



Restructuring rural settlements based on subjective well-being (SWB): A case study in Hubei province, central China



Yasi Tian^a, Yanfang Liu^{a,b,c,*}, Xingjian Liu^d, Xuesong Kong^{a,b}, Gege Liu^a

^a School of Resource and Environmental Sciences, Wuhan University, Wuhan, 430079, China

^b Key Laboratory of Geographic Information System, Ministry of Education, Wuhan University, Wuhan, 430079, China

^c Collaborative Innovation Center for Geospatial Information Science, Wuhan University, Wuhan, 430079, China

^d Department of Urban Planning and Design, The University of Hong Kong, Hong Kong

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ABSTRACT

Subjective well-being (SWB) has long been neglected in the process of rural settlements restructuring. In order to explore the possibility of integrating SWB in rural settlements restructuring, this paper verifies two hypotheses. The first hypothesis postulates that SWB is positively correlated with accessibility to facilities and services at a village scale. The second one suggests that SWB is positively related to the personal satisfaction level of demands in daily life at an individual scale. Verification of these hypotheses indicates the application of SWB into rural settlements restructuring and planning. This study uses self-reported SWB from a questionnaire-based survey to examine its correlates. Objective well-being (OWB) of every village was derived through comprehensive evaluation. The villages of the study area were classified into four categories based on OWB, namely, key, sub-key, general, and marginal villages. We calculated the spatial accessibility of key, sub-key, and general villages from land-cover types, transportation, vehicle choice and commuting time, given that well-developed villages are often equipped with good facilities and services. The correlations between SWB and OWB and between SWB and spatial accessibility were tested and compared using crosstabs analysis and chi-square test. The drivers of SWB were identified using an ordinary least squares regression model. Results show that SWB is more positively correlated to the spatial accessibility of developed villages than to the villages themselves in the context of meeting residents' daily needs. Results also show positive relations between SWB and the satisfied level of local peoples' daily activities including working, shopping, seeking medical care and visiting relatives or friends. Thus, we proposed the relocation of rural settlements with poor access to main villages to good service areas. The proposed restructuring method combines SWB and OWB, and aims at increasing the quality of life of rural residents. This study contributes to the understanding of rural SWB and proposes a new perspective on restructuring rural settlements.

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1. Introduction

China's continuous urbanization and industrialization bring unprecedented changes to rural areas, like changes in agricultural production, land-use types, demographic composition, community organizations, and industrial structure (Korten, 1980; Long et al., 2007; Long et al., 2009; Siciliano, 2012). Rural restructuring

is therefore resulted from the responses local government and rural residents make facing with rural transformation developments, which can be identified as spatial restructuring, economic restructuring, and social restructuring (Long and Liu., 2016).

A rural settlement is a type of rural locality where rural residents live and engage in producing (Yang et al., 2015). Rural settlements face changes as well as challenges along with the rapid and radical rural development. Huang et al. (2011) pointed out that rural settlement expansion is one of the most important symbolization of China's rural development, however occupation of cultivated land and expansion at small-scale sparsely are its main characteristics. The conflict between rural population loss caused by rural-urban migration and rural settlement maintenance caused by the limitation of urban household registration policy (*Hukou*

* Corresponding author at: School of Resource and Environmental Sciences, Wuhan University, 129 Luoyu Road, Wuhan, 430079, China.

E-mail addresses: yasitian@outlook.com (Y. Tian),

yfliu610@163.com (Y. Liu), xliu6@hku.hk (X. Liu), xuesongk@whu.edu.cn (X. Kong), eykilg7@gmail.com (G. Liu).

policy) contributes to the scatter and chaos of rural settlement distribution (Long and Liu, 2016), which brings about some problems like encroachment on cropland, shortage of public facilities, and rural hollowing (Brown et al., 2005; Long, Tu, Ge, Li, & Liu, 2016; Tian et al., 2012). Long and Liu (2016) pointed out that these problems hinder the implementation of new-type urbanization and agricultural modernization in China. To deal with these problems, rural spatial restructuring is necessary to optimize, adjust and even change the process of production, living and ecological spaces. As part of rural spatial area, rural settlement is included in rural spatial restructuring.

The essence of rural settlement restructuring is to restructure its spatial carrier, namely land. Two main stages of it are then identified as figuring the rural settlements which are in need to relocate and deciding the directions to which they are going to be relocated. Disperse rural settlement land can be consolidated into necessary land according to local development goals, while the place where people plan to relocate their houses should balance the relationship between rural settlements and other land-use types. In the perspective of readjusting and rearranging land-use structure, rural settlement restructuring is part of land consolidation (Li et al., 2014; Long, 2014). However, land consolidation in China is usually decided by regional development plans and macro-economic strategies. Land consolidation of rural China before 2000 was simple, and was conducted by local government themselves since there were no detailed guiding rules. It mainly comprised reclamation of farmland, improvement of drainage systems, and readjustment of land tenure, with purpose of raising farmland productivity (Huang et al., 2011). In 2001, The Ministry of Land and Resources of China launched the 1st Ten-Year (2001–2010) national – level land consolidation program, requiring land consolidation, reclamation and exploitation of unused, waste and damaged land, with focus of “maintain the dynamic balance of cultivated land. Compliment the quantity and improve the quality of cultivated land”.

During the process of rapid rural development, the importance of restructuring rural settlements is gradually recognized. An innovative land-management policy “increasing vs. decreasing balance” land-use policy (*Zengjian Guagou*) was proposed to control the overall construction land area at national and state levels in 2005, which aimed to control the sum of construction land of urban and rural areas. Any increase of urban construction land should be in consistent with equal decrease of rural settlement land (Long et al., 2012). This policy indicates the necessity of restructuring rural settlements to optimize utilization of rural land use and release latent land-use potential. “New type urbanization” was proposed in 2006 to accentuate “protect cultivated land, improve public infrastructure, and manage rural settlements”.

In order to ensure food security, in 2009, a national plan on overall farmland-use passed by the State Council of China, claiming the goal of maintaining the total farmland area no less than 120 million ha by the time of 2020.¹ However, the fast urbanization and disorder expansion of rural settlements bring threat to the protection of cultivated land. Besides, problems like low land-use efficiency, poor living conditions and rural hollowing also trigger concerns. More attention has been paid to rural settlement restructuring. Both national – level land consolidation planning of China of period from 2011 to 2015 proposed in 2010 and that of period from 2016 to 2020 proposed in 2016 emphasized the importance of optimizing rural settlement distribution to implement the economical and intensive land use. Additionally, the latter planning proposed

“raise the livability of villages”,² which indicates the importance of improving living condition and convenience of rural residents.

Most related policies about rural settlement restructuring in China are embedded in regional strategies at macro-level, and are described abstractly. Current literature on rural settlement restructuring is mainly about to find appropriate restructuring methods for implementation at micro-level. Three methods have been identified. (1) Comprehensive evaluation, involves building comprehensive indices to score villages and towns; the scores are then used to identify the ideal relocation area (Qingjun et al., 2010; Zhang and Zhu, 2012; Zhu et al., 2010). (2) Accessibility evaluation, involves calculating the accessibility of certain services or facilities to rural settlements and identifying settlements with poor access for relocation (Linard et al., 2012; Rushton, 1984). (3) Model simulation, involves simulating the spatial distribution of rural settlements through different models, such as Voronoi diagrams, cellular automata, and genetic algorithms (Deadman et al., 1993; Mu, 2004; Neto et al., 2011). These methods are generally based on objective evaluation. The subjective feelings of rural residents and their willingness to participate in rural settlement restructuring are usually ignored.

Rural settlement offers space for people to live and produce, and supplies basic needs in several ways (Clope, 2013). Any change in rural settlements will affect the subjective well-being (SWB) of individuals. Based on Cernea (1985) recommendation, rural development should consider individual preference and the willingness to participate. *The National New Urbanization Planning (2014–2020)* emphasized focus on urbanization in China to raise the quality of life (QoL) of rural residents and thereby increase their SWB. SWB should be considered in the process of restructuring rural settlements.

SWB, which is one of the most important measurements of QoL, is proved to have implications on urban planning and community policy (Wang and Wang, 2016b). The majority of existing studies focus on the measurements, spatial pattern and determinants of SWB (Bieling et al., 2014; Dolan et al., 2008; Howell and Howell, 2008; Knight et al., 2009), and are mainly studied at macro-scales, including regional, national and city scales (Fischer and Van de Vliert, 2011; Knight and Gunatilaka, 2010; Wang and Wang, 2016a). Micro-scale studies are mainly about the effects of neighborhood on SWB in cities (Ludwig et al., 2012; Sugiyama and Thompson, 2007). Discussions on SWB in the context of rural areas are limited. A number of studies consider people’s willingness in rural settlement consolidation and relocation; however, most of these studies are about its effecting factors, influence, and effects of individual engagement in land use, planning, and policy (Walker and Ryan, 2008; Wang et al., 2012; Willock et al., 1999). The relationship of SWB with the spatial location of rural settlement and its application in rural settlement restructuring and planning have not been sufficiently discussed.

Current settlement restructuring researches in rural China show preference for objective evaluation and simulation and ignore SWB. Objective well-being (OWB) is another important component of well-being and is usually decided by the level of socio-economic development of communities or environments. The relationship between SWB and OWB is complicated. They are relevant, and sometimes overlapped (Gasper, 2010). The relationship between SWB and OWB in the rural context remains unclear. There are numbers of questions to be raised: Whether the location of rural settlements affects the SWB of rural residents? If it does, how are

¹ “One principle to ensure food security is the ‘bottom line’: 1.8 billion mu (120 million hectares) of farmland.” <http://www.china-embassy.org/eng/zt/t516240.htm>.

² “.On the premise of coordinative urban-rural development, local government should promote the construction of beautiful and livable villages and new-type urbanization based on consolidation of scattered, idle and ineffective land uses.” http://www.gov.cn/xinwen/2016-08/16/content_5099789.htm (In Chinese).

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