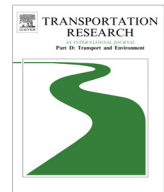




Contents lists available at ScienceDirect

Transportation Research Part D

journal homepage: www.elsevier.com/locate/trd

Understanding job-housing relationship and commuting pattern in Chinese cities: Past, present and future

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ARTICLE INFO

Article history:

Received 2 November 2015

Available online xxxx

Keywords:

Job-housing relationship

Commuting pattern

Danwei

Government intervention

Chinese city

ABSTRACT

There are debates about whether job-housing balance and short commuting distances could be achieved through government intervention in Western countries. However, few studies have been carried out in developing context. The present study aims to fill in this knowledge vacuum by studying how China's changing socio-spatial context, particularly the spatial ideas of *danwei*, influences job-housing relationships and commuting patterns from a historical perspective. The results clearly show that the dominant trend in commuting patterns in Chinese cities has changed from intra-*danwei* commuting before 1978 to reverse commuting from the city center to the inner suburbs in 1978–1998, to long-distance suburb-to-city commuting since 1998. The findings suggest that government intervention could be helpful in achieving shorter commute in China, and that urban planning and policy that promote mixed land-use and job-housing balance should be considered. Some limitations of government intervention are also discussed.

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1. Introduction

Commuting is essential in enabling individuals to participate in labor markets and to organize their daily lives. Commuting behavior has been studied intensively by geographers, urban planners and transportation researchers in the U.S. and Western Europe to promote reduced commuting distances (Gordon et al., 1991; Horner and Mefford, 2007; Niedzielski et al., 2015). Commuting patterns with shorter distances and lower car dependencies would generate many benefits, such as reducing air pollution and improving the quality of life.

The job-housing perspective argues that job-housing balance has an impact on reduced commuting (Horner and Mefford, 2007; Zhao et al., 2011). Local job-housing balance concerns the spatial relationship between jobs and housing within a given geographical area (Peng, 1997), usually measured by the ratio of employment to housing or home-based job proximity. Some studies use census tracts or TAZ, while others use larger spatial units such as 5–7 mile radius buffers (Peng, 1997). In the existing literature, job-housing ratios at the sub-district level are used to measure job-housing balance in Chinese cities (Zheng et al., 2015). The sub-district is the basic administrative unit in China's urban management system. For example, in the city of Beijing there are 139 sub-districts with an average size of 9.95 km² (Zhao et al., 2011). In this paper, we will focus on the job-housing balance at the sub-district level or below.

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In Western countries there are debates about whether local job-housing balance and short commuting distances could be achieved through government intervention. Some scholars have emphasized the significance of rational choice in the free market system rather than government intervention. The most important premise of those studies is that both individuals and enterprises can choose their locations freely to achieve a better job-housing balance and reduce commuting distances (Gordon et al., 1989, 1991). Thus, no government interventions – such as regional planning – are needed to generate the desirable job-housing balance. However, some other scholars argue that the process of co-location is impeded by pre-existing policies, such as low-density zoning and exclusionary land-use regulations (Cervero, 1989; Cervero and Duncan, 2006). Also, it is argued that spatial policies supporting new-urbanism-style neighborhoods and job-housing proximity at the local level could have an impact on reducing commuting distances and motorized travel (Cervero and Kockelman, 1997; Sultana, 2002; Pinjari et al., 2007; Cao et al., 2008; Ding et al., 2014; Ambarwati et al., 2016), but the degree to which intervention is associated with reduced commuting may be limited (Schwanen et al., 2004; Maat et al., 2005). By examining the link between job-housing relationships and commuting behavior among different social groups, policies promoting affordable and accessible housing near job clusters for different groups are also suggested (O'Kelly and Lee 2005; Horner and Mefford, 2007; Niedzielski et al., 2015).

As China is transitioning from a planned economy with strong government intervention to a market economy, research into the dynamic changes in job-housing relationships and commuting patterns in Chinese cities can contribute to our knowledge of the relationship between government intervention and job-housing balance, thus influencing commuting distance. However, the influential factors of increased commuting distance in Chinese cities are rather complex. Fig. 1 shows a framework of these factors in commuting studies in China. There are four dimensions, including institutional factors, economic factors, spatial factors and individual factors. Among these factors, there are Chinese-specific forces such as *danwei* system since 1950s and related socio-spatial phenomenon, as well as factors which also happened in the US and Europe such as increased car dependence (Liu and Cirillo, 2016). Institutional factors and economic factors refer to urban policy and market forces at macro level, which may also impact spatial transformation and individual choices. Spatial and individual factors represents socio-spatial transition in urban China which lead to a more diverse and mobilized society. Thus, all these factors interact to each other, leading to job-housing separation and spatial inequality in accessibility. These phenomenon further causes increased commuting and non-work travel distance.

Although many factors should be considered to keep job-housing balance and reducing commuting distance, this paper focuses on one unique type of government intervention in China, the *danwei* system (shown as an institutional factor in Fig. 1). During China's planned economy period, all organizations in which people were employed were referred to as *danwei*, including enterprises, public institutions, government agencies, and military units. *Danwei* used to provide employees not only with job opportunities but also with a comprehensive package of welfare and services, including housing, medical care, education and pensions (Björklund, 1986; Chai, 1996, 2014). *Danwei* system is essential to job-housing relationship and commuting behavior in China as it has long-term comprehensive impact to other influential factors. Through housing development and allocation by *danwei*, jobs and housing were linked together in *danwei* compounds (shown as a spatial factor in Fig. 1), leading to better job-housing balance at the local level. Along with the transition from a planned economy to a market economy that began in 1978, rapid expansion and population suburbanization have become the most visible spatial trends in Chinese cities (Feng et al., 2008). After the housing reform of 1998, *danweis* no longer built or allocated housing to their employees (shown as an individual factor in Fig. 1). *Danwei* compounds have gradually dissolved, which has led to serious

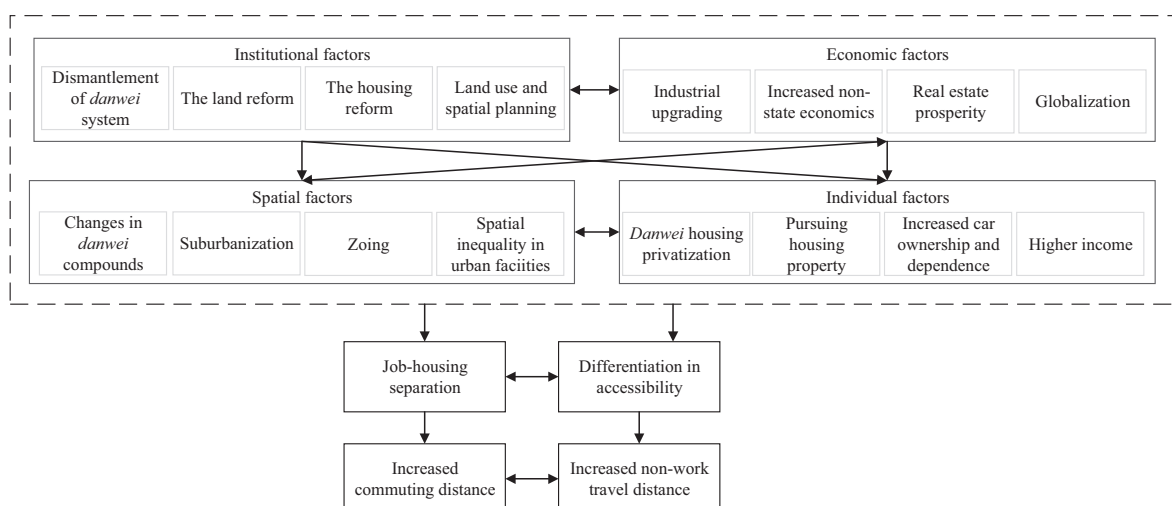


Fig. 1. Framework of influential factors on commuting behavior in China.

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