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Preface

This proceedings volume contains the papers of the 14th International Conference on Computing and Information Technology (IC2IT 2018) held on July 5–6, 2018, in Chiang Mai, Thailand. IC2IT is a platform for researchers to meet and exchange knowledge in the field of computer and information technology. The participants in IC2IT present their current research new findings and discuss with partners to seek new research directions and solutions as well as cooperation.

Springer has published the proceedings of IC2IT in its well-established and worldwide-distributed series on Advances in Intelligent and Soft Computing, Janusz Kacprzyk (Series Editor). This year there were total 88 submissions from 16 countries. Each submission was assigned to at least three program committee members, and at least two members must accept a paper in order to include in the proceedings. The committee accepted 33 papers for presenting at the conference and publishing the papers in the proceedings. The contents of the proceedings are divided into subfields: Data Mining, Machine Learning, Natural Language Processing, Image Processing, Network and Security, Software Engineering, and Information Technology.

We would like to thank all authors for their submissions. We would also like to thank all the program committee members for their support in reviewing assigned papers and in giving good comments back to the authors to revise their papers. In addition, we would like to thank all university partners in both Thailand and overseas for academic cooperation. Special thanks also go to the staff members of the Faculty of Information Technology at King Mongkut's University of Technology North Bangkok who have done many technical and organizational works. Without the painstaking work of Dr. Watchareewan Jitsakul, the proceedings could not have been completed in the needed form at the right time.

Finally yet importantly, we would like to thank all the speakers and audiences for their contributions and discussions at the conference that made the conference a success. We hope that the proceedings IC2IT will be a good source of research papers for future references with the state of the art.

April 2018

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Software Engineering

Organic Farming Policy Effects in Northern of Thailand: Spatial Lag Analysis

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Abstract. The spatial exploratory and spatial lag are applied to analyze the spatial analysis of policy effects on organic farming in northern of Thailand. The empirical result explores that organic farming on one positive district affects to organic farming in neighbouring districts. Moreover, the spatial analysis indicates that relationship between farmers becomes an important factor that affect to grow organic farming. Therefore, to increase organic farming, the policy-maker should lay emphasis on implementing the proper organic farming policy in each area and creating the connection between farmers and organic communities.

Keywords: Organic farming policy · Spatial lag regression
Spatial exploratory

1 Introduction

Thailand is an agricultural country. The sustainable agriculture including organic farming is clearly mentioned firstly in the national framework in the 8th National Economic and Social Development Plan (1997–2001). After that, the sufficiency economy philosophy (SEP), Thai development approach attributed to the King Rama IV, has included in the agricultural management since the 9th National Economic and Social Development Plan (2002–2006). Moreover, agricultural knowledge management of local farmers is accepted as an important agricultural learning process as well as many successful farming enterprises which applying the local innovations have been used as the demonstration or learning centers to stimulate new organic farming.

However, Thailand organic farming is still at an early development stage although it has been promoted for a long period of time. The record found that there were only 0.11% of organic farming areas which missed the target of 20% at the end of the 9th plan and there had only 0.17% at the end of 2010. This might imply that government failed to translate the plan and to apply some concrete measures in organic farming policy. Similarly, to Koesling [1] mentioned that Norway's goal of organic areas could not be achieved because there was only 4% of conventional farmers converted to organic farming while the nation goal was 10%. Moreover, government of Thailand goals to achieve 600,000 Rai of organic farming in 2021 [2]. However, the record showed that total areas of organic farming equal 187,981 Rai and 273,881 Rai in 2009

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and 2015, respectively. This goal becomes the big challenge of policymaker to translate the plan for any concrete activities and measures for achieving the target.

Many researches presented the obstacles to achieve the organic farming goal. The main obstacle of organic farming development in the developing country were the infrastructure problems such as the appropriate market, convenient place to support organic farmers to produce organic crops [3]. Stolze and Lampkin [4] also suggested that organic farming development policy should focus on three main instruments; (1) legal or regulation instruments (organic control and standard management), (2) financial instruments (payment to support conversion to organic production), and (3) communicative instruments (information, communication, research, training and advice). Moreover, Thapa and Rattanasuteerakul [5] mentioned that the government organization, non-government organization, community members and farmers' groups, training programs attendance, price satisfaction, and pest hazard intensity were able to motivate farmers to produce organic vegetable farming. However, policy implementation should be suitable in each area [6].

This study, therefore, aims to examine the effect of government policy on organic farming in northern of Thailand for implementing the appropriate policy.

2 Methodology

This research uses organic farming and household data from the agricultural census of northern (district level) and geographical data from database of Global Administrative Areas (GADM) [7]. The agricultural census data consisted of 4 categories; (1) socio-economic factors, (2) government training programs, (3) agricultural infrastructure and (4) marketing options.

According to, nature of spatial relationship between observations in each area causing the classic linear regression problem from non-constant error variances (spatial heteroscedasticity) and non-zero error covariance (spatial autocorrelation) so the classic linear regression is not Best Linear Unbiased Estimators (BLUE) and need non-conventional model to correct these problems. This study first explores the spatial effect using Moran's I statistic for the whole data set and the local indicators of spatial association "LISA" for investigating the spatial effect on observations.

2.1 Exploratory Spatial Autocorrelation

The spatial autocorrelation and spatial heteroscedasticity in spatial data violates the BLUE properties in the classic linear regression. Therefore, this study uses Moran's I statistic for the whole data set (global spatial autocorrelation) to explore the spatial autocorrelation. A set of spatial data consists of measurements (data values) taken at specific locations (data sites) in geographic space (study region). Many measures of spatial association have been developed to examine the nature and extent of spatial dependence on data. Global measures of spatial association are applied to derive a single value of entire study region by using the complete data set. These measures emphasize the average or typical characteristics of the complete data set. An approach is the explicit assumption that the single value holds throughout the study region. The measurement of global spatial autocorrelation is based on Moran's I statistic, which gives a formal indication on the degree of linear association between vector of observed values and the vector of spatial weighted averages of neighboring values, called spatial lagged vector.

The local statistics for each observation give an indication of the extent of significant spatial clustering of similar values around that observation [8]. Local indicator of spatial association (LISA) is the statistic that satisfies the following two requirements. Firstly, the LISA for each observation gives an indicator of the extent of significant spatial clustering of similar values around that observation and secondly, the sum of LISAs for all observations is proportional to a global indicator of spatial association. The exploratory of the spatial autocorrelation between observation (local spatial auto-correlation) using Moran's I scatter plot and local indicators of spatial association "LISA". Inspection of local spatial instability is carried out by the means of the Moran scatter plot, which plot the spatial lag against the original values. The four different quadrants of the scatter plot present four types of local spatial association between a district and its neighbours. Quadrant I represents a district with high value surrounded by district with high values (High-High), Quadrant II represents a district with low value surrounded by district with high values (Low-High), Quadrant III represents a district with low value surrounded with low values (Low-Low) and Quadrant IV represents a district with a high value surrounded by district with low values (High-Low). Consequently, Quadrant I and III express a positive spatial autocorrelation and quadrant II and IV represent a negative spatial autocorrelation of dissimilar values. Bright colours highlight spatial clusters in LISA. Hot spots (high-high regions) are coloured by bright red. A positive spatial association arises from their own and neighbouring high values of the attribute variable. Cold spots (low-low regions) are coloured by bright blue. A Positive spatial autocorrelation emerges from their own and neighbouring low values of the variable. In term of LISA cluster map, the colour code presents the significant locations of spatial autocorrelation. There are six colour codes in the legend; dark red for high-high, dark blue for low-low, pink for high-low, light blue for low-high, white for not significant, and grey for neighbouring less.

2.2 Model Specification Testing

Six tests for spatial dependence model are applied to identify the appropriate model because its ability to test spatial lag and spatial error specifications [7]. The appropriate model is examined from five statistics tests for spatial dependence in linear regression models. Simple LM test for a missing spatially lagged dependent variable (Lagrange Multiplier (lag)), the simple LM test for error dependence (Lagrange Multiplier (error)), variants of these robust to present of the other (Robust LM (lag)) and Robust (LM (error)) which tests for error dependence in the possible presence of missing lagged dependent variable, and LM (SARMA). The possible model is considered from the significant of the lag and error tests. We also use the robust tests of the lag and error to specify which spatial model is suitable.

2.3 Spatial Lag Regression

The spatial lag regression is used to examine spatial effects of the model. The spatial lag specification is added a new variable on the right-hand side of the equation, a spatially lagged dependent variable (Wy), to capture the spatial interaction effect as a weighted average of neighbouring observations [9]. Organic farming households in this study are assumed as affected by the variables from four categories: socio-economic, government training programs, agricultural infrastructure and marketing options. The empirical model specification is expressed as follow:

$$ORG = \alpha + \rho W_{ORG} + \sum\nolimits_{i=1}^{n} \beta_i X_i + \varepsilon \tag{1}$$

where ORG is the number of organic farming, α is a constant term, W_{ORG} is spatial lag dependent variable and ρ is the spatial lag coefficient, β_i is the coefficients for explanatory variables X_i, and ε is an error term. The explanatory variables of the model are described in Table 1. All explanatory variables are assumed as positive effects to the number of organic farming, which means that if the government puts more supports on policies, the number of organic farming will increase. The high or low effects are depending on the coefficient and significant of the explanatory variables.

Table 1. Variable definitions of organic farming model

Variables	Definitions	Expected sign
ORG	Number of organic farming household	
Socio-economic factors		
HH	Number of household	+
POP	Number of population	+
Education		
MID	Middle school graduated	+
HIGH	High school graduated	+
DIP	Diploma or equal graduated	+
BA	Bachelor or higher graduated	+
INCOME	Household income (1,000 Thai Baht)	+
AREA	Total farm area (square mile)	+
Government training programs		
TAP	Number of farmers attending the agricultural production training program	+
TAPTMS	Number of farmers attending the trade and marketing training program	+
TIE	Number of farmers attending the integrated agriculture education program	+
TNRENV	Number of farmers attending the natural resources and environment conservation training program	+

(*continued*)

Table 1. (*continued*)

Variables	Definitions	Expected sign
TEKT	Number of farmers attending the organic farming technology training	+
Agricultural infrastructure		
AINF	Agricultural infrastructure	+
Marketing options		
CMAP	Number of agricultural central market	+
MAP	Number of markets for agricultural products	+
CS	Number of cooperative shops	+
FGS	Number of farmer group's shops	+
FCM	Number of field crop markets	+

3 Experimental Results

3.1 Global Spatial Autocorrelation

Figure 1 shows that the organic farming variables occur the autocorrelation problem from the spatial relationship between organic farming in each area. The Moran's I statistic test can reject H0 at 90% confidence.

3.2 Local Spatial Autocorrelation

GeoDa creates a LISA Cluster Map (Fig. 2) for identifying local clusters and spatial outliers of a geo-referenced variable. In each region, the Local Moran statistic is tested for significance by randomization (Fig. 1). Significant local clusters and spatial outliers are portrayed in different colours.

The result of LISA test (Fig. 2) indicates the spatial autocorrelation between organic farming in each district. The four-colour codes present four quadrants in Moran scatter plot. This study presents the border based weight matrix. The LISA cluster map shows that 34 of 182 districts occur the spatial autocorrelation problem.

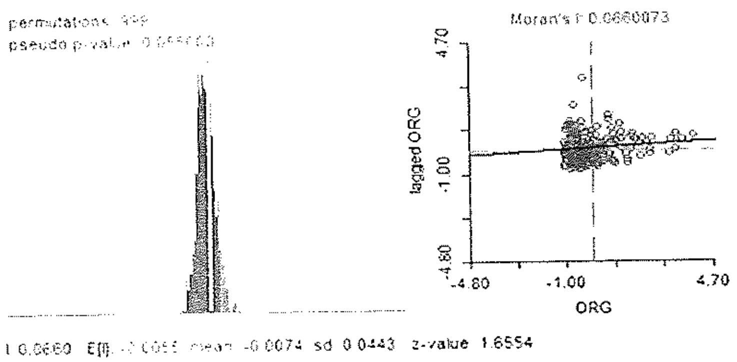

Fig. 1. Moran's I statistic and Moran's I scatter plot

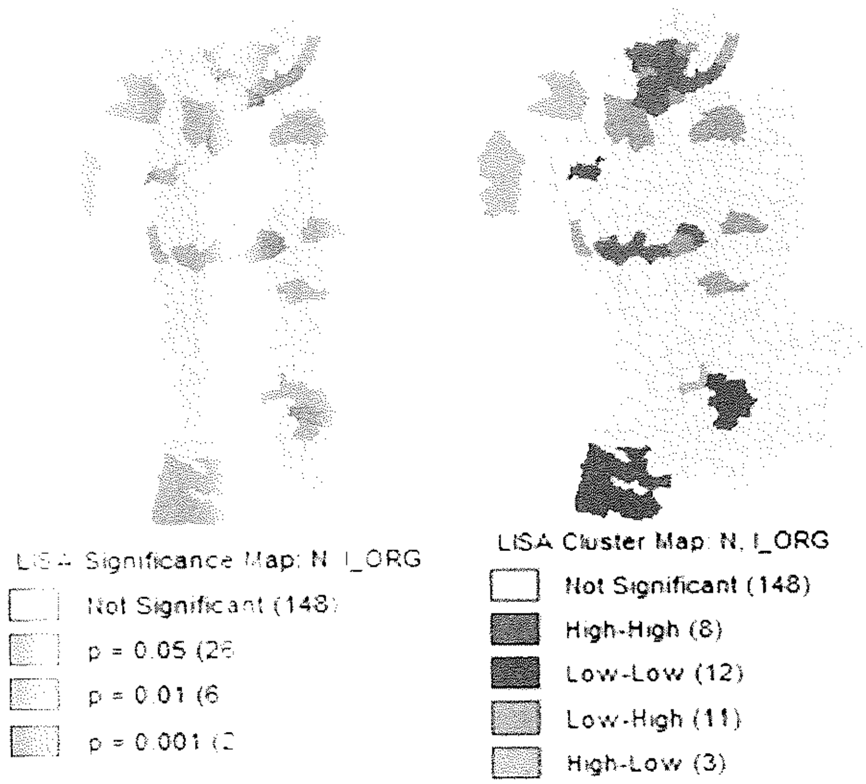

Fig. 2. Local Indicators of Spatial Association (LISA)

3.3 Model Specification Results

There are six tests for spatial dependence model (Table 2). Moran's I score shows highly significant which indicates that there is a strong spatial autocorrelation of residual in the classic linear regression model and the classic linear regression analysis is not suitable estimator for this data set. In term of the model selection, the results show the significant of Robust LM (lag) indicates the spatial dependence problem and the spatial lag model are better or may be appropriate than the spatial error model.

3.4 Spatial Lag Regression Result

This part presents the results of spatial lag regression model to identify the factors affecting to organic farming including four categories; socio-economics, government support factors, agricultural infrastructure, and marketing options. Spatial lag regression of organic farming and organic farming areas are tested and identified.

To examine the best fit of spatial lag model, the spatial weight matrix using Queen weight matrix (first order of share border district) is applies. For the coefficients estimated, the maximum likelihood technique with GeoDa software is used.

Table 2. Diagnostics for spatial dependence test results (n = 182)

Test	MI/DF	Prob.
Moran's I (error)	0.1042	0.00887
Lagrange Multiplier (lag)	1	0.00240
Robust LM (lag)	1	0.03436
Lagrange Multiplier (error)	1	0.02864
Robust LM (error)	1	0.81823
Lagrange Multiplier (SARMA)	2	0.00973

Table 3. Maximum Likelihood estimation, spatial lag model (ORGW1) (n = 182)

Variables	Coefficient	Prob.
Socio-economic factors		
HH	**0.132**	**0.019**
POP_L	**297.138**	**0.036**
Education		
MIDSCH	**0.031**	**0.017**
HIGHSCH	0.018	0.836
DIP	−0.153	0.337
BA	0.039	0.665
LABOUR	−0.050	0.150
INCOME_L	**−179.425**	**0.052**
AREA	0.000	0.924
Government training programs		
TAP	**0.291**	**0.005**
TAPTMS	−0.540	0.174
TIE	**0.594**	**0.038**
TNRENV	**0.289**	**0.001**
TEKT	**2.300**	**0.000**
Agricultural infrastructure		
AINF	−0.293	0.741
Marketing options		
CMAP	−13.984	0.264
MAP	21.584	0.282
CS	**28.609**	**0.088**
FGS	**67.580**	**0.017**
FCM	−5.970	0.392
W_ORG	**0.219**	**0.007**
CONSTANT	**−576.594**	**0.003**
Pseudo R-squared	**0.608**	
Likelihood Ratio Test	**7.680**	
PROB	**0.006**	
Akaike info criterion	**2858.440**	
Schwarz criterion	**2928.930**	
Breusch-Pagan test	**75.616**	
Prob.	**0.000**	

In term of spatial lag regression model results (Table 3), the spatial dependence seems to have a relevant influence on the spatial distribution of organic farming and it is highly significant. The positive sign of the spatial lag coefficient implies that organic farming on one district positive affects to organic farming in neighbouring districts. The meaning of coefficient, organic farming in neighbouring district increase by one percentage point affecting to organic farming in considered district will increase by percentage points equal the coefficient of spatial lag variable.

From the results, the significant of socio-economic factors including household, population, and labor indicate that organic farming is labor incentive sector. According to organic farming, need more labors and more management than conventional agriculture. As well, organic farming has a limited income compared to other sectors (negative sign of coefficient) and it implies that organic farming still has lower income than other sector. In term of government training programs, the agricultural production training program, integrated agriculture education program, and natural resources, environment conservation training program and organic farming technology training were significant which show that the area which getting more government support measures has more organic farming. Moreover, the marketing options; the cooperative shops, and farmer groups' shops are significant. These two significant marketing options are used for selling local organic products and the other marketing options are used for selling conventional agriculture products.

4 Conclusion

Although the first national framework that clearly mentioned the organic agriculture of Thailand since 1997, the organic agriculture is still at an early development stage. This might implies that government failed to translate the plan into the concrete activities therefore this study analyzes the government policy effect to organic farming. The spatial exploratory and spatial lag are used to analyze the policy effects on organic farming. The results show that the government training programs are highly significant to the organic farming. As well, organic farming in each area are affected to their neighbours' organic farming. Therefore, government should lay emphasis on applying organic farming policies in each area.

5 Suggestions

To increase the organic agriculture, the government needs to understand the most influent factor which affecting to farmers to stay in organic farming for example farm income. If their income is lower than other sectors, the organic sector still becomes unsustain. The empirical spatial analysis also examines that relationship of each farmer affects to the organic farming hence the connection between organic communities or farmers' networks may increase organic farming areas.

The empirical results also show that government training and extension projects including agricultural production, integrated agriculture education, natural resources and environment conservation and organic farming technology are affected to the increasing of organic farming areas especially organic farming technology. Therefore, government sector should pay more attention to these issues.

References

1. Koesling, M.: Factors influencing the conversion to organic farming in Norway. Int. J. Agric. Res. Gov. Ecol. 7(1/2), 78–95 (2008)
2. Strategies for Developing Thailand's Organic Agriculture. http://www.oae.go.th/download/download_journal/2560/OrganicAgricultureStrategy.pdf
3. Veisi, A., Gholami, M., Shiri, N.: What are the barriers to the development of organic farming? Sci. Papers Ser. Manag. Econ. Eng. Agric. Rural Dev. **13**(3), 321–326 (2013)
4. Stolze, M., Lampkin, N.: Policy for organic farming: rationale and concepts. J. Food Policy 34, 237–244 (2009)
5. Thapa, B., Rattnansuteerakul, K.: Adoption and extent of organic vegetable farming in Mahasarakham province, Thailand. Appl. Geogr. **31**, 201–209 (2011)
6. Sukallaya, K., Gopal, B.T.: Crop diversification in Thailand: status, determinants, and effects on income and use of inputs. J. Land Use Policy **28**, 618–628 (2011)
7. Thailand geographical data. http://gadm.org
8. Anselin, L.: Local Indicators of Spatial Association—LISA. Geogr. Anal. **27**, 93–115 (1995)
9. Anselin, L.: Spatial Econometrics: Methods and Models. Kluwer Academic Publishers, Dordrecht (1988)

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Organic Farming Policy Effects in Northern of Thailand: Spatial Lag Analysis

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Abstract

The spatial exploratory and spatial lag are applied to analyze the spatial analysis of policy effects on organic farming in northern of Thailand. The empirical result explores that organic farming on one positive district affects to organic farming in neighbouring districts. Moreover, the spatial analysis indicates that relationship between farmers becomes an important factor that affect to grow organic farming. Therefore, to increase organic farming, the policy-maker should lay emphasis on implementing the proper organic farming policy in each area and creating the connection between farmers and organic communities.