists; Data collection; Portland (Oregon); Bicycle bridges

Availability: Transportation Research Board Business Office

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Non-Motorized Travel

Development of a Pedestrian Walkability Database of Northern Kentucky Using Geographic Information Systems (GIS)

Authors: Hansen, William; Kalapasev, Ned; Gillespie, Amy; Singler, Mary; Ball, Marsha
Journal of Physical Activity and Health
Publication Date: May 2009

Abstract:

Rising obesity rates in the United States have spurred efforts by health advocates to encourage more active lifestyles including walking. Ensuring the availability, quality, and safety of pedestrian walkways has become an important issue for government at all levels. Pedestrian paths in Campbell County Kentucky were evaluated using a ranking criteria developed by the Walking and Bicycling Suitability Assessment project at the University of North Carolina School of Public Health. A pedestrian path Geographic Information System (GIS) data-layer was created and mobile GIS units were used to assess the sidewalk segments using the ranking. Data from sidewalk surveys were compared with Census 2000 blockgroup information on age of housing, population density, and household transportation characteristics to examine the correlation between these factors and sidewalk presence and quality. The analysis explored to use of census data to predict walkability factors and looked for trends in quality and availability of pedestrian paths over time. Results showed higher overall scores for older urban areas adjacent to the Ohio River and Cincinnati. Housing built in the 1970s and 1980s showed the lowest scores while more recent housing showed improvement over earlier decades. Age of housing was determined to be a useful predictor while economic and population density attributes showed no correlation with walkability factors. Census housing age data is the most useful predictor of walkability demonstrating clear trends over time. The study shows improvements in walkways availability over the past few decades. However infrastructure improvements are needed to provide more extensive pedestrian walkways and linkages between existing walkways in Campbell County.

Subject Areas and Index Terms

Highways; Planning and Forecasting; I72: Traffic and Transport Planning
Databases; Geographic information systems; Pedestrian areas; Pedestrians; Walkways; Kentucky

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Non-Motorized Travel

Estimating Nonmotorized Travel Demand

Authors: An, Meiwu; Chen, Mei

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2007

Abstract:

The modeling of nonmotorized travel demand has mostly been conducted at the large spatial level (e.g., city, county, or census tract level) by using data from the Bureau of the Census and the National Household Travel Survey. This paper introduces a modeling approach for estimating the mode share of nonmotorized trips by using data from multiple sources at a finer spatial scale. The correlations between a number of socioeconomic, environmental, and infrastructural factors and the nonmotorized share of the daily commute are analyzed at the level of the census block group. A neighborhood analysis concept is developed to take the length of nonmotorized trips into consideration. Multiple regression analysis shows that employment density, the percentage of the student population, median household income, and average sidewalk length together provide the strongest power for prediction of the nonmotorized mode share. The potential applications of the methodology and the implications for data collection are also discussed.

Subject Areas and Index Terms

Economics; Education and Training; Highways; Pedestrians and Bicyclists; Planning and Forecasting; Society; I72: Traffic and Transport Planning

Data collection; Employment; Income; Modal split; Mode choice; Multiple regression analysis; Neighborhoods; Nonmotorized transportation; Socioeconomic factors; Students; Travel demand; Travel surveys; Trip length

Availability: Transportation Research Board Business Office

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Non-Motorized Travel

Longitudinal Analysis of Effect of Bicycle Facilities on Commute Mode Share

Authors: Barnes, Gary R; Thompson, Kristin Bethany Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 85th Annual Meeting, 2006

Publication Date: 2006

Abstract:

This paper uses census data to describe changes in bicycle commute mode shares between 1990 and 2000 in the Minneapolis-St. Paul, MN area. It specifically describes the impact of new bicycle facilities that were created during this decade. Previous efforts to understand the impact of facilities on bicycling rates have compared different locations; however, with this method it is not possible to determine the extent to which differences may have already existed before the facilities were built. This study addresses this problem by comparing the same locations before and after facilities were built, using a number of different ways of measuring facility impact. We find that the locations where facilities were built did in fact already have very high bicycle commute mode shares relative to the rest of the region; but also that these differences became even larger after the facilities were built. The areas within our facility buffers showed mode share increasing from 1.7% to 2.0%, while the remainder of the region remained constant at 0.2%. All individual facilities showed statistically significant increases in bicycle mode share. Central city trips crossing the Mississippi River showed a much larger increase than trips that did not; this reflects a number of significant improvements to bicycle accommodation on bridges during this decade. Finally, downtown Minneapolis and the University of Minnesota, where most of the facilities were concentrated, showed large increases in bicycle mode share, while downtown St. Paul, which had few improvements, had no increase.

Subject Areas and Index Terms

Design; Highways; Operations and Traffic Management; Passenger Transportation; Pedestrians and Bicyclists; Planning and Forecasting; Public Transportation; Terminals and Facilities; I72: Traffic and Transport Planning

Bicycle commuting; Bicycle facilities; Bicycle travel; Bicycling; Commuters; Design of specific facilities; Improvements; Mode choice; Twin Cities Metropolitan Area (Minnesota)

Availability: Transportation Research Board Business Office

Order URL: http://trb.org/news/blurbs_detail.asp?id=1121

Non-Motorized Travel

Master Plans for Pedestrian and Bicycle Transportation: Community Characteristics

Authors: Steinman, Lesley; Mark, Doescher; David, Levinger; Perry, Cynthia; Louise, Carter; Amy, Eyler; Semra, Aytur; Cradock, Angie L; Evenson, Kelly R; Heinrich, Katie; Kerr, Jacqueline; Litt, Jill; Severcan, Yupei; Voorhees PhD, Carolyn C

Journal of Physical Activity and Health

Publication Date: Mar 2010

Abstract:

This article will review how recent research demonstrates the importance of targeting the built environment to support individual physical activity, particularly for people experiencing health disparities. Master plans to promote biking and/or pedestrians (BPMPs) are a potential method for environmental change. This article aims to provide a snapshot of plan attributes and a better understanding of demographic, social and transportation characteristics of communities with BPMPs. The authors collected a census sample of BPMPs from 4 states. Population and commuting data were obtained from national statistics. 294 master plans were included, with most plans representing municipalities. 62% of plans targeted biking only, one-fifth targeted biking and walking, and 15% targeted walking only. The sampled locations have a similar demographic profile as the overall U.S. for median age and household income, people of color, high school education, and income inequality. The degree of racial diversity of sampled communities is slightly less than the U.S. average and the percentage of people who walk to work were slightly higher. Given that communities with master plans have a similar profile as the overall U.S., BPMPs could feasibly be spread to communities throughout the country. Further research is planned to describe BPMPs in detail toward informing future plan development.

Subject Areas and Index Terms

Pedestrians and Bicyclists; Planning and Forecasting; Society
Best practices; Bicycle accidents; Bicycle commuting; Bicycle travel; City planning; Master plans;
Pedestrian movement; Pedestrian traffic; Physical fitness; Planning and design; Planning methods

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Non-Motorized Travel

Neighborhood Design and Walking Trips in Ten U.S. Metropolitan Areas

Authors: Boer, Rob; Zheng, Yuhui; Overton, Adrian; Ridgeway, Gregory K; Cohen, Deborah A

American Journal of Preventive Medicine

Publication Date: Apr 2007

Abstract:

Despite substantial evidence for neighborhood characteristics correlating with walking, there has been to date only limited attention paid to possible practical implications for neighborhood design. This study investigates to what extent design guidelines are likely to stimulate walking. Four of the New Urbanism Smart Scorecard criteria and 2 other measures were tested for their influence on walking. Data was obtained from the 1995 National Personal Transportation Survey, U.S. Census 2000, and InfoUSA. Propensity-score methodology was used to control for potential confounders. Higher levels of business diversity and higher percentages of 4-way intersections were associated with more walking. For example, the odds ratio (OR) for walking in a neighborhood with 4 business types present compared to 3 business types was 1.24 (confidence interval [CI] 1.07-1.44) and neighborhoods with 50-74%, 4-way intersections had an OR for walking of 1.4 (CI 1.09-1.78) relative to those with 25-49%, 4-way intersections. The effects of housing density on walking are mixed. Higher parking pressure and older median housing age did not significantly affect walking after covariate adjustment. Block length did not appear to be associated with walking. When considering the New Urbanism Smart Scorecard from the perspective of walking, some, but not all, of its criteria that appear to have a correlation with walking are likely to be useful for designing walkable communities.

Subject Areas and Index Terms

Energy; Environment; Highways; Pedestrians and Bicyclists; Planning and Forecasting; I15:

Environment; I21: Planning of Transport Infrastructure

Metropolitan areas; Mode choice; Sustainable development; Sustainable transportation; Travel behavior;

Travel by mode; Urban design; Walking

Availability: Find a library where document is available

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Non-Motorized Travel

Non-Motorized Commuting in the US

Authors: Plaut, Pnina

Transportation Research Part D: Transport and Environment

Publication Date: Sep 2005

Abstract:

Bicycling, walking to work and working at home are all non-standard, non-motorized forms of commuting. This paper analyzes these non-motorized modes empirically for the United States using journey to work data collected by the U.S. Census Bureau and the Department of Housing and Urban Development. Findings show that higher salary and more expensive housing are associated with greater propensity to work at home, but lower propensity to walk or bicycle. College education is in several cases associated with greater propensity to use non-motorized modes. There are sharp differences in the likelihood of using non-motorized modes across the sub-regions within the metropolitan area. Car ownership, race, gender, and various locational and neighborhood features are shown to affect modal choices regarding non-motorized alternatives, in comparison with car commuting. Living on the West Coast is associated with a greater likelihood of using non-motorized commuting. Findings also show that the majority of non-motorized commuters own at least one car.

Subject Areas and Index Terms

Economics; Highways; Passenger Transportation; Pedestrians and Bicyclists; Planning and Forecasting; Public Transportation; Society; I72: Traffic and Transport Planning
Bicycling; Commuters; Commuting; Demographics; Empirical methods; Socioeconomic factors; Telecommuting; Walking; Work trips; United States

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Non-Motorized Travel

Random-Parameter Model to Explain Effects of Built Environment Characteristics on Pedestrian Accident Frequency

Authors: Ukkusuri, Satish V; Hasan, Samiul; Abdul Aziz, Husain M Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 90th Annual Meeting

Publication Date: 2011

Abstract:

Pedestrian safety has been a major concern for a megacity like New York City. Although pedestrian fatalities show a downward trend, these fatalities constitute a high percentage of overall traffic fatalities in New York City. This paper studies the factors influencing the frequency of pedestrian accidents using data from New York City. Specifically, a random-parameter negative binomial model is developed for predicting pedestrian accident frequencies at the census tract level. The advantage of this approach is that it allows the incorporation of unobserved heterogeneity across the spatial zones in the modeling process. This study reports the influences of a comprehensive set of variables describing the socio-demographic and built environment characteristics on pedestrian accidents. The model has found several parameters as random indicating their heterogeneous influences on the numbers of pedestrian accidents. Overall these findings can help towards framing better policies for improving pedestrian safety.

Subject Areas and Index Terms

Pedestrians and Bicyclists; Safety and Human Factors; I81: Accident Statistics
Accident rates; Binomial distributions; Collisions; Demographics; Metropolitan areas; Pedestrian safety; Policy making; Risk assessment; Safety; Social factors; Urban areas; New York (New York); Built environment

Availability: Transportation Research Board Business Office

Non-Motorized Travel

Regional Bicycle Planning in Los Angeles County: An Analysis of Bike-Transit Integration in the Metro Bicycle Transportation Strategic Plan

Authors: Barajas, Jesus Transportation Research Board-500 Fifth Street, NW Washington, DC 20001
Transportation Research Board 89th Annual Meeting
Publication Date: 2010

Abstract:

Effectively integrating bicycle transportation with transit enhances the attractiveness of transit by offering an alternative to walking and driving to stops and adding the convenience of door-to-door travel not otherwise available. Understanding the population demographics and the barriers to bicycle access on transit is essential in developing a successful implementation plan. This study examines the Los Angeles County Metropolitan Transportation Authority (Metro) Bicycle Transportation Strategic Plan. It develops a data profile on bicyclist characteristics in Los Angeles County using US Census demographic data and spatial data available from Metro. The results of the analysis are used to develop a ranking system to identify the top locations where bicycle-to-transit is most likely. The methodology and recommendations presented demonstrate where resources could be most effectively invested and how the bike-transit plan can be strengthened. While the research is specific to Metro, other agencies can use a similar method in developing their own plans.

Subject Areas and Index Terms

Pedestrians and Bicyclists; Planning and Forecasting; I21: Planning of Transport Infrastructure
Bicycle commuting; Bicycle facilities; Bicycling; Bikeways; Hubs; Intermodal transportation;
Multimodal transportation; Nonmotorized transportation; Public transit; Transportation planning; Los Angeles County (California); Los Angeles County Metropolitan

Availability: Transportation Research Board Business Office

Non-Motorized Travel

The Applicability of Space Syntax to Bicycle Facility Planning

Authors: McCahill, Christopher T; Garrick, Norman

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2008

Abstract:

With the emergence of bicycles as an increasingly viable form of urban transportation comes the need for improved design and planning tools. Existing methods for evaluating bicycle facilities and for prioritizing their construction and maintenance are reviewed. Two components are necessary for such an analysis: one for assessing the quality of the segments that make up the network, and one for assessing the overall network itself. Space syntax analysis is evaluated as a tool for network assessment on the basis of its potential to predict patterns of travel over different network configurations. The theory behind space syntax is evaluated and then tested by using data from the city of Cambridge, Massachusetts. A good model for predicting bicycle volumes within a network can be constructed by using only census data and the space syntax measure "choice." Unlike existing bicycle suitability measures, space syntax describes the importance of segments to the connectivity or completeness of the network.

Subject Areas and Index Terms

Highways; Pedestrians and Bicyclists; Planning and Forecasting; I72: Traffic and Transport Planning
Bicycle facilities; Bicycle travel; Bikeways; City planning; Land use planning; Nonmotorized
transportation; Urban transportation; Cambridge (Massachusetts); Space Syntax (Modeling tool);
Connectivity

Availability: Transportation Research Board Business Office

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Non-Motorized Travel

Walking the Walk: The Association Between Community Environmentalism and Green Travel Behavior

Authors: Kahn, Matthew E; Morris, Eric A
Journal of the American Planning Association
Publication Date: 2009

Abstract:

This study investigates whether green beliefs and values are associated with green travel behavior. The authors examine whether residents of communities with environmentalist attributes drive less, consume less gasoline, and are more likely to commute by private vehicle. Demographic, transportation, and built environment data from the 2000 Census of Population and Housing and the 2001 National Household Travel Survey was used. Indicators of green ideology were developed using voting records, political party membership, and data on hybrid auto ownership. Using both individual households and small areas as units of analysis, ordinary least squares regression and linear probability models were estimated. Findings show that green ideology was associated with green travel behavior. People with green values are more likely than others to be located in communities with attributes conducive to environmentally friendly travel, such as high population densities and proximity to city centers and rail transit stations. Residents of green communities also engage in more sustainable travel than residents of other communities. Green ideology may cause green travel behavior because greens derive utility from conservation or because greens locate in areas with characteristics that promote sustainable travel. If greens conserve because they derive utility from it, then environmental education and persuasion may bring about more sustainable travel. It also is possible that green travel behavior can cause green beliefs. If so, it is possible that attracting more travelers to alternate modes and reducing vehicle miles traveled may increase environmental awareness, which may in turn promote other green behavior.

Subject Areas and Index Terms

Environment; Highways; Pedestrians and Bicyclists; Planning and Forecasting; Public Transportation; I15: Environment; I72: Traffic and Transport Planning
Communities; Environment; Least squares method; Mode choice; Probability; Social values; Travel behavior; Beliefs

Availability: Find a library where document is available

Order URL: <http://worldcat.org/oclc/4626214>

Other/Policy

Application of Carsharing in Small Cities in the United States: Framework for Implementation and Analysis

Authors: Faghri, Ardeshir; Catherine, Adam L; Trick, Julie; Fortunato III, Bernard R; Suarez, Robert E
Transportation Research Board-500 Fifth Street, NW Washington, DC 20001
Transportation Research Board 87th Annual Meeting
Publication Date: 2008

Abstract:

Carsharing is an exciting new alternative transportation mode that is gaining popularity throughout the United States. Carsharing is becoming increasingly popular because it ties directly into the transit system by providing an alternative to car ownership for trips that cannot be made easily using mass transit. Few attempts have yet been made to introduce carsharing in smaller cities; however, as carsharing continues to grow in popularity, more small cities will undoubtedly be interested in its implementation. Small cities are defined in this paper as cities with populations between 50,000 and 150,000, with a well-defined central business district and a sizeable employment base. These cities present unique situations for carsharing due to their limited transit networks, lower population densities, and varied demographics. This paper analyzes US carsharing organizations, with a focus on small city programs, and provides both the basis for an implementation framework and steps for program analysis. Various studies have been conducted on carsharing in the United States, but only a few have tried to quantify the relationship between characteristics of a city, in terms of form and function, and the size and scope of a carsharing program. Census data will be analyzed in a regression analysis in an attempt to determine relationships between the membership size of a carsharing program and the demographic, social, and economic characteristics of a city. Small city local governments, grassroots efforts, and transit agencies can use these analyses and recommendations to help guide their own implementation efforts.

Subject Areas and Index Terms

Data and Information Technology; Public Transportation
Alternatives analysis; Automobile ownership; Mode choice; Public transit; Regression analysis;
Ridesharing; Small cities; Transit operating agencies; United States; CarSharing Portland (Oregon)

Availability: Transportation Research Board Business Office

Other/Policy

Notable Practices for Incorporating Rapidly Urbanizing Rural Areas into the Metropolitan Planning Process

Authors: Overman, John H; Cherrington, Linda K Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 86th Annual Meeting

Publication Date: 2007

Abstract:

There is a demonstrated need to include rural areas projected to become urbanized by 2010 in the metropolitan transportation planning process. This research is to identify, through a peer research process, novel and low-cost tools and approaches for improving metropolitan transportation planning for rapidly urbanizing rural areas. Results of the 2000 Census showed a gap in the planning process for rural communities near rapidly growing urbanized areas and new urban centers. The metropolitan transportation plan (MTP) or regional transportation plan (RTP) for long-range planning should, but often does not, include areas that will be urbanized within next 20 years. Key rural stakeholders omitted from the process are unprepared for the change in status and funding eligibility for urbanized areas. This research report references examples of innovative transportation planning practices by states and metropolitan planning organizations which include rural communities near rapidly growing urbanized areas, or small towns that are expected to become urbanized by the next U. S. Census. The goal is to identify methods to strengthen the involvement and contribution of key rural stakeholders in the metropolitan planning process.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Public Transportation; Society; I72: Traffic and Transport Planning City planning; Long range planning; Master plans; Metropolitan planning organizations; Regional development; Regional transportation; Rural areas; Rural development; Rural transportation; Strategic planning; Transportation planning; Urban areas; Urban des

Availability: Transportation Research Board Business Office

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Other/Public Involvement

Geography of Public Participation: Using Geographic Information Systems to Evaluate Public Outreach Program of Transportation Planning Studies

Authors: Prevost, Daniel L

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2006

Abstract:

How effective are public involvement programs in reaching a representative and sufficient sampling of public input for a planning study? While evaluations of public involvement programs are traditionally qualitative, this paper shows how geographic information systems (GIS) can provide an appropriate and productive means of quantitatively evaluating the effectiveness of an agency's outreach program. This study used both mailing list and comment data from the Dulles Corridor Rapid Transit Project Environmental Impact Statement of the Virginia Department of Rail and Public Transportation to evaluate the agency's outreach program. The data were analyzed to determine the project's effectiveness in informing and receiving feedback from potential stakeholders. The analysis showed that 50% of the mailing list members lived within 1/2 mi of the proposed project. "Inclusion rates" were calculated, with household participation rates in census block groups near the project ranging from 0 to 82%. The Tysons Corner segment of the project, where the proposed rail line would be closest to residences, on average had the highest inclusion rates, with 16.5% of households within 1/2 mi of the proposed stations participating. Of the six block groups meeting the project's environmental justice thresholds, half had an inclusion rate below 5%. Analysis of commenters showed that those closest to the project were most likely to comment on the study and to express opposition to the project in their comments. This study reinforces many traditional stereotypes in public participation, but, more important, it demonstrates a method by which deficiencies in outreach efforts can be identified and measures taken to improve participation. By using the GIS-generated maps, agencies can readily identify geographic areas that may be affected by the project, yet have low participation rates, and use this information to develop additional outreach tools to target these populations.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Public Transportation; Society; I72: Traffic and Transport Planning
Environmental impact statements; Environmental justice; Geographic information systems; Public participation; Stakeholders; Transportation planning; Dulles Corridor Rapid Transit Project; Outreach programs

Availability: Transportation Research Board Business Office Order URL:

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Other/Safety

Community Design and Transportation Safety

Authors: Garrick, Norman University of Connecticut, Storrs-Center for Transportation and Urban Planning, 261 Glenbrook Road Storrs, CT 06269-2037 ; New England University Transportation Center-Massachusetts Institute of Technology, 77 Massachusetts Avenue Cambridge, MA 0213

Monograph

Publication Date: Mar 2011

Abstract:

The goal of this study was to assess how street network characteristics affect road safety. Using a spatial geographic information system (GIS) analysis together with a novel approach to classifying street network patterns, the research showed that both street network and street characteristics are significantly correlated with road safety outcomes. The basis for this analysis was over 230,000 individual crash records geo-coded in a GIS database in over 1000 census Block Groups in 24 California cities. In conducting this study, the authors controlled for variables such as street patterns, vehicle volumes, activity levels, income levels, and proximity to limited access highways and to the downtown area.

Subject Areas and Index Terms

Highways; Safety and Human Factors; I82: Accidents and Transport Infrastructure
Accident records; Cities; Communities; Geographic information systems; Highway safety; Streets; Traffic volume; California; Activity levels; Street patterns

Availability: New England University Transportation Center

Other/Safety

Effect of Trauma Systems on Motor Vehicle Occupant Mortality: a Comparison Between States With and Without a Formal System

Authors: Shafi, Shahid; Nathens, Avery B; Elliott, Alan C; Gentilello, Larry

Journal of Trauma, Injury, Infection and Critical Care

Publication Date: Dec 2006

Abstract:

This article presents research that hypothesizes that a statewide trauma system (TS) independently contributes to a reduction in mortalities associated with motor vehicle injuries regardless of other factors (i.e., improvements to cars, roads, restraint systems, drunk driving rates). The authors use data from several federal agencies, including the Centers for Disease Control (CDC), the National Highway Traffic Safety Administration (NHTSA), the United States Department of Transportation (DOT), and the United States Census Bureau. The research compares aggregate motor vehicle occupant death rates (MVO) per 100,000 population with states having and not having a TS in place. Results show that states having a TS increased from 7 (1981) to 36 (2002), while MVO death rates decreased by 2.6 per 100,000 population (for a 95% confidence interval). The authors note that while independent predictors of MVO mortality (e.g., income, primary seat belt laws, restraint system use, speed limits, rural/urban population distributions) are present, the presence of a TS is not. The authors conclude that while MVO death rates have decreased over time (and are lower in TS states), many factors are involved and cannot solely be attributed to TS presence. They acknowledge that more research is needed to more definitively identify the benefits of a statewide trauma system.

Subject Areas and Index Terms

Highways; Law; Passenger Transportation; Safety and Human Factors; Society; I83: Accidents and the Human Factor; I84: Personal Injuries

Confidence intervals; Crash injuries; Drunk driving; Fatalities; Federal government agencies; Human factors in accidents; Improvements; Injury rates; Laws and legislation; Motor vehicles; Network analysis (Planning); Population; Population movements; Rest

Availability: Find a library where document is available Order URL: <http://worldcat.org/issn/00225282>

Other/Safety

Influence of Land Use, Population, Employment, and Economic Activity on Accidents

Authors: Kim, Karl; Brunner, I Made; Yamashita, Eric Y

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2006

Abstract:

In this study, the relationships between land use, population, employment by sector, economic output, and motor vehicle accidents are explored. Through the use of comprehensive data from the largest county in Hawaii, the relationships are modeled in a uniform 0.1-mi² (0.259-km²) grid structure and with various linear regression models. This method has an advantage over other approaches that have typically used unevenly sized and shaped traffic analysis zones, census tracts, or block groups. Positive, statistically significant relationships among population, job counts, economic output, and accidents are identified. After some of the general effects are sorted through, a negative binomial (NB) model is used to look at the absolute and relative effects of these factors on the number of pedestrian, bicycle, vehicle-to-vehicle, and total accidents. With a multivariate model, the different effects can be compared and the specific nature of the relationships between zonal characteristics and accidents can be identified. While there is, in general, a significant relationship between all these values, the effects are more pronounced with vehicular crashes than with those involving pedestrians or bicyclists. In addition to the general effects, the influences of employment, economic development, and various activities on the level and type of accidents are investigated. Some challenges associated with modeling these relationships are described, as are implications for traffic safety research. The paper adds to the growing volume of traffic safety research integrating NB regression models and geographic information systems.

Subject Areas and Index Terms

Data and Information Technology; Economics; Highways; Safety and Human Factors; Society; I80: Accident Studies

Accident characteristics; Bicycle accidents; Economic development; Employment; Geographic information systems; Highway safety; Land use; Multivariate analysis; Pedestrian accidents; Population; Regression analysis; Traffic accidents; Traffic safety; Honol

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Other/Vehicle ownership

Unpacking Preference:How Previous Experience Affects Automobile Ownership

Authors: Weinberger, Rachel R; Goetzke, Frank Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 88th Annual Meeting

Publication Date: 2009

Abstract:

As environmental concerns mount alongside increasing auto dependence, research has been devoted to understanding decisions regarding the number of automobiles households own. Results tend to show that aggregate VMT is mediated by auto ownership; auto ownership (a normal good) is a function of income and density. The density effect may be overstated as poorer people tend to live in high density environments. In the current research we use the 2000 U.S. Census to demonstrate the importance of preference and preference formation by studying auto ownership among recent movers. Residents of the nation's transit-oriented cities who have moved from metropolitan areas own fewer vehicles than their counterparts from non-metropolitan areas. Using Bayesian learning in the analysis, we demonstrate these results are due to learned preferences for levels of car ownership. From this it can be derived that an increase or decrease in automobile ownership is self-reinforcing, or path-dependent, which means, once the "cultural knowledge" of living without cars is lost, it will be difficult to regain. There should be a focus on children to familiarize them early with walking, biking and public transit as an alternative to the car. This familiarity will lead to preferences for fewer cars.

Subject Areas and Index Terms

Highways; Safety and Human Factors; Society; I15: Environment
Automobile ownership; Automobile travel; Culture (Social sciences); Demographics; Households;
Metropolitan areas; Rural areas; Social factors; Transportation modes; Travel behavior; Travel patterns

Availability: Transportation Research Board Business Office

Other/Vehicle ownership

Using Census Aggregates to Proxy for Household Characteristics: An Application to Vehicle Ownership

Authors: Adjemian, Michael; Williams, Jeffrey

Transportation: Planning, Policy, Research, Practice

Publication Date: Mar 2009

Abstract:

Enhancing data from micro-level records with socioeconomic and demographic information from Census records can substitute for missing variables in choice models. This study investigates the potential usefulness of this proxy approach to modeling discrete choice vehicle ownership. The authors use data from the 2000 Bay Area Travel Survey and contemporaneous U.S. Census files to compare three models of vehicle ownership, drawing area-wide proxies from increasing levels of aggregation. The models with proxies are compared with a parallel model that uses only survey data. The results indicate that the proxy models are preferred in terms of model selection criteria, and predict vehicle ownership as well or better than the survey model. Parameter values produced by the proxy method effectively approximate those returned by household survey models in terms of coefficient sign and significance, particularly when the aggregate variables are representative of their household-level counterparts. The proxy model with the narrowest level of aggregation achieved the best fit, coefficient precision, and percentage of correct prediction. Because aggregate proxies are less expensive to acquire and analyze than the traditional survey-driven approach, researchers should consider the promise offered by the proxy approach.

Subject Areas and Index Terms

Highways; Planning and Forecasting

Automobile ownership; Census; Choice models; Demographics; Households; Socioeconomic factors; Surveys; San Francisco Bay Area

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Population Dynamics

Access to Community Resources for the Elderly: Illustration Based on Transportation Network Analysis

Authors: Pulugurtha, Srinivas Subrahmanyam; Krishnakumar, Vanjeeswaran; Hirshorn, Barbara; Stewart, John Transportation Research Board-500 Fifth Street, NW Washington, DC 20001
Transportation Research Board 85th Annual Meeting
Publication Date: 2006

Abstract:

This paper discusses the need for, and the illustration of, a methodology for accessing community-based resources by older resident populations. The methodology involves: (1) identifying census blocks groups with older populations that can be characterized as at “high -risk” and “moderate -risk” for vulnerability in a community setting; (2) geocoding locations of community-based resources (e.g. health and social services, law enforcement and emergency services, and local government offices); (3) conducting a transportation network analysis; and (4) identifying the best travel path for older residents to access various needed community resources. “High -risk” and “moderate -risk” census blocks groups are identified as a function of the older population below the poverty threshold, the elderly population with one or more disabilities, and the older population living alone in the census block group. Network analysis tools in standard Geographic Information System (GIS) software are used to identify the best travel path to access community resources from “high -risk” and “moderate -risk” census block groups. The best travel path is identified based on travel distance, travel time, traffic volumes, number of intersections along the path, and the number of crashes involving older residents. The methodology is illustrated using data from a project that used GIS methods to indicate the physical relationship of older sub-populations on the “east-side” valley of the Las Vegas, Nevada metropolitan area to needed community resources.

Subject Areas and Index Terms

Highways; Operations and Traffic Management; Planning and Forecasting; Security and Emergencies; Society; I72: Traffic and Transport Planning
Access; Aged; Community action programs; Emergency transportation; Geographic information systems; Law enforcement; Network analysis (Planning); Population; Resource development and utilization; Retirement; Las Vegas Metropolitan Area

Availability: Transportation Research Board Business Office

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Population Dynamics

Demographics Matter: Travel Demand, Options, and Characteristics Among Minority Populations

Authors: Contrino, Heather; McGuckin, Nancy

Public Works Management & Policy

Publication Date: Apr 2009

Abstract:

Race and ethnicity are important in terms of travel choices, needs, and options. Many factors contribute to the differences in patterns of travel within population segments. This paper uses data from the US Census Bureau and the National Household Travel Survey Program to examine the demographic characteristics of minority populations and the resulting differences in their travel behavior. As the U.S. society becomes more diverse over the next few decades, a significant portion of growth in travel demand will come from minority populations. Minorities on average are more transit dependent, have higher automobile occupancies, and have lower levels of vehicle ownership. Factors such as these should be considered when forecasting travel demand and developing policy and planning initiatives.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Public Transportation; Society; I72: Traffic and Transport Planning Demographics; Ethnic groups; Forecasting; Minorities; Race; Transportation planning; Transportation policy; Travel behavior; Travel demand

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Population Dynamics

Does Proximity to Activity-Inducing Facilities Explain Lower Participation in Physical Activity by Low-Income and Minority Populations?

Authors: Deka, Devajyoti; Connelly, Mary Transportation Research Board-500 Fifth Street, NW
Washington, DC 20001

Transportation Research Board 90th Annual Meeting

Publication Date: 2011

Abstract:

Like the rest of the nation, low-income and minority populations in New Jersey have a higher rate of obesity and a lower rate of participation in physical activity. This study examines if lower proximity to activity-inducing infrastructure and facilities, including bicycling routes and gymnasiums, could be a reason for their lower participation in physical activity. Past studies have shown that proximity to activity-inducing facilities is generally associated with greater participation in physical activity for the general population. Unfortunately, some studies have found that low-income and minority populations have lower proximity to such facilities. Other studies have indicated that proximity to facilities may not influence their participation in physical activity to the same extent as the general population. This study makes a statewide assessment of proximity to existing fitness facilities, existing bicycling facilities, and programmed bicycling/pedestrian projects in New Jersey. To examine if proximity to activity-inducing facilities is lower for the low-income and minority populations, one-way analysis of variance (ANOVA) was used. Analysis was carried out at the level of census block group and municipality. The results provide no evidence that low-income and minority populations have lower proximity to activity-inducing facilities. The analysis also shows that programmed bicycling/pedestrian projects are favorably located for these populations. The study concludes that the lower participation of low-income and minority populations in New Jersey must be explained by behavioral factors rather than proximity to facilities.

Subject Areas and Index Terms

Pedestrians and Bicyclists; Safety and Human Factors; I71: Traffic Theory
Activity centers; Behavior; Bicycle facilities; Low income groups; Minorities; Obesity; Physical fitness;
Recreational facilities; Socioeconomic factors; Trip length; New Jersey; Proximity

Availability: Transportation Research Board Business Office

Population Dynamics

Evaluating The Environmental Justice Impacts of Transportation Improvement Projects in the US

Authors: Chakraborty, Jayajit

Transportation Research Part D: Transport and Environment

Publication Date: Sep 2006

Abstract:

This paper considers the environmental justice implications of transportation plans and policies in the US. Despite several administrative orders and federal mandates, few specific guidelines exist for assessing the disproportionate effects of transportation projects and implementing environmental justice principles in the transportation planning process. The paper develops a set of indices to measure the environmental justice impacts of transportation projects; and applies these to evaluate proposed capacity improvement projects in Volusia County, Florida. The indices developed serve as preliminary indicators that address the key research dimensions of environmental justice, meet the requirements of federal mandates that enforce principles of environmental justice, and are formulated on the basis of census data and tools available in geographic information systems software.

Subject Areas and Index Terms

Data and Information Technology; Energy; Environment; Highways; Planning and Forecasting; Policy; Society; I15: Environment; I72: Traffic and Transport Planning
Case studies; Census; Environmental justice; Evaluation; Federal laws; Geographic information systems; Transportation planning; Transportation policy; Volusia County (Florida); Capacity improvement

Availability: Find a library where document is available

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Population Dynamics

Immigrants and Resource Sharing: The Case of Carpooling

Authors: Blumenberg, Evelyn; Shiki, Kimiko Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 87th Annual Meeting

Publication Date: 2008

Abstract:

Immigration has altered the demographic composition of California where the foreign-born population now comprises more than one-quarter of the population. Despite this staggering figure, surprisingly little academic scholarship has focused on the travel patterns and behavior of immigrants. Existing studies on this population group have largely centered on their use of public transit, yet most immigrants travel by automobile. In this study, we use data from the 2000 Public Use Microdata Sample (PUMS) of the U.S. Census and multinomial logistic models to examine the carpooling behavior of foreign-born workers in California relative to solo driving, public transit, and walking. The models focus on the effect of nativity, length of residency, and race and ethnicity on mode choice. The findings show that with time in the U.S. immigrants tend to assimilate away from alternative modes of transportation (carpool, public transit, and walking) toward solo driving. Despite this trend, the odds of carpooling for Asian and Hispanic immigrants remain high even after many years in the U.S. These findings help us to better understand the prevalence and role of resource sharing among immigrant households. Further, they will aid transportation planners in planning for the transportation needs of this growing population group.

Subject Areas and Index Terms

Economics; Freight Transportation; Highways; Pedestrians and Bicyclists; Planning and Forecasting; Public Transportation; Society; I10: Economics and Administration; I72: Traffic and Transport Planning Asians; Automobiles; Behavior; Carpools; Demographics; Hispanics; Logistics; Mode choice; Persons by race and ethnicity; Public transit; Social factors; Travel demand; Travel patterns; Walking; California; Immigrants; Public Use Microdata Sample; U.S. Bur

Availability: Transportation Research Board Business Office

Population Dynamics

Immigration, Residential Location, Car Ownership, and Commuting Behavior: Multivariate Latent Class Analysis from California

Authors: Beckman, Jarad David; Goulias, Konstadinos G Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 87th Annual Meeting

Publication Date: 2008

Abstract:

Utilizing a latent class cluster analysis, this paper investigates spatial and social and economic determinants of the joint distribution among travel time, mode choice, and departure time for work using the 2000 Census long form data. Through a latent tree structure analysis, age, residential location, immigration stage, gender, personal income, and race are found to be the primary determinants in the workplace commute decision-making process. By defining several relatively homogeneous population segments, the likelihood of falling into each segment is found to differ across age groups and geography, with different indicators affecting each group differentially. This analysis complements past studies that used regression models to investigate socio-demographic indicators and their impact on travel behavior in two distinct ways: a) analyses is done by considering travel time, mode choice, and departure time for work simultaneously, and b) heterogeneity in behavior is accounted for using methods that identify different groups of behavior and then their determinants. Conclusively the method here is richer than many other methods used to study the ethnically diverse population of California and shows the addition of geographic location and latent segment identification to greatly improve our understanding of specific behaviors.

Subject Areas and Index Terms

Economics; Geotechnology; Highways; Planning and Forecasting; Safety and Human Factors; Society; I10: Economics and Administration; I72: Traffic and Transport Planning Behavior; Cluster analysis; Commuting; Departure time; Gender; Geography; Mode choice; Socioeconomic areas; Travel time; Workplaces; California; Immigrants

Availability: Transportation Research Board Business Office

Population Dynamics

Is Shorter Still Better? Updated Analysis of Gender, Race, and Industrial Segregation in San Francisco Bay Area Commuting Patterns

Authors: Weinberger, Rachel R Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 85th Annual Meeting, 2006

Publication Date: 2006

Abstract:

In 1998, Chapple and Weinberger found that neither human capital nor labor market segmentation theories explain why women's journey to work travel times are typically shorter than men's. This paper updates the 1998 paper, adding analysis based on the 2000 PUMS data for the San Francisco Bay Area. Analysis of the 1980, 1990 and 2000 census data offer insights but show that neither theory satisfactorily explains the differences in male and female commute times. Findings include that in the study area both men and women who live in urban areas tend to have shorter commute times than their suburban counterparts; that gendered differences disappear for urban dwellers even while they persist between men and women controlling for many other socio-demographic characteristics; and that black men and women have disproportionately long commutes even when controlling for income and mode. Understanding the trend in travel time differences gives greater insight into questions of mobility and accessibility when we consider questions of transportation/land use interactions and transportation supply. Coupling this with our increased understanding of job opportunity distribution will aid our ability to make policy decisions that are both equitable and efficient.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Public Transportation; Society; I10: Economics and Administration Accessibility; Blacks; Commuting; Females; Gender; Income; Industrial areas; Jobs; Males; Mobility; Opportunity models; Race; Suburbs; Transportation modes; Travel patterns; Travel time; Trend (Statistics); Urban areas; Work trips; San Francisco Bay Area

Availability: Transportation Research Board Business Office

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Population Dynamics

Older Driver Safety: Attitudes and Beliefs

Authors: White, Marie; McKay, Mary Pat; Shaffer, Alison Association for the Advancement of Automotive Medicine-P.O. Box 4176 Barrington, IL 60011-4176

Annals of Advances in Automotive Medicine

Publication Date: Oct 2009

Abstract:

This paper describes how America is graying. The United States (U.S.) Census projections estimate of the population 65 years and older will more than double between the 2000 census and 2030. With 6,738 fatalities in 2006, motor vehicle crashes are the second leading cause of injury-related death in this age group. In 2003, the 28.6 million licensed drivers over 65 comprised 14.6 percent of all drivers. By 2030, there will be more than 57 million older drivers who will encompass more than 20 percent of all drivers. As drivers age over 65, their risk of being involved in a fatal crash increases, partly because this age group is more vulnerable to crash forces and resulting injuries due to increased fragility. The choice to alter driving behavior or to stop driving altogether appears to be highly personal and multi-factorial, including concerns about independence, driver confidence, ease of access to alternative methods of transportation, and family influences. As relicensing regulations vary from state to state, it is important to understand individual reasons impacting the decision to drive as well as society's level of risk tolerance. The objectives of this paper were to: (1) assess the waiting area of a geriatrics clinic as location to study older drivers and their families; (2) identify barriers to family involvement in addressing older driver safety; (3) understand attitudes towards licensure and retesting; and (4) describe concerns around alternate transportation systems.

Subject Areas and Index Terms

Highways; Safety and Human Factors; Society; I83: Accidents and the Human Factor
Accident risk forecasting; Aged drivers; Attitudes; Driver licensing; Fatalities; Human factors in accidents; Risk analysis; Social factors; Traffic accidents

Availability: Association for the Advancement of Automotive Medicine; Find a library where document is available

Order URL: <http://worldcat.org/issn/19432461>

Population Dynamics

Planning for Demographic Diversity: The Case of Immigrants and Public Transit

Authors: Blumenberg, Evelyn; Evans, Alexandra Elizabeth

Journal of Public Transportation

Publication Date: 2010

Abstract:

This research examines the significant effects of immigration on transit use. Drawing on data from the U.S. Census, we examine how the enormous influx of immigrants to California has altered the demographics of transit commuting in the state and contributed importantly to a growth in transit ridership. California immigrants commute by public transit at twice the rate of native-born commuters, comprise nearly 50 percent of all transit commuters in the state, and are responsible for much of the growth in transit commuting in the state. But over time, immigrants' reliance on transit declines. Transit managers would be well advised to plan for these inevitable demographic changes by enhancing transit services in neighborhoods that serve as ports to entry for new immigrants, those most likely to rely on public transportation.

Subject Areas and Index Terms

Public Transportation; Society

Commuters; Commuting; Demographics; Ethnic groups; Public transit; Ridership; California; Immigrants; Immigration; Social norms

Availability: Find a library where document is available

Order URL: <http://worldcat.org/oclc/30755822>

Population Dynamics

Policy of Enforcement: Red Light Cameras and Racial Profiling

Authors: Eger III, Robert J; Fortner, C Kevin; Slade, Catherine P Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 86th Annual Meeting

Publication Date: 2007

Abstract:

The use of red light cameras has focused on traffic safety issues with well established results. In this paper we explore the potential public policy benefits of red light cameras as tools to assess information relating to racial profiling. Specifically, we explore the question of whether or not some of the often conflicting rhetoric about racial profiling and gaps in the literature concerning the prevalence of racial profiling can be cleared up using red light camera observations to measure racial disparities in traffic violations. Using data from cameras at intersections matched to census data, we find that although citations from the red light cameras are issued to a disproportionate number of minorities based on the racial composition of the population surrounding the location of the infraction, the racial composition of the violators is consistent with the racial composition of the block group in which they reside. This confirms those studies of racial profiling that show the fallacy of measuring racial disparities of persons stopped, cited, or arrested for traffic violations based on location of the violation. Instead, we propose that racial profiling in traffic stops is not occurring if the distribution of violators cited by a red light camera is consistent with the distribution of violators cited by law enforcement officers. Using the red light camera violation information and census data, this study finds no evidence of differential behavior in red-light running based on race and evidence of a decrease in red-light running behavior for low-income groups. Our study indicates that red light cameras may have a present and future role in assisting public policy makers on issues of racial profiling thresholds.

Subject Areas and Index Terms

Data and Information Technology; Economics; Highways; Society; I10: Economics and Administration Demographics; Digital cameras; Race; Red light running; Regression analysis; Socioeconomic factors; Statistical analysis; Traffic law enforcement; Racial profiling

Availability: Transportation Research Board Business Office

Order URL: http://gulliver.trb.org/news/blurbs_detail.asp?id=7286

Population Dynamics

Spatial Decision Support System for Low-Income Families: Relocation Tool for the Chicago, Illinois, Region

Authors: Sriraj, P S; Minor, Mark; Thakuriah, Piyushimita

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2006

Abstract:

Housing relocation or housing mobility is not uncommon in the United States, with the average family relocating once every 6 years. As part of this process, individuals and families take into account a variety of factors. One of the important factors is that of transportation and its availability. Various researchers have studied the impact of transportation information on relocation choice. However, the need for a structured methodology that incorporates various factors, such as transportation, has been highlighted from a study of the current practice of relocation counseling. The objectives of this paper are threefold: (a) to develop an analytical hierarchy process to rank census tracts for relocation purposes of individuals, (b) to present a prototype of the spatial decision support system (SDSS) with an example, and (c) to evaluate the impact of relocation choice of individuals by using a spatially unconstrained approach. With data from the six-county northeastern Illinois region, the SDSS is developed and showcased with the help of a sample application. Two scenarios are tested for each respondent. The first is based on only housing criteria, and the second compares all criteria in the analytical hierarchy process matrix with each other. The improvements in travel time determined from the results of the two scenarios are compared, and the results are discussed to highlight the salient features of the decision support system.

Subject Areas and Index Terms

Economics; Society; Transportation (General); I10: Economics and Administration
Decision support systems; Families; Jobs; Low income groups; Transportation; Travel time; Chicago (Illinois); Northeastern Illinois; Access to jobs; Affordable housing; Family relocation; Relocation

Availability: Transportation Research Board Business Office

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Order URL: <http://worldcat.org/isbn/030909965X>

Population Dynamics

Transportation Assimilation: Immigrants, Race and Ethnicity, and Mode Choice

Authors: Blumenberg, Evelyn; Shiki, Kimiko Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 86th Annual Meeting

Publication Date: 2007

Abstract:

Immigration has altered the demographic composition of California where the foreign-born population now comprises more than one-quarter of the population. Despite this staggering figure, surprisingly little academic scholarship has focused on the travel patterns and behavior of immigrants. In this study, we use data from the 2000 Public Use Microdata Sample (PUMS) of the U.S. Census to examine the commute mode choice of California's foreign-born population and, more specifically, the relationship between length of residency in the U.S. and transit usage rates, controlling for other factors likely to influence mode choice. We find that recent immigrants "regardless of race or ethnicity" are significantly more likely to commute by transit than native-born adults. After the first five years in the U.S., assimilation to automobile use occurs across all immigrant groups; however, the rate of assimilation varies significantly by racial and ethnic group even controlling for income. Asian immigrants rapidly move to automobile use while Hispanic immigrants remain more likely to use transit than native-born commuters even after 20 years in the U.S. The findings from this study suggest that factors in addition to income and residential location "such as cultural differences" affect commute mode choice. Further, since assimilation to automobile use occurs across all immigrant groups, without a steady stream of new immigrants as well as policy changes to either slow the assimilation process or attract new riders, transit ridership in California likely will decline.

Subject Areas and Index Terms

Planning and Forecasting; Public Transportation; Society
Demographics; Ethnic groups; Hispanics; Mode choice; Persons by race and ethnicity; Transportation planning; Travel patterns; California; Immigrants; Ethnicity; Inequality (Ethnic groups); Sociodemographics

Availability: Transportation Research Board Business Office

Order URL: http://gulliver.trb.org/news/blurbs_detail.asp?id=7286

Population Dynamics

Transportation Barriers and Travel Mode Preferences of Mexican Immigrants In California

Authors: Donahue, Moira; Rodier, Caroline J Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 87th Annual Meeting, 2008

Publication Date: 2008

Abstract:

In 2000, more than a quarter of California's Mexican immigrants lived in poverty, and a little more than half of Mexican-immigrant adults had access to a car for travel to work. Despite their large population share and propensity to use public transit, there is a dearth of research specific to Mexican-immigrant travel as well as for immigrant travel in general. To provide insights into this area, we present the results of interviews with representatives from community-based organizations throughout the state of California that serve large Mexican-immigrant communities. We investigated transportation use, common destinations, travel needs, travel mode preferences, and travel mode challenges. From our findings, common destinations of Mexican immigrants included workplaces, grocery stores, health care facilities, social service agencies, schools, and recreation sites. Cars and carpools were described as the primary modes of travel; in some areas with high quality transit service, transit also was described as a primary mode. Inaccessible destinations were associated with one's access to transportation; pursuing job opportunities, access to health care, making grocery store trips, and isolation in rural areas were reoccurring themes. The car was described as the most preferred mode, yet it was made evident that transit is often preferable to driving when it is accessible. Car travel barriers included lack of drivers' licenses and costs of car ownership. Transit barriers included access issues in rural areas, limited service hours for commute needs, possible encounters with Immigration officials, and fear of crime and discrimination. Bicycle and pedestrian travel were described as modes of last resort.

Subject Areas and Index Terms

Economics; Highways; Operations and Traffic Management; Pedestrians and Bicyclists; Planning and Forecasting; Public Transportation; Society; I10: Economics and Administration; I72: Traffic and Transport Planning

Automobiles; Behavior; Bicycle travel; Carpools; Commuting; Demographics; Ethnic groups; Mode choice; Origin and destination; Public transit; Rural areas; Social factors; Travel demand; Walking; California; Immigrants; Mexican Americans; U.S. Bureau of th

Availability: Transportation Research Board Business Office

Population Dynamics

Transportation Costs, Inequities, and Trade-Offs

Authors: Sanchez, Thomas W; Makarewicz, Carrie; Haas, Peter M; Dawkins, Casey J Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 86th Annual Meeting

Publication Date: 2007

Abstract:

Transportation costs are frequently identified as having socially inequitable effects, especially for low-income households who have limited financial resources. The concerns are that low-income persons spend a disproportionately larger proportion of their total income on transportation due to the fixed costs associated with financing automobile purchase. Furthermore, low income persons unable to purchase an automobile often reside in locations that are not well connected by public transit to employment concentrations. This study examines neighborhood housing and transportation choices available to working households in 28 metropolitan regions in the U.S. The study is unique because it analyzes household characteristics at the census travel level. We first describe the trends in transportation costs by household income levels. We then argue that based on microeconomic theory predicting trade-offs between housing and transportation costs (HT) as households choose residential locations, transportation cost burdens should not be considered separate from housing costs. In addition, we perform a cluster analysis to show that low income households are significantly burdened by the combination of housing and transportation costs and that these households and their neighborhoods potentially experience other social and economic burdens because of it.

Subject Areas and Index Terms

Economics; Energy; Environment; Society; Transportation (General); I15: Environment Alternatives analysis; Costs; Economic analysis; Economics; Fixed costs; Households; Income; Low income groups; Operating costs; Social factors; Transportation; Fuel costs; Inequality; Transportation costs

Availability: Transportation Research Board Business Office

Order URL: http://gulliver.trb.org/news/blurb_detail.asp?id=7286

Population Dynamics

Transportation Network Analysis to Access Community Resources by Older Populations

Authors: Pulugurtha, Srinivas Subrahmanyam; Hirshorn, Barbara A; Krishnakumar, Vanjeeswaran K; Steward, John F American Society of Civil Engineers-1801 Alexander Bell Drive Reston, VA 20191-4400

Applications of Advanced Technology in Transportation. The Ninth International Conference, 2006
Publication Date: 2006

Abstract:

This paper discussed the need for, and illustration of, a methodology for accessing community-based resources by older resident populations. The methodology involves: (1) identifying census blocks groups with older, non-institutionalized populations that may be “at high-risk” or “at moderate risk” of a decreased ability to reside in a non-institutionalized community-based setting, (2) geocoding locations of community-based resources (e.g.) health and social services, law enforcement and emergency services, and local government offices) that are the key to the well being of older residents, (3) conducting a transportation network analysis, and (4) identifying the best travel path for older residents to access various needed community-based resources. “At high-risk” and “at moderate-risk” census blocks groups are identified as a function of three demographic characteristics: (1) with income below the poverty threshold, (2) with one or more disabilities, and, given these two factors, and (3) living alone. Network analysis tools in standard geographic information system (GIS) software are used to identify the best travel path to access community resources from “at high-risk” and “at moderate-risk” census block groups. The identified “best travel path” is based on travel distance, travel time, traffic volumes, number of intersections along the path, and the number of crashes involving older residents. The methodology is illustrated using data from a project that used GIS methods to indicate the physical relationship of older sub-populations to needed community resources in a section of the Las Vegas, Nevada metropolitan area.

Subject Areas and Index Terms

Highways; Operations and Traffic Management; Planning and Forecasting; Public Transportation; Safety and Human Factors; Society; I72: Traffic and Transport Planning
Aged; Community action programs; Geographic information systems; High risk drivers; Intersections; Risk assessment; Traffic volume; Transportation disadvantaged persons; Travel; Travel behavior; Travel demand; Travel time; Las Vegas Metropolitan Area; Com

Availability: American Society of Civil Engineers; Find a library where document is available

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Population Dynamics

Travel Behavior of Immigrant Groups in California

Authors: Handy, Susan L; Blumenberg, Evelyn; Donahue, Moira; Lovejoy, Kristin; Shaheen, Susan A; Rodier, Caroline J; Shiki, Kimiko; Song, Lily; Tal, Gil

Intellimotion

Publication Date: 2008

Abstract:

This article describes a project which is examining the needs, constraints, attitudes and preferences influencing travel choices for immigrants in California. Three components of the research are related: 1) investigating commute travel of California immigrants using Census data; 2) examining transportation experiences and needs of Mexican immigrants using focus groups; and, 3) looking at transportation needs and recommendations of Mexican immigrants through interview with community-based organization. Key findings from the study look at travel and commute mode trends involving automobiles, public transit, carpooling, and walking/biking. Land use issues are also briefly discussed. The article concludes with a look at two strategies for improving the degree to which the needs of California's immigrants are met. The first strategy is directed at making car travel more attainable, while the second is focused on enhancing the quality of transit service.

Subject Areas and Index Terms

Economics; Highways; Passenger Transportation; Public Transportation; Society; I10: Economics and Administration

Commuters; Commuting; Mode choice; Travel behavior; Travel by mode; Travel patterns; California; Immigrants

Availability: Available from UC Berkeley Transportation Library through interlibrary loan or document delivery

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Population Dynamics

Travel Behavior of Immigrants in California: Trends and Policy Implications

Authors: Blumenberg, Evelyn; Song, Lily Transportation Research Board-500 Fifth Street, NW
Washington, DC 20001

Transportation Research Board 87th Annual Meeting, 2008

Publication Date: 2008

Abstract:

This article examines the travel behavior of immigrants in California. Drawing on data from the 1980, 1990, and 2000 Public Use Microdata Sample of the U.S. Census, we describe immigrants' travel patterns in California, focusing on commute mode. We find that immigrants rely more extensively on alternative commute modes (carpooling and transit) than native-born commuters. But with time in the U.S., immigrants quickly assimilate away from these alternative modes and increasingly rely on solo driving. We then explore the effects of this transportation assimilation process for immigrant families and on public transit usage. Cars may provide immigrants with increased access to employment and, consequently, contribute to their economic assimilation. However, declining transit use among recent immigrants and slowing immigration suggest that, unless transit planners intervene, transit ridership in California will decline. We conclude by discussing the implications of these findings for transportation policy.

Subject Areas and Index Terms

Economics; Highways; Planning and Forecasting; Public Transportation; Society; I10: Economics and Administration; I72: Traffic and Transport Planning
Automobiles; Carpools; Demographics; Mode choice; Persons by race and ethnicity; Public transit; Social factors; Travel behavior; Travel demand; Travel patterns; California; Immigrants; Public Use Microdata Sample; Resource sharing

Availability: Transportation Research Board Business Office

Population Dynamics

Travel In the 'Hood: Ethnic Neighborhoods and Mode Choice

Authors: Blumenberg, Evelyn; Smart, Michael Transportation Research Board-500 Fifth Street, NW
Washington, DC 20001

Transportation Research Board 88th Annual Meeting

Publication Date: 2009

Abstract:

Many urban planners promote mixed-use developments as one component of a broader sustainable development strategy. Scholars and advocates argue that these neighborhoods have the potential to reduce congestion by promoting fewer trips, shorter travel distances, and alternative modes of travel. With their mix of ethnic residents, businesses, services, and community institutions, ethnic enclaves share many of the characteristics of these mixed-use neighborhoods. We hypothesize, therefore, that residents living in these ethnic neighborhoods will exhibit different travel behavior than those living outside of ethnic neighborhoods. Drawing on data from the 2000 U.S. Census, we examine whether residents of ethnic neighborhoods are more likely to commute by carpool and public transit than other workers. We find a relationship between residential location in ethnic clusters and travel behavior. The findings provide insight into the relationship among social networks, land use, and travel behavior.

Subject Areas and Index Terms

Highways; Safety and Human Factors; Society; I72: Traffic and Transport Planning
Carpools; City planning; Commuting; Ethnic groups; Land use; Mixed use development; Neighborhoods;
Public transit; Residential areas; Traffic congestion; Travel behavior; Social media

Availability: Transportation Research Board Business Office

Population Dynamics

Trends in Minority Commuting Behavior: What Does the American Community Survey Tell Us?

Authors: Sööt, Siim; Berman, Joost Gideon Transportation Research Board-500 Fifth Street, NW
Washington, DC 20001

Transportation Research Board 85th Annual Meeting, 2006

Publication Date: 2006

Abstract:

Two currently important aspects of transportation research are addressed in this paper, the changing nature of travel behavior among the growing minority groups and the potential utility of the American Community Survey (ACS) as an emerging source of travel information. With minority groups growing in population (the Chicago metropolitan area is projected to be more than half 'minority' by 2030), the commuting patterns and trends of this population need close examination. We find that, overall, minorities have higher travel times to work, but in suburban Chicago they have lower travel times. We now have sufficient data in the ACS to make this assessment and address some of the key questions regarding commuting behavior. We find that the ACS data for Illinois, from 2000 to 2003, reveals only a few short-term trends, such as growing minority populations and increasing tendency to drive to work, but that the travel times and mode use have not changed substantially throughout the study period, 2000-2003. These findings support the intent of the US Census Bureau to aggregate several years of data, at increased sample sizes, so that researchers and planners alike may study patterns and trend at small levels of geographic detail. At the same time, caution needs to be exercised in analyzing aggregate data for variables that exhibit change over time. The key here is the change over short periods of time, five years, rather than long-term changes that are common in travel behavior.

Subject Areas and Index Terms

Highways; Operations and Traffic Management; Passenger Transportation; Planning and Forecasting;
I21: Planning of Transport Infrastructure; I72: Traffic and Transport Planning
Commuters; Commuting; Data collection; Transportation planning; Travel behavior; Travel time;
Chicago Metropolitan Area

Availability: Transportation Research Board Business Office

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Population Dynamics

Understanding Carpool Use by Hispanics in Texas

Authors: Cline, Michael E; Sparks, Corey; Eschbach, Karl

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2009

Abstract:

Transportation Research Record: Journal of the Transportation Research Board Issue: 2118

Subject Areas and Index Terms

The Hispanic population in Texas has increased numerically faster than any other racial or ethnic group in the past 2 decades. If these trends continue, Texas is likely to become a Hispanic majority state by 2040.

Despite this change in the ethnic composi

Carpools; Culture (Social sciences); Ethnic groups; Hispanics; Occupations; Social factors;

Socioeconomic factors; Travel behavior; Trend (Statistics); Texas; Immigrants

Availability: Transportation Research Board Business Office

Population Dynamics

Working Retirement: Travel Trends of the Aging Workforce

Authors: Srinivasan, Nanda; McGuckin, Nancy; Murakami, Elaine

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2006

Abstract:

The proportion and number of older workers (those older than 65) are expected to increase significantly in the coming decades, and examining this cohort's travel behavior may provide insight into this potential boom. This study is an exploratory analysis to describe working patterns of the older population today, to examine their work trips, and to make some guesses about how the baby boom generation will be similar to or differ from today's older population. With the available literature on travel by the elderly and data from the 2000 U.S. decennial census and the 2001 National Household Travel Survey, the commute and occupational characteristics of older workers in the work force are explored. Topics covered include projected increase in miles driven by older population groups, trends in labor force participation, occupations of older workers, overall travel patterns, travel time, and mode-to-work characteristics; examination of race and ethnic origin of older workers; and description of the older work-at-home population.

Subject Areas and Index Terms

Highways; Planning and Forecasting; I72: Traffic and Transport Planning
Aged; Ethnic groups; Labor force; Mode choice; Occupations; Retirement; Telecommuting; Travel behavior; Travel patterns; Travel time; Trend (Statistics); Vehicle miles of travel; Work trips; 2000 Census; 2001 National Household Travel Survey

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Transit

Analysis of Transit Quality of Service and Employment Accessibility for the Greater Chicago, Illinois, Region

Authors: Minocha, Inshu; Sriraj, P S; Metaxatos, Paul; Thakuriah, Piyushimita
Transportation Research Record: Journal of the Transportation Research Board
Publication Date: 2008

Abstract:

A variety of transit decision support tools have been developed in the Chicago, Illinois, metropolitan area in recent years, including the Regional Transportation Asset Management System of the Regional Transit Authority and the Spatial Decision Support System of the Urban Transportation Center at the University of Illinois at Chicago. Although the Chicago metropolitan area has a variety of public transportation services, the quality of service available in an area and the extent to which transit allows area residents to access employment opportunities spread out across the six-county region vary substantially. This paper focuses on a spatial analysis of the variations of local transit service quality indicators as well as a composite regional employment accessibility measure. It explores the quality of the transit system in the Chicago region through a set of supply- and demand-side indicators at the census tract level. The supply-side indicators include a composite index of transit availability and frequency and transit station asset information. The demand-side measures include the computation of the regional employment accessibility index using a gravity model and transit travel times from travel demand models. A series of these indicators is mapped over the Chicago region at the census tract level. The paper also ranks census tracts on the local transit measures, as well as on the regional transit-based employment accessibility measures, and identifies those areas that are well off and worst off in regard to both types of indexes. The paper draws policy conclusions emanating from each of these categories.

Subject Areas and Index Terms

Administration and Management; Planning and Forecasting; Public Transportation; Society Accessibility; Commuting; Employment; Metropolitan areas; Public transit; Quality of service; Social factors; Supply; Travel demand; Travel time; Urban transportation policy; Chicago (Illinois); Chicago Metropolitan Area; Job access

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Transit

Breast and Cervical Cancer Screening Among Women in Metropolitan Areas of the United States by County-level Commuting Time to Work and Use of Public Transportation, 2004 and 2006

Authors: Coughlin, Steven S; King, Jessica

BMC Public Health

Publication Date: Mar 2010

Abstract:

Commuting times and behaviors have been associated with a variety of chronic disease outcomes and health behaviors. This work examined the relationships between ecologic measures of commuting time and use of public transportation in relation to breast and cervical cancer screening among women in U.S. metropolitan areas who participated in the 2004 and 2006 Behavioral Risk Factor Surveillance System (BRFSS) surveys. Self-reported county of residence was used to classify respondents as residents of metropolitan statistical areas (MSAs). Only BRFSS respondents who resided in the 39 MSAs with a population of \$ 1.5 million in 2007--representing a total of 337 counties--were included in this analysis. 76,453 women aged 40 years were included in analyses on mammography. Analyses on Pap testing were limited to women aged 18 years with no history of hysterectomy (n = 80,959). Area-based measures of socioeconomic status were obtained by utilizing county-level information from the 2000 U.S. Census. With adjustment for age, no important associations were observed between receipt of a recent mammogram and either a county-level measure of commute time or residence in an area where more residents had access to a car. Similarly, women living in counties where at least 4% of the residents used public transportation were as likely to have had a recent mammogram or Pap test compared with women in areas where less than 4% of residents used public transportation. However, women living in counties where < 2% of residents had no access to a car were somewhat more likely to have had a Pap test in the past 3 years than women in areas where 3% of the residents had no access to a car (87.3% vs. 84.5%; p-value for test for trend < 0.01). In multivariate analysis, living in a county with a median commute time of at least 30 minutes was not significantly associated with having had a Pap test in the past 3 years (adjusted odds ratio (OR) = 1.1, 95% CI 0.9-1.2, p = .50), or with having had a mammogram in the past 2 years (adjusted OR = 0.9, 95% CI 0.9-1.1, p = .28). A weak positive association was observed between residence in a county with less use of public transportation and having had a Pap test in the past 3 years, which was of borderline significance (adjusted OR 1.2, 95% CI 1.0-1.4, p = .05). In large U.S. metropolitan areas, transportation issues may play a role in whether a woman obtains cancer screening along with other factors (e.g., Hispanic ethnicity, low income, and no physician visit in the past year). In this contextual analysis, a longer commute time was not associated with breast and cervical cancer screening.

Subject Areas and Index Terms

Public Transportation; Safety and Human Factors; I84: Personal Injuries
Commuting; Health hazards; Medical examinations and tests; Metropolitan areas; Public transit; Work trips; United States; Breast cancer; Cervical cancer; Health screenings

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Transit

Buzzards Bay Commuter Rail Extension Feasibility Study

Authors: Humphrey, Thomas J Central Transportation Planning Staff-10 Park Plaza Suite 2150 Boston, MA 02116

Monograph

Publication Date: Jan 2007

Abstract:

At present, the nearest commuter rail service to points in Barnstable County is provided at the outer terminals of the Massachusetts Bay Transportation Authority (MBTA) Kingston and Middleborough/Lakeville lines. These are each about 20 miles north of the Cape Cod Canal. In the past, rail passenger service to Buzzards Bay and points beyond has been provided via a rail line that continues beyond the end of the Middleborough/Lakeville Line, but is currently used only for freight service. U.S. census figures from the year 2000 indicate that more than 4,000 people each day were then commuting to work in Boston or Cambridge from Barnstable County or from intermediate points along the rail corridor between Middleborough/Lakeville and Buzzards Bay. However, the existing commuter rail service captured less than 10% of this traffic. This study has been prepared by the Central Transportation Planning Staff (CTPS) of the Boston Region Metropolitan Planning Organization in response to a request from the Massachusetts Executive Office of Transportation (EOT) to examine the feasibility of reestablishing commuter rail service as far as Buzzards Bay.

Subject Areas and Index Terms

Planning and Forecasting; Public Transportation; Railroads

Feasibility analysis; Railroad commuter service; Transportation planning; Buzzards Bay (Massachusetts)

Transit

Explaining Variation in Transit Ridership in U.S. Metropolitan Areas Between 1990 and 2000: Multivariate Analysis

Authors: Thompson, Gregory Lee; Brown, Jeffrey R

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2006

Abstract:

Between 1990 and 2000, transit patronage increased by around 7% in the United States, but there has been wide variation around this mean. Most research attributes variation in ridership change to a combination of socioeconomic and land use factors, which are beyond a transit agency's control, and service and fare policy decisions, which are within an agency's control. A study built on this earlier work by examining ridership change at the metropolitan scale for all metropolitan statistical areas (MSAs) in the United States that had more than 500,000 people at the time of the 2000 census. The study incorporates several measures of service quality in order to evaluate the relative efficacy of policy decisions about service coverage, frequency, and orientation (central business district radial versus multideestination system orientation). The multivariate analysis shows that transit is growing most rapidly in the nontraditional markets of the West but that much of the regional variation is a function of the particular service coverage, frequency, and orientation decisions made by transit agencies in this region. Service coverage and frequency are the most powerful explanatory variables for variation in ridership change among MSAs with 1 million to 5 million people, whereas a multideestination service orientation is the most important explanation for variation in ridership change among MSAs with 500,000 to 1 million people.

Subject Areas and Index Terms

Data and Information Technology; Economics; Highways; Planning and Forecasting; Public Transportation; Society

Fares; Metropolitan areas; Multivariate analysis; Public transit; Quality of service; Ridership; Socioeconomic factors; United States; Metropolitan Statistical Areas; Multiple destinations; Service coverage; Service frequency

Availability: Transportation Research Board Business Office

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Order URL: <http://worldcat.org/isbn/030909996X>

Transit

Growing the Immigrant Transit Market: Public Transit Use and California Immigrants

Authors: Blumenberg, Evelyn; Evans, Alexandra Elizabeth Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 86th Annual Meeting

Publication Date: 2007

Abstract:

Relatively little academic scholarship has examined the effects of immigration on public transit. This is surprising considering that immigrants, particularly recent immigrants, are more reliant on public transit than non-immigrants and that in many states immigrants comprise a large share of transit riders. In California, eight percent of immigrants commute by public transit and nearly 50 percent of transit commuters are foreign-born. In this study, we use data from the 1980, 1990, and 2000 Public Use Microdata Sample of the U.S. Census to examine trends in transit commuting in California and the role of immigrants in bolstering transit ridership. We then use census-tract level data from the 1980, 1990, and 2000 Censuses to examine the role of immigrants in predicting geographic variation in transit commuting controlling for other factors that influence transit use. Combined these analyses highlight the critical role of immigrants in maintaining transit ridership as well as in more accurately predicting rates of transit use. We conclude by offering policy suggestions for better serving the transportation needs of California's rising immigrant population and growing the immigrant transit market.

Subject Areas and Index Terms

Data and Information Technology; Passenger Transportation; Planning and Forecasting; Public Transportation; Society

Census; Commuters; Market development; Market research; Markets; Public transit; Transit authorities; Transit operating agencies; Transit riders; California; Immigrants; 2000 Census

Availability: Transportation Research Board Business Office

Order URL: http://gulliver.trb.org/news/blurb_detail.asp?id=7286

Transit

Individual and Neighborhood Determinants of Perceptions of Bus and Train Safety in Chicago, Illinois: Application of Hierarchical Linear Modeling

Authors: Yavuz, Nilay; Welch, Eric; Sriraj, P S

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2007

Abstract:

Individuals decide to use public transit in part on the basis of their perception of transit safety, which is determined by various individual and environmental factors. This paper adopts a multilevel approach to analyze how perceptions of bus and train safety in Chicago, Illinois, vary as a function of person-level characteristics (gender, age, ethnicity, income, and frequency of transit ridership) and neighborhood-level characteristics (perceived neighborhood disorder, population density, and level of poverty). Hierarchical linear modeling is applied to a unique data set that combines data from three different sources: Chicago Transit Authority data on individual-level perceptions of transit safety and individual demographics, Chicago Alternative Policing Strategy data on perceptions of neighborhood disorder at the zip code level, and U.S. Census zip code-level demographic data. Findings show that the individual- and zip code-level effects differ depending on whether the estimation predicts bus or train safety perceptions. Additionally, while higher-income individuals and African Americans report lower levels of perceived bus safety, there is an additional zip code effect: low-density and high-poverty areas and neighborhoods with high levels of disorder have significantly lower levels of perceived bus safety. Management and policy implications of the study for both the transit agency and the community in which service is being offered are discussed.

Subject Areas and Index Terms

Data and Information Technology; Highways; Public Transportation; Safety and Human Factors; Society
Bus transit; Census; Demographics; Neighborhoods; Public transit; Rail transit; Transit safety; Chicago
(Illinois); Chicago Alternative Policing Strategy; Chicago Transit Authority; Hierarchical models; User
perceptions

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Transit

Relationship Between Transit's Usual and Actual Mode Shares

Authors: Chu, Xuehao; Polzin, Steven E

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2008

Abstract:

One major source of transit mode share at the national level is the journey-to-work data from the U.S. Census Bureau's Decennial Census surveys conducted since 1960. These data can be used to determine transit's usual mode share, that is, the share of workers who state that they usually use transit for commuting. The relation of transit's usual mode share to its actual mode share, that is, the share of work trips made by transit as revealed by respondents to daily travel surveys, was studied. Theoretically, a simple aggregate model of workers who commute to work by transit or by nontransit means is built to establish a theoretical relationship between transit's usual and actual mode shares. This model establishes a necessary and sufficient condition for transit's usual share to be greater than its actual share.

Empirically, the FHWA's 2001 National Household Travel Survey is used to measure transit's usual and actual mode shares for 34 transit market segments defined by 14 personal, household, and geographical characteristics. For each of the 34 transit market segments, the empirical results show that the necessary and sufficient condition is met and that transit's usual mode share is greater than its actual mode share. Furthermore, the degree to which transit's usual mode share is greater than its actual share is significant, ranging from 14.7% to 87.3%. Differences of such magnitude are too large to be ignored.

Subject Areas and Index Terms

Data and Information Technology; Highways; Planning and Forecasting; Public Transportation Census; Market segmented groups; Modal split; Public transit; Travel surveys; Work trips; 2001 National Household Travel Survey

Availability: Transportation Research Board Business Office Order URL:

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Transit

Sketch Model to Forecast Heavy-Rail Ridership

Authors: Usvyat, Len; Meckel, Linda; DiCarlantonio, Mary; Lane, Clayton Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 88th Annual Meeting

Publication Date: 2009

Abstract:

Ridership potential is a critical attribute in the feasibility stage of a transit project development. While general guidance exists to determine the transit mode most appropriate for various employment and residential densities, no simple sketch-level tool is available to predict the range of ridership values for a heavy-rail alignment. Sketch-level light and commuter rail ridership models occur in Transportation Research Record, No. 1986, titled "Sketch Models to Forecast Commuter and Light Rail Ridership, Update to TCRP Report 16." Current publication provides the third rail-based mode ridership estimation tool. This analysis develops a sketch-level ridership forecasting tool for heavy-rail for medium and smaller size cities (those with population less than three million). It uses current ridership, demographic and transportation-system data from ten U.S. cities, including 32 heavy-rail corridors, and 474 stations, while it tests 186 possible explanatory variables. The efforts yield a linear multivariate regression equation that show close relationships between actual and predicted values with an adjusted R-squared value of 0.612. The new sketch model for heavy rail can be used in place of a full-blown four-step modeling approach and requires only ArcGIS and Microsoft Excel. The data required for this model is readily available from Metropolitan Planning Organizations and/or the U.S. Census Bureau. Combining this heavy-rail model with the existing light rail and commuter rail models opens a wealth of opportunities for inexpensive methods to predict the ridership potential for rail-based development as well as the impacts on station ridership by new residential and commercial development close to stations.

Subject Areas and Index Terms

Planning and Forecasting; Public Transportation; Railroads; I72: Traffic and Transport Planning
Light rail transit; Metropolitan planning organizations; Public transit; Railroad commuter service;
Railroad transportation; Rapid transit; Ridership; Systems analysis; Transit operating agencies

Availability: Transportation Research Board Business Office

Transit

Sketch Transit Modeling Based on 2000 Census Data

Authors: Marshall, Norman; Grady, Brian

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2006

Abstract:

Transit planners need cost-effective ways to evaluate a wide range of alternatives relatively quickly to identify potential transit systems that are likely to offer the greatest benefits for a given cost. A sketch transit planning model is described for the Washington, D.C., region that is based on the metropolitan planning organization's travel demand model structure and model networks but is estimated from more recent 2000 census data, better matches suburban transit ridership, is sensitive to land use effects, and is less costly to use. Similar transit sketch models could be developed and applied in other regions.

Subject Areas and Index Terms

Highways; Planning and Forecasting; Public Transportation
Alternatives analysis; Cost effectiveness; Land use planning; Public transit; Ridership; Sketch planning;
Transportation planning; Travel demand; Washington (District of Columbia); 2000 Census; Sketch
planning models

Availability: Transportation Research Board Business Office

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Transit

Study: 4.7% of U.S. Commuters Use Public Transportation

Authors:

Metro

Publication Date: Aug 2007

Abstract:

This article provides statistics from the U.S. Census Bureau on how commuters get to work. Only 4.7 percent of U.S. commuters used public transportation in 2005, while 87.7 percent drove to work. Still, 4.7 percent represents an increase of about 0.1 percent above 2000 levels. Of those who drove, 77 percent drove alone. The figures show that half of the nation's public transportation users can be found in 10 of the country's 50 cities. Canadians, however, have increased their ridership on public transport in 2006 by 3.2 percent.

Subject Areas and Index Terms

Passenger Transportation; Planning and Forecasting; Public Transportation; Society
Commuters; Commuting; Mode choice; Public transit; Travel surveys

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Transit

Subregional Transit Ridership Models Based on Geographically Weighted Regression

Authors: Chow, Lee-Fang; Zhao, Fang; Chi, Hongbo; Chen, Zhenmin Transportation Research Board-
500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 89th Annual Meeting

Publication Date: 2010

Abstract:

Geographically Weighted Regression (GWR) is a local regression model that calibrates model coefficients based on local observations. Compared to ordinary least square regression models, in which model coefficients depict a global relationship between a dependent variable and a set of independent variables, the coefficients in a GWR model are local and vary from location to location. These locally varying coefficients provide an opportunity for investigating the strength of the relationship between the dependent and independent variables and identifying variables that may not be significant for certain areas. This paper examines the significance of variables in a GWR model to identify new model structures for subregions. A GWR model is first estimated using the 2000 CTPP data for Broward County, Florida to investigate potential variables that affected public transit use for home-based work trip purpose, which included demographic, socioeconomic, land use, transit supply quality, and pedestrian environment variables. Based on the local significance of the independent variables, two subregional GWR models are then calibrated to include variables that are locally significant. A comparison between the subregional GWR models and the original GWR model showed that the subregional GWR models performed better than the regional GWR models in terms of model accuracy.

Subject Areas and Index Terms

Data and Information Technology; Public Transportation

Demographics; Land use; Least squares method; Location; Multiple regression analysis; Public transit; Ridership; Socioeconomic factors; Spatial analysis; Broward County (Florida); Census Transportation Planning Package

Availability: Transportation Research Board Business Office

Transit

Transit Ridership Model Based on Geographically Weighted Regression

Authors: Chow, Lee-Fang; Zhao, Fang; Liu M.S., Xuemei; Li, Min-Tang; Ubaka, Ike

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2006

Abstract:

This paper describes the development of a geographically weighted regression (GWR) model to explore the spatial variability in the strength of the relationship between public transit use for home-based work (HBW) trip purposes and an array of potential transit use predictors. The transit use predictors considered include demographics and socioeconomics, land use, transit supply and quality, and pedestrian environment. The best predictors identified through model estimation include two global variables (regional accessibility of employment and percentage of households with no car) and three local variables (employment density, average number of cars in households with children, and percentage of the population who are black). The models were estimated on the basis of the 2000 Census Transportation Planning Package data for Broward County, Florida. Model testing indicates the GWR model has improved accuracy in predicting transit use for HBW purposes over linear regression models. The GWR model also indicates that the effects of the independent variables on transit use vary across space. The research points to future research to explore different model structures within a geographic area.

Subject Areas and Index Terms

Data and Information Technology; Economics; Highways; Planning and Forecasting; Public Transportation; Society

Accessibility; Automobile ownership; Demographics; Employment; Households; Land use; Public transit; Regression analysis; Ridership; Socioeconomic factors; Work trips; Broward County (Florida); 2000 Census; Census Transportation Planning Package; Employme

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Transit

Using Quantitative Methods in Equity and Demographic Analysis to Inform Transit Fare Restructuring Decisions

Authors: Hickey, Robert L; Lu, Alex; Reddy, Alla

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2010

Abstract:

New York City Transit (NYCT) and the Metropolitan Transportation Authority have integrated race and income equity considerations into their extensive public outreach processes for fare changes. Responding to FTA civil rights, Title VI, and environmental justice requirements, NYCT developed two quantitative and analytical approaches for forecasting equity impacts of fare restructuring decisions, in place of more traditional origin-destination surveys. The first approach uses standard aggregate fare elasticity models to estimate diversions between different fare classes and ridership losses resulting from fare adjustments. Average fare changes by fare media type are disaggregated with historical farecard usage patterns (consumption data) by subway station and bus route and translated into demographic variables (minority or nonminority and at, below, or above poverty) on the basis of census data. Overall average fare changes are used to analyze equity impacts. A second, more experimental approach identifies user demographics by daily first swipe locations and estimates daily average fares as actually experienced by each passenger by using sequential transactions on discrete farecards. To meet ongoing requirements, methods were developed to analyze impacts separately for peak and off-peak time periods and to demonstrate equity by using statistical tests. Impact analyses results and historical ridership, revenue, and market share data collected by the MetroCard automated fare collection system all inform fare structure design processes, with particular attention devoted to distributing fare increase burdens equitably.

Subject Areas and Index Terms

Administration and Management; Finance; Public Transportation; Society; I10: Economics and Administration

Automatic fare collection; Data collection; Decision making; Demographics; Elasticity (Economics); Equity (Justice); Fares; Income; Off peak periods; Peak periods; Public transit; New York (New York); Civil Rights Act Title VI; New York City Transit Autho

Availability: Transportation Research Board Business Office

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Transit

Where Transit Use Is Growing: Surprising Results

Authors: Thompson, Gregory L; Brown, Jeffrey R; Sharma, Rupa; Scheib, Samuel

Journal of Public Transportation

Publication Date: 2006

Abstract:

This article investigates whether transit's fate is tied to the last vestiges of old urban forms or whether transit is finding niches in the new, largely suburban urban forms that increasingly have manifested themselves since the 1920s. The hypothesis is that most growth is in census regions with the strongest vestiges of older urban forms centered on CBDs. The hypothesis was tested by documenting how transit performance changed between 1990 and 2000 in U.S. metropolitan areas with more than 500,000 people in the year 2000. Results show that, for MSAs with fewer than 5 million people, transit use has been growing faster than very rapid population growth in the West region, but not elsewhere in the country. The conclusion is that transit growth is not tied to old urban forms. A future article will explore causality of transit use growth and service productivity change.

Subject Areas and Index Terms

Planning and Forecasting; Public Transportation

Medium sized cities; Metropolitan areas; Performance measurement; Public transit; Ridership; Suburbs; Urban growth; Urban transit; Metropolitan Statistical Areas; Increase; Transit growth

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Transit

Who Gets a Train Station? Toward Understanding Racial Equity in FTA New Starts Program Using Buffer Analysis

Authors: Rodriguez, Miguel Angel Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 88th Annual Meeting

Publication Date: 2009

Abstract:

Environmental Justice and racial issues are an increasing area of concern for transit agencies, public advocates, and planners. Most transit investments in rail and bus rapid transit (BRT) are completed using Federal funds under the Federal Transit Administration's (FTA) New Starts Program. To date, there has been very little scholarly study of this program, especially in terms of environmental justice. While the FTA New Starts application process considers low-income households and employment areas served by a proposed system, it has no consideration for race. However, there is a common perception that rail programs in particular provide investment in suburban White areas of cities. This analysis proposes a buffer analysis method using Geographic Information Systems (GIS) in order to evaluate four randomly selected FTA New Starts projects receiving full funding grant agreements in 2007 on the basis of race. This analysis uses Census 2000 data and focuses on home-based racial demographics. The conclusions of this study find no consistent pattern of New Starts projects exhibiting a bias of serving areas that are primarily White. In fact, many of the projects served proportionally strong minority areas. The results vary depending on the buffer from the transit stations (walking, biking or driving distance), and they also varied depending on which race in particular was served. This analysis serves as an example of how buffer analysis can be used to evaluate many environmental justice elements in the FTA New Starts and offers the FTA should consider including such racial categories in its application process for Federal Dollars.

Subject Areas and Index Terms

Administration and Management; Economics; Public Transportation; Railroads; Society; I10: Economics and Administration

Accessibility; Bus rapid transit; Demographics; Equity (Justice); Government agencies; Government funding; Low income groups; Minorities; Planning; Public transit; Race; Railroad transportation; Social factors; Suburbs; Trip length; New Starts Program; U.

Availability: Transportation Research Board Business Office

Travel Behavior

Commuting in America III: The Third National Report on Commuting Patterns and Trends

Authors: Pisarski, Alan E Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Monograph

Publication Date: 2006

Abstract:

This report provides a snapshot view of commuting patterns and trends derived principally from an analysis of the 2000 decennial U.S. census and will be a valuable resource for those interested in public policy, planning, research, and education. This is the third report in this series authored by Alan E. Pisarski, transportation consultant, over the last 20 years. His first two reports, published in 1989 and 1996 along with decennial census data dating back to 1960, also have afforded Mr. Pisarski the opportunity for evaluations of patterns and trends over time. A full appreciation of commuting (the journey-to-work trip) requires an understanding of population and worker trends, the demographics of a changing population and households, vehicle availability, modal usage, travel times, congestion, and work locations--all covered by "Commuting in America III." Previous "Commuting in America" reports presented an objective base for policy discussions of commuting-related issues. This third edition is expected to do the same.

Subject Areas and Index Terms

Data and Information Technology; Highways; Planning and Forecasting; Policy; Public Transportation; Research; Society; I72: Traffic and Transport Planning
Census; Commuting; Demographics; Education; Households; Operations research; Public policy; Research; Traffic congestion; Transportation planning; Travel patterns; Travel time; Trend (Statistics); Work trips; 2000 Census; Modal usage; Travel trends; Vehic

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Travel Behavior

Comparison of Socioeconomic and Demographic Profiles of Extreme Commuters in Several U.S. Metropolitan Statistical Areas

Authors: Marion, Bernadette M; Horner, Mark W

Transportation Research Record: Journal of the Transportation Research Board

Publication Date: 2007

Abstract:

Extreme commuting denotes a one-way commute time of 90 min or more to work. Research into why individuals make such unusually long commutes is limited. In this paper, regression analyses by the use of Microdata files from the Bureau of the Census reveal the demographic and socioeconomic characteristics that increase an individual's odds of extreme commuting. Commuters in four metropolitan areas (Atlanta, Georgia; Baltimore, Maryland; Houston, Texas; and Tampa, Florida) were examined. The model results are consistent with the findings in the literature that define lengthy commutes as a constrained, rather than optimized, choice behavior.

Subject Areas and Index Terms

Data and Information Technology; Economics; Highways; Passenger Transportation; Planning and Forecasting; Public Transportation; Society; I72: Traffic and Transport Planning Behavior; Choice models; Commuters; Demographics; Metropolitan areas; Regression analysis; Socioeconomic factors; Atlanta (Georgia); Baltimore (Maryland); Houston (Texas); Tampa (Florida); Extreme commuters

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Travel Behavior

First Look at Socioeconomic, Demographic, and Travel Characteristics of Extreme Commuters: A Disaggregate Analysis of Journey-to-Work Travel in Atlanta Metropolitan Statistical Area

Authors: Horner, Mark W; Marion, Bernadette M; Lair, Sharla Transportation Research Board-500 Fifth Street, NW Washington, DC 20001

Transportation Research Board 86th Annual Meeting

Publication Date: 2007

Abstract:

'Extreme commuting' is a term routinely used by the popular press and Census specialists to describe a class of workers who undertake long journeys to reach their places of employment. Operationally, the census defines extreme commuters as those who travel more than 90 minutes each way to work. Data show these workers represent a small, but rapidly growing percentage of total commuters. Furthermore, there is evidence suggesting that the motivation for non-extreme commuting differs from extreme commuting. However, issues surrounding these commuters have not yet been explored in the literature. This paper takes a first look at the prevailing characteristics of extreme commuters, focusing on Atlanta, GA. Specifically, the analysis employs a disaggregated dataset, the Public Use Microdata Samples (PUMS), and inferential statistics to examine demographic and socioeconomic attributes of extreme commuters and how they contrast with non-extreme commuters (those commuting 90 minutes or less). Finally, the implications of these findings for commuting research are discussed.

Subject Areas and Index Terms

Data and Information Technology; Economics; Highways; Passenger Transportation; Planning and Forecasting; Public Transportation; Society; I72: Traffic and Transport Planning
Commuters; Data files; Demographics; Socioeconomic areas; Socioeconomic development; Socioeconomic factors; Statistical analysis; Traffic forecasting; Travel; Travel time; Atlanta (Georgia); Commute travel

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Travel Behavior

Men, Women, Job Sprawl, and Journey to Work in the Philadelphia Region

Authors: Weinberger, Rachel
Public Works Management & Policy
Publication Date: Jan 2007

Abstract:

This paper examines Census-reported journey-to-work travel time for the greater Philadelphia region to investigate how an increased dispersion of employment opportunities affects travel time. Findings showed that more people are commuting by automobile, a mode usually associated with shorter journey times, but are reporting longer trip times. This finding is counterintuitive as it coincides with a period when new jobs were established in outlying areas and the region experienced a net loss in jobs. The authors conclude that as job opportunities disperse into lower density areas, Philadelphia's existing high-capacity systems are underutilized, and transportation systems throughout the region that were designed for relatively low demand are becoming overwhelmed in time. The net effect is a breakdown of both the urban mass transit systems, which are being underused, and the suburban and rural highway networks, which are being overused. The analysis also shows that the shorter travel time traditionally enjoyed by women is being eroded. This may be because there is an overall greater distribution of job opportunities for men and women as jobs move out of Philadelphia into a more dispersed area. Men are increasingly finding work near their residences while women continue to make inroads into employment sectors that were previously closed to them. This brings travel time by sex into closer alignment.

Subject Areas and Index Terms

Data and Information Technology; Highways; Planning and Forecasting; Public Transportation; Society; I72: Traffic and Transport Planning
Automobile travel; Case studies; Census; Gender; Mode choice; Population density; Public transit; Ridership; Travel time; Urban sprawl; Work trips; Workplaces; Philadelphia (Pennsylvania)

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Travel Behavior

The Impact of Sprawl on Commuting in Alabama

Authors: Weber, Joe; Sultana, Selima University of Alabama, Tuscaloosa-Department of Geography, 202 Farrah Hall Tuscaloosa, AL 35487-0322 ; University of North Carolina, Greensboro-Department of Geography Greensboro, NC ; University Transportation Center for Alabama-University of Al

Monograph

Publication Date: Jun 2005

Abstract:

This research examines the influence and importance of urban sprawl on commuting patterns within Birmingham and Tuscaloosa, Alabama. Geographic Information Systems (GIS)-based methodologies were used to define and map urban sprawl, with the 2000 Census Transportation Planning Package (CTPP) as the primary dataset. The results confirmed that workers living in sprawl areas commute farther to work in both mileage and travel time than those living in older, higher density areas of the city. Workers who commute into urban areas from outlying sprawl zones have the longest commutes, while those who commute entirely within the city have the shortest. This suggests that as residences continue to move to sprawl areas commuting times can be expected to greatly increase as workers journey to urban jobs. However, as jobs continue to move to sprawling areas, commuting times may decrease due to an increase of shorter within-sprawl commuting. Increasing sprawl could therefore lead to an equalization of commuting times.

Subject Areas and Index Terms

Highways; Society; I10: Economics and Administration

Commuting; Geographic information systems; Impacts; Jobs; Location; Suburbs; Travel patterns; Travel time; Urban areas; Urban sprawl; Vehicle miles of travel; Work trips; Birmingham (Alabama); Tuscaloosa (Alabama)

Availability: University Transportation Center for Alabama

Travel Behavior

The Quiet Success: Telecommuting Impact on Transportation and Beyond

Authors: Balaker, Ted Reason Foundation-3415 S Sepulveda Boulevard, Suite 400 Los Angeles, CA 90034

Monograph

Publication Date: Nov 2005

Abstract:

The decision to forego the daily commute and work from home might not seem particularly revolutionary, but telecommuting has a positive impact on a surprisingly wide range of issues. Telecommuting may be the most cost effective way to reduce rush-hour traffic and it can even improve how a weary nation copes with disasters, from hurricanes to terrorist attacks. Telecommuting helps improve air quality, highway safety, and even health care as new technology allows top-notch physicians to be (virtually) anywhere. It expands opportunities for the handicapped, conserves energy, and “when used as a substitute for offshore outsourcing” it can help allay globalization fears. It can even make companies more profitable, which is good news for our nation’s managers, many of whom have long been suspicious of telecommuting. Other than driving alone, telecommuting is the only commute mode that has gained market share since 1980. The Census Bureau notes that from 1990 to 2000 the number of those who usually worked at home grew by 23 percent, more than twice the rate of growth of the total labor market. Since 2000, telecommuting has continued to grow in popularity with roughly 4.5 million Americans telecommuting most work days, and roughly 20 million telecommuting for some period at least once per month, and nearly 45 million telecommute at least once per year. And telecommuters drive less than office workers. During the days they telecommute, workers reduce their daily trips by 27 to 51 percent and driving (vehicle miles traveled) by 53 to 77 percent. Although they effectively receive no public subsidies, telecommuters actually outnumber transit commuters in a majority (27 out of 50) of major metropolitan areas (those with populations over 1 million). Telecommuters outnumber transit commuters in places like San Diego, Dallas, and Phoenix. They outnumber transit commuters by more than two to one in places like Raleigh-Durham, Tampa-St. Petersburg, and Nashville. In Oklahoma City telecommuters outnumber transit commuters by nearly five to one. Telecommuters tend to be highly educated and financially well-off. Most of the top telecommuting metropolitan areas tend to be fast-growing regions with high concentrations of technologically savvy workers who feel comfortable using the Internet and other tools common to remote work. Denver, Portland, and San Diego are the top three telecommuting metropolitan areas (as measured by percentage of workforce that telecommutes). Atlanta and Washington, D.C. lead the nation in telecommuting growth, yet every major metropolitan area has experienced strong growth. Many strong social trends suggest that telecommuting will become even more prevalent in the future.

Subject Areas and Index Terms

Energy; Environment; Highways; Operations and Traffic Management; Passenger Transportation; Planning and Forecasting; Public Transportation; I72: Traffic and Transport Planning
Air quality; City planning; Commuters; Energy conservation; Environmental impacts; Internet; Peak hour traffic; Public transit; Technological innovations; Telecommuting; Traffic congestion; Transportation planning; Vehicle miles of travel

Availability: Reason Foundation

Travel Behavior

Time to Work: Commuting Times and Modes of Transportation of California Workers

Authors: Barbour, Elisa

California Counts: Population Trends and Profile

Publication Date: Feb 2006

Abstract:

This paper presents a study of commuting behavior in California and provides insight into how workers adapt to economic growth and development. It also looks at the interaction between public and private choices regarding transportation and housing. Using data from the decennial U.S. Census, the paper evaluates how commute times and choice of transportation have varied over time and location and among workers in California.

Subject Areas and Index Terms

Economics; Highways; Operations and Traffic Management; Passenger Transportation; Society; I70:
Traffic and Transport

Commuters; Commuting; Mode choice; Transportation modes; Travel behavior; Travel time; Work trips;
California

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Travel Behavior

Travel Behavior of Immigrant Groups in California

Authors: Handy, Susan L University of California, Berkeley-Institute of Transportation Studies
Berkeley, CA 94720-1720 ; University of California, Berkeley-California PATH Program, Institute of
Transportation Studies Richmond Field Station, 1357 South 46th Street Richmond,

Monograph

Publication Date: May 2009

Abstract:

This report presents the findings from a study examining the travel behavior of immigrant groups in California. The first phase of the study involved analyzing Census data on commute travel of California immigrants from 1980, 1990, and 2000. Phase two of the study involved focus groups with recent Mexican immigrants in six California regions regarding transportation experiences and needs. The third phase of the study involved interviews conducted with community-based organization in nine California regions regarding the transportation needs and desires of these immigrants. Key findings are reported regarding commute mode, auto assimilation, attitudes towards public transit and carpooling, and the role of walking and bicycling.

Subject Areas and Index Terms

Economics; Highways; Public Transportation; Society; I10: Economics and Administration
Commuters; Commuting; Travel behavior; Travel patterns; California; Mexico; Immigrants

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