

The linkage between the lifestyle of knowledge-workers and their intra-metropolitan residential choice: A clustering approach based on self-organizing maps

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ABSTRACT

This study investigates the linkage between the lifestyle and the intra-metropolitan residential choice of knowledge-workers in terms of home-ownership, location, dwelling size and building type. Data are retrieved from a revealed-preferences survey among knowledge-workers in the Tel-Aviv metropolitan area and are analyzed with self-organizing maps for pattern recognition and classification. Five clusters are identified: nest-builders, bon-vivants, careerists, entrepreneurs and laid-back. Bon-vivants and entrepreneurs differ in their dwelling size and home-ownership, although both prefer the metropolitan core. Careerists prefer suburban large detached houses. Nest-builders and laid-back are attracted to central locations, conditional on the provision of affordable medium-size dwellings.

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1. Introduction

Recently, knowledge-based economy has been recognized as a major driver of economic growth and an important component of the competitive ability of nations and regions (Raspe & van Oort, 2006; Reiner, 2010; Schwartz, 2006). Consequently, regional policy-makers invest in attracting and retaining high-skilled workers as well as in branding their cities' identities as knowledge-cities (Yigitcanlar, Baum, & Horton, 2010).

As knowledge-workers are important to increase regional competitiveness, most studies focus on their inter-regional residential choice. These studies discuss region characteristics for attracting and retaining knowledge-workers such as employment opportunities, housing affordability, regional amenities, accessibility, diversity and equity (e.g., Asheim & Hansen, 2009; Brown & Meczynski, 2009; Clifton & Cooke, 2009; Darchen & Tremblay, 2010; Florida, 2002a; Mathur & Stein, 2005; Niedomysl & Hansen, 2010; Yigitcanlar et al., 2010). The main limitation of these studies is the treatment of regions as homogenous units, thus failing to account for intra-regional competition and knowledge-workers impact on urban development trends within regions (i.e., suburbanization versus core revitalization). Another limitation of

these studies is the referral to knowledge-workers as a homogenous population while neglecting the individual lifestyle perspective.

Studies about the residential preferences of knowledge-workers at the intra-regional level are scarce (Tomaney & Bradley, 2007; van Oort, Weterings, & Verlinde, 2003) and reveal contradicting trends regarding their potential impact on urban development. Tomaney and Bradley (2007) present evidence regarding the residence of knowledge-workers in gated-communities. Felsenstein (2002) provides evidence from the US that high-technology workers tend to reside in the suburbs and encourage sprawl. In contrast, van Oort et al. (2003) present evidence that young knowledge-workers prefer to reside in core areas, while knowledge-workers in later life-cycle stages prefer to reside in the suburbs. The main limitation of these studies is that they consider the socio-economic aspects while neglecting the relationship between the lifestyle of knowledge-workers and their residential choice.

This study focuses on the relationship between the lifestyle and the residential choice of knowledge-workers at the intra-metropolitan level. Specifically, this study hypothesizes that lifestyle differences across knowledge-workers are reflected in their residential choice within the metropolitan area. Within this framework, a self-organizing map (SOM) approach investigates the linkage between the residential choice of knowledge-workers in terms of home-ownership, location, dwelling size and building type, and their lifestyle from a multi-dimensional approach, encompassing life-cycle stage, work-role and leisure activities,

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subject to economic and spatial constraints. The approach allows individuating heterogeneous groups of knowledge-workers and investigating their distinct residential preferences, in order to gain understanding towards resolving the conflicting role of knowledge-workers in inducing both urban revitalization and urban sprawl.

The results of this study are meaningful for real-estate developers and urban policy-makers. From the real-estate perspective, this study sheds light about the location and housing preferences of knowledge-workers, thus helping to face the challenge of catering for the needs of knowledge-workers as clientele who exercise a considerable choice about their location within and across regions. From the policy-makers perspective, knowledge-workers are important as catalysts to revitalization of urban areas, while studies suggest that they have a negative effect in terms of suburbanization and sprawl. Hence, understanding the residential preferences of knowledge-workers is important in order to propose policy measures for attracting and retaining knowledge-workers while mitigating potential suburbanization effects.

The paper proceeds as follows. Sections 2 and 3 present the behavioral framework and the applied methodology. Section 4 describes the data collection. Section 5 details the identification of lifestyle patterns and their linkage to residential choice. Last, Section 6 draws the conclusions and recommends further research.

2. Behavioral framework

This study hypothesizes that lifestyle heterogeneity across knowledge-workers is reflected in their intra-metropolitan residential choice. The lifestyle perspective draws from the multi-dimensional definition of lifestyle by Salomon and Ben-Akiva (1983) as a pattern of behavior conforming to the individual's roles as household member, worker and leisure consumer subject to external constraints. The suitability of this definition to knowledge-workers is in agreement with Kunzmann's (2009) view that the residential location choice of knowledge-workers depends on their socio-economic characteristics, cultural background and activity sector, subject to time and budget constraints. Cumulative evidence from the literature substantiates the relevance of the three roles (i.e., household member, worker and leisure consumer) to the residential choice of knowledge-workers in the following sections.

2.1. The role as a household member

The household member role is strongly associated with residential choice as it is defined by intra-household interactions to satisfy the welfare needs of all household members. The household member role comprises an integral part of the lifestyle of knowledge-workers due to the high proportion of dual-career households. Unlike the traditional breadwinner-housekeeper household, dual-career households face the difficulty of finding two jobs commensurate with the skills of each spouse within a reasonable commuting distance (Costa & Kahn, 2000; van Ommeren, Rietveld, & Nijkamp, 1998). In these households, the residential choice considers wages, residential amenities, commuting time and distance for both workers, career and child care constraints (e.g., Freedman & Kern, 1997; Green, 1997; van Ommeren et al., 1998).

2.2. The role as a worker

The work role is fundamental to knowledge-workers and hence forms an integral part of their lifestyle interweave. Knowledge-workers view their work as a career path, leading to better position and financial well-being (Petroni & Colacino, 2008), and a vocation, leading to implicit fulfillment associated with personally defined goals (Correia de Sousa & van Dierendonck, 2010). Consequently,

the workplace is an important determinant in the residential choice of knowledge-workers.

The working conditions of knowledge-workers impose constraints on their spatiotemporal behavior. Working conditions include schedule and workplace flexibility, autonomy and accountability, teamwork, management by objectives, and strict deadlines (Correia De Sousa & van Dierendonck, 2010; Florida, 2002b; Peters, Den Dulk, & van Der Lippe, 2009). These working conditions might induce work intensification and blurred boundaries between work and leisure time (Peters et al., 2009) and consequently enhance the importance of the residence proximity to the workplace location.

2.3. The role as leisure consumer

A multi-dimensional leisure activity-pattern consisting of culture and entertainment, sport, home and work is considered relevant to the residential choice of knowledge-workers. Many knowledge-workers participate in culture and entertainment activities as well as in sport activities (Florida, 2002b; van Oort et al., 2003). In addition, knowledge-workers are likely to engage in work-related activities during leisure time, since they are highly ambitious and are infatuated with their work (Florida, 2002b). Last, since knowledge-workers value working at home and are involved in the community (Florida, 2002b), they possibly engage in home-oriented hobbies and organize social gatherings at home.

Different activity-patterns possibly result in different residential choices in terms of location and housing type. Culture and entertainment activities are typically concentrated in the metropolitan core, which is characterized by medium or high building density, cultural diversity and mixed land-use. Sport activities require sport facilities and public open spaces. Social milieu that allows working by communicating and co-creating new ideas naturally exists in the metropolitan core and in knowledge-intensive urban districts. Conducting home activities likely requires a sufficient dwelling size, and active participation in community life is encouraged by a friendly neighborhood environment.

3. Methodology

Following the behavioral framework, this study attempts to (i) individuate heterogeneous groups of knowledge-workers on

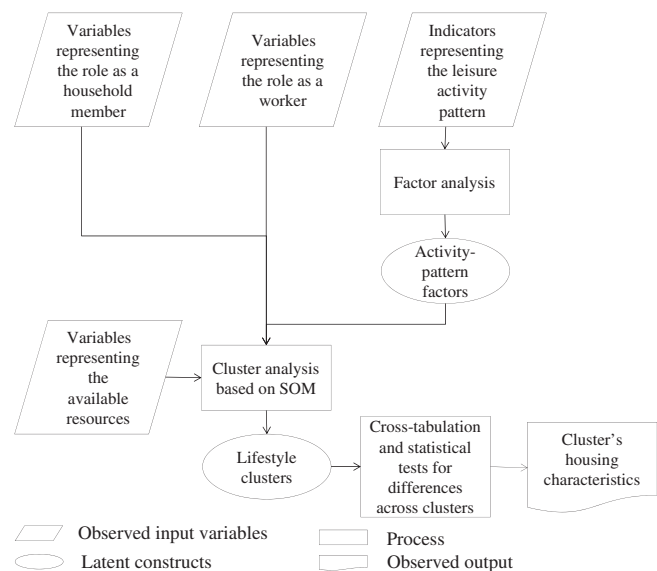


Fig. 1. The methodology applied in this study.

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