

THE ROLE OF LOCAL ECONOMIC DEVELOPMENT POLICIES IN THE
PROMOTION OF SUSTAINABLE DEVELOPMENT

A Thesis

Presented to the Faculty of the Graduate School
of Cornell University

In Partial Fulfillment of the Requirements for the Degree of
Master of Science

by

Xue Zhang

February 2016

© 2016 Xue Zhang

ABSTRACT

What role do local governments play in promoting sustainable economic development? This thesis uses the most recent 2014 national survey to analyze the relation between development strategies (business incentives and community economic development strategies) and environment and equity goals, and seeks to differentiate factors driving different policy actions. Municipalities that have both environmental sustainability and social equity goals use higher levels of community economic development tools. These communities are also more likely to have written economic development plans, be driven by new development motivations, and involve more participants in the economic development process. By contrast, communities with higher levels of business incentives have lower income, and are driven by traditional motivations, but they use a larger number of funding sources. Other capacity measures have no effect, and do not differentiate types of economic development strategies. This suggests sustainable economic development strategies can be pursued by a broader array of communities. Results of spatial analysis are similar to OLS regression controlling for geographic differences.

BIOGRAPHICAL SKETCH

Xue Zhang received both Bachelor of Science degree and Master of Science degree in International Trade and Economics in China from the Harbin Institute of Technology. Her research in local government policy stems from her interested in economic development. She began pursuing a Master of Science in Regional Science at Cornell University in 2014 with special research interests in sustainable development, and local government economic development policies.

ACKNOWLEDGEMENTS

I would like to thank both members of my thesis committee, Professor Mildred Warner and Professor Yuri Mansury. Professor Warner's constant guidance and remarks led to the final culmination of this thesis. I also thank Professor Mansury's feedback and recommendations for the spatial analysis. Lastly, I thank the Department of City and Regional Planning of Cornell University for its inspiration of regional scientists.

TABLE OF CONTENTS

1. Overall introduction	1
1.1 Objectives.....	1
1.2 Research question	2
1.3 Data and methodology	2
1.4 Outline.....	3
2. Business incentives vs. community economic development strategies: environmental and equity goals explain the difference	4
2.1 Introduction	4
2.2 Literature Review	5
2.3 Data.....	9
2.4 Model	15
2.5 Model Results	24
2.6 Discussion	27
2.7 Conclusion.....	29
3. Spatial analysis of local governments' public policy actions	30
3.1 Multilevel regression.....	33
3.2 Spatial error regression	38
3.3 Spatial autoregressive model	43
3.4 Geographically weighted regression	45
3.5 Conclusion.....	55
4. Overall conclusion.....	57
APPENDICIES	60
Appendix A: OLS model without goals and motivations	61
Appendix B: Multinomial regression	63
Appendix C: LISA cluster maps.....	66
REFERENCES	75

1. Overall introduction

1.1 Objectives

Environmental and social issues are key to long term community development. How do communities achieve sustainable development? Compared to traditional development, sustainable development does not only focus on economic development (tax base, job creation), but also includes improving environmental protection and social equity. The three Es-economy, environment, and equity- compose three pillars of the triple bottom line. The triple bottom line approach is widely used in the assessment of sustainable performance in the private sector. In this thesis, we considered the triple bottom line in the public sector and community development, and seek to provide a deeper understanding of what role local governments play in promoting sustainable economic development.

Local governments primarily use two kinds of public policies to promote economic development: business incentives and community economic development strategies. Business incentives are the most common and traditional strategies adopted by local governments. This strategy provides financial supports, such as tax abatements, utility reduction and tax credits, to promote economic development, and aims to attract external firms by providing relocation assistance. Community economic development strategies, by contrast, assist local small firms, business retention and expansion, and community development. This strategy develops the local economy by helping local firms (e.g. small business development center, local business publicity program), and are concerned with environmental sustainability (e.g. environmental sustainability -energy audits/green building incentives, energy efficiency programs) and social issues (e.g. affordable workforce housing, investments in high quality of life).

1.2 Research question

From 1994 to 2014, local governments increased the use of community economic development strategies. The percentage of local governments using at least one business incentive decreased from 88% in 1994 to 68% in 2004, but dramatically increased to 90% in 2009 (Warner and Zheng, 2013), and then increased to 98% in 2014. What has happened since 2009? The most recent 2014 national survey shows that most governments used at least one business incentive and at least one community economic development strategy. While both strategies are used by local government, we differentiate factors driving these two public policies. This thesis also explores the relation between public policies and sustainable development. Is the triple bottom line possible for all communities? Data show that over 50% municipalities have a written economic development plan, so what role does planning play? Finally, do spatial differences affect the model results?

1.3 Data and methodology

Study data were obtained from the International City/County Management Association (ICMA) survey in 2014, American Community Survey, and Census of Government data. This thesis focuses on the level of business incentives used, the level of community economic development strategies used, planning, considerations motivating local development, number of participants, number of funding sources, level of accountability, and level of development barriers. This thesis also controls for geographic division (South, West, Southeast, and South central), metro status (metro core, suburban, and rural), and economic conditions (income, percent manufacturing, poverty rate, percent white, diploma higher than high school, and population). Although the data cover all states of the U.S., the response rate is only 23%, which forms many holes in the map. Given the data characteristics, this thesis tests whether spatial analysis methods (multilevel regression, spatial regression, geographically weighted regression)

could be used, and whether the spatial regression results are different from the OLS regression results.

1.4 Outline

This thesis is divided into four sections. The first part is the overall introduction of the thesis. The second section is written in article format, which contains introduction, literature review, methodology, results analysis, and conclusion. In this section, we focus on the relation between local governments' public policy actions and sustainable development. Two types of public polities (business incentives, and community economic development strategies) are differentiated by communities' sustainable development goals, development plan, motivations, economic development barriers, number of participants, income, manufacturing employment, metro status, and geographic division. In the third section, we run spatial regression models (multilevel regression, spatial error regression, spatial autoregressive mode, and geographically weighted regression) to test spatial effects. The survey data only cover a small proportion of all places in the U.S. and cluster together. Although spatial tests are statistically significant, the model results are similar to the OLS regression model controlling for geographic division. Geographically weighted regression could differentiate the level of public policies used in different regions, but a higher quality of spatial data are needed for further research. The last chapter gives the overall conclusion.

2. Business incentives vs. community economic development strategies: environmental and equity goals explain the difference

2.1 Introduction

Local governments are paying more attention to sustainable development and planning to address development issues (Birch & Wachter, 2008; Portney, 2003; Grodach, 2011). Sustainable development attempts to balance the triple bottom line: economy, environment and equity. Compared to traditional economic development, sustainable development focuses on improving sustainable industries, community development and efficient use of natural resources (Roberts & Cohen, 2002). Sustainability is a process to a better quality of life, and focuses on “long-term organizational and societal well-being” (Blackburn, 2007 p.18). Municipalities need to implement policies which promote holistic development to meet the challenge of balancing the triple bottom line. However, traditional economic development strategies and a lack of comprehensive economic development planning are barriers to sustainable development (Grodach, 2011). This article explores the role local governments play in promoting sustainable development.

Business incentives are the most common and traditional strategy utilized by local governments to promote economic development (Osgood et al., 2012; Reese, 2014a; Reese, 2014b). However, research shows these incentives are products of intergovernmental competition (Zheng & Warner, 2010), which could be a negative-sum game for the whole nation and harmful for communities’ sustainable development (Partridge, 2011). Tax incentives or subsidies are strategies used to attract external firms (Partridge, 2011). Research has focused on a weak or negative link between business incentives and economic development (Bartik & Erickcek, 2014). Local governments have increased the use of community economic development strategies while still relying on traditional development strategies (Bennett &

Giloth, 2008; Reese,1998, Zheng & Wang, 2010). This policy shift implies that local governments have broadened their focus to include local firms and community development instead of just attracting firms or external investments.

From 1994 to 2014, local governments increased the use of community economic development strategies, which focus on local firms and community development (Zheng & Warner, 2010). By contrast, the percentage of local governments using at least one business incentive decreased from 88% in 1994 to 68% in 2004. But with the Great Recession in 2009, use of business incentives increased dramatically to 90% (Warner & Zheng, 2013).. What has happened since 2009? We used 2014 ICMA national economic development survey, and found that 98% of local governments use at least one community economic development strategy, the same percentage that use at least one business incentive. In this article, we explore the policy actions of local government to address some key questions. What drives local governments to choose community economic development strategies? Can we differentiate the drivers of business incentives from the drivers of community economic development strategies? What role does planning play? Are community economic development strategies possible for all communities?

2.2 Literature Review

Rising environmental and social problems are threatening long term economic benefits. Local governments facing the challenge of sustainable economic development, not only concentrate on increasing tax base and job creation, but also comprehensively consider environmental protection and social equity (Blakely & Leigh, 2010; Nowak, 1997). In a study of Dallas-Fort Worth, Grodach (2011) found that conventional economic development aims to attract external firms, increase median income, and often pays little attention to the environment. In comparison,

community economic development concentrates on diversifying the economy (e.g, business cluster, technology zones), narrowing gaps of skills and social services among regions (e.g, management training, affordable housing), developing environmental friendly and green industries (e.g. energy efficiency program, green building incentives) (Grodach, 2011).

Environmental protection, social equity and economic development compose three pillars of the triple bottom line (TBL). The TBL approach is widely used to assess performance of sustainability in the private sector regarding aspects of supply chains (Ahi & Searcy, 2015), and various industries (Kucukvar & Tatari, 2013; Tyrrell, et.al., 2012; Milne,2012; Taylor & Fletcher, 2006). Gimenez et. al. (2012) used data from International Manufacturing Strategy Survey to argue that environmental programs have positive impacts on both economic and social performance, while social programs could reduce economic development by increasing manufacturing costs by promoting employees' safety and improving working conditions. Analyzing 240 firms, De Giovanni (2012) argued that environment management is directly associated with social concerns, but is only indirectly related to economic concerns of most firms. By contrast, for local governments the triple bottom line is to assist communities to build their tax base and promote job creation, while also ensuring environmental protection and social equity (Osuji, 2011). Homsy & Warner (2014) in a study of local government sustainability policy actions found that it is more common to see local governments pursue economic development and environmental preservation than to balance environmental protection and social equity.

Local governments use business incentives as the primary strategy to stimulate the local economy (Osgood. et al., 2012; Reese, 2014 a; Reese, 2014 b; Kim, 2009). These traditional economic development strategies focus on improving quality of life by increasing the tax base and employment (Warner & Zheng, 2013; Zheng & Warner, 2010; Grodach, 2011). Business

attraction is more common among counties have a large proportion of manufacturing workforce (Lobao et. al, 2014). Business incentives, including tax abatements, infrastructure improvement, local enterprise development zones, are designed to assist larger firms with high cost, but are typically not targeted to small businesses and local firms (Grodach, 2011). Business incentives are driven by competition among municipalities (Bartik, 2005; Grodach, 2011), and may undermine the local economy by spending public finance on attracting external firms which may not be suitable for local conditions (Partridge, 2011). Since the Great Recession, local governments increased the use of traditional business attraction to offset losses (Osgood et. al.,2012), but they also adopted more accountability measures (Zheng & Warner, 2010, Warner & Zheng, 2013).

Community economic development strategies could improve community development through retaining and expanding local firms, and promoting the linkage between firms and local community development (Bradshaw & Blakely, 1999; Warner & Zheng, 2013). These strategies focus on small business, business expansion and retention, and community development, which includes market assistance and management trading for small businesses, business clusters and industrial districts which expand local firms' development, and investments in high quality of life for workers. Community economic development strategies improve quality of life based on environmental protection and social equity (Osgood et al., 2012), and comprehensively develop the triple bottom line. Community economic development strategies help local governments to achieve green economic development goals, which simultaneously make progress on economy and social well-being (Harper-Anderson, 2012). From 1994 to 2004, Zheng & Warner (2010) found local governments increased the use of community economic development strategies. Some strategies, such as business improvement districts and public/private partnerships provide new methods to revitalize the urban economy by blending public and private sectors to enhance

development of small business (Stokes, 2007, Mitchell, 2001, Levy, 2001). Community economic development strategies assist local small businesses, which can create more jobs (Birch, 1981), affect the environment, improve competition, and diversify the local economy (Partridge, 2011), and are more efficient than relocating firms especially in rural areas (Komarek & Loveridge, 2013). Business retention and expansion strategies tend to foster innovation, such as energy efficiency programs and technology zones, and this helps local firms (Grant, et. al., 1995). Community development strategies are similar to business retention and expansion in the aspects of growing local businesses, but often are geared toward establishing the link between local firms and community development, and satisfying local economic growth (Hanley & Douglass, 2014), such as investment on quality of life, and community development cooperation.

Community economic development strategies and traditional business incentives are not substitutes but are used simultaneously by local governments (Bradshaw & Blakely, 1999; Blakely & Leigh, 2010). Business incentives are often combined with business expansion and retention strategies to enhance local economic development (Blakely & Leigh, 2010; Koven & Lyons, 2010). Community strategies often address both environmental sustainable (e.g. energy efficiency program, green building incentives) and social issues (e.g. promote age-friendly businesses). Community strategies have been found to involve a broader array of participants and community cooperation (Brodhag & Taliere, 2006, Flint, 2010), while the primary participants in business incentives are more narrowly limited to firms and community economic development offices (Grodach, 2011). At the municipality level, when governments have economic development plans, or city involves in economic development process, a broader array of policies are adopted.(Stokan, 2013). Local comprehensive plans combined with community development policies promote smart growth of small communities (Edwards &

Haines, 2007). Sustainable development goals are enhanced by community development strategies, such as zoning ordinances (Jepson & Haines, 2014), and affordable housing (Talen, 2010). Accountability measurements are essential for local government to assess the efficiencies of economic development policies (Warner & Zheng, 2013). Performance measurement can increase the accountability of business incentives (Zheng & Wang, 2010). However, in a study of tax incentives in Kansas, Matkin (2010) found that although procedural requirements of tax abatements increase accountability, measurements did not improve the impacts of tax abatements on economic growth.

In this article, we give specific attention to the level of business incentives used, the level of community economic development strategies used, and the relation between development strategies and environment and equity goals. ICMA 2014 survey data show that 98% of municipalities used at least one business incentive, and 98% used at least one community economic development strategy. However, we find that places are varied with the levels of strategies used. What factors drive the use of economic development strategies? Are the drivers for community economic development strategies different from those for business incentives? The survey asked local governments about their economic development goals, and we classify economic development goals according to the triple bottom line: economy (jobs, tax base), environment (environmental sustainability) and society (social equity), and assess if local governments use of economic development strategies varies in response to different goals.

2.3 Data

Study data were obtained from a survey we conducted with the International City/County Management Association (ICMA) in 2014. Surveys were sent to municipal officers in municipalities and counties of all states in the U.S. with population above 10,000. 5,273 local

governments were surveyed, and 1201 responded for a 23% response rate. The survey focused on local governments' economic development planning, goals, motivations, barriers and policies. The survey also measured accountability and funding sources. After dropping respondents who failed to answer all questions, we formed a valid sample composed of 1152 respondents. The sample included 231 cities, 706 suburban municipalities and 215 rural places; and respondents were from four regions: South (380), Northeast (149), North central (350), and West (273). We used the Two-sample Kolmogorov-Smirnov test to measure the equality of population distribution between the universe and the sample data. The result shows the sample captures more larger communities than found in the universe data.

The ICMA survey contained over 100 questions. Responses regarding the level of use of business incentives and community economic development tools, motivations, and economic development barriers, were on a 4-degree scale (none, low, medium, high). Responses regarding economic development plan, development goals, presence of a college or junior college in the jurisdiction, and measurements of accountability were dichotomous. The missing responses of all elements were substituted with zero.

According to the 2014 ICMA survey, almost all local governments use at least one business incentive and at least one community economic development policy, which implies that local governments use both strategies simultaneously. Both the level of business incentives and the level of community economic development strategies are normally distributed (Figure 1).

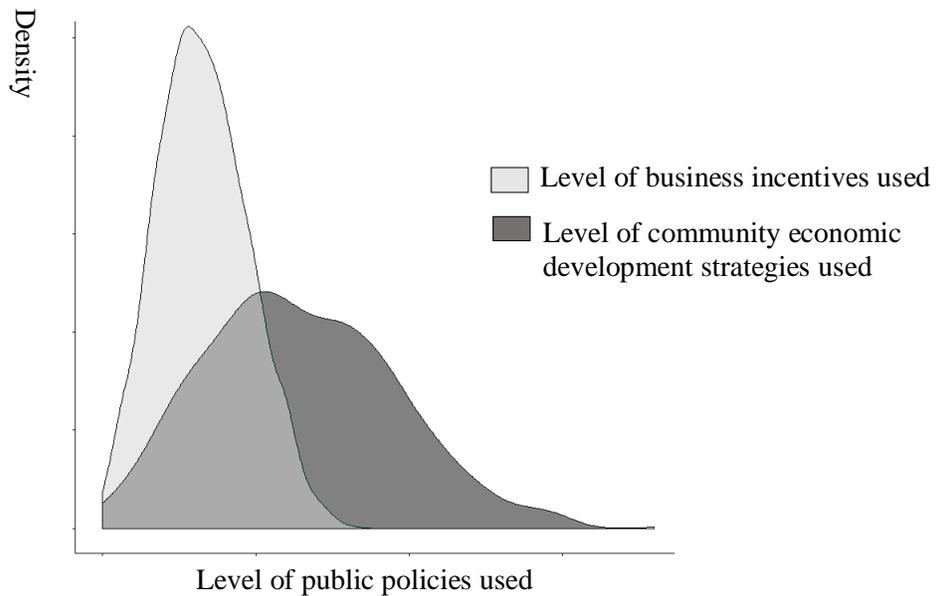


Figure 1 Distribution of business incentives and community economic development strategies
 Source: ICMA 2014 Economic Development Survey, N=1152

Business incentives included 15 items and Table 1 shows their frequency and level of use (high, medium, or low). Most business incentives are used at the medium level. The most commonly used business incentive was high quality physical infrastructure (87%). Improvements in infrastructure was the only strategy that was most frequently used at the high level. This suggests that local governments think a higher quality of infrastructure is important to the achievement of economic development goals. Compared to tax abatements (60%) and tax credit (53%) which were used at low levels, less costly strategies were widely used at medium levels, such as promotional and advertising activities (87%) and local government representative calls on prospective companies (86%). Tourism promotion was also highly used (83%).

Table 1 Level of business incentives used

Business incentives	Yes (%)
Promotional and advertising activities (M)	86
High quality physical infrastructure (M)	86
Local government representative calls on prospective companies (M)	85
Grants (M)	84
Tourism promotion (M)	82
Infrastructure improvements (H)	75
Tax abatements (L)	60
Tax increment financing (M)	59
Tax credits (L)	53
Subsidized buildings (L)	53
Free land or land write downs (L)	43
Locally designated enterprise zones (M)	41
Special assessment districts (L)	41
Relocation assistance (L)	32
Utility rate reduction (L)	30

Note: Letters next to each component are the principal level of use. L denotes low level of use, M denotes medium level of use, and H denotes high level of use. Alpha coefficient is 0.79. N=1152

Source: ICMA economic development survey, 2014, N=1152

The ICMA surveys measure a broad array of community economic development strategies including 8 small business strategies, 10 business expansion and retention strategies, 10 community development strategies, and 4 planning and training strategies (Table 2). Compared to business incentives, community economic development strategies have a lower level of use. They may also be lower cost approaches to stimulate local development. For example, small business strategies are often adopted to decrease barriers faced by small firms, and facilitate interactions between firms and local governments (Reese & Ye, 2015). Small business center and matching improvement grants were the most common strategies and most frequently used at medium levels. Community development strategies focused on decreasing social equity, such as improving quality of human capital (job training, 72%), stimulating factor

mobility (promote commuting, 57%), and increasing social welfare (affordable workforce housing, 69%; promote age-friendly businesses, 51%). Strategies related to planning and training, zoning/permit assistance and one-stop permit assistance were adopted at high levels. These strategies could reduce expenditures of local government, and benefit broader community development (Warner & Zheng, 2013; Reese & Ye, 2015).

Table 2 Community economic development strategy

Community economic development strategy	yes(%)
Small business	
Revolving loan fund (L)	50
Small business development center (M)	66
Microenterprise program (L)	35
Matching improvement grants (physical upgrades to business properties) (M)	61
Vendor/supplier matching (L)	38
Marketing assistance (L)	68
Management training (L)	55
Executive on loan/mentor (L)	31
Business retention and expansion	
Surveys of local business (M)	85
Ombudsman program (L)	51
Local business publicity program (community-wide) (L)	74
Replacing imports with locally supplied goods (L)	43
Export development assistance (L)	43
Business clusters/industrial districts (M)	69
Technology Zones (L)	47
Energy Efficiency Programs (L)	61
Business improvement districts (M)	59
Main Street Program (M)	59
Community development	
Community development corporation (L)	47
Community development loan fund (L)	39
Environmental sustainability- energy audits/green building incentives (L)	52
Transit to promote commuting (L)	55
Job training for low skilled workers (L)	71
Business assistance, loans and grants to support child care (L)	29
Affordable workforce housing (L)	67
Investments in high quality of life (good education, recreation, and arts/culture) (M)	89
Public/private partnerships (M)	86
Programs to promote age-friendly businesses for seniors (L)	49
Planning and training	
Zoning/permit assistance (L)	34
One-stop permit issuance (L)	69
Employee screening (L)	58
Training Support (L)	32
Regulatory flexibility (M)	87

Note: Letters next to each component are the principal level of use. L denotes low level of use, M denotes medium level of use, and H denotes high level of use. Alpha coefficient is 0.91.

Source: ICMA economic development survey, 2014 N=1152

2.4 Model

We developed our two dependent variables: the level of community economic development strategies used (affordable workforce housing, community development corporation, investment in high quality of life, etc.), and the level of business incentives used (tax abatements, relocation assistance, grants, etc.). We measured the level of policies by adding up levels of each item (no use=0, low=1, medium=2 and high=3). The maximum level of business incentives used is 40, and the average level is 16. The maximum level of community economic development strategies is 90, and the average level is 32. For our independent variables, we measure if a community has environmental sustainability and equity goals. We also control for motivations, planning, participants, funding, level of accountability and barriers. Data for these variables come from ICMA national survey 2014. We used American Community Survey (2009-2013) and 2010 Census of Government data to control for economic conditions (income, percent manufacturing employment, poverty rate, percent white population, diploma higher than high school, and population). We ran two OLS regression models to explore differences between factors explaining community economic development strategies and factors explaining business incentives.

Economic development goals

The survey asked respondents to indicate which goals drive their local economic development policy. Five goals were listed: jobs, tax base, quality of life, environmental sustainability and society equity. 97 % of respondents selected at least one economic development goal (job or tax base), and 84 % selected quality of life. For the environment and society dimensions of the triple bottom line, 23% local governments chose both environmental sustainability and social equity as development goals, 22 % only chose environmental sustainability, and 3 % only chose social

equity. Almost every local government considered economic development goals, so we focus on municipalities which selected both environmental sustainability and social equity goals. Response to both goals were coded 1; others were coded 0. We hypothesize that environmental sustainability and social equity goals are related to higher use of community economic development strategies.

Economic development plan

The survey asked if the community has a written economic development plan (yes=1, otherwise=0). Overall, 50% of respondents reported their communities had an economic plan. When local governments have a written development plan, they are more likely to diversify development strategies (Stokan, 2013; Osgood et. al, 2012), and increase attention to small business endogenous growth (McFarland & McConnell, 2012). We hypothesize that local governments with an economic development plan will use higher levels of community economic development strategies.

Economic Development Motivation

The survey asked about considerations which motivate economic development priorities. Motivations included 10 elements, each element was measured at 4 levels (No motivation=0, minimal motivation=1, moderate motivation=2, and significant motivation=3). We used factor analysis to differentiate motivations into three factors: new motivations, changing leadership and traditional motivations (Table 3).

Local governments most frequently considered traditional motivations, which include 'change in local economy', 'increased competition', and 'past activities successful/time for new initiatives'. 'Change in local economy' highly motivated 94% local governments to pursue

economic development. Items in the factors of both changing leadership and new motivation were minimal motivations. New motivation contains ‘heard about new development tools’, ‘growth in aging population’, ‘income inequity’, and ‘concern about environmental sustainability’. Compared to traditional motivations, fewer local governments considered new motivations, especially in the social dimension (income inequity 58%, growth in aging population 63%). We hypothesize local governments with heavier reliance on traditional motivations will focus more on business incentives. While, communities that focus more on new motivations, which consider the challenges of environment sustainably and social equity, and will focus on more community economic development strategies.

Table 3 Factor Analysis of Economic Development Motivation

Economic Development Motivation	Traditional Motivation	Changing Leadership	New Motivation
Traditional Motivation			
Change in local economy (94%, H)	0.32	0.18	0.15
Increased competition (87%, M)	0.45	0.12	0.11
Past activities successful/time for new initiatives (76%, M)	0.37	0.11	0.33
Changing Leadership			
Change in economic development leadership (70%, L)	0.09	0.68	0.08
Change in political leadership (73%, L)	0.02	0.66	0.10
Past activities not successful (71%, L)	0.11	0.43	0.18
New Motivation			
Heard about new development tools (66%, L)	0.33	0.13	0.51
Growth in aging population (63%, L)	0.07	0.07	0.58
Income inequality (58%, L)	0.07	0.13	0.64
Concern about environmental sustainability (67%, L)	0.06	0.08	0.61

Notes. Letters next to each component are the principal level of motivation. N denotes no motivation, L denotes minimal motivation, M denotes moderate motivation, H denotes high motivation. Bolded numbers show elements which primarily load on that factor (N=1152). Factor loading after Varimax rotation.

Source. ICMA Economic Development Survey 2014. N=1152.

Economic development barriers

Respondents were asked to indicate which development barriers they faced and their importance.

Economic development barriers included 21 elements (Table 4), and the measurements were in

4 degrees (0=none, 1=low, 2=medium and 3=high). Factor analysis showed barriers were relatively independent and the alpha coefficient is high when all barriers are in the same group, so we report barriers as an additive index.

More than half of respondents identified every element as a barrier to economic development. Primary barriers were on the supply-side of economic development: cost of land (90%), lack of capital/funding (90%), and lack of buildings (89%), followed by taxes (86%) and skilled labor (84%). 83% of local governments reported that environmental regulation was an economic development barrier, which implies a conflict between economic growth and environmental protection. We expected that communities with higher level of barriers would have a higher level of community economic development strategies, because those strategies focus on a broader range of economic development issues.

Table 4 Economic Development Barriers

Barriers	% indicating barriers
Cost of land (M)	90
Lack of capital/funding (M)	90
Lack of buildings (due to space/costs) (M)	89
Taxes (L)	86
Limited number of major employers (L)	85
Lack of skilled labor (L)	84
Environmental regulations (L)	83
Lack of land available (H)	82
High cost of labor (L)	79
Inadequate infrastructure (e.g., no fiber optic cable, water, wastewater) (L)	75
Poor public transit (L)	75
High cost of housing (L)	73
Citizen opposition (L)	72
Lengthy permit process (L)	70
Distance from major markets (L)	69
Lack of affordable, quality child care (L)	68
Traffic congestion (L)	64
Lack of political support (L)	61
Income Inequality (L)	61
Poor quality of life (inadequate education, recreation, and arts/cultural) (L)	56
Declining market due to population (L)	48

Note: Numbers next to each component represent percent yes and principle level of barrier. L denotes low of barrier, M denotes medium barrier, and H denotes high barrier. Alpha coefficient is 0.83.

Source. ICMA Economic Development Survey 2014, N=1152.

Number of participants

The survey measured 16 possible participants in the economic development process; and the average number participants reported was 5. The most common participant was city (86%), followed by chamber of commerce (57%). Other potential participants are county (55%), economic development corporation (40%), regional organizations (38%), state government

(37%), public/private partnership (33%), private business/industry (32%), citizen advisory board/commission (26%), college/university (25%), utility (21%), private/community economic development foundation (9%), planning consortia (8%), ad hoc citizen group (8%), federal government (6%), and non-profit organization serving the poor (5%). We expected that when a higher number of participants engage in economic development, local governments will use higher levels of community economic development strategies, and lower levels of business incentives

Funding

There are many sources of funding for local economic development policies. Our survey measured 9 sources of funding. The average number of funding sources used is 3. The most common source of funding is local funds (86%). state grants-in-aid (42%), tax increment financing districts (41%), hotel/motel taxes (39%), and sales tax (32%) are the next common funding sources. Other funding sources include private funding (30%), federal grants-in-aid (28%), general obligation or revenue bonds (22%), and special assessment districts (21%). Because many of these funding sources are developed to fund business incentives, we expect communities using more funding sources will use more business incentives.

Accountability

Accountability of economic development policies is a concern for local government. Our survey measured accountability with an index of 13 items. Average number of accountability measurements employed is 6.

A performance agreement as a condition for providing business incentives was most commonly reported (79%). 69% local governments required a cost/benefit analysis before

offering business incentives. Effectiveness of business incentives was measured by 72% local governments. For the local governments which measure the effectiveness of business incentives, they most widely used the measurements of the number of jobs created by the new business (64%), increase in the tax base (60%), and amount of money invested in construction materials and labor (52%). These measures primarily focus on the economic dimension of the triple bottom line. Other effective measurements were cost/benefit analysis (40%), new dollars invested in land (40%), numbers of new businesses relocating or expanding in jurisdiction (35%), and company revenue/sales (25%). During the course of the agreement, 55% local governments reported that they have a claw back agreement in which companies are liable for paying back the value of incentives when they relocate or shut down. Only 17% of local governments require a percentage of new employees to be hired from within the community. Only 34 of respondents reported budget allocation was associated with economic development priorities specified in the plan. Because the primary accountability measurements are related to business incentives, we expect a higher level of accountability measurement will be related to a higher level of business incentives used.

Economic conditions

We control for socioeconomic conditions in the community. These include whether there is a college or junior college in the jurisdiction, percentage of population which has a degree higher than high school, demographics (population size, percentage white), and socioeconomic (income, poverty rate), and economic structure (manufacturing employment rate) (Table 5). We expect that places that have a higher dependence on manufacturing employment and a lower per capita income will use more business incentives. We want to differentiate if levels of community economic development strategies are related to education or economic conditions in the

community. We also control for metro status and geographic division, and set suburb and South as references respectively. Urban governments have more economic, social and environmental capital to achieve community development (Nowak, 1997); we hypothesize that metro core communities will engage in a higher level of community economic development, compared to rural communities and suburbs. Compared to other regions, ICMA data show that local governments in the South are more concerned about economic development goals (job creation and tax base) and less about environmental sustainability and social equity goals. We hypothesize that other regions will use a lower level of business incentives and a higher level of community development compared to South.

Table 5 Descriptive statistics

	Mean	Std. Dev.	Min	Max
Level of community economic development strategies used ^a (Number of strategies=33, level is from 0 to 3)	32.26	15.5	0	90
Level of business incentives used ^a (Number of strategies=15, level is from 0 to 3)	16.37	7.37	0	40
Environmental sustainability and social equity goals ^a (yes=1,%)	23	42	0	100
Economic development plan ^a (yes=1,%)	50	50	0	100
New motivation ^a (Factor score)	0	0.8	-1.36	2.46
Changing leadership ^a (Factor score)	0	0.78	-1.39	1.65
Traditional motivation ^a (Factor score)	0	0.59	-1.91	1.54
Barriers ^a (Number of barriers=21, level is from 0 to 3)	25.08	8.65	0	59
Number of participants ^a (Number of participants=16)	4.86	2.93	0	16
Level of accountability ^a (Number of measurements=12)	5.7	3.45	0	12
Number of funds ^a (Number of funds=9)	3.41	2.08	0	9
Per capita income ^c (log)	10.21	0.34	9.12	11.52
Poverty rate (%) ^c	14.55	8.3	0.76	50.2
Percent white population (%) ^c	76.93	17.19	4.29	98.23
Diploma higher than high school (%) ^c	87.64	7.93	45.31	99.52
Have a college or junior college in jurisdiction ^a (yes=1,%)	64	48	0	100
South ^a (yes=1,%)	33	47	0	100
Northeast ^a (yes=1,%)	13	34	0	100
North central ^a (yes=1,%)	30	46	0	100
West ^a (yes=1,%)	24	43	0	100
Percent manufacturing employment (%) ^c (yes=1,%)	11.33	5.87	0.2	40.79
Metro core ^a (yes=1,%)	20	40	0	100
Suburban ^a (yes=1,%)	61	49	0	100
Rural ^a (yes=1,%)	19	39	0	100
Population ^b (log)	10.49	1.05	6.69	14.48

Source: a: ICMA Economic Development Survey 2014; b.2010 Census of Government; c. American Community Survey 2009-2013 N=1151

2.5 Model Results

We ran two ordinary least squares regressions to understand the differences in factors which explain the level of use of business incentives and of community economic development strategies. Regression results are shown in Table 6. We find that municipalities, which have both environmental sustainability and social equity goals, use higher levels of community economic development tools. These communities are also more likely to have a written economic development plan, involve more participants, and face more economic development barriers. We also ran the OLS model without goals and motivations, due to concerns with a possible tautology with level of strategies used. The results are similar. Full models can be seen in Appendix A

The level of business incentives used is not related to environmental sustainability or social equity goals, but is positively related to manufacturing employment. In addition, the level of business incentives used is not related to barriers, and is higher in communities which involve fewer participants in the economic development process. Business incentives are driven by traditional motivations, which focus on economic development and past successful activities. Local governments driven by new motivations (heard about new strategies, social equity and environmental sustainability) are likely to utilize more community economic development strategies and fewer business incentives.

Regression results show that the level of community economic development strategies is higher in the Northeast and West regions and in communities with a local college, which could be a source of expertise. Compared to the Northeast and West regions, the South region tends to use more business incentives and fewer community economic development strategies as expected. Results also show no difference in the level of community economic development strategies by income, poverty, or educational level. Thus, community economic development

strategies, which help balance the three e's - economy, environment and equity – are being practiced by a broad array of communities. By contrast, our models of business incentives show that communities with lower income are more likely to use more business incentives.

Table 6 OLS Regression results: level of development strategies used¹

	Level of community economic development strategies		Level of business incentives	
	Coefficient	Standard Error	Coefficient	Standard Error
Environmental sustainability and social equity goals	1.5302*	(0.71)	-0.0681	(0.35)
Economic development plan	2.0003**	(0.57)	0.0756	(0.28)
New motivation	3.6123**	(0.41)	-0.7279**	(0.21)
Changing leadership	0.0712	(0.37)	0.0270	(0.18)
Traditional motivation	0.4547	(0.52)	1.0850**	(0.25)
Barriers	0.0831*	(0.04)	-0.0247	(0.02)
Number of participants	0.3989**	(0.10)	-0.1072*	(0.05)
Level of accountability	0.3471**	(0.10)	0.3256**	(0.05)
Number of funds	0.3830*	(0.15)	0.4521**	(0.07)
Per capita income	1.5115	(1.61)	-1.9188*	(0.78)
Poverty rate	0.0991	(0.06)	0.0311	(0.03)
Percent white population	0.0157	(0.02)	0.0108	(0.01)
Diploma higher than high school	-0.0333	(0.06)	0.0357	(0.03)
Have a college or junior college in jurisdiction	1.4492*	(0.67)	0.1641	(0.32)
Northeast	4.3726**	(1.00)	-1.9698**	(0.48)
North central	-1.3226	(0.79)	0.0671	(0.38)
West	5.3197**	(0.77)	-2.8859**	(0.37)
Percent manufacturing employment	0.0560	(0.06)	0.0823**	(0.03)
metro core	1.9193*	(0.81)	0.6550	(0.39)
rural	1.1121	(0.86)	0.0191	(0.42)
Population	0.9617**	(0.34)	0.1624	(0.16)
Level of business incentives	1.1774**	(0.05)	-	-
Level of community economic development strategies	-	-	0.2754**	(0.01)
Constant	-24.5049	(15.95)	18.4276*	(7.70)
N	1151		1151	
Adjust R ²	0.6538		0.6412	

Source: ICMA Economic development Survey 2014, American Community Survey 2009-2013, and 2010 Census of Government

*Significant at 5% level. ** Significant at 1% level

¹ Mean VIF for two models are all 1.74

2.6 Discussion

Our models have shown that a higher level of use of community economic development strategies is associated with environmental sustainability and social equity goals. But do community strategies balance the triple bottom line? We used natural breaks to split the levels of business incentives and community economic development strategies, the breaking point is 16 and 33 respectively. We divided samples into four groups, based on different levels of strategies used (Table 7). We looked back at the ICMA survey about development goals, and found that municipalities using a higher level of community economic development strategies (N=518) are more likely to choose jobs (96%), quality of life (88%) as their development goals, compared to communities using a lower level of community economic development strategies (N=634, 84% choose job, and 81% choose quality of life). This implies that the level of community strategies not only responds to environmental sustainability and social equity goals, but is also related to economic development strategies.

Both business incentives and community economic development strategies are related to the number of funding sources and level of accountability. However, we expected that only business incentives would be associated with funding sources and accountability. We use the Scheffe test to examine funds and accountability of two subgroups (shown in Table 7, N=165, N=130). We did multinomial regression based on these four groups. Results can be found in Appendix B. Places with a higher level of business incentives use more funding sources and use higher level of accountability measures than places which use a higher level of community strategies. Both funds and accountability show a clear gradient in the two subgroups. This suggests that local governments pay more attention to the performance of business incentives, and diversify funding sources to support business incentives.

Table 7 Groups of different levels of strategies used

Number of places (N)		Level of business Incentives used		Subtotal
		Lower (≤ 17)	Higher (> 16)	
Level of community economic development strategies used	Lower (≤ 33)	504	130	634
	Higher (> 33)	165	353	518
Subtotal		669	483	1152

Motivations and number of participants differentiate the two type of development strategies. Higher level of business incentives are driven by more traditional economic development motivations, less new motivations, and fewer participants. This confirms previous case study research that finds communities focusing on conventional development rather than sustainable development adopt more business incentives (Grodach, 2011). On the other hand, use of a higher level of community economic development strategies is related to more new motivations and more participants. This suggests that communities, which are concerned with sustainable development and engage a broader array of stakeholders, use higher levels of community economic development strategies.

Although business incentives are more heavily used in communities with lower income, these strategies are not associated with economic development barriers. Traditional economic development issues, such as lack of land, capital and skilled labor, are still the most common barriers. Environmental and social issues (e.g. environmental regulation, high cost of housing, income inequity) are also highly considered by local governments. Development barriers are not related to the use of business incentives, which implies that business incentives may be too narrowly forced to address the broader barriers that communities face. Thus, when facing economic and social challenges, communities are likely to adopt a higher level of community strategies.

2.7 Conclusion

In this article, we analyzed the 2014 ICMA survey on local economic development policies to differentiate the motivators of business incentives and community economic development strategies. We use the concept of triple bottom line to assess the level of local government use of traditional business incentives and community economic development strategies. We found that the level of business incentives is not related to environmental sustainability and social equity goals, while the level of community economic development strategies is related to those goals. This suggests that level of use of community economic development strategies is linked to the three pillars of triple bottom line, while level of business incentives seems to be only related to one pillar, economic development.

Communities using higher levels of community strategies are also more likely to have community economic development plans and involve more participants in the economic development policy process. By contrast, higher level use of business incentives is found in communities with fewer participants, traditional motivations, and a higher proportion of manufacturing employment. When communities' primary concern is job creation and economic development, they are more likely to support a higher level of business incentives. When community goals focus more on sustainable development and balance different stakeholders, they are more likely to adopt more community economic development strategies.

We also found the levels of business incentives were higher in municipalities with lower income, and more common in the South, while community development strategies are higher in places with a college, and more common in the urban core, and in the Northeast and West. However, use of community economic development strategies was not affected by poverty rate or education level. These results suggest a promising way forward as community economic development strategies are something that could be practiced by a broader array of communities.

3. Spatial analysis of local governments' public policy actions

Business incentives are products of intergovernmental competition (Zheng & Warner, 2010), so places are more likely to use a higher level of business incentives if their surrounding areas use a higher level of business incentives. OLS regression results show that new motivations are related to the level of community economic development strategies used, which implies that when local governments hear about new strategies, they tend to use more community economic development strategies. Therefore, it seems likely that the level of public policies used by local governments is associated with public actions of their surrounding local governments.

The ICMA survey was sent to municipal officers all over the U.S, so we could do spatial analysis. However, the response rate is only 23%, and respondents are unevenly distributed across the U.S. (Table 8). We overlaid the layers of counties, and municipalities which responded to the survey in Figure 2, the map shows that there exist many holes. To facilitate spatial analysis, we converted the polygon into point pattern (Figure 2).

Table 8 Survey response rate

	No. of municipalities/counties	No. responding	
		No.	% of response rate
Total	5,237	1,20	22.9%
Geographic region			
Northeast	1,204	155	12.9%
North_Central	1,521	370	24.3%
South	1,592	394	24.7%
West	920	282	30.7%

Source: ICMA economic development survey, 2014, N=1152

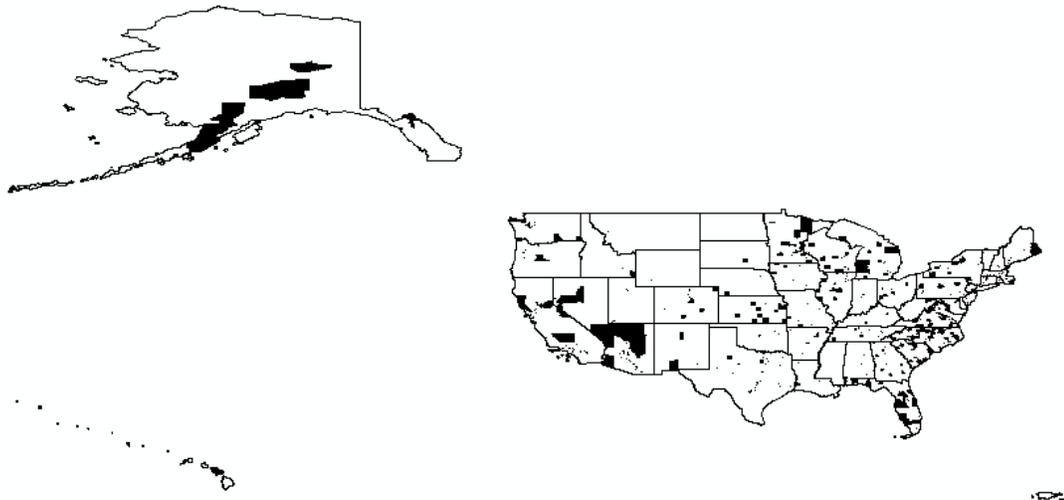


Figure 2a Polygon pattern

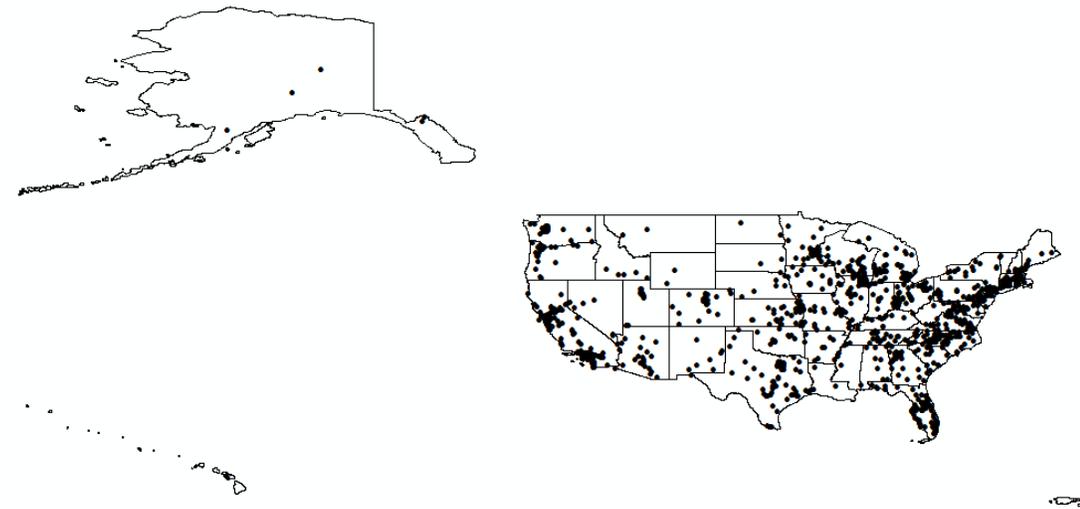


Figure 2b point pattern

Figure 2 Places responding to survey

Notes: black areas (points) mean these places responded to the ICMA survey

Sources: ICMA Economic development survey 2014, N= 1151

We used the G function to test the distribution pattern of points (Figure 3). Figure 3 shows that the empirical G function is greater than the theoretical G function, which indicates a strong cluster of respondents (Bivand et.al, 2008)

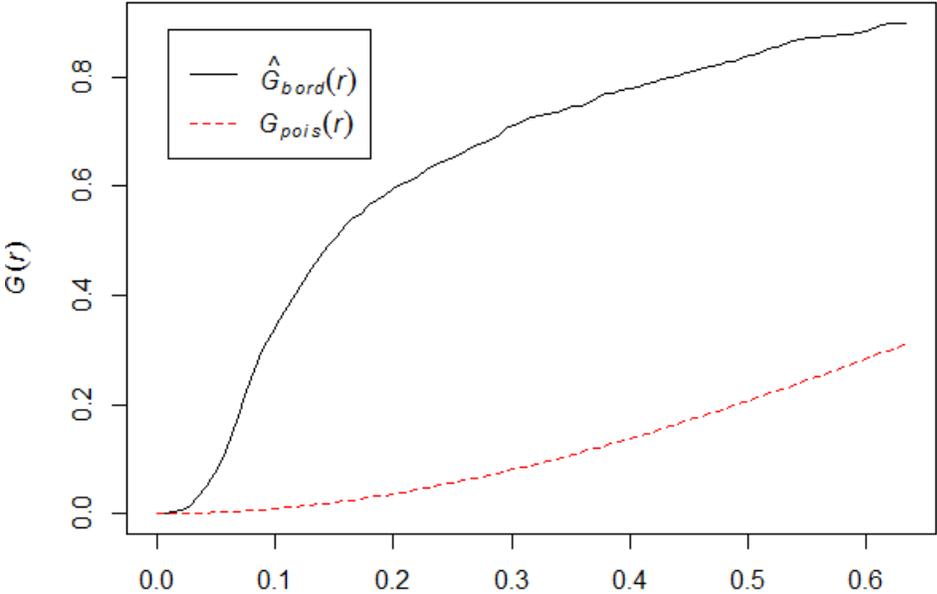


Figure 3 G-function of data point pattern

Are survey data with many holes and observations which cluster together suitable for spatial analysis? In this section, we used multilevel regression, spatial error regression, spatial autoregressive model, and geographically weighted regression to analyze the impacts of spatial effects on regression results. First of all, we tested if spatial effects exist. Then, we used spatial models to estimate variables coefficients, and compared with OLS regression. Finally, we used Geographically weighted regression to analyze the spatial effects on the local level.

3.1 Multilevel regression

ICMA survey data were divided into four regions: South (380), Northeast (149), North central (350), and West (273). Local governments' public policy actions may vary among regions. The variance between municipalities may be only partly explained by their characteristics, so regional location may explain some differences. Multilevel regression is adopted when data can be divided into groups and the relations between dependent variables and independent variables vary by group (Pacheco, 2011). Before running a multilevel regression, we tested the OLS results based on different regions (Table 9, Table 10). We compared model results with OLS regression results.

The OLS regression is slightly different from original regression (Table 6). In the new OLS regression, barriers become negatively related to business incentives used, poverty rate and diploma higher than high school are also related to the level of business incentives. The results of community economic development strategies are relatively constant, except that diploma more than high school becomes significant.

Table 9 shows the relation between independent variables and the level of business incentives used. Compared to the OLS model, number of participants, per capita income, poverty rate, diploma higher than high school, and barriers are not statistically significant when analyzing each region separately. The level of business incentives used in all regions is related to number of funds and the level of community economic development strategies used. Motivations, accountability, and manufacturing employment are differentiated in different regions. South and Northcentral are related to motivation, while Northeast and West do not respond to motivations. New motivation is negatively related to the level of business incentives used, while traditional motivation is positively related to the level of business incentives used

in the South and Northcentral regions. In the Northeast, the level of business incentives used is not related to the level of accountability, while in other regions, local governments are likely to use a higher level of business incentives when there is a higher level of accountability. Percent manufacturing employment is related to the level of business incentives used only in the South region, which means less developed regions are more likely to use a higher level of business incentives.

Table 10 shows the relation between independent variables and the level of community economic development strategies used. Compared to the OLS model, environmental sustainability and social equity goals, barriers, diploma higher than high school, metro core, and population are not related to the level of business incentives used when considering each region separately. New motivation and the level of business incentives are statistically significant in the model of each region. In the Northeast, new motivation and the level of business incentives used are the only two independent variables which are related to the level of community economic development strategies. In the Northeast, when the community has a written economic development plan, it is more likely to use a higher level of community economic development strategies. In the Northcentral region, community development strategies are related to level of accountability and the number of funding sources. Communities with lower manufacturing employment show a higher level of community development. In the West, higher level of community development strategies are related to more participants, higher level of accountability, and a college or junior college in the jurisdiction.

Table 9 Business incentives OLS results- based on different regions

	OLS	South	Northeast	Northcentral	West
Environmental sustainability and social equity goals	-0.08	-0.16	-1.14	0.71	0.01
Economic development plan	0.00	0.15	0.48	0.01	-0.01
New motivation	-0.71**	-0.87*	-0.40	-1.01**	-0.68
Changing leadership	-0.02	-0.10	0.01	0.27	0.08
Traditional motivation	1.28**	1.32**	0.66	1.23**	0.59
Barriers	-0.04*	-0.01	0.03	-0.05	-0.02
Number of participants	-0.12*	-0.11	-0.21	0.01	-0.17
Level of accountability	0.41**	0.37**	0.22	0.29**	0.38**
Number of funds	0.52**	0.30*	0.61**	0.48**	0.51**
Per capita income	-2.19**	-0.54	-2.72	-2.07	-2.09
Poverty rate	0.07*	0.03	-0.04	-0.02	0.04
Percent white population	0.01	-0.03	0.04	0.02	0.06**
Diploma higher than high school	0.08**	0.01	-0.11	0.00	0.01
Have a college or junior college in jurisdiction	0.12	0.83	-0.41	-0.23	-0.63
Percent manufacturing employment	0.14**	0.18**	-0.00	0.01	0.06
Metro core	0.67	1.16	0.23	1.19	0.30
Rural	0.14	-0.53	0.14	0.12	0.31
Population	0.15	0.03	0.78	0.22	0.14
Level of community economic development strategies	0.26**	0.32**	0.26**	0.28**	0.24**
Constant	15.77*	7.57	30.05	23.26	17.45
N	1151	380	149	350	272
Adjust R ²	0.62	0.62	0.73	0.65	0.59

Source: ICMA Economic development survey 2014

Table 10 Community economic development strategies model results- based on different regions

	OLS	South	Northeast	Northcentral	West
Environmental sustainability and social equity goals	1.60*	0.50	1.63	1.92	1.37
Economic development plan	2.31**	1.16	2.84	2.90**	1.33
New motivation	3.79**	4.62**	3.50**	2.68**	3.50**
Changing leadership	0.16	0.64	0.12	-0.38	-1.55
Traditional motivation	0.15	-0.49	1.43	1.38	0.63
Barriers	0.11**	0.08	-0.10	0.11	0.10
Number of participants	0.46**	0.22	0.56	0.22	0.99**
Level of accountability	0.24*	0.36*	0.15	0.20	0.61**
Number of funds	0.30*	0.51*	0.01	0.46	0.42
Per capita income	2.43	2.58	-4.06	-2.28	5.13
Poverty rate	0.04	0.14	0.05	0.18	0.01
Percent white population	0.01	0.06	-0.10	0.06	-0.08
Diploma higher than high school	-0.14*	-0.06	0.42	-0.05	-0.07
Have a college or junior college in jurisdiction	1.65*	1.45	-0.23	1.45	3.38*
Percent manufacturing employment	-0.07	-0.23*	0.25	0.19	0.25
Metro core	2.03*	0.50	4.24	1.70	1.91
Rural	0.83	1.14	0.38	0.50	1.23
Population	1.07**	0.84	1.05	0.95	0.56
Level of business incentives	1.12**	1.09**	1.38**	1.15**	1.28**
Constant	-20.99	-28.75	7.97	8.78	-48.54
N	1151	380	149	350	272
Adjust R ²	0.64	0.66	0.74	0.70	0.65

Source: ICMA Economic development survey 2014

It seems that the relations between independent variables and public policies are different in different regions, so we ran multilevel regressions (Table 11, Table 12). Table 12 shows the estimated deviation in the intercept and residuals, and the difference between multilevel regression and OLS regression. Test results show that there are significant differences between two regression models, and we should use multilevel regression. However, Table 11 shows that the results of two models are the same. Although model results are different for each

region, the multilevel regression results are robust compared to OLS regression results, which implies OLS regression model controlling for regions has similar results with multilevel regression based on regions.

Table 11 Multilevel regression results

	Level of business incentives used		Level of community development strategies	
	OLS	REGION	OLS	REGION
Environmental sustainability and social equity goals	-0.07	-0.07	1.53*	1.53*
Economic development plan	0.08	0.07	2.00**	2.01**
New motivation	-0.73**	-0.73**	3.61**	3.63**
Changing leadership	0.03	0.03	0.07	0.07
Traditional motivation	1.09**	1.10**	0.45	0.44
Barriers	-0.02	-0.03	0.08*	0.08*
Number of participants	-0.11*	-0.11*	0.40**	0.40**
Level of accountability	0.33**	0.33**	0.35**	0.34**
Number of funds	0.45**	0.46**	0.38*	0.38*
Per capita income	-1.92*	-1.94*	1.51	1.58
Poverty rate	0.03	0.03	0.10	0.10
Percent white population	0.01	0.01	0.02	0.02
Diploma higher than high school	0.04	0.04	-0.03	-0.04
Have a college or junior college in jurisdiction	0.16	0.16	1.45*	1.46*
Northeast	-1.97**	-	4.37**	-
North central	0.07	-	-1.32	-
West	-2.89**	-	5.32**	-
Percent manufacturing employment	0.08**	0.09**	0.06	0.05
Metro core	0.66	0.66	1.92*	1.92*
Rural	0.02	0.03	1.11	1.09
Population	0.16	0.16	0.96**	0.96**
Level of community economic development strategies	0.28**	0.27**	-	-
Level of business incentives	-	-	1.18**	1.17**
Constant	18.43*	17.22*	-24.50	-22.49

Table 12 Random effect parameters of multilevel regression

Random-effects Parameters	Estimate	Std. Err.	[95% Conf. Interval]	
region: Identity (DV: Business incentives)				
sd(_cons)	1.233	0.461	0.593	2.566
sd(Residual)	4.376	0.091	4.201	4.559
LR test vs. linear regression:	chibar2(01) =59.25		Prob >= chibar2=0	
region: Identity (DV: community economic development strategies)				
sd(_cons)	2.727	1.016	1.314	5.660
sd(Residual)	9.049	0.189	8.686	9.427
LR test vs. linear regression:	chibar2(01) =62.53		Prob >= chibar2 =0	

3.2 Spatial error regression

Local governments' public policy actions could be affected by the policy choices of neighborhood municipalities, which implies that there could be a spatial dependence. ICMA data contain geographic information of each respondent, so we can convert the data into spatial data. Spatial dependence of the data could be reflected in variables and error terms (Anselin, 1988). In this section, we first analyzed data from a geographic perspective (LISA cluster map). Then, we tested spatial dependence and selected a spatial regression model. Finally, we analyzed the spatial regression results.

We created weights based on distances between two places (Figure 4). There are 18986 links created in the map, and 59 regions do not have links. We used LISA cluster maps to analyze local spatial autocorrelation (Anselin et al, 1993), and results are shown in Table 13.

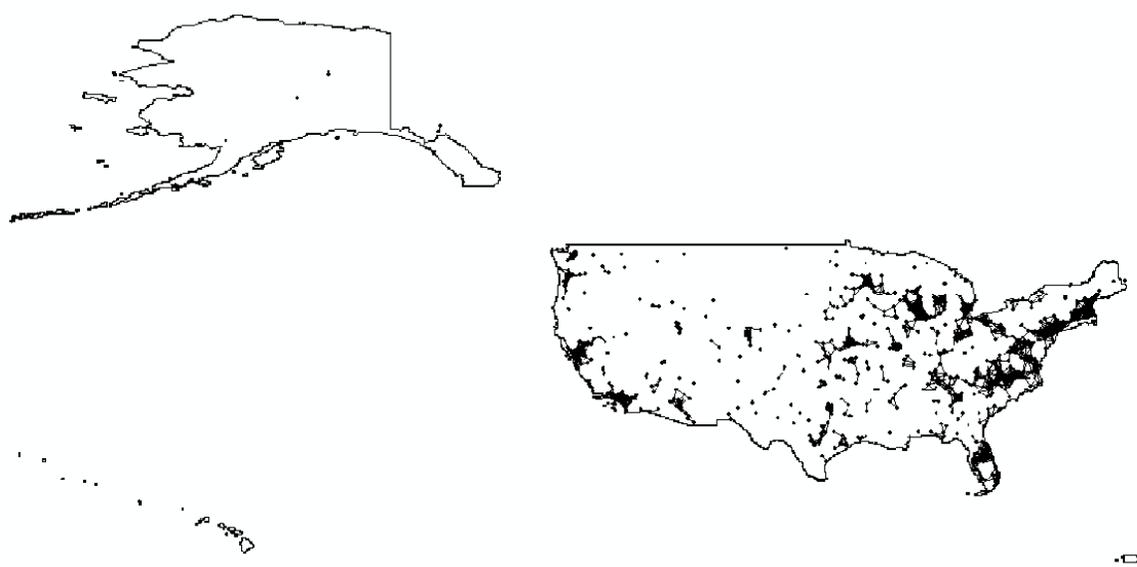


Figure 4 Weight in spatial analysis

Table 13 LISA cluster results for each variable²

	Not significant	High-High	Low-Low	Low-High	High-Low
Environmental sustainability and social equity goals	902	16	30	91	53
Economic development plan	886	28	45	68	65
New motivation	818	66	100	37	71
Changing leadership	935	36	38	36	47
Traditional motivation	884	87	29	57	35
Barriers	791	75	121	31	74
Number of participants	753	60	158	37	84
Level of accountability	830	79	89	39	55
Number of funds	857	45	78	45	67
Per capita income	669	253	78	76	16
Poverty rate	642	81	275	24	70
Percent white population	566	242	200	37	47
Diploma higher than high school	641	243	98	55	55
Have a college or junior college in jurisdiction	833	81	87	39	52
Percent manufacturing employment	611	226	172	67	16
Population	698	156	123	78	37
Level of business incentives	726	63	187	46	70
Level of community economic development strategies	872	36	115	30	39

Note: Not significant denotes the number of places that do not have local spatial autocorrelation. High-High denotes the number of places that have a higher value, and their surrounding places also have a higher value. Low-Low denotes the number of places that have a lower value, and their surrounding places also have a lower value. Low-High denotes the number of places that have a lower value, but their surrounding places have a higher value. High-Low denotes the number of places that have a higher value, but their surrounding places have a lower value. Source. ICMA Economic Development Survey 2014. N=1151

Table 13 shows that most places do not have local spatial correlations for the environmental sustainability and social equity goals, which means local governments pursue sustainable development goals separately. Compared to the level of business incentives used, fewer places have local spatial correlations for the level of community economic development

² Cluster maps of each variables are shown in Appendix C.

strategies used. Therefore, community economic development strategies are less associated with neighbor behavior than business incentives. If business incentives are products of intergovernmental competition (Zheng & Warner, 2010), there should be more places that cluster at High-High. However, the cluster results of each policy show that most places are in the category of Low-Low rather than High-High. It seems that survey data is not suitable for spatial analysis, because there are many holes and a biased distribution pattern. Manufacturing employment and diploma higher than high school have a higher local spatial autocorrelation, and most places are in either High-High or Low-Low categories, which implies industry cluster and knowledge spill-over effects.

We also used Moran's I to test global spatial dependence (Table 14). Moran's I score of both regressions are highly significant, which indicated strong spatial autocorrelation of the residuals for each model (Table 14). The simple LM test for a missing spatially lagged dependent variable (Lagrange Multiplier (lag)), and the simple LM test for error dependence (Lagrange Multiplier (error)) are significant, indicating presence of spatial dependence. The robust test measure for error is significant, but the robust lag test becomes insignificant, which means lagged dependent variable disappears. Thus, we used spatial error models to estimate each model (Table 15).

Table 14 Spatial dependence diagonal test results

	Business incentives		Community economic development strategies	
	VALUE	PROB	VALUE	PROB
Moran's I (error)	5.10	0.00	5.69	0.00
Lagrange Multiplier (lag)	13.91	0.00	4.46	0.03
Robust LM (lag)	2.29	0.13	0.52	0.47
Lagrange Multiplier (error)	23.57	0.00	29.47	0.00
Robust LM (error)	11.94	0.00	25.53	0.00
Lagrange Multiplier (SARMA)	25.86	0.00	29.99	0.00

Table 15 Spatial error regression model results

	Level of business incentives used		Level of community development strategies	
	OLS	SEM	OLS	SEM
Environmental sustainability and social equity goals	-0.07	0.02	1.53*	1.41*
Economic development plan	0.08	0.07	2.00**	2.03**
New motivation	-0.73**	-0.7**	3.61**	3.64**
Changing leadership	0.03	-0.05	0.07	0.12
Traditional motivation	1.09**	1.2**	0.45	0.35
Barriers	-0.02	-0.03	0.08*	0.08*
Number of participants	-0.11*	-0.12*	0.40**	0.44**
Level of accountability	0.33**	0.4**	0.35**	0.26**
Number of funds	0.45**	0.49**	0.38*	0.37**
Per capita income	-1.92*	-0.79	1.51	0.44
Poverty rate	0.03	0.08**	0.10	0.01
Percent white population	0.01	0.2	0.02	0.96**
Diploma higher than high school	0.04	0.03	-0.03	-0.09
Have a college or junior college in Northeast	0.16	0.1	1.45*	1.6*
North central	-1.97**	-	4.37**	-
West	0.07	-	-1.32	-
Percent manufacturing employment	-2.89**	-	5.32**	-
Metro core	0.08**	0.14**	0.06	-0.06
Rural	0.66	0.47	1.92*	2.25**
Population	0.02	-0.02	1.11	0.83
Level of community economic development strategies	0.16	0.2	0.96**	0.96**
Level of business incentives	0.28**	0.26**	-	-
Constant	-	-	1.18**	1.13**
LAMBDA	18.43*	3.97	-24.50	-2.51
	-	0.25**	-	0.24**

Source: ICMA Economic development survey 2014

LAMBDA is a coefficient on the spatially correlated errors. It has a positive effect and it is highly significant. As a result, the general model fit is improved because of higher values of R- square. Most variables do not change between two models. When controlling geographic division, OLS regression results are the similar to the spatial error regression model for business incentives. Compared to OLS regression, per capita income is not related to the level of business

incentives used, while poverty rate is positively related to business incentives. Both OLS and SEM show the same results that poorer places are more likely to use a higher level of business incentives. In the spatial error model of sustainable community strategies, percent white alone is positively related to the level of policy used.

3.3 Spatial autoregressive model

A spatial autoregressive model is used when the residuals are spatial autocorrelated (Anselin, 1988). We used the weights created in the spatial dependence diagnosis, and the spatial autoregressive model is formed with the binary weight matrix (Table 16).

Table 16 shows that p value of the LR test value for each equation is low, which indicates spatial autocorrelation exists. Results of most variables are the same in the two regression models, except per capita income and poverty rate. The spatial autoregressive model shows that the level of business incentives used does not respond to per capital income. However, poverty rate is positively related to the level of community economic development strategies used. These results are different from other model results, which implies that although data are affected by space, spatial regression models do not contribute much to our understanding in this case. ~~some spatial regression models could misinterpret the data.~~

Table 16 Spatial autoregressive model results

	Level of business incentives used		Level of community development strategies	
	OLS	Spatial autoregressive model	OLS	Spatial autoregressive model
Environmental sustainability and social equity goals	-0.07	0.02	1.53*	1.4*
Economic development plan	0.08	0.06	2.00**	1.99**
New motivation	-0.73**	-0.75**	3.61**	3.65**
Changing leadership	0.03	-0.02	0.07	0.09
Traditional motivation	1.09**	1.23**	0.45	0.33
Barriers	-0.02	-0.03	0.08*	0.08*
Number of participants	-0.11*	-0.14**	0.40**	0.46**
Level of accountability	0.33**	0.39**	0.35**	0.28**
Number of funds	0.45**	0.47**	0.38*	0.38**
Per capita income	-1.92*	-0.71	1.51	-0.59
Poverty rate	0.03	0.18	0.10	0.91**
Percent white population	0.01	0.01	0.02	0.02
Diploma higher than high school	0.04	0.04	-0.03	-0.06
Have a college or junior college in Northeast	0.16	0.03	1.45*	1.7**
North central	-1.97**	-	4.37**	-
West	0.07	-	-1.32	-
Percent manufacturing employment	-2.89**	-	5.32**	-
Metro core	0.08**	0.15**	0.06	-0.06
Rural	0.66	0.62	1.92*	1.93*
Population	0.02	0.06	1.11	0.63
Level of community economic development strategies	0.16	0.18	0.96**	0.91**
Level of business incentives	0.28**	0.27**	-	-
Constant	-	-	1.18**	1.14**
Lambda	18.43*	4.28	-24.50	4.05
LR test value	-	302.5	-	307.19
p value	-	36.601	-	50.121
	-	1.45E-09	-	1.45E-12

Source: ICMA 2014 Economic development survey, N=1151

3.4 Geographically weighted regression

In this section, we used a semiparametric geographically weighted regression model (GWR), which mixes local and global terms (Nakaya, 2012). First, we used the geographical variability test to examine global variables, and results are shown in Table 17. If the value of DIFF of criterion falls between -2 and 2, then the variable could be considered as a global variable (Nakaya, 2012). Table 17 shows that data from the ICMA survey - economic development plan, new motivation, changing leadership, have a college or junior college in jurisdiction, and metro core - are global variables, which implies that the survey data have less spatial dependence than statistical data.

Table 17 Geographic variability tests of local coefficients

	F	DIFF of criterion
Environmental sustainability and social equity goals	1.38	2.74
Economic development plan	2.21	-0.41
New motivation	2.03	0.20
Changing leadership	1.54	2.00
Traditional motivation	0.76	4.84
Level of accountability	3.08	-2.42
Number of participants	6.13	-9.96
Number of funds	4.27	-4.79
Per capita income	254.26	-724.98
Poverty rate	4.30	-4.25
Percent white population	18.41	-30.31
Diploma higher than high school	14.93	-32.47
Barriers	8.34	-22.91
Have a college or junior college in jurisdiction	2.32	-0.67
Percent manufacturing employment	10.32	-13.42
Metro core	2.25	-0.39
Suburban	3.21	-2.25
Population	45.29	-160.60

GWR results show the estimated coefficients and t values for each variables, but do not have significance level. We assumed that t value of variables less than -1.96 or larger than 1.96 are statistically significant. The significant tests for each variables are listed in Table 18.

Table 18 Significance level test

	Business incentives	Community economic development strategies
Environmental sustainability and social equity goals	NS	PS
Traditional motivation	S	NS
Level of accountability	S	PS
Number of participants	NS	PS
Number of funds	S	PS
Poverty rate	PS	NS
Barriers	NS	PS
Percent manufacturing employment	S	NS
Level of Business incentives used	-	S
Level of Community economic development strategies used	S	-

Note: NS denotes not significant, S denotes significant, PS denotes partly significant.

As shown in Table 18, compared with OLS regression results, significance levels of variables for business incentives equation almost do not change. While, for the sustainable community strategies analysis, the significance level of each variable changes from significant to partly significant, which implies that the significance level of some variables is affected by the surrounding areas. Figure 5 shows the estimated coefficients of business incentives used in the community economic development equation. Black points mean that one unit increase of business incentives is related to a lower increase of community economic development strategies used. Blue points mean that one unit increase of business incentives is related to a medium increase of community economic development strategies used. Red points mean that one unit increase of business incentives is related to a higher increase of community economic development strategies used. Figure 6 shows the estimated coefficients of community economic development strategies used in the business incentives equation. Black points mean that one unit increase of community economic development strategies is related to a lower increase of business incentives used. Blue points mean that one unit increase of community economic development strategies is related to a medium increase of business incentives used. Red points

mean that one unit increase of community economic development strategies is related to a higher increase of business incentives used. Compared with other areas, Figure 5 shows that a one unit increase of business incentives is related to a higher increase of community economic development strategies used in the West; and Figure 6 shows that in the West region, a one unit increase of community economic development strategies is related to a lower increase of business incentives used. Therefore, although business incentives and community economic development strategies are simultaneously used by local governments, in the West region, the use of business incentives will increase the further use of community economic development strategies and decrease the further use of business incentives.

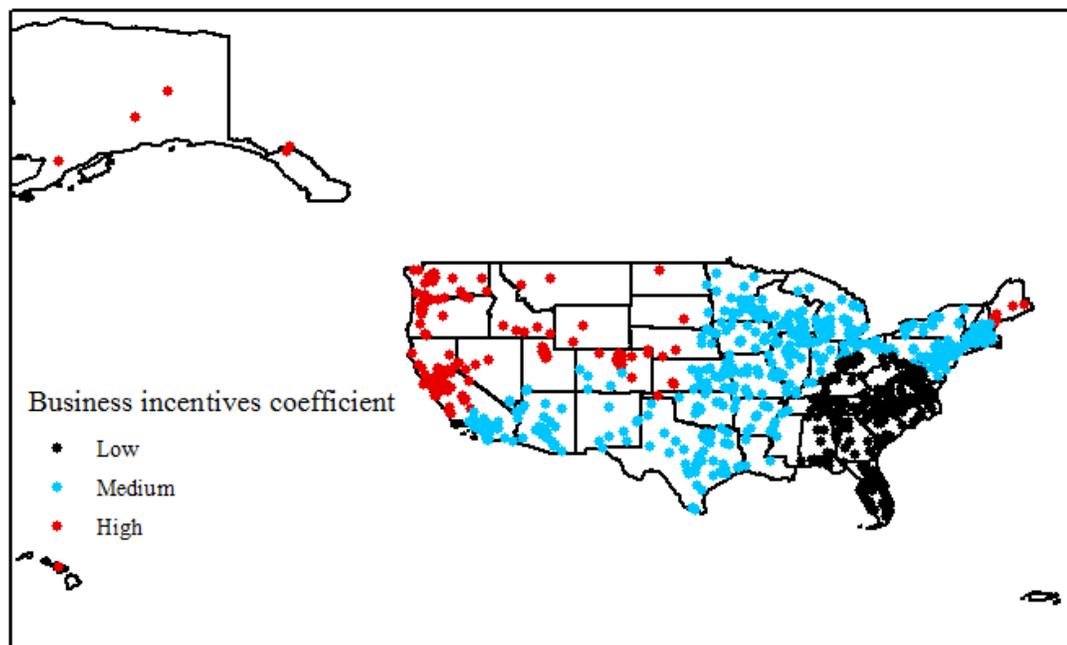


Figure 5 Impacts of the level of business incentives on the level of community development strategies, GWR results,
Source: ICMA 2014 Economic Development Survey

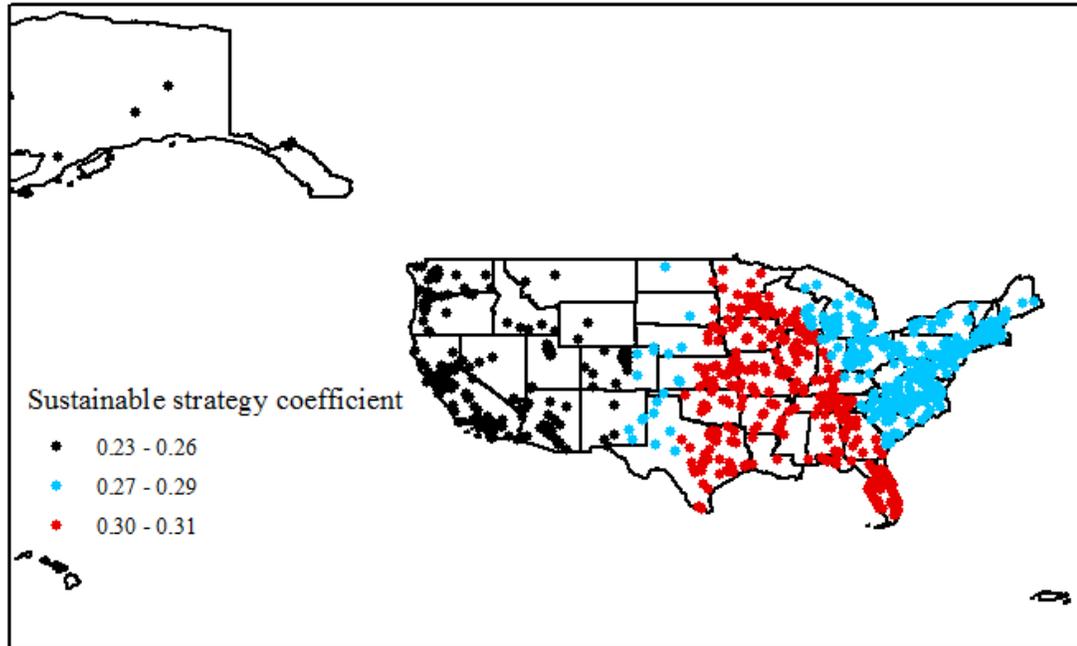


Figure 6 Impacts of the level of community economic development strategies on the level of business incentives, GWR results

Source: ICMA 2014 Economic Development Survey

GWR model results are mapped in Figure 7 and Figure 8. In the business incentives model, Figure 7 shows the estimated coefficients of significant variables. As shown in Figure 7, all variables are significant in the West area. In the West region, poorer municipalities are more likely to use a higher level of business incentives; and a one unit increase in number of funding sources, manufacturing employment, and accountability is related to a higher increase of business incentives used. When local governments are motivated by traditional motivation, they tend to use a higher level of business incentives in the Northeast, and a lower level of business incentives in the West. Funding sources, manufacturing employment, and accountability are related to business incentives at a medium level in the Northeast.

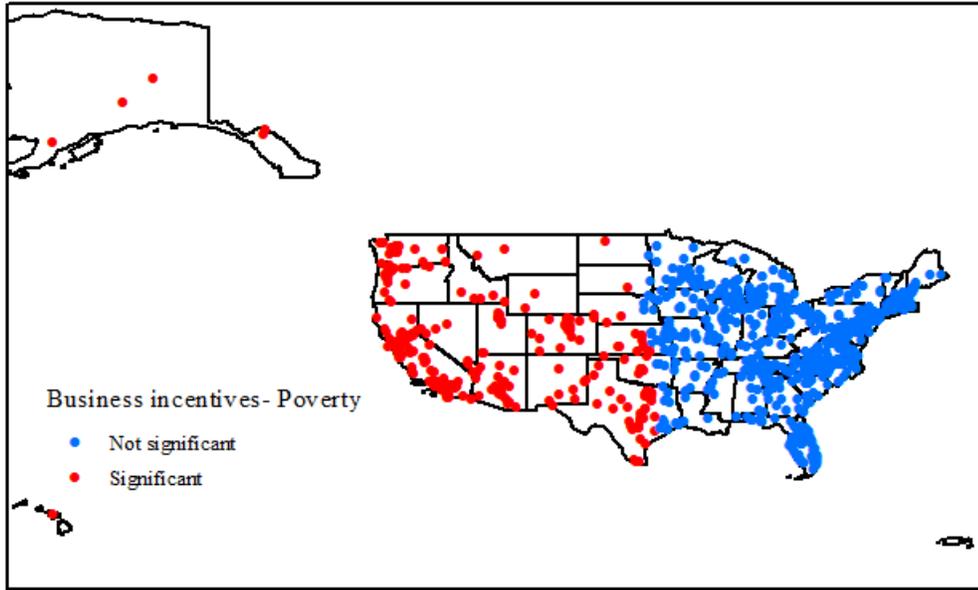


Figure 7a Map of poverty rate impact on business incentive level, GWR results,
 Source: Author Analysis, ICMA 2014 Economic Development Survey

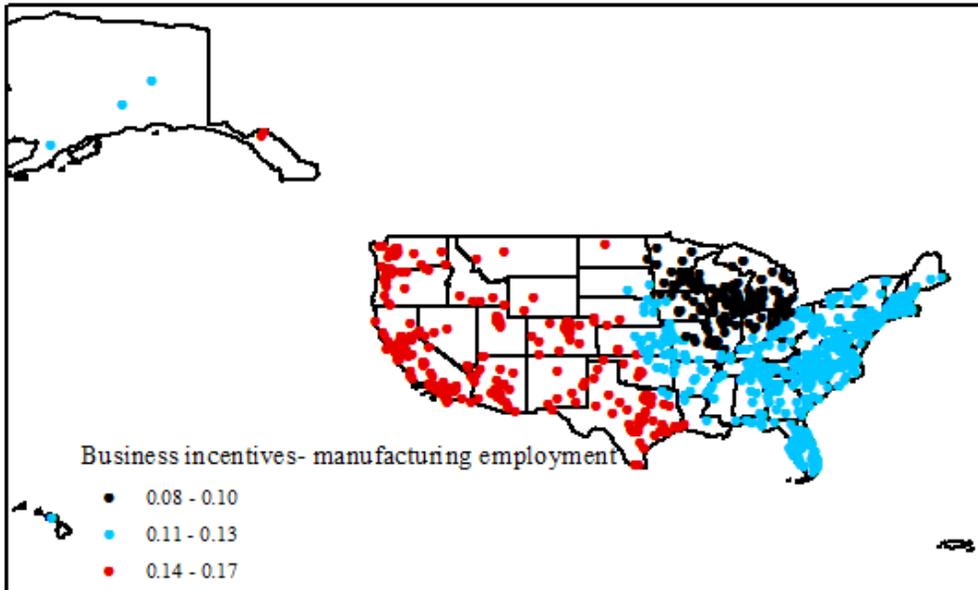


Figure 7b Map of manufacturing employment impacts on Business Incentive Level, GWR results,
 Source: Author Analysis, ICMA 2014 Economic Development Survey

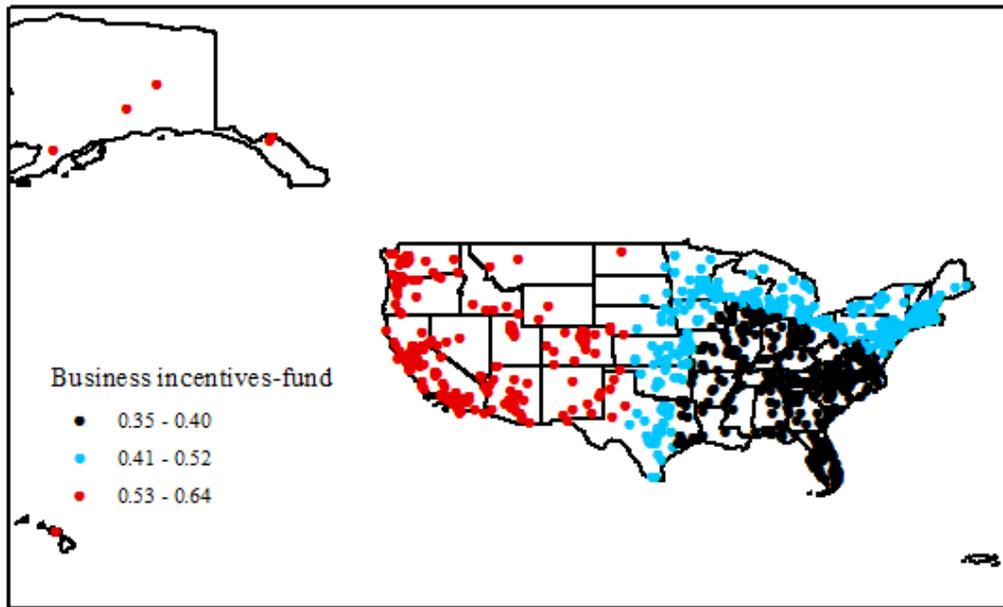


Figure 7c Map of funding sources impact on level of Business Incentives, GWR results
 Source: Author Analysis, ICMA 2014 Economic Development Survey

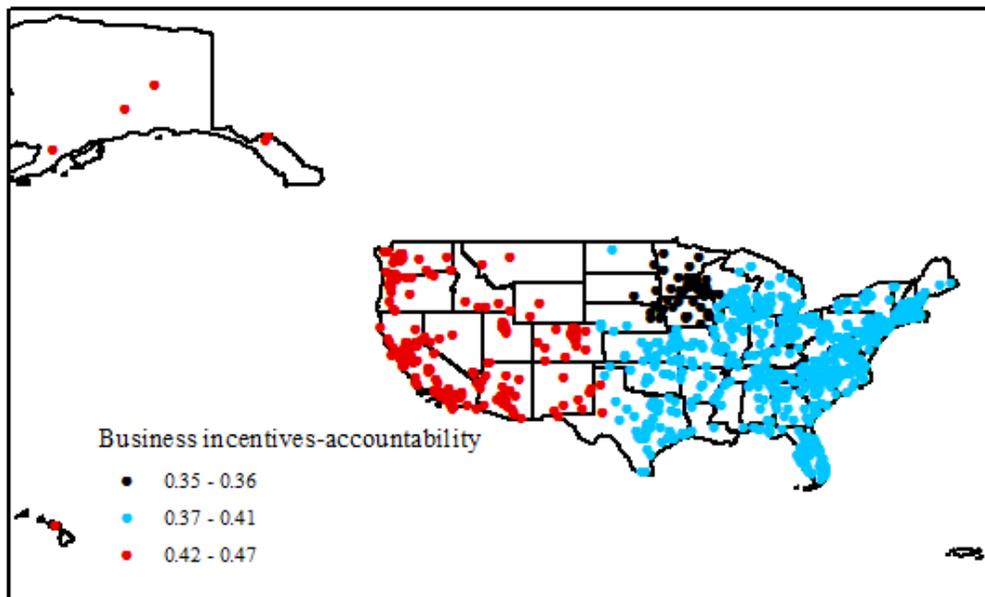


Figure 7d Map of level of accountability on level of Business Incentives, GWR results
 Source: Author Analysis, ICMA 2014 Economic Development Survey

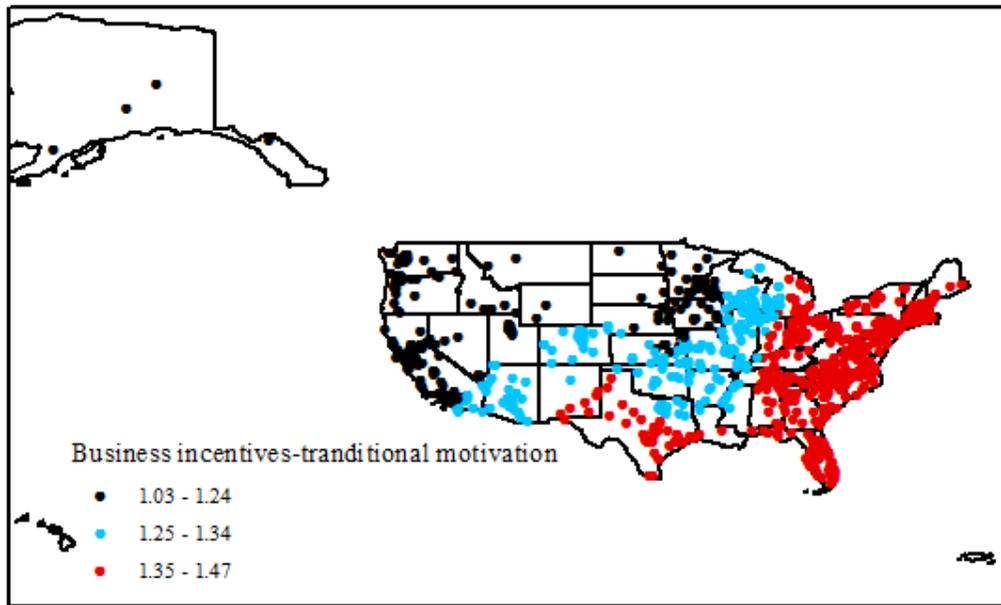


Figure 7e Map of traditional motivation on level of Business Incentives, GWR results
 Source: Author Analysis, ICMA 2014 Economic Development Survey

GWR results for sustainability community development strategies model are shown in Figure 8. Figure 8 shows that environmental sustainability and social equity goals are related to the level of community economic development strategies only in the central portion of the country. The number of participants, level of accountability and level of barriers are related to the level of community economic development strategies in the West. In the Northeast, only number of participants are related to community economic development strategies. Funding sources are related to community strategies in the east North central and east South central areas.

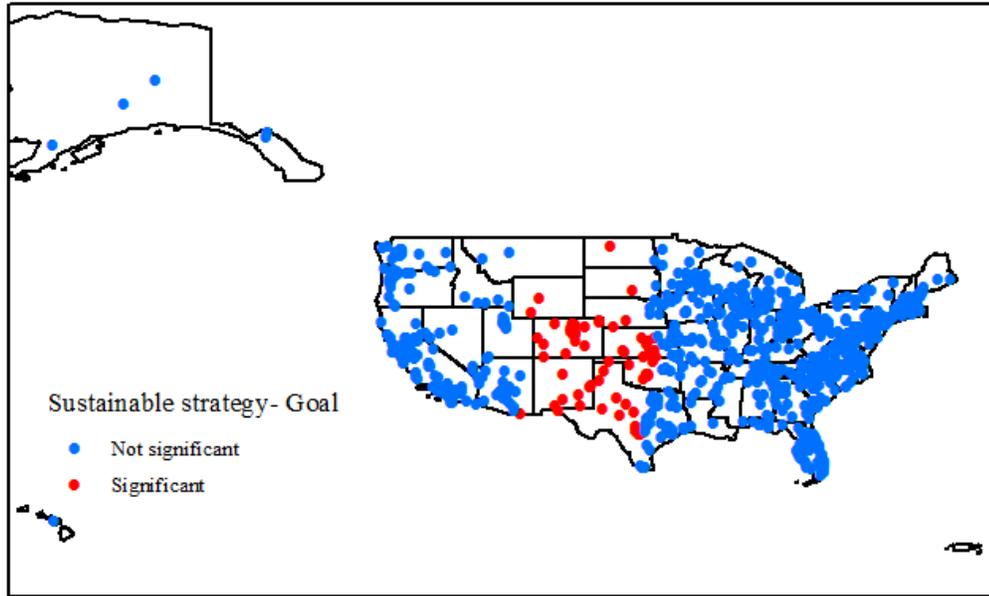


Figure 8a Map of environmental sustainability and social equity goals on community economic development strategy levels, GWR results
 Source: Author Analysis, ICMA 2014 Economic Development Survey

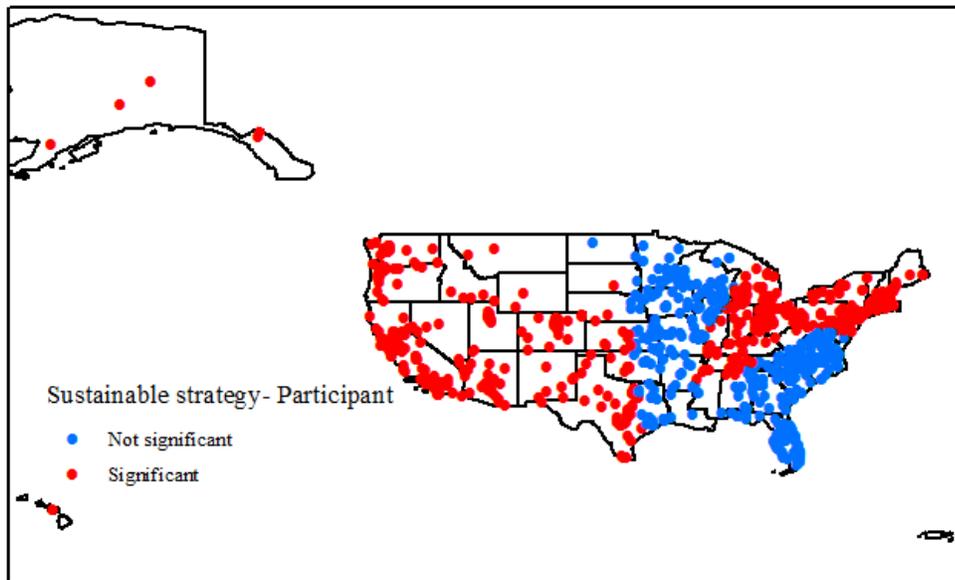


Figure 8b Map of number of participants impact on community economic development strategy levels, GWR results
 Source: Author Analysis, ICMA 2014 Economic Development Survey

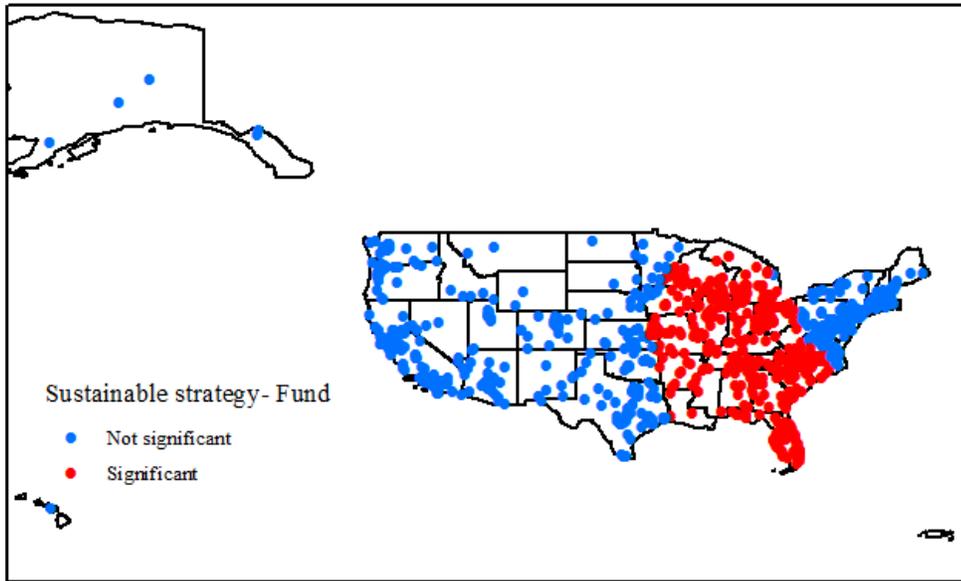


Figure 8c Map of funding sources impact on community economic development strategy levels, GWR results

Source: Author Analysis, ICMA 2014 Economic Development Survey

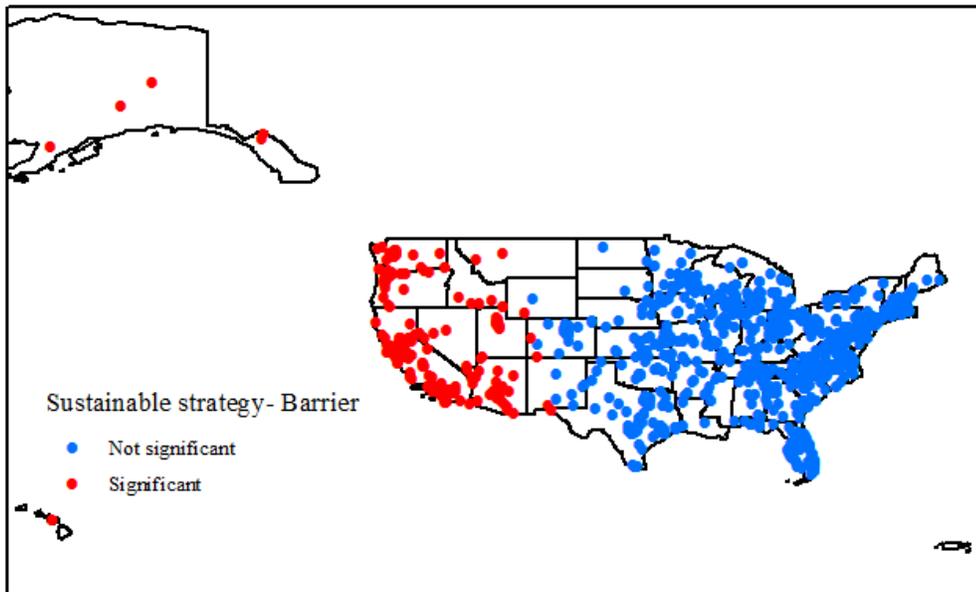


Figure 8d Map of level of barriers impact on community economic development strategy levels, GWR results

Source: Author Analysis, ICMA 2014 Economic Development Survey

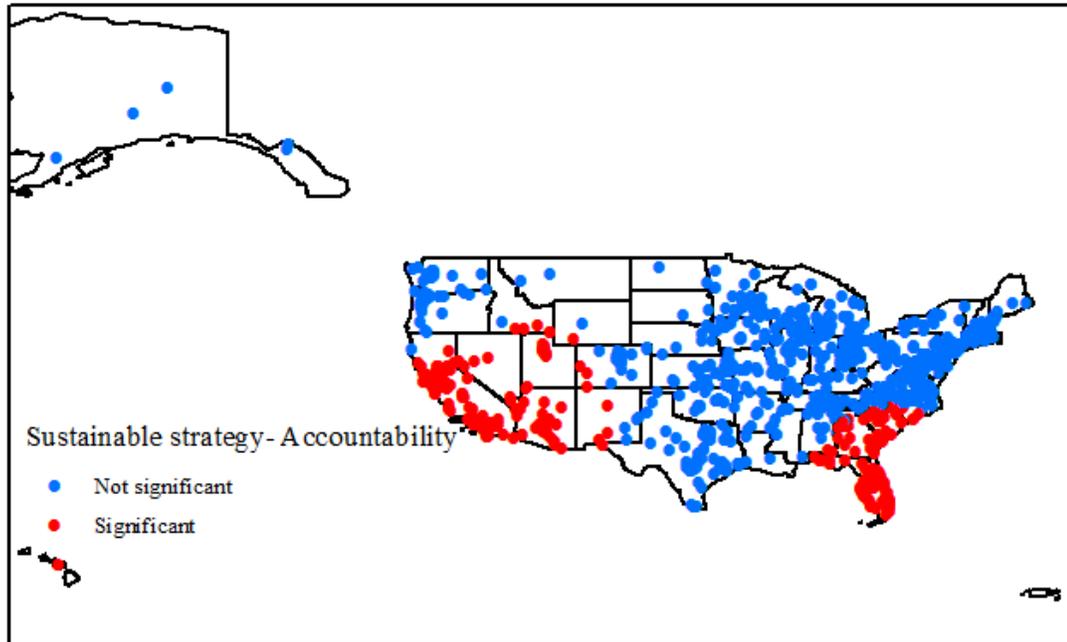


Figure 8e Map of level of accountability impact on community economic development strategy levels, GWR results

Source: Author Analysis, ICMA 2014 Economic Development Survey

Figure 8 Maps of GWR results for sustainability community development strategies model

In the GWR model, most variables in the business incentives regression are significant, while most variables in the community economic development strategies regression are partly significant. There are clear boundaries among different levels and significance levels. OLS regression results give an overall explanation between dependent variables and independent variables, while GWR estimated coefficients for each point are based on the values of neighborhood points (Patriche & Vasiliniuc, 2009).

In the OLS model, we cannot differentiate the level of business incentives used and the level of community economic development strategies used, because local governments tend to use both public policies simultaneously. The GWR model shows that different places use

different levels of strategies, which could provide a method to differentiate these two policies. However, the survey data have many missing values and do not cover all places in the U.S. Also, the places covered are not randomly distributed. Therefore, it seems that GWR is not suitable for survey data with a relatively low response rate. However, GWR could be used for future research to analyze public policies used by each local government, but the data quality needs to be improved.

3.5 Conclusion

ICMA data include the geographic information for each response, so we could use spatial analysis. However, the response rate is low and respondents are unevenly distributed, which cause many holes in the map, and places responding to the survey cluster together. Therefore, is the survey data suitable for spatial analysis? We ran multilevel regression, spatial error regression, spatial autoregressive regression, and geographically weighted regression, and compared results with OLS regression.

Compared to OLS results, most variables' results in the spatial models are robust, significance level of data drawn from the Census - per capita income, poverty rate, percent white alone, and diploma higher than high school - change in the spatial model. Thus, while survey data seem to be not affected by space, statistical data describing economic conditions are related to space.

In the multilevel regression model, we first ran OLS regression for each region (South, Northeast, Northcentral, and West). Compared with the overall OLS regression model, many independent variables are not significant in the OLS regression of each region. Only funding sources are constantly related to the level of business incentives used; and only new motivations

are constantly related to the level of community economic development strategies. When using the multilevel regression and treating the constant as a random parameter, the multilevel regression results are only slightly different from OLS regression results. However, when we control each region in the OLS model, the results are the same as the multilevel regression.

In the spatial error regression, we first created weights according to the distances between two places. Then, we did spatial dependence diagonal tests to examine the spatial effect. Test results confirmed a strong spatial autocorrelation of residuals and we should use spatial error regression rather than spatial lag regression. Results of spatial error regression show that general model fit improved, but the overall results are similar to the OLS regression results. Results of spatial autoregressive models show that although data could be used for spatial analysis, the results may not contribute to our understanding.

In the geographically weighted regression, we used a semiparametric GWR model. In the model, economic development plan, new motivation, changing leadership, have a college or junior college in jurisdiction, and metro core are global variables, and other variables are local. Local governments use both public polices, but it seems that West area tends to increase the use of community economic development strategies and decrease the use of business incentives. GWR model results show that many significant variables explaining community economic development strategies change to partly significant, while most significant variables driving business incentives remain significant. Although data with many holes are not very suitable for GWR, GWR could provide a method to differentiate these two policies in future research.

4. Overall conclusion

This thesis analyzed the role of local economic development policies in the promotion of sustainable development. Sustainable development is composed of three elements: economic development, environmental protection, and social equity. In traditional economic development, local governments focus on increasing tax base and job creation. Business incentives are widely used to attract firms to relocate into the local community. Local governments also use community economic development strategies to assist local firms, and increase the links between local firms and community development. Although local governments are likely to simultaneously use both public policies, a higher level of community economic development strategies is used when local governments have sustainable development goals.

We used ICMA 2014 survey data, American Community Survey, and Census of Government data to analyze the two public policies. ICMA data cover all states of the U.S and include geographic information, but the data have many holes and cluster together on the map. We controlled for geographic division in the OLS regression, and we also ran spatial regression models to test if data are suitable for spatial analysis.

The results of OLS regression show the levels of public policy used can be differentiated by motivation, number of participants, economic development barriers, income, if there is a college or junior college in jurisdiction, manufacturing employment, geographic division, and metro status. The economic development motivations are divided into three categories by factor analysis: new motivation, changing leadership, and traditional motivation. New motivation could drive local governments to use a higher level of community economic development strategies, and a lower level of business incentives. While, traditional motivation are related to a higher level of business incentives used. When there are diverse participants involved the

community development, local governments will use a higher level of community economic development strategies, and a lower level of business incentives. Lower income places are more likely to use a higher level of business incentives, these municipalities also have a higher percent manufacturing employment. Although local governments say they use business incentives to address economic development issues, we found the level of business incentives is not related to economic development barriers. On the other hand, level of community economic development strategies is related to barriers. When there is a college inside the jurisdiction, local governments will use a higher level of community economic development strategies.

Metro core and communities with a larger population use a higher level of community economic development strategies.. Compared to the South, the Northeast and West use a higher level of community economic development strategies as well as a lower level of business incentive. The use of community economic development strategies is not restricted by economic conditions, which implies that this policy could be used in a broader array of communities.

In the spatial analysis, we ran multilevel regressions based on geographic division, spatial error regression, a spatial autoregressive model, and geographically weighted regression. The results of most variables are robust, including economic development and social equity goals, motivations, number of participants, and barriers. While, economic condition, especially per capita income, poverty rate, and percent white population are different between OLS regression and spatial regression, it seems that the data from the ICMA survey are not affected by space, while the statistical data have spatial dependence. Geographical validity tests also support that conclusion.

Although data have many holes and cluster together, all spatial models are statistically significant. The result of the multilevel regression are slightly different from OLS model result,

but the results are the same if the OLS model controls for geographic divisions. Both the spatial error regression model and the spatial autoregressive model show that per capita income, diploma higher than high school, and economic development barriers are not related to the level of business incentives used, which is different from the results of OLS without controlling for geographic division. However, the spatial regression results are the same as the result of OLS when controlling for geographic division. In the community economic development strategies model, the spatial regression model is slightly different from OLS model. Percent white population and poverty rate become statistically significant. The GWR model shows that many variables in the community economic development strategies model change from significant to partly significant, while the significance level of variables in the business incentives model remains constant. The GWR model also shows that the level of public policies used could vary for different areas, which provides a method for future analysis.

In the thesis, we expand the triple bottom line approach from private sector into public sector, and analyze the relation between local governments' public policies and sustainable development. Sustainable development goals are related to level of community economic development strategies but not to the level of business incentives. Community economic development strategies are also driven by new motivation and involve more participants. Planning is related to a higher level of community economic development strategies, and results show these strategies are used in a broad array of communities. Spatial analysis results are similar to the OLS regression controlling for geographic division. The GWR could provide a method to differentiate business incentives and community economic development strategies.

APPENDICIES

Appendix A: OLS model without goals and motivations

Table 6 shows that two public policies could be differentiated by environmental and social equity goals, traditional motivations, and new motivation. Although there is no multicollinearity problem in the regression model, conceptually, goals are related to motivations. Also, if places have sustainable development goals and new motivation, they will obviously use community development strategies. Do sustainable development goals and motivations really play an important role in the regression model to explain local government policy actions? We ran another two OLS regression models without goals and motivations, and compared our new models with the original models (Table 17).

Table 17 shows that results remain consistent across the two models. The R squares decreased slightly in the models without goals and motivations. The only result to change was the poverty rate, which is positively related to the level of community economic development strategies. This could be due to a positive correlation between social equity goals and poverty. Pairwise correlation coefficients test shows that these two variables are positively related to each other. When these goals are removed from the model, poverty becomes significant. This is consistent with the literature showing increased attention to community development strategies in communities facing higher poverty. We retain goals and motivations in our models because we can explain public policies actions better by controlling for these two variables.

Table 19 OLS regression results-with/without goals and motivations

	Level of business incentives		Level of community economic development strategies	
Environmental sustainability and social equity goals	-0.07		1.53*	
Economic development plan	0.08	0.19	2.00**	2.15**
New motivation	-0.73**		3.61**	
Changing leadership	0.03		0.07	
Traditional motivation	1.09**		0.45	
Barriers	-0.02	-0.04*	0.08*	0.20**
Number of participants	-0.11*	-0.12*	0.40**	0.49**
Level of accountability	0.33**	0.34**	0.35**	0.47**
Number of funds	0.45**	0.45**	0.38*	0.51**
Per capita income	-1.92*	-1.82*	1.51	2.30
Poverty rate	0.03	0.02	0.10	0.14*
Percent white population	0.01	0.01	0.02	-0.00
Diploma higher than high school	0.04	0.03	-0.03	-0.05
Have a college or junior college in jurisdiction	0.16	0.24	1.45*	1.45*
Northeast	-1.97**	-2.39**	4.37**	6.09**
North central	0.07	0.04	-1.32	-0.79
West	-2.89**	-2.91**	5.32**	5.37**
Percent manufacturing employment	0.08**	0.08**	0.06	0.08
Metro core	0.66	0.65	1.92*	1.74*
Rural	0.02	-0.19	1.11	1.12
Population	0.16	0.16	0.96**	1.11**
Level of business incentives	0.28**	0.27**		
Level of community economic development strategies			1.18**	1.24**
Constant	18.43*	18.51*	-24.50	-37.59*
N	1151	1151	1151	1151
Adjusted R ²	0.64	0.63	0.65	0.62

Source: ICMA Economic development Survey 2014, American Community Survey 2009-2013, and 2010 Census of Government

*Significant at 5% level. ** Significant at 1% level

Appendix B: Multinomial regression

Local governments simultaneously use business incentives and community economic development strategies. We would like to differentiate driving factors for places using different levels of policies. We ran multinomial regression models. The reference group included places with both lower levels of business incentives used and lower levels of community economic development strategies used (Table 18). Group 1 included places with higher level of community economic development strategies and lower level of business incentives, group 2 are places with both higher level of business incentives and higher levels of community economic development strategies, and group 3 are places with lower level of community economic development strategies and higher level of business incentives. Regression results are shown in Table 19.

Table 20 groups use different levels of public policies

		The level of community economic development strategies used	
		High	Low
The level of business incentives used	High	Group 2	Group 3
	Low	Group 1	Reference group

Compared with places using both lower level of business incentives and lower level of community economic development strategies, communities which have a written economic development plan are more likely to use a higher level of community economic development strategies and a lower level of business incentives. Local governments considering more new motivations are more likely to use a higher level of two policies, and are less likely to use a higher level of business incentives and a lower level of community economic development strategies. If local governments consider more traditional motivations, they are more likely to use a higher level of business incentives and a lower of community economic development

strategies. When more participants join in a local government's economic development strategies, local governments will use higher levels of community economic development strategies and lower levels of business incentives. If local governments have more accountability measurements, more funding sources, suffer a higher poverty rate, and have more manufacturing employment, they are more likely to use a higher level of both public policies. Metro core municipalities are more likely to use a higher level of community economic development strategies and a lower level of business incentives, while rural areas are more likely to use a higher level of both policies.

Table 21 Multinomial regression results

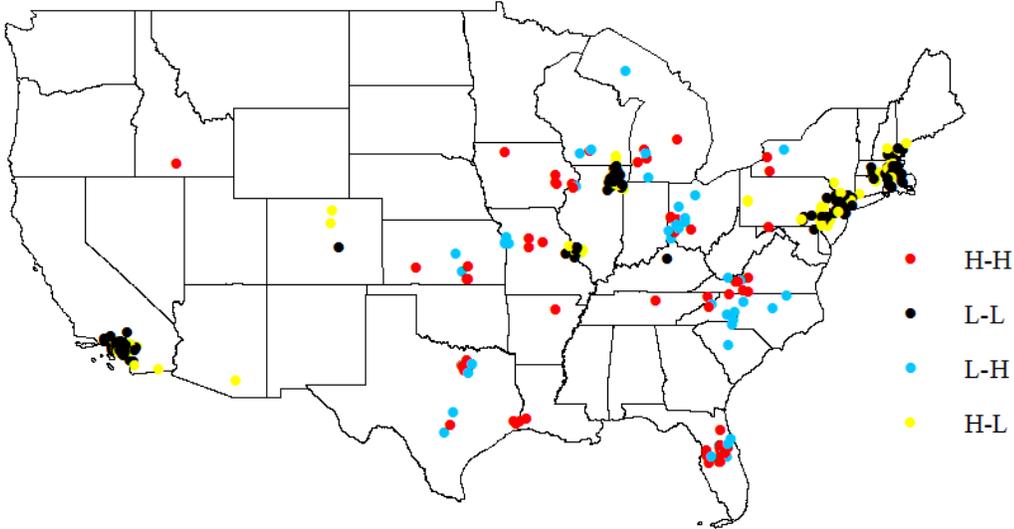
	Group1 Low BI, High CD	Group2 High BI, High CD	Group3 High BI, Low CD
Environmental sustainability and social equity goals	0.33	0.40	0.27
Economic development plan	0.72**	0.51**	0.49*
New motivation	0.58**	0.66**	-0.50**
Changing leadership	0.14	-0.02	0.01
Traditional motivation	0.25	0.52**	0.61**
Barriers	0.01	-0.01	-0.00
Number of participants	0.08*	0.05	-0.00
Level of accountability	0.07*	0.26**	0.19**
Number of funds	0.03	0.30**	0.22**
Per capita income	-0.00	-0.90	-1.12
Poverty rate	0.00	0.06**	0.03
Percent white population	0.00	0.01	0.00
Diploma higher than high school	-0.00	0.02	0.03
Have a college or junior college in jurisdiction	0.09	0.37	-0.12
Percent manufacturing employment	0.00	0.04*	0.03
Metro core	1.06**	1.02**	0.60
Rural	0.42	0.60*	-0.18
Population	0.34**	0.41**	0.03
Constant	-6.11	-2.99	4.12
N	165	353	130

Reference Category: Low Business Incentive (BI), Low Community Development (CD)

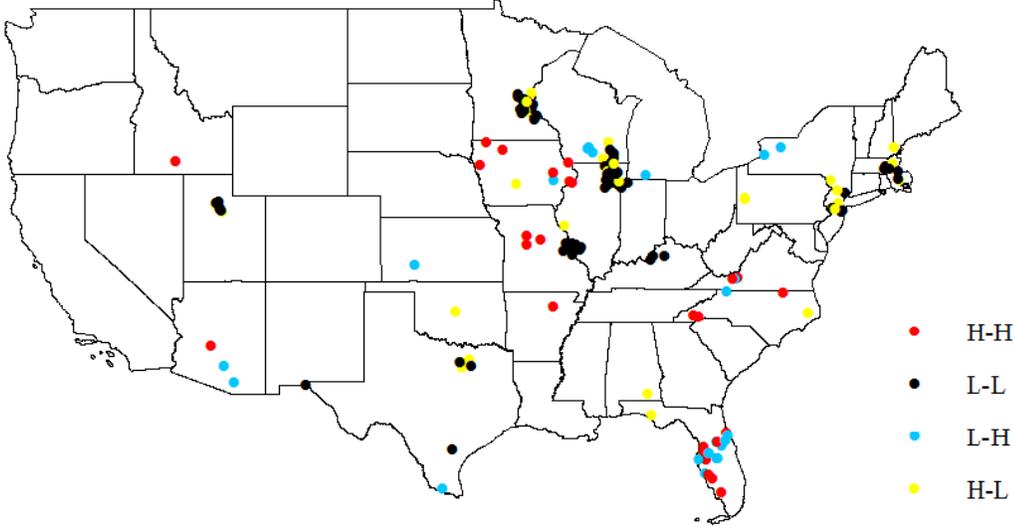
Source: ICMA Economic development survey 2014

Appendix C: LISA cluster maps

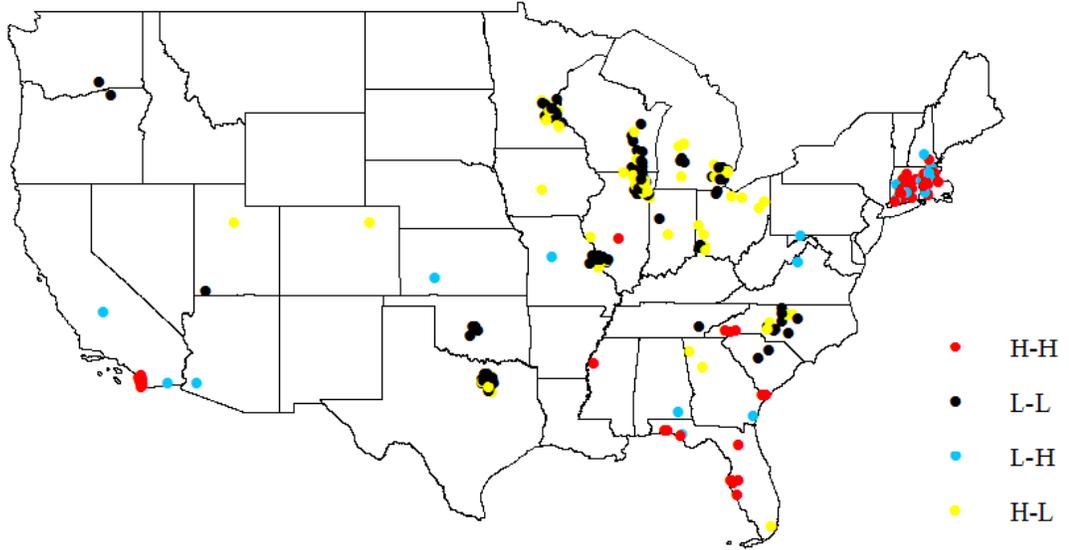
LISA Cluster Map: Business incentives



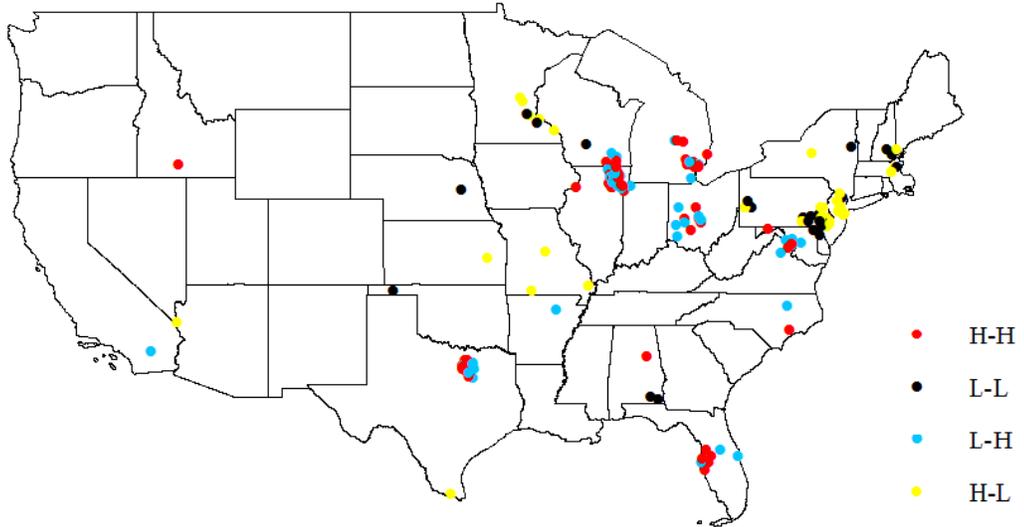
LISA Cluster Map: Community economic development strategies



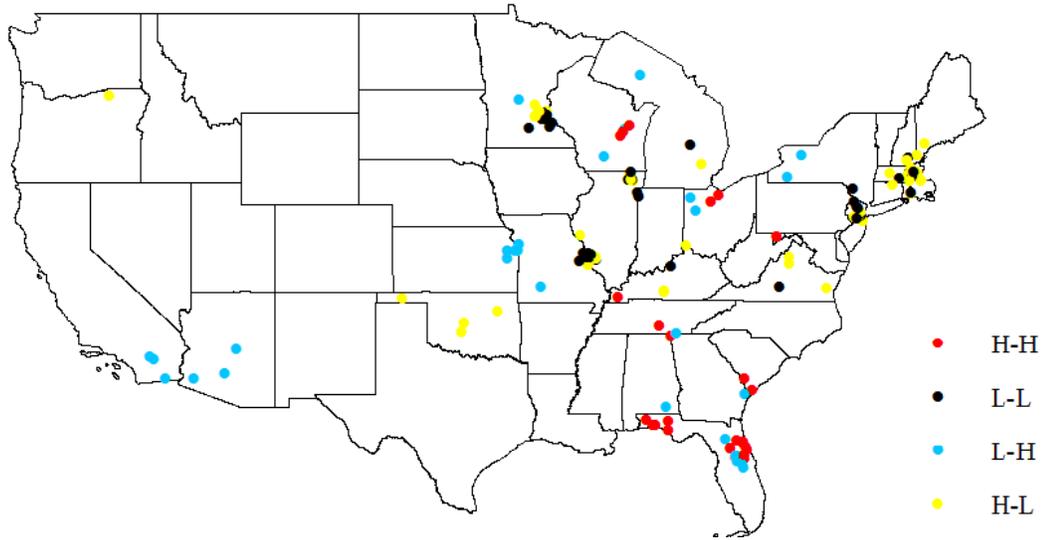
LISA Cluster Map: Economic development barriers



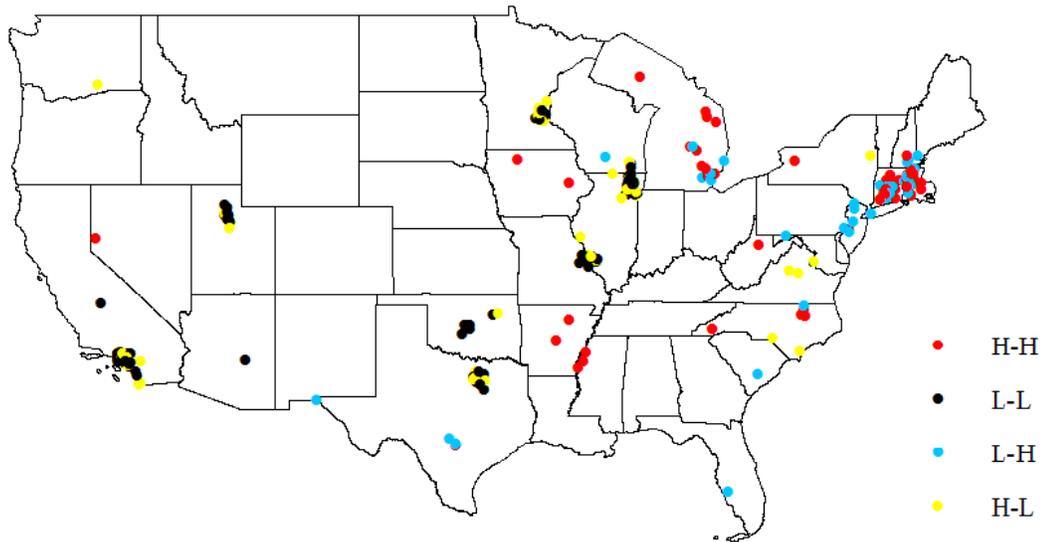
LISA Cluster Map: Traditional motivation



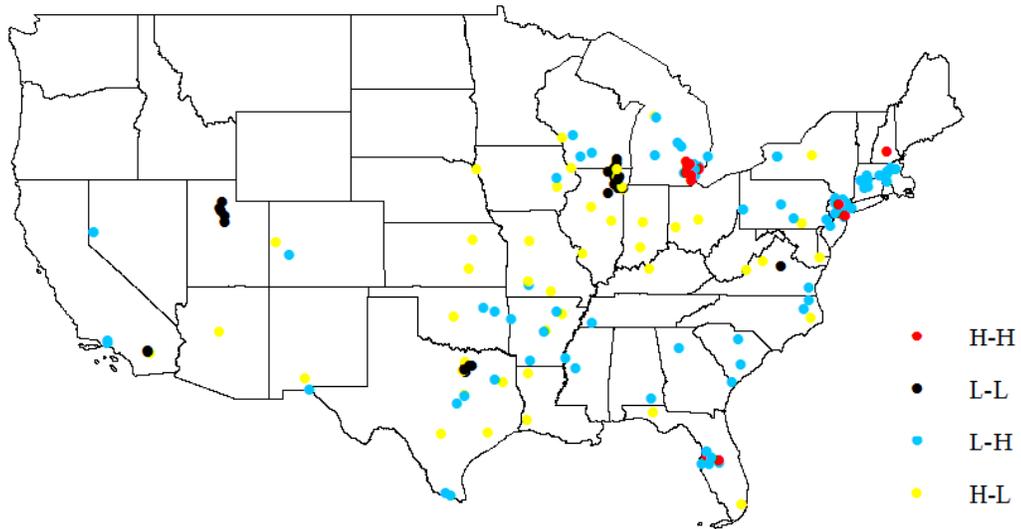
LISA Cluster Map: Changing leadership



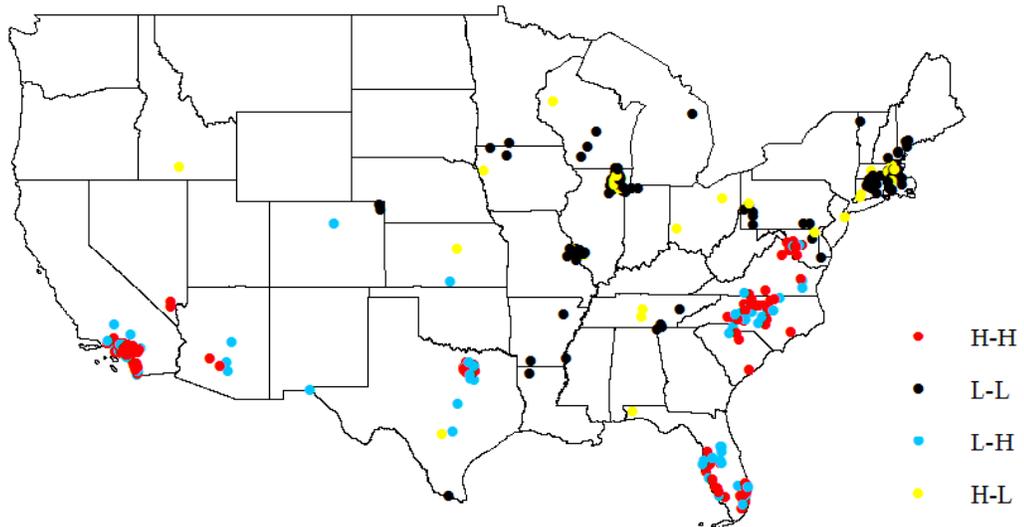
LISA Cluster Map: New motivation



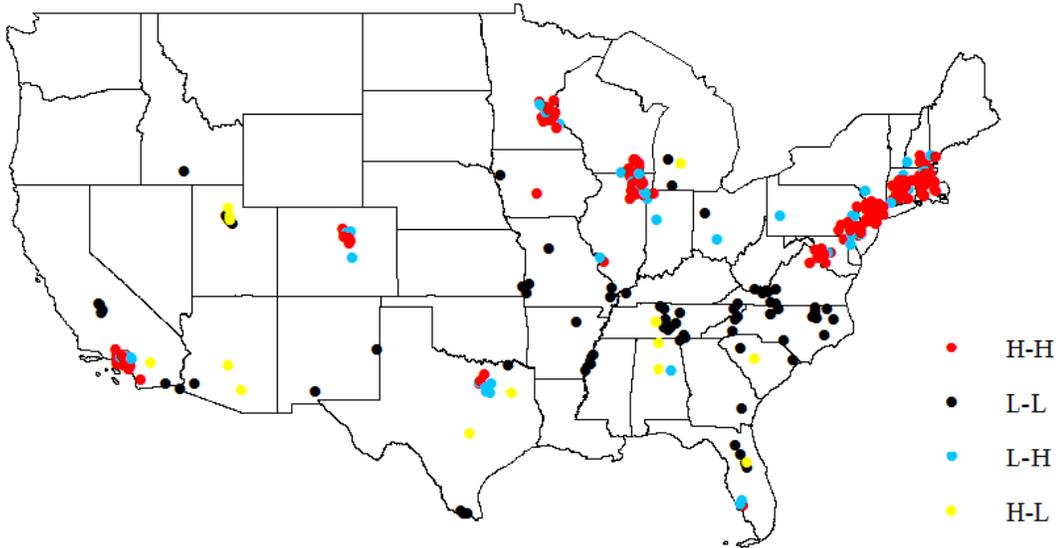
LISA Cluster Map: Environmental and social equity goals



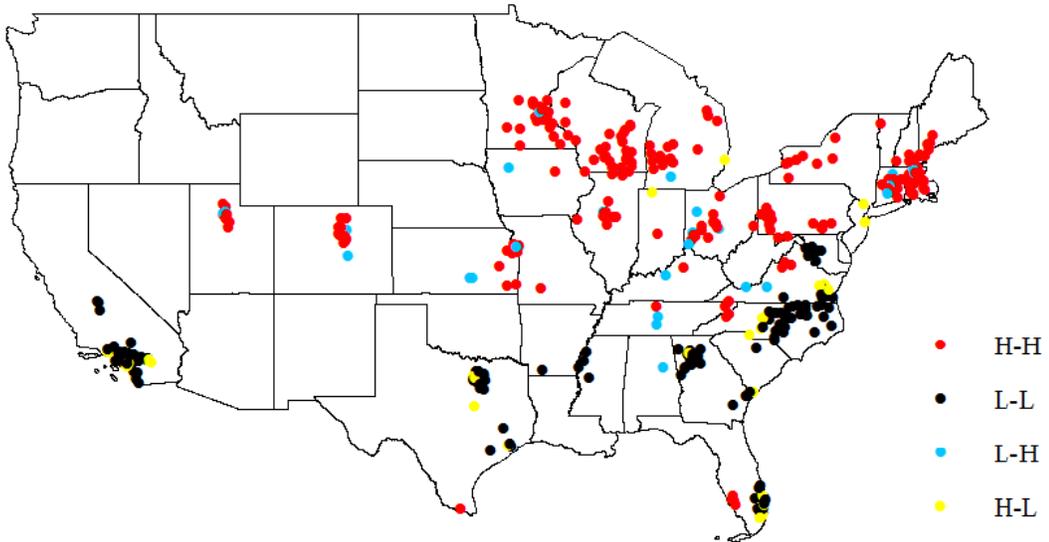
LISA Cluster Map: Population



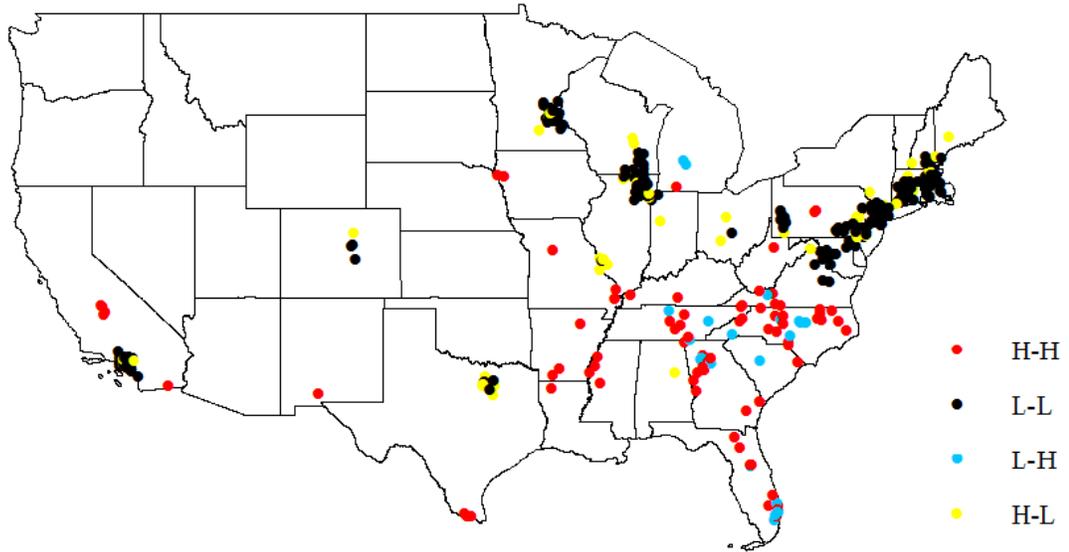
LISA Cluster Map: Percapita income



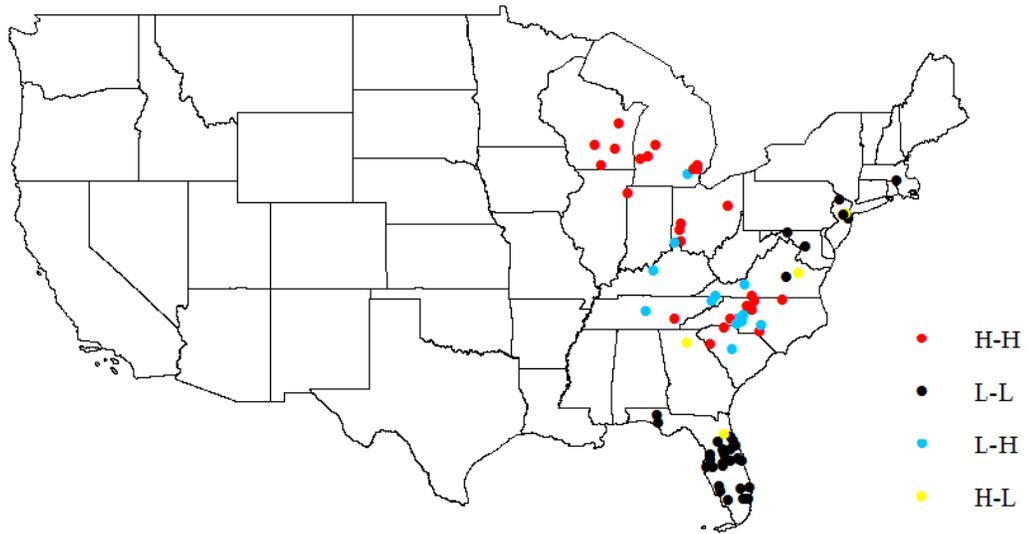
LISA Cluster Map: Percapita white population



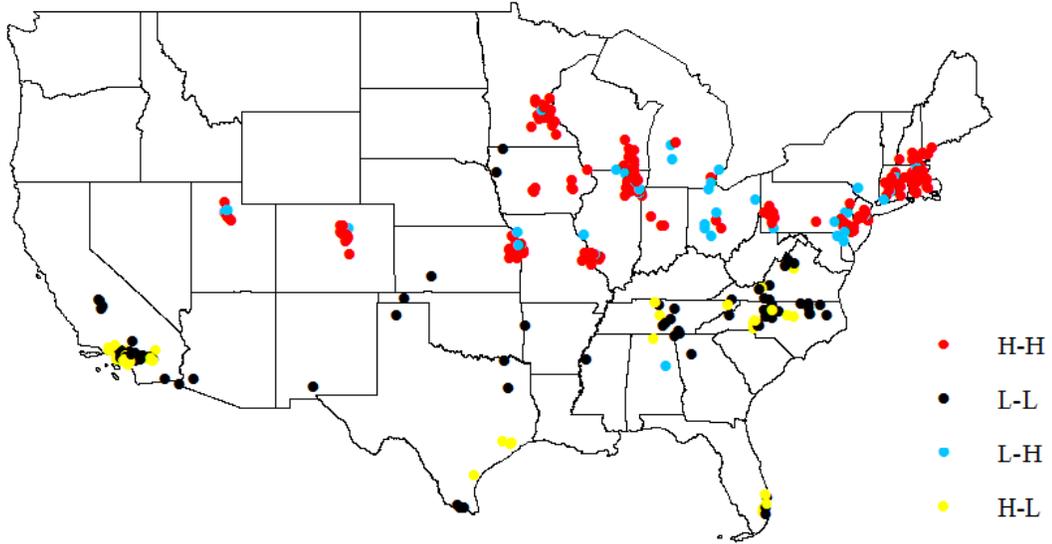
LISA Cluster Map: Poverty rate



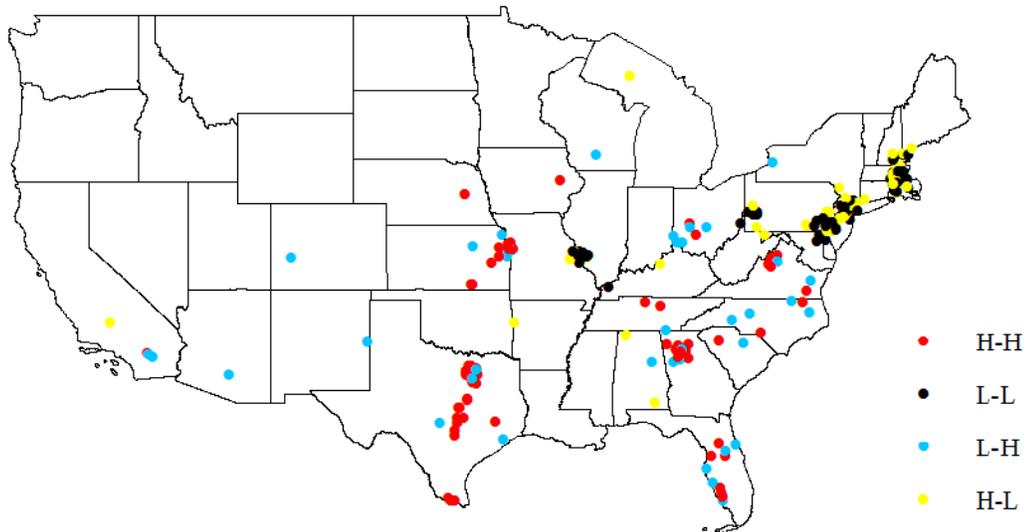
LISA Cluster Map: Percent manufacturing employment



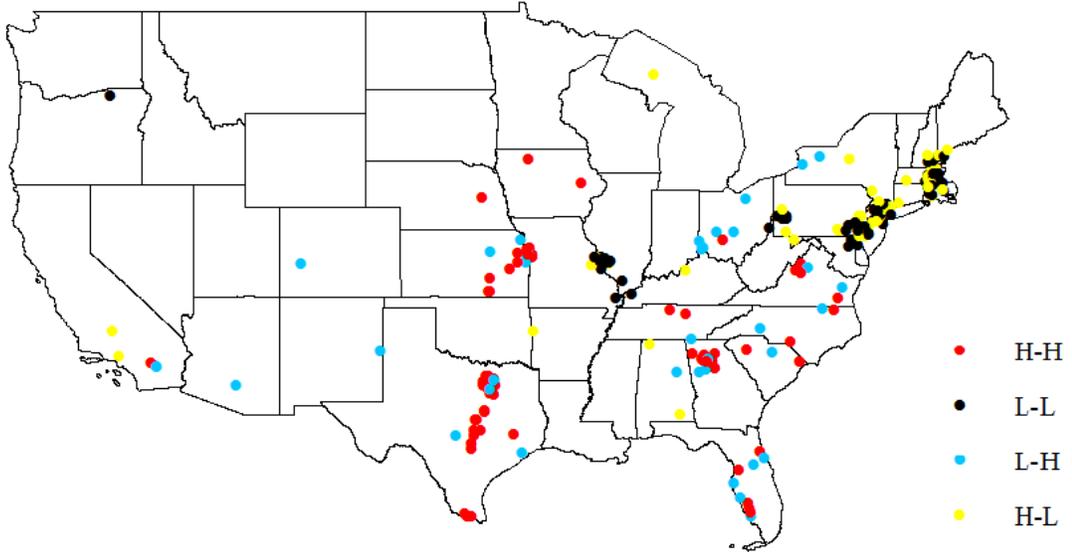
LISA Cluster Map: Diploma higher than high school



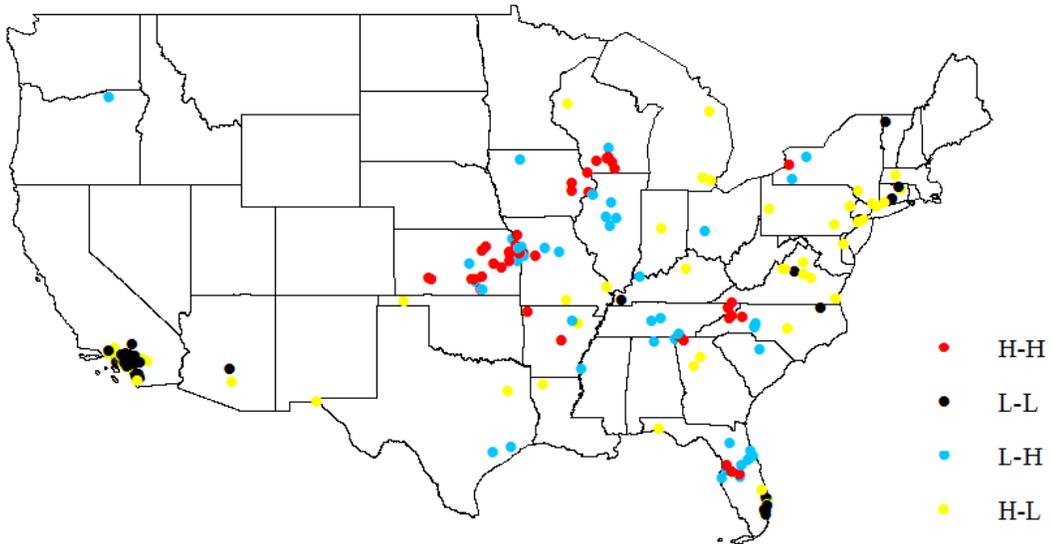
LISA Cluster Map: Have college or junior college in jurisdiction



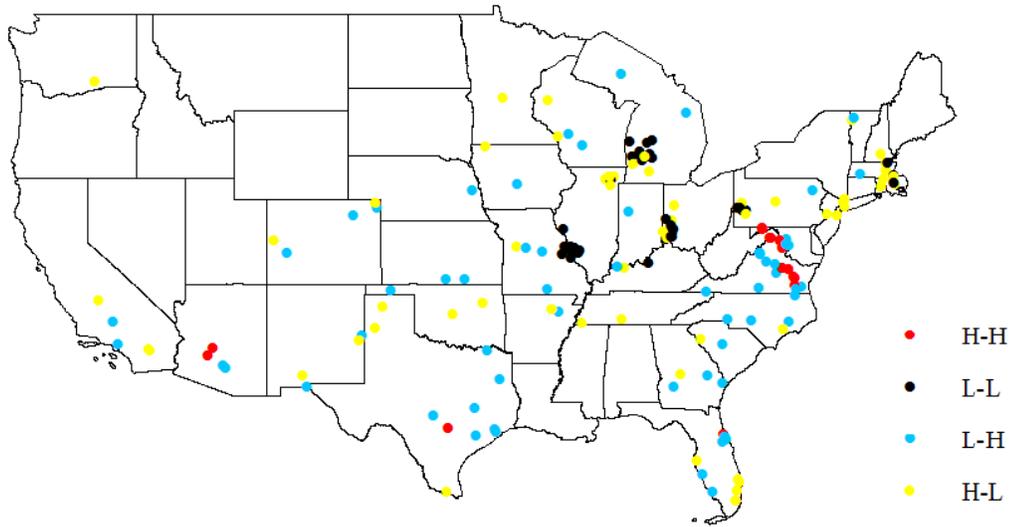
LISA Cluster Map: Level of accountability



LISA Cluster Map: Number of funding sources



LISA Cluster Map: Economic development plan



LISA Cluster Map: Number of participants

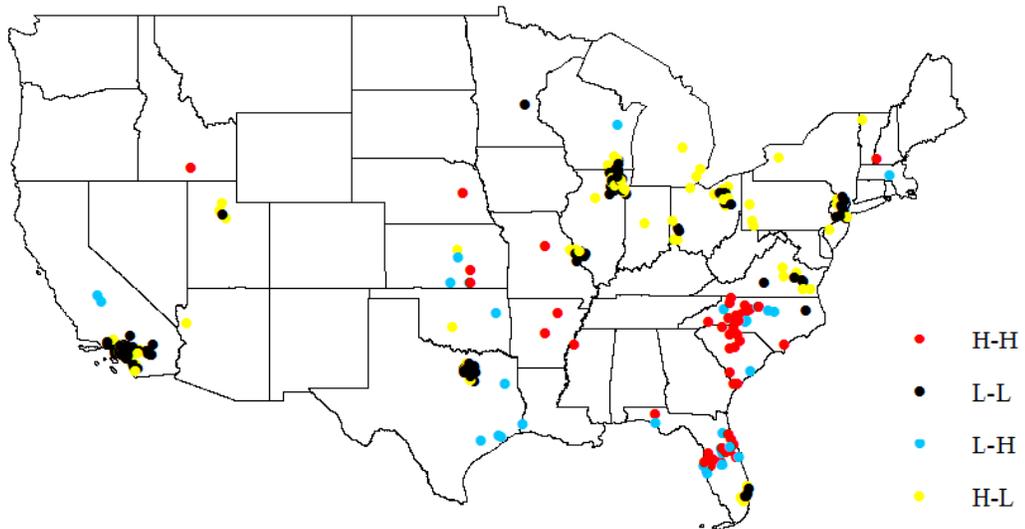


Figure 9 Cluster maps

REFERENCES

- Anselin, L. (1988). Lagrange multiplier test diagnostics for spatial dependence and spatial heterogeneity. *Geographical Analysis*, 20(1), 1-17.
- Ahi, P., & Searcy, C. (2015). Assessing sustainability in the supply chain: A triple bottom line approach. *Applied Mathematical Modelling*, 39(10-11), 2882-2896. doi: 10.1016/j.apm.2014.10.055
- Bartik, T. J. (2005). Solving the problems of economic development incentives. *Growth and Change*, 36(2), 139-166.
- Bartik, T. J., & Erickcek, G. (2014). Simulating the Effects of the Tax Credit Program of the Michigan Economic Growth Authority on Job Creation and Fiscal Benefits. *Economic Development Quarterly*, 28(4), 314-327. doi: 10.1177/0891242414548893
- Bennett, M., & Giloth, R. P. (2008). *Economic development in American cities: The pursuit of an equity agenda*. Albany: State University of New York Press.
- Birch, D. L. (1981). Who creates jobs? *Public Interest*, 65(3), 3-14.
- Birch, E. L., & Wachter, S. M. (Eds.). (2008). *Growing greener cities: Addressing urban environmental issues in the twenty-first century*. Philadelphia: Univ. of Pennsylvania Press.
- Bivand, R. S., Pebesma, E. J., Gomez-Rubio, V., & Pebesma, E. J. (2008). *Applied spatial data analysis with R (Vol. 747248717)*. New York: Springer.
- Blackburn, W. R. (2007). *The sustainability handbook: The complete management guide to achieving social, economic, and environmental responsibility*. Environmental Law Institute.
- Blakely, E. J., & Leigh, N. G. (2010). *Planning local economic development: Theory and practice (4th ed.)*. Thousand Oaks, CA: Sage.
- Bradshaw, T. K., & Blakely, E. J. (1999). What are "third-wave" state economic development efforts? From incentives to industrial policy. *Economic Development Quarterly*, 13(3), 229-244.
- Brodhag, C., & Taliere, S. (2006). Sustainable development strategies: Tools for policy coherence. *Natural Resources Forum*, 30(2), 136-145.
- De Giovanni, P. (2012). Do internal and external environmental management contribute to the triple bottom line? *International Journal of Operations & Production Management*, 32(3), 265-290. doi: 10.1108/01443571211212574
- Edwards, M. M., & Haines, A. (2007). Evaluating smart growth - Implications for small communities. *Journal of Planning Education and Research*, 27(1), 49-64.
- Flint, R. W. (2010). Seeking Resiliency in the Development of Sustainable Communities. *Human Ecology Review*, 17(1), 44-57.
- Grant, D. S. II, Wallace, M., & Pitney, W. D. (1995). Measuring state-level economic development programs, 1970-1992. *Economic Development Quarterly*, 9, 134-145.
- Gimenez, C., Sierra, V., & Rodon, J. (2012). Sustainable operations: Their impact on the triple bottom line. *International Journal of Production Economics*, 140(1), 149-159. doi: 10.1016/j.ijpe.2012.01.035

- Grodach, C. (2011). Barriers to sustainable economic development: The Dallas–Fort Worth experience. *Cities*, 28(4), 300-309. doi: 10.1016/j.cities.2011.02.006
- Hanley, C., & Douglass, M. T. (2014). High Road, Low Road, or Off Road? Economic Development Strategies in the American States. *Economic Development Quarterly*, 28(3), 220-229.
- Harper-Anderson, E. (2012). Exploring What Greening the Economy Means for African American Workers, Entrepreneurs, and Communities. *Economic Development Quarterly*, 26(2), 162-177.
- Homsy, G. C., & Warner, M. E. (2014). Cities and Sustainability: Polycentric Action and Multilevel Governance. *Urban Affairs Review*, 51(1), 46-73.
- Jepson, E. J., Jr., & Haines, A. L. (2014). Zoning for Sustainability. *Journal of the American Planning Association*, 80(3), 239-252.
- Kim, T (2009). Dallas-area cities stick with incentives in bid to create jobs, but downturn hinders efforts. *Dallas Morning News*. <<http://www.dallasnews.com/sharedcontent/dws/bus/stories/020209dnmetecodev.3c352c7.html>> Retrieved 03.02.09.
- Komarek, T. M., & Loveridge, S. (2013). Too Big? Too Small? Just Right? An Empirical Perspective on Local Firm Size Distribution and Economic Growth in U.S. Counties and High-Poverty Rural Regions. *Economic Development Quarterly*, 28(1), 28-41.
- Koven, S., & Lyons, T. (2010). *Economic development: Strategies for state and local practice*. Washington, DC: International City/County Management Association.
- Kucukvar, M., & Tatari, O. (2013). Towards a triple bottom-line sustainability assessment of the U.S. construction industry. *The International Journal of Life Cycle Assessment*, 18(5), 958-972. doi: 10.1007/s11367-013-0545-9
- Levy, P. R. (2001). Making downtowns competitive. *Journal of the American Planning Association*, 4, 16-19.
- Lobao, L., Adua, L., & Hooks, G. (2014). Privatization, Business Attraction, and Social Services across the United States: Local Governments' Use of Market-Oriented, Neoliberal Policies in the Post-2000 Period. *Social Problems*, 61(4), 644-672.
- Matkin, D. S. T. (2010). Designing Accountable and Effective Economic Development Tax Incentives. *Public Performance & Management Review*, 34(2), 166-188. doi: 10.2753/pmr1530-9576340202
- Mitchell, J. (2001). Business improvement districts and the management of innovation. *American Review of Public Administration*, 31(2), 201-210
- Nakaya, T. (2012). GWR4 user manual. WWW document, http://www.st-andrews.ac.uk/geoinformatics/wp-content/uploads/GWR4manual_201311.pdf.
- Nowak, J. (1997). Neighborhood initiative and the regional economy. *Economic Development Quarterly*, 11(1), 3-10.
- McFarland, C., & McConnell, J. K. (2012). Small Business Growth During a Recession: Local Policy Implications. *Economic Development Quarterly*, 27(2), 102-113. doi: 10.1177/0891242412461174

Milne, M. J., & Gray, R. (2012). W(h)ither Ecology? The Triple Bottom Line, the Global Reporting Initiative, and Corporate Sustainability Reporting. *Journal of Business Ethics*, 118(1), 13-29. doi: 10.1007/s10551-012-1543-8

Norman, W., & MacDonald, C. (2004). Getting to the bottom of "Triple Bottom Line". *Business Ethics Quarterly*, 14(2), 243-262.

Osgood, J. L., Opp, S. M., & Bernotsky, R. L. (2012). Yesterday's Gains Versus Today's Realities: Lessons From 10 Years of Economic Development Practice. *Economic Development Quarterly*, 26(4), 334-350.

Osuji, O. 2011. Fluidity of regulation-CSR nexus: The multinational corporate corruption example. *Journal of Business Ethics*, 103(1): 31–57.

Pacheco, J. (2011). Using National Surveys to Measure Dynamic U.S. State Public Opinion: A Guideline for Scholars and an Application. *State Politics & Policy Quarterly*, 11(4), 415-439.

Partridge, M. D., & Olfert, M. R. (2011). The Winners' Choice: Sustainable Economic Strategies for Successful 21st-Century Regions. *Applied Economic Perspectives and Policy*, 33(2), 143-178. doi: 10.1093/aep/pper006.

Patriche, C., & Vasiliniuc, I. (2009). Aspects regarding the usefulness of Geographically Weighted Regression (GWR) for digital mapping of soil parameters. *Lucrari Stiintifice, Universitatea de Stiinte Agricole Si Medicina Veterinara "Ion Ionescu de la Brad" Iasi, Seria Agronomie*, 52(1), 415-420.

Portney, K. E. (2003). *Taking sustainable cities seriously*. Cambridge, MA: The MIT Press.

Reese, L. A. & Ye, M.. (2015). Trends in Local Economic Development Policies. In *The municipal year book 2015* (pp.3-14). Washington, DC: International City County Management Association.

Reese, L. A. (1998). Sharing the benefits of economic development: What cities use type II policies? *Urban Affairs Review*, 33, 686-711.

Reese, L. A. (2014 a). If All You Have Is A Hammer: Finding Economic Development Policies That Matter. *American Review of Public Administration*, 44(6), 627-655.

Reese, L. A. (2014 b). The Alchemy of Local Economic Development. *Economic Development Quarterly*, 28(3), 206-219.

Roberts, B., & Cohen, M. (2002). Enhancing sustainable development by triple value core business adding to the of government. *Economic Development Quarterly*, 16(2), 127-137.

Stokan, E. (2013). Testing Rubin's Model 25 Years Later: A Multilevel Approach to Local Economic Development Incentive Adoption. *Economic Development Quarterly*, 27(4), 301-315.

Stokes, R. J. (2007). Business Improvement Districts and Small Business Advocacy: The Case of San Diego's Citywide BID Program. *Economic Development Quarterly*, 21(3), 278-291. doi: 10.1177/0891242407302325

Talen, E. (2010). Affordability in New Urbanist Development: Principle, Practice, and Strategy. *Journal of Urban Affairs*, 32(4), 489-510. doi: 10.1111/j.1467-9906.2010.00518.x

Taylor, A. C., & Fletcher, T. D. (2006). "Triple-bottom-line" assessment of urban stormwater projects. *Water Science and Technology*, 54(6-7), 459-466.

Tyrrell, T., Paris, C. M., & Biaett, V. (2012). A Quantified Triple Bottom Line for Tourism: Experimental Results. *Journal of Travel Research*, 52(3), 279-293. doi: 10.1177/0047287512465963

Warner, M. E. (2006). Putting child care in the regional economy: Empirical and conceptual challenges and economic development prospects. *Community Development*, 37(2), 7-22.

Warner, M. E., & Prentice, S. (2012). Toward social rights: Linking childcare, economic development and social investment in the U.S. and Canada. *Journal of Urban Affairs*. doi:10.1111/j.1467-9906.2012.00622.x

Warner, M. E., & Zheng, L. (2011). Economic development strategies for recessionary times: 2009 survey results. In *The municipal year book 2011* (pp. 33-42). Washington, DC: International City County Management Association.

Warner, M. E., & Zheng, L. (2013). Business Incentive Adoption in the Recession. *Economic Development Quarterly*, 27(2), 90-101.

Zheng, L., & Warner, M. (2010). Business Incentive Use Among U.S. Local Governments: A Story of Accountability and Policy Learning. *Economic Development Quarterly*, 24(4), 325-336.