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系統動態的決策模式：以土地規劃爲例

侯漢君 *

摘 要

本研究以系統動態學的方法探討某些土地規劃的活動，實際的操作爲建構一個電腦模擬的模式，以描述土地規劃所面臨一些可能的發展與規劃者的行爲。模式的理論基礎來自於土地發展與規劃決策的理論。

模式假設規劃者面對某種用途土地的供給需求的差距，試圖以改變其他用途的土地來解決問題。而這個舉動又牽涉到該土地的供給需求問題，進而影響到規劃者先決策的預期。

實際的模擬是以住宅用地與產業用地兩個次級系統間的互動關係爲對象，模擬的時間爲 60 年。探討的主要項目包括：住宅用地需求與供給的狀況、產業用地需求與供給的狀況、改變／不改變住宅用地的壓力的狀況、住宅用地與產業用地的成本變化的狀況與成本的對比。

基本模擬的結果顯示模式內的重要變數與因果關係均能夠對模式行爲產生顯著足夠的動力，並且符合模式建構的理論邏輯。確定模式

的可信度與可靠度後，進行擬態模擬以測試模式的效用。共進行二個擬態分析，其一爲探討規劃者對不同用途土地的重視程度有所改變時，土地供給將會有何變化。其二爲探討規劃者以過去壓力變化的趨勢做爲調整預期的參照點，土地供給將會有何變化。模擬的結果呈現出一些複雜的變化，對於土地發展政策的利弊得失提供一些不同的評估考慮。

關鍵詞：系統動態、土地規劃、預期目標的回饋、擬態分析

＊中興大學公共行政學系副教授

A System Dynamic Model of Land Development : An Equilibrium System

Han-Jyun Hou*

Abstract

This study utilizes system dynamic approach to discuss activities of land development planning. To operate, a computer simulation model is build at tempt to describe some possible developments of a land - use plan and the planning behavior.

The simulation model assumes that a planner is going to deal with a gap between demand and supply of certain kind of land, and trying to solve the problem by coverting other kinds of land for the gap.

However, this action further influences the planner's original expectation.

Simulated outcome indictates that the major variables and causal relations including in the model are able to produce enough dymanics which contribute to model behavior. Also, simulated outcome does not violate logical and theoretical assumptions made in the model.

After validity and reliability are secured, a number of scenario analyses are design to test policy applicability of the model. First, to see if a planner changes her/his value of different kinds of land,

what would happen to supply and demand of land use. Second, to see if a planner changes her/his criteria of setting the goal of land-convert. The results show some complex phenomenon which should be concerned in land development project.

Key Words : System Dynamic, Soal-seeking Feedback, Land Development, Scenario Analysis

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* Ph. D., Associate Professor, Department of Public Administration, National Chung Hsing University