



Commute travel and its effect on housing tenure choice of males and females living in the urban and rural areas of Bangalore city in India



M. Manoj^a, Ashish Verma^{a,*}, M. Navyatha^b

^a Department of Civil Engineering, Indian Institute of Science (IISc), Bangalore 560012, Karnataka, India

^b Department of Civil Engineering, National Institute of Technology (NIT), Tiruchirappalli 620015, India

ARTICLE INFO

Article history:

Received 18 November 2014

Revised 25 April 2015

Accepted 4 May 2015

Keywords:

Commute travel
Developing country
Gender
Housing tenure
India
Location

ABSTRACT

This study attempts to identify various factors influencing individual's choice of housing tenure with emphasis on the effect of commute trips on that choice. It also focuses on the sensitivity to various factors affecting the housing tenure choice between males and females of urban and rural areas. The study is based on both exploratory analysis and estimation of statistical models using a Household Travel Survey data collected for Bangalore Metropolitan Region in year 2010. The results indicate the role of both the land use attributes and commute travel characteristics on tenure choice and the behavioural difference between males and females. The sensitivity to various attributes is also observed to be varying between the individuals living in the urban and rural areas of the city. The finding that private mode use for commuting governs the housing tenure choice of individuals suggests that promotion of urban-transport policies such as Transit Oriented Development may be an effective strategy to curb the issues related to energy consumption and emission.

© 2015 Elsevier Ltd. All rights reserved.

1. Introduction

Housing related decisions – residential mobility, tenure choice, location, and dwelling type – are components of long-term lifestyle and mobility decisions (Ben-Akiva et al., 1996) that affect activity-travel patterns, emissions and energy consumption of households (Chen et al., 2013), and provide a detailed understanding of urban structure (Bhat et al., 2002) and social well-being (Levin et al., 2014; Arthurson, 2013). Housing decisions of individuals are of interest to transportation planners as such decisions are influencing (e.g., Chen and McKnight (2007)) and are influenced (e.g., Guo and Bhat (2007), Sermons and Koppelman (2001)) by the activity-travel behaviour of individuals/households. Housing tenure – often described as the choice between owning and renting a house – is also a topic of interest in travel behaviour and urban studies literature.

Housing tenure choice is observed to influence the travel behaviour of individuals/households. Kim (1994) noted that males living in rented houses in the Los Angeles Metropolitan Area were travelling shorter distance than females belonging to rented houses. The author also observed that the effect (association and magnitude) of renting a house on females' commute distance varied with respect

to their household context. White (1986), in their analysis from New York City, found that male workers who owned a house had longer commuting journeys than male renters did, and there was no significant difference between the commute durations of female commuters belonging to owned and rented houses. Alkay (2011) observed that the commute times of homeowners and renters were approximately same in the Istanbul Metropolitan Area. Plaut (2006), using an American Housing Survey data set, investigated the inter-relationships between the spousal commuting decisions of individuals belonging to owned and rented houses. It was found that for both housing tenures commute travel by men and women was complementary in nature. Paleti et al. (2013) developed an integrated econometric model for modelling the long-term, medium-term, and short-term activity-travel choices of employed individuals in the US. They observed that homeowners had a higher propensity to locate in less dense neighbourhoods, had longer commute trip lengths, and had a higher tendency to own vehicles. Using the American Housing Survey panel data from the US, Crane (2007) observed that male tenants travelled shorter distance on personal modes than female tenants. Sanit et al. (2013) developed a MNL model for jointly modelling the residential location, workplace location, and travel mode choice of multi-earner households in Bangkok after the introduction of the urban railway. It was found that homeowners had a less preference for residing in locations that were far from the railway line and that incurred a high cost for travel.

* Corresponding author.

E-mail addresses: manoj@civil.iisc.ernet.in (M. Manoj), ashishv@civil.iisc.ernet.in (A. Verma), navyatha.metta57@gmail.com (M. Navyatha).

Housing tenure choice is also influenced by the travel behaviour of individuals/households. Elder and Zumpano (1991) observed that families with head of households commuting on public transport were more likely to rent a home in the US. Chen et al. (2013) analysed residential choices as a joint decision of tenure (own or rent) and housing types (single family unit or multifamily unit). It was observed that household's time allocation to various activities (shopping, social, recreational, etc.), captured through factor analysis were influencing the joint choice of tenure and housing types. Apart from the time allocation variables, lifecycle stage, socio-demographic characteristic such as vehicle ownership, and land use attributes were also influencing the residential choices. Waddell (1996), in their multi-dimensional residential choice analysis, noted the effect of commute distance on residential choice decisions in Hawaii. It was found that renters had a higher propensity to choose locations that minimised their commute distance. Factors such as price, tax rate, and rent to value ratio. (Mills, 1990), and household socio-demographics such as household size, and presence of children. (Bhat et al., 2002) are found to have influences on housing tenure decision.

Overall, a brief summary of the past studies linking housing tenure and travel behaviour indicates that the effects of tenure choice on the travel behaviour of individuals/households are mixed. Commute travel is found to be influenced by and is influencing the housing tenure choice perhaps due to the regularity of work travel.

The present work attempts to identify various factors influencing the housing tenure decisions of individuals with emphasis on the effect of commute trips on that decision. It also focuses on the sensitivity to various factors affecting the housing tenure choice between males and females of urban and rural areas. To the authors' best knowledge no studies have contributed in this research direction from an Indian city. The main objectives of the study include:

- (i) To summarise the commute travel behaviour of males and females living in owned and rented houses in urban and rural areas, and
- (ii) To identify various factors influencing the housing tenure choice of males and females living in urban and rural areas

Even though residential choices are household decisions, case study of Prashker et al. (2008) from Israel shows that such choices (in their analysis, home location) can be analysed at individual level, and the sensitivity to various attributes – such as commute distance – can vary between genders.

The rest of the paper is structured as follows. Next section introduces the study area and data source. Section 3 provides a brief summary of the commute travel behaviour of males and females. Fourth section presents the estimation results of the statistical models that explore the impacts of various factors on the housing tenure choice of individuals. Final section summarises the important findings of the study.

2. Study area and data source

The research presented in this paper is a case study from Bangalore Metropolitan Region (BMR) in India. Bangalore has a population of 8 million. Bangalore followed a concentric pattern of spatial development (Revised City Development Plan Bangalore, 2009). However the growth of the city has been unplanned and has been characterised by 'residential leap frogging and infilling' with respect to the locations of major industries, academic institutions and transport routes (Sastry, 2008).

The data are from a comprehensive Household Travel Survey (HTS) conducted by the Bangalore Metropolitan Region Development Authority (BMRDA) in year 2010 as a part of

Comprehensive Traffic and Transportation Study (CTTS). A sample (households) size of 2% of the total households in the city was found to be a representative of the study area. Fig. 1 shows the map of the study area. BMR was divided into urban and rural areas in the CTTS. Furthermore, the rural areas in the city were divided into ten coarse traffic-analysis zones in the CTTS.

The HTS data was supplemented with land use characteristics of zones (population and employment density, and land use type indicator) and transport network information. However, the HTS data has a few limitations due to the exclusion of non-work travel information of individuals and due to the lack of details regarding residential mobility, house tax and rent information, etc. Further details about the HTS data are available in Bangalore Metropolitan Region Development Authority (2010).

The HTS database was subjected to 'screening and cleaning' to identify and to remove incomplete observations. Four sub-samples were developed from the remaining sample of observations – samples for urban males, urban females, rural males, and rural females. The analyses presented in the upcoming sections are based on these subsamples.¹

3. Commute travel behaviour of house owners and renters

This section concentrates on the commute travel behaviour of males and females living in owned and rented houses in the urban and rural areas of Bangalore city. However, it was felt appropriate to briefly discuss about the personal and household socio-demographics of the individuals. Table 1 summarises the socio-demographic characteristics of the individuals belonging to the urban area of the city, while Table 2 provides a summary of various attributes of the individuals in the rural area.

Table 1 suggests that there are several noticeable differences across the individuals. The table indicates that household level car ownership is high amongst females (when they are primary workers); whereas, the household level bicycle ownership is higher for males living in rented houses (both differences are significant at 5% level). Female house-renters have the highest share of unmarried individuals. The share of unmarried individuals in the female house-renters group is significantly (at 5% level) higher than that in female house-owners group and male house-renters group. The share of self-employed individuals is the highest in house-renters groups. For both males and females, the share of self-employed individuals in the house-renters group is significantly (at 5% level) higher than that in house-owners group. Male house-renters have the highest percentage of individuals who possess a license to drive (significantly higher (at 5% level) than that in male house-owners and female house-owners groups). Further, female house-renters have the highest share of individuals whose work varies from day-to-day. This share is significantly (5% level) higher than that in female house-owners group. Other difference amongst the groups with respect to various socio-demographic and socio-economic attributes can be easily comprehended from the summary provided in Table 1.

Comparing with the urban sample, the rural households (Table 2) appear to be of small sizes (size differences are significant at 5% level). Bicycle ownership share indicates that it is approximately similar between (at 5% level) males living in owned and rented houses, whereas it is significantly higher amongst male house-renters in the urban sample. Furthermore, bicycle ownership in the male house-owners/renters group is significantly higher

¹ The samples are of primary workers, where a primary worker (in case of multi-worker households) is an individual who has the longest work duration amongst all workers in a household, or the older individual if all of them have same work durations (Based on Banerjee (2006)); the lone worker in one-worker households is also designated as a primary worker.

Download English Version:

<https://daneshyari.com/en/article/1059136>

Download Persian Version:

<https://daneshyari.com/article/1059136>

[Daneshyari.com](https://daneshyari.com)