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# Transportation Research Part A

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## Changing travel behavior of Asian immigrants in the U.S.



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### ABSTRACT

Travel of Asian immigrants in the U.S. has rarely been investigated, although their transportation assimilation process could be different from other immigrant groups. This research uses the 2001 and 2009 National Household Travel Survey (NHTS) data to examine how Asian immigrant travel behavior changes over time. Based on cohort analysis and regression analysis, two types of temporal changes are analyzed: The first type of change occurs as immigrants stay in the U.S. for several years, and the second type of change happens in the initial status between the more recent arrivals and those who arrived earlier. Along the first temporal dimension, this research finds travel differences between recent Asian immigrants who have lived in the U.S. for fewer than four years and native-born Asian Americans, but the differences are inconsistent between 2001 and 2009. Meanwhile, established Asian immigrants who have lived in the U.S. for more than four years assimilate into the automobile culture with similar travel patterns as native-born Asian Americans. Along the second temporal dimension, recent immigrants in 2009 do not have greater transportation mobility than recent immigrants in 2001: travel differences between recent immigrants and native-born Asians were smaller in 2001 than in 2009. The results indicate that Asian immigrant travel behavior differs from that of other immigrant groups and shed light on how to improve transportation services for a diverse and multicultural population.

### 1. Introduction

Travel behavior of Asians in the U.S. has received little attention in academic research or in transportation policies, but the growing Asian population could have significant implications for transportation policies. Based on the 2010–2014 American Community Survey (ACS) (U.S. Bureau of the Census, 2017), 15.7 million, or 5 percent, of the U.S. population were Asians alone (not in combination with another race). The U.S. Census Bureau projected that by 2060, 9.3 percent of the U.S. population would be Asians, an increase of 22 million Asian population from year 2014 (Colby and Ortman, 2015). Asian is the fastest-growing racial group in the United States (Taylor, 2013). Nevertheless, to the best of my knowledge, no empirical research has examined Asian immigrant travel in the U.S., although some research has investigated travel of Latino immigrants or all immigrants. Therefore, we do not know how the fast-growing Asian population would affect future travel demand. Understanding Asian immigrant travel behavior can facilitate accurate estimation of travel demand and shed light on how to improve transportation services to an increasingly diverse and multicultural population.

Travel behavior of immigrants, particularly Latino immigrants, in the U.S. has received some attention, but Asian immigrant travel could be different from other immigrant groups because of their different individual characteristics, settlement locations, culture and social norms. If differences in travel behavior do exist, research results based on all immigrants or Latino immigrants cannot be applied to Asian immigrants. Therefore, the first step is to understand Asian immigrant travel and its changes.

This research is longitudinal. Travel behavior changes can be investigated along two temporal dimensions. The first dimension is

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associated with how long the immigrants have lived in the U.S.—immigrants tend to assimilate into the American “mainstream” society and adopt its automobile culture over time. The second dimension is associated with how recently the immigrants entered the U.S.—more recent arrivals could have different social, human, cultural, and monetary capital when they first entered the U.S. than those who arrived earlier.

Therefore, this research answers two research questions. First, do Asian immigrants assimilate into the automobile culture? Second, have recently-arrived immigrants greater transportation mobility when they first entered the U.S. than those who arrived earlier? Specifically, I used the 2001 and 2009 National Household Travel Survey (NHTS) data to examine changes in commute trips and household automobile trips along the two temporal dimensions.

The next section reviews relevant literature. Because the literature on Asian immigrant travel is scarce, the section initially focuses on factors that affect immigrant travel and then summarizes changes in these factors, followed by reviewing literature on the distinct characteristics of Asian immigrants. The data section describes the samples of Asian immigrants in the 2001 and 2009 NHTS. The cohort analysis section depicts changes in individual characteristics, location characteristics, and travel behavior of Asian immigrants, followed by the regression analysis section that estimates how Asian immigrant travel changes along the two temporal dimensions. The analysis indeed finds that changes in Asian immigrant travel behavior differ from the changes observed for other immigrant groups. The conclusion section summarizes the findings and offers policy and planning suggestions to improve transportation services to Asian immigrants.

## 2. Literature review

Immigrant travel has received some academic attention in the U.S., but less attention is paid to Asian immigrants. Some transportation research has examined travel behavior of Latino immigrants (e.g. Bohon et al., 2008; Casas et al., 2004; Cline, 2010; Liu and Painter, 2012; Lovejoy and Handy, 2007), who comprise the largest immigration group in the U.S. Although Asians make up a relatively small share of the total immigrant population—about 30% in 2014 (Zong and Batalova, 2016)—the amount of research on Asian immigrants is disproportionately small. This research is the first step in filling in this gap.

With the limited amount of research on Asian immigrant travel, in this section I first review literature on travel behavior of all immigrants in the U.S. and summarize three groups of factors that affect immigrant travel. I then review literature that examines changes in the three groups of travel-related factors by immigrant length of stay in the U.S. and by arrival cohort. Lastly, I review literature that examines distinct characteristics that affect Asian immigrant travel as well as changes in these characteristics.

### 2.1. Immigrant travel behavior and travel-related characteristics

Empirical research has established that the fast growing immigrant population has increased travel across all transportation modes and that travel patterns of immigrants differ from those of native-born Americans (Blumenberg, 2009). Specifically, compared with native-born Americans, immigrants are more likely to use travel modes other than driving alone, such as transit, carpooling, walking, and biking (Blumenberg and Shiki, 2007; Chatman and Klein, 2009, 2013; Purvis, 2000; Smart, 2010, 2015; Valenzuela et al., 2005), especially in the first few years that they are in the country (Tal and Handy, 2010).

Common factors that affect travel behavior include the built environment (Boarnet and Crane, 2001; Cao et al., 2009; Cervero, 2002; Ewing and Cervero, 2010; Handy et al., 2005) and socioeconomic characteristics. In addition to income, education, and age, other socioeconomic characteristics that affect travel include household structure (Strathman et al., 1994), gender (Rosenbloom, 2006), race (Mauch and Taylor, 1997), personal attitude and perception (Johansson et al., 2006; Morikawa and Sasaki, 1998). Now immigration status has gained attention in travel behavior research.

Many factors explain the travel differences between immigrants and native-born Americans. Blumenberg (2009) grouped these factors into six sets: “individual and household characteristics, the process of spatial assimilation, access to ethnic-specific resources, ethnic employment patterns, cultural differences, and federal, state, and local regulations” (p. 173). Based on Blumenberg’s framework, I collapse the travel-related factors commonly examined in transportation literature into three groups: 1. individual personal and household characteristics; 2. settlement locations; and 3. cultural differences and institutional barriers.

On average, immigrants and their households have lower income (McGuckin and Srinivasan, 2003) than native-born Americans, and consequently they have fewer financial resources to purchase and maintain private automobiles (Blumenberg, 2009). In the U.S. context, lower income is associated with a higher share of non-automobile travel mode (Chatman and Klein, 2009) and shorter travel distances (Renne and Bennett, 2014).

Settlement locations affect travel. Compared with native-born Americans, immigrants tend to live in higher density places (Rosenbloom, 1998), which usually support transit services. Immigrants are also likely to live, work, and shop in ethnic neighborhoods, sometimes termed “ethnic enclaves” or “ethnic niches.” These ethnic neighborhoods connect immigrants with their settled co-ethnics (Liu and Painter, 2012) and foster social capital that supports carpooling (Blumenberg and Smart, 2009). Additionally, the spatial proximity between housing and clustered activities in these ethnic neighborhoods allow immigrants to carpool, transit, walk, and bike (Chatman and Klein, 2009).

Locations of immigrant employment opportunities could also affect their commute travel, but the effects are uncertain. Through social networks immigrants tend to concentrate in a few industries or occupations (Waldinger and Lichter, 2003). Chatman and Klein (2009) observed that among the jobs commonly acquired by immigrants, those in construction, convenience restaurants, and domestic work are spatially dispersed; jobs in warehousing, food processing, and postsecondary education are concentrated in large facilities; and jobs in science and engineering, high-end restaurants, and office buildings are located in dense employment clusters.

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