

A Study on Evaluation of National Development Policy for Global Warming Prevention

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1. Introduction

Various policies implemented for preventing global warming are not satisfactory. Not only sectoral or local approach but also the nation-wide comprehensive approach is needed to establish effective management for global warming prevention.

2. Research Objective

This study investigates how various national development policy affects the national land structure and then the greenhouse gas emissions. Also the quantitative methods for evaluation of global warming prevention are assessed and the applicability of the methods are analysed.

3. Research Method

Ten national development policies such as amount of public works, capital relocation and major transport investment, are assessed from the view of alternatives and expected effects.

Four quantitative evaluation methods such as econometric model, computable general equilibrium model and landuse-transport model, are assessed from the view of theoretical foundation, hypothesis and required data.

Finally the applicability of each quantitative evaluation method for each national development policy is assessed.

4.Results

The achievement of each quantitative method for Requirements are summarised as follows.

Requirement		Econometric Model	Input-Output Model	CGE Model	Landuse -Transport Model
Easiness of Model Building	Usability of Existing Data	✓✓	✓✓	✓	✓
	Simplicity of Model	✓	✓✓	✓✓	✓
	Reproducibility of Current State	✓✓	✓✓	✓✓	✓
	Statistical Reliability of Parameters	✓✓	✗	✗	✓
Easiness of Model Analysis	Operationality	✓	✓✓	✓	✗
	Stability of Prediction	✓	✓✓	✓	✗
	Immediate Adaptability to Policy Needs	✓	✓	✓	✓
	Easy-to-understand Output	✓✓	✓✓	✓✓	✓
Usability of Results	Detailed Analysis of Policy	✓✓	✓	✓	✓
	Easy-to-explain Model Structure	✓	✓✓	✓✓	✓
	Theoretical Consistency	✗	✓	✓✓	✓
	Cost and Time for Modelling	✗	✓	✗	✗
	Reliability of Prediction	✓	✓	✓	✓

✓✓ : Achieved, ✓ : Partially Achieved, ✗ : Not Achieved

The applicability of each quantitative evaluation method is summarised as follows.

National Development Policy	Econometric Model	Input-Output Model	CGE Model	Landuse -Transport Model
Amount of Public Works	✓✓	✓	✓✓	✗
Environmental Consideration	✓	✓	✓	✓
Capital Relocation	✓✓	✓	✓✓	✓
Major Railway Investment	✓✓	✓	✓✓	✓
Major Road Investment	✓✓	✓	✓✓	✓
Information Infrastructure Investment	✓	✓	✓	✗
Landuse Policy (Compact City)	✗	✗	✓	✓✓
Landuse Policy (Landuse Regulation)	✗	✗	✓	✓✓
Economic Measures (Environmental Taxes)	✓✓	✓	✓✓	✗
Economic Measures (Road Pricing)	✓✓	✗	✓✓	✓✓

✓✓ : Applicable, ✓ : Partially applicable, ✗ : Not Applicable