**Intergovernmental Financial Monitoring and Intervention:**

**Does it make the Grade?**

BY

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Submitted as partial fulfillment of the requirements
for the degree of Doctor of Philosophy in Public Administration
in the Graduate College of the
University of Illinois at Chicago, 2016

Chicago, Illinois

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**ACKNOWLEDGEMENTS**

Early in my academic career, I was introduced to the Isaac Newton quote, "If I have seen further, it is by standing on the shoulders of giants." Several years and a few degrees later, I look back and see how often this quote has proven true in my life.

Several early influences in my career helped to bring me to where I am today. Dr. Greg Forbes, Mr. David Tower, and Mr. Dennis Sutton taught me the fundamentals of science, English composition, and public speaking, respectively, during my time at Grand Rapids Community College, and these foundations stay with me today. More importantly, though, these three individuals showed me the value of a college education at a tumultuous time of my life in which college education was not at all a certain path.

Dr. Myron (Mike) Mast at Grand Valley State University (GVSU) nearly singlehandedly spurred my interest in public administration. Dr. Mast was engaging as a teacher and also taught me the value of humility in a faculty member. Dr. Mast spent hours of his time even in phased retirement to give me career advice, which to this day has been invaluable.

Dr. Donijo Robbins at GVSU introduced me to the field of public budgeting and finance and also introduced me to academic research and graduate education. I both attended my first academic conference and coauthored my first peer-reviewed journal article with her. Dr. Robbins has been a constant positive presence in my life, and I am deeply grateful to her.

I thank Dr. Rebecca Hendrick for foundations in both financial management and program evaluation, as well as the countless hours she spent with me as Director of Graduate Studies and a coauthor. I thank Dr. Allyson Holbrook for introducing me to the field of survey methodology and socialization into that field, as well as her support as a coauthor. I thank Dr. Michael Siciliano for not only assisting me with various methodology questions, but also for setting an

excellent example of what a junior faculty member in public administration should be in terms of research, teaching, and service. I can only hope to live up to his example.

Other current and former UIC faculty members have also been extremely supportive during my doctoral career. Dr. Tim Johnson has both helped me better understand survey methodology and also has advised me on a wide variety of topics. Dr. Mary Feeney, now a faculty member at Arizona State University, was instrumental in orienting me to doctoral coursework and doctoral education generally. My ability to produce theoretically important research questions, to successfully deliver research presentations, and to defend my research and ideas have all been tremendously improved as a result of Dr. Feeney.

I would like to thank my family for supporting me throughout my education. In particular, my mother, Lenore Kuipers, has always encouraged me to follow my dreams, no matter how big they were. My father, Scott Crosby, has always pushed me to be successful.

Finally, I would like to thank Dr. David Merriman, my dissertation chair, for his guidance since the first day of my doctoral program. He has been a steady and supportive hand throughout my time at the UIC, both as a supervisor and faculty advisor. Dr. Merriman has showed me not only how to improve my research and teaching, but also how to better manage my time and how to be a better colleague. During all of these learning experiences, Dr. Merriman also has shown extraordinary humility and accessibility. I am deeply indebted to Dr. Merriman and extremely fortunate to work with him. I am truly standing on the shoulders of giants.

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## TABLE OF CONTENTS

## LIST OF TABLES

## LIST OF TABLES (CONTINUED)

## LIST OF FIGURES

# Chapter 1: Introduction

## 1.1 Statement of the problem

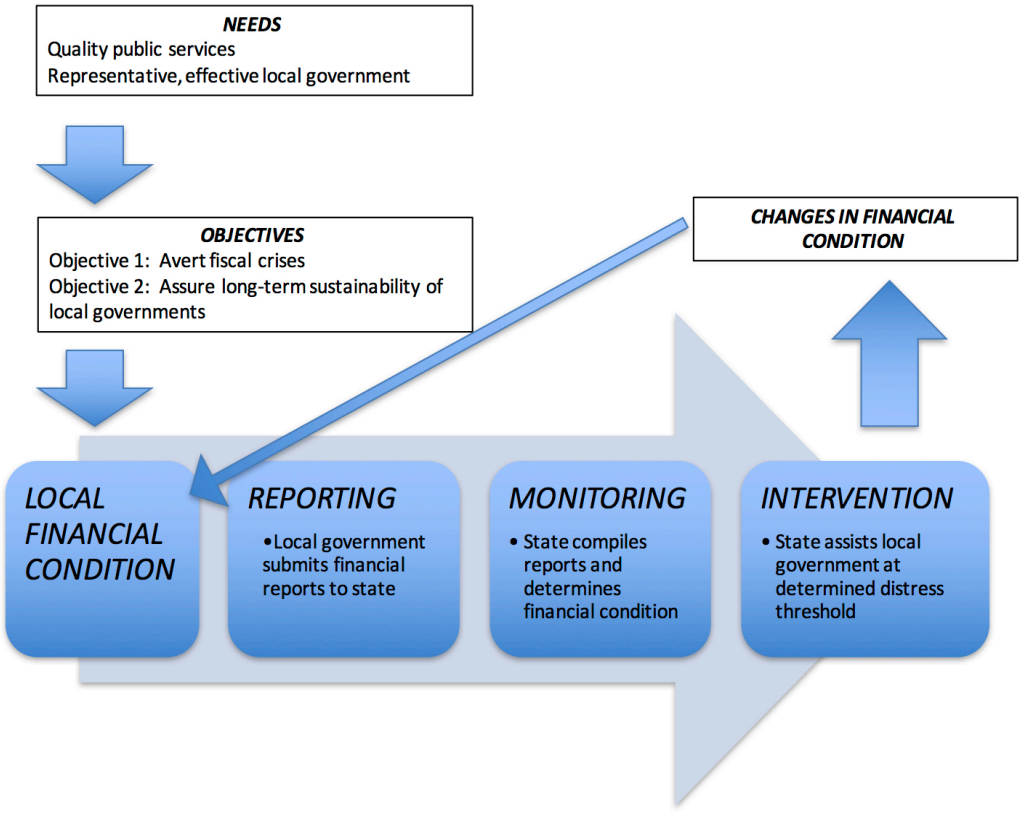
In a federal system of government, state governments often have the power to impose obligations on local governments and to ensure local governments' compliance with these obligations. State governments may regulate policy in a variety of areas including electoral (e.g. specifying the frequency of elections), procedural (e.g. requiring "open meetings"), and social (e.g. issuing of marriage licenses). State governments are often most vigilant in regulating lower levels of government fiscal behavior. For example, local revenue raising ability and spending are regulated to varying degrees by both state constitutions and legislation. State governments may also specify financial reporting requirements for local governments and limit debt (Honadle, 2003; Rodden, 2006). "Fiscal federalism" describes the financial[1] relations between different levels of government.

Financial regulation of local governments inherently requires *monitoring* the fiscal activities of those governments. Fiscal monitoring can take a variety of forms, ranging from a state comptroller gathering local government financial reports to a state board of education monitoring school districts' fiscal indicators. Such monitoring is in states' best interests because states' finances are closely tied to the finances of local governments. For example, a local government's bond ratings can pose a threat to a state's bond rating as well as other local governments' ability to access credit markets (Kaffer, 2010). In addition, a number of local services are funded in part by states - K-12 education being a prime example – and thus states have a vested interest in ensuring these services are managed properly (Honadle, 2003).

[1] Authors use different variations of "fiscal" and "financial" in literature. Per the Merriam-Webster dictionary (2015), "fiscal" can be defined as "of or relating to financial matters," and as such these terms are used interchangeably throughout this dissertation, and typically reflect the wording of original literature.

With state monitoring comes the need to fix local fiscal problems once they are identified. A number of states have enacted legislation (described in more detail later in this dissertation) that allows states to intervene in local government fiscal affairs if monitoring reveals that local governments' fiscal situation is precarious. *Intervention*, like monitoring, can take a variety of forms, ranging from requiring a financial plan be completed to complete takeovers of local governments. Although state monitoring may lead to intervention in local government fiscal affairs, intervention does not necessarily require monitoring; for example, several states allow local governments to request intervention (Berman, 1995; Honadle, 2003; Oluwole & Green, 2009). A general logic model for how monitoring and intervention is intended to affect local governments is shown in Figure 1.

***Figure 1: Logic Model of State Intervention in Local Government Finances Adapted from Nagarajan & Vanheukelen (1997)***



This model can be thought of as an annual process. In this model, a local government's financial condition is reported to state government each year. State governments then compile financial data and assess the condition of local governments. If there is fiscal distress, the state may intervene. Changes in financial condition then occur either as a result of the local government's environment, state intervention, or both; and finally the monitoring and intervention model begins again.

Virtually all fiscal distress legislation enacted since the 1970s at the U.S. state level is based on a general assumption that state intervention can improve local fiscal condition (Honadle, 2003). However, conceptually, this assumption may prove to be problematic, and empirically, little empirical exists to investigate whether this assumption is true. These conceptual and empirical shortfalls motivate this study. A comprehensive study of the conceptual reasons behind state fiscal monitoring and intervention in local government fiscal affairs, as well as a conceptual and empirical exploration regarding the conditions in which monitoring and intervention improves financial condition, is needed.

**1.2 Research question**

Fiscal monitoring and, potentially, intervention are essential elements of intergovernmental relations in a well-functioning federalist system. Conceptually, I ask how fiscal monitoring and intervention systems should be designed. I ask what stimuli should trigger intervention and what type of intervention is appropriate.

In the empirical portion of this study I investigate how state monitoring and intervention affect lower level government's financial condition using Illinois' monitoring of school districts as an example.

### 1.3 Significance of the study

Jeffery Pfeffer (1982) claimed, "The domain of organization theory is coming to resemble more of a weed patch than a well-tended garden. Theories…proliferate along with measures, terms, concepts, and research paradigms. It is often difficult to discern in what direction knowledge of organizations is progressing" (p. 2). This claim is particularly relevant to federalism and more specifically fiscal federalism.

Rodden (2006) explains that some people herald the benefits of fiscal federalism, while others claim that such an arrangement is detrimental. Robbins (2013) explains that both academics and practitioners debate which level of government should hold power.

The contribution of this study, then, is to conceptually and empirically evaluate a fiscal federalism relationship in a large U.S. state with a large number of its local governments. Although several states (e.g. Illinois, Michigan) have tried various approaches to fiscal monitoring and intervention, the long-term results of such monitoring and intervention are unclear and are often highlighted only in case studies. For example, although the City of Flint, Michigan, recently (April 29, 2015) exited emergency management under Michigan state law, this was not the city's first time under emergency management: Flint had previously been under emergency management little more than a decade earlier (Adams, 2013; Fonger, 2015).

I empirically evaluate the long-term fiscal effectiveness of state government monitoring and intervention in local fiscal health and develop a predictive model of local government fiscal intervention that can be generalized to local governments in the United States.

### 1.4 Organization and overview of the dissertation

The rest of this document is organized as follows. Chapter 2 presents my theoretical

framework as well as my hypotheses, and is informed by a thorough review of relevant literature. Chapter 3 proposes a predictive model of fiscal intervention and outlines my data collection methods. Chapter 4 presents empirical results, and Chapter 5 outlines policy implications and potential future research avenues.

## Chapter 2: Theoretical Framework & Literature

### 2.1 Overview of Fiscal Monitoring and Intervention

2.1.1 Foundations: Federalism and Fiscal Federalism

One of the founding principles of the United States of America is federalism. Musso (1998) explains, "the framers of the Constitution understood federalism to imply a covenant between sovereign states, much like the United Nations, as opposed to a nationally based, centralized government" (p. 349). More specifically, Robbins (2013, p. 208) explains that Article 1, Section 8 of the United States Constitution enumerates a wide variety of powers to Congress, including taxation, borrowing, coining money, regulating commerce, and declaring war. However, the Tenth Amendment of the Constitution reserves those powers not delegated to the federal government to the states or the people. Notably, the United States Constitution makes no mention of local governments; these instead are considered creatures of the state (Grumm & Murphy, 1974).

Federalism is a political system in which one nation has both a central government and a number of sub-central governments. These sub-central governments may be subordinate to the central government in some matters but also independent from the central government in other matters (Rubin, 2001).

A subset of federalism literature that deals with financial relations between governments is fiscal federalism. Governing requires finance. Shared governance responsibility among tiers of government requires shared financial responsibilities, and scholars have studied the appropriate design for these shared responsibilities. Oates (1972) proposed a "decentralization theorem" and argued that as long as there are no cost advantages to centralizing provision of government goods, these goods should be provided in the most decentralized manner possible.

Since Oates' original theorem was published, a "second generation theory of fiscal federalism" has emerged, which challenges the "traditional and largely favorable view" of decentralization due in part to "perverse behavior at decentralized levels of government" (Oates, 2008, p. 319). Oates gives the example of provinces in Argentina and Brazil "[raiding] the fiscal commons" by running deficits and essentially forcing bailouts by central governments (2008, p. 313).

The perverse behavior to which Oates (2008) refers may be facilitated by local government officials' belief that their financial missteps are implicitly insured by central government. Kornai (1979) describes this in terms of what he calls a "hard" and "soft" budget constraint (p. 806). Here, a budget constraint is "hard" if a financial emergency drives a local government to bankruptcy and can even cause governments to cease to exist entirely, regardless of the reason for failure[2] (Kornai, 1979, p. 806). Of nearly 90,000 local governments in the United States as of 2007, only about 57 percent in 24 states were authorized to pursue some form of bankruptcy, either fully or conditionally (Hendrick & Crosby, 2014; Spiotto, 2008).

Conversely, a constraint is soft if a higher unit of government may rescue the local government. Kornai gives a variety of scenarios (e.g. state subsidies) in which rescues could occur. The bottom line for local governments with a soft budget state is that "the state is a universal insurance company which compensates the damaged sooner or later for every loss. The paternalistic state guarantees automatically the survival of the firm" (1979, p. 806).

Oates concludes that soft budget constraints can "induce serious and destabilizing fiscal behavior" (2008, p. 329). He similarly points out "serious fiscal mischief" at the local level

[2] Although Chapter 9 bankruptcy can also be thought of as a "rescue" of sorts, it forces the local government to deal with the full consequences of its actions (e.g. it may be required to sell assets to pay bills), rather than relying on a state government for assistance.

provides concerns regarding intergovernmental grants (Oates, 2008, p. 330). As I will describe, in the case of mischief, state intervention may be desirable in local government finances.

### 2.1.2 Theoretical Basis for State Fiscal Monitoring and Intervention

When might a state want to intervene in local government fiscal affairs? Feiock (2008) argues that from a theoretical perspective, intervention can be understood using transaction cost theory and should occur when inefficiencies exist at the local level. States are faced with a decision of how to govern on a continuum between complete vertical integration, where the state controls all policy without local government input, and complete delegation, where local governments would be free to enact policies that minimize local transaction costs (Feiock, 2008).

Arguments exist for both vertical integration and delegation. For example, Feiock (2008) posits that vertical integration could be justified under Coase's (1937) argument that when large negotiation costs exist, transactions should be integrated under a firm – or in this case, the state. Applied to the realm of state intervention, inefficiencies in local policy make state action desirable to reduce transaction costs and improve efficiency (Feiock, 2008).

We can also think of K-12 education provision in this context. K-12 education is a state responsibility through state constitutions (Hanushek, 1997). Educational services can be carried out directly by a state – that is, produced by the firm (e.g. the State of Hawaii has one single state district), or delegated to local school districts in "a very constrained manner," (Hanushek, 1997, p. 146) essentially in a decision to contract. With the decision to contract comes the need to monitor and intervene when necessary. Levin (2012, p. 336) explains (emphasis added):

> Transaction costs for a good or service require a search for providers and an evaluation of the qualities and costs of alternatives as well as dependability of different sources… [in addition]

they may require ***monitoring and enforcement*** to ensure that services…meet specifications and imposition of sanctions if they do not.

Essentially, the State of Illinois is funding a large proportion of school district budgets, with the implicit assumption that quality education can be delivered move efficiently than if the State delivered K-12 education itself. However, if a local district is found through state monitoring to be particularly financially inefficient, the state should intervene to reduce costs and improve efficiency.

For example, inefficiencies may exist when staff capabilities are lacking. A number of local governments do not have adequate capacity to manage their finances, and small local governments in particular often rely on part-time or volunteer officials with little training in financial management (Honadle, 2003). State intervention could be desirable in these circumstances, as technical assistance (e.g. staff training) could both correct inefficiencies and ultimately improve district finances.

At the same time, complete vertical integration could create a number of inefficiencies. States controlling all public policy may be unable to determine optimal policies for each local community. For example, some communities might prefer to raise taxes to deal with a budget deficit, while other communities might prefer to cut spending and services. Similarly, failures of bureaucracy and implementation are possible in complete vertical integration (Feiock, 2008)

Ultimately, neither complete vertical integration nor complete delegation is desirable, as complete vertical integration would be unable to accommodate variations in preferences and complete delegation would not allow any economies of scale in production. Ideally, both states and local governments would seek to minimize transaction costs and only inefficient transactions would cause intervention by the state, in order to avoid losing local autonomy and to allow

competition among local governments (Feiock, 2008).

### 2.1.3 History of State Fiscal Monitoring and Intervention in the U.S.

Historically, states have played a more reactive than proactive role in financial intervention; that is, state governments stepped in to assist local governments only after a financial emergency had occurred. A reactive approach assumes that local governments should manage their own affairs and the state should only become involved when local officials cannot remedy their fiscal problems. When New York City was on the brink of financial collapse in the 1970s, it was only after an emergency was apparent that the State of New York stepped in (Berman, 1995).

This reactive approach has consequences for states. Considerable damage to the local government may have occurred by the point a crisis is reached – for example, debt may have mounted to the point where day-to-day operations are constrained. This damage may mean that crises are more difficult to solve (Berman, 1995). Businesses also choose to locate in a state based on local government services and infrastructure, and thus states could lose economic development opportunities if a local government is in fiscal distress and struggling to provide services (Honadle, 2003). Moreover, the potential effects of a local government facing fiscal distress are not limited to only that single government. One municipality's financial distress could affect the financial condition and bond ratings of other municipalities in that state, and even the credit rating of the state itself. For example, if a general-purpose government is unable to provide adequate public safety services due to fiscal stress, other local governments may need to extend their services into the distressed community without compensation (Kloha, Weissert, & Kleine, 2005b).

Based on experiences of previous financial collapses and potential effects of future fiscal stress among local governments, states have transitioned to a more proactive role in financial intervention. In a proactive approach, states attempts to detect and address local government fiscal problems before they reach a state of crisis. At the same time, as Berman (1995) notes, a state's desire to intervene in local government affairs is countered by political and cultural constraints. Residents may view state control as uninvited and against the norm of local autonomy in decision-making (Berman, 1995).

Despite the possibility of political resistance, states have continued to expand their proactive role in local government fiscal affairs, particularly after 2010. In 2010 and 2011, the States of Michigan and Rhode Island passed laws that allowed suspension and even dissolution of local governments in fiscal crises (Anderson, 2011). Berman (1995) refers to these types of actions as "the ultimate in state intervention – the decision of state authorities to, in effect, suspend local autonomy and democracy" (p. 55). As one New York Times reporter observed in 2011, although cities and states had tried a variety of methods to right their financial ships, "locking the mayor out of City Hall [was] generally not one of them" (qtd. in Anderson, 2011, p. 577).

The Michigan and Rhode Island intervention laws represent a major change in fiscal federalism. States previously granted local governments emergency financial assistance in exchange for local consent on the appointment of state receivers. With new intervention laws, bailouts are no longer automatic and local consent is no longer a required as part of state takeovers. Whereas state receivers once guided recoveries alongside local officials, these states may now dictate solutions to local officials (Anderson, 2011).

Resistance to state takeovers of local governments has been vocal. When the Emergency

Manager in Benton Harbor, Michigan stripped the City Council of most of its powers, Mark Gaffney, president of the Michigan AFL-CIO, claimed "This is sad news for democracy in Michigan…With the stripping of all power of duly elected officials in Benton Harbor…we can now see the true nature of the emergency manager system" (qtd. in Esparza, 2011). One Benton Harbor resident screamed at a council meeting, "we have a dictator in [emergency manager] Joseph Harris. We have allowed this man to be too comfortable in our home, in our city" (qtd. in Lewis, 2011a). Another resident compared Benton Harbor to a third world country, while still another accused the emergency manager of being bi-polar (Lewis, 2011a).

Protests also erupted at the state level after Michigan passed its takeover law. Eleven people were handcuffed and arrested inside the State Capitol during a demonstration attended by over 3,000 people shortly after the law was passed (Bouffard, 2011).

Despite the contentiousness of state interventions, states have continued to take an increasingly proactive role in monitoring and intervening in local government fiscal affairs.

## 2.2 Development in Monitoring and Intervention Literature and Practice

### 2.2.1 Monitoring and Intervention in U.S. General Purpose Local Governments

Fiscal monitoring and intervention in local government has been a popular topic in public finance literature and practice for years. Hendrick (2011) explains that particularly during the late 1970s and early 1980s, there were "numerous efforts to develop indicators of fiscal stress and financial condition from different sectors" (p. 11). A number of these systems, developed by academics or professional organizations, have been adapted for use by both state and local governments. A great deal of the growth in fiscal monitoring has been in systems that measure the health of general-purpose governments – for example, cities and villages.

Fiscal monitoring systems date to the 1870s, but their popularity has grown in recent

years, due in part to growing fiscal crises in large U.S. cities. Petersen (1977) points out that "about every thirty years or so, events on the national scene draw public attention to the measurement and reporting of the financial condition of state and local governments" (p. 299).

At the turn of the 20th Century, local governments, which were increasingly powerful as state activity declined, had "an orgy of expenditures and peculation," and the need for state monitoring of local governments became apparent (Petersen, 1977, p. 299). In the 1920s, the Great Depression forced a number of U.S. local governments to default, and both academics and government officials had a renewed interest in local government financial condition (Petersen, 1977).

A recent wave of interest in fiscal monitoring of local government began in the 1970s. The Advisory Commission on Intergovernmental Relation (ACIR) in 1973 analyzed 30 large cities and suggested six fiscal early warning signs for municipalities (Kloha, Weissert, & Kleine, 2005b). Soon after this system was developed, in 1975, New York City faced a famous fiscal crisis, and investors began to worry that a replay of Depression-era fiscal stress was imminent (Petersen, 1977; Coe, 2008). In 1978, the City of Cleveland became the first city to default on general obligation bonds since the Great Depression (Coe, 2008).

Even after ACIR developed its system and local government fiscal crises became imminent, adoption of fiscal monitoring was limited; even in the late 1970s and early 1980s, states took little action to monitor or intervene in local government finance. However, as the 1990s brought fiscal difficulties in Miami, Pittsburgh, and Philadelphia, states began to more actively monitor and intervene in local government fiscal health (Kloha, Weissert, & Kleine, 2005a).

A wide variety of fiscal monitoring systems were proposed around and shortly after New York City's well-publicized fiscal crisis. Organizations ranging from the Brookings Institution to the Congressional Budget Office and the International City Management Association all developed indicators of local fiscal stress within five years of New York City's crisis. University researchers also proposed a number of systems. A number of additional indicator systems were developed in the decades to come (Kloha, Weissert, & Kleine, 2005). Kloha, Weissert, and Kleine (2005) provide a review of popular systems, as do Hendrick (2011) and Crosby and Robbins (2013).

A number of state takeovers also occurred not long after indicator systems had been developed. Two well-publicized takeovers include the 1991 state takeover of the City of Bridgeport, Connecticut, and the 1996 state takeover of the City of Miami, Florida. During this time, Orange County, California also declared bankruptcy (Coe, 2008).

States continue to monitor and intervene in local fiscal affairs today. Two of the more popular monitoring systems today include the International City/County Management Association's Financial Trends Monitoring System (FTMS), developed in 1980; and Ken Brown's 10-point test of financial condition, which was developed in 1993.

FTMS relies on a system of 36 indicators representing eleven factors of fiscal condition, ranging from environmental factors (e.g. community needs) to financial (e.g. operating position). Brown's 10-point test was designed to be a good alternative to more complex financial indicator system such as FTMS, and relies on comparing fiscal indicators of one government to other similarly sized governments (Crosby & Robbins, 2013). A number of other monitoring systems exist, although no system prevails in literature or practice.

Fiscal monitoring systems for general-purpose governments have been criticized a great deal over the years as well. Kloha, Weissert, & Kleine (2005) point out that a number of fiscal indicator systems do provide information on fiscal conditions but are "not always useful to states and local units to warn of fiscal distress" (p. 238). The authors provide a myriad of reasons that various systems fall short: some systems have too many variables, others have too few, some rely on data that are not easily available, and still others do not provide guidance on what variables are important or what constitutes a problem. Crosby and Robbins (2013) assert that in their review of systems, no system met the definition of being theoretically valid using a framework proposed by Frederickson and Smith (2003). Components of a theoretically valid indicator system are outlined in Table 1 below.

***Table 1: Components of a Theoretically Valid Fiscal Indicator System (Crosby & Robbins, 2013; adapted from Frederickson & Smith, 2003)***

| Component | Description |
|---|---|
| Parsimony | Concise; understandable for both administrators and residents |
| Explanatory Capacity | Uses widely accepted indicators with well-defined thresholds |
| Replicability | Administrators and residents can replicate results of the system |
| Descriptive Capacity | Accurately describes condition; minimizes Type I errors (false positive; identifying problems where none exists) |
| Predictive Capacity | Provides a warning system that indicates potential problems before they occur |
| Empirical Warrant | Provides ability to empirically confirm hypotheses and probabilistic assessments |

These components are important if an indicator system is to be taken seriously by both residents and state and local officials. For example, if a system is not parsimonious, state and local officials are unlikely to use a system, or might only use parts of a system.

Although a great deal of literature exists on fiscal monitoring of general-purpose local governments, literature surrounding fiscal intervention in local government is sparser. Cahill and

James (1992) review intervention legislation and find that three assumptions are generally shared across systems.

First, emergencies are temporary, and that state assistance can be withdrawn once problems are corrected.

Second, fiscal emergencies occur because of inappropriate managerial or political actions, and that actions such as training local government officials can help to prevent future emergencies.

Third, the effects of a fiscal emergency can be alleviated by providing short-term loans or grants.

Literature on the effectiveness of fiscal intervention in general-purpose governments is sparse, and what does exist lacks empirical evidence. For example, Anderson (2012) points out potential dangers of state takeovers of local government (p. 582):

> Centralization of power…does not ameliorate structural causes of financial distress, like concentrated poverty, the loss of middle-class jobs across a region, or local borders that fragment a single metropolitan area into socioeconomically segregated cities. Indeed, local democratic dissolution may only exacerbate fiscal malaise over the longer term by facilitating changes (like the abrupt sale of public assets) that produce quick returns at the cost of permanent sustainability."

However, Anderson does not provide empirical evidence to show the effects of state takeovers.

Hendrick and Crosby (2014) question whether fiscal intervention can even matter in certain cases of local government distress. They explain this in the context of Chapter 9 bankruptcy, and use the City of Detroit, Michigan as one example. Detroit has a rapidly declining population with high poverty and unemployment rates, and one-third of the City's land area is vacant or derelict. Thus, even if the State of Michigan were to find a way to balance Detroit's books in the short term, its declining revenue base and tremendous service demands

would quickly plunge it back into the financial abyss. Hendrick and Crosby point out that Detroit "exemplifies a government that has little long-term financial capacity and fundamental financial problems that cannot be solved through bankruptcy" (2014, p. 52).

Although the intervention literature does provide some clues as to what type of financial problems may be solved via state intervention, it lacks empirical analyses of such interventions.

### 2.2.2 Monitoring and Intervention in U.S. School Districts

Just as the United States Constitution makes no mention of local governments, it also makes no mention K-12 education. Under the Tenth Amendment, then, this responsibility falls to states. States have historically delegated most of their executive (e.g. the ability to run school districts) power to local school districts. Most financial responsibility has also historically been delegated to local districts, and as late as 1929-30, local taxes represented 83 percent of total K-12 school funding revenue in the United States (Theobald & Bardzell, 2000).

However, since 1980, a historical pattern of limited state involvement in K-12 education has begun to shift power away from local school boards and toward state institutions (Theobald & Bardzell, 2000). Much as states began to watch over general-purpose local governments, school districts began to face state monitoring and at times intervention. In 1989, six states allowed takeovers of local school districts, and New Jersey was the first state in the nation to take over a school district that same year (Oluwole & Green, 2009). By 2001, 24 states allowed state takeover of local school districts in the case of "academic bankruptcy" or "woefully low-performing schools" (Wong & Shen, 2001, p. 1). Ziebarth (2004) reported that the number of states authorizing takeovers of local districts had grown to 29 by 2004. In 2011, 33 states authorized state or mayoral takeovers for academic and/or financial reasons; 17 of these states

allowed takeovers for fiscal crises and 16 for solely academic reasons (Bowman, 2011). More recent state takeover laws have focused on academic, as opposed to financial, accountability (Wong & Shen, 2003). Despite states' legal authority to take over schools, the execution of this authority is still fairly rare: only 73 districts had been taken over nationwide by 2009 (Bowman, 2012).

Despite the recent focus on academics in state takeovers, financial management remains a concern. For example, in Newark, New Jersey, financial mismanagement was a key reason for a state takeover in 1995. Before the State of New Jersey took over the district, a judge's analysis found that most of the district's per-pupil educational spending went to administrative costs. Similarly, the city's corporate community had distanced itself from the school district because "it had real concerns about financial management, patronage, graft, and bribery" (Burns, 2003, p. 294). A local grant-making foundation had stopped funding public education in Newark because of concern about how contributions were being used (Burns, 2003).

School takeovers are not always a state issue; some districts are taken over by local governments (although with approval by states). For example, the Chicago Public Schools gained national attention when they were taken over by the City of Chicago and then-Mayor Richard M. Daley in 1995 (Wong & Shen, 2001; Wong & Shen, 2003). Similarly, Boston Mayor Thomas Menino took over that city's school district in 1992, but that takeover received comparatively less national attention (Wong & Shen, 2003).

Despite a number of states that allow state intervention in local school district financial affairs, few comprehensive monitoring and intervention systems have been proposed or implemented, and no single monitoring and intervention system dominates.

Few comprehensive systems specifically aimed at school districts exist, and even these

systems can be adaptations of systems used for general-purpose governments. Ammar, Duncombe, Jump, and Wright (2004) proposed the development of a Financial Condition Indicator System (FCIS) to monitor the fiscal health of nearly 700 New York school districts. This system was developed during a period when both state and local governments were facing severe fiscal crises, and was aimed at keeping school districts able to finance adequate long-run student performance without any disruption of services during these crises (Duncombe, Jump, Ammar, & Wright, 2003). FCIS also was viewed as a system that could be used as a training tool to assist districts in identifying and tracking key financial indicators (Ammar, Dumcombe, Jump, & Wright, 2005).

FCIS was to be based on unaudited financial statements submitted by school districts to the State of New York, as well as available data from the New York State Education Department and New York State Office of the State Comptroller. The system used both short and long-run financial measures, as well as economic condition measures to assess the overall financial health of school districts.

Short-run measures included the district's quick ratio (very liquid assets, e.g. cash, to current liabilities), fund balance as a percentage of expenditures, and tax capacity measures (e.g. market property value per pupil) (Duncombe, Jump, Ammar, & Wright, 2003; Ammar, Duncombe, Jump, & Wright, 2004). Long-run measures included debt ratios, property tax indicators (e.g. trend in tax burden relative to property values), and revenue diversification. Economic condition measures included population growth, share of students receiving free lunch, and Adjusted Gross Income (AGI) per pupil (Ammar, Duncombe, Jump, & Wright, 2004). FCIS was not funded or implemented by the State of New York beyond the proposal stage (New York State Association of School Business Officials, 2014).

A more recent comprehensive system was proposed by Bruck and Miltenberger (2013) and applied to the State of Pennsylvania. This system adapts Brown's 10-point test, described earlier in this dissertation, and adds a longitudinal component. Like FCIS, this system includes both short-term (e.g. revenue to expenditure ratio) and long-term (e.g. long-term debt to population ratio) financial measures. The authors suggest that this system could be applied in other states (Bruck & Miltenberger, 2013).

Overall, De Luca (2006) sums up studies on school district monitoring by noting, "none of the studies analyzing school district fiscal stress has identified a model that can be used to establish benchmarks that can be used to help school administrators predict the level of school fiscal health and subsequently avoid fiscal exigency" (p. 420).

Little has been written with regard to the impact of state intervention on school district financial health. Ziebarth (2004) suggests mixed results of state intervention. He points out that takeovers have been credited with "improving a school districts' administrative and financial management practices," but at the same time highlights a $70 million deficit incurred in Newark, New Jersey by state-appointed administrators (Ziebarth, 2004). Ziebarth also points out student achievement "often times falls short of expectations after a state takeover" (2004). Overall, however, school financial intervention literature is virtually non-existent. Wong and Shen (2003) explain that school district takeover has remained "a relatively low-profile topic for researchers" (p. 8).

### 2.2.3 Monitoring and Intervention in Illinois School Districts

Like other U.S. states, Illinois has adapted its own approach to fiscal monitoring of school districts. The Illinois State Board of Education (ISBE) has been monitoring the fiscal condition of school districts since the 1980s using a variety of approaches.

The overarching premise underlying the work of ISBE is that early intervention can improve district financial health and that financial health is an important contributor to student outcomes (O'Malley, Roseboro, & Hunt, 2012). Although the highly cited 1966 Coleman report by the U.S. Office of Education found that family background was a vital contributor to student outcomes, school district inputs are still seen as important. Districts must educate individual students, and provide educational opportunities that supplement students' family resources. These opportunities take resources (Mulhall, 2008). The premise that funding is important to outcomes is in effect codified in the 1994 Illinois School Code, which states (qtd. In O'Malley, Roseboro, & Hunt, 2012):

> A fundamental goal of the people of the State, as expressed in Section 1 of Article X of the Illinois Constitution, is the educational development of all persons to the limits of their capacities. When a board of education faces financial difficulties, continued operation of the public school system is threatened. A sound financial structure is essential to the continued operation of any school system. It is vital to commercial, educational and cultural interests that the public schools remain in operation. (105 ILCS 5/1B-2)

In 1981, the Illinois General Assembly gave the State Board of Education the responsibility to monitor the health of school districts (ISBE, 1993). Beginning in 1985, the State of Illinois implemented a system to warn "financially distressed" school districts that they were in financial danger. This system was based on districts' previous year Annual Financial Report (AFR), and all districts with an operating fund balance to revenue ratio of negative 10 percent (where positive numbers indicated a cumulative surplus and negative numbers indicated a cumulative deficit) or lower were issued a warning letter. Operating fund balances aggregated districts' educational fund, operations and maintenance fund, transportation fund, and working cash fund (Sharp & Lair, 1994; ISBE, 2002).

Illinois began publishing an annual "Financial Watch List" (FWL) in 1988 (ISBE, 2002). Similar to the original 1985 system, FWL relied on a single measure of financial health, which was a district's ratio of year-end operating fund balances to operating revenues. However, the 1988 revision changed the warning threshold. If a district's sum of its fund balances in four major operating funds (educational, operations and maintenance, transportation, and working cash) were equal to or less than 5 percent of that year's operating funds, the district was both notified by the State and placed on its Financial Watch List (Sharp & Lair, 1994; ISBE, 2002).

Under the FWL system, Illinois followed a "progressive attitude" in fiscal monitoring (Sharp & Lair, 1994, p. 4). Essentially, this meant that as district financial condition deteriorated, Illinois took increasingly strong steps to remedy financial difficulties. Districts added to the FWL for the first time (and not in severe financial distress) received a letter outlining the State's financial watch efforts and encouraging the district to take steps to improve their financial condition (ISBE, 1993). If districts made the FWL a second time, they were referred to as "continued watch," and were required to submit both a financial condition report and intended actions to improve their financial situation (Sharp & Lair, 1994, p. 4). This progressive intervention continued up to the point the State Superintendent could recommend districts be certified as in "financial difficulty" pursuant to section 1A-8 of Illinois School Code (Sharp & Lair, 1994, p. 5). Certification required a district, subject to state guidance, to develop a multi-year financial plan within 45 days from the certification date. The district was then required to follow this plan with compliance monitoring by the State Board of Education (ISBE, 1993).

Beginning in January 1996, ISBE began to study problems with its district financial oversight methods. One of the largest of these problems was the stigma attached to the FWL –

that is, parents did not want to send their children to districts labeled failing by the State of Illinois. This study resulted in a revised system known as the Financial Assurance and Accountability System (FAAS) (ISBE, 2001a). FAAS was an expansion of FWL. In the FAAS system, fund-balance-to-revenue ratio was still the financial indicator used to assess districts, but rather than utilizing a dichotomous distress/no distress indicator, FAAS included a total of five categories, which were, ranging from best to worst financial condition: financial recognition, financial technical assistance, financial watch list, financial certification, and financial oversight panel (ISBE, 2002).

Districts with a fund balance-to-revenue ratio of greater than positive 10 percent were classified as financial recognition, districts with a 0 to positive 10 percent ratio were classified as financial technical assistance, and a ratio less than 0 percent meant the district was placed on the Financial Watch List. Once districts were placed on the FWL within FAAS, they were evaluated for financial certification if they appeared on the FWL for two or more years with a ratio of negative 10 percent or worse, or carried a ratio of negative 20 percent or worse. A district certified as "in financial difficulty" under the School Code could then be recommended for a Financial Oversight Panel (ISBE, 2001b). A Financial Oversight panel has the broad authority to intervene to promote financial stability; it even has discretion to replace a locally elected school board with an independent authority, which occurred prominently in East Saint Louis from 1994 to 2004 (O'Malley, Roseboro, & Hunt, 2012).

ISBE became concerned with the FAAS system in 2002 when the system only had 11 districts on the FWL, but more than 60 percent of districts in the State were operating with budget deficits (Melrose Park Herald, 2003).

In November 2002, in response to these concerns, ISBE approved using a new monitoring system known as the School District Financial Profile (SFDP) (Melrose Park Herald, 2003). As opposed to a single financial indicator used in past monitoring systems, SDFP relies on five financial indicators: fund balance to revenue ratio; expenditure to revenue ratio; days cash on hand; percentage of short-term maximum borrowing remaining; and percentage of long-term maximum borrowing remaining. ISBE then weights each measure to develop a composite score between one and four for each school district. These indicators, along with their calculations and respective weights, are summarized in Table 2.

***Table 2: ISBE School District Financial Profile System (ISBE, 2015a; ISBE, 2015b)***

| **Indicator** | **Definition** | **Weight (Maximum Score)** |
|---|---|---|
| Fund Balance to Revenue Ratio | Ending fund balances/operating revenues | 35 percent (1.40) |
| Expenditure to Revenue Ratio | Total operating expenditures/Total operating revenues | 35 percent (1.40) |
| Days Cash on Hand | (Cash and Investments)/ (Operating Expenditures/360) | 10 percent (0.40) |
| Percentage of Short-Term Borrowing Remaining | 100 percent-percentage of Tax Anticipation Warrants Outstanding | 10 percent (0.40) |
| Percentage of Long-Term Borrowing Remaining | Summary of a number of items | 10 percent (0.40) |
| **TOTAL** | **N/A** | **100 percent (4.00)** |

A district's fund balance to revenue ratio are each weighted 35 percent, and days cash on hand, percentage of short-term borrowing remaining, and percentage of long-term borrowing remaining are each weighted 10 percent. Thus, the maximum scores a district can achieve for each of the 35 percent weight categories is 1.40 (equal to 4.00 * 0.35), and the 10 percent categories, 0.40 (equal to 4.00 * 0.10) (ISBE, 2015a).

The total score is used to place districts in financial categories. In SDFP, a score of 3.54 to 4.00 is referred to as "Financial Recognition," which is the highest category of financial condition. School districts with lower scores (below 3.53) become increasingly tightly monitored by ISBE. Districts with a score of 3.08 to 3.53 are in "Financial Review," which means that ISBE performs a "limited review" of the district, but the district is not yet eligible for intervention under Section 1A-8 of Illinois School Code (105 ILCS 5/1A-8) (ISBE, n.d.; State of Illinois, n.d.). Districts with the lowest scores (below 3.07) are eligible for intervention under Section 1A-8 of the Illinois School Code, are offered technical assistance from ISBE, and could ultimately be considered for a Financial Oversight Panel (Illinois State Board of Education, n.d.). The State can also financially investigate districts that fail to file financial reports or annual budgets or other financial information required by law. Other triggers for investigation include being likely to miss payroll obligations or debt service payments, or being in serious financial trouble in the current or next fiscal year based on a district's annual audit (State of Illinois, n.d.).

SFDP was modified slightly in Fiscal Year 2009 and after in the face of the State of Illinois' own fiscal crisis. Section 1A-8 of the School Code was amended to allow SDFP scores to be adjusted due to the delayed aid payments to school districts (State of Illinois, n.d.).

### 2.2.4 The Missing Link: Impact of Fiscal Monitoring and Intervention

With a number of fiscal monitoring and intervention systems in place, the question arises: do these systems improve district finances? Despite a wide variety of literature on fiscal monitoring and a number of states practicing both monitoring and intervention, little research exists on the effects of state intervention in local government fiscal affairs, and much of the research that does exist has significant limitations. For example, some research is limited to only

one district, some research is regarding systems no longer in use, and still other research relies only on opinion data rather than financial reporting.

Sharp and Lair (1994) administered a questionnaire to superintendents of 111 districts in Illinois that were included on the State's Financial Watch List in 1992 and asked them the sources of financial difficulty in their district; the financial changes their district had experienced as a result of being placed on the FWL; and whether they felt state intervention was helpful. The authors had a response rate of 77 percent.

Results of this survey point to potential problems with Illinois' FWL system. One such problem is that financial condition did not always improve when districts were placed on FWL. For example, although 60 percent of superintendents in districts that were on the FWL for over a year said their district's financial condition had improved since being placed on the FWL, 21 percent said their district's condition was worse and 18 percent said their district's condition was about the same (Sharp & Lair, 1994).

One reason that districts on FWL may not have improved was that Illinois did not take appropriate actions to assist districts. Sharp and Lair's survey revealed that over 68 percent of superintendents whose districts were on the FWL felt that the State "had not been helpful to the district" (1994, p. 11).

An even larger problem with FWL may lie in the factors superintendents believed caused financial difficulty in their districts. Perhaps not surprisingly, over 90 percent of superintendents believed insufficient state support was the number one factor causing district financial distress, as Illinois school aid had steadily declined from 48.4 in 1975-76 to 33.6 percent of districts' total revenue in 1994. More concerning, though, is that a majority of superintendents (58.2 percent) responded that their local tax base was too small to support their district – something that FWL

was not designed to remedy. Importantly, superintendents did not feel that tax rates were too low, or that too many tax exemptions existed – rather, they believed there simply were not enough taxpayers to support the district (Sharp & Lair, 1994).

Although analyses such as those produced by Sharp and Lair (1994) provide useful information about monitoring and intervention, the empirical effects of state intervention in local government fiscal affairs remain unclear, and no formal evaluation of SDFP has been performed by the State of Illinois.

## 2.3 Hypothesis Development

This section discusses the expected effects of state fiscal intervention on local fiscal condition indicators, including district expenditures, liquidity, fund balance, and debt, as well as how I would expect intervention to effect various types of school districts. Based on theoretical framework that identifies when intervention would be desirable and effective as well as previous empirical research, I have generated the following empirical hypotheses to be tested in this study.

### 2.3.1 Intervention and Short-Term Financial Measures

As mentioned previously, literature surrounding state intervention in local government fiscal affairs is extremely limited. However, adjusting operating expenses and the cash position of a district are among the easiest of tasks for a state-appointed manager, as these indicators reflect the current condition for the district rather than longer term (e.g. debt payments). Such short-term changes are mainly a matter of correcting inefficiency, which is the scenario under transaction cost theory in which we would expect intervention to be effective, as explained in

Section 2.1.2. Thus, we would expect that state intervention would change a district's expenditure to revenue ratio.

However, based on Sharp and Lair's (1994) survey in which superintendents expressed their opinions on state monitoring and intervention, we have reason to believe that this intervention may not prove beneficial in the long term. Although Sharp and Lair's research is limited to opinion data and focuses on only one fiscal indicator, a large percentage of superintendents surveyed – nearly 70 percent – felt that being on FWL was not helpful, and nearly 40 percent reported that their district's financial condition was either unchanged or worsened after being placed on FWL (Sharp & Lair, 1994). As such, I expect that a district's long-term financial condition would be unaffected by state intervention.

*H1A: State intervention will lower (improve) expenditure-to-revenue ratios in school districts in the short term.*

*H1B: State intervention will not have a significant long-term effect on expenditure-to-revenue ratios.*

*H2A: State intervention will increase the number of days cash on hand in local governments in the short term.*

*H2B: State intervention will not have a significant long-term effect on the number of days cash on hand.*

*H3A: State intervention will increase fund balance to revenue ratios in school districts in the short term*

*H3B: State intervention will not have a significant long-term effect on fund balance to revenue ratios.*

In addition to individual indicators, given that short-term measures such as expenditure-to-revenue ratio and fund-balance-to-revenue ratio are weighted as 70 percent of a district's overall score, we could reasonably expect that state intervention will improve districts' overall SDFP score in the short term, but not the long term.

*H4A: State intervention will increase the overall SDFP score in school districts in the short term.*

*H4B: State intervention will not have a significant long-term effect on overall SDFP scores.*

### 2.3.2 Intervention and Long-Term Financial Measures

State intervention in local government fiscal affairs is meant to be a temporary measure. As school district debt repayment periods can span decades, it is unlikely that a district's debt position would markedly change during the period of a few years with only management intervention.

Although an extreme solution such as Chapter 9 bankruptcy may address long-term debts of local governments, the ability of Illinois local governments to file Chapter 9 is limited (Hendrick & Crosby, 2014). Ultimately, we would not expect state intervention to affect long-term liabilities of local governments in a significant manner.

*H5: State intervention will have no significant effect on the percentage of short-term debt capacity available to the district.*

*H6: State intervention will have no significant effect on the percentage of long-term capacity available to the district.*

Hypotheses 1-6 address the effects of state interventions on the population of school districts in Illinois. However, another factor that may affect the success of intervention is the type of school district.

### 2.3.3 Intervention and Subpopulations of School Districts

State intervention also might work differently in different subpopulations of school districts. One way to sort such populations is by district type. Swanson (1966) notes that high school students are more expensive to educate than elementary students. In Swanson's study in New York State, high school students cost approximately 25 percent more to educate than elementary school students.

Illinois has three types of school districts: unit districts (K-12), elementary districts (K-8), and high school districts (9-12) (Durflinger & Haeffele, 2011). As such, we would expect that state intervention would be most effective in elementary districts, where costs are lower. State intervention in unit districts, which have a mix of high school and elementary students, would be less effective, and intervention in high school districts would be the least effective.

*H7: State intervention will improve overall SDFP scores in elementary school districts more than other types of districts.*

Another way to sort districts is by geographic location. The Illinois Institute for Rural Affairs (n.d.) notes "job growth in Illinois has a distinct urban bias" and that "…this [leads] to a declining rural tax base which has profound implications for…public education" (p. 2).

Given this discrepancy, financial conditions in rural districts might be more a function of the economic environment in a region than of poor management decisions. Using transaction cost theory, we know that intervention is best suited when it corrects inefficiencies, not long-

term structural problems. As such, we would expect intervention in rural districts to be less effective than other geographies.

*H8: State intervention will improve overall SDFP scores in urban and suburban school districts more than other types of districts.*

## Chapter 3: The Current Research: A Predictive Model of Fiscal Intervention

This section discusses the research strategy that I use, including the data source, population, measurement of variables, and analytical strategy.

### 3.1 Research Design

In order to ascertain the effects of fiscal monitoring and intervention on lower-level governments, I employ an equivalent time-samples quasi-experimental research design. Here, two equivalent groups of subjects are examined: one group that receives a treatment over time (a repeated introduction of the experimental variable) and the other that does not (Campbell & Stanley, 1963). In my research, I compare one group of school districts that experience a "treatment" of state intervention to an otherwise equivalent group of districts that are not treated. I accomplish this design by comparing districts that score just below the intervention threshold (an SDFP score of 3.07) and are therefore "treated" to districts just above the threshold and thus are not treated.

### 3.2. Units of analysis & sample

The units of analysis of this study are all public school districts in the State of Illinois during the period 2002 to 2014, of which there are slightly over 850 (the exact number varies by year). Table 3 shows the distribution of school districts by type and size in 2009-2010. In the table, "large" is considered the largest 25 percent based on school enrollment, "medium" is the middle 50 percent, and "small" is the smallest 25 percent.

***Table 3: Profile of Illinois School Districts by Type and Size, 2009-2010 (adapted from Durflinger & Haeffele, 2011)***

| | Large | Medium | Small | Total |
|---|---|---|---|---|
| **Unit** | 100 | 197 | 104 | **401** |
| **Elementary** | 95 | 184 | 98 | **377** |
| **High School** | 25 | 50 | 25 | **100** |
| **Total** | **220** | **431** | **227** | **878** |

The study period is 2002-2014. This period is chosen because it allows a longitudinal analysis of districts during the use of one single monitoring regime and intervention system (the School District Financial Profile). During the years I analyze, some districts are added and others are removed. In my analyses, I drop any districts that do not have data for all years from 2002-2014. This results in a final panel of 817 districts that have data for all years.

### 3.3. Data sources

Administrative data from ISBE are the basis of this study. I assemble a panel data set of financial, demographic, geographic, and educational performance indicators covering over 800 school districts in Illinois for thirteen years (2002-2014).

Data regarding school district finances was requested on January 26, 2015 and delivered to me on February 3, 2015 via a Freedom of Information Act (FOIA) request to the Illinois State Board of Education. Although ISBE does provide SDFP data on their public website (www.isbe.net/sfms/p/profile.htm), these public data are missing a number of years. As such, I was advised by ISBE to obtain data via FOIA.

### 3.4. Method & Measurement

#### 3.4.1 Dependent variables

My primary dependent variables are the five financial indicators used by ISBE to assess district financial condition as described earlier in this dissertation. These indicators are: (1) fund balance to revenue ratio; (2) expenditure to revenue ratio; (3) days cash on hand; (4) percentage of short-term maximum borrowing remaining; and (5) percentage of long-term maximum borrowing remaining.

Although I could potentially use other financial variables proposed in literature for my analysis, there is much disagreement regarding which indicators are the best measures of

financial condition in local governments (Crosby & Robbins, 2013). In addition, the purpose of this dissertation is not to establish which financial indicator system is superior, but rather to measure the effectiveness of state monitoring and intervention.

### 3.4.2 Explanatory variables & Control variables

*Explanatory variable: Fiscal Intervention.* I use a binary variable to indicate fiscal intervention in a school district by the State of Illinois. This variable is derived from the district's score on the SDFP each year. When a district's score drops to 3.07 or below, the district is considered as "in intervention." I use 3.07 as the score that signifies intervention because this is the point at which districts become eligible for a state financial assistance panel under the Illinois School Code.

*Synthetic control variables.* In addition to the explanatory variable, I include two types of synthetic control variables: district fixed effects and year fixed effects.

Year fixed effects control for all factors that are constant across districts in a given year. For example, year fixed effects will pick up a change in federal policy regarding the No Child Left Behind Act that would affect all states. Similarly, year fixed effects would pick up a change in funding for all districts from the State of Illinois.

District fixed effects control for all factors that are constant within a district over time. For example, district fixed effects would control for whether a district has a tax cap. Similarly, some districts have much wealthier tax bases than other districts, and district effects would control for this factor.

Finally, I use an intervention/score interaction. Mathematically, this variable is equal to the district's score in a given year multiplied by the binary intervention variable described above. This variable allows me to estimate the effect of intervention on districts' scores.

### 3.5. Analytical Strategy

I employ panel regression in a partial adjustment model framework in order to analyze the effects of fiscal intervention in Illinois school districts. Dougherty (2012, p. 2) explains,

> The idea behind the partial adjustment model is that, while a dependent variable Y may be related to an explanatory variable X, there is inertia in the system and the actual value of $Y_t$ is a compromise between its value in the previous time period, $Y_{t-1}$, and the value justified by the current value of the explanatory variable.

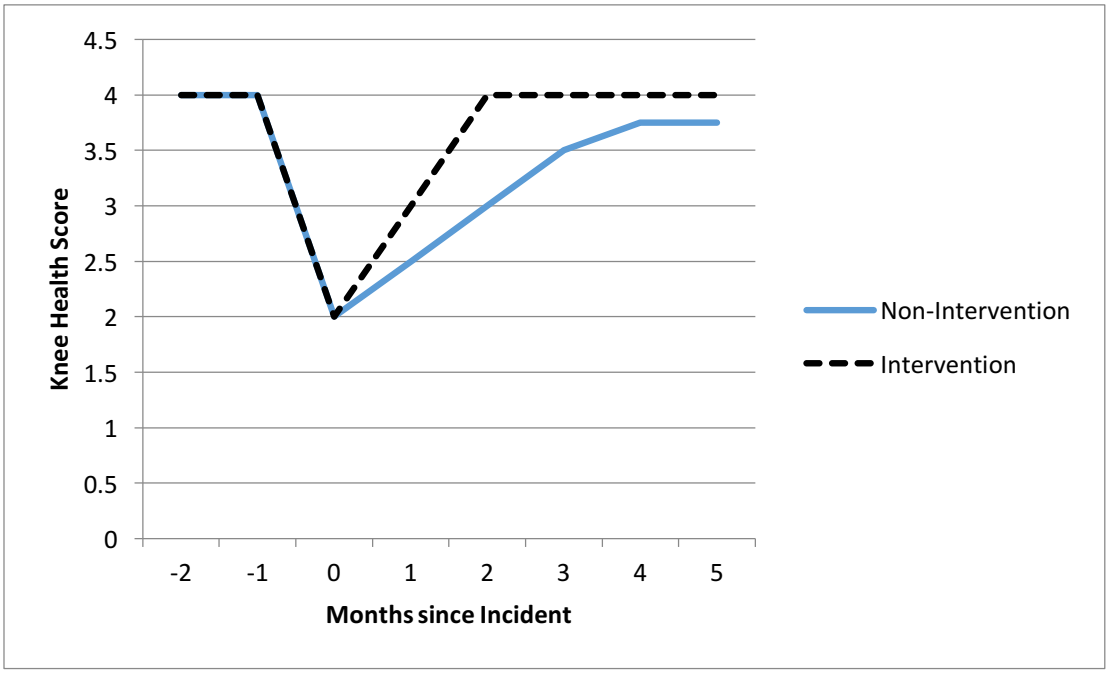
Applied to school districts, one can think of a district as having a long run equilibrium SDFP score. The district's score will deviate from its long run equilibrium (which is a function of the underlying fiscal condition and management practices) because of short term "shocks." The district will move toward its long run equilibrium after these shocks, but equilibrium will not happen immediately because of the inertia in the system – for example, it may take time to rebuild a district fund balance after an emergency expenditure to install a new boiler in a school building. State intervention may move the district toward its equilibrium more or less quickly, but inertia will still be present. Thus, a partial adjustment model is needed to accurately reflect how a district's SFDP score would change over time.

By analogy, we can think of a district's SFDP score (or "financial health") in a way similar to the way we would think of the health of a person's knee. A person's knee is generally in a healthy state – we can think of this as its equilibrium; however, events may occur that cause

the knee to be in worse condition than its equilibrium – such as falling off a bus and breaking one's knee.

Without medical treatment, a person's knee may heal on its own, but it may do so slowly. We would ideally want intervention – that is, going to a doctor, to accelerate the healing process. This idea is depicted in Figure 2 below.

***Figure 2: Effects of Intervention on Knee Health***




Here, a "knee health score" of 4 indicates equilibrium. At month 0, when the person breaks his or her knee, the "knee health score" drops to 2. The recovery path of the knee with intervention (medical treatment) is depicted in the dashed line. Although the non-intervention knee still may progress toward health, we see that intervention speeds this process. In addition, without intervention, the person may have a lower long-run equilibrium score. In terms of the knee, if left untreated, the knee may never move all the way back to the score of 4.0 as it may not heal quite correctly; instead, its equilibrium in this example is now 3.75.

The goal of SDFP and ultimately ISBE intervention reflects the same basic ideas depicted in this knee health example with regard to fiscal health. ISBE intervenes when a district has experienced transitory events that cause poor financial condition – say, for example, an administrator embezzles money from the district. ISBE intervention is intended to "heal" the district's financial score at a more rapid rate than would occur without intervention, and hopefully to a higher equilibrium score. The regression models I will present will show whether this is occurring, and what equilibrium scores are for intervention vs. non-intervention districts.

The basic regression model (without intervention) assumes that

$$S_t = \alpha + \beta S_{t-1} + \mu_i \quad (1)$$

Where $S_t$=the district's score in year t and $\alpha$ is a constant. $\mu_i$ is a random error term with a mean of zero. The error term is suppressed to simplify the following discussion. Note that $\alpha$ could change over time and could be a function of district characteristics including fixed district characteristics proxied by district fixed effects. The estimated coefficient on the lagged district score makes it possible to estimate each district's long run equilibrium score. In equilibrium the district's score does not change between year t and year t-1 so $S_t = S_{t-1} = S^*$. The district's equilibrium score $(S^*)$ must satisfy the equation:

$$\begin{aligned} S^* &= \alpha + \beta S^* \\ S^*(1-\beta) &= \alpha \\ S^* &= \frac{\alpha}{(1-\beta)} \end{aligned} \quad (2)$$

The more complete model allows for the possibility that intervention alters a district's equilibrium. This complete model assumes that:

$$S_t = \alpha + \beta S_{t-1} + \gamma(D_{t-1}S_{t-1}) \quad (3)$$

Where $D_{t-1}$ is the binary intervention variable. Allowing for this possibility we have:

$$S_D^* = \frac{\alpha}{(1-\beta-\gamma)} \tag{4}$$

As is the case in most applications of partial adjustment models (see Dougherty, 2011), certain logical restrictions apply on the estimated parameters. In this application, $S^*$ must have a value between 1 and 4 because school districts are restricted to this range by the ISBE SDFP system. As such, $1 \leq \frac{\alpha}{1-\beta-\gamma} \leq 4$ is required for a stable solution, and values outside this range are considered unstable. An unstable value would simply indicate that empirical evidence does not exist to justify the conclusion that district SDFP scores converge to a level between 1 and 4. In the next section, regression results provide estimates of $\alpha, \beta,$ and $\gamma$.

## Chapter 4: Effects of State Intervention on School District Finances

In this Chapter, I empirically investigate the effects of intervention. I explore how intervention works in a single school district in Section 4.1 using the example of Quincy School District 172. I then present descriptive statistics for all districts in Section 4.2, and finally, I present regression results for all Illinois districts in Section 4.3.

### 4.1. Example of Intervention in Individual Districts

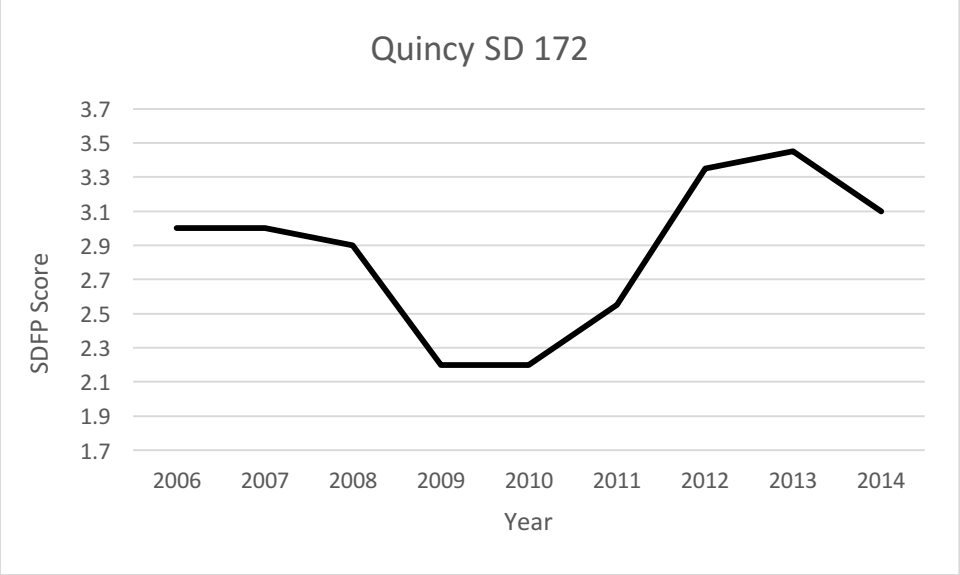
First, I investigate the effects of intervention on two individual districts: one in which scores have improved after intervention (Quincy School District 172) and one in which intervention has not yet produced results (Edwardsville Community Unit District 7).

#### 4.1.1 Quincy SD 172

I first examine Quincy School District 172 (SD 172) as an example of a district in which scores have improved after intervention. Quincy SD 172 had a SDFP score of 3.00, slightly below the threshold of 3.07 for intervention, in 2006 and 2007. The district's score began to drop further, to a score of 2.9 in 2008 and all the way to a score of 2.2 in 2009 and 2010. In 2011, the district had a score of 2.55 (slightly improved, but well below the intervention threshold). At this point, Deb Vespa, an ISBE administrator, and Brent Appell, an ISBE regional financial consultant, attended the Quincy SD 172 board meeting and made a presentation to the board about the district's financial condition in November 2011. Although the district's score of 2.55 for 2011 was improved from previous years as mentioned above, this had been mainly due to federal funding from the American Recovery and Reinvestment Act (ARRA). At the board meeting, Ms. Vespa pointed out to the board and community that a deficit elimination plan was required, and that if such a plan were unsuccessful, a State oversight panel could be appointed to control district spending (Quincy Public School District #172, 2011).

ISBE intervention seemed to produce results. Soon after the meeting and the adoption of a deficit elimination plan, the district's finances began to improve considerably, as shown in Figure 3. By October 2012, the District's public newsletter proclaimed on its front page, "GOOD NEWS FROM SCHOOL DISTRICT AUDITORS!" and announced that SD 172 was no longer on ISBE's financial watch list (Quincy Public School District #172, 2012, p. 1).

***Figure 3: SDFP Score of Quincy SD 172, 2006-2014 (Source: ISBE Data[3])***



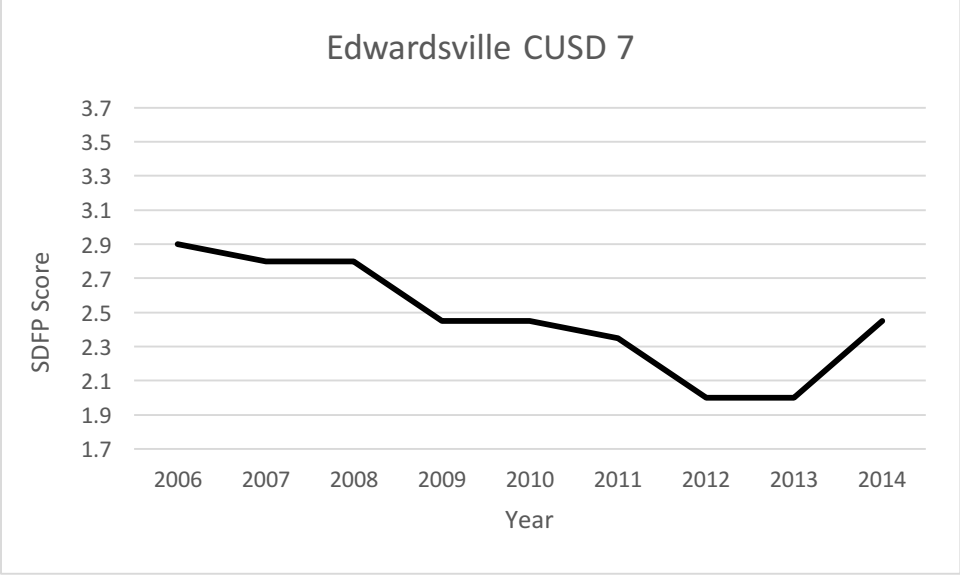

Indeed, the district's SDFP score had risen to 3.35 as of 2012, no longer in intervention. The district explained that with the help of a deficit reduction plan, it had eliminated a $2.2 million deficit in its Education Fund that had been carried over from year to year. The district did this by cutting expenditures by $1.7 million (about 3.65 percent of its budget) and also passed a $6.2 million working cash bond issue that allowed administrators additional time to close the remaining budget deficit (Quincy Public School District #172, 2012). The district's SDFP score rose again to 3.45 in 2013, before declining to 3.1 (still above intervention) in 2014. Since 2012, Quincy SD 172 has not been under state intervention.

[3] Source: Illinois State Board of Education data supplied to the author in response to a Freedom of Information Act (FOIA) request filed on January 26, 2015. All subsequent tables and figures with "ISBE data" use these data.

4.1.2 Edwardsville CUSD 7

Despite the seeming success of state intervention in Quincy, not all districts exhibit this success, and not all districts exhibit active intervention. Edwardsville Consolidated Unit District (CUSD 7 has been under state intervention continuously during the same period in which I investigated Quincy (2006-2014). As shown in Figure 4, Edwardsville started with a score of 2.9 in 2006, close to Quincy's score of 3.0. Like Quincy, Edwardsville's score sank in 2009-10, but has not yet recovered to a non-intervention status as of 2014.

***Figure 4: SDFP Score of Edwardsville CUSD 7, 2006-2014 (Source: ISBE Data)***




Unlike Quincy, the role of ISBE in Edwardsville seems to be more hands-off. The local newspaper in Edwardsville explained "while most districts had to make hard choices right away when the economy crashed, Edwardsville was able to rely on a healthy reserve in its working cash fund" (Donald, 2016). In April 2016, Edwardsville Finance Director Dave Courtney noted that although ISBE did request financial documents from the district, "It's more to give [them] a sense of comfort that the district is aware of the situation…they wanted more history and

projections of three to four years out" (qtd. in Donald, 2016). The district's SDFP score did improve to 2.45 in 2014, its best score since 2010.

In addition to investigating Quincy and Edwardsville as individual districts, I investigate the effects of state intervention on all districts in Illinois by first examining descriptive statistics in Section 4.2, and then using regression models in Section 4.3.

### 4.2. Descriptive Statistics

I begin by reviewing descriptive statistics for each SDFP indicator. In Table 4, we see that districts vary widely in their overall financial condition as well as the individual financial indicators used in SDFP.

***Table 4: Descriptive Statistics, All Districts, 2002-2014 (Source: ISBE Data)***

| | Mean | Std. Dev. | Min | Max | N |
|---|---|---|---|---|---|
| Overall SDFP Score | 3.53 | 0.45 | 1 | 4 | 10621 |
| Expenditure to Revenue Ratio (ERR) | 1 | 0.1 | 0.58 | 2.54 | 10621 |
| Days Cash on Hand (DCOH) | 187.31 | 129.4 | -10.83 | 1327.56 | 10621 |
| Fund Balance to Revenue Ratio (FBRR) | 0.48 | 0.33 | -0.43 | 3.08 | 10621 |
| Percent Short Term Debt (STD) Capacity Remaining | 98.61 | 8.88 | -55.33 | 100 | 10621 |
| Percent Long-Term Debt (LTD) Capacity Remaining | 61.9 | 40.12 | -825.98 | 100 | 10621 |

For example, the minimum Expenditure to Revenue Ratio (ERR) for districts from 2002-2014 is 0.58, which was Fairfield Community High School District 225 in 2004. A ratio of 0.58 indicates expenditures for this district in 2004 represented only 58 percent of revenue. By contrast, the maximum ERR is 2.54, which occurred in Herrin CUSD 4 in 2010. This indicate that expenditures were over two and a half times as much as revenues for this district.

Similarly, Days Cash on Hand (DCOH) values range from -10.83 (Calhoun CUSD 40 in 2011), indicating that district has a negative amount of cash available, to 1327.56 (Grass Lake

SD 36 in 2014), indicating that district has more than three and a half years of cash available. Descriptive statistics for Fund Balance to Revenue Ratio (FBRR) are similar, showing that districts vary from negative fund balances (minimum ratio of -0.43) to a fund balance that is more than three times a district's revenue for the year (maximum of 3.08). Both short and long-term debt offer similar pictures, ranging from districts being over their debt capacity to having 100 percent of their capacity remaining.

In addition, we may expect these descriptive statistics vary by district location (as discussed in Section 2.3.3). Here, I classify districts into one of four categories based on the county in which they are located: Cook County (which includes the City of Chicago), suburban Chicago counties, other urban/suburban counties, and rural counties (Center for Prevention Research and Development, 2008). In Table 5, I present means of SDFP indicators by location, and although some indicators are quite similar regardless of location, other indicators are quite different. For example, mean ERR is nearly identical regardless of location (ranging between 0.99 and 1.00, indicating an almost exact match of revenues and expenditures). Similarly, STD capacity remaining ranges from approximately 98-99 percent regardless of district location.

At the same time, DCOH in districts outside the Chicago metropolitan area is considerably lower, with a mean of 164-165 days cash on hand, than Chicago metropolitan districts, with a mean of 220-233 days cash on hand. This indicates that non-Chicago metropolitan districts have, on average, nearly two months' less cash on hand. At the same time, rural districts in particular utilize less of their long-term debt capacity. On average, rural districts have approximately 69 percent of their long-term debt capacity remaining, whereas non-rural districts have less than 60 percent.

***Table 5: Mean SDFP Indicators, All Districts by Location, 2002-2014 (Source: ISBE Data)***

| Indicator | Cook County | Chicago Suburbs | Other Urb/ Suburb | Rural |
|---|---|---|---|---|
| Overall SDFP Score | 3.61 | 3.57 | 3.50 | 3.50 |
| Expenditure to Revenue Ratio (ERR) | 1.00 | 0.99 | 1.00 | 1.00 |
| Days Cash on Hand (DCOH) | 232.93 | 220.70 | 164.81 | 164.06 |
| Fund Balance to Revenue Ratio (FBRR) | 0.61 | 0.52 | 0.43 | 0.44 |
| Percent Short Term Debt (STD) Capacity Remaining | 99.38 | 97.90 | 98.91 | 98.43 |
| Percent Long-Term Debt (LTD) Capacity Remaining | 55.6 | 57.59 | 59.37 | 68.90 |

Still another possibility is that mean indicators may vary by district type, as also discussed in Section 2.3.3. Table 6 shows these differences. As was the case in Table 5, DCOH is one indicator where considerable differences exist between subpopulations of districts. Here, unit districts have a mean of 151 days cash on hand, which is 60-75 days less than elementary or high school districts, respectively. Similarly, unit districts have a lower FBRR (0.40) than elementary or high school districts (0.55-0.56).

***Table 6: Mean SDFP Indicators, All Districts by District Type, 2002-2014 (Source: ISBE Data)***

| Indicator | Elementary | High School | Unit |
|---|---|---|---|
| Overall SDFP Score | 3.58 | 3.62 | 3.46 |
| Expenditure to Revenue Ratio (ERR) | 0.99 | 0.99 | 1.00 |
| Days Cash on Hand (DCOH) | 214.07 | 225.72 | 150.76 |
| Fund Balance to Revenue Ratio (FBRR) | 0.55 | 0.56 | 0.40 |
| Percent Short Term Debt (STD) Capacity Remaining | 98.75 | 99.12 | 98.33 |
| Percent Long-Term Debt (LTD) Capacity Remaining | 59.62 | 69.30 | 62.20 |

I also review distribution of district SDFP categories over time, as well as the proportion of districts under state intervention in any given year, in Table 7. Here, we see that 2002 and 2003 were particularly difficult years for districts, when 20 and 28 percent of districts were under state intervention. In the years following this period, considerably fewer districts are under intervention; and since 2007, no more than approximately 12 percent of districts has been under intervention in any given year.

***Table 7: Distribution of SDFP scores, 2002-2014 (Source: ISBE Data)***

| | **Recognition (3.54-4.00)** | | **Review (3.08-3.53)** | | **Warning (2.62-3.07)** | | **Watch (1.00-2.61)** | | **Any Intervention (1.00-3.07)** | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | N | *Pct.* | N | *Pct.* | N | *Pct.* | N | *Pct.* | N | *Pct.* | Total School Districts |
| 2014 | 536 | *66%* | 193 | *24%* | 54 | *7%* | 34 | *4%* | *88* | *11%* | 817 |
| 2013 | 541 | *66%* | 178 | *22%* | 55 | *7%* | 43 | *5%* | *98* | *12%* | 817 |
| 2012 | 544 | *67%* | 187 | *23%* | 52 | *6%* | 34 | *4%* | *86* | *11%* | 817 |
| 2011 | 638 | *78%* | 136 | *17%* | 33 | *4%* | 10 | *1%* | *43* | *5%* | 817 |
| 2010 | 550 | *67%* | 195 | *24%* | 49 | *6%* | 23 | *3%* | *72* | *9%* | 817 |
| 2009 | 564 | *69%* | 184 | *23%* | 48 | *6%* | 21 | *3%* | *69* | *8%* | 817 |
| 2008 | 567 | *69%* | 165 | *20%* | 61 | *7%* | 24 | *3%* | *85* | *10%* | 817 |
| 2007 | 575 | *70%* | 173 | *21%* | 45 | *6%* | 24 | *3%* | *69* | *8%* | 817 |
| 2006 | 495 | *61%* | 182 | *22%* | 95 | *12%* | 45 | *6%* | *140* | *17%* | 817 |
| 2005 | 473 | *58%* | 217 | *27%* | 86 | *11%* | 41 | *5%* | *127* | *16%* | 817 |
| 2004 | 433 | *53%* | 242 | *30%* | 80 | *10%* | 62 | *8%* | *142* | *17%* | 817 |
| 2003 | 349 | *43%* | 242 | *30%* | 99 | *12%* | 127 | *16%* | *226* | *28%* | 817 |
| 2002 | 422 | *52%* | 233 | *29%* | 97 | *12%* | 65 | *8%* | *162* | *20%* | 817 |

Finally, I examine changes in district scores based on their previous scores. In Table 8, I compare district's two-year lag scores (in any year) to their score in the current year. We notice a distinct difference in districts under intervention. Here, 78 percent of districts under intervention two years ago had an improved score in the current year. At the same time, 14 percent of districts under intervention received a lower score in the current year, and 8 percent of districts stayed the same. Meanwhile, 33 percent of districts not under intervention improved, while 33 percent got worse and 34 percent stayed the same.

***Table 8: Two-Year Changes in SDFP Scores[4] Based on Intervention Status (Source: ISBE Data)***

| | | SDFP Score Change (Current Year) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Increased | | Stayed the Same | | Declined | | Total |
| | | N | *Percent* | N | *Percent* | N | *Percent* | N |
| **Under Intervention 2 years ago** | **Yes** | 947 | 78% | 102 | 8% | 172 | 14% | 1,221 |
| | **No** | 2,590 | 33% | 2,613 | 34% | 2,563 | 33% | 7,766 |

I also compare district's five-year lag scores (in any year) to their score in the current year in Table 9. Again, we notice a distinct difference in districts under intervention, and the difference is more pronounced with a five-year lag.

***Table 9: Five-Year Changes in SDFP Scores[4] Based on Intervention Status (Source: ISBE Data)***

| | | SDFP Score Change (Current Year) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Increased | | Stayed the Same | | Declined | | Total |
| | | N | *Percent* | N | *Percent* | N | *Percent* | N |
| **Under Intervention 5 years ago** | **Yes** | 927 | 91% | 28 | 3% | 65 | 6% | 1,020 |
| | **No** | 2,336 | 42% | 1,069 | 19% | 2,111 | 38% | 5,516 |

[4] Units of analysis in Tables 8 and 9 are district years, which are the score of a specific district in a particular year. Because school districts are observed for multiple years, a particular district may contribute multiple observations.

Here, 91 percent of districts under intervention five years ago had an improved score in the current year. By contrast, only 6 percent of districts under intervention received a lower score in the current year, and 3 percent of districts stayed the same. Meanwhile, 42 percent of districts not under intervention improved, while 38 percent got worse and 19 percent stayed the same.

We can also examine subpopulations of school districts with regard to score changes. In Tables 10 and 11, I present changes in SDFP score by location of school districts. Table 10 presents changes in district scores after intervention two years ago. Here, we notice that a slightly higher proportion of Cook County districts have increased scores (83 percent of districts) after intervention than districts in other locations (which range from 76 to 78 percent).

***Table 10: Two-Year Changes in SDFP Scores Based on Intervention Status, by Location (Source: ISBE Data)***

| | | SDFP Score Change (Current Year) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Increased | | Stayed the Same | | Declined | | Total |
| | Intervention 2 Years Ago? | N | *Percent* | N | *Percent* | N | *Percent* | N |
| **Cook County** | **Yes** | 110 | 83% | 8 | 6% | 15 | 11% | 133 |
| | **No** | 472 | 34% | 514 | 37% | 388 | 28% | 1,374 |
| **Chicago Suburban** | **Yes** | 182 | 78% | 21 | 9% | 30 | 13% | 233 |
| | **No** | 537 | 34% | 593 | 37% | 463 | 29% | 1,593 |
| **Other Urban/ Suburban** | **Yes** | 266 | 76% | 31 | 9% | 53 | 15% | 350 |
| | **No** | 680 | 34% | 619 | 31% | 705 | 35% | 2,004 |
| **Rural** | **Yes** | 389 | 77% | 42 | 8% | 74 | 15% | 505 |
| | **No** | 901 | 32% | 887 | 32% | 1,007 | 36% | 2,795 |

Table 11 presents similar statistics for districts five years after intervention. As was the case with a two-year lag, Cook County districts have slightly higher proportion of increased scores (97 percent of districts) after intervention than districts in other locations (which range from 87 to 91 percent).

***Table 11: Five-Year Changes in SDFP Scores Based on Intervention Status, by Location (Source: ISBE Data)***

| | | SDFP Score Change (Current Year) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Increased | | Stayed the Same | | Declined | | Total |
| | Intervention 5 Years Ago? | N | *Percent* | N | *Percent* | N | *Percent* | N |
| **Cook County** | **Yes** | 119 | 97% | 3 | 2% | 1 | 1% | 123 |
| | **No** | 468 | 48% | 229 | 24% | 276 | 28% | 973 |
| **Chicago Suburban** | **Yes** | 183 | 91% | 6 | 3% | 12 | 6% | 201 |
| | **No** | 497 | 44% | 264 | 23% | 366 | 32% | 1,127 |
| **Other Urban/ Suburban** | **Yes** | 244 | 87% | 11 | 4% | 24 | 9% | 279 |
| | **No** | 574 | 40% | 246 | 17% | 613 | 43% | 1,433 |
| **Rural** | **Yes** | 381 | 91% | 8 | 2% | 28 | 7% | 417 |
| | **No** | 797 | 40% | 330 | 17% | 856 | 43% | 1,983 |

In Table 12, I present changes in district score by district type. Here, we see that the proportion of unit districts that improve under state intervention (75 percent) is slightly lower than other elementary and high school districts (80-81 percent).

*Table 12: Two-Year Changes in SDFP Scores Based on Intervention Status, by District Type (Source: ISBE Data)*

| | | SDFP Score Change (Current Year) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Increased | | Stayed the Same | | Declined | | Total |
| | Intervention 2 Years Ago? | N | *Percent* | N | *Percent* | N | *Percent* | N |
| **Elementary** | **Yes** | 340 | 80% | 26 | 6% | 57 | 13% | 423 |
| | **No** | 1,214 | 35% | 1,223 | 35% | 1,078 | 31% | 3,515 |
| **High School** | **Yes** | 83 | 81% | 7 | 7% | 12 | 12% | 102 |
| | **No** | 322 | 34% | 344 | 36% | 288 | 30% | 954 |
| **Unit** | **Yes** | 524 | 75% | 69 | 10% | 103 | 15% | 696 |
| | **No** | 1,054 | 32% | 1,046 | 32% | 1,197 | 36% | 3,297 |

I also examine changes in SDFP score using a five-year lag in Table 13. Similar to the two-year lag, the proportion of unit districts that improve is again slightly lower than other types of districts.

*Table 13: Five-Year Changes in SDFP Scores Based on Intervention Status, by District Type (Source: ISBE Data)*

| | | SDFP Score Change (Current Year) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Increased | | Stayed the Same | | Declined | | Total |
| | Intervention 5 Years Ago? | N | *Percent* | N | *Percent* | N | *Percent* | N |
| **Elementary** | **Yes** | 339 | 93% | 10 | 3% | 15 | 4% | 364 |
| | **No** | 1,113 | 45% | 521 | 21% | 866 | 35% | 2,500 |
| **High School** | **Yes** | 88 | 95% | 2 | 2% | 3 | 3% | 93 |
| | **No** | 308 | 46% | 144 | 21% | 223 | 33% | 675 |
| **Unit** | **Yes** | 500 | 89% | 16 | 3% | 47 | 8% | 563 |
| | **No** | 915 | 39% | 404 | 17% | 1,022 | 44% | 2,341 |

### 4.3. Regression Results

Next, I investigate the effects of state intervention using several different specifications which match the hypotheses presented in Section 3.1 of this document. I begin by investigating

the effects of state intervention on districts' overall SDFP score in section 4.3.1. Section 4.3.2 investigates only districts that have received at least one year of state intervention. Sections 4.3.3 and 4.3.4 investigate the effects of intervention on certain subpopulations of school districts. Section 4.3.5 investigates the effects of state intervention on individual SDFP indicators.

### 4.3.1 Effect of Intervention on Overall SDFP score

To begin, I investigate the effects of state intervention on a district's overall SDFP score. First, I investigate the short-term effects of intervention on school districts' SDFP score, which I define as the effect of intervention two years after treatment. Next, I investigate long-term effects, which I define as the effect of intervention five years after treatment.

First, I investigate the short term effects of intervention (in which the explanatory variable is lagged two years). Table 6 below has five regression specifications. In the first column, I present a model with no controls. Second, I show a model with only year dummies. Third, I show a model with both year and district dummies. The fourth model includes only an interaction term. The fifth and final specification includes both the interaction term and year and district dummies.

The first group of rows shows the coefficient indicating what amount a district's score a certain number of years ago (two, in this case) affects a district's score in the current year; that is, $\beta$. The second group of rows shows the effects of the interactions term ($\gamma$). The third group of rows shows the constant ($\alpha$). The keys to understanding the effects of state intervention in these models are the interaction coefficients in columns 4 and 5 of each table. These indicate whether scores are rising or falling toward equilibrium more or less rapidly than their non-intervention

counterparts in times of intervention. Positive coefficients indicate scores are rising more rapidly than non-intervention counterparts; negative coefficients mean the slope of the line is flatter than non-intervention counterparts.

***Table 14: Effects of Intervention (Lagged Two Years) on Total District Score***

| TOTAL - L2 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L2 Score* | 0.546 | 0.562 | 0.228 | 0.540 | 0.218 |
| *SE* | *0.010* | *0.011* | *0.013* | *0.015* | *0.016* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | -0.004 | -0.007 |
| *SE* | | | | *0.008* | *0.007* |
| *Sig.* | | | | | |
| | | | | | |
| Constant | 1.641 | 1.535 | 2.443 | 1.663 | 2.479 |
| *SE* | *0.039* | *0.040* | *0.065* | *0.056* | *0.075* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.594 | |
| Equilibrium/N | 3.617 | | | 3.618 | |
| R-squared | 0.351 | 0.371 | 0.551 | 0.351 | 0.551 |
| N | 8987 | 8987 | 8987 | 8987 | 8987 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

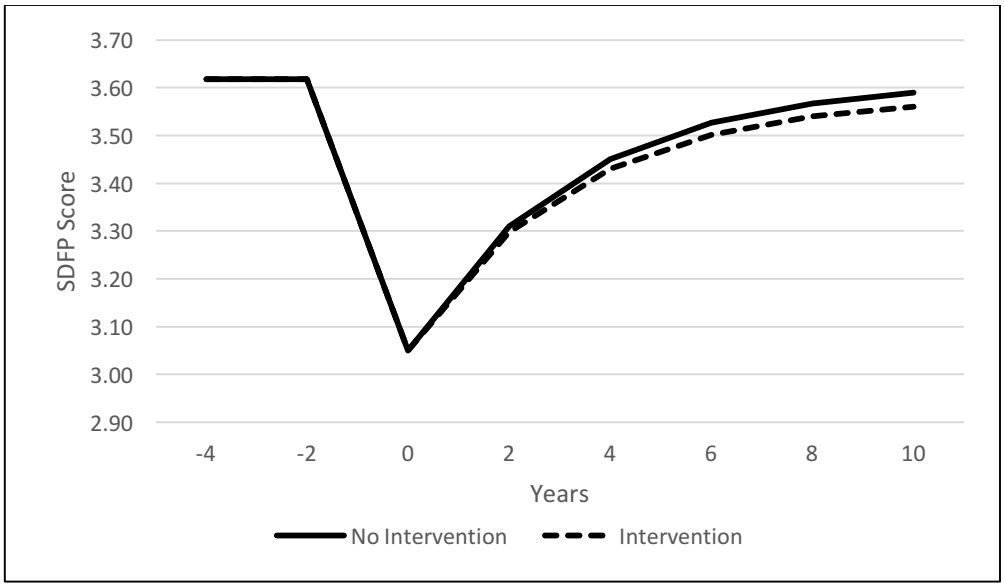
*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

When we examine Table 14, which shows regressions with two-year lags on the explanatory variable, we notice that the interaction terms in both Column 4 and 5 are negative,

although insignificant. This means that districts under intervention are approaching equilibrium at a slower rate than those districts that are not under intervention. We also see that districts under intervention (Equilibrium/Y) have a lower equilibrium score (3.59) than districts not under intervention (Equilibrium/N) (3.62).

We can also illustrate the effect of state intervention on a graph using a simulation based on the coefficients in Column 4 of Table 14. In Figure 5, I simulate the adjustment of scores in two otherwise identical districts which maintain an equilibrium SDFP score of 3.62 during the period before any external shocks (represented by $t_{-4}$ and $t_{-2}$). I assume both of these districts experience the same external shock at $t_0$, which causes the SDFP scores of both districts to fall to 3.05, a score just low enough to trigger state intervention (as outlined in section 3.4.2, intervention occurs in districts with SDFP scores below 3.07). For the purposes of simulations, I assume one of these districts, represented by the solid line on the graph, does not receive state intervention (the absence of intervention with a score of 3.05 would not happen in practice, but I simulate the lack of intervention for comparison purposes here). The other district, represented by a dashed line, receives intervention.

***Figure 5: Graphical Simulation of the Effect of State Intervention – Two Year Lag***




We see that based on the estimated regression coefficients in Column 5 of Table 14, whether state intervention occurs or not, both simulated districts' SFDP scores rise toward their respective equilibrium scores after they experience an external shock. However, as shown in Figure 2, the district under intervention rises toward a lower equilibrium score (3.59) than districts not under intervention (3.62). This graph is essentially the exact opposite of the "knee intervention" graph that is Figure 2. Essentially, if these regression results represented a person's knee, the person who sought medical treatment would actually heal to a worse condition than the person who did not seek medical treatment. This is of course opposite of the intended policy outcome for SDFP.

Table 15, which is arranged similarly to Table 14 but shows regressions with five-year lags on the explanatory variable, shows somewhat different substantive results. Here, we see that in Column 4, the interaction coefficient is positive but insignificant, which suggests state intervention does not have a significant effect on district scores. However, when we add in district and year dummy variables in Column 5, we see the effect of intervention becomes both

positive and significant. This suggests that districts under state intervention improve more quickly than those not under intervention. As shown in Column 4, we also see that districts under intervention have a higher equilibrium score (3.70) than those not under intervention (3.63).

***Table 15: Effects of Intervention (Lagged Five Years) on Total District Score***

| TOTAL - L5 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L5 Score* | 0.258 | 0.287 | -0.111 | 0.278 | -0.083 |
| *SE* | *0.011* | *0.011* | *0.013* | *0.017* | *0.016* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | 0.014 | 0.019 |
| *SE* | | | | *0.009* | *0.007* |
| *Sig.* | | | | | *** |
| | | | | | |
| Constant | 2.699 | 2.651 | 3.653 | 2.624 | 3.547 |
| *SE* | *0.040* | *0.041* | *0.062* | *0.062* | *0.073* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.702 | |
| Equilibrium/N | 3.637 | | | 3.633 | |
| R-squared | 0.097 | 0.124 | 0.609 | 0.097 | 0.610 |
| N | 6536 | 6536 | 6536 | 6536 | 6536 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

In addition to overall analyses, I also present analyses using certain subsets of districts to further ascertain the effects of intervention.

4.3.2 Effect of Intervention on Overall SDFP score – Restricted Population

One potential problem with analyses of the effects of state intervention on all districts in the State of Illinois is that some districts never have intervention. These districts may not be good controls for "treated" districts since they may have fundamentally different external economic environments than districts that are treated. Using the "knee health" example from Section 3.5, this may be the equivalent to comparing a 70-year old knee patient to a 30-year old knee patient. Certainly, both patients may heal upon breaking their knee and both may seek medical treatment to improve this healing, but the effect of treatment (or lack thereof) may vary based on age.

To that end, in this section, I report analyses on a subset of districts that have a minimum overall score from 2002-2014 that is less than 3.07, meaning that all districts will have received at least one year of state intervention. I present tables structured in the same manner as in Section 4.3.1, with five columns presenting regression analyses with increasing number of control variables as described in Section 4.3.1.

The short-term results for this subset of districts are slightly different from those presented in Section 4.3.1. As shown in columns 4 and 5 of Table 16, intervention does have a positive effect on overall SDFP score, but this effect is only marginally statistically significant in column 4, and not significant in column 5. The equilibrium scores for intervention districts are also slightly higher (3.54) than the equilibrium scores for non-intervention districts (3.40).

***Table 16: Effects of Intervention (Lagged Two Years) on Total District Score (Restricted to Districts with a Minimum Score of 3.07 or below)***

| TOTAL - L2R | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L2 Score* | 0.455 | 0.464 | 0.238 | 0.490 | 0.254 |
| *SE* | *0.014* | *0.015* | *0.017* | *0.021* | *0.023* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | 0.020 | 0.010 |
| *SE* | | | | *0.009* | *0.008* |
| *Sig.* | | | | * | |
| | | | | | |
| Constant | 1.862 | 1.707 | 2.338 | 1.732 | 2.277 |
| *SE* | *0.048* | *0.051* | *0.075* | *0.077* | *0.093* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.537 | |
| Equilibrium/N | 3.417 | | | 3.396 | |
| R-squared | 0.240 | 0.265 | 0.445 | 0.241 | 0.445 |
| N | 4301 | 4301 | 4301 | 4301 | 4301 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

Using a five-year lag, as shown in Table 17, produces results more similar to Section 4.3.1. Here, intervention is positive and significant, just as it was in Table 15. In addition, the magnitude of the effect of intervention is slightly lower for restricted districts than all districts for the most preferred model (Column 5). However, the model R-squared value is also lower for

this specification, indicating that while intervention may have a positive effect on district scores, other factors may be more influential.

***Table 17: Effects of Intervention (Lagged Five Years) on Total District Score (Restricted to Districts with a Minimum Score of 3.07 or below)***

| TOTAL - L5R | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L5 Score* | 0.084 | 0.103 | -0.135 | 0.143 | -0.104 |
| *SE* | *0.015* | *0.016* | *0.016* | *0.023* | *0.022* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | 0.035 | 0.018 |
| *SE* | | | | *0.010* | *0.008* |
| *Sig.* | | | | *** | ** |
| | | | | | |
| Constant | 3.146 | 3.085 | 3.687 | 2.927 | 3.567 |
| *SE* | *0.050* | *0.055* | *0.073* | *0.082* | *0.091* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.557 | |
| Equilibrium/N | 3.433 | | | 3.413 | |
| R-squared | 0.009 | 0.026 | 0.531 | 0.013 | 0.532 |
| N | 3128 | 3128 | 3128 | 3128 | 3128 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

4.3.3 Effect of Intervention on Overall SDFP score, by District Type

Another factor that may affect how intervention works may be the type of school district. As discussed in Section 2.3.3 and Section 3.2, Illinois has three types of school districts: elementary, high school, and unit (both elementary and high school). Table 18 reports on regressions that restrict the sample to elementary districts.

***Table 18: Effects of Intervention (Lagged Two Years) on Total District Score (Restricted to Elementary Districts)***

| TOTAL - L2E | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L2 Score* | 0.524 | 0.533 | 0.228 | 0.532 | 0.214 |
| *SE* | *0.017* | *0.018* | *0.022* | *0.023* | *0.026* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | 0.006 | -0.011 |
| *SE* | | | | *0.014* | *0.014* |
| *Sig.* | | | | | |
| | | | | | |
| Constant | 1.747 | 1.647 | 2.807 | 1.718 | 2.858 |
| *SE* | *0.064* | *0.067* | *0.105* | *0.086* | *0.117* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.714 | |
| Equilibrium/N | 3.668 | | | 3.666 | |
| R-squared | 0.330 | 0.343 | 0.518 | 0.330 | 0.519 |
| N | 3938 | 3938 | 3938 | 3938 | 3938 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

Similar to overall score, intervention does not significantly improve district financial condition using a two-year lag, regardless of district type. However, at least in column 4, the interaction term is now positive. We also see in column 4 that the equilibrium score for districts under state intervention (approximately 3.71) is slightly higher than districts not under intervention (approximately 3.67). However, overall, these results suggest that intervention does not improve fiscal scores, particularly in the most preferred model.

***Table 19: Effects of Intervention (Lagged Two Years) on Total District Score (Restricted to High School Districts)***

| TOTAL - L2H | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L2 Score* | 0.561 | 0.568 | 0.180 | 0.559 | 0.162 |
| *SE* | *0.031* | *0.030* | *0.043* | *0.040* | *0.052* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | -0.001 | -0.013 |
| *SE* | | | | *0.024* | *0.022* |
| *Sig.* | | | | | |
| | | | | | |
| Constant | 1.624 | 1.490 | 2.943 | 1.631 | 3.009 |
| *SE* | *0.116* | *0.117* | *0.168* | *0.153* | *0.203* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.690 | |
| Equilibrium/N | 3.698 | | | 3.699 | |
| R-squared | 0.370 | 0.392 | 0.576 | 0.370 | 0.577 |
| N | 1056 | 1056 | 1056 | 1056 | 1056 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

As shown in Table 19, similar results exist for high school districts, although the interaction coefficients are negative in both columns 4 and 5 in this model (though still insignificant). The equilibrium score for districts under state intervention (column 4) is slightly lower (approximately 3.69) than districts not under intervention (approximately 3.70).

Finally, results are also similar for unit districts, as shown in Table 20.

***Table 20: Effects of Intervention (Lagged Two Years) on Total District Score (Restricted to Unit Districts)***

| TOTAL - L2U | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L2 Score* | 0.546 | 0.571 | 0.239 | 0.535 | 0.233 |
| *SE* | *0.015* | *0.015* | *0.018* | *0.022* | *0.023* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | -0.007 | -0.004 |
| *SE* | | | | *0.010* | *0.009* |
| *Sig.* | | | | | |
| | | | | | |
| Constant | 1.607 | 1.499 | 2.437 | 1.649 | 2.459 |
| *SE* | *0.053* | *0.053* | *0.075* | *0.083* | *0.092* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.499 | |
| Equilibrium/N | 3.540 | | | 3.545 | |
| R-squared | 0.348 | 0.381 | 0.560 | 0.348 | 0.560 |
| N | 3993 | 3993 | 3993 | 3993 | 3993 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

Here, like high school districts, interaction coefficients in both columns 4 and 5 are negative and insignificant. We do notice, however, the interaction coefficient in the most preferred specification (column 5) is slightly less negative in unit districts than high school districts. Like

high school districts, the equilibrium score for districts under intervention is lower (approximately 3.50) than districts not under intervention (approximately 3.55).

Five-year models present a different story than their two-year counterparts. Although intervention positively and significantly affects districts when all district types are included in the model, this is not the case when models are split.

We first examine elementary districts in Table 21, and find that intervention has a positive and significant effect on districts in column 4. However, once controls are added in column 5, the effect becomes insignificant. We also notice the magnitude of the interaction coefficient in column 5 is smaller than the overall score model.

***Table 21: Effects of Intervention (Lagged Five Years) on Total District Score (Restricted to Elementary Districts)***

| TOTAL - L5E | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L5 Score* | 0.231 | 0.253 | -0.089 | 0.274 | -0.066 |
| *SE* | *0.016* | *0.016* | *0.020* | *0.024* | *0.024* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | 0.032 | 0.017 |
| *SE* | | | | *0.014* | *0.012* |
| *Sig.* | | | | ** | |
| | | | | | |
| Constant | 2.834 | 2.802 | 4.116 | 2.672 | 4.034 |
| *SE* | *0.058* | *0.061* | *0.102* | *0.090* | *0.112* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.853 | |
| Equilibrium/N | 3.687 | | | 3.681 | |
| R-squared | 0.083 | 0.099 | 0.589 | 0.086 | 0.590 |
| N | 2864 | 2864 | 2864 | 2864 | 2864 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

High school districts, shown in Table 22, do not see significant effects of state intervention in the split model. In fact, the coefficient of the interaction in column 4 becomes negative (although still insignificant). Consequently, we see that the equilibrium SDFP score for

high school districts under intervention is lower (approximately 3.67) than districts not under intervention (approximately 3.74).

***Table 22: Effects of Intervention (Lagged Five Years) on Total District Score (Restricted to High School Districts)***

| TOTAL - L5H | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L5 Score* | 0.295 | 0.311 | -0.136 | 0.275 | -0.120 |
| *SE* | *0.032* | *0.032* | *0.038* | *0.044* | *0.047* |
| *Sig.* | *** | *** | *** | *** | ** |
| | | | | | |
| Interaction | | | | -0.015 | 0.012 |
| *SE* | | | | *0.024* | *0.020* |
| *Sig.* | | | | | |
| | | | | | |
| Constant | 2.634 | 2.585 | 4.308 | 2.710 | 4.247 |
| *SE* | *0.119* | *0.124* | *0.155* | *0.167* | *0.183* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.668 | |
| Equilibrium/N | 3.738 | | | 3.739 | |
| R-squared | 0.152 | 0.169 | 0.607 | 0.153 | 0.607 |
| N | 768 | 768 | 768 | 768 | 768 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

Intervention does have a positive and significant effect on unit districts, as shown in Table 23. In addition, the interaction coefficient on column 5 is slightly smaller (0.018) than the

model with all district types (0.019). We also see a higher equilibrium score for districts under intervention (approximately 3.61) than districts not under intervention (3.55).

***Table 23: Effects of Intervention (Lagged Five Years) on Total District Score (Restricted to Unit Districts)***

| TOTAL - L5U | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L5 Score* | 0.248 | 0.287 | -0.127 | 0.267 | -0.098 |
| *SE* | *0.017* | *0.017* | *0.019* | *0.026* | *0.025* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | 0.012 | 0.018 |
| *SE* | | | | *0.012* | *0.009* |
| *Sig.* | | | | | * |
| | | | | | |
| Constant | 2.675 | 2.611 | 3.722 | 2.602 | 3.610 |
| *SE* | *0.060* | *0.062* | *0.076* | *0.097* | *0.098* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.609 | |
| Equilibrium/N | 3.555 | | | 3.550 | |
| R-squared | 0.083 | 0.129 | 0.611 | 0.084 | 0.611 |
| N | 2904 | 2904 | 2904 | 2904 | 2904 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

4.3.4 Effect of Intervention on Overall SDFP score, by Geographic Location

Still another factor that might affect how intervention works is a district's geographical location. As discussed in Section 2.3.3, employment growth that is biased toward urban areas may make state intervention more effective in these areas. First, in Table 24, I examine districts in Cook County, which includes the City of Chicago, using a two-year lag.

***Table 24: Effects of Intervention (Lagged Two Years) on Total District Score (Restricted to Cook County Districts)***

| TOTAL - L2CC | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L2 Score* | 0.464 | 0.461 | 0.091 | 0.507 | 0.059 |
| *SE* | *0.029* | *0.029* | *0.032* | *0.038* | *0.042* |
| *Sig.* | *** | *** | *** | *** | |
| | | | | | |
| Interaction | | | | 0.035 | -0.023 |
| *SE* | | | | *0.024* | *0.022* |
| *Sig.* | | | | | |
| | | | | | |
| Constant | 1.989 | 1.914 | 3.252 | 1.828 | 3.368 |
| *SE* | *0.108* | *0.109* | *0.125* | *0.143* | *0.160* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.987 | |
| Equilibrium/N | 3.712 | | | 3.707 | |
| R-squared | 0.291 | 0.304 | 0.536 | 0.293 | 0.537 |
| N | 1507 | 1507 | 1507 | 1507 | 1507 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

Here, intervention is not significant in either of the preferred model specifications. In Column 5, the most preferred specification, the effect of intervention is in fact negative (although insignificant). I then investigate Chicago suburban districts in Table 25. As was the case with Cook County districts, intervention is not significant in either of the preferred specifications. However, in the most preferred specification, the effect of intervention is positive.

***Table 25: Effects of Intervention (Lagged Two Years) on Total District Score (Restricted to Chicago Suburban County Districts)***

| TOTAL - L2CS | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L2 Score* | 0.598 | 0.604 | 0.248 | 0.620 | 0.258 |
| *SE* | *0.022* | *0.023* | *0.031* | *0.032* | *0.038* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | 0.015 | 0.007 |
| *SE* | | | | *0.017* | *0.016* |
| *Sig.* | | | | | |
| | | | | | |
| Constant | 1.477 | 1.390 | 2.650 | 1.395 | 2.612 |
| *SE* | *0.084* | *0.086* | *0.128* | *0.119* | *0.155* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.824 | |
| Equilibrium/N | 3.677 | | | 3.672 | |
| R-squared | 0.414 | 0.423 | 0.590 | 0.414 | 0.591 |
| N | 1826 | 1826 | 1826 | 1826 | 1826 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

I then examine non-Chicago urban/suburban districts in Table 26. As was the case in both Cook County and Chicago suburban counties, neither preferred specification is significant.

***Table 26: Effects of Intervention (Lagged Two Years) on Total District Score (Restricted to Non-Chicago Urban/Suburban County Districts)***

| TOTAL - L2OU | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L2 Score* | 0.581 | 0.607 | 0.261 | 0.578 | 0.278 |
| *SE* | *0.019* | *0.019* | *0.027* | *0.027* | *0.031* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | -0.002 | 0.012 |
| *SE* | | | | *0.014* | *0.013* |
| *Sig.* | | | | | |
| | | | | | |
| Constant | 1.498 | 1.381 | 2.468 | 1.509 | 2.399 |
| *SE* | *0.069* | *0.072* | *0.111* | *0.102* | *0.129* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.569 | |
| Equilibrium/N | 3.576 | | | 3.578 | |
| R-squared | 0.391 | 0.423 | 0.589 | 0.391 | 0.589 |
| N | 2354 | 2354 | 2354 | 2354 | 2354 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

Finally, I examine rural districts in Table 27. Here, intervention is significant, but negative. We also see that the equilibrium score for districts under intervention is lower than districts not under intervention.

***Table 27: Effects of Intervention (Lagged Two Years) on Total District Score (Restricted to Rural County Districts)***

| TOTAL - L2RC | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L2 Score* | 0.512 | 0.531 | 0.243 | 0.479 | 0.210 |
| *SE* | *0.017* | *0.017* | *0.021* | *0.025* | *0.026* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | -0.021 | -0.022 |
| *SE* | | | | *0.012* | *0.011* |
| *Sig.* | | | | * | * |
| | | | | | |
| Constant | 1.741 | 1.625 | 2.400 | 1.863 | 2.523 |
| *SE* | *0.063* | *0.064* | *0.084* | *0.092* | *0.103* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.439 | |
| Equilibrium/N | 3.566 | | | 3.578 | |
| R-squared | 0.304 | 0.340 | 0.513 | 0.305 | 0.514 |
| N | 3300 | 3300 | 3300 | 3300 | 3300 |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

I also examine districts with a five-year lag. Table 28 shows Cook County districts, and we see that intervention is positive and significant. We see that the equilibrium is unstable (as it is above a perfect 4.00 score), indicating districts under intervention improve continuously but do not level off in the limited amount of data available.

***Table 28: Effects of Intervention (Lagged Five Years) on Total District Score (Restricted to Cook County Districts)***

| TOTAL - L5CC | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| L5 Score | 0.230 | 0.235 | -0.141 | 0.322 | -0.086 |
| SE | 0.021 | 0.021 | 0.028 | 0.035 | 0.032 |
| Sig. | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | 0.071 | 0.038 |
| SE | | | | 0.020 | 0.018 |
| Sig. | | | | *** | ** |
| | | | | | |
| Constant | 2.887 | 2.869 | 4.274 | 2.540 | 4.081 |
| SE | 0.076 | 0.083 | 0.111 | 0.132 | 0.124 |
| Sig. | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 4.184 | |
| Equilibrium/N | 3.747 | | | 3.745 | |
| R-squared | 0.104 | 0.111 | 0.590 | 0.117 | 0.593 |
| N | 1096 | 1096 | 1096 | 1096 | 1096 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

Chicago suburban districts have similar results. As shown in Table 29, the effect of intervention is positive and significant. Here, the equilibrium is stable, and we notice a considerable difference between intervention (3.96) and non-intervention (3.69).

***Table 29: Effects of Intervention (Lagged Five Years) on Total District Score (Restricted to Chicago Suburban County Districts)***

| TOTAL - L5CS | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L5 Score* | 0.332 | 0.338 | -0.128 | 0.393 | -0.072 |
| *SE* | *0.026* | *0.026* | *0.028* | *0.039* | *0.035* |
| *Sig.* | *** | *** | *** | *** | ** |
| | | | | | |
| Interaction | | | | 0.041 | 0.037 |
| *SE* | | | | *0.018* | *0.016* |
| *Sig.* | | | | ** | ** |
| | | | | | |
| Constant | 2.472 | 2.465 | 4.103 | 2.242 | 3.897 |
| *SE* | *0.094* | *0.097* | *0.125* | *0.145* | *0.147* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.957 | |
| Equilibrium/N | 3.700 | | | 3.693 | |
| R-squared | 0.154 | 0.159 | 0.674 | 0.159 | 0.677 |
| N | 1328 | 1328 | 1328 | 1328 | 1328 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

Non-Chicago urban and suburban districts show a different story, as shown in Table 30. Here, intervention is not significant, and the equilibrium score for intervention districts is lower (3.54) than non-intervention districts (3.59).

***Table 30: Effects of Intervention (Lagged Five Years) on Total District Score (Restricted to Non-Chicago Urban/Suburban County Districts)***

| TOTAL - L5OU | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L5 Score* | 0.284 | 0.327 | -0.100 | 0.271 | -0.081 |
| *SE* | *0.023* | *0.023* | *0.029* | *0.033* | *0.035* |
| *Sig.* | *** | *** | *** | *** | ** |
| | | | | | |
| Interaction | | | | -0.009 | 0.014 |
| *SE* | | | | *0.017* | *0.013* |
| *Sig.* | | | | | |
| | | | | | |
| Constant | 2.565 | 2.509 | 3.821 | 2.615 | 3.742 |
| *SE* | *0.083* | *0.085* | *0.135* | *0.124* | *0.158* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.543 | |
| Equilibrium/N | 3.583 | | | 3.587 | |
| R-squared | 0.115 | 0.167 | 0.639 | 0.116 | 0.639 |
| N | 1712 | 1712 | 1712 | 1712 | 1712 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

Finally, as shown in Table 31, rural districts also do not show a significant effect of intervention using a five-year lag. However, the equilibrium score for intervention districts is slightly higher (3.6) than non-intervention districts.

***Table 31: Effects of Intervention (Lagged Five Years) on Total District Score (Restricted to Rural County Districts)***

| TOTAL - L5RC | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L5 Score* | 0.195 | 0.240 | -0.087 | 0.200 | -0.085 |
| *SE* | *0.017* | *0.018* | *0.021* | *0.027* | *0.026* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | 0.003 | 0.002 |
| *SE* | | | | *0.014* | *0.011* |
| *Sig.* | | | | | |
| | | | | | |
| Constant | 2.888 | 2.800 | 3.595 | 2.870 | 3.586 |
| *SE* | *0.062* | *0.063* | *0.078* | *0.099* | *0.098* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 3.600 | |
| Equilibrium/N | 3.588 | | | 3.587 | |
| R-squared | 0.054 | 0.108 | 0.565 | 0.054 | 0.565 |
| N | 2400 | 2400 | 2400 | 2400 | 2400 |

*Notes: Dependent variable is overall district SDFP score*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

4.3.5 Effect of Intervention on Individual SDFP Indicators

In addition to restricting the number and types of districts in my analyses, I perform analyses to determine how individual parts of the overall fiscal condition of the school district are affected by intervention. There are five individual indicators: expenditure to revenue ratio (ERR), days cash on hand (DCOH), fund balance to revenue ratio (FBRR), short term debt (STD), and long-term debt (LTD).

Overall, the effect of state intervention on individual SDFP using a two-year lag mostly mirrors the overall score which indicates intervention does not significantly improve finances, with some exceptions.

One indicator, ERR, is significant and in the expected direction. As shown by the interaction coefficients in Columns 4 and 5 of Table 32, state intervention is associated with a lower ERR, meaning a government's annual expenditures are a lower proportion of their total revenue when under intervention. We also notice that the equilibrium for districts under intervention of 0.980 (shown in Column 4) is lower than the 0.986 equilibrium for districts not under intervention. An ERR of 0.980 in a given year, for example, would indicate that a district's expenditures would be 98 percent of its revenues; thus, lower numbers are desirable.

***Table 32: Effects of Intervention (Lagged Two Years) on Expenditure to Revenue Ratio (ERR)***

| ERR - L2 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L2 ERR* | 0.215 | 0.238 | 0.042 | 0.227 | 0.056 |
| *SE* | *0.014* | *0.016* | *0.014* | *0.015* | *0.015* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | -0.006 | -0.009 |
| *SE* | | | | *0.001* | *0.001* |
| *Sig.* | | | | *** | *** |
| | | | | | |
| Constant | 0.772 | 0.747 | 0.971 | 0.763 | 0.965 |
| *SE* | *0.014* | *0.017* | *0.022* | *0.015* | *0.021* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 0.980 | |
| Equilibrium/N | 0.984 | | | 0.986 | |
| R-squared | 0.052 | 0.095 | 0.294 | 0.055 | 0.298 |
| N | 8987 | 8987 | 8987 | 8987 | 8987 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is district expenditure to revenue ratio (ERR)*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

Other indicators indicate either a positive and insignificant effect of intervention, or a negative effect of intervention. For example, as shown in Table 33, the coefficients on the interaction terms for DCOH are both positive, indicating that intervention is associated with a larger number of days cash on hand, but this relationship is only marginally significant in column 4, and not statistically significant in column 5.

***Table 33: Effects of Intervention (Lagged Two Years) on Days Cash on Hand (DCOH)***

| DCOH - L2 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L2 DCOH* | 0.925 | 0.927 | 0.581 | 0.929 | 0.581 |
| *SE* | *0.010* | *0.010* | *0.018* | *0.012* | *0.018* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | 1.356 | 0.224 |
| *SE* | | | | *0.784* | *0.750* |
| *Sig.* | | | | * | |
| | | | | | |
| Constant | 27.219 | 4.066 | 0.617 | 26.016 | 0.386 |
| *SE* | *1.678* | *2.518* | *7.127* | *2.141* | *7.147* |
| *Sig.* | *** | | | *** | |
| | | | | | |
| Equilibrium/Y | | | | -20.244 | |
| Equilibrium/N | 363.877 | | | 367.444 | |
| R-squared | 0.770 | 0.778 | 0.850 | 0.770 | 0.850 |
| N | 8987 | 8987 | 8987 | 8987 | 8987 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is district days cash on hand (DCOH)*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

We also notice that districts under intervention have an unstable (negative) equilibrium for DCOH, indicating DCOH drops but does not level off. Districts not under intervention have an equilibrium DCOH of approximately 367 days, or over one year of cash on hand.

Intervention also does not improve districts' fund balance to revenue ratio in the short term. As shown in Table 34, the interaction coefficients are not significant in either column 4 or

column 5. We do see that the equilibrium FBRR (column 4) for districts under intervention is slightly higher (approximately 0.92) than districts not under intervention (approximately 0.89).

***Table 34: Effects of Intervention (Lagged Two Years) on Fund Balance to Revenue Ratio (FBRR)***

| FBRR - L2 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L2 FBRR* | 0.918 | 0.915 | 0.608 | 0.921 | 0.610 |
| *SE* | *0.009* | *0.010* | *0.017* | *0.011* | *0.018* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | 0.003 | 0.001 |
| *SE* | | | | *0.002* | *0.002* |
| *Sig.* | | | | | |
| | | | | | |
| Constant | 0.073 | -0.013 | -0.014 | 0.070 | -0.015 |
| *SE* | *0.004* | *0.006* | *0.019* | *0.005* | *0.019* |
| *Sig.* | *** | ** | | *** | |
| | | | | | |
| Equilibrium/Y | | | | 0.922 | |
| Equilibrium/N | 0.888 | | | 0.893 | |
| R-squared | 0.780 | 0.790 | 0.857 | 0.780 | 0.857 |
| N | 8987 | 8987 | 8987 | 8987 | 8987 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is district fund balance to revenue ratio (FBRR)*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

One indicator, STD, is statistically significant but in the opposite of the hypothesized direction, meaning districts under intervention are associated with having a lower percentage of

their maximum borrowing remaining. As shown in Table 35, we see a lower equilibrium value (48.06) for districts under intervention than districts not under intervention (99.51).

***Table 35: Effects of Intervention (Lagged Two Years) on Short Term Debt (STD)***

| STD - L2 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L2 STD* | 0.372 | 0.369 | 0.195 | 0.353 | 0.186 |
| *SE* | *0.038* | *0.038* | *0.040* | *0.039* | *0.041* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | -0.694 | -0.460 |
| *SE* | | | | *0.140* | *0.155* |
| *Sig.* | | | | *** | *** |
| | | | | | |
| Constant | 62.263 | 60.884 | 78.677 | 64.414 | 79.970 |
| *SE* | *3.765* | *3.789* | *3.999* | *3.885* | *4.146* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 48.059 | |
| Equilibrium/N | 99.143 | | | 99.512 | |
| R-squared | 0.193 | 0.199 | 0.335 | 0.199 | 0.336 |
| N | 8987 | 8987 | 8987 | 8987 | 8987 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is percentage of short term debt (STD) capacity available to district*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

In a given year, an STD value of 48.06 would indicate that 48.06 percent of a district's short term debt capacity is available (versus 99.51 percent for districts under intervention), and thus for this indicator, higher numbers are better.

Finally, intervention does not have a significant effect on percentage of long term debt remaining for a district. This result is perhaps not surprising, given that long-term debt can take years to restructure or pay off.

***Table 36: Effects of Intervention (Lagged Two Years) on Long Term Debt (LTD)***

| LTD - L2 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L2 LTD* | 0.864 | 0.864 | 0.491 | 0.862 | 0.491 |
| *SE* | *0.057* | *0.057* | *0.097* | *0.059* | *0.098* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | -0.512 | -0.027 |
| *SE* | | | | *0.485* | *0.377* |
| *Sig.* | | | | | |
| | | | | | |
| Constant | 6.966 | 8.106 | 36.750 | 7.273 | 36.778 |
| *SE* | *3.721* | *3.740* | *6.822* | *3.968* | *6.946* |
| *Sig.* | * | ** | *** | * | *** |
| | | | | | |
| Equilibrium/Y | | | | 11.214 | |
| Equilibrium/N | 51.375 | | | 52.858 | |
| R-squared | 0.584 | 0.587 | 0.700 | 0.584 | 0.700 |
| N | 8987 | 8987 | 8987 | 8987 | 8987 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is percentage of long term debt (LTD) capacity available to district*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

As shown in Table 36, similar to STD, the equilibrium score for districts under intervention is lower (11.21) than for districts not under intervention (52.86). These numbers

can be interpreted in the same manner as STD: a district with a value of 11.21 (intervention) or 52.86 (not intervention) would indicate that district has 11.21 or 52.86 percent, respectively, of its long term borrowing capacity remaining. Similar to STD, higher numbers are better.

The effect of state intervention on individual SDFP indicators using a five-year lag reveals different results than the effect of intervention on the overall score would suggest.

***Table 37: Effects of Intervention (Lagged Five Years) on Expenditure to Revenue Ratio (ERR)***

| ERR - L5 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L5 ERR* | 0.006 | 0.056 | -0.106 | 0.016 | -0.097 |
| *SE* | *0.014* | *0.015* | *0.014* | *0.014* | *0.014* |
| *Sig.* | | *** | *** | | *** |
| | | | | | |
| Interaction | | | | -0.005 | -0.006 |
| *SE* | | | | *0.001* | *0.001* |
| *Sig.* | | | | *** | *** |
| | | | | | |
| Constant | 0.979 | 0.898 | 1.095 | 0.971 | 1.091 |
| *SE* | *0.014* | *0.016* | *0.019* | *0.014* | *0.019* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 0.983 | |
| Equilibrium/N | 0.985 | | | 0.987 | |
| R-squared | 0.000 | 0.053 | 0.384 | 0.002 | 0.385 |
| N | 6536 | 6536 | 6536 | 6536 | 6536 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is district expenditure to revenue ratio (ERR)*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

Here, although the overall effect of state intervention is positive and significant (that is, intervention is associated with an increased SDFP score and equilibrium), like short-term individual measures, only one of the individual indicators (ERR) is significant in the hypothesized direction.

Indeed, as shown in Table 37, like the two-year lag results show, the interaction term for ERR is negative and significant in both columns 4 and 5. In addition, the equilibrium score of intervention districts is lower than districts not under intervention. These values would indicate that intervention is improving ERR for districts.

Also like the two-year lag results, the five-year lag interaction coefficient for DCOH in both columns 4 and 5 is positive, as shown in Table 38, but is only significant in column 4. Like the two-year lag model, we again note that the equilibrium DCOH for districts under intervention is negative, again indicating an extremely poor financial condition. By contrast, districts not under intervention have a DCOH equilibrium of nearly one year (approximately 358 days).

***Table 38: Effects of Intervention (Lagged Five Years) on Days Cash on Hand (DCOH)***

| DCOH - L5 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L5 DCOH* | 0.787 | 0.792 | 0.029 | 0.797 | 0.032 |
| *SE* | *0.017* | *0.018* | *0.023* | *0.020* | *0.024* |
| *Sig.* | *** | *** | | *** | |
| | | | | | |
| Interaction | | | | 2.957 | 0.726 |
| *SE* | | | | *1.324* | *0.890* |
| *Sig.* | | | | ** | |
| | | | | | |
| Constant | 75.620 | 58.590 | 39.331 | 72.702 | 38.364 |
| *SE* | *2.715* | *3.964* | *5.415* | *3.543* | *5.528* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | -26.399 | |
| Equilibrium/N | 355.019 | | | 358.491 | |
| R-squared | 0.465 | 0.469 | 0.850 | 0.465 | 0.850 |
| N | 6536 | 6536 | 6536 | 6536 | 6536 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is district days cash on hand (DCOH)*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

The interaction coefficients for FBRR with a five-year lag are also much like the two-year lag results. As shown in Table 39, both coefficients are positive, indicating that intervention would raise districts' FBRR, but column 4 is only marginally significant, and column 5 is not statistically significant.

***Table 39: Effects of Intervention (Lagged Five Years) on Fund Balance to Revenue Ratio (FBRR)***

| FBRR - L5 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L5 FBRR* | 0.752 | 0.752 | 0.043 | 0.761 | 0.046 |
| *SE* | *0.016* | *0.016* | *0.022* | *0.019* | *0.023* |
| *Sig.* | *** | *** | ** | *** | * |
| | | | | | |
| Interaction | | | | 0.007 | 0.001 |
| *SE* | | | | *0.004* | *0.002* |
| *Sig.* | | | | * | |
| | | | | | |
| Constant | 0.213 | 0.134 | 0.095 | 0.206 | 0.093 |
| *SE* | *0.006* | *0.010* | *0.015* | *0.009* | *0.016* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 0.886 | |
| Equilibrium/N | 0.855 | | | 0.861 | |
| R-squared | 0.463 | 0.472 | 0.849 | 0.463 | 0.849 |
| N | 6536 | 6536 | 6536 | 6536 | 6536 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is district fund balance to revenue ratio (FBRR)*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

As shown in Table 40, short-term debt with a five-year lag is again significant in the opposite of the hypothesized direction using the specification in column 4. However, using column 5, we see that the effect of intervention is now positive and insignificant, which is different than what we see in the two-year lag specification, but still does not indicate intervention is having the desired effect. We also see that, like the two-year STD model, the

equilibrium for districts under intervention is lower (78.54) than districts not under intervention (99.52). However, we also notice the difference between intervention and non-intervention (that is, intervention equilibrium minus non-intervention equilibrium) is lower in the five-year model.

***Table 40: Effects of Intervention (Lagged Five Years) on Short Term Debt (STD)***

| STD - L5 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L5 STD* | 0.056 | 0.054 | -0.092 | 0.049 | -0.091 |
| *SE* | *0.017* | *0.017* | *0.029* | *0.018* | *0.030* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Interaction | | | | -0.255 | 0.067 |
| *SE* | | | | *0.127* | *0.130* |
| *Sig.* | | | | ** | |
| | | | | | |
| Constant | 93.854 | 93.632 | 108.729 | 94.630 | 108.536 |
| *SE* | *1.653* | *1.693* | *2.826* | *1.782* | *3.014* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 78.538 | |
| Equilibrium/N | 99.421 | | | 99.516 | |
| R-squared | 0.010 | 0.012 | 0.332 | 0.011 | 0.332 |
| N | 6536 | 6536 | 6536 | 6536 | 6536 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is percentage of short term debt (STD) capacity available to district*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

Finally, as shown in Table 41, the results for long-term debt with a five-year lag also mirror the two-year lag results. This is again perhaps not surprising, as even five years is often a

fraction of the repayment period of long-term debt obligations for districts. Again, like the two-year model, we see a lower equilibrium score for districts under intervention (16.71) than we do for districts not under intervention (57.64).

***Table 41: Effects of Intervention (Lagged Five Years) on Long Term Debt (LTD)***

| LTD - L5 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Specification | No controls | Year Dummy | Year + Dist Dummy | Intven * Score Interact Only | Interaction + Y/D Dummies |
| *L5 LTD* | 0.626 | 0.627 | -0.045 | 0.621 | -0.045 |
| *SE* | *0.063* | *0.063* | *0.027* | *0.065* | *0.027* |
| *Sig.* | *** | *** | * | *** | * |
| | | | | | |
| Interaction | | | | -0.929 | 0.615 |
| *SE* | | | | *0.614* | *0.549* |
| *Sig.* | | | | | |
| | | | | | |
| Constant | 21.164 | 22.965 | 77.014 | 21.844 | 76.257 |
| *SE* | *4.161* | *4.187* | *2.896* | *4.486* | *2.949* |
| *Sig.* | *** | *** | *** | *** | *** |
| | | | | | |
| Equilibrium/Y | | | | 16.713 | |
| Equilibrium/N | 56.555 | | | 57.636 | |
| R-squared | 0.256 | 0.263 | 0.729 | 0.256 | 0.729 |
| N | 6536 | 6536 | 6536 | 6536 | 6536 |
| * p<0.10, ** p<0.05, *** p<0.01 | | | | | |

*Notes: Dependent variable is percentage of long term debt (LTD) capacity available to district*
*Standard errors shown in italics*
*Source of data is Illinois State Board of Education. See Figure 3 for details.*
*Equilibrium Y/N signifies the equilibrium score for districts under (Y) or not under (N) state intervention*
*Equilibrium score for Column 1 is calculated using Equation 2 in Section 3.5*
*Equilibrium scores cannot be calculated for Column 2; each year has a different equilibrium*
*No equilibrium scores can be calculated for Column 3; each district has a different equilibrium*
*Equilibrium scores for Column 4 are calculated using Equation 2 and 4 (N/Y) in Section 3.5*
*No equilibrium scores can be calculated for Column 5; each district has a different equilibrium for each year*

## Chapter 5: Policy Implications and Future Research

### 5.1. Discussion and Policy Implications

Overall, as shown in Table 42, the majority of the results presented above are the opposite of what was hypothesized earlier in this paper. Table 42 specifically compares regression results to hypotheses 1-6 presented in Section 2.3 using the most preferred specification of each regression model, or column 5 in each regression table, for both short term (L2) and long term (L5) indicators (hypotheses 7 and 8 are discussed separately later in this chapter).

***Table 42: Summary of Hypotheses Compared to Regression Results***

| Hypothesis | Indicator | L2 Expected | L2 Actual | L5 Expected | L5 Actual |
|---|---|---|---|---|---|
| H1 | ERR | - | - | NS | - |
| H2 | DCOH | + | NS | NS | NS |
| H3 | FBRR | + | NS | NS | NS |
| **H4** | **Overall** | **+** | **NS** | **NS** | **+** |
| H5 | STD | NS | - | NS | NS |
| H6 | LTD | NS | NS | NS | NS |

First, the two-year lag models of overall SDFP scores for all districts show that districts undergoing intervention have a smaller slope in approaching their equilibrium than districts not under intervention (however, this smaller slope is not statistically significant). The results in restricted districts (only those with intervention) shows a positive, but also not significant, effect. We would not expect either of these results as intervention is designed to improve short-term indicators, and these indicators are weighted heavily in score calculation. From a policy perspective, it is somewhat disappointing that intervention does not improve the financial

trajectory of districts within two years; however, the more positive long-term effects of intervention may offset these disappointing short-term findings.

Indeed, equally surprising is that scores were significantly positively affected by state intervention in the long term, both in the entire district population and restricted population. These findings are again opposite of what was hypothesized. Here, considering that intervention is designed in a way that would allow for quick correction of short-term measures but not the improvement of long-term indicators, we would expect that districts would not see any significant effects of intervention in the long term.

Why would districts show positive results in the long term but not the short term? It is possible that state intervention builds longer-term financial management capacity in districts, or at least the ability to monitor state indicators. From a policy perspective, this is certainly a promising finding.

Results using individual indicators are somewhat mixed. As expected, intervention did not have a significant positive effect on either short-term or long-term debt in either the short or the long term. However, opposite of expected, intervention also did not have a significant effect on certain short-term indicators (DCOH, FBRR) in the short term. Intervention also did not have any significant long-term effect on DCOH or FBRR. These results are surprising, particularly since intervention did have a positive, significant effect on districts' overall scores. In fact, only ERR (in both the short and long term) was positively and significantly impacted by state intervention. This may contribute to the overall positive and significant score because this indicator is one of two weighted heavily by ISBE (35 percent of the overall score). The effect of intervention only on ERR suggests districts and/or ISBE consultants may "teach to the test," so to speak, to improve a district's score without improving all underlying financial conditions.

Overall, from a policy perspective, the positive effect of intervention on overall scores in the long term could be viewed as positive. However, individual indicators do not always show positive results to match the positive overall effect of intervention for districts, and the range of districts in which intervention is improving financial condition is narrow.

Results by district type are also surprising. Unit districts are the only type of district that is positively and significantly affected by state intervention. This is opposite of hypothesis 7, which stated that elementary districts would fare better due to the lower cost of educating students. This result may be due to the fact that resources in unit districts can be used for more total students.

Results by county type are only somewhat as expected. Hypothesis 8 stated that rural districts would perform worse than others, and they did perform worse than Cook County and Chicago suburban county districts. Indeed, rural districts are likely suffering from economic woes, and thus the task of improving financial condition is more difficult. However, non-Chicago urban and suburban counties also showed similar results, contrary to hypothesis 8. This shows a divide in that Chicago metropolitan districts are improving under state intervention, but other state districts are not.

Given the results of this study, ISBE may want to take two relevant steps. First, ISBE could learn from the financial management practices that are working in certain districts (e.g. unit districts and Chicago metropolitan districts in the long term) and perhaps replicate this success in other districts. Second, ISBE may want to differentiate interventions that correct inefficiency (for example, the intervention in Quincy highlighted in Section 4.1) and interventions that are triggered due to underlying economic conditions. The results of this study show that interventions targeting inefficiency may be helpful, while SDFP interventions

triggered by underlying economic conditions may not be in the State's best interest and could lead to a cycle of repeated state interventions without sustained financial improvement.

Even if policy change is not possible to differentiate these types of intervention, ISBE could work to address the effectiveness of intervention on the indicators that either show no effect or an adverse effect. Certainly, long term debt has come to light for a number of districts in recent years, and developing best practices to deal with this and other indicators may help ISBE chart a better financial future for its districts.

**5.2. Limitations and Future Research**

Although this study offers a view of the effects of state intervention in local government fiscal affairs, some limitations do exist, and future research is needed to better ascertain the effects of various fiscal federalism arrangements.

The largest limitation to this study is that we do not know the exact type of intervention that occurs in each district (e.g. enrollment projections, budgeting assistance, etc.) or the intensity of such interventions. This information would be valuable as it would then be possible to investigate the relationship between specific consultant actions and financial outcomes. For example, budgeting assistance may be particularly useful in smaller districts where staff training is lacking, whereas enrollment projections may be particularly useful in larger districts with a large number of buildings. These types of analyses might be useful to ISBE to refine the SDFP system going forward.

I have followed up with ISBE to request this information; however, I was informed that ISBE does not keep a record of the exact interventions that occur. As such, I plan to conduct future research including interviews of ISBE staff as well as district administrators in an effort to find out what specific interventions are occurring, and what interventions are useful.

This study is also somewhat limited by the specification of my regression models. It could be argued that using a model wherein the independent variable is a two-year (L2) or five-year (L5) lag of a district's SDFP score ignores both a district's score and whether intervention occurs in the years between initial intervention ($t_0$) and the point of measurement ($t_2$ or $t_5$). However, as discussed in Section 3.5, inertia exists in a district's score, and it is unlikely that a district would either have a dramatic score change or move in and out of intervention several times over a short period of time. In addition, regression results are similar for modified models. For example, the interaction coefficient on Column 5 of Table 15 (my core five-year lag model) is 0.012 with variables for each lagged year (e.g. L1 score, L2 score, L3 score, L4 score, L5 score), as opposed to 0.013 for a simple model with only the L5 score. Thus, I argue my specifications are both valid and provide a more direct interpretation for the effects of intervention.

Future research on school districts in other states, as well as other types of governments, would be useful. For example, the State of Michigan currently has an intervention system in place for its school districts as well as general-purpose governments. By conducting intervention research in other states, a more generalizable model of fiscal intervention could be developed.

Ultimately, this study helps us better understand the effects of state intervention in school district financial health, and is a starting point for future studies in fiscal federalism and state intervention in local government finances.

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Swanson, A. D. (1966). The Effect of School District Size upon School Costs, Policy Recommendations for the State of New York. In *U.S. Department of Education Institute of Education Sciences*. Retrieved April 22, 2016, from http://eric.ed.gov/?id=ED011138

Theobald, N. D., & Bardzell, J. (2000). Introduction and Overview: Balancing Local Control and State Responsibility for K-12 Education. In N. D. Theobald & B. Malen (Eds.), *Balancing Local Control and State Responsibility for K-12 Education: 2000 Yearbook of the American Education Finance Association*. New York, NY: Taylor & Francis.

Wong, K. K., & Shen, F. X. (2001, August). Does School District Takeover Work? Assessing the Effectiveness of City and State Takeover as a School Reform Strategy. Paper presented at the Annual Meeting of the American Political Science Association, San Francisco, CA. Retrieved June 14, 2015, from http://files.eric.ed.gov/fulltext/ED468271.pdf (Archived by WebCite® at http://www.webcitation.org/6ZLASt231)

Wong, K. K., & Shen, F. X. (2003). Big City Mayors and School Governance Reform: The Case of School District Takeover. *Peabody Journal of Education*, *78*(1), 5-32.

Ziebarth, T. (2004, March). State Takeovers and Reconstitutions. In *Education Commission of the States*. Retrieved June 16, 2015, from http://www.ecs.org/clearinghouse/51/67/5167.htm (Archived by WebCite® at http://www.webcitation.org/6ZLAtGi6W)

# Curriculum Vita

**Andrew William Crosby**
**(July 5, 2016)**


## OFFICE

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## EDUCATION

Ph.D., University of Illinois at Chicago, 2016 (expected), Public Administration
- Dissertation Title: *State Financial Monitoring and Intervention in School Districts: Does it make the Grade?* (Chair: Dr. David F. Merriman)
- Fields of Specialization: Financial Management, Survey Methods

M.P.A., Grand Valley State University, 2011, Public Administration
- Fields of Specialization: Urban and Regional Policy and Planning, Public Management

B.A., Grand Valley State University, 2009, Public Administration
- Field of Specialization: Public and Nonprofit Budgeting and Finance

A.A., Grand Rapids Community College, 2007, Political Science

## EXPERIENCE

Research Assistant, Institute of Government and Public Affairs, University of Illinois, August 2011-May 2016
Teaching Assistant, Department of Public Administration, University of Illinois at Chicago, January 2014-May 2014
Community Development Assistant, May 2011 to September 2011, City of Walker, Michigan
Research Assistant, Grand Valley State University, August 2009 to May 2011

## RESEARCH INTERESTS

Public Budgeting and Financial Management, Survey Methodology

## COURSES TAUGHT

PA 211: Policy Analysis and Alternatives (Undergraduate, Spring 2014)
- Student Evaluations: Course Rating: 4.71/5.0; Instructor Rating 4.86/5.0

## ARTICLES IN REFEREED JOURNALS

1. **Crosby, Andrew W.** and Merriman, David F. (forthcoming). What Happened to the Illinois Economy Following the January 2011 Tax Increases? A Midwest Comparison. *Journal of Regional Analysis and Policy*.

2. Barker, Dianne C., Wang, Shu, Merriman, David F., **Crosby, Andrew W.**, Resnick, Elissa A., and Chaloupka, Frank J. (forthcoming). Estimating Cigarette Tax Avoidance and Evasion: Evidence from a National Sample of Littered Packs. *Tobacco Control*.

3. Hudspeth, Nancy W., Merriman, David F., Dye, Richard F., and **Crosby, Andrew W.** (2015). Do troubled times invite cloudy budget reporting? The determinants of General Fund expenditure share in U.S. states. *Public Budgeting & Finance*, *35*(4), 68-89.

4. Hendrick, Rebecca M. and **Crosby, Andrew W.** (2014). Does Bankruptcy Really Matter? The Solvency of Municipal Governments in the Chicago Metropolitan Region. *Public Finance and Management, 14*(1), 48-83.

5. **Crosby, Andrew W.** and Robbins, Donijo (2013). Mission Impossible: Monitoring Municipal Fiscal Sustainability and Stress in Michigan. *Journal of Public Budgeting, Accounting, & Financial Management*, *25*(3), 522-555.

**BOOK CHAPTER**

1. Holbrook, Allyson L., Sterrett, David, **Crosby, Andrew W.**, Stavrakantonaki, Marina, Wang, Xiaoheng, Zhao, Tianshu, and Johnson, Timothy P. (forthcoming). Survey Experiments and Changes in Question Wording in Repeated Cross-sectional Surveys. In P. J. Lavrakas, E. de Leeuw, A. L. Holbrook, C. Kennedy, M. W. Traugott, & B. T. West (Eds.), *Experimental Methods in Survey Research: Techniques that Combine Random Sampling with Random Assignment*. Hoboken, NJ: John Wiley & Sons.

**SUBMITTED FOR PUBLICATION**

1. **Crosby, Andrew W.** and Holbrook, Allyson L. Public Support for a Balanced Budget Amendment to the U.S. Constitution: Trends and Predictors

**WORKS IN PROGRESS**

1. **Crosby, Andrew W.**, Merriman, David F., Wang, Shu, Barker, Dianne C., and Chaloupka, Frank J. Cigarette tax avoidance and evasion in the United States: Comparing smoker surveys and physical pack collection methods.

**PUBLICATIONS FOR A POLICY AND GENERAL AUDIENCE**

1. Dye, Richard, Merriman, David, and **Crosby, Andrew**. (2016, February). Consequences of Inaction: The Effects of the Budget Stalemate on Revenue and Spending at the Midpoint of Fiscal Year 2016. *University of Illinois Institute of Government and Public Affairs*. http://igpa.uillinois.edu/system/files/Consequences-of-Inaction.pdf

2. Dye, Richard, Merriman, David, and **Crosby, Andrew**. (2015, December). Improving Budgetary Practices in Illinois. *University of Illinois Institute of Government and Public Affairs*. http://igpa.uillinois.edu/system/files/Improving-Budget-Practices-in-Illinois.pdf

3. Dye, Richard, Hudspeth, Nancy, and **Crosby, Andrew**. (2015, January). Apocalypse Now? The Consequences of Pay-Later Budgeting in Illinois: Updated Projections from IGPA's Fiscal Futures Model. *University of Illinois Institute of Government and Public Affairs*. http://igpa.uillinois.edu/system/files/FF_Apocalypse_Now_Jan_2015.pdf

4. **Crosby, Andrew** and Merriman, David. (2014, February). What Happened to the Illinois Economy Following the January 2011 Tax Increases? A Midwest Comparison. with David Merriman. *University of Illinois Institute of Government and Public Affairs*. http://igpa.uillinois.edu/system/files/Illinois-Economy-Post-2011-Tax-Increases.pdf

5. **Crosby, Andrew** and Merriman, David. (2013, October). Temporary Taxes: How Often Does the Sun Actually Set? *University of Illinois Institute of Government and Public Affairs*. http://igpa.uillinois.edu/system/files/How-Often-Does-The-Sun-Actually-Set.pdf

6. Dye, Richard and **Crosby, Andrew**. (2013, June). Pension Reform Roadmap: How do SB1 and SB2404 affect Illinois' 10-year budget outlook? *University of Illinois Institute of Government and Public Affairs*. http://igpa.uillinois.edu/system/files/Comparing-SB1-and-SB2404.pdf

7. Dye, Richard F., Merriman, David F., Hudspeth, Nancy, and **Crosby, Andrew** (2013, February). And Miles to Go Before It's Balanced: Illinois Still Faces Tough Budget Choices. with Richard Dye, David Merriman, and Nancy Hudspeth. *University of Illinois Institute of Government and Public Affairs*. URL: http://igpa.uillinois.edu/IR13/pdfs/IR13_CH2c_Fiscal.pdf

8. Dye, Richard F., Merriman, David F., Hudspeth, Nancy, and **Crosby, Andrew** (2012, October). Report of the State Budget Crisis: Illinois Report. *Task Force on the State Budget Crisis*. http://www.statebudgetcrisis.org/wpcms/wp-content/images/2012-10-12-Illinois-Report-Final-2.pdf

9. Dye, Richard F., Merriman, David F., Hudspeth, Nancy, and **Crosby, Andrew** (2012, July). Report of the State Budget Crisis: Full Report. *Task Force on the State Budget Crisis*. http://www.statebudgetcrisis.org/wpcms/wp-content/images/Report-of-the-State-Budget-Crisis-Task-Force-Full.pdf

**INVITED TALKS**

1. "Intergovernmental Relations: City Relationships with Other Local Governments." Lecture to PA 305: Managing the External Environment (undergraduate students). University of Illinois at Chicago; Chicago, IL (Instructor: Xiaoheng Wang). February 23, 2016.

2. "Evaluation Research." Lecture to PPA 506: Qualitative Methods (masters students). Adler School of Professional Psychology; Chicago, IL (Instructor: Aleea L. Perry). October 28, 2015.

3. "The Policy Process in Illinois." Lecture to PSYD 691: Public Policy, Advocacy, and Social Change (doctoral students). Adler School of Professional Psychology; Chicago, IL (Instructor: Nancy W. Hudspeth). June 3, 2015.

4. "Education Policy." Lecture to PSYD 691: Public Policy, Advocacy, and Social Change (doctoral students). Adler School of Professional Psychology; Chicago, IL (Instructor: Nancy W. Hudspeth). April 6, 2015.

5. "Financial Reporting." Lecture to PPA 504: Public Finance (masters students). Adler School of Professional Psychology; Chicago, IL (Instructor: Nancy W. Hudspeth). July 22, 2014.

6. "The Budget Cycle." Lecture to PPA 504: Public Finance (masters students). Adler School of Professional Psychology; Chicago, IL (Instructor: Nancy W. Hudspeth). June 26, 2014.

7. "The Policy Process in Illinois." Lecture to PSYD 691: Public Policy, Advocacy, and Social Change (doctoral students). Adler School of Professional Psychology; Chicago, IL (Instructor: Nancy W. Hudspeth). June 4, 2014.

8. "Is the (Financial) Doctor In? A Look at Michigan's Emergency Manager Law." Lecture to PA 210: Policy Process (undergraduate students). University of Illinois at Chicago; Chicago, IL (Instructor: Mary K. Feeney). December 4, 2013.

9. "The Policy Process in Illinois." Lecture to PSYD 691: Public Policy, Advocacy, and Social Change (doctoral students). Adler School of Professional Psychology; Chicago, IL (Instructor: Nancy W. Hudspeth). November 6, 2013.

10. "Municipal Fiscal Stress: A Brief Overview." Lecture to PA 520: Foundations of Public Service (masters students). Grand Valley State University; Grand Rapids, MI (Instructor: Mark C. Hoffman). Lecture also delivered via Blackboard to students at the Cracow University of Economics; Kraków, Poland (Instructor: Kamil Makiela), and Yeungnam University; Yeongsan, North Gyeongsang, South Korea (Instructor: Sungsoo Hwang). November 30, 2012.

11. "Revenue from User Fees, User Charges, and Sales by Public Monopolies, and Intergovernmental Fiscal Relations." Lecture to PA 504: Budgeting for Public Management (masters students). University of Illinois at Chicago; Chicago, IL (Instructor: David F. Merriman). November 15, 2012.

**CONFERENCE PRESENTATIONS**

1. "Cigarette tax avoidance and evasion in the United States: Comparing smoker surveys and physical pack collection methods." Paper presented at the Midwest Association for Public Opinion Research Annual Conference, November 20-21, 2015, Chicago, IL (with David Merriman, Shu Wang, Dianne Barker, and Frank Chaloupka).

2. "Intergovernmental Financial Monitoring and Intervention: Does it make the Grade?" Paper presented at the Association for Budgeting and Financial Management Annual Conference, October 1-3, 2015, Washington, DC.

3. "Public Support for a Balanced Federal Budget." Paper presented at the American Association for Public Opinion Research Annual Conference, May 14-17, 2015, Hollywood, FL (with Allyson L. Holbrook).

4. "Public Policy, Public Knowledge, and Public Opinion: A Study of Financial Public Policy Issues." Paper presented at the Midwest Association for Public Opinion Research Annual Conference, November 21-22, 2014, Chicago, IL (with Allyson L. Holbrook).

5. "Public Support for a Balanced Federal Budget." Paper presented at the Midwest Association for Public Opinion Research Annual Conference, November 21-22, 2014, Chicago, IL (with Allyson L. Holbrook).

6. "Does Bankruptcy Really Matter? The Solvency of Municipal Governments in the Chicago Metropolitan Region." Paper presented at the Association for Budgeting and Financial Management Annual Conference, October 3-5, 2013, Washington, DC (with Rebecca M. Hendrick).

7. "Measures of Budgetary Transparency and Fiscal Condition: The Role of Financial Reporting." Paper presented at the Association for Budgeting and Financial Management Annual Conference, October 11-13, 2012, New York, NY (with Richard F. Dye, Nancy W. Hudspeth, and David F. Merriman).

8. "Mission Impossible: Predicting Municipal Fiscal Stress in Michigan." Paper presented at the Association for Budgeting and Financial Management Annual Conference, October 13-15, 2011, Washington, DC (with Donijo Robbins).

9. "Fiscal condition and fiscal stress of local governments: Measures without borders." Paper presented at the American Society for Public Administration Annual Conference, March 12-15, 2011, Baltimore, MD (with Donijo Robbins).

10. "First Aid for Michigan Municipalities: Band-aids or Tourniquets?" Paper presented at the Association for Budgeting and Financial Management Annual Conference, October 6-9, 2010, Omaha, NE (with Donijo Robbins).

11. "An evaluation of Michigan's fiscal indicator scores." Paper presented at the Midwest Political Science Association Annual Conference, April 2010, Chicago, IL (with Donijo Robbins).

**PRESENTATIONS TO POLICY AND GENERAL AUDIENCES**

1. "The Illinois State Budget: How Bad is the Picture, and What Can You Do About it?" presented at The Resurrection Project, June 27, 2012 (with David Merriman and Nancy Hudspeth).

2. "The Illinois State Budget: How Bad is the Picture, and What Can You Do About it?" presented at Lawndale Christian Development Corporation, May 31, 2012 (with David Merriman and Nancy Hudspeth).

3. "The Illinois State Budget: How Bad is the Picture, and What Can You Do About it?" presented at Bethel New Life, April 19, 2012 (with David Merriman and Nancy Hudspeth).

**FUNDED RESEARCH**

"Open the Black Box: State Intervention in Local Government Fiscal Affairs in Michigan." Michigan State University, Institute for Public Policy and Social Research. October 1, 2015-September 30, 2016. $20,000. Co-investigator/Shu Wang is Primary Investigator.

**UNIVERSITY SERVICE**

University of Illinois at Chicago, College of Urban Planning and Public Affairs, Space Suitability Committee, 2015-2016
University of Illinois at Chicago, College of Urban Planning and Public Affairs, Dean's Student Advisory Committee, 2014-2016
Grand Valley State University, Graduate College, Dean Search Committee Student Representative, 2010
Grand Valley State University, Graduate Council Student Representative, 2009-2011

**HONORS AND AWARDS**

Donald C. Stone Award for Best Student Paper, Section on Intergovernmental Administration and Management, American Society for Public Administration (ASPA), 2016
Dean's Citation for Academic Excellence, Grand Valley State University, 2011
Outstanding Undergraduate Student Award, Grand Valley State University, 2009
The Honor Society of Phi Kappa Phi, 2009
Pi Alpha Alpha, the Honor Society for Public Affairs and Administration, 2009

**AD HOC REVIEWER**

*Urban Affairs Review*

**PROFESSIONAL ORGANIZATION AFFILIATIONS**

Association for Budgeting and Financial Management
American Society for Public Administration
American Association for Public Opinion Research
Midwest Association for Public Opinion Research
Association for Public Policy Analysis and Management
Midwest Political Science Association
Western Social Science Association

**REFERENCES**

Available upon request.