

**DOES HAVING A DIVERSE ECONOMY  
CONTRIBUTE TO A GOVERNMENT'S FISCAL  
HEALTH? A STUDY OF ECONOMIC DIVERSITY  
AND ITS IMPACT ON THE FISCAL HEALTH OF  
COUNTY GOVERNMENTS DURING THE 'GREAT  
RECESSION'**

**DARRIN WILSON**

Northern Kentucky University

**KAISEE MARIE RIDDELL**

Indiana University Bloomington

**ABSTRACT**

The purpose of this paper is to examine how environmental entropy as described by Charles Levine influences the fiscal health of county governments in the United States within the context of economic diversity of the local economy. Based on the organizational decline, fiscal health, and regional economics literature, this study tests if economic diversity, as a way to mitigate economic risk during environmental entropy, has a significant relationship with fiscal health. The hypothesis is that economic diversity will have a significantly positive relationship with the fiscal health of county governments.

Three hundred and forty county governments were examined between 2006-2011 using data from the GFOA Financial Indicators Database to measure fiscal health with Brown's 10-Point Test and county-level, industry-specific wage data from the Bureau of Labor Statistics to measure economic diversity with a Herfindahl-Hirschmann Index. A fixed effects least-squares dummy variable model was utilized to determine whether or not county government fiscal health had a statistically significant relationship with economic diversity.

No statistically significant relationship between county government fiscal health and economic diversity was found. However, county population size and unemployment were statistically significant with fiscal health for all years of the study. Additionally, political ideology was statistically significant with fiscal health during the recession and post-recession years.

**Keywords:** Organizational Decline; Fiscal Health;  
Economic Diversity; County Government; Great Recession

*International Journal of Economic Development*  
*Volume 14, Number 1, pp. 32-60, 2020*

## INTRODUCTION

Fiscal health of governments, particularly local governments, have been a highly discussed topic in the literature. Since the Great Recession of 2007-2009, the field has recognized the importance of understanding what fiscal health is and how to measure it (McDonald, 2018). However, beyond theory, there has been little empirical research conducted since the recession regarding if and how local economic conditions impact the fiscal health of local governments (Overton and Bland, 2017).

The Great Recession left few local government unscathed, and by the end of the recession, 90% of city governments had cut their expenditures (Hoane & Pagano, 2009). The effects of the recession are still felt in many communities today. Studies have shown that state and local governments across the country enacted severe cutback management policies as a response to declining revenues caused by the recession (Dougherty and Klase, 2009; Bozeman, 2010; Pandey, 2010; Scorsone and Plerhoples, 2010; Christian and Bush, 2018; Klase, 2018).

Much of the research related to local economic conditions and fiscal health of governments examined income growth within the community (White, 1983; Sobel and Holcombe, 1996) or the volatility within government's tax structure (Carroll, 2009; Yan, 2011). However, as seen during the recession, major shocks in the local economy can create significant fiscal stress among local governments. Downturns in the economy shrink the local tax base and make it harder for local governments to meet their financial obligations.

One of the ways local governments protect against economic downturns is to diversify their economy through economic development policies (Malizia and Ke, 1993). By attracting and retaining companies from multiple industries, local governments seek to protect against economic

downturns when one of those industries has an economic shock. Therefore, protecting their tax base as compared to communities that rely heavily on one company or industry for employment.

In his examination of organizational decline, Levine (1978) identified four causes of decline. One of those causes was what he called, environmental entropy. It occurs, “when the capacity of the environment to support the public organization at prevailing levels of activity erodes” (1978, 318). In other words, it occurs when the economy declines to a level that adversely effects tax revenues from which it derives.

The purpose of this study is to test whether economic diversity has a statistically significant relationship with fiscal health of the local county government during the Great Recession. Based on Levine’s (1978) work, the Great Recession would be a qualifying event to cause environment entropy, and therefore negatively impact fiscal health of county governments. Additionally, according to the literature on economic diversity, local economies which are more diverse economically will have better economic performance than those that are less diverse. Therefore, it is hypothesized that economic diversity will have a positive relationship with fiscal health.

This study contributes to the growing body of literature on fiscal health and the Great Recession by examining one of the potential factors that influence fiscal health during periods of economic shock. The results of this study will hopefully provide practitioners some insight into whether or not to rely on the diversity of their local economy to help weather any future economic storms.

The next section of this paper outlines the relevant literature on organizational decline, fiscal health of governments and local economic diversity. After that, the research design deployed for this study is discussed, along with an explanation of fiscal health and economic diversity

measurements used. The final sections present the findings along with a discussion of the results, and concluding thoughts on the results and future considerations.

## LITERATURE REVIEW

### *Organizational Decline*

Since Levine's initial work on organizational decline (1978), significant effort in the field has been spent on examining the factors that cause the decline and how governments respond to that decline. Levine categorized the causes of public organizational decline into four categories: political vulnerability, problem depletion, organizational atrophy, and environmental entropy. The categories are determined by whether they are a product of political or economic/technical conditions and whether the conditions are located internal or external to the organization.

**Table 1. The Causes of Public Organizational Decline**

	<b>Internal</b>	<b>External</b>
<b>Political</b>	Political Vulnerability	Problem Depletion
<b>Economic/Technical</b>	Organizational Atrophy	Environmental Entropy

Source: Levine (1978, 318).

Political vulnerability relates to the internal conditions of the organization to resist decremental budget cuts. According to Levine, older public organizations with more expertise, a history of excellence, and viewed favorably by the public or policymakers, have a greater ability to resist decremental cuts.

Problem depletion is when an organization faces decline due to the problem they are tasked with has been solved. Problems that these organizations face such as natural disasters, war, and diseases require attention and

resources immediately, but over time as the problem subsides, so does the resources to the organization in charge of addressing it.

Organizational atrophy causes organizational decline through a lack of internal mechanisms able to see what private organizations view as market forces. When organizations are not able to identify signals related to their performance they are unable to make the necessary corrections, thus leaving themselves vulnerable to budget cuts.

For the purposes of this study, environmental entropy is going to be the focus of organizational decline. According to Levine, environmental entropy is when the local tax base erodes to the point where there is not enough tax revenue to support government activities. As an example, he pointed to steel towns such as Gary, Indiana, Bethlehem, Pennsylvania, and Youngstown, Ohio, all experienced declines in the steel industry, leading to higher unemployment, which eventually led to local governments maintaining fiscal health.

The tough choices local governments have to make when facing organizational decline is what Levine (1978, 1979) established as cutback management. Cutback management entails policy choices to either resisting or smoothing decline. The policy choices could include employee layoffs, program elimination, deferred maintenance, tax increases, or a wide array of other policy options.

The early literature on organizational decline and cutback management suggests that these policies are adopted based on a rational-approach to managing decline (Levine 1978, 1979; Levine, Rubin, and Wolohojian 1981; Jick and Murray 1982). Using available information at the time, governments will adopt the policies that reflect the severity of organizational decline brought about through environmental entropy, e.g. reduced tax revenue.

**Table 2. Some Cutback Management Tactics**

	<b>Tactics to Resist Decline</b>	<b>Tactics to Smooth Decline</b>
<b>Environmental Entropy</b>	<ol style="list-style-type: none"> <li>1. Find a wider and richer revenue base (e.g., metropolitan reorganization)</li> <li>2. Develop incentives to prevent disinvestment</li> <li>3. Seek foundation support</li> <li>4. Lure new public and private sector investment</li> <li>5 Adopt user charges for services where possible</li> </ol>	<ol style="list-style-type: none"> <li>1. Improve targeting on problems</li> <li>2. Plan with preservative objectives</li> <li>3. Cut losses by distinguishing between capital investment and sunk costs</li> <li>4. Yield concessions to taxpayers and employees to retain them</li> </ol>

Source: Levine (1978, 321). Note: This is the only row taken from the original published.

Since the Great Recession, there has been a significant number of studies written about cutback management policy adoption in state and local governments due to the environmental entropy caused by the recession (see Dougherty and Klase, 2009; Scorsone and Pierhoples, 2010; Klase, 2018; Justice and Yang, 2018). Most of the literature on organizational decline and cutback management since the recession has found there is a relationship between an economic decline and the adoption of cutback management policies. The literature points to the need for governments to maintain an acceptable level of fiscal health in order to meet their financial obligations, hence implementing cutback management policies when the tax base has eroded.

However, the organizational decline literature has yet to address the tactics to resist decline as outlined in Table

2, in particular the tactics related to the local economy and economic development. Recent studies on organizational decline have only addressed environmental entropy and cutback management policies that reduce expenditures or raise taxes and fees.

### ***Fiscal Health***

At its most basic, fiscal health is the government's ability to meet its financial obligations with the current available resources (Maher and Nollenberger, 2009; Helpap, 2016). The level of fiscal health can either help or hinder the government's ability to provide public services or encourage economic development (Carmeli, 2007).

However, this important aspect to government finance can be complex and have different meanings (Berne, 1992; Justice and Scorsone, 2012; Overton and Bland, 2017). According to Wang, Dennis and Tu (2007) and Rivenbark, Roenigk, and Allison (2010), fiscal health is about solvency of the government. It can be classified into four types of solvency: (1) *cash solvency*, ability to meet immediate financial obligations; (2) *budgetary solvency*, ability to meet financial obligations in a fiscal year; (3) *long-run solvency*, ability to meet all financial obligations in the future; and (4) *service-level solvency*, ability to meet government service obligations adequately (Groves, Godsey and Shulman, 1981; Burne, 1992; Hondle, Costa and Cigler, 2004).

Measuring solvency, and fiscal health in general, has become an important discussion in the recent literature (McDonald, 2018). According to Jimenez (2009), no single measurement has been accepted as the dominant tool for local government officials. However, there are several measurement tools used in the literature, including the International City/County Management Association's Financial Trend Monitoring System (Groves, Godsey and Shulman, 1981), Brown's (1993) ten-point Test (Maher and

Nollenberger, 2009), and Wang, Dennis, and Tu's (2007) solvency test, as mentioned before.

The International City/County Management Association's Financial Trend Monitoring System is also known as "indicator analysis," and is a technique that the private sector had been using throughout the 1970s. This measurement is made up of three parts, including measures of financial condition consisting of financial, demographic, and economic ratios. Within financial conditions are 12 possibilities, which consist of environmental, organizational, and financial; examples include fixed costs, property value, and personal income. While this method has been found to have positive results, it is also a dated technique and has shown problems with acquiring the amount of data necessary to use the indicator (Groves, Godsey and Shulman, 1981).

While there are strengths and weaknesses of all fiscal health measurements as outlined by McDonald (2018), for the purpose of this study, Brown's ten-point test was used. Working with the Government Officers Association, Brown developed a simple to use fiscal health test for counties, municipalities, and school districts. As a result, Brown's (1993) ten-point test is one of the most widely used fiscal health measurements in the field (Honadle, Costa and Cigler, 2004; Mead, 2013). The test uses ten financial ratios to summarize five areas of the government's fiscal condition; revenue available, expenditures, operating position, debt, and unfunded liabilities.



**Table 3. Brown's Ten-Point Test**

Type	Indicator	Description of Indicator
Revenue	Total Revenues per Capita	Total Revenues for All Governmental Funds (Excluding Capital Project Funds) Divided by Population
Revenue	Intergovernmental Revenues/Total Revenues Percentage	Intergovernmental Revenues for the General Fund Divided by Total General Fund Revenues
Revenue	Property Tax or Own Source Tax Revenues/Total Revenues Percentage	Total Tax Revenues Levied Locally for the General Fund Divided by Total General Fund Revenues
Expenditure	Total Expenditures per Capita	Total Expenditures for all Governmental Funds (Excluding Capital Project Funds) Divided by Population
Operating Position	Operating Surplus or Deficit/Operating Revenues Percentage	General Fund Operating Surplus or Deficit Divided by Total General Fund Revenues
Operating Position	General Fund Balance/General Fund Revenues Percentage	General Fund Unreserved Fund Balance Divided by Total General Fund Revenues
Operating Position	Enterprise Funds Working Capital Coverage Percentage	Current Assets of Enterprise Funds Divided by Current Liabilities of Enterprise Funds
Debt	Long Term Debt/Assessed Value Percentage	Long Term General Obligation Debt Divided by Assessed Value
Debt	Debt Service/Operating Revenues Percentage	General Obligation Debt Service Divided by Total General Fund Revenues
Unfunded Liability	Postemployment Benefit Assets/Liabilities Percentage	Funded Ratio (i.e., Actuarial Value of Plan Assets/Actuarial Accrued Liability)

Source: Maher and Nollenberger (2009, 62).

With the ten-point test, Brown uses the ratios to index and compare governments with one another (Kleine, Kloha and Weissert, 2003). Each of the ratios are calculated for every government and divided up by quartiles. For each government's ratio, a score of -1 (bottom quartile), 0 (second

quartile), 1 (third quartile), or 2 (fourth quartile) is given. Governments can receive a total score ranging from -10, if each of their ratios fell in the bottom quartile, to 20, if each of their ratios fell in the top quartile. Therefore, the lower the score, the lower fiscal health the government is in as compared to others in the measurement system.

### ***Economic Diversity***

At the heart of a government's ability to provide public services is the economy from which it extracts resources to fund those services. A community's economic base produces wealth for residents and businesses alike, and in turn, provides revenue to its respective local governments (Peterson, 1981; Hendricks and Crawford, 2014; Overton, 2016). Therefore, economic growth and stability is a top concern for most senior local government officials. This is reflected in a growing body of literature related to county economies and the shock of the Great Recession (Han and Goetz, 2015; Kelly and McGuinness, 2015; Deller and Watson, 2016; Watson and Deller, 2017).

In order to protect against inevitable economic shocks, many economic development practitioners and scholars in regional studies have turned to portfolio theory (Markowitz, 1952, 1956) as a way to mitigate risk in their local economy. When applied to local economies, portfolio theory recommends that the best way to mitigate the risk of negative shocks in the economy would be to diversify the number and type of industries in it (Conroy, 1974, 1975). By doing so, risk is spread out amongst multiple industries, and if negative economic conditions were to affect one industry, then the economy could still benefit from stability in the other industries.

Several studies have shown the benefits of having a diversified economy. Wagner and Deller (1998) found states with a more diverse economy tended to have higher levels of employment and economic stability. Spelman (2006) found

that cities which focused more on economic growth, rather than diversifying, were more susceptible to avoidable risk caused by market forces. Additionally, Malizia and Ke (1993) found metropolitan areas with greater diversity experienced lower unemployment and less instability.

Since the Great Recession, there have been multiple studies that examined economic diversity among counties and their resiliency during the recession. Deller and Watson (2016), found that higher levels of economic diversity resulted in higher economic stability within county economies. Additionally, Watson and Deller (2017), found higher levels of economic diversity lead to lower unemployment as compared to county economies with lower levels of economic diversity.

Numerous tools have been developed to measure economic diversity. Siegel, Johnson, and Alwang (1994) conducted an extensive study of economic diversity measures, and identified entropy indexes as one of the most widely used measurement tools in the literature. An entropy index, like the Herfindahl-Hirschmann Index ( $H_i$ ), examines how concentrated each industry is in a particular location.

$$H_i = \sum_{s=1}^{S_i} \left( \frac{e_{si}}{e_i} \right)^2$$

$S_i$  is the total number of industries in the  $i$ th county,  $e_{si}$  is the activity (in this study's case, wages) in the  $i$ th county in industry  $s$ , and  $e_i$  is the total activity in the  $i$ th county. When there is more diversity of wages in county  $i$  among all industries  $s$ ,  $H_i$  will be closer to 0.

While there is no theoretical reason to choose one any particular diversity measurement over the other, there are several reasons for using a Herfindahl-Hirschmann Index (Watson and Deller, 2017). First, it is a measurement used by the U.S. Department of Justice to examine industrial concentrations during merger and anti-trust decision-making. Second, it provides a good index point for diversity of industries within the economy during a specific period of

time. Finally, it has been used by a number of recent studies on economic diversity (Deller and Watson, 2016; Watson and Deller, 2017; Wilson, 2017).

## **RESEARCH DESIGN**

As pointed out earlier in the literature review, almost all of the research conducted on the Great Recession and organizational decline has focused on the eroding tax base and the cutback management policies implemented during that period of time. However, as Levine (1978) pointed out, a tactic to resist decline could be to enact policies that directly affect the local economy of which the tax base is built upon. The literature on economic diversity points to a solution adopted by many local government even before the recession, diversifying the economy so that the tax base isn't reliant on one or two industries. Diversifying the economy allows communities to spread the risk suffered by economic shocks, such as a recession, among multiple industries. Therefore, it is hypothesized that more diversity in a local economy will result in better fiscal health of the local government, even during a recession.

The purpose of this study is to test the hypothesis between economic diversity and fiscal health of county governments in the United States between 2006 and 2011. The period of time chosen for this study takes into account fiscal health and economic conditions leading up to, during, and after the Great Recession. As the previously stated hypothesis states, it is assumed that higher economic scores will be correlated with higher fiscal health scores.

Unlike municipalities, using counties as the unit of analysis allows us to develop a diversity index based on county-wide wage data by industry from the Bureau of Labor Statistics. Additionally, much of the research conducted on fiscal health examined municipal, not county

governments, which leaves a gap in the literature for further investigation regarding fiscal health of county governments.

This study examined the financial data for all 340 county governments that contributed information to the Government Officers Association's Financial Indicators Database for fiscal years 2006-2011. While not comprehensive nor representative of all county governments in the United States, there were several reasons why this mode of financial data collection was used. First, the GFOA Financial Indicators Database has one of the most comprehensive datasets of local government financial data in the United States. Second, the database has a well-established fiscal health measurement system linked to it with Brown's (1993) ten-point test. Third, several recent studies examining local governments during the Great Recession have used the database (Park 2018; Park, et. al. 2018; Shi and Tao 2018). Finally, the counties in this study represent 34 states, as outlined in Table 4.

**Table 4. County Governments by State**

State	Number of Counties in Study	State	Number of Counties in Study
Alaska	4	Missouri	5
Arizona	3	Montana	3
California	16	Nevada	2
Colorado	11	New York	5
Delaware	1	North Carolina	42
Florida	32	North Dakota	1
Georgia	18	Ohio	27
Hawaii	3	Oklahoma	1
Idaho	4	Oregon	9
Illinois	1	Pennsylvania	11
Indiana	1	South Carolina	13
Iowa	5	Tennessee	3
Kansas	3	Texas	38
Maine	1	Utah	3
Maryland	13	Virginia	20
Michigan	16	Washington	5
Minnesota	10	Wisconsin	10

### MODEL

Because this study examined 340 counties between fiscal years 2006-2011, a fixed effects least-squares dummy variable model was used in order to control for unobserved heterogeneity. This fixed effects procedure was used due to the small number of time periods in the panel data as similarly sized panel data sets have used (Eger III 2011; Alonso, Clifton and Diaz-Fuentes 2017).

In this study, the dependent variable is the fiscal health measurement score from the ten-point test, using data from the Government Finance Officers Association's Financial Indicators Database. Ten financial ratios are

calculated for each county and each year of the study, covering available revenue, current expenditures, operating position, debt, and unfunded liabilities (Brown 1993; Maher and Nollenberger 2009). A score is given for each county ratio, ranging from -1 (bottom quartile) to 2 (fourth quartile), based on where the ratio is in relation to other counties. The ten scores for the county are added up, resulting in a total score, *FiscalHealth*, ranging from -10 to 20. The higher the score, the more fiscally healthy the county is as compared to other counties in the study.

The explanatory variable for this model is the Herfindahl-Hirschmann Index score derived from collecting annual wage data for the top level North American Industry Classification System (NAICS) industries for each county and each year from the Bureau of Labor Statistics data. The resulting variable, *Diversity*, ranges from 0 (perfect diversity) to 1 (no diversity). Total annual wages by industry were chosen as the unit to index for multiple reasons. First, total wages, rather than employment in other studies, account for the primary source of wealth creation in a community. Second, wages of employees, whether or not they are a resident of the county, will probably be captured through one or more of the county government's taxes or fees. Wages are used to purchase and maintain properties that contribute to property tax revenue, spent in the community on goods and services which may be taxed by the county government, and in general wages are sometimes directly taxed by county government.

**Table 5. Descriptive Statistics and Data Sources of Variables**

Variable	Source	Mean	SD	Minimum	Maximum
<i>FiscalHealth</i>	GFOA	4.68	3.70	-5	17
<i>Diversity</i>	BLS	.166	.039	.117	.439
<i>Unemployment</i>	BLS	.065	.03	.019	.251
<i>President</i>	New York Times	.506	.122	.10	.79
<i>Ln(Population)</i>	2000 & 2010 Census	12.13	1.13	9.47	16.11
<i>Recession</i>	NBER	.33	.471	0	1

Several control variables were utilized in the fixed-effects model to account for general economic conditions, political ideology, and size of population the county government serves.

Unemployment is one of the most generally accepted proxies for how the economy is doing. Therefore, in this study, the average annual unemployment rate for each county is used as a proxy for the general economic condition within the community. However, *Unemployment* is also used as a potential factor in the fiscal health of the government, the annual unemployment data was lagged by a year to reflect the previous year's effect on government finances. Additionally, a dummy variable, *Recession*, was used in the model to control for the time specific definition of the Great Recession by the National Bureau of Economic Research. The official start month of the recession was December 2007 and end date was June 2009; therefore, fiscal years 2008 and 2009 were coded as recession years.

Recent literature has found that political ideology correlates with local government fiscal health (Garcia-Sanchez, et. al. 2014) and financial management (Cohen et al 2019). This study controls for political ideology of each county, which may impact the fiscal health of the



government, *President* by applying the percentage of voters who voted for the Republican nominee for U.S. President in the 2008 election.

Finally, studies have shown that the population size the local government serves can significantly impact their fiscal health through lower unassigned fund balance levels (Stewart 2009) and increased expenditures on public services (Marlowe, 2005; Stewart, 2009; Wang and Hou, 2012). To account for this, our study used the natural log of 2000 and 2010 population data from the Census Bureau for each county and applied them to years 2006-2009 and 2010-2011 respectively,  $\ln(\text{Population})$ .

## RESULTS

The regression results in Table 4 show the explanatory variable, *Diversity* did not have a statistically significant relationship with the fiscal health of the county governments in any of the models. When examining the results in different periods of time, pre-recession (2006-2007), recession (2008-2009), and post-recession (2010-2011), there are different directional relationships between economic diversity and fiscal health. As *Diversity* moves closer to zero, it indicates that the economy is more diverse, and as the fiscal health score increases from -1 to 2 it indicates better fiscal health. Therefore, it would be expected there would be an inverse relationship between *Diversity* and fiscal health. During the non-recession years, there was a positive relationship between the two, meaning less diverse economies would correlate with higher fiscal health scores. However, during the recession years and all years of the study, the relationship was inverse, as expected. This suggests that only during economic shocks, like a recession, the directional relationship between diversity and fiscal health may hold true.

**Table 6. Regression Results Before, During, After Recession, and All Years**

	Model 1	Model 2	Model 3	Model 4
Variable	Pre-Recession (2006-2007)	Recession (2008-2009)	Post- Recession (2010-2011)	All Years (2006- 2011)
Constant	-27.046 (11.051)	-32.275 (9.381)	146.797 (102.598)	192.252 (80.927)
<i>Diversity</i>	0.929 (11.345)	-3.027 (8.009)	3.299 (15.967)	-0.356 (4.479)
<i>Unemployment</i>	-2.651 (20.815)	2.025 (7.791)	-25.032 (14.310)	5.257** (1.825)
<i>President</i>	-22.984 (12.191)	-32.947** (11.194)	120.689* (48.165)	50.196 (37.424)
$\ln(\text{Population})$	3.748** (1.238)	4.860*** (1.111)	-18.135 (9.535)	-19.970** (7.474)
<i>Recession</i>				0.058 (0.088)
<i>N</i>	680	680	680	2040
<i>F</i>	11.214***	12.765***	8.778***	23.046***
<i>Adj. R</i> <sup>2</sup>	0.837	0.855	0.797	0.788

\* $p < 0.05$ . \*\* $p < 0.01$ . \*\*\* $p < 0.001$ .

Note: Unstandardized coefficients  $\beta$  are reported; robust standard errors in parentheses.

The control variable, *Unemployment*, had a reverse relationship with fiscal health compared to *Diversity*. This suggests that during good economic years, increased unemployment leads to lower fiscal health, but during recession years increased unemployment leads to better fiscal health. When taking all of the years of the study into account, there was a statistically significant, positive relationship between *Unemployment* and fiscal health. Therefore, increases in unemployment, when taking into account the recession years, lead to higher fiscal health. This could be a result of county governments strengthening their financials more during recession years because they are unaware of when the recession will end.

Political ideology of the county, *President*, only had a statistically significant relationship during the recession and post-recession years, and the directional relationship between the variables was different in both cases. During the recession years, higher percentages of people voting for the Republican nominee for U.S. President led to lower fiscal health. However, during the post-recession years, higher Republican percentages lead to higher fiscal health. While the model including all years of the study didn't show a statistically significant relationship, Models 2 and 3 do show that more politically conservative counties were able to have better fiscal health after the recession as compared to the years during the recession. While recent research has suggested that political ideology has a significant relationship with fiscal health, this study was only able to show it in a few select cases, and in differing directions depending on the case.

Finally,  $\ln(\text{Population})$  had statistically significant relationship with fiscal health before and during the recession, and in the model covering all years. However, the directional relationship between the two variables was positive in Models 1 and 2, but negative in model 4. Therefore, based on the output, counties with larger populations were more fiscally healthy before and during the recession, but when accounting for the post-recession years, they were less fiscally healthy. This corroborates what previous literature has found on population size and different aspects of fiscal health. Local governments struggle to maintain good fiscal health, especially when the demand for public services increase during poor economic times.

## CONCLUSION

The purpose of this study was to examine the relationship between fiscal health of county governments and the diversity in their respective economy. Based on the

literature in the areas of fiscal health and economic diversity, the hypothesis was that there would be a statistically significant relationship between the two, and as diversity increased, so would fiscal health. However, after studying 340 counties between fiscal years 2006-2011 by running four fixed-effects models, 2006-2007 (pre-recession), 2008-2009 (recession), 2010-2011 (post-recession), and 2006-2011 (all years), there was no statistically significant relationship between economic diversity and fiscal health; therefore, the hypothesis has to be rejected.

The rejection of the null hypothesis suggests that economic diversity in the local economy does not correlate with the fiscal health of the county government. Levine (1978) suggested potential changes to the local economy through incentives to prevent disinvestment and attract new private sector investments as a way to resist organizational decline through environmental entropy. His suggestions were vague as to what industries should be the target of these incentives. He could have meant existing industries or new industries. The results from this study suggest that if he was referring to incentives to diversifying the economy it would not have impacted fiscal health of the local government.

There are some limitations to this study, which we recognize. First, while fixed-effects regression was used instead of OLS in order to capture unobserved heterogeneity and the models had a high adjusted  $R^2$ , there are other county specific factors such as state mandates and diversity of taxation that are unique to each government but could not be included as variables in the model. Second, the utilization of the GFOA Financial Indicators Database creates a selection bias in which counties were chosen for this study. The database only contains a small portion of county governments who are members of the professional organization and submit their final data to the organization. However, we regard this study as exploratory in nature, and an opportunity to implement previously used fiscal health

and economic diversity measurements to an important question in the field of local government. Therefore, there are still lessons to be learned from this study.

First, with the rejection of the null hypothesis, it could be concluded that the necessity of economic diversity, especially during recessions, for economic stability doesn't lead to better fiscal health. County governments, whether they have a diverse economy or not, can have good financial health through other means, internal and external to the organization. Therefore, other cutback management policies such as furloughing employees, reduction of government services, deferred maintenance, and others may be more effective in maintaining good fiscal health as compared to having a diverse economy, particularly during a recession.

However, it should be noted that, while not statistically significant, the result from the relationship of *Diversity* with economic indicators illustrate an interesting phenomenon. During non-recession years, Diversity had a positive relationship with fiscal health, indicating that less diverse economies were healthier. This could be explained by the idea that, when in operating in a prosperous economy, a county government that relies heavily on one industry may be perfectly healthy. However, during recession years, those counties with a more diverse economy tended to perform better. This would seem to indicate that, during times of economic stress, counties with more diverse economies can adapt to the new environment better than less diverse economies. While not significant, this result remains a noteworthy result.

While this study didn't show the effectiveness of having a diversified economy to maintain fiscal health during a recession, in general having a diverse economy may be beneficial in other ways. Economic diversity can lead to greater economic stability (Maliza and Ke 1993; Deller and Watson 2016) and lower unemployment (Watson and Deller 2017).

Second, this study suggests that counties with higher unemployment rates tend to have better fiscal health. As previously discussed, the unemployment rate is a widely used indicator on how the general economy is doing, and county government officials will have a good sense of how well their local economy is doing. Therefore, it is possible that counties with a weaker, but not necessarily less diverse, economy are used to maintaining good financial health. These counties may not have had the economic “boom” times other counties had, and in turn may be more prudent with their financial management.

Finally, the size of the county’s population had a statistically significant relationship with fiscal health. In particular, the directional relationship between the two variables were inverse, which shows that counties with larger populations have lower fiscal health. This is reinforced by previous literature (Stewart 2009) and suggests that larger counties face different challenges, such as higher service demands, and may struggle with managing their fiscal health (Marlowe 2005; Stewart 2009; Wang and Hou 2012).

Further research should be conducted on how economic diversity relates to local governments. While the results of this study didn’t show a statistical relationship between economic diversity and fiscal health of county governments, it doesn’t mean economic diversity, or lack thereof, doesn’t affect other aspects of local governments. If what previous research has shown holds true, that communities with a diverse economy will have less instability, what does that mean for government services, capital spending, and levels of taxation during economic shocks? Additionally, further research examine how local governments are diversifying their economy, whether or not they are doing so in response to the Great Recession, and the incentives in place to attract different industries.

Hopefully this study has contributed to the growing body of knowledge as it relates to fiscal health and local economic conditions during the Great Recession. Overall, it can be said that in order to maintain good fiscal health, it is sound financial managerial practices that are needed whether or not the local economy has a diverse economy.

## REFERENCES

- Alonso, J. M., Clifton, J., & Díaz-Fuentes, D. (2017). The impact of government outsourcing on public spending: Evidence from European Union countries. *Journal of Policy Modeling*, 39(2), 333-348.
- Berne, R. (1992) 'The Relationships between Financial Reporting and the Measurement of Financial Condition', Government Accounting Standard Board, Research Report, No. 18, Nolkwalk, CT.
- Bozeman, B. (2010). Hard lessons from hard times: Reconsidering and reorienting the “managing decline” literature. *Public Administration Review*, 70(4), 557-563.
- Brown, K. W. (1989). “Ten-Point Test of Financial Condition: Toward an Easy-to-Use Assessment Tool for Small Cities.” *Government Finance Review*, 9 (6): 21-26.
- Carmeli, A. (2007). The effect of fiscal conditions of local government authorities on their economic development. *Economic Development Quarterly*, 21(1), 91-98.

- Carroll, D. A. (2009). Diversifying municipal government revenue structures: Fiscal illusion or instability?. *Public Budgeting & Finance*, 29(1), 27-48.
- Christian, C., & Bush, J. (2018). Municipal response to the Great Recession: Evidence from small-to medium-sized cities in Georgia and Florida. *Journal of Public Budgeting, Accounting & Financial Management*, 30(4), 384-401.
- Cohen, L., Frazzini, A., & Malloy, C. (2010). Sell-side school ties. *The Journal of Finance*, 65(4), 1409-1437.
- Conroy, M. E. (1974). Alternative strategies for regional industrial diversification. *Journal of Regional Science*, 14(1), 31-46.
- Conroy, M. E. (1975). The concept and measurement of regional industrial diversification. *Southern Economic Journal*, 492-505.
- Deller, S., & Watson, P. (2016). Did regional economic diversity influence the effects of the great recession?. *Economic Inquiry*, 54(4), 1824-1838.
- Dougherty, M. J., & Klase, K. A. (2009). Fiscal retrenchment in state budgeting: Revisiting cutback management in a new era. *Intl Journal of Public Administration*, 32(7), 593-619.
- Eger III, R. J. (2011). Examining financial behavior in special purpose entities. *Journal of Applied Business and Economics*, 12(6), 57-69.
- Garcia-Sanchez, I. M., Mordán, N., & Prado-Lorenzo, J. M. (2012). Effect of the political system on local financial condition: Empirical evidence for Spain's largest municipalities. *Public Budgeting & Finance*, 32(2), 40-68.



- Groves, S. M., Godsey, W. M., & Shulman, M. A. (1981). Financial indicators for local government. *Public Budgeting & Finance*, 1(2), 5-19.
- Han, Y., & Goetz, S. J. (2015). The economic resilience of US counties during the Great Recession. *Review of Regional Studies*, 45(2), 131-149.
- Helpap, D. J. (2016). The importance and complexity of assessing urban fiscal health. *State and Local Government Review*, 48(3), 208-216.
- Hendrick, R., & Crawford, J. (2014). Municipal fiscal policy space and fiscal structure: Tools for managing spending volatility. *Public Budgeting & Finance*, 34(3), 24-50.
- Hoane, C. W., & Pagano, M. A. (2009). City fiscal conditions 2009. *National League of Cities Research Brief on America's Cities, September*.
- Honadle, B.W., Costa J.M., and Cigler, B.A. 2004. Fiscal Health for Local Governments: An Introduction to Concepts, Practical Analysis, and Strategies. London, UK: Elsevier.
- Jick, T. D., & Murray, V. V. (1982). The management of hard times: Budget cutbacks in public sector organizations. *Organizational Studies*, 3, 141-169.
- Jimenez, B. S. (2009). Fiscal stress and the allocation of expenditure responsibilities between state and local governments: An exploratory study. *State and Local Government Review*, 41(2), 81-94.
- Justice, J. B., & Scorsone, E. A. (2012). Measuring and predicting local government fiscal stress. *Handbook of local government fiscal health*, 43, 43-74.

- Justice, J. B., & Yang, K. (2018). Local-Government Responses to the 2008 US Fiscal Crisis: Strategic, Merely Predictable, or Lifted from the Garbage Can?. *Public Finance & Management, 18*(1).
- Kelly, E., & McGuinness, S. (2015). Impact of the Great Recession on unemployed and NEET individuals' labour market transitions in Ireland. *Economic Systems, 39*(1), 59-71.
- Klase, K. A. (2018). The relationship between fiscal stress and patterns of state budgeting strategies used in cutback management in the last two US recessions. *Public Finance & Management, 18*(1).
- Kleine, R., Kloha, P., & Weissert, C. S. (2003). Monitoring local government fiscal health: Michigan's new 10 point scale of fiscal distress. *Government Finance Review, 19*(3), 18-18.
- Levine, C. H. (1978). Organizational decline and cutback management. *Public Administration Review, 38*, 316–325.
- Levine, C. H. (1979). More on cutback management: Hard questions for hard times. *Public Administration Review, 39*, 179–183.
- Levine, C. H., Rubin, I., & Wolohojian, G. G. (1981). *The politics of retrenchment: How local governments manage fiscal stress*. Beverly Hills, CA: Sage.
- Maher, C. S., & Nollenberger, K. (2009). Revisiting Kenneth Brown's "10-point test.". *Government Finance Review, 25*(5), 61-66.
- Malizia, E. E., & Ke, S. (1993). The influence of economic diversity on unemployment and stability. *Journal of Regional Science, 33*(2), 221-235.
- Markowitz, H. (1952). Portfolio selection. *The Journal of Finance, 7*(1), 77-91.

- Markowitz, H. (1956). The optimization of a quadratic function subject to linear constraints. *Naval research logistics Quarterly*, 3(1-2), 111-133.
- Marlowe, J. (2005). Fiscal slack and counter-cyclical expenditure stabilization: A first look at the local level. *Public Budgeting & Finance*, 25(3), 48-72.
- McDonald III, B. D. (2018). Local governance and the issue of fiscal health. *State and Local Government Review*, 50(1), 46-55.
- Mead, D. M. (2013). The development of external financial reporting and its relationship to the assessment of fiscal health and stress. *Handbook of Local Government Fiscal Health*, 77-124.
- Overton, M. (2017). Sorting through the determinants of local government competition. *The American Review of Public Administration*, 47(8), 914-928.
- Overton, M., & Bland, R. (2017). *Exploring the Linkage between Economic Base, Revenue Growth, and Revenue Stability in Large Municipal Governments*. Lincoln Institute of Land Policy..
- Pandey, S. K. (2010). Cutback management and the paradox of publicness. *Public Administration Quarterly*, 70, 564-571.
- Park, S. (2018). The Impact of State-imposed Fiscal Rules on Municipal Government Fiscal Outcomes: Does Institutional Configuration Matter?. *State and Local Government Review*, 50(4), 230-243.
- Park, J. H., Park, S., & Maher, C. S. (2018). The effects of tax and expenditure limitations (TEs) on municipal fiscal outcomes during a period of fiscal distress. *Public Finance and Management*, 18(1), 84-110.
- Peterson, P. E. (1981). *City limits*. University of Chicago Press.

- Rivenbark, W. C., Roenigk, D. J., & Allison, G. S. (2010). Conceptualizing financial condition in local government. *Journal of Public Budgeting, Accounting & Financial Management*, 22(2), 149-177.
- Scorsone, E. A., & Pierhoples, C. (2010). Fiscal stress and cutback management amongst state and local governments: What have we learned and what remains to be learned? *State and Local Government Review*, 42, 176–187.
- Shi, Y., & Tao, J. (2018). ‘Faulty’fiscal illusion: examining the relationship between revenue diversification and tax burden in major US cities across the economic cycle. *Local Government Studies*, 44(3), 416-435.
- Siegel, P. B., Johnson, T. G., & Alwang, J. (1995). Regional economic diversity and diversification. *Growth and Change*, 26(2), 261-284.
- Sobel, R. S., & Holcombe, R. G. (1996). Measuring the growth and variability of tax bases over the business cycle. *National Tax Journal*, 535-552.
- Spelman, W. (2006). Growth, stability, and the urban portfolio. *Economic Development Quarterly*, 20(4), 299-316.
- Stewart, L. S. M. (2009). Examining factors that impact Mississippi counties' unreserved fund balance during relative resource abundance and relative resource scarcity. *Public Budgeting & Finance*, 29(4), 45-73.
- Wagner, J. E., & Deller, S. C. (1998). Measuring the effects of economic diversity on growth and stability. *Land Economics*, 541-556.
- Wang, X., Dennis, L., & Tu, Y. S. (2007). Measuring financial condition: A study of US states. *Public Budgeting & Finance*, 27(2), 1-21.

- Wang, W., & Hou, Y. (2012). Do local governments save and spend across budget cycles? Evidence from North Carolina. *The American Review of Public Administration*, 42(2), 152-169.
- Watson, P., & Deller, S. (2017). Economic diversity, unemployment and the Great Recession. *The Quarterly Review of Economics and Finance*, 64, 1-11.
- White, F.C. (1983). Trade-off in growth and stability in state taxes. *National Tax Journal*, 36(1), 103-114.
- Wilson, D. (2017). Economic Diversification and Development Among County Governments in Appalachia. *International Journal of Economic Development*, 11(1), 54-77.
- Yan, W. (2011). The interactive effect of revenue diversification and economic base on US local government revenue stability. *Public Money & Management*, 31(6), 419-426.