



# A path dependence perspective on the Chinese cadastral system



Qiaowen Lin<sup>a,b,\*,1</sup>, Mohsen Kalantari<sup>b</sup>, Abbas Rajabifard<sup>b</sup>, Jiangfeng Li<sup>a</sup>

<sup>a</sup> School of Public Administration, China University of Geosciences, China

<sup>b</sup> Department of Infrastructure Engineering, University of Melbourne, Australia

## ARTICLE INFO

### Article history:

Received 24 October 2014

Received in revised form

18 December 2014

Accepted 17 January 2015

### Keywords:

Cadastral System  
Path dependence  
China  
Organisation

## ABSTRACT

Cadastral systems differ in countries due to specific historical, political, economic and cultural context. The fundamental role of cadastral system in land administration is well acknowledged which leads to increasing interest from researchers worldwide. Despite China being the most populous country in the world, its cadastral system is rarely studied. This paper aims to use path dependence as an interpretive lens to analyse the historical background and existing situation of the cadastral system in China. Three stages in the Chinese cadastral system are identified: the contingent phase, the self-reinforcing phase and the lock-in phase from the perspective of path dependence. According to the analysis, it is evident that the current cadastral system in China shows the strong path dependence both in legal and organisational processes in the development of a system embedded in a wider social context. This analysis will be of value for the limited research currently available on the Chinese cadastral system by increasing our understanding of the evolution of the system through the path dependence perspective. Ultimately, a better understanding of this perspective will assist in the development of the Chinese cadastral system and also provide perspective for comparative studies in different countries on cadastral issues.

© 2015 Elsevier Ltd. All rights reserved.

## Introduction

Cadastral systems differ in countries due to specific historical, political, economic and cultural context. The fundamental role of cadastral system in land administration is well acknowledged which leads to increasing interest of researchers worldwide (e.g., Dalrymple et al., 2003; Cete et al., 2010; Divithure and Tang, 2013). The history of cadastre in China can be traced back to 2100 B.C. There was a record of land survey, land classification, and land value at that time (Ye, 2009). From the historical perspective, the evolution of Chinese cadastre includes the change from the fiscal cadastre to the juridical cadastre, to become a multipurpose one, and from the traditional paper-based one to the three dimensional one (He, 2005). The Chinese cadastral system is being gradually established after undergoing an important evolutionary process during the last decades. Similar to other countries, cadastral system in China plays a fundamental role in land administration (Wang, 2001). However, little attention is given to the study of cadastral systems in China,

and most of the research focuses on how to effectively manage the current cadastral system in China from the perspective of management (e.g., Fan, 2001; Jiang, 2008; Luo, 2009; Feng, 2012). Little attention has been devoted to understanding the Chinese cadastral system itself, i.e. how the Chinese cadastral system has evolved and to what extent historical background has influenced its evolution.

In this paper, path dependence is introduced which is taken as an interpretive lens to analyse the historical background and existing situation of cadastral system in China. This paper is structured as follows. A necessary country profile is firstly provided which will contribute to the general understanding of China and the scope of our studies on Chinese cadastral system. This is followed by the introduction of path dependence. Then a path dependence perspective on Chinese cadastral system is presented and some lessons are gained. Last but not the least, conclusions and future research are demonstrated.

## Country profile

### Population and geography

China, officially the People's Republic of China, lying in East Asia, is the world's most populous country with a population of over 1.36 billion (National Bureau of Statistics of China, 2013). China officially has 56 distinct ethnic groups, the largest of which is called

\* Corresponding author at: Department of Infrastructure Engineering, University of Melbourne, Australia. Tel.: +61 450852345.

E-mail addresses: [qiaowen.lin@unimelb.edu.au](mailto:qiaowen.lin@unimelb.edu.au) (Q. Lin), [saeidks@unimelb.edu.au](mailto:saeidks@unimelb.edu.au) (M. Kalantari), [abbas.r@unimelb.edu.au](mailto:abbas.r@unimelb.edu.au) (A. Rajabifard), [jfli@cug.edu.cn](mailto:jfli@cug.edu.cn) (J. Li).

<sup>1</sup> Present address: 2A Sutherland, Brunswick, VIC 3056, Australia.

Han, constituting about 91.51% of the total population (National Bureau of Statistics of China, 2010). China lays claims to the third largest country in the world by a total area of 9.6 million km<sup>2</sup>. Its landscapes vary significantly across the vast width ranging from mountain ranges in the west to densely populated plains in the east, from northern high plateaus to southern hills and low mountain ranges, from the world's highest point, Mount Everest, reaching 8848 m, to the country's lowest and the world's third-lowest point, Ayding Lake, only –154 m (Feng and Yan, 2011).

### History, politics and administration

China embodies one of the world's earliest civilisations with a long history of thousands years. For millennia, China was under the rule of hereditary monarchies, known as dynasties, beginning with Xia (around 2000 BCE). The People's Republic of China was officially established on 1 October 1949. It is one of the world's few remaining socialist states with unique political economy. China is a single-party state governed by the Communist Party, where the General Secretary of the Communist Party of China has ultimate power and authority over others. The President of China, also the titular head of state, serves as the ceremonial figurehead under National People's Congress, which is the highest organisation of state power. The head of government, the Premier, is in charge of the State Council, which is the highest organisation of executive power. China has jurisdiction over 23 provinces, five autonomous regions, four direct-controlled municipalities (Beijing, Shanghai, Tianjin, and Chongqing), and two mostly self-governing special administrative regions including Hong Kong and Macau (Editorial Board of Encyclopedia of China, 2004). The scope of our studies on the cadastral system in China mainly refers to the mainland of China, that is, the majority of provinces in China since they are often taken as a whole and share the same cadastral system. For the in-depth longitudinal analysis, the paper mostly pays attention to the period from the establishment of China in 1949 to the present.

### Path dependence

The concept of path dependence originated from Carl Menger's 'institutional emergence' (1883) and Thorstein Veblen's 'cumulative causation' (1898) in the evolution of habits and conventions (Elster, 1976; Franz, 1990; Cross, 1993; Katzner, 1993). It is applied into the analysis of technology transition for the first time by David (1985) and Arthur (1989) from the perspective of evolutionary economics and economic history. Their explanations of path dependences are commonly considered as canonical in the path dependence literature (Martin, 2010). Shortly afterwards, North (1990) employs it in the analysis of economics of institution. Since then, the notion of path dependence gains much attention and it is widely spread into other disciplines such as history, political science, economics, management, sociology and so on (Magnusson and Ottosson, 1997; Hirsch and Gillespie, 2001).

Path dependence is viewed as an idea that a small initial advantage or a few minor random shocks along the way could alter the course of history (David, 1985). The key characteristic of path dependence is non-ergodicity, which is an inability to shake free of its history (Martin and Sunley, 2006). In the research on path dependence, the path is often defined as a linear trajectory with certain alterations (Martin and Sunley, 2006). The path will dominate the evolution of a system (Henning et al., 2013). In this way, path dependence is always used to explain why change goes in a particular direction. David (2001) proposes that it is a property of a 'wide array of processes that can properly be described as 'evolutionary'. Much of literature now understands it as an evolutionary branching process (e.g., Cattani, 2006; Garnsey et al., 2008; Bryced

and Winter, 2009). However, path dependence does not imply historical determinism or past dependence (Håkansson and Lundgren, 1997; Antonelli, 1997). Rather, the process of path dependence is probabilistic and contingent. The future evolutionary trajectories are conditioned by both the past of the system setting the possibilities and the current states of the system controlling the possibility (Mokyr, 1990). Path dependence is not a story of inevitability in which the past neatly predicts the future (North, 1990).

China's cadastral system has been experiencing a process of change due to its historical, political, economic and cultural context. To better understand the historical background and existing situation of cadastral system in China, it is worthwhile to analyse the process of formation of Chinese cadastral system from the perspective of path dependence.

In order to deeply analyse the Chinese cadastral system, the classic model of path dependence which divides the process of path dependence into three phases is introduced and discussed (see Fig. 1). Its applications can be found in much research (e.g., Sydow et al., 2009; Vergne and Durand, 2010).

The first phase is a contingent process. The initial situation is based on unconstrained options. Individuals take rational decisions but which may result in unintended and irrational consequences at a system level. Decisions are regarded as contingent, random events which are guided by the rules of the social system, nested in a higher social structure (Consiglio et al., 2010). The shift from this phase to the next phase is marked by a strong event which is often called 'a critical juncture' (Collier and Collier, 1991) characterised by the adoption of a particular institutional arrangement.

The second phase is a process of self-reinforcement. At this stage, a dominant action pattern is likely to emerge, rendering the irreversibility of the whole process (Miller, 1992). Basically, there are four driving forces for this self-reinforcement which includes coordination effects, complementary effects, learning effects and adaptive expectation effects (Arthur, 1994; Cowan, 1990; Katz and Shapiro, 1985; North, 1990). Coordination effects work when the same or related rules are made. In complementary settings, self-reinforcement emerges when there is synergy from the interaction of two or more separate but interrelated resources, rules, or practices (Pierson, 2000; Stieglitz and Heine, 2007). Learning effects mean that the more often an action is performed, the more efficiency will be gained. Adaptive expectation effects highlight the expectation of people. Attraction of some action will be gained when more people are expecting it (Leibenstein, 1950).

The third phase is often called lock-in. At this stage, the dominant pattern becomes fixed and gains a deterministic character which will eventually lead to a path due to high switching costs, sunk costs, monopoly and so on. The concept of lock-in usually seems to be assigned a negative interpretation with rigification and inflexibility (Arthur, 1989). However, positive lock-in is proposed by Martin (2006). In this paper, lock-in is treated as a neutral concept.

All the concepts that have been discussed in this section will be applied in the following analysis of Chinese cadastral system.

### A path dependence perspective on Chinese cadastral system

Cadastral system, which is also often called cadastral management system in China, is embedded in a deeper social and cultural structure. China's unique political, economic and historical background plays a significant role in shaping its cadastral system. The establishment and development of Chinese cadastral system is closely related to the development of land system. Cadastral practice develops with the land management work in China synchronously. The government improves the laws and regulations according to experiences in the cadastral practice. The structure

Download English Version:

<https://daneshyari.com/en/article/92923>

Download Persian Version:

<https://daneshyari.com/article/92923>

[Daneshyari.com](https://daneshyari.com)