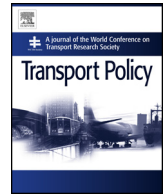




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## Mobility and travel behavior in urban China: The role of institutional factors

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## ABSTRACT

Institutional factors, which are referred to social and economic norms and rules, define individuals' entitlement and access to opportunities and thus may play an important role in shaping individuals' mobility and travel behavior, especially in countries that are experiencing or have experienced the transition from a planned economy to market-oriented economy. Studies in Chinese cities show that *danwei* or type of work unit is an important institutional factor in explaining jobs-housing relationship and commuting behavior. We argue that, *hukou* or household registration (another institutional factor), may also explain the mobility and travel behavior of Chinese urbanites. Unlike population registration systems in many other countries, *hukou*, one of the most important institutional arrangements in contemporary China, determines an individual's entitlement to state-provided benefits and opportunities and plays a crucial role in defining access to housing, jobs, car ownership/usage, education, etc., which has far reaching implications for mobility and travel behavior. Using data collected from Beijing, we use structural equations modeling method to empirically test our hypothesis about the importance of *hukou* in explaining car ownership, travel time and transport mode choice for daily trips. Results show that *hukou* status has a significant impact on mobility and travel behavior of individuals. Specifically, local urban residents are found to have better home-work proximity and higher car ownership rate, travel more by non-motorized modes and spend less time on daily travel. This study provides insights into the complex relationships among *hukou*, built environment, mobility and travel behavior in urban China. The research findings can be used to assist planners and policy-makers in developing effective strategies to promote sustainable urban development.

### 1. Introduction

#### 1.1. Determinants of mobility and travel behavior

Mobility is a term widely used in different fields. In this research, mobility refers to transport mobility. Transport mobility is defined as the “potential” for movement, conditioned on the mobility tools one has access to, including car, transit pass, feet, etc. (Spinney et al., 2009). Mobility is inextricably linked to travel behavior, which refers to the daily life trip making behavior in terms of when, where, by what means, how long or how far trips are made. It is usually represented by common descriptive measures of travel, such as vehicle miles traveled, trip frequencies, travel time, travel distance, transport mode and so on.

Existing studies have identified a wide range of determinants of mobility and travel behavior, covering socio-demographics and life circumstances (Lu and Pas, 1999; Van Acker and Witlox, 2010; Scheiner and Holz-Rau, 2013), residential built environments (Handy et al., 2005; Cao et al., 2007), new technologies like ICT (Information and Communication Technologies) and autonomous vehicles (Wang and

Law, 2007; Levin and Boyles, 2015), attitudes and personalities (Gärling et al., 1998; Van Acker et al., 2010).

Apart from these factors, institutional factors may also be important determinants of mobility and travel behavior, especially in countries that are experiencing or have experienced the transition from planned economy to market-oriented economy such as China. Institutional factors, which are connected with social and economic norms and rules, define individuals' entitlement and access to institutional arrangements and thus may play an important role in shaping individuals' mobility and travel behavior. Although institutional factors have direct relevance to public policies, the role of institutional factors has not yet received much research attention. Existing studies in Chinese cities have acknowledged that *danwei* or type of work unit—an institutional factor characterizing socialist China—plays an important role in explaining jobs-housing relationships and commuting behavior. Findings showed that commuters living in *danwei* compounds had shorter commuting trips than those living in houses from market sources (Wang and Chai, 2009; Zhao et al., 2011). However, *hukou* or household registration, another important institutional arrangement in contemporary

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**Table 1**  
Classification of *hukou* system in Beijing.

			Type of registration	
			Rural (Agricultural)	Urban (Non-agricultural)
Place of registration	Local	Reside in the same place as <i>hukou</i> location	Local rural <i>hukou</i>	Local urban <i>hukou</i>
	Non-local	Reside in a different place from <i>hukou</i> location, holding “WRP”	Non-local rural <i>hukou</i> holding “WRP”	Non-local urban <i>hukou</i> holding “WRP”
		Reside in a different place from <i>hukou</i> location, holding “TRP”	Non-local rural <i>hukou</i> holding “TRP”	Non-local urban <i>hukou</i> holding “TRP”

Notes: “rural” is the same as “agricultural” and “urban” is the same as “non-agricultural” in the *hukou* classification (Fan, 2008).

China, may also contribute to explaining the mobility and travel behavior of Chinese urbanites, because it determines an individual's entitlement and access to state-provided benefits and opportunities for housing and child education, employment and car ownership, which has far reaching implications for their travel behavior. Hence, this paper seeks to contribute to research on the relationship between *hukou* and travel behavior in China.

### 1.2. *Hukou* system in China

The *hukou* system (household registration system) was instituted in China in the 1950s. Unlike the population registration system in many other countries, it was designed not only to provide population statistics and identify personal status, but also to achieve many other important objectives (such as population regulation) through its close connection with people's access and entitlement to government-provided benefits and opportunities. The *hukou* system used to be a crucial means of setting up and maintaining a block to free flows of resources (including labour) between the urban and rural areas (Chan and Zhang, 1999). But the restriction it imposed on population migration has begun to relax since the implementation of economic reforms around 1980s, in conjunction with China's economic transition from centrally planned economy system to market economy system (refer to Chan and Zhang (1999) and Chan (2009) for detailed information about the *hukou* system in China). In this process, there has been an increasing number of migrants, especially from rural origins, moving to cities (Guo and Iredale, 2004).

To grasp the essence of the *hukou* system in China, it is necessary to understand its classification and conversion. The basis is a dual classification structure, namely, classification by the place of *hukou* registration (local versus non-local *hukou*) and by the type of *hukou* registration (agricultural versus non-agricultural *hukou*) (Chan and Zhang, 1999; Song, 2014). It should be noted that “rural” and “urban” here are the respective synonyms of the agricultural and non-agricultural *hukou* type, not referring to a person's current physical location (Song, 2014). The present *hukou* conversion policies in big cities (e.g. Beijing and Shanghai)—the desired destinations of the majority of migrants—are mostly in favor of the highly educated and super-rich migrants (e.g. investors and home buyer). These are the hardest places for *hukou* conversion and are beyond the reach of most of the rural migrants (Li et al., 2010; Song, 2014). Due to highly limited local *hukou* quota, measures have been taken by authority of popular cities to attract and retain talents. For example, the government in Beijing has established a residence permit system for non-local population, which includes two types of permits, one is “WRP” (Work & Residence Permit) and the other is “TRP” (Temporary Residence Permit). “TRP” is designed to regulate immigrants from outside the city without local *hukou* status, while “WRP” is designed to attract and retain talents, unofficially named as Beijing “Green Card”. Since 1999, government in Beijing has started to issue “WRP” to a limited group of people working in high-tech field and senior managers who have investment in Beijing.<sup>1</sup> To

some extent, holders of WRP can enjoy benefits similar to holders of local Beijing *hukou*. But local *hukou* is permanent, and WRP is only effective during its validity period. According to the classification, there are 6 categories of residential status in Beijing *hukou* system, as shown in Table 1.

The *hukou* system in China used to be a long-standing basis for the provision of goods and welfare, such as the basic foodstuffs, housing and jobs. Despite the moderate relaxation of rural labour mobility from 1980s, the *hukou* system remaining in place today still has its influence on many fundamental aspects of people's life, including housing, employment, car ownership, children's education, medical insurance, etc. (Zhao and Lu, 2010). In these aspects, differential treatment still exists, between residents with urban *hukou* and rural *hukou*, as well as between non-local and local residents.

Firstly, housing inequalities in urban China is strongly affected by policies connected with *hukou* status, which give preferential treatment to local urban residents (Logan et al., 2009). Taking Beijing as an example, policies on indemnificatory housing, including economical purchase housing (“*jingji shiyong fang*” in Chinese) and low-rent housing (“*lianzu fang*” in Chinese) only target households with local urban *hukou*. Most of the low-cost commercial housing (“*xianjia shangping fang*” in Chinese) are built for low-income local urban households with financial difficulties and local rural households experiencing resettlement induced by land expropriation, beyond the reach of non-local households.<sup>2</sup> For commodity housing purchase, residents holding non-local *hukou* also encounter more constraints in comparison with local Beijing residents.<sup>3</sup> Overall, when it comes to housing supply, urban natives usually have advantages.

Secondly, rural-to-urban migrants face labour market discrimination due to their *hukou* status, especially from the companies offering high-wage, good benefits and job security, such as state-owned enterprises (SOEs) and government and institutional organizations (GIOs) (Song, 2016). Previously, some SOEs only recruit potential employees holding local urban *hukou* (Beijing Labor Bureau, 1989; Fang and Chan, 2000). Although the reforms have generated a wide variety of job-providing organizations, the state-owned work units like GIOs and SOEs still employ a large proportion of local urban workforce (Li and Liu, 2016). Besides, the *hukou* system exerts its influence on jobs-housing relationship in Chinese cities, particularly in relation to the floating population (also referred to as migrant workers) which do not have local urban *hukou*. For example, very few SOEs have provided housing assistance to temporary workers, while cheap housing at a low price was provided to employees with local urban *hukou*. As a result, most rural migrants are concentrated in suburban enclaves or peri-urban villages (Ma, 2004; Zhao and Lu, 2010).

Finally, due to the exponential car growth and serious traffic congestion in recent years, *hukou* system is linked to car ownership restriction policies to control car expansion in big Chinese cities like

<sup>2</sup> Information from the Official Website of Beijing Government: <http://zhengwu.beijing.gov.cn/zwzt/bjsbzxzf/t1094083.htm>.

<sup>3</sup> Information from the Official Website of Beijing Government: <http://zhengce.beijing.gov.cn/library/192/34/211/898456/82041/index.html>.

<sup>1</sup> Information from China Today: <http://www.cctv.com/lm/124/31/86441.html>.

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