

UC Berkeley

Berkeley Planning Journal

Title

Travel Behavior of Mexican and Other Immigrant Groups in California

Permalink

<https://escholarship.org/uc/item/64m4j009>

Journal

Berkeley Planning Journal, 21(1)

Authors

Handy, Susan
Blumenberg, Evelyn
Donahue, Moria
et al.

Publication Date

2008

DOI

10.5070/BP321112726

Copyright Information

Copyright 2008 by the author(s). All rights reserved unless otherwise indicated. Contact the author(s) for any necessary permissions. Learn more at <https://escholarship.org/terms>

Peer reviewed

Necesidades de Tránsito de Mexicanos y Otros Grupos de Inmigrantes en California

Susan Handy, Evelyn Blumenberg, Moira Donahue, Kristin Lovejoy, Caroline Rodier, Susan Shaheen, Kimiko Shiki y Lily Song

Resumen

California es el destino de más de una cuarta parte de los inmigrantes que arriban a los Estados Unidos y estos conforman a su vez más de una cuarta parte de la población del estado. Para garantizar que los sistemas y servicios de transporte satisfagan las necesidades de los grupos de inmigrantes recién llegados, los encargados de planeación necesitan de un profundo conocimiento sobre los patrones de movimiento de estos grupos. Este trabajo presenta los principales resultados de un estudio de tres etapas: (1) análisis de datos de los censos de 1980, 1990, y 2000 sobre desplazamientos de inmigrantes dentro de California; (2) entrevistas grupales con inmigrantes recientes en seis regiones de California enfocados a sus experiencias de traslado y sus necesidades de transporte y (3) entrevistas con organizaciones comunitarias en nueve regiones de California enfocadas en las necesidades y motivaciones de transportación de inmigrantes mexicanos. Los resultados conforman una lista de posibles estrategias para que las agencias y organizaciones tomen en cuenta dentro de sus esfuerzos para satisfacer de una mejor forma las necesidades de inmigrantes Mexicanos y de otras partes dentro de California.

Travel Behavior of Mexican and Other Immigrant Groups in California

Susan Handy, Evelyn Blumenberg, Moira Donahue, Kristin Lovejoy, Caroline Rodier, Susan Shaheen, Kimiko Shiki and Lily Song

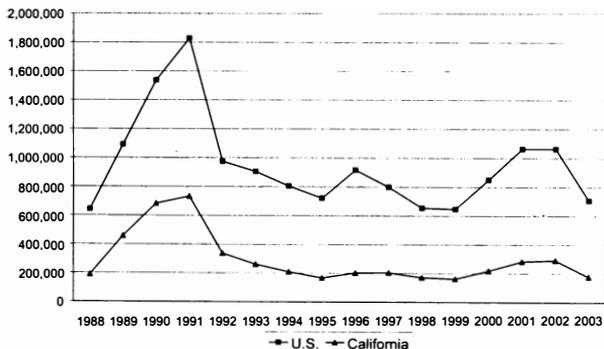
Abstract

California is the destination for over one-quarter of immigrants to the United States, and immigrants now make up over one-quarter of the state's population. To ensure that transportation systems and services adequately meet the needs of recent immigrants, planners need a firm understanding of the travel behavior of immigrant groups. This paper reports on key findings from a three-phased study: (1) analysis of data on commuter travel of California immigrants from the 1980, 1990, and 2000 Censuses; (2) focus groups with recent Mexican immigrants on their transportation experiences and needs in six California regions; and (3) interviews with community-based organizations in nine California regions on the transportation needs and wants of Mexican immigrants. These findings point to a long list of potential strategies for agencies and organizations to consider in efforts to more effectively meet the transportation needs of Mexican and other immigrants in California.

California is in the midst of a demographic transformation. In 2002, almost 300,000 new immigrants entered California, the intended destination of 27 percent of all immigrants to the United States (California Department of Finance 2002; U.S. Department of Homeland Security 2004 (Figure 1)).¹ Over nine percent of immigrants to the United States intend to settle in the Los Angeles-Long Beach metropolitan area (U.S. Department of Homeland Security 2004). Although immigration to California tapered off in 2003 (U.S. Department of Homeland Security 2003), population forecasts suggest that international migration to California will continue to be an important source of population growth in the state (Lee, Miller and Edwards 2003).

The cumulative effect of immigration on the composition of the California population is significant. Data from the 2000 U.S. Census show that more than one-quarter of the California population is foreign-born. Forty-four percent of the foreign-born population comes from Mexico and another 22 percent from Asia (U.S. Bureau of Census 2004). The foreign-born population accounts for over one-third of the population in Los Angeles, over one-quarter of the population in the San Francisco Bay Area, and over one-fifth of the population in the Southern, Coastal, and Central Valley areas. As immigration continues, California will become even more diverse, racially and ethnically.

Figure 1. Legal Immigration to the United States and California



Source: U.S. Department of Homeland Security (2004). *2003 Yearbook of Immigration Statistics*. Office of Immigration Statistics, September

¹ These figures underestimate the total percentage of immigrants to California since they exclude unauthorized or "illegal" immigration. The U.S. Immigration and Naturalization Service (2003) estimates that 22 million unauthorized immigrants resided in California in 2000, up from 1.5 million in 1990.

This demographic transformation raises an important question for transportation planners in the state: How can we ensure that transportation systems and services adequately meet the needs of an increasingly diverse population? To answer this question, planners need a firm understanding of the travel behavior of immigrant groups, taking into consideration cross-cutting demographic characteristics such as age, income, and gender. Immigrants experience much higher rates of poverty, lower educational attainment, and have less access to vehicles than U.S.-born persons, conditions that add to their transportation challenges.

In this study, we explored the needs, constraints, attitudes, and preferences that influence travel choices and the outcomes of those travel choices for immigrants in California, particularly those from Mexico. The objective of the study was to provide the California Department of Transportation (Caltrans) and other transportation agencies in the state with a strong foundation for the design and targeted marketing of transportation systems and services to produce better outcomes for the diverse and dynamic population of California.

Our research had three components: (1) an investigation of the commute travel of immigrants living in California using data from the 1980, 1990, and 2000 Censuses; (2) an exploration of the transportation experiences and needs of Mexican immigrants using focus groups in six California regions; and (3) an inquiry into the transportation needs and wants of Mexican immigrants, collected from interviews with community-based organizations in nine California regions. In this paper, we report key findings synthesized from these efforts and suggest strategies to better meet the needs of Mexican and other immigrants in California.

Literature Review

In the following sections we review the small existing body of research on the travel behavior of immigrants, focusing on findings with respect to transit use, auto ownership, intercity travel, and residential location.

Transit Use

A number of scholars find that assimilation decreases immigrants' propensity to use public transit. Using data from the 1980 and 1990 Public Use Microdata Samples (PUMS) of the U.S. Census, Myers (1996) shows that recent immigrants are far more reliant on public transit than older immigrant cohorts. Purvis (2003), drawing from the 2000 PUMS to analyze immigrants in the San Francisco Bay Area, finds that immigrants' use of public transit declines with time spent in the United States. Using

data from the 2001 National Household Travel Survey, Casas et al. (2004) find that “Newcomer Hispanics” (those who have lived in the United States less than one-third of their lives) rely more heavily on public transit compared to both native-born and “settled” Hispanics. Finally, Heisz and Schellenberg (2004) find that the initially high rates of public transit use among immigrants erode over time for immigrants in three Canadian cities (Montreal, Toronto, and Vancouver).

Evenso, public transit continues to play an important role for immigrants, particularly those new to the United States; additionally, immigrants are important for transit. Myers (1996) finds that the share of transit users in Southern California who were recent immigrants increased from 27 to 42 percent from 1980 to 1990. In his study of the San Francisco/Bay Area, Purvis (2003) finds that immigrants are 32 percent of all transit commuters in the region. Further, Heisz and Schellenberg (2004) find that current cohorts of recent immigrants in the three Canadian cities have higher rates of transit use than earlier cohorts had. Changes in the regions from where immigrants come may help to explain changes in the use of transit by cohorts. For example, in focus groups with Latino, Somali, and Hmong immigrants in Minnesota, Douma (2004) finds that Latino immigrants are more open to transit and “social” types of travel, compared to Hmong immigrants who place a greater value on privacy. Where immigrants choose to locate – whether urban, suburban, or rural areas – might also explain changes in transit use by cohort, owing to differences in the quality of transit service.

Vehicle Ownership

Studies show that auto ownership among immigrants increases with length of residence in the United States; however, immigrant households—regardless of their length of residence—remain more likely than native-born households to live in zero-vehicle households. Using data from the 1990 Public Use Microdata Sample (PUMS), McGuckin and Srinivasan (2003) find that new immigrants are twice as likely to live in households without vehicles as immigrants who have lived in the United States for ten years or more, but even after a decade in the United States, immigrants are still twice as likely to live in households without automobiles compared to the U.S.-born population. Casas et al. (2004) report similar findings for Latino households: almost one-quarter of “newcomer immigrants” live in households without automobiles compared to 13 percent of “settled immigrants,” but “settled immigrants,” those living in the country more than two-thirds of their lives, are still twice as likely as non-Hispanics to live in households without automobiles.

Explanations for low auto ownership rates among recent immigrants are varied. Income is clearly an important factor. Immigrants—particularly recent immigrants—have low incomes on average and, therefore, are less likely than other population groups to afford automobile ownership. In part because of lower incomes, immigrants disproportionately live in central city neighborhoods, where the quality of transit service is better and the need for a car is lower. Some immigrants may be less likely than others to have had drivers' licenses, driven cars, or owned automobiles in their countries of origin. There are also cultural differences associated with driving. For example, women outside of the United States are much less likely to possess driver's licenses or to know how to operate vehicles than U.S. women (Pisarski 1999).

Immigrants may also face administrative obstacles to obtaining U.S. driver's licenses, and this, too, may decrease the likelihood of auto ownership. Historically, states have had responsibility for the issuance of driver's licenses and the establishment of driver's rules. As of March 2005, driver's license applications in 47 states, including California, required Social Security Numbers for those who have been assigned or are eligible for one (National Immigration Law Center 2005). All but 12 states, including California, require "lawful presence," meaning that immigrants must present evidence that they were lawfully admitted to the United States. Anecdotal evidence suggests that legal immigrants may have difficulty providing the necessary documents. Further, some states, most recently New York, are denying license renewals and suspending the licenses of non-citizens who fail to provide documents (a Social Security card or a visa) "deemed satisfactory by a motor vehicles clerk" (Bernstein 2005).

But the issue of driver's licenses is clearly most pressing for illegal immigrants. In most states undocumented immigrants are not eligible for driver's licenses. This issue has been highly controversial in California where in 2003 the State Legislature repealed SB60, a bill allowing illegal immigrants to obtain driver's licenses. Public opinion polls in the state clearly support this decision. A recent Field Poll shows that 62 percent of California residents oppose granting undocumented immigrants the right to obtain a California driver's license (DiCamillo and Field 2005).²

² The Field poll shows that there is a "large ethnic divide" on this issue. Latinos in the state are in favor of providing driver's licenses to undocumented immigrants by a two to one margin. Furthermore, 49 percent of residents support issuing undocumented immigrants a different kind of driver's licenses that would allow them to drive but would clearly identify their legal status.

Intercity Travel

Anecdotal evidence suggests that there has been a growth in ethnic providers of intercity transportation services. A number of newspaper articles have profiled ethnic intercity bus carriers, particularly on the east coast (Fass 2001; Newman 2005). For example, private buses make regular trips between Chinatowns in New York, Boston, and Washington, D.C. As Newman (2005) reports, Chintatown buses first emerged approximately eight years ago, transporting Chinese workers to restaurant jobs in nearby cities. Over time, their ridership has both expanded and diversified.

Camionetas serve a similar purpose in many Hispanic communities. *Camionetas* are informal van services used primarily by Hispanic immigrants for inter-regional and transnational travel. While the presence of this service is widely acknowledged by journalists (Hegstrom 2003; Lewis 2001; Moreno 1998), few scholars have examined the extent and role of this type of informal service. In a report sponsored by the Texas Department of Public Safety, Ellis (2001) chronicles some of the safety problems associated with *Camionetas*, including the use of high mileage vehicles, the operation of vehicles for unsafe periods of time, the presence of defective seat belts, and low usage rates of seat belts.

More recently, Valenzuela (2004) examined *camioneta* services in Los Angeles. He found that *Camionetas* provide many benefits usually associated with private transit services, "flexible routes and timing, more tailored destinations, better in-vehicle amenities, and faster trips due to the smaller vehicles." *Camioneta* service often is more expensive than Greyhound service, but typically provides faster service. Further, from Los Angeles, *Camionetas* provide service as far as New York, Mexico, and Central America. The travelers reported they use the service up to 60 times a year and 70 percent use the service for work-related travel. More than half of all survey respondents had a car available for their daily travel needs and only six of the 150 respondents reported using transit to get to work.

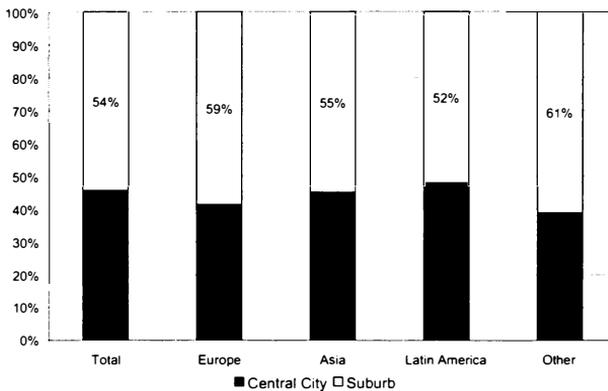
In California, farm worker transportation is an important issue. Following a series of accidents that involved farm labor vehicles, the California Highway Patrol conducted an enforcement sweep throughout the state. They pulled over 118 vehicles of which 36 (31 percent) were found to have serious safety violations. These violations included unregistered vehicles, defective lights, and license-related offenses, including driving without a license (Ingram 1999). The growing number of injuries and fatalities of farm workers in the San Joaquin Valley, many of them immigrants, served as the impetus for a Farm Worker Transportation Services Pilot Project (FTSPP) funded as part of the Job Access and Reverse Commute program. The FTSPP program provides vanpool, fixed-route, and Dial-A-

Ride service to farm worker families for employment-related, childcare, health and/or social purposes.

Residential Location

Where immigrants choose to live has important implications for their travel. As noted above, recently arrived immigrants—particularly those with low-incomes—are more likely to live in dense central-city neighborhoods with relatively good transit service. However, over time, immigrants tend to move to suburban areas, and increasingly, even new immigrants are starting out in the suburbs, often in ethnic enclaves. Alba et al. (1999) find increasing suburbanization among some immigrant groups during the 1980s and 1990s due, in part, to declining barriers to the entry of new immigrants to suburban neighborhoods. As of 2004, the majority of the foreign-born population in the United States lives in suburban rather than central city areas (Figure 2). In suburban areas, transit service is generally sparser and less frequent, leading to greater dependence on cars. The transportation experiences of immigrants may vary significantly depending on residential location.

Figure 2. Central City Residence of Foreign-Born Population by Region of Birth (U.S., 2004)

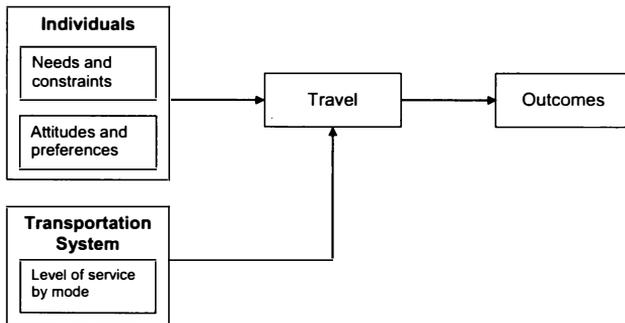


Source: U.S. Census Bureau (2004) and Current Population Survey

Conceptual Basis

To better address the transportation needs of a particular population group, transportation planners need to understand not only travel patterns for the group but also the factors contributing to the travel choices of individuals within the group. These factors include an individual's need for travel (whether getting to work, going shopping, getting children to school, or other needs) as well as her constraints on travel (for example, limits on time, limits on income, inability to drive) and her attitudes and preferences for travel in general and for different modes. Given these factors and the level of service provided by the transportation system, an individual makes choices about travel (including whether or not to travel, where to go, what mode to use, and what route) that lead to a variety of outcomes (such as an ability to earn an income, put dinner on the table, get an education) (Figure 3).

Figure 3. Conceptual Model



The standard model of travel behavior, based on economic theory, assumes that individuals seek to maximize their utility, where the utility of travel is primarily derived from reaching spatially separated activities, such as work, school, and shopping (Domencich and McFadden 1975). Maximizing utility generally means minimizing travel time when choosing between travel modes, routes, or destinations, according to this model. An individual's ability to maximize her utility is constrained by her own characteristics, including income and time availability, as well as the characteristics of the transportation system.

However, this optimization process is complicated for several reasons. First, people make longer-term choices that affect their shorter-term

choices for everyday travel, such as auto ownership and job location. Second, the types of considerations that make a particular choice optimal for someone are likely to be unique to that individual and to her particular circumstance. Furthermore, some of the considerations that are thought to be relevant for travel choices do not necessarily fit into the traditional notion of "rational" decision-making implied by economic theory. This rich set of considerations might include factors such as family responsibilities, risk aversion, perceptions of safety or comfort, previous travel experiences, cultural norms, sensitivity to features of the built environment, the desire to impress peers, and self-efficacy.

Given the influence of such considerations, theories from the field of psychology are a useful supplement to utility-maximization in framing travel behavior. In particular, the "theory of planned behavior" (Ajzen 1991) and "social cognitive theory" (Bandura 1986) both contribute concepts useful for understanding the travel behavior of immigrants. The theory of planned behavior identifies three different types of beliefs that play an important role in explaining behavior: beliefs about likely outcomes of a behavior, normative beliefs about whether others approve or disapprove, and beliefs about factors that will facilitate or constrain particular behaviors. Social cognitive theory recognizes that an individual's behavior is not simply a product of her personal characteristics and the environment, as given inputs to a behavioral outcome, but rather that an individual's behavior can influence her personal characteristics (such as feelings and attitudes) and can influence her environment (for example, by changing the behavior of others). The notions of "outcome expectations" and "self-efficacy" also come from social cognitive theorists, referring to expecting something to happen based on previous experience, observations, hear-say, or gut feelings; and confidence about the ability to accomplish something (Baranowski et al. 2002). These concepts are useful in explaining many aspects of behavior that seem to fall outside of the utility-maximizing framework, such as resistance to riding transit due to associated stigmas.

Individuals sharing demographic characteristics are likely to have similar patterns of travel for several reasons. First, whatever demographic characteristic members of a particular population group have in common may be associated with other choices they also have in common. For example, individuals with similar income levels or educational attainment may choose to live in the same neighborhoods, choose from the same pool of jobs, shop at the same nearby grocery stores, and make the same decisions about how to travel between these activities. Demographic commonalities may be associated with particular attitudinal and belief-oriented responses as well. Similarities in travel behavior along demographic lines might also result from belonging to the same community. For example, a community may produce normative beliefs

that are specific to its members, such as whether it is appropriate for women to travel alone or whether there is a stigma about riding transit. Furthermore, outcome expectations may be shared within a specific community, making the choices within that community more similar to each other than to the rest of the population. For example, a belief that it is dangerous to take rides in taxis may lead to limited use of that mode by a particular group.

These theories provide a useful framework for examining the travel choices of immigrants, who share many characteristics. Factors emphasized in the utility-maximizing theory, such as travel time and travel cost, are likely to play a significant role. For example, for an immigrant with very low income, the low cost of transit relative to driving may outweigh the longer travel time; income in this case is a greater constraint than time. At the same time, planned behavior and social cognitive theories may help explain why a previously transit-dependent immigrant who now has enough income to purchase a car might instead choose to continue taking transit.

Methods

We used multiple methods to explore the travel behavior of immigrants in California. First, we completed an extensive analysis of data on commute travel of California immigrants from the 1980, 1990, and 2000 Censuses. These data enabled an analysis of commute mode for immigrants by country of origin and time in the United States, trends in commute mode, and differences by cohort (e.g. recent immigrants in 1980 versus recent immigrants in 2000). Using the Public Use Microdata Sample (PUMs), we were also able to analyze commute travel, including mode and time, at the individual level for immigrants. Second, we conducted ten focus groups with recent Mexican immigrants, the largest segment of immigrants in California, on their transportation experiences and needs. Participants were assigned to groups based on whether they or someone in their household owned a car. Pairs of focus groups were conducted in Los Angeles, Riverside County, Fresno, Sacramento/Stockton, and San Jose. A total of 102 immigrants participated in the focus groups. Finally, we interviewed representatives from community-based organizations in nine California regions on the transportation needs and wants of Mexican immigrants. Further details on the methodology for each component of the study are reported elsewhere (Blumenberg and Evans 2007; Blumenberg and Shiki 2007a; Blumenberg and Shiki 2007b; Blumenberg and Song 2007; Lovejoy and Handy 2007; Donahue and Rodier 2007).

It is important here to note several limitations in our methods. Because few travel surveys record the immigration status of respondents, the census data are the best data source available to examine the travel behavior of immigrants. However, the census data provide data on the commute to work only and not on travel for other purposes. Further, the census data do not include information on the transportation barriers facing immigrants or their service preferences. The focus groups and interviews thus supplement the census data by examining travel for all purposes and exploring factors influencing travel choices and the outcomes of those choices. However, the small samples for both the focus groups and interviews with community-based organizations limit the generalizability of these findings. Furthermore, the content of conversations was potentially steered by questionnaire guides or dominant speakers. As a result, the content and frequency of comments from participants may not accurately reflect the views of the broader Mexican-immigrant population.

Key Findings on Immigrant Travel

Autos

The car is the most important means of transportation for immigrants; nearly two-thirds of all immigrants used single occupancy vehicles as their primary commute mode in 2000. Car usage varies by country of origin. Some immigrant groups—immigrants from Iran (94 percent), Korea (94 percent), Vietnam (93 percent), and Taiwan (93 percent)—travel by car in rates higher than U.S.-born commuters (91 percent). Other immigrant groups—particularly immigrants from Latin America—are less reliant on cars. For example, only 75 percent of Guatemalans and 83 percent of Mexican immigrants rely on cars.

Overall, newly arrived immigrants are more transit dependent than U.S.-born commuters. However, consistent with previous studies, they assimilate to autos quickly once in the United States, and much of this assimilation occurs after the first five years. The rate at which immigrants assimilate to auto use varies by race and ethnicity. Hispanic immigrants most quickly assimilate to auto use; however, their rates of transit use are so much higher than for other racial and ethnic groups that they remain more likely to use transit than U.S.-born white commuters even after 20 years in the United States. In contrast, after five years in the United States, Asian immigrants are about as likely to commute by transit as U.S.-born white commuters.

Findings from the focus groups with Mexican immigrants help to elucidate the trend in auto assimilation. For Mexican immigrants the car is an important and necessary mode of transportation – auto access means more freedom, more job opportunities, and a better quality of life; for some it is a symbol of greater social status. Cars are also essential for commutes to work in industries that involve variable work sites (e.g., construction), the need to carry equipment (e.g., landscaping), and early or late shifts (e.g., service work). Having children also adds to the need for a car.

Auto access is not a simple yes/no situation. Those living in households without a car often get rides from others or borrow cars, and few are truly transit dependent. Conversely, living with someone who has a car does not guarantee access to that car. Mexican immigrants who know how to drive sometimes borrow cars, but they often feel uncomfortable asking and worry about getting into accidents, having the car confiscated if pulled over, or having a breakdown.

Mexican immigrants with limited car access find it difficult to get to healthcare facilities, out-of-town destinations, recreational places, and any destinations at off-peak times; they spend more time commuting, and their employment and educational opportunities are more limited. Limited car access may disproportionately affect women, who often have to find alternative modes of travel when their husbands take the car to work. But these immigrants are deterred from buying cars by the costs of buying and maintaining a car, inability to get a driver's license, risk of vehicle confiscation, inability to get insurance, and having no way to learn how to drive.

Public Transit

Transit serves as a critical transitional service for immigrants, especially during their first five years of living in the United States. Moreover, although recent immigrants rapidly transition to auto commuting, many—particularly Hispanic immigrants—remain reliant on transit many years after immigrating to the United States, as previous studies have also shown. Consequently, immigrants commute by transit at rates twice that of U.S.-born commuters – eight percent compared to four percent. Not surprisingly, a disproportionate percentage (47 percent) of transit commuters in California are immigrants. In Orange and Los Angeles counties, immigrants compose two-thirds of all transit commuters.

Findings for Mexican immigrants from the focus groups and interviews suggest that transit plays an important role for meeting transportation needs for daily activities in addition to commuting to work. Mexican

immigrants appreciate many qualities of transit, including the low cost compared to driving and comfort in comparison to walking. But they also describe many disadvantages to transit, including the additional costs of traveling with children, difficulty traveling with packages, lack of safe and comfortable shelters, lack of safety on buses, long waits, and limited schedules and routes. Unreliability and limited service hours are of particular concern for immigrants using transit to get to work for other than 9-to-5 shifts. Women are especially concerned with safety at stations, treatment by bus drivers and passengers, and inability to communicate in English.

Carpooling

Carpooling is an important commute mode for immigrants in California – nearly twice as many immigrants (22 percent) as U.S.-born persons (12 percent) rely on carpooling as their primary commute mode. Carpooling also varies by country of origin. Among the top ten immigrant groups in California, Mexican immigrants use carpooling the most (29 percent) and Iranian immigrants rely on it the least (11 percent). The rates of carpooling among immigrants decline with years in the United States; but after 20 years in the United States, Hispanic and Asian immigrants carpool at rates higher than for U.S.-born whites. Carpooling rates among Mexican immigrants vary across metropolitan areas and are highest in Fresno and Orange Counties—both metropolitan areas with limited public transit networks.

The focus groups and interviews show that for Mexican immigrants carpooling is often preferable to taking public transit for commuting to work for reasons of reliability and speed, as well as comfort. In addition to work, carpools are organized for traveling to large supermarkets, flea markets, churches, and other destinations. However, depending on others for rides may be problematic with respect to discomfort in asking for a ride, a sense of indebtedness to others, unreliability of the driver, and the risk of a breakdown or being pulled over while on a trip made on the passenger's behalf.

Walking/ Biking

Few immigrants report walking as their primary commute mode – 3.5 percent of immigrants versus 2.8 percent of U.S.-born persons – and even fewer report bicycling. However, the focus groups and interviews indicate that walking is an important mode for Mexican immigrants, especially those with limited access to cars, and is used to get children to school, go to the park, and do limited shopping. For this group, walking

is seen both as a way to save money and a way to get exercise, but it only works when destinations are close. A lack of safe sidewalks, speeding in residential areas, and a lack of safe signal crossings are perceived as deterrents. Some Mexican immigrants rely on biking to save costs or when transit service is not available, but barriers to bike travel include lack of bike lanes, difficult road conditions, and hot weather.

Land Use

Almost 30 percent of immigrants in California live in the densest neighborhoods (those in the highest quintile of density, using Public Use Microdata Areas to define neighborhoods), compared to only 13 percent of the U.S.-born population. As noted earlier, these dense urban areas also tend to be neighborhoods with extensive transit networks and service.

Immigrants are more likely to choose alternative modes of travel than U.S.-born commuters regardless of metropolitan area. But the rates at which they rely on alternative modes of travel—and substitute one mode for another—vary by metropolitan structure. There tends to be less variation in transit commuting between immigrants and U.S.-born commuters in dense metropolitan areas, where transit use can more easily substitute for driving than in more spatially dispersed areas where using transit is far less convenient. In Los Angeles, even Mexican immigrants with cars made regular use of transit; in San Jose and Fresno they did not.

The focus groups suggest that land use plays an important role in travel mode choice for Mexican immigrants by determining the distances from home to destinations, including work and others, as well as the quality of travel by alternative modes. Long distances are often cited as a reason for needing a car or getting a ride. For nearby destinations, the quality of the built environment influences the safety and comfort of walking. For immigrants without car access, having destinations within walking distance adds to their quality of life.

Strategies to Address the Transportation Challenges Facing Mexican Immigrants in California

This research points to a long list of possible strategies to address the transportation challenges of Mexican immigrants in California. This list is not intended as a recommendation but rather as a general list of strategies that communities might consider in their efforts to better meet the transportation needs of Mexican immigrants in California.

Our findings point to two general strategies for improving the degree to which the travel needs of Mexican immigrants can be met: make car travel more attainable, or enhance the quality of transit service. These strategies are not necessarily incompatible, and indeed efforts in both areas would only improve conditions for immigrants. However, there are strong environmental reasons to give priority to transit service. Transit commuters are disproportionately immigrants; without them, the number of transit commuters in California would be at most half of what it is today. But transit agencies are likely to face a decline in transit ridership in the future due to (a) the projected slowing of immigration to California combined with (b) the assimilation of current immigrants to auto use. Declines in ridership make it hard to maintain quality of service, let alone improve it. But improving transit service is important not just from the standpoint of meeting the needs of immigrants. The combination of rising gas prices and new environmental policies (such as the California Global Warming Solutions Act) magnify the importance of providing alternatives to driving for all residents of California.

These alternatives should include walking and bicycling as well, both important modes for immigrants and often used in conjunction with transit. All of these modes need supportive land use patterns to be viable. Many communities in California have adopted policies that help to change land use patterns in ways that are more supportive of transit, walking, and bicycling. Examples include smart growth policies and transit-oriented development programs. These efforts, though directed at much broader societal and environmental concerns, may help to address the mobility needs of immigrants as well. In addition, communities might consider land use strategies targeted specifically to immigrants, such as incentive programs to entice supermarkets into lower-income immigrant neighborhoods.

Strategies to Address the Transportation Needs of Immigrants in California

Improve Public Transit

1. Orient transit services to better accommodate off-peak commute hours
 - Extend hours of service earlier and later to accommodate work schedules.
 - Increase frequency of service during commute hours specific to immigrant communities and reliability of arrival times.

- Implement rapid bus lines on most frequent routes, especially to common work places and shopping areas.
2. Encourage supplemental public transit systems
 - In areas with concentrations of newly arrived immigrants, increase number of routes, destinations served, frequency of service, and reliability of arrival times; and improve coordination of transfers between routes.
 - Provide ride-home shuttle services at grocery stores and round-trip rides to healthcare facilities.
 - Implement a shuttle system that links residential areas with major transit routes.
 3. Reduce transit costs selectively
 - Reduce costs for children and families.
 - Subsidize transit passes for workers and students.
 4. Improve comfort and ease of transit use
 - Require cultural sensitivity training and basic language skills for bus drivers.
 - Improve bus shelters with shade, seats, protection from traffic and crime.
 - Improve nighttime security on vehicles and at stops.
 - Implement pre-paid swipe cards.
 5. Market transit
 - Provide information at bus stops, including schedules, maps with nearby destinations, and real-time information, in Spanish or other languages.
 - Provide transit information to all non-profit organizations and libraries.
 - Advertise transit systems via Hispanic media: radio, billboards, newsletters, newspapers, Spanish television.
 - Promote transit use across all income and ethnic groups to build support for improved transit and to reduce dependence of transit ridership on recent immigrants.

6. Improve transit linkages between residence and workplace
 - Identify residential and workplace clusters of immigrant communities and increase transit linkages.
 - Subsidize shuttle systems to improve linkages between neighborhoods and large transit systems.
 - Implement rapid bus lines on most frequented routes, especially to common work places and shopping areas.

Make Car Travel Safer and More Attainable

1. Help increase driving ability
 - Provide opportunities for driver's training.
 - Provide mechanism for acquiring driver's license and insurance regardless of immigration status.
2. Facilitate car ownership
 - Provide financial assistance for purchasing vehicles and auto insurance.
 - Provide auto-repair training and facilities.
 - Lift the vehicle asset limitation associated with public assistance programs.
 - Encourage a retired fleet vehicle program to make available low-cost vehicles.
3. Facilitate carpooling and carsharing
 - Develop an organized carpool or vanpool system, with dedicated vehicles and community volunteers to drive to specific work locations.
 - Implement carsharing programs.
4. Improve safety of driving in rural areas
 - Provide signage of all highway turnoffs.
 - Post notices of potholes or flooding.
 - Provide Spanish translation of signs in key areas.
 - Improve highway lighting.

Improve Pedestrian Experience

1. Improve pedestrian infrastructure
 - Provide sidewalks and signal-protected crossings.
 - Enforce speed limits and implement traffic calming.
 - Improve egress from schools and grocery stores.
2. Provide density of destinations
 - Plan for schools, workplaces, parks, supermarkets, laundromats, and healthcare within walking distance of residential areas.
3. Improve quality of pedestrian experience
 - Make walking more pleasant through beautification, landscaping, benches, trees.
 - Make walking safer through lighting.

Improve Bicycling Experience

1. Increase access to bicycles
 - Work with police departments and bicycle shops to provide low-cost used bicycles to immigrants, along with training in bicycle repair and access to repair facilities.
2. Increase the safety and comfort of bicycling
 - Maintain and improve existing bicycle infrastructure.
 - Provide more extensive networks of bicycle lanes and other facilities.
 - Provide free helmets and training in bicycle safety, particularly for children.

Adapt Land Use Patterns to Support Alternative Transportation

1. Ensure adequate access to basic services within the community.
 - Conduct audits of available versus needed services.
 - Review zoning policies in immigrant communities.
 - Provide incentives for needed services to locate in immigrant communities.

2. Ensure transit access to public services outside of the community.
 - Give high priority to transit access in deciding where to locate public services important to immigrants.

Opportunities for Future Research

Our understanding of the travel patterns of immigrants could be vastly enhanced by the simple step of including a question on immigrant status in travel surveys, particularly travel diary surveys. The 2001 Nationwide Household Travel Survey, for example, included such a question, enabling nationwide analysis of the travel patterns of recent immigrants by country of origin for all purposes of travel (Tal and Handy 2005). However, the sample of recent immigrants in California in this survey is too small to be useful. Regional transportation planning agencies periodically conduct similar surveys, but no recent survey in California included a question on immigrant status. Our work also suggests that such surveys should include a more refined measure of car access than simply the number of vehicles available to a household (Lovejoy and Handy 2008).

Many topics merit further research. The travel needs of elderly immigrants, for example, could be significantly different from those of younger immigrants or from native-born elderly. Programs targeted at improving transportation services for immigrants should be evaluated through rigorous before-and-after studies. The effect of the spatial distribution of jobs and residences on commuting patterns and the need for transit services for immigrants is not well understood, particularly given the potential regional variation in this effect. As neighborhoods transition from immigrants from one country of origin to another or from immigrants to native-born population, studies of changes in travel patterns could yield important insights. The extent of driving without a license among immigrants and the ways in which licensure impacts travel choices are poorly understood. Research in all these areas would help guide transportation agencies in California in their efforts to better meet the travel needs of the increasingly diverse population of the state.

References

- Ajzen, Icek. 1991. The theory of planned behavior. *Organizational Behavior and Human Decision Processes* 50: 179–211.
- Alba, Richard D., John R. Logan, Brian J. Stults, Gilbert Marzan, and Wenquan Q. Zhang. 1999. Immigrant groups in the suburbs: A reexamination of suburbanization and spatial assimilation, *American Sociological Review* 64(3): 446-460.
- Bandura, Albert. 1986. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice-Hall, Inc.
- Baranowski, Thomas and Cheryl L. Perry. 2002. How Individuals, Environments, and Health Behavior Interact: Social Cognitive Theory. In *Health Behavior and Health Education: Theory, Research, and Practice*, K. Glanz, B. K. Rimer, and F. M. Lewis, eds. San Francisco, CA: Jossey-Bass.
- Bernstein, Nina. 2005. Fight Over Immigrants' Driving Licenses Is Back in Court, *The New York Times*, April 7.
- Blumenberg, Evelyn and Alexandra Evans. 2007. Growing the Immigrant Transit Market: Public Transit Use and California Immigrants. Working Paper, Institute of Transportation Studies, University of California Los Angeles, September.
- Blumenberg, Evelyn and Kimiko Shiki. 2007a. Transportation Assimilation: The Case of Immigrants and Automobiles. Working Paper, Institute of Transportation Studies, University of California Los Angeles, September.
- Blumenberg, Evelyn and Kimiko Shiki. 2007b. Resource Sharing: Immigrants and Carpooling in California. Working Paper, Institute of Transportation Studies, University of California Los Angeles, September.
- Blumenberg, Evelyn and Lily Song. 2007. The Travel Behavior of Immigrants in California: Trends and Policy Implications. Working Paper, Institute of Transportation Studies, University of California Los Angeles, September.
- California Department of Finance. 2002. Census 2000 California Profile. Sacramento, CA: State of California.
- Casas, Jesse, Carlos Arce, and Christopher Frye. 2004. *Latino Immigration and Its Impact on Future Travel Behavior*. Available at: <http://trb.org/conferences/nhts/Casas.pdf>, last accessed May 1, 2008.
- DiCamillo, Mark and Mervin Field. 2005. Californians oppose issuing driver's licenses to undocumented immigrants. Divided about issuing them special driver's licenses identifying their not having legal status, *The Field Poll*, Release #2156.
- Domencich, Tom A., and Daniel L. McFadden. 1975. *Urban Travel Demand: A Behavioral Analysis*. New York: American Elsevier Publishing Company.

- Donahue, Moira and Caroline Rodier. 2007. Transportation Preferences and Needs of Mexican Immigrants in California: Results from Interviews with Community-Based Organizations. Transportation Sustainability Research Center Working Paper, University of California Berkeley, September.
- Douma, Frank. 2004. Using ITS to Better Serve Diverse Populations, Final Report. State and Local Policy Program, Hubert H. Humphrey Institute of Public Affairs, University of Minnesota.
- Ellis, David. 2001. Improving *Camioneta* Van Service in Texas. *Texas Transportation Researcher*, 37(4):10.
- Fass, Allison. 2001. Chinatown to Boston on a \$15 Van Ride. *The New York Times*, February 18.
- Hegstrom, Edward. 2003. Deadly crossing; *Camionetas* travel road full of risk; Immigrant vans largely unregulated. *The Houston Chronicle*, November 10.
- Heisz, Andrew, and Grant Schellenberg. 2004. Public Transit Use Among Immigrants. *Canadian Journal of Urban Research* 13(1): 170-191.
- Ingram C. 1999. California and the West; Panel OKs Farm Van Seat Belt Bill; Legislature: Measure gets swift approval in Senate committee along with tougher penalties for operators of unsafe vehicles. *The Los Angeles Times*, August 20.
- Lee Ronald, Timothy Miller, Ryan D. Edwards. 2003. The Growth and Aging of California's Population: Demographic and Fiscal Projections, Characteristics and Service Needs. Berkeley, CA: California Policy Research Center, University of California.
- Lewis, Raphael. 2001. Catching a ticket to ride – cheap language, price help shuttles edge buses. *The Boston Globe*, February 17.
- Lovejoy, Kristin and Susan Handy. 2007. Transportation Experiences of Mexican Immigrants in California: Results from Focus Group Interviews. UCD-ITS-RR-07-32, Institute of Transportation Studies, University of California Davis, January.
- Lovejoy, Kristin and Susan Handy. 2008. A Case for Measuring Individuals' Access to Private-Vehicle Travel as a Matter of Degrees: Lessons from Focus Groups with Mexican Immigrants in California. *Transportation*, forthcoming.
- McGuckin, Nancy and Nanda Srinivasan. 2003. National Summary. *Journey to Work Trends in the United States and its Major Metropolitan Areas 1960 – 2000*. Publication No. FHWA -EP-03-058.
- Moreno, Sylvia. 1998. Legal attack targets vans carrying immigrants. *Washington Post*, April 22.
- Myers, Dowell. 1996. Changes over Time in Transportation Mode for Journey to Work: Effects of Aging and Immigration. *Decennial Census Data for Transportation Planning: Case Studies and Strategies for 2000*, Volume 2: Case Studies. Transportation Research Board, Washington, DC.

- National Immigration Law Center. 2004. *State Driver's License Requirements*, December. Available at: http://www.nilc.org/immspbs/DLs/state_dl_rqrmts_120504.pdf, last accessed May 1, 2008.
- Newman, Barry. 2005. Street Smarts On the East Coast, Chinese Buses Give Greyhound a Run. *Wall Street Journal*, January 28.
- Pisarski, Alan. 1999. Cars, Women, and Minorities. The Democratization of Mobility in America. Automobility and Freedom Project, November. Available at: <http://www.cei.org/PDFs/pisarski.pdf>, last accessed May 1, 2008.
- Purvis Chuck. 2003. Commuting Patterns of Immigrants. CTPP 2000 Status Report. U.S. Department of Transportation, Federal Highway Administration, Bureau of Transportation Statistics, Federal Transit Administration, Washington, DC.
- Tal, Gil and Susan Handy. 2005. The Travel Behavior of Immigrants and Race/Ethnicity Groups: An Analysis of the 2001 National Household Transportation Survey. UCD-ITS-RR-05-24, Institute of Transportation Studies, University of California Davis, December.
- U.S. Bureau of the Census. 2004. Historical Poverty Tables, Current Population Survey, Annual Social and Economic Supplements. Washington, DC: Poverty and Health Statistics Branch/HHES Division.
- U.S. Department of Homeland Security. 2003. *Yearbook of Immigration Statistics*. 2004. Washington, DC: Office of Immigration Statistics.
- U.S. Department of Homeland Security. 2004. *Yearbook of Immigration Statistics*. 2004. Washington, DC: Office of Immigration Statistics.
- U.S. Immigration and Naturalization Service. 2003. Estimates of the Unauthorized Immigrants Population Residing in the United States: 1990 to 2000. Washington, D.C.: Office of Policy and Planning. Available at: http://uscis.gov/graphics/shared/statistics/publications/III_Report_1211.pdf, last accessed May 1, 2008.
- Valenzuela Jr., Abel. 2003. Plane, Trains, or *Camionetas* (little buses)? A Baseline Study of an Informal Travel Mode. A UCTC Year 13 Research Grant Final Report Summary. Available at: <http://www.uctc.net/papers/final%20reports/year13/33%20-%20Valenzuela%20final%20report%20year%202013.htm>, last accessed May 1, 2008.

Susan Handy is a Professor in the Department of Environmental Science and Policy and Director of the Sustainable Transportation Center at the University of California, Davis.

Evelyn Blumenberg is an Associate Professor in the Department of Urban Planning, School of Public Affairs, University of California, Los Angeles.

Moirra Donahue is a Graduate Student Assistant in the Transportation Sustainability Research Center, University of California, Berkeley.

Kristin Lovejoy is a Graduate Student Assistant in the Institute of Transportation Studies, University of California, Davis.

Caroline Rodier is a Senior Researcher at the Transportation Sustainability Research Center, University of California, Berkeley.

Susan Shaheen is Research Director of the Transportation Sustainability Research Center, University of California, Berkeley.

Kimiko Shiki is a Graduate Student Assistant in the Department of Urban Planning, School of Public Affairs, University of California, Los Angeles.

Lily Song is a Graduate Student Assistant in the Department of Urban Planning, School of Public Affairs, University of California, Los Angeles.

Susan Handy es Profesora en el Departamento de Ciencias y Políticas Ambientales, y directora del Centro de Transportación Sostenible de la Universidad de California, Davis.

Evelyn Blumenberg es Profesora Asociada, Departamento de Planeación Urbana, Escuela de Asuntos Públicos, Universidad de California, Los Angeles.

Moirra Donahue es Estudiante de Postgrado y Asistente de Investigación, Instituto de Estudios de Transportación, Universidad de California, Davis.

Kristin Lovejoy es Estudiante de Postgrado y Asistente de Investigación, Instituto de Estudios de Transportación, Universidad de California, Davis.

Caroline Rodier es Investigador en el Centro de Investigación de Transportación Sostenible, Universidad de California, Berkeley.

Susan Shaheen es Directora de Investigación del Centro de Investigación de Transportación Sostenible, Universidad de California, Berkeley.

Kimiko Shiki es Estudiante de Postgrado y Asistente de Investigación, Departamento de Planeación Urbana, Universidad de California, Los Angeles.

Lily Song es Estudiante de Postgrado y Asistente de Investigación, Departamento de Planeación Urbana, Universidad de California, Los Angeles.