US Regional Collaboration and Economic Growth: a Midwestern Case Study and a National Cross-Sectional Analysis

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August 2018

Abstract

Despite renewed focus on the importance of local economic units, the literature on regional collaboration is still divided. This division is largely due to differing theoretical and disciplinary approaches. The present study provides the first empirical analysis of the relationship between regional collaboration and economic growth using a mix of U.S. county and city data. We begin with a case study. We interviewed regional economic development agencies and contacted hundreds of firms to consolidate the independent and control variables in the International City/County Management Association (ICMA) Economic Development Survey of local governments. Our use of local areas within the same country both allows us to employ a large sample size and to eliminate the issues that arise from making transnational comparisons. In addition, we investigated the effects of a wide number of local economic factors and policies on economic growth. We find a positive relationship between regional cooperation and economic growth, using two different measures of economic outcomes. Our results support the theory that local governments working collaboratively create strong positive economic outcomes.

1 Introduction and Prior Research

Even as globalization and international economic relations have grown in importance, maintaining a focus on local economic development strategies remains necessary. According to the Brookings Global Cities Initiative [5], subnational regions are "the engines of the national economy." It is thus critical for local governments to determine best practices in economic development. In this paper we will attempt to elucidate the impact of regional collaboration on the economic development of U.S. regions, and provide other economic growth strategies for local and regional governments.

Regional collaboration as a concept can be viewed differently in many ways. One way to view collaboration is through the level of local coordination and centralization. Some have argued that coordination and centralization may have negative effects. Oates [24] describes fiscal decentralization as "the enhancement of economic efficiency" through two processes. First is Brennan and Buchanan's [6] argument that the government is a monopolist, and therefore creates inefficiency. The argument follows that increased local government competition would reduce the monopoly rents and promote efficiency. The second process is concerned with Hayek's [13] knowledge problem. He posits that due to the spread of knowledge regarding the efficient level of public goods,

the less centralized the government, the more effective their efforts to respond to fluctuations of demand.

Most of the empirical work testing these theories have looked at their application with respect to countries as the unit of analysis. Kim [19], Huther and Shah [16], and Xie et al. [35] all found different results using this methodology. This unit of analysis is problematic for a number of reasons. First, it is difficult to construct a fully developed functional specification for an economic regression using national units. The boundaries of these countries can be arbitrary, the countries themselves can be heterogeneous, and the sample size will be limited. It is therefore important to focus on local and regional governments. The research using smaller political units of analysis is also split. Akai and Sakata [1] found evidence supporting this hypothesis when examining US states. Meanwhile, Zhang and Zou [36] found evidence that contradicts the above theoretical hypothesis in China, showing that fiscal decentralization hurts economies. Clearly, the unit of measurement is important.

Another angle through which regional collaboration can be examined is the extent of horizontal dispersion, or fragmentation. While the literature is more sparse on the local effects of fragmentation, it generally seems that fragmentation also has an unclear effect. Bradbury et al. [5] found that political fragmentation, measured by the number of distinct municipalities within the metropolitan statistical areas used in the study, correlated to significantly less population growth in the city at the center of the metro area. Foster [9] studied a similar relationship between growth and horizontal dispersion, finding mixed results indicating that centralization may both help and hurt local economies. Nelson and Foster [23] also found divided results: finding that the central-city's proportion of the metropolitan population had a negative correlation with per capita personal income, but that size of suburban municipalities also has a positive correlation with per capita personal income. These two results seem to contradict each other. Stansel [29] examined economic growth using growth in log population and growth of log real per capita income from 1960 to 1990. They found a negative correlation between the proportion of population from the central city of the metro area and economic growth and a positive correlation between number of municipalities and number of counties and economic growth. This indicates that fragmentation may have a positive economic effect overall.

However, there are competing theories to consider from systems and organizational literature. Keating [18], in his overview of the subject, posits that economic growth is only one of four pillars that impact optimal regional political organization. Importantly, territorial consolidation actually increases efficiency of local governments. Walker and Andrews [34] found in their meta review of 490 studies (primarily focusing on U.S. regions) that local governments face an economy of scale, implying that fragmentation leads to an inefficient allocation of resources. In Europe, we see similar results. In Denmark, Houlberg [15] found an economy of scale effect with respect to schools, roads, daily care centers, and administrative services. Swianiewicz and Łukomska [32] employed a robust methodology, using moments of territorial reform as a natural experiment. They found that fragmentations of local governments lead to providing less efficient public services.

It is important to note that the idea of regional collaboration goes beyond the concepts of centralization and fragmentation. Collaboration can be expressed in a variety of ways that supersede the structural considerations of local governments. Strong regional collaborative relationships between private companies and other organizations have been shown to have manifold effects. Malecki [21] and Sternberg [31] found that these bonds benefit industrial innovativeness. Collaborative relationships can take the form of industry clusters, industrial districts, and learning regions as well, which Porter [25], Asheim[2], and Morgan [22] respectively showed provided regional benefits. On

an individual firm basis, Gilsing et al. [11] found that a firm's embeddedness in a network of interfirm relations matters for its economic and innovative performance. Information spillovers and technology transfers can be aided by efforts of government and public institutions, like universities, as posited by Lee [20]. Indeed, the growing understanding of these benefits of collaboration led Bougrain and Haudeville [4] to note a growing preference for network promotion policies (over those that provide direct financial assistance) within OECD economies. Fromhold-Eisebith [10] highlights ways that regional restructuring, with a focus on regional collaboration, can combine many of these collaborative benefits. Using a theoretical model and a case study of Aachen, Germany, they present a powerful case for the broad benefits of collaborative development. Steiner et al [30] provide evidence that interegion governmental collaboration also has positive economic effects.

In this way, regional collaboration can be thought of as an avenue through which to capture these organizational benefits without incurring the costs of the knowledge problem or having a large government monopolist.

It is within the ability of local governments and their complementary economic development agencies to promote these beneficial collaborative networks through policy measures. Preliminary research by Rubin [26] suggests these local economic development agencies have a positive effect on regional economic activity. In the present study we provide an empirical test of the impact of regional collaboration and collaboration-promoting policy measures on local economic growth. The use of U.S. local governments as the unit of analysis simultaneously allows for a much larger sample size as well as avoids potential issues with comparing widely disparate units. To arrive at an econometric model, we interviewed the leadership of numerous multi-region economic development agencies and contacted hundreds of firms which had recently started or changed locations. We use the ICMA (International City/County Management Association) Economic Development Survey data set from 2014 for our independent variables of interest. For the dependent variables tracking economic success, we used city and county data from the Federal Bureau of Labor Statistics The present paper proceeds as follows: Section two further discusses the data and methods we employed to arrive at the econometric functional form. Section three provides the results of the case study. In section four, we cover the empirical results. Finally, in section five we offer policy suggestions and other concluding remarks.

2 Data and Methods

Our independent variables of interest were extracted from the 2014 ICMA economic development survey [17]. Founded in 1914, ICMA, the International City/County Management Association, advances professional local government through leadership, management, innovation, and ethics. The ICMA economic development survey examines the economic development practices in local governments, including economic development funding activities, business retention, business attraction, small business development, accountability, and business incentives. The 2014 ICMA economic development survey includes data on over 1200 US city and county governments. This extensive survey also provides data on non-policy factors such as levels of regional collaboration, the type of economic development the region pursues, regional priorities, and challenges facing the region. The primary variable of interest was the local government's response to the question: "How strong is the cooperation for economic development and tax base among local governments in your region?" There were two possible responses: "Cooperation is strong" and "Cooperation is weak." We interpreted this as a binary variable. This survey question directly asks about regional collaboration

among local governments. Other responses in this survey allowed us to control for the effects of certain regional governmental business policies. This survey provides the majority of our independent variables.

In previous research analyzing economic growth across nations, the standard dependent variable has been per capita GDP. However, when comparing local governments within a country, this may not be the best measure to employ. This is due to the high mobility of labor which is more present within a single nation (Glaeser et al. [12]). Both productivity as well as attractiveness of the region play a role in the local area income. If we assume the competitiveness of domestic labor markets, employers in regions with lower quality of life will have to compensate workers with a higher salary. This confounding factor complicates the use of per capita income as the dependent variable. Instead, we use two relatively straightforward measures of the extent to which regions are becoming more attractive to businesses and workers: percent growth in establishment count and percent growth in employment. We believe these are good analogues for economic growth.

Our two dependent variables come from the U.S. Federal Bureau of Labor Statistics county and city data [33]. As we mentioned above, we used percent changes in establishment count and employment in these areas from the first quarter of 2014 to the third quarter of 2017 to track economic growth in these regions.

It is important to note that we first cleaned the ICMA dataset. This dataset contained many local governments that were both not county-level and too small to be considered metropolitan statistical regions (MSAs). We then matched each entry in the ICMA dataset to the corresponding entry in the Federal Bureau of Labor Statistics dataset. Additionally, when cleaning the ICMA data, we modified pure categorical variables into binary variables, and we modified categorical variables that can be evaluated by numeric methods into quantitative variables. This was done in order to reduce the complexity of the model.

The cleaned data has a total of 425 counties and metropolitan areas and 130 independent variables. Clearly, using all 130 variables to form our econometric model would result in overspecification. Additionally, attempting to use quantitative methods to narrow down the independent variables to a more manageable list would be both theoretically fraught as well as computationally taxing. Therefore, we employed a case-study approach to formulate a theoretical model. We interviewed leaders and members of regional economic development agencies from metropolitan areas near Saint Louis (from where we are conducting this research). Additionally, we contacted over 200 regional business leaders to get a better understanding of the factors that had lead them to modify their workforce, start a new business or branch, or relocate. This in combination with another literature review regarding effective local economic development policy, allowed us to narrow down the control variables for our empirical model.

3 Case Study

We will begin the overview of our case study by reviewing the interview responses of the regional economic development organizations. A full list of the respondents' organizations whose responses we used can be viewed in the acknowledgements.

To allow for some consistency between interviews, we had a basic script we followed and a list of common questions for each organization. We asked every organization about their overarching theory of economic development, the strategies they put in place to enact this theory, where they felt they had been successful, and where they felt they would like to improve. However, to allow for a greater freedom of response, we kept the interview as open-ended as possible. We felt this

was important to allow for more organic interaction and to arrive at the economic philosophies of these organizations, beyond the bullet-point statements found on the websites. In some cases this was not possible and the organization requested to respond to our questions by email, but this was not our preferred method. Therefore, interview responses varied widely. However, there were a few common features of almost all responses.

First, every organization we contacted strongly emphasized the importance of regional collaboration in their vision for economic development. This collaboration was multifaceted in scope. Collaboration included the local governments working together in the region. However, the abundance of competing political regions concerned many of the respondents. Many posited that competing along political lines within metropolitan areas only hurt the area, and in this way regional collaboration was a public good to the region. Collaboration also included the involvement of local business leaders, colleges, and public-private partnerships in the economic development of the region. A key point in this type of collaboration was that creating buy-in from different members of the community would strengthen the benefits of regional collaboration further. Along these lines, the idea of trust consistently arose during our discussions. Specifically, generating trust across regional political lines, among individuals important to economic development would allow for more open communication and transfer of information. Trust fostered greater levels of collaboration which then in turn fostered a greater level of trust in these communities.

Another common feature of our interview responses was a focus on improving quality of life in the respondents' areas. Quality of life is a very broad term, and it can take on numerous meanings. Quality of life benefits can be found in the literature in Helms [14] work on how spending on public services (such as education, highways, and public health and safety) more than counterbalance the disincentive effects of the associated taxes. Or in the findings of Deller et al. [7] that amenities benefit economic growth. Quality of life, broadly, has a positive impact on human capital and furthermore, productivity, as shown by Shapiro [28], Fan et al. [8], and Bloom et al. [3] In these ways, the economic policies put forward by these agencies have a basis in research. Broadly, speaking, these quality of life endeavors may be public goods that have economic benefits that are not captured. The strategies put forward by these agencies to enact quality of life improvements were most often public works, infrastructure development, and education improvements.

Another common trait of these interviews included a focus on quick adaptation in response to regional economic issues. The importance of rapid change can be explained from a systems approach or using Hayek's approach. Finally, we frequently discussed the importance of identifying the comparative advantages of the region. After understanding these important traits, it is possible to build clusters of industry where knowledge can be shared more efficiently. This point also is reflected in the literature and reiterates the effectiveness of industry collaboration.

Our interviews with firms were widely different from those with the economic development organizations. These interviews, while very similar in the content of the questions we asked, often proceeded in a very different manner. The open-ended nature of our conversations often meant that we largely discussed what these business leaders thought government could do better for the region. This was often enlightening as it revealed both areas where businesses felt they could benefit and improve from policy and the areas where the interests of business and government were not aligned. However, due to the sheer number and variety of firms contacted, it was challenging to distill the interview responses. The specific challenges facing these firms varied widely, so the responses of those leading these firms were often inconsistent. Many companies argued that individual firm incentives were important, but the content of these specific incentives The most common area where businesses wanted improvement was in workforce development. Specifically, these companies noted

that a lack of skilled labor to fit the specific needs of the company was hurting them, and they felt that local governments could be doing more.

Perhaps most important to our research, when prompted, business leaders generally agreed that regional collaboration was of tremendous importance to promote local economic development. Some commented that factionalism among local governments hurts a metropolitan area's ability to draw in business with a united front. Additionally, some argued that regional collaboration allowed for better usage of resources, both with respect to human capital as well as business incentives.

4 Empirical Results

After reviewing the results of our case study to narrow down the control variables, we utilized quantitative methods to select our empirical model from the remaining subsets. Although it would certainly improve the r-squared value of both of our regressions, we did not include the change in population as a control variable, as we felt this would create yet another potential endogeneity issue. Our first regression, using percent change in establishment count as the dependent variable, is shown in Figure 1. In this section we will briefly discuss the significant variables of this model as well as their effects.

To begin we will discuss the primary variable of interest, regional collaboration. As discussed previously, participating regions were asked if there is "cooperation for economic development and tax base among local governments in the region." The binary response to this question is one way of measuring regional collaboration. This variable was found to be significant at an alpha of .05. On average those regions with strong cooperation locally were found to have 1.47

Now we will shift to goals and motivations for policies. Having quality of life as a priority goal for the region was found to be significant at 0.1 level. As expected, this coefficient is positive. The cities which had quality of life as a priority goal experienced 1.6385

Similarly, regions were asked what factors motivated their economic development priorities, on a scale from 1 to 4. The only consideration we found to be significant was "change in local economy," which is significant at 0.1 level with a negative coefficient. For each increase in the motivation level, the cities experienced 0.87

The ICMA survey has a section highlighting several barriers to economic development. Respondents were asked to "indicate if your local government faces the following barriers to economic development and their importance" on a scale from 1 to 4.

High labor costs as a barrier is significant at a 0.05 level. For each increase in the level of importance of this barrier, the cities experienced 1.25

Additionally, having a limited number of major employers proved to be a significant economic barrier at a 0.1 level. For each increase in the level of importance, the cities experience 0.70

Declining market due to population loss was another significant barrier to economic development at a 0.01 level. For each increase in the importance level, the cities experience 1.2255

Contrary to our expectations, a few of the perceived barriers to economic development had significant but positive effects on the percent change in the number of establishments. Although these factors were framed as barriers, concerns about their presence actually stimulated economic growth. The importance of environmental regulations was significant at 0.01 level. For each increase in the level of importance, regions experienced 1.48

Another perceived barrier to economic development with a positive, significant (at 0.001 level) effect is high cost of housing. For each increase in the level of importance, regions experienced 1.24

The ICMA survey also lists a number of policies and methods for enhancing economic development. It asks participants to "indicate your level of use of these economic development tools" on a scale from 1 to 4. We found a number of these tools to be important to our regression.

At an alpha of .1, we found that employing a revolving loan fund and using management training to be significant. For each increase in the level of use of the revolving loan fund, regions experienced 0.68

At an alpha of .05, we found that use of an ombudsman program and technology zones were significant. For each increase in the level of use of the ombudsman program, regions experienced 0.82

As we found earlier, maintaining a high quality of life as a priority goal is has significantly positive effects on the economic growth of a region. It comes as no surprise that investments in high quality of life (education, recreation, and arts/culture) would also have a positive and significant effect. This variable was found to be significant at a 0.05 level, and for each increase in the level of use of quality of life investments, regions experienced 1.01

Counter to our expectations, a few of the economic development activities listed had significant negative effects Both replacing imports with locally supplied goods as well as using a community development loan fund were found to be significant at a .05 level. For each increase in the level of replacing imports with locally supplied goods, regions experienced 1.06

Perhaps the negative effect of replacing imports with locally supplied goods highlights the importance of being open to international trade and investment. We are unclear about the effect of community development loan funds, however.

The ICMA survey includes questions on some methods of funding economic development and allows for binary responses. When formulating our hypothesis, we believed that these funding methods would likely have little to no effect on our dependent variable. But while these funding methods are mostly out of the scope of the present study, we list them here as these variables are important to the accuracy of the final regression.

Both the use of state grants-in-aid as well as the use of special assessment districts to fund economic development programs are significant at a .05 level. Regions that employed state grants-in-aid experienced 1.53Additionally, it appears that being scrupulous in handing out business incentives is a boon to regions. Significant at a 0.1 level, regions that performed a cost/benefit analysis prior to offering business incentives experienced 1.35

VIF results confirm that there are no issues with multicollinearity in our regression. The r-squared value is somewhat low, however, at 0.30. Our dependent variable, the percent change in total establishments, is indubitably influenced by a much wider number of variables than we have present. Much more research is needed to investigate this topic. Now, we will move on to our second regression,using percent change in employment as the dependent variable, is shown in Figure 3.

Once again, to begin we will discuss the primary variable of interest, regional collaboration. As before, the binary response to whether or not there is strong collaboration for economic development tracks regional collaboration among local governments. This variable was found to be significant at an alpha of .05. On average those regions with strong cooperation locally were found to have 3.45

Now we will shift to goals and motivations for policies. Having a secure tax base as a priority goal for the region was found to be significant at 0.1 level. This coefficient is negative: the cities which had tax base as a priority goal experienced 4.06

Similarly, regions were asked what factors motivated their economic development priorities, on a scale from 1 to 4. As in the previous regression, we found the motivation, "change in local economy," was is significant at 0.1 level, but this time with a positive coefficient. For each increase

in the motivation level, the regions experienced 1.65

Moving now to barriers to economic development, we find lack of land available and distance from major markets are both factors that have positive, significant coefficients (at a .1 and .05 level, respectively), contrary to our expectations. For each increase in the level of importance, regions experienced 1.62

Poor quality of life was the most important barrier to economic development, with a negative coefficient at an alpha of .01. For each increase in the level of importance, regions experienced 2.83

Continuing to policies and methods for enhancing economic development, we note that having affordable workforce housing and requiring performance agreements for business incentives have positive effects, significant at the .1 and .01 level, respectively. For each increase in the level of use of affordable workforce housing, regions experienced 1.70

Finally, utilizing state grants-in-aid to fund economic development programs once again had a significant negative effect at a .05 level. Regions that employed state grants-in-aid experienced 3.76

VIF results establish again that there are no issues with multicollinearity in our regression. The r-squared value is even lower in this regression, at 0.15. Our dependent variable, the percent change in employment, is indubitably influenced by a much wider number of variables than we have present. Much more research is needed to investigate this topic.

It is worth noting that a few of the variables that we hypothesized to be significant turned out to be insignificant and therefore were removed from both of the regressions. Most importantly, ICMA asks responders to mark who "participate[s] in developing your local government's economic development strategies." We believed that the more agencies, organizations, and political actors worked together, the greater the growth would be. This turned out to not be the case. Additionally, many business incentives seemed to not be a significant factor in actually drawing additional establishments. This supports the argument that business incentives are not the best method with which to attract firms.

5 Conclusions

Despite renewed focus on the importance of local economic units, the literature on regional collaboration is still largely divided. This division stems from the fact that this complex issue can be viewed through many different theories and disciplines. The present study provided the first empirical test of the relationship between regional collaboration and economic growth using a mix of U.S. county and city data. In addition, we have investigated the effects of a wide number of local economic factors and policies. Our results support the theory that local governments working collaboratively create positive economic outcomes. Our use of local areas within the same country both allowed us to employ a large sample size and also eliminate the issues that come from making comparisons of different nations.

Furthermore, our findings can inform contemporary policy debates. Our region, the Saint Louis Louis metropolitan area, has perhaps the country's most splintered and geographically spread network of governments. This fragmented metropolitan area ranks second in the nation in ratio of local governments to citizens; third in the nation in ratio of metro area municipalities to citizens; and second in the nation in ratio of school districts to citizens. While fragmentation itself may not be deleterious, our research shows that we may see positive economic outcomes by promoting collaboration among these many local governments and stakeholders. We advocate for strengthened models regional collaboration, including adopting a model of unified government through electoral referenda. We propose that the government and services of Saint Louis City and County are

consolidated. Additionally, we advocate for the formation of a Saint Louis region-wide "umbrella regional collaborative organization," or RCO. This would consolidate the many duplicative existing RCOs in the seven-county bi-state region, including but not limited to: the St. Louis Regional Chamber; Civic Progress; Bi State Development; the St. Louis Economic Development Partnership; the Regional Business Council; East West Gateway of Governments; and BioSTL. This organization would also include representation from leaders in academia, industry, non-profit, and political organizations. Alternatively, we would strengthen collaboration between existing RCOs by placing them in close physical proximity with each other as is seen with Union Station in Kansas City. This increases information sharing and strengthens relationship-based networks.

Our findings on other factors driving local economic development lead us to further policy recommendations. First, we hope to place revitalizing Saint Louis' decayed urban core at the forefront of the umbrella RCO's economic development priorities, focusing on the Mississippi River riverfront area. A shared feature of revitalized metropolitan regions is a vibrant pedestrian friendly riverfront area, as is the case with the Monongahela River in Pittsburgh. This enhances quality of life, a proven positive economic development driver. We propose prioritizing Saint Louis' economic development from a perspective of globalization and interconnectedness by fully adopting the World Trade Center St. Louis' Foreign Direct Investment and Export plans, and ensuring international representation within the umbrella RCO. Concurrently we wish to place an emphasis on ensuring that economic development outcomes are equitable and dispersed in benefits, by developing partnerships with community organizations such as the Urban League of Metropolitan St. Louis, Forward Through Ferguson, and the N.A.A.C.P, among others. In addition, we recommend establishing "public-sector incubators" modeled on the highly successful private sector incubators such as T-Rex and Cortex, in order to develop next-generation innovative public policy solutions that meet the need of a rapidly changing economy.

Finally, we hope renewed focus will be placed on the competitive advantages of the Saint Louis region. Business clusters allow for inter-business collaboration through sharing of information and spillover effects. Therefore, we promote continuing to develop Saint Louis as a center for agricultural technology, through increased public investment and public-private partnerships. To this end, in partnership with state and local governments of Missouri and Illinois, we advocate further development of the Mississippi River as the "Agricultural Coast of America." Lastly, we support the initiation of a public-relations campaign designed to foster internal civic pride and redefine external perceptions of the Saint Louis region, highlighting both the existing regional assets (comparatively low cost of living, distinguished institutes of higher education) and innovative transformations (agricultural technology cluster development, model for globally-minded locally-networked governance). This will hopefully combat deep-seated divisions in the region through collaborative efforts.

Acknowledgements

We are grateful for the help of Tim Cowden, David Dresner, Ryan Donahue, Charles Gascon, Michael Henderson, Jacob Hesseling, Nathan Jenson, Jung Kim, Sukkoo Kim, James Meyer, Melissa Miller, Jackson Nickerson, Lori Odom, Jennifer Pearl, and Better Together St. Louis.

We would also like to thank the following regional economic development organizations that helped us with our work: Bluegrass Economic Advancement Movement (BEAM), Indy Chamber, Nashville Area Chamber of Commerce, The Allegheny Conference on Community Development,

Appendices

Figure 1 - Final Regression

Percent Change in Establishment Count from 2014 to 2017

	Estimate	Std.Error	t.value	Pr(> |t|)	VIF
Intercept	-8.7709555	4.1694799	-2.103600	0.0360533	0.00000
Quality of Life as a Priority Goal	1.6385215	0.9022685	1.816002	0.0701378	1.088510
Change in Local Economy	-0.8679191	0.4482162	-1.936385	0.0535427	1.085914
Lack of Buildings (Due to Space/Costs)	0.6574795	0.4042437	1.626443	0.1046630	1.135358
High Cost of Labor	-1.2546919	0.5619507	-2.232744	0.0261328	1.280315
Limited Number of Major Employers	-0.7048792	0.4180874	-1.685961	0.0926030	1.325213
Taxes	-0.7454911	0.4808839	-1.550252	0.1218921	1.249027
Environmental Regulations	1.4887262	0.4611576	3.228237	0.0013510	1.211856
High cost of Housing	1.6214009	0.4434784	3.656099	0.0002911	1.257427
Declining Market Due to Population Loss	-1.2255268	0.4280295	-2.863183	0.0044205	1.423161
Revolving Loan Fund	0.6800975	0.3947043	1.723056	0.0856711	1.478867
Management Training	0.7713296	0.4348694	1.773704	0.0768923	1.193997
Ombudsman Program	0.8273391	0.3581370	2.310119	0.0214029	1.190525
Replacing Imports with Locally Supplied Goods	-1.0558284	0.4988210	-2.116648	0.0349226	1.331955
Technology Zones	1.0525851	0.4180961	2.517567	0.0122167	1.256209
Community Development Loan Fund	-1.0357769	0.4236029	-2.445160	0.0149203	1.460844
Investment in High Quality of Life	1.0086879	0.4228125	2.385662	0.0175249	1.201356
Strong Cooperation	1.4741828	0.7182418	2.052488	0.0407891	1.110542
State Grants-in-Aid	-1.5328084	0.7144280	-2.145504	0.0325294	1.132087
Special Assessment District	-1.6698797	0.8340135	-2.002221	0.0459529	1.144298
Cost/Benefit Analysis Prior to Offering Business Incentives	1.3480217	0.8107596	1.662665	0.0971829	1.235389
Clawback Agreement	-1.1415300	0.7700627	-1.482386	0.1390452	1.261528
Log Population	0.9014062	0.3106411	2.901760	0.0039212	1.555921

% Change in Establishment Counts from 2014 to 2017 $\sim$ Quality of Life as a Priority Goal + Change in Local Economy + Lack of Buildings (due to Space/Costs) + High Cost of Labor + Limited Number of Major Employers + Taxes + Environmental Regulations + High Cost of Housing + Declining Market Due to Population Loss + Revolving Loan Fund + Management Training + Ombudsman Program + Replacing Imports with Locally Supplied Goods + Technology Zones + Community Development Loan Fund + Investment in High Quality of Life + Strong Cooperation + State Grants-in-Aid + Special Assessment District + Cost/Benefit Analysis Prior to Offering Business Incentives + Clawback Agreement + Log Population

Residual standard error: 6.786 on 390 degrees of freedom; Multiple R-squared: 0.3002, Adjusted R-squared: 0.2608; F-statistics: 7.606 on 22 and 390 DF, p-value $<$ 2.2e-16

Figure 2 - 90% Confidence Intervals for Strong Regional Cooperation

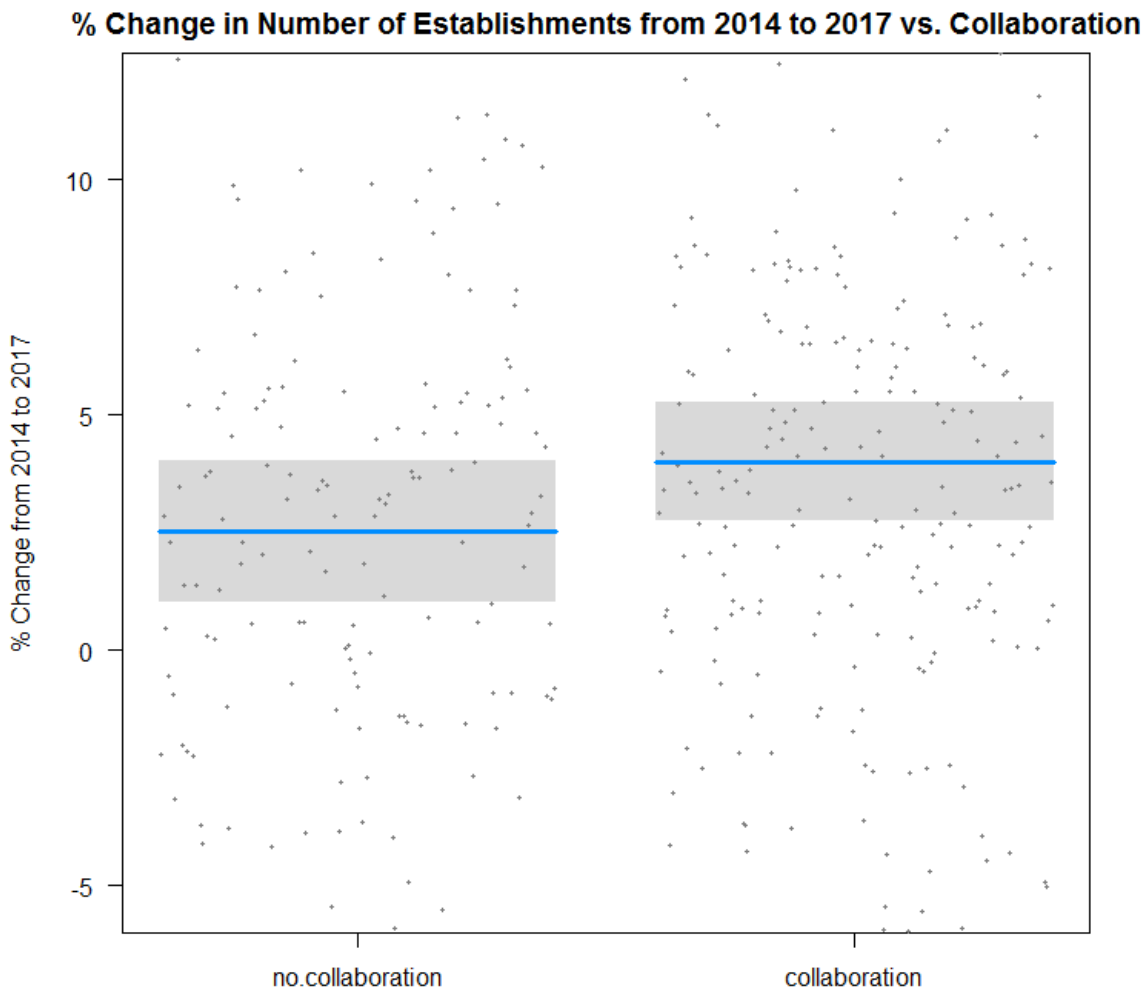


Figure 3 - Final Regression 2

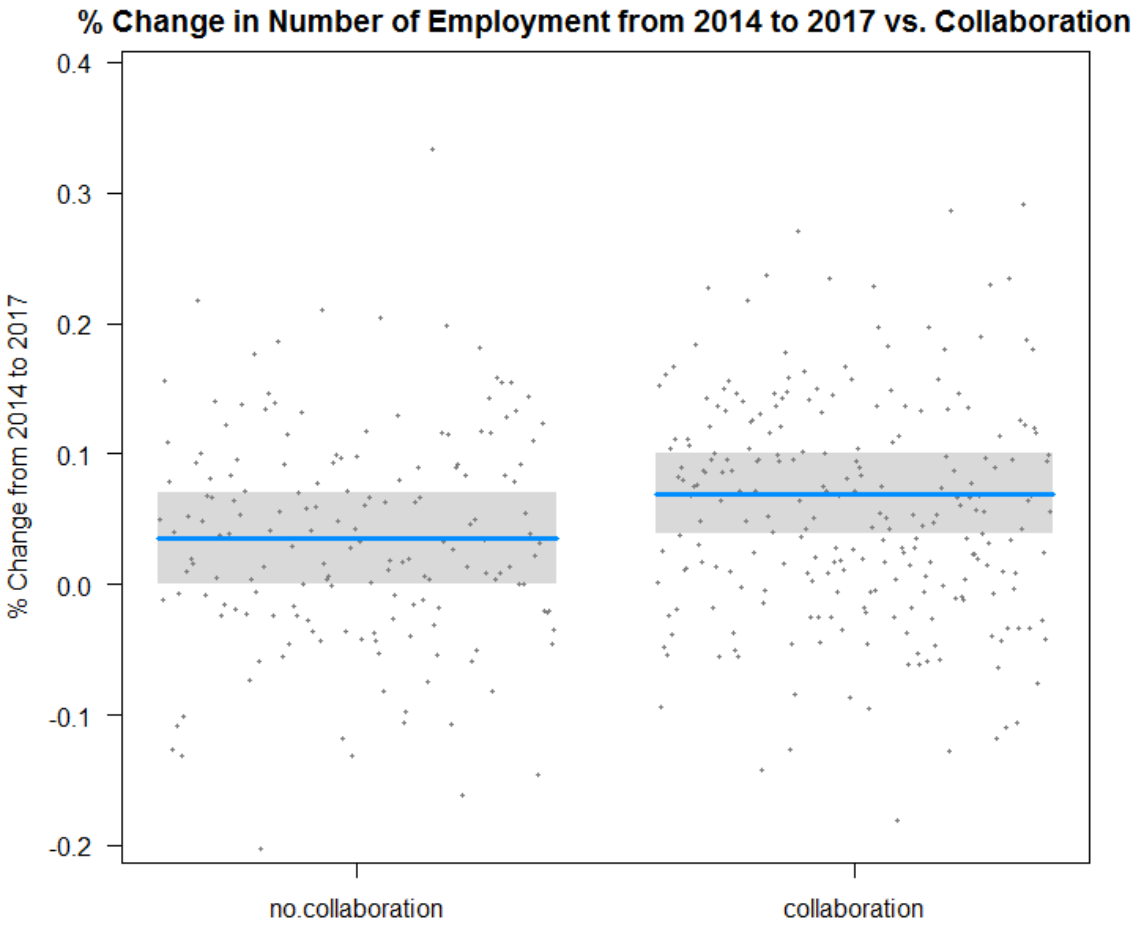
Percent Change in Employment from 2014 to 2017

	Estimate	Std.Error	t.value	Pr(> |t|)	VIF
Intercept	0.19085559	0.076768861	2.486107	0.013329524	0.000000
Tax Base as a Priority Goal	-0.04058353	0.022466849	-1.806374	0.071624817	1.122012
Environmental Sustainability as a Priority Goal	0.03525174	0.015232513	2.314243	0.021169309	1.148481
Change in Local Economy	0.01653109	0.009524872	1.735571	0.083423576	1.094350
Change in Political Leadership	0.01861967	0.007804517	2.385755	0.017516920	1.183198
Past Activities not Successful	-0.01677665	0.008204590	-2.044788	0.041541429	1.217981
Lack of Land Available	0.01237515	0.007077620	1.748490	0.081160068	1.038115
Distance from Major Markets	0.02358954	0.009284071	2.540861	0.011441706	1.294097
Poor Quality of Life (Inadequate Education, Recreation, and arts/cultural)	-0.02838383	0.010136908	-2.800048	0.005361641	1.176732
Income Inequality	-0.01565791	0.010012116	-1.563897	0.118646690	1.217688
Survey of Local Business	-0.01310744	0.008476398	-1.546346	0.122825944	1.156667
Business Clusters/Industrial Districts	0.01308662	0.008296417	1.577382	0.115512296	1.240675
Community Development Corporation	0.01124522	0.007432581	1.512962	0.131092946	1.169339
Affordable Workforce Housing	0.01702318	0.009009330	1.889505	0.059559959	1.156742
Strong Cooperation	0.03452378	0.014839082	2.326544	0.020497201	1.057853
State Grants-in-Aid	-0.03758257	0.015089503	-2.490643	0.013163222	1.127017
Free Land or Land Write Downs	-0.01576288	0.007654356	-2.059335	0.040120486	1.167328
Requiring a Performance Agreement as a Condition for Providing Business Incentives	0.04372932	0.016551571	2.642004	0.008570841	1.329316
Cost/Benefit Analysis Prior to Offering Business Incentives	-0.02659867	0.017144375	-1.551451	0.121598418	1.232766
Log Population	-0.01372979	0.006146881	-2.233619	0.026070232	1.359555

% Change in Employment from 2014 to 2017 $\sim$ Tax Base as a Priority Goal + Environmental Sustainability as a Priority Goal + Change in Local Economy + Change in Political Leadership + Past Activities not Successful + Lack of Land Available + Distance from Major Markets + Poor Quality of Life (Inadequate Education, Recreation, and Arts/Cultural) + Income Inequality + Survey of Local Business + Business Clusters/Industrial Districts + Community Development Corporation + Affordable Workforce Housing + Strong Cooperation + State Grants-in-Aid + Free Land or Land Write Downs + Requiring a Performance Agreement as a Condition for Providing Business Incentives + Cost/Benefit Analysis Prior to Offering Business Incentives + Log Population

Residual standard error: 0.1442 on 393 degrees of freedom; Multiple R-squared: 0.1542, Adjusted R-squared: 0.1133; F-statistic: 3.77 on 19 and 393 DF, p-value: 2.667e-07

Figure 4 - 90% Confidence Intervals for Strong Regional Cooperation



REDI Cincinnati, KC Rising, Greater Kansas City Chamber of Commerce, Columbus 2020, Columbus Chamber, St. Louis Economic Development Partnership, and Detroit Chamber.

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