論　文　題　目
Dissertation title
Effects of Land Use and Transport on Quality of Life: A Life-oriented Behavioral Analysis

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In the field of land use and transport studies, residential and travel behavior is an important topic and has been widely researched. As a part of life choices, residential and travel behavior are expected to be interdependent with other life choices, considering that residence is a basic element of human life and travel is a "necessity" for participating in various activities outside homes. Especially, various life choices might be interacted with each other, which are further linked with people's quality of life. However, the above interdependencies have not been satisfactorily explored in the sense that little has been done to examine the interdependencies across a set of life domains, even though one can find studies dealing with several life choice variables. Behaviorally, ignorance of interrelated life choices in a choice model may result in serious biases in model estimation. From the policy making perspective, such ignorance may lead to a failure of consensus building across different sectors and different stakeholders. In line with such considerations, Zhang (2014, 2015) proposed a life oriented approach in 2010, which argues that people's life choices in various domains (e.g., residence, social, health, education, employment, family life, leisure and recreation, finance, and travel behavior) are interdependent. For residential and travel behavior, it can be further argued that residential and travel results from various life choices. Considering such interdependencies, it is not unrealistic to claim that understanding of residential and travel behavior should not be constrained by the boundary of integrated land use and transport research. Unfortunately, studies consistent with such considerations have been scarce and under-researched. This study aims to fill in this research gap. First, I plan to examine the values of life-oriented approach proposed by Zhang (2014, 2015) in the context of land use and transport planning. Second, three social issues in Japan are targeted: (1) women's labor participation and childcare, (2) young adults' lives (e.g., out-migration), and (3) elderly mobility. These three issues are closely related to land use and transport studies. Those not only involve various interrelated life choices, but also connect as social phenomena. By expanding the boundary of consideration to incorporate many aspects of life such as leisure and social life into the land use and transport related social issues based on the life oriented approach, this is beneficial to elicit insightful information into behavioral decision process under different real-life

circumstances, and aid in developing increasingly richer structures used in behavioral appraisal and forecasting applications. Motivated by the foregoing considerations, my research questions are located.

1.      How to examine the values of life-oriented approach proposed by Zhang (2014, 2015) in the context of land use and transport planning?

2.      What reasons promote each social issue (e.g., elderly mobility) happen, especially from the perspective of land use and transport aspects?

3.      How to offer the policy applications to solve or mitigate each social issue and improve the level of quality of life for the young, the women, and the elderly, respectively, in Japan?

In line with the above questions, this main analysis are showed from chapter 3 to chapter 7 and concluded in the last chapter 8.

Chapter 3 introduces the data application in this study. In order to analyze the effects of land use and transport on quality of life under different contexts, among different cohorts, different time-series data sets are needed. Three web-based survey data are employed in this study, two life choice survey data in 2010 and 2014, respectively, and a life history survey data in 2010. The two life choice surveys include very detailed information of individual's life choices (link with life domains of residence, social, health, finance, family life, education and learning, leisure and recreation, and employment) and individual characteristics (e.g., gender, age, occupation, education level, annual income, marital status, household composition, vehicle ownership, etc.). The first data set will be used in the analysis of capturing the interdependencies of life choices in the context of land use and transport planning and young adults' out-migration issue from a static viewpoint, women labor participation issue as well. The second one except the panel data (422 respondents participated two life surveys both in 2010 and 2014), others were collected mainly among elderly people from depopulated areas and non-depopulated areas, this data set will be used in the elderly mobility issue while the panel data set will be employed in the analysis of clarifying the interdependencies between land use, transport and quality of life from a dynamic perspective. The life history data will be used in the analysis of young adults' migration issue from a life course viewpoint.

Chapter 4 provides the empirical evidences of behavioral interdependencies across life choices in the land use and transport context both from a static view and a dynamic view. From a static viewpoint, to statically examine the interdependencies of life choices after allowing for the effects of land use attributes (distance to various establishments such as the nearest bus stop) based on an Exhaustive CHAID approach, and further quantify the effects of life choices and land use attributes on the indicators of quality of life by employing the Bayesian Belief Network. From a dynamic viewpoint, to illustrate the influences of past life choices and current life choices (including residential choices and travel behavior) on present quality of life based on a structure equation model.

Chapter 5 deals with the issue of women labor participation and childcare in Japan. This study is not only to promote more women work out, also to balance their work and life, further on their quality of life improvement. Considering women's family responsibilities (e.g., childcare) associated work-family conflict, time related work-

leisure conflict and stress concerned work-health conflict, a recursive multi-equation system is used to firstly identify the barriers to women labor participation in Japan, after controlling for the effects of land use, transport and life cycle stages; secondly to clarify the factors on women's good quality of family life, leisure life, health life and quality of life as a whole; thirdly to provide cross-sectoral policy implications into women's job participation and quality of life promotion, so as to balance their work and life.

Chapter 6 is concerned with young adults' lives particular in their out-migration behavior in Japan. Motivated by the worsening regional depopulation issue in Japan, more and more young adults migrate from non-metropolitan cities to metropolises, which is detrimental to the regional development. The former part of this chapter employs the life- oriented approach to identify the reasons for such migration trend of the young adults aged from 15 to 34 year-old from a static view. It tends to investigate the intertwined interdependencies among land use attributes and quality of life, penetrating the relevant life choices linked with other life domains into the classical relationship between residential choices and travel behavior, after allowing for the constraints of young adults' socio-demographics and job related choices, and the above complicated structure considers a structural equation model. In the latter part of chapter 6, aim is to clarify the young adults' residential relocation choice based on a life history data from a long-term perspective. It focuses on their residential relocation choices among three hierarchical city levels (megacities, medium-sized cities, local cities), by jointly considering three different young generations (1980s, 1990s, and 2000s) moving when they were 15-34 years old, based on a retrospective life history survey data collected in Japan in 2010. It incorporated the effects of socio-demographics, life events change features, and the quality of life oriented residential environment characteristics changes in the municipal level, by controlling for the attributes of young adults' original residential locations, and a simple Multinomial logit model is taken into account.

Chapter 7 focuses on elderly mobility issue in Japan. Motivated by the ever-increasing elderly persons in depopulated areas and the worsened transport environment caused by the bus deregulation law enacted in 2002 in Japan, more and more elderly have many obstacles to travel out especially with age. Facing at such increasingly serious elderly mobility crisis, this chapter intends to investigate the life oriented intertwined relationships between land use attributes (density of various establishments), elderly mobility behavior (travel distance, travel frequency, travel cost and main travel mode), elderly's essential life choice and quality of life particularly in depopulated areas, after controlling for the elderly's socio-demographics and their mobility tools availability, by estimating a structural equation model based on a comparison analysis with the elderly in non-depopulated areas.

Chapter 8 summarizes the findings of this study, further the limitations and directions for future research are discussed.