Were more regional center-cities better able to manage fiscal stress through the Great Recession? Evidence from 2007-2011.

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Outline

- Introduction to Regionalism
- Rationale
- Review of Literature
  - Regionalism
  - Fiscal Stress
- Data and Model Development
- Identification and testing of Hypothesis
- Conclusions, comments and feedback.

Introduction to Regionalism

- Metropolitan Governa*nce*
  - Tiebout
  - Ostrom
- Metropolitan Govern*ment*
  - Rusk
  - Unigov, City-County Consolidation, flexible borders, et cetera

Introduction to Regionalism

- Interlocal agreements
- Revenue Sharing
  - In Michigan, 425 Agreements
- Shared Services
  - Police and Fire
  - Water and Sewer
  - Rec Centers
- Reached through agreement of equal parties

Introduction to Regionalism

- New York (1895)
- Jacksonville City-County (1968)
- Indianapolis City-County (1972)
- Louisville City-County (2003)

Rationale for Study

- Trending topic in local government
- A new talking point in the regionalism discussion

Review of Literature

- Regionalism and Cities:
  - Ed Glaeser
  - Richard Florida
  - David Rusk
  - Robert Putnam
  - Jane Jacobs
  - Elinor Ostrom

Review of Literature

- Fiscal Stress:
  - Kloha, Weissert and Kleine
  - Trussel & Patrick
  - CBO
  - ACIR

Study	Indicator	Measures	Comparable measures used in this study
ACIR (1985)	Continuous operations	Revenues – Expenditures over time	Change in Revenue, 2007-2011 Change in Expenses, 2007-2011
Congressional Budget Office (1978)	Continuous operations	Revenues – Expenditures over time	Yearly Surplus (Deficit)
Congressional Budget Office (1978)	Debt burden	Total Debt / Total revenues	Net General Bonded Debt per Capita
Trussell & Patrick (2009)	Use of Intergovernmental Revenue	IGR as portion of total revenue	Omitted. Not comparable.
Trussell & Patrick (2009)	Revenue Growth	Current Revenue – Previous Revenue	Change in Revenue
Trussell & Patrick (2009)	Administrative Expenditures	(Total – Non-Admin Expend.) / Total	Employees per capita, Debt per capita, change in employees per capita
Trussell & Patrick (2009)	Debt Level	Debt to Revenue	Debt per capita
Kloha, Weissert, & Kleine (2005)	Population Growth	Year to year percentage change in Population	Change in Population – 2007 to 2011
Kloha, Weissert, & Kleine (2005)	Revenue Growth	Real Taxable Value Growth	Change in Revenue
Kloha, Weissert, & Kleine (2005)	Revenue Growth	Large Taxable Value Decrease (over 2 years)	Change in Revenue
Kloha, Weissert, & Kleine (2005)	Current Expenses	Expenditures / Taxable Value	Yearly Surplus (Deficit) / Revenue
Kloha, Weissert, & Kleine (2005)	General Fund Operating Deficit	(Revenue – Expenditure) / Total Revenue	Yearly Surplus (Deficit) / Revenue
Kloha, Weissert, & Kleine (2005)	General fund balance to revenues	General fund balance / Total Revenue	Fund Balance Per Capita
Kloha, Weissert, & Kleine (2005)	Fund deficits in current or previous year	(Revenue – Expenditure) / Total Revenue for t_0 and t_{-1}	Captured in time series, general fund only
Kloha, Weissert, & Kleine (2005)	Long Term Debt to Taxable Value	LT debt / taxable value	Net General Bonded Debt per Capita

Notes on Data Sources

- Comprehensive Annual Financial Reports
- Census Data
- Interviews
- FOIA Requests

Methodology

- **Approach 1:** Determine the effect of regionalism on measures of fiscal stress
  - Service cuts,
  - Debt, and
  - Deficits.
- **Approach 2:** Determine the effect of regionalism on composite scores of fiscal stress.

Hypotheses for Approach 1

- H_1: Higher levels of regionalism positively affect employment changes.
- H_2: More regional cities had smaller debt per capita
- H_3: More regional cities had smaller revenue deficits.

Hypothesis 1

- H_1: Higher levels of regionalism positively affect employment changes.
- $\%Change\_FTE_{i(2007\text{-}2011)} = \beta_1 + \beta_2 City\_MSA\_Ratio_{i(2011)} + \beta_3 \%Change\_in\_Pop_{i(07\text{-}11)} + \beta_4 \%Change\_in\_Rev_{(07\text{-}11)I} + \beta_5 City\_Unem_{i(2011)} + \beta_6 Region\_Unem_{i(2011)} + \varepsilon_i$

Center-City	Metro Area Population	City Pop.	Total Govs in Region	Gov'ts per Capita	Rank	City's Share of Pop. (City-MSA)	Rank
Akron, OH	703,200	199,110	38	0.0000540387	37	28.31%	29
Ann Arbor, MI	344,791	112,852	10	0.0000290031	45	32.73%	23
Appleton, WI	225,666	72,623	41	0.0001816844	7	32.18%	24
Bloomington, IN	192,714	80,405	15	0.0000778355	26	41.72%	12
Canton, OH	404,422	73,007	29	0.0000717073	30	18.05%	39
Cedar Rapids, IA	257,940	120,758	43	0.0001667054	10	46.82%	7
Champaign, IL	231,891	81,055	47	0.0002026814	4	34.95%	18
Chicago, IL	9,461,105	2,695,598	392	0.0000414328	43	28.49%	28
Cincinnati, OH	2,130,151	296,943	207	0.0000971762	18	13.94%	42
Cleveland, OH	2,077,240	396,815	114	0.0000548805	35	19.10%	38
Columbus, OH	1,836,536	787,033	105	0.0000571729	32	42.85%	11
Davenport, IA	379,690	99,685	63	0.0001659248	11	26.25%	30
Dayton, OH	841,502	141,729	65	0.0000772428	27	16.84%	40
Des Moines, IA	569,633	203,433	67	0.0001176196	13	35.71%	17
Detroit, MI	4,296,250	713,387	127	0.0000295607	44	16.60%	41
Duluth, MN	279,771	86,265	90	0.0003216917	2	30.83%	26
Elkhart, IN	197,559	50,949	11	0.0000556796	34	25.79%	32
Evansville, IN	358,676	117,429	40	0.0001115213	15	32.74%	22
Flint, MI	425,790	102,434	19	0.0000446229	41	24.06%	35
Fort Wayne, IN	416,257	253,691	22	0.0000528520	38	60.95%	3
Grand Rapids, MI	744,160	192,435	42	0.0000564395	33	25.86%	31
Green Bay, WI	306,241	104,057	65	0.0002122511	3	33.98%	20

Center-City	Metro Area Population	City Pop.	Total Govs in Region	Gov'ts per Capita	Rank	City's Share of Pop. (City-MSA)	Rank
Holland, MI	263,801	33,051	11	0.0000416981	42	12.53%	43
Indianapolis, IN	1,778,568	807,584	84	0.0000472290	40	45.41%	8
Kalamazoo, MI	326,589	74,262	27	0.0000826727	25	22.74%	36
Kansas City, MO	2,035,334	459,787	187	0.0000918768	19	22.59%	37
Lafayette, IN	201,789	67,140	20	0.0000991134	17	33.27%	21
Lansing, MI	464,036	119,128	35	0.0000754252	28	25.67%	34
Lincoln, NE	302,157	254,001	25	0.0000827384	24	84.06%	1
Madison, WI	568,593	228,200	101	0.0001776315	8	40.13%	14
Milwaukee, WI	1,555,908	594,833	77	0.0000494888	39	38.23%	15
Minneapolis, MN	3,279,833	382,578	246	0.0000750038	29	11.66%	44
Peoria, IL	379,186	115,007	64	0.0001687826	9	30.33%	27
Racine, WI	195,408	78,860	22	0.0001125850	14	40.36%	13
Rochester, MN	186,011	106,769	103	0.0005537307	1	57.40%	4
Rockford, IL	349,431	152,871	19	0.0000543741	36	43.75%	10
Saginaw, MI	200,168	51,508	18	0.0000899245	20	25.73%	33
South Bend, IN	319,224	101,168	19	0.0000595193	31	31.69%	25
Springfield, IL	210,170	116,250	32	0.0001522577	12	55.31%	5
Springfield, MO	436,712	157,360	39	0.0000893037	21	36.03%	16
St. Cloud, MN	189,093	65,862	36	0.0001903825	5	34.83%	19
St. Louis, MO	2,815,000	319,294	307	0.0001090586	16	11.34%	45
Toledo, OH	651,429	287,208	54	0.0000828947	23	44.09%	9
Topeka, KS	233,870	127,473	44	0.0001881387	6	54.51%	6
Wichita, KS	625,526	382,368	55	0.0000879260	22	61.13%	2

Regression Results

Change in Total FTEs (2007-2011)			
	Coeff.	Std. Err.	P-Value
City-to-MSA Ratio	0.0495474	0.27428	0.858
City-to-MSA Ratio (Squared)	-0.1021274	0.2522877	0.688
Change in Pop (07 to 11)	0.8594143	0.3765751	0.029
Change in Rev (07 to 11)	0.0095426	0.0141761	0.506
City Unemployment	-0.0061654	0.0070536	0.389
MSA Unemployment	0.0068583	0.0109346	0.535
constant	-0.0538146	0.0677732	0.433
Observations	39		
Adjusted R^2	0.484		

[11] All reported standard errors are robust standard errors unless otherwise noted.

Combined Effect of Population and Regionalism

Combined Effect of Population and Regionalism			
	Coeff.	Std. Err.	P-Value
City-to-MSA(squared)	-0.07819	0.122536	0.528
City-to-MSA*Population Change	2.11543	1.030911	0.048
Change in Rev (07 to 11)	0.020333	0.015938	0.211
City Unemployment	-0.00916	0.006023	0.138
MSA Unemployment	0.009346	0.009043	0.309
constant	-0.04753	0.050282	0.351
Observations	39		
Adjusted R^2	0.396		

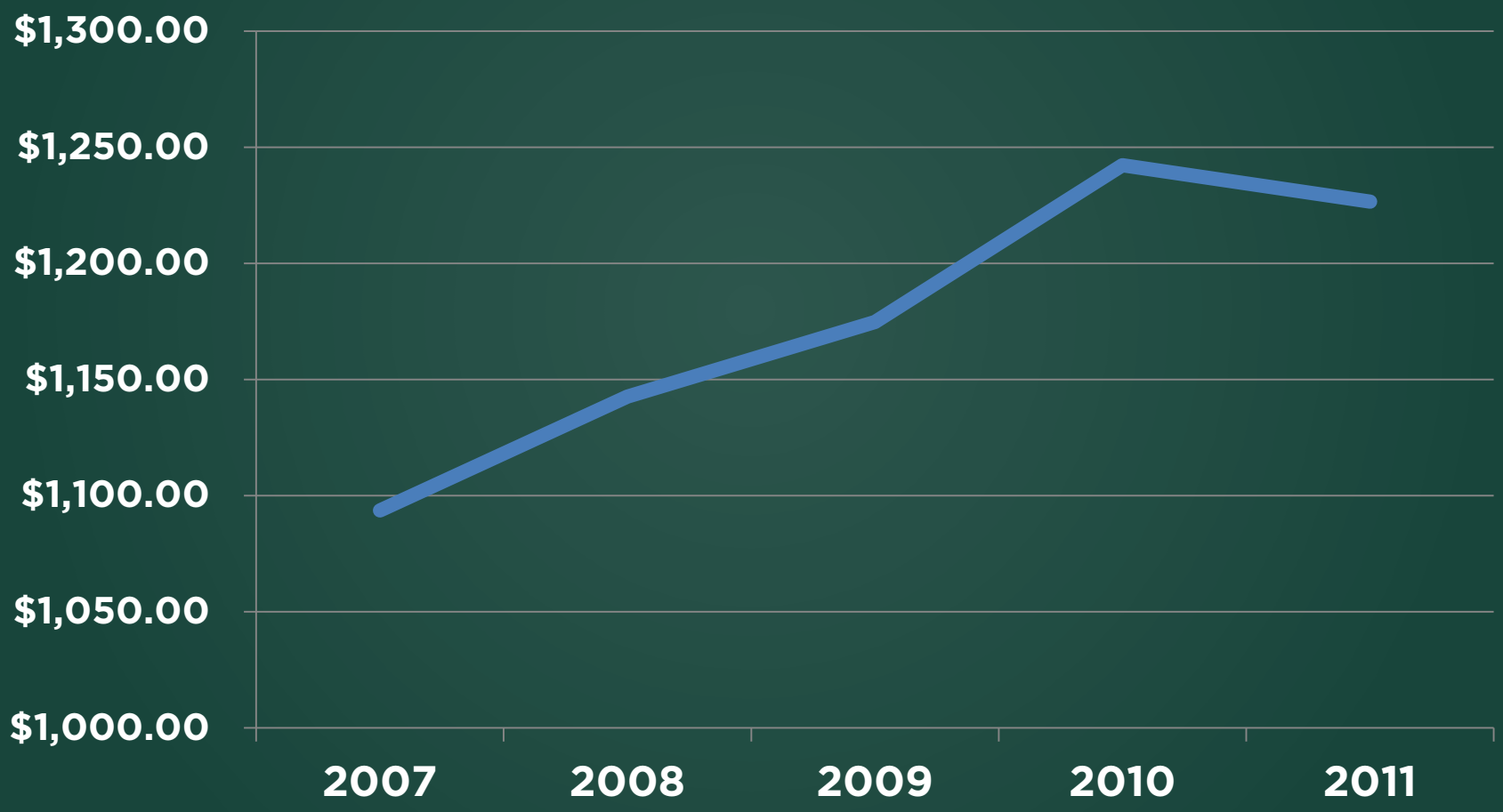
Effect of Governments per Capita on Cuts to Service

	Coeff.	Std. Err.	P-Value
%Change in Population	0.8536441	0.3173289	0.011
Governments per 10k-Pop	0.0458515	0.0220552	0.046
Governments per 10k-Pop Squared	-0.0064286	0.0035665	0.081
%Change in Revenue (07-11)	0.0055968	0.0127328	0.663
Center-City Population	6.29E-09	4.92E-09	0.211
City Unemployment	-0.0038852	0.0066837	0.565
MSA Unemployment	0.0077198	0.0102083	0.455
constant	-0.1244334	0.0620252	0.054
Observations	39		
R2	0.5334		

Hypothesis 2

- H_2: More regional cities had smaller debt per capita
  - Net Bonded Debt divided by Population Estimates

Debt per Capita Over Time



Debt per Capita Over Time

	Year	Debt per Capita
Mean	2007	$ 1,093.63
Median	2007	$ 803.87
Std Dev	2007	$ 1,189.73
Mean	2008	$ 1,142.62
Median	2008	$ 858.45
Std Dev	2008	$ 1,231.66
Mean	2009	$ 1,174.72
Median	2009	$ 891.32
Std Dev	2009	$ 1,245.07
Mean	2010	$ 1,242.29
Median	2010	$ 1,072.17
Std Dev	2010	$ 1,306.00
Mean	2011	$ 1,226.52
Median	2011	$ 1,019.38
Std Dev	2011	$ 1,328.25
Mean	2007-2011	$ 1,175.76

Hypothesis 2: Debt per Capita

- Debt grow for most cities through the crisis.
- Debt is not necessarily an indicator of stress, but too much debt is.
- Econometric model:
- $\text{Debt Per Capita}_{(2007\text{-}2011)} = \beta_1 + \beta_{2(2007\text{-}2011)}\text{City-MSA} + \beta_{3(2007\text{-}2011)}\text{City-MSA}^2 + \beta_{4(2007\text{-}2011)}\text{City\_Unem} + \varepsilon_i + \alpha_i$

Regression Results

Effect of Population Ratio on Debt Per Capita			
	Coeff.	**Std. Err.**	**P-Value**
Ratio of City to MSA	**-7645.109**	**3259.654**	**0.02**
Ratio of City to MSA Squared	**5886.163**	**3358.984**	**0.082**
Metro Population (2010)	*-0.004107*	*0.0091563*	*0.654*
Yearly Revenue	*0.000000367*	*0.000000271*	*0.177*
Yearly Average Unemployment (City)	**15.25392**	**5.044755**	**0.003**
Constant	*7173.172*	*10048.57*	*0.476*
Observations	195		
Groups	39		
R^2: Within	0.1223		
Between	0.1224		
Overall	0.1207		

Interpretation

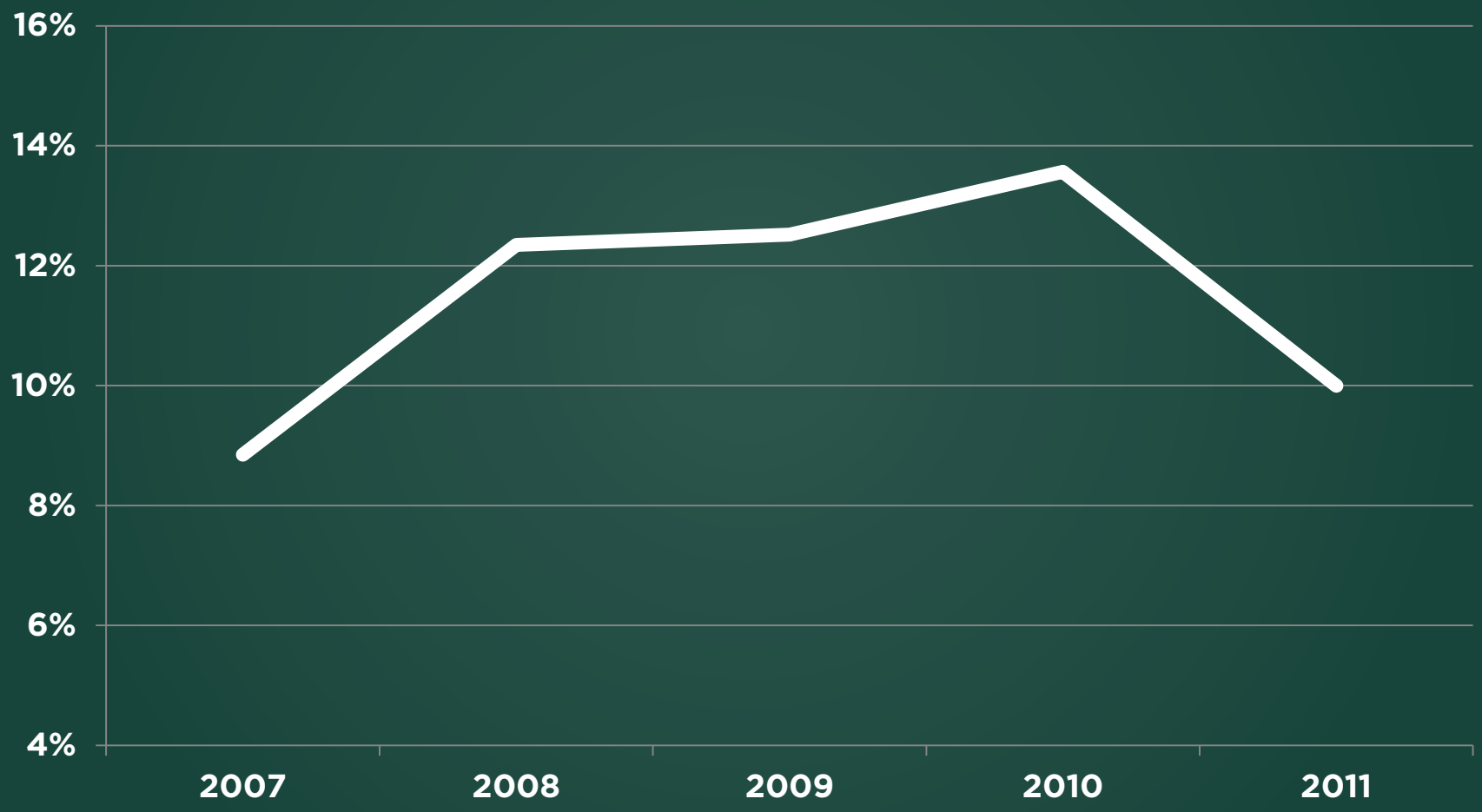
- Downward effect of regionalism is strongest when the center city has **65.94%** of the region's population.

Center-City	Metro Area Population	City Pop.	City's Share of Pop. (City-MSA)	Rank
Lincoln, NE	302,157	254,001	84.06%	1
Wichita, KS	625,526	382,368	61.13%	2
Fort Wayne, IN	416,257	253,691	60.95%	3
Rochester, MN	186,011	106,769	57.40%	4
Springfield, IL	210,170	116,250	55.31%	5
Topeka, KS	233,870	127,473	54.51%	6
Cedar Rapids, IA	257,940	120,758	46.82%	7
Indianapolis, IN	1,778,568	807,584	45.41%	8
Toledo, OH	651,429	287,208	44.09%	9
Rockford, IL	349,431	152,871	43.75%	10

Hypothesis 3

- **H_3: More regional cities had smaller revenue deficits.**
- Every city had a revenue shortfall
- Shortfalls are mitigated by new taxes, asset sales, service cuts and new debt.

Average Deficit as Percent of Revenue



Regression Results

- Time series regression accounting for fixed effects

Yearly Deficits as Percent of Revenue			
	Coeff.	**Std. Err.**	**P-Value**
City-MSA Ratio	**-1.380327**	**0.7310193**	**0.061**
Metropolitan Population	*-2.32E-06*	*4.93E-06*	*0.639*
Yearly Revenue	**3.17E-10**	**1.46E-10**	**0.032**
City Unemployment	*-0.0035152*	*0.0026373*	*0.185*
Constant	*2.806699*	*5.42981*	*0.606*
Number of Obs	194		
Number of Groups	39		
R^2 Within	0.0574		
R^2 Between	0		
R^2 Overall	0		

Approach 2: Composite Scores

- Switching gears to fiscal health
- Measuring relative health compared to other cities in the dataset
- Comparing these results to regionalism measures using regression.

Fiscal Health Variables

- % Change in Employees
- % Change in Revenue
- Deficit to Revenue Ratio
- Fund Balance per capita
- Debt per Capita

City	2008	2009	2010	2011	Overall Score	Rank
Appleton	7.9086094	5.8654467	3.6431944	4.5436366	21.96088713	1
Indianapolis	4.4446932	6.2595831	3.6603054	-0.1461749	14.21840679	2
Peoria	2.7036201	1.8970888	2.453752	3.9305918	10.98505273	3
South Bend	2.3705925	-0.2982866	5.759879	2.0629183	9.895103184	4
Springfield, MO	1.9856326	2.6250959	2.7385164	2.1192946	9.468539479	5
Cedar Rapids	0.3340325	6.056066	1.438746	1.4741481	9.302992574	6
Champaign	2.9206563	1.7528801	1.2892355	0.3720574	6.334829337	7
Springfield, IL	2.5852932	1.7183182	1.2263236	0.4951785	6.02511342	8
Rockford	0.5694428	1.2011703	-3.9913577	8.018169	5.797424378	9
Fort Wayne	4.514262	-0.3102135	-0.5880349	1.4028331	5.018846696	10
Madison	2.3166153	0.5358042	1.2657063	-0.3012065	3.816919219	11
Kalamazoo	-2.1114054	3.0959878	1.2197661	1.4114975	3.615846024	12
St. Louis	0.6606905	1.7356925	0.3906968	0.4092176	3.196297408	13
Grand Rapids	1.4353476	0.271454	0.9862995	0.2860485	2.979149541	14
Rochester	0.8680724	0.2205566	0.9488702	0.7028503	2.74034948	15
Lincoln	0.1574558	1.0220816	1.4730453	-0.1439606	2.508622114	16
Saginaw	-0.5630688	0.8611422	1.3489577	-0.637832	1.009199069	17
Canton	-0.4051581	-0.1587506	1.2598631	0.1923977	0.888352146	18
St. Cloud	0.4123255	-1.336435	1.1183918	0.6650611	0.859343374	19
Wichita	0.0033877	0.2003735	-0.1521737	0.0309774	0.082564861	20
Lansing	0.1132286	0.9908869	0.0911794	-1.2289282	-0.033633197	21
Green Bay	-1.61293	0.5492021	0.6656654	-0.0088615	-0.406923909	22

City	2008	2009	2010	2011	Overall Score	Rank
Cincinnati	0.4601762	-0.2417379	-0.05651	-1.1288621	-0.966933743	23
Minneapolis	-0.7062673	0.5691505	-1.41836	0.5681622	-0.987314544	24
Dayton	-1.0205293	-1.0783599	-1.6680515	2.6985549	-1.068385846	25
Toledo	-2.9704286	-0.524937	-0.0724668	1.2793703	-2.288462116	26
Ann Arbor	1.4168844	0.3641005	-2.4407551	-2.4421774	-3.101947689	27
Duluth	-1.5389397	-2.8700617	0.5422531	-0.8020958	-4.668844174	28
Holland	-1.0043805	-1.877013	-1.0591484	-1.1849643	-5.125506189	29
Davenport	-1.0037397	-0.1737316	-2.8670617	-1.44389	-5.488422939	30
Des Moines	-1.611399	-0.6649604	-2.0242857	-1.937282	-6.237927158	31
Columbus	-3.3707171	-3.4209022	0.8300537	-1.3767919	-7.338357514	32
Milwaukee	-2.8181861	-1.3025006	-1.4592386	-1.8037971	-7.383722372	33
Kansas City	-0.0262318	-2.2867193	-3.4356919	-1.7852474	-7.533890398	34
Chicago	-2.0348663	-4.2287628	-1.3992727	-1.1454811	-8.80838293	35
Flint	-0.8799748	-4.0145231	-3.1970611	-2.991268	-11.08282702	36
Detroit	-3.4106822	-2.8262291	-2.6404354	-2.5271394	-11.40448605	37
Akron	-3.8126071	-4.5720571	-0.8398441	-4.085057	-13.30956527	38
Cleveland	-7.2795069	-5.6059001	-5.0409512	-5.5419477	-23.4683059	39

Regression Results

- SCORE = β_1 + β_2City-MSA + β_3City Unemployment + β_4MSAUnemployment + β_5Population + e_i

Effect of City-MSA Proportion on Fiscal Health Scores			
	Coeff.	Std. Err.	P-Value
City-MSA	15.66329	6.013143	0.014
City Unemployment	-1.197204	0.4989222	0.022
MSA Unemployment	2.208054	1.097241	0.052
Population	-0.0000055	0.00000195	0.008
Constant	-1.00E+01	7.23E+00	0.176
Observations	39		
R^2	0.2384		

Conclusions

- Services
- Debt
- Deficits
- Overall Health

Possible Implications

- Regionalism
- Extraordinary measures
  - EMs
  - Municipal Bankruptcy
- New Remedies from old ideas

Opportunities for Further Research

- General Framework
- Decrease granularity by coding for services and powers
- Expand to all cities and towns in Metropolitan Regions

Discussion and Feedback