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Economic transition and urban land expansion in Provincial China

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ABSTRACT

China has undergone economic transition characterized by marketization, globalization and decentralization, which has resulted in profound change in land use and urban space. This paper integrates globalization, institutional change, and China's economic transition to better understand urban land expansion in China. We use land use survey data in Jiangsu province at the county level to shed the light on the impact of economic transition on land use change and urban land expansion in China. We have found that a dramatic land use change in Jiangsu characterized by rapid urban land expansion, particularly Sunan (Southern Jiangsu) and municipal districts. This can be well explained by government policies including tax reform and intergovernmental competition, the participation in the global economy, and the development of a market economy. We have also found that urban land expansion has a temporal dimension, and was driven mainly by local governments in the early stage of the reform, followed by marketization, and more recently globalization after China's entry into the World Trade Organization (WTO).

Introduction

Land use change is seen as an interaction between the human and natural subsystems, and urban expansion has become a global phenomenon. The International Geosphere Biosphere Programme (IGBP) and the International Human Dimensions Programme (IHDP) jointly created a research agenda dealing with Land-Use/Cover Change (LUCC) in 1995, which has since become a forefront of research on global change (Turner, Meyer, & Skole, 1994). Scholars have recorded a rapid process of urbanization and urban land expansion in developing countries, and understanding the driving mechanisms has attracted considerable research interest (Turner, Lambin, & Reenberg, 2007; Zhu, 2013). With heighted globalization, land use change has become more complicated, and is no longer a local, physical process supposed to be mainly influenced by accessibility and the physical environment; land use change is influenced by global processes and institutional change (Luo & Wei, 2009; Wei & Ye, 2014). Foreign capital often finances "land grabs," and scholars have proposed the urban land teleconnections (ULT) framework to advance conventional conceptualization of urbanization and land (Güneralp, Seto, & Ramachandran, 2013). They have also promoted using economic geography to reinvigorate land-use science (Munroe, McSweeney, Olson, & Mansfield, 2014). This paper is one of such recent efforts to integrate globalization, institutional change, and China's economic transition to better understand urban land expansion in China.

As one of the biggest developing countries, China's economic transition has caused rapid urbanization and land use change, imposing serious challenges for food security, social conflicts and economic polarization, and thus generating considerable governmental concerns and scholarly attention (Anderson & Ge, 2004; Bai, Shi, & Liu, 2014; Long, Zou, Pykett, & Li, 2011; United Nations, 2001). Most of the studies on land use have focused on the "hot spots" of urbanization and urban land expansion such as coastal cities, and ecologically fragile areas in western China. Using satellite remote sensing and land use statistics, they found that regional land use structure in China has been undergoing considerable changes, particularly in those relatively developed provinces (Li, Ma, Xu, Wang, & Zhang, 2009; Lin & Ho, 2003; Wu & Yeh, 1997; Zhao et al., 2013). And a large portion of rural and unused land (e.g. the water areas, wasteland etc.) had been developed in the past 20 years (Liu, Zhan, & Deng, 2005; Liu et al., 2010).

Scholars have also explored underlying driving forces of urban land expansion and classified the key factors of land use change into natural and socio-economic driving forces. Natural features

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such as geology, geomorphology, elevation and slope are seen as the basic conditions of land use change (Verburg, Van De Steeg, Veldkamp, & Willemen, 2009); population growth, economic development (particularly non-agricultural economies) as well as income disparities constitute the main driving forces of land use change (Liu, Yue, & Fan, 2011; Ojima, Galvin, & Turner, 1994; Rudel et al., 2005). It is also argued that land use changes have primarily resulted from people's pursuit of increasing labor productivity in changing environment (Zhu, 2013). Skyrocketing land prices and values have triggered the "profitable" land conversion from agricultural use to non-agricultural activities, making land the frontier of social conflicts in urban China (Ding & Lichtenberg, 2011). More efforts are still needed to examine land use change or restructuring with the key transition characteristics, including China's opening door policy, tax-sharing reform, and the improvement of its market institutions. A better understanding of various driving forces of land use change in different development periods is necessary to cope with rapid urbanization and sustainability challenges in China (Wei & Ye, 2014).

This paper attempts to build a conceptual framework for the analysis of land use change during the transition era within the context of the triple process of China's economic transition, namely marketization, globalization and decentralization. We conduct a finer scale analysis of land use change in Jiangsu province, a typical coastal province in China covering an area of 102,600 km^2, with a population of 79.2 million in 2012 (Fig. 1). Jiangsu is one of China's most developed provinces with the fastest economic growth and the highest marketization level in China. In 2012, the overall GDP of Jiangsu was 5406 billion yuan. As one of the traditionally densely populated and highly intensive land use regions that have experienced rapid economic growth and spatial restructuring, Jiangsu is also highly typical of evolution of the human–land relationship caused by land use change (e.g. the loss of arable land and the expansion of construction land) throughout China.

Research background: economic transition and urban land expansion

Land is an important resource for human development, and land use reflects the most direct reaction of mutual influence and interaction between the humanistic and natural subsystems. Moreover, it has been argued that the progress of globalization itself may affect land use change through enlarging or reducing the effects of local factors (Lambin & Geist, 2001; Lambin & Meyfroidt, 2011; Turner et al., 1994). China's economic transition, which can be conceptualized as a triple process of marketization, globalization, and decentralization (Wei, 2001; Wei & Li, 2002) has greatly impacted its urbanization, land use and regional development both directly and indirectly. China's economic reforms have empowered growth-oriented local governments and urban land has become a central concern of governmental officials for local economic growth and even rent seeking (Ding & Lichtenberg, 2011; Wei, 2012). As a result, government, not simply the marketplace, has a responsibility for land use change, because urban development and specialization is neither happenstance nor controlled by the market, rather is influenced by state priorities for certain types of development (Liao & Wei, 2014; Zhang, 2000). The growing concern over China's international competitiveness under globalization forces the state to make constant institutional changes to accommodate the interests of the private sector and foreign investors (Lin & Ho, 2005). Thus policy, regulation, and the state system have brought

Fig. 1. Jiangsu province.