The Political Economy of Local Government Enterprise Zone Designation

G. Jason Jolley
Ohio University

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Abstract

This study utilizes Cox proportional hazards modeling to examine the political and economic factors influencing local government enterprise zone designation in Illinois. Extending congressional dominance model literature to state legislatures, the findings support the importance of state legislators in driving policy benefits to their districts. Counties represented by a bill sponsor were 6.67 times more likely to receive an enterprise zone designation compared to a county not represented by a bill sponsor. However, the enterprise zones were designated in counties with a higher-than-average unemployment rate suggesting those counties in economic need were more likely to receive the intended benefit. Each unit difference in a higher unemployment rate compared to the state average means a county would be two times more likely to receive an enterprise zone designation.

1 Introduction

This paper provides an empirical examination of the factors influencing designation of enterprise zones within a county's borders in the state of Illinois from 1983 to 2003. In the 1980s, enterprise zones were conceived as innovative strategy to spur inner city development by cutting taxes and government regulation in select geographically designated areas (Butler, 1991). Ronald Reagan endorsed federal enterprise zones in the 1980 presidential campaign, as enterprise zones were consistent with Reagan's focus on supply-side approaches as an economic stimulus (Mossberger, 2000). In Illinois, enterprise zone legislation was first introduced in 1979, became law in 1982, and the first enterprise zones were designated in 1983 (Mossberger, 2000).

An empirical examination of the factors influencing enterprise zone designation provides a case study for the demographic, social, political, and economic characteristics that influence designation. These factors are examined through a diffusion of innovation framework, which also allows the testing of geographic proximity as a factor influencing designation. Further, given the national and state focus on enterprise zones by political leaders in the early 1980s, the specific focus on a county being represented by a sponsor of the original enterprise zone legislation extends the congressional dominance model literature (Weingast and Moran, 1983) to state bureaucratic decision-making.

The remainder of the Introduction provides an overview of the Illinois enterprise zone program. Section 2 provides a literature review and hypothesize development. Section 3 reviews the methodology and data analysis. Section 4 discusses the results and policy implications.

2 Illinois Enterprise Zone Program

Illinois was the first state in the United States to pursue passage of state enterprise zone legislation, even predating federal government adoption attempts (Mossberger, 2000). In 1979, State House of Representatives member Donald Trotten, a republican from suburban Cook County on the outskirts of Chicago, authored and sponsored enterprise zone legislation which included both tax and regulatory exemptions (Mossberger,

2000). The original legislation, which passed the house, but failed in the state senate, restricted benefits to small businesses, offered minimum wage exemptions, and lessen health and safety regulations (Mossberger, 2000).

In 1982, Trotten (now a state senator) sponsored Senate Bill 1299, a modified version of his original enterprise zone bill, which passed the senate and house and was signed into law as Public Act 1299 scheduled to take effect December 7, 1982 (McDonald, 1993; Mossberger, 2000). The adopted enterprise zone legislation did not contain the health and safety or minimum wage exemptions, and the benefits had been extended to large businesses. These compromises represented concessions made by Trotten and recommended by a governor's task force. These changes also mirrored the trend found in enterprise zones adopted in other states prior to the passage of the compromised legislation in Illinois (Mossberger, 2000).

As shown in Figure 1, the first eight enterprise zones (across seven counties) were certified in 1983.

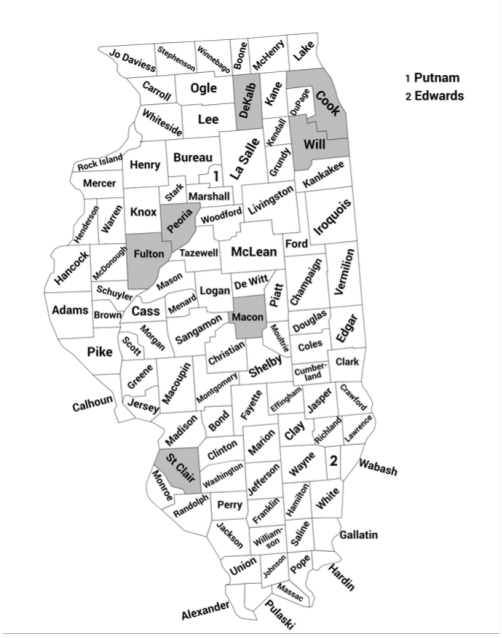

Figure 1: 1983 Enterprise Zone Designations

The program authorized the creation of eight zones per year for six years (the program was amended to allow for more than eight zones per year starting in 1984) (McDonald, 1993). These zones were certified and administered by the Illinois Department of Commerce and Community Affairs (DCCA). The zones were designated on a competitive basis utilizing criteria which included unemployment, income, poverty, or population loss. The researcher was unable to find transcripts or other descriptive documentation regarding how the initial enterprise zones were selected, or the qualitative or quantitative weight applied to each criterion. No information was found on how many applications were received during the initial years of the program. Yet, one could assume demand for zone designation outstripped the available number given the increase in allowable designations after 1984. Although enterprise zones are administered by a state agency, local governments and community groups played an important role in seeking zone designation and in day-to-day operations of the zone (McDonald, 1993).

The benefits of the enterprise zone include sales tax exemption on permitted building materials and equipment, utility tax exemptions, investment and job tax credits, and various income tax deductions. While it is not the intent of study to assess the success of the Illinois Enterprise Zone Program, it was selected in part due to documentation in the literature depicting the program as having a moderately successful impact on economic development. McDonald (1993) found growth in the distributional sector (wholesale trade and transportation) most likely due to the capital-intensive subsidies contained in the enterprise zone program. However, little support was found for enterprise zones stimulating economic activity that would not have occurred in their absence, and McDonald (1993) noted that the original intent of enterprise zones serving

depressed areas appears to have been lost with the proliferation of multiple zones across the state.

3 Enterprise Zone Designation History

From 1983 to 1992, 88 enterprise zones were created. Seven additional zones were created from 1992 to 2004 under authorization from the Quad Cities Regional Economic Development Authority Act, Southwestern Illinois Economic Development Authority Act, the Upper Illinois River Valley Development Authority Act, and the military base closure provisions in the Illinois Enterprise Zone Act (Illinois Enterprise Zone Association, 2005). This analysis excludes the additional seven zones not adopted within the guidelines of the original program. Table 1 outlines enterprise zones designation by year. It should be noted that more than one zone may be designated in each county, for example Cook County (County containing City of Chicago) had two enterprise zones adopted within its boundaries in 1983.

Table 1: Number of New County Designations Per Year

Year	New Designations	Cumulative Designations
1983	7	7
1984	7	14
1985	11	25
1986	5	30
1987	12	42
1988	9	51
1989	0	51
1990	11	62
1991	5	67
1992	0	67
1993	1	68
1994	0	68
1995	0	68
1996	0	68
1997	0	68

Table 2 depicts the percentage of county designations by stage using an early, middle, and late designation framework. This research is only focused on the first designation in a county and not repeated designations. Approximately 37 percent of the counties had an enterprise zone designated for the first time in the first three years of the program's existence. Another 38 percent were middle stage designations during the fourth, fifth, or sixth year of the program. The laggards or last to receive a first-time designation occurred between 1989 and 1993, the seventh and tenth years of the program's existence. No counties received a designation for the first time after 1993, although data was collected and analyzed through 2003.

Table 2: Stages of Designation

Designation Status	Time Period	Counties Adopting	Percentage of Total Adopters
Early	1983 to 1985	25	36.8
Middle	1986 to 1988	26	38.2
Late	1989 to 1993	17	25.0

Figure 2 displays the 15 counties represented in whole or in part by sponsors of the enterprise zone legislation. Of those 15 counties, 13 (86.7%) of them received an enterprise zone designation: three in 1983, one in 1984, one in 1985, one in 1986, two in 1987, one in 1988, and four in 1990. In total, 86.7% of counties represented by a bill sponsor received an enterprise zone designation, compared to 66.7% of all counties (68 of 102 counties).

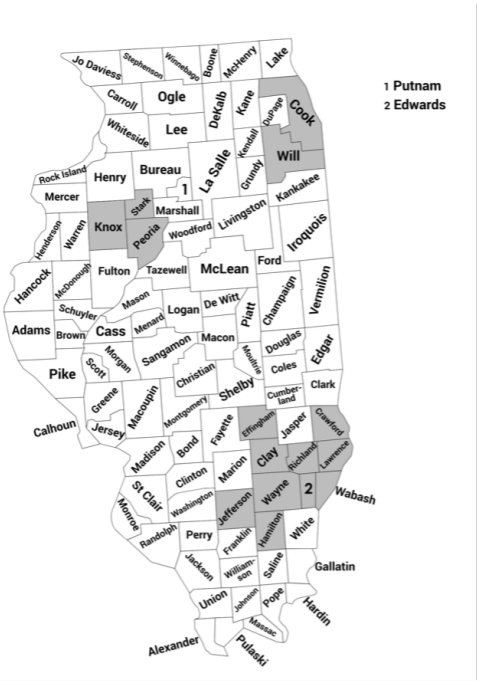

Figure 2: Counties Represented by a Bill Sponsor

4 Literature Review

4.1 Enterprise Zones Literature

Enterprise zones are state sponsored programs used by local governments to attract private development to geographically designated, economically depressed areas through tax abatements and other subsidies. Enterprise zones were innovative policies in the early 1980s that have been routinized over time.[1] Currently, enterprise zones are among the standard, incentive-based policy tools used by economic developers and local governments to attract industries and other private firms.

Enterprise zones are primarily state sponsored programs designated within local jurisdictions based on unemployment rates, poverty levels, median income, or other economic criteria. Firms locating within an enterprise zone receive property, sales, and/or income tax abatements; job training assistance; and other local/state support (Eisinger, 1988; Mossberger, 2000). In a few states, the state government designates enterprise zones automatically, yet most states designate enterprise zones within local government jurisdictions on a competitive basis (Eisinger, 1988). State programs vary in structure: rural or urban only, multi-county regions, or housing focused.

Enterprise zones were first conceived in Britain as a technique for spurring inner city development by cutting taxes and government regulation in select geographically designated areas (Butler, 1991). Ronald Reagan endorsed federal enterprise zones in the 1980 campaign; enterprise zones were consistent with Reagan's focus on supply-side approaches as an economic stimulus. The adoption of enterprise zone programs by states occurred in a pattern consistent with diffusion of innovation. Enterprise zone diffusion occurred through an intergovernmental network represented by both vertical and horizontal diffusion elements (Mossberger, 2000). The federal government acted as a vertical influence in two ways. First, the federal government attempted unsuccessfully to pass federal enterprise zone legislation. Although the prospective number of federal zones would have been relatively small, states were prepared to exploit these benefits should the zone materialize (Mossberger, 2000). Second, when federal zones were not enacted, the federal government and supply-side policy advocates within the Reagan administration served as change agents by providing information and

[1]For a discussion of routinization, see Mayer and Davidson (2000), Yin (1981).

encouragement to state governments. National policy organizations such as the Heritage Foundation also played a role in disseminating information about enterprise zone benefits to states (Mossberger, 2000).

Horizontal diffusion also occurred within the intergovernmental policy network. States developed their own opinion leaders and change agents to filter information on enterprise zones. In addition to consulting with Department of Housing and Urban Development, a federal agency, states also consulted with one another for developing enterprise zone legislation (Mossberger, 2000). The enterprise zone programs eventually adopted by states actually represent a hybrid form of supply-side policy (Eisinger, 1988). These programs contain the tax abatement characteristics associated with early conceptions of enterprise zones, but many programs offer no or limited regulatory relief (Eisinger, 1988). In 1996, 39 states had active or expired enterprise zone programs with the number of enterprise zones varying per state from 2 to 1625 (Wilder and Rubin, 1996).

Enterprise zones have been well studied within the academic literature on the effectiveness of economic development policies (see for example, Zhang, 2015), yet fewer studies have examined the adoption or designation of enterprise zones and similar tax abatement policies. Rubin and Rubin's (1987) study found only poorer cities use tax abatements. Clingermayer and Feiock (1990) also found tax abatement policies were less popular among cities than other economic development policies such as industrial development bonds, urban development grants, and business assistance. These studies are dated, but remain relevant to this analysis because they study a period of time overlapping with the adoption of most enterprise zones in Illinois. Man (1999) conducted a study similar to this study examining the factors influencing tax increment finance (TIF) adoption in Indiana. The study found that fiscal pressures, tax competition, economic distress, industrial composition, and availability of alternative programs, and gains in property values from the TIF influenced a city's decision to adopt a TIF. Greenbaum and Landers (2009) examined why enterprise zones have continued to be adopted despite little empirical evidence that the program is successful. Their essay discuses that rent seeking by businesses and landlords may encourage expansion of enterprise zones. Turner and Cassell (2007) examined enterprise zone adoption at the state level. They found states with larger urban populations and states with neighboring states with enterprise zones are more likely to adopt enterprise zone programs. These studies are consistent with Wassmer's (2009) finding of the significant growth of property tax abatements since the 1960s.

While there are fewer contemporary studies of enterprise zone, studies of similar policy areas mirror many of these findings. Recent work by Stokan et al. (2021) found local governments pursue equity-oriented policies when they face less competitive pressures and have greater resources. More recent studies of Opportunity Zones, a modern day take on enterprise zones, found states did target designation to areas with greater economic need, such as lower incomes, higher poverty, and higher unemployment rates (Theodos et al., 2018).

4.2 Policy Adoption Literature

The academic literature on diffusion of innovation and policy adoption is rich (see for example, Rogers, 1995; Walker, 1969, 1973 among others). The intent of this brief literature review is not to revisit this entire body of literature, but rather to highlight key factors found in local policy diffusion and adoption studies. Local government studies include diffusion of city level fluoridation (Crain, 1966), city level gun control (Godwin and Schroedel, 2000), city level government structure (Frederickson et al., 2004), city level adoption of anti-smoking laws (Shipan and Volden, 2008), county level smoking laws (Mitchell and Shonda, 2014), city level finance officer innovation (Gianakis and McCue, 1997), and city level computer technology adoption (Brudney and Selden, 1995). Some of the few local studies related to economic policies are a study of city level living wage adoption (Martin, 2001), a study of county level siting of prisons as an economic development tool (Hoyman and Weinberg, 2006), and a study of performance measures in local economic development (Lindblad, 2006). Academic literature attributes the adoption or pursuit of innovations around demographic, economic, political, and/or geographic factors.

4.3 Demographic attributes of adoption

The private sector and state level policy innovation literature suggests that large organizations are more likely to be earlier adopters of innovations (Crain, 1966; Rose and Joskow, 1990). However, local level studies have

found contrary results across a variety of policy areas. Studies have found that smaller local governments are more likely to adopt antismoking laws (Shipan and Volden, 2008) and administrative innovations (Gianakis and McCue, 1997). The likelihood of adoption by smaller local governments is a function of several variables. To some degree, size is confounded with resources and larger governments employ more resources.

4.3.1 Economic attributes of adoption

Demand-side policy approaches focus on the ability of government to generate demand from within through entrepreneurial activities (Eisinger, 1988). Governments possessing human capital have more policy options, thereby reducing the need to rely on incentive based policies. This concept has not been explored in detail within the current diffusion literature, but educational attainment is a common measure of human capital. Prior studies have found no relation between human capital and county adoption of prisons as an economic development strategy (Hoyman and Weinberg, 2006).

Fiscal capacity or slack resources are positively associated with innovation (Daley and Garand, 2005; Mohr, 1969). Other policy studies have found that fiscal crisis or the lack of fiscal capacity influences adoption (Berry and Berry, 1990; Berry, 1994). Other studies have found that slack resources have no influence on local policy innovation (Brudney and Selden, 1995; Gianakis and McCue, 1997).

4.3.2 Political attributes of adoption

Prior research has demonstrated mixed results on the influence of political orientation on innovation. Some state level diffusion of policy innovations studies focusing on morality-based policy issues have found political orientation of governors and legislators, distance to election, and the ideology and religious beliefs of citizens influence innovation. Among the policy areas studied include living-will laws (Hays and Glick, 1997), lotteries (Berry and Berry, 1990), state taxes (Berry and Berry, 1992; Berry, 1994), and criminal justice policies (Makse and Volden, 2011). Political orientation was also an explanatory variable an earlier study of state innovativeness in civil rights, welfare, and education policy areas (Gray, 1973). Other studies have found that political orientation did not influence innovation in other policy contexts, such as ADC/AFDC eligibility reform (Soule and Zylan, 1997). Additional studies have suggested that states look to ideologically similar states for policy learning and emulation (Grossback et al., 2004).

The influence of politics on diffusion of policy innovation at the local level is mixed. Studies have found that decentralized and highly political local governments influence innovation (Gianakis and McCue, 1997). Within the economic policy studies, political orientation has been positively associated with living wage law adoption (Martin, 2001), but not for county prison sitings (Hoyman and Weinberg, 2006). Interest group influences have also been associated with policy change in gun control laws at the local level (Godwin and Schroedel, 2000).

Enterprise zones have their roots in national supply-side policy (Mossberger, 2000) and are often viewed as a conservative economic development policy approach within the US and Britain (Harrop, 1981). Much of the debate about enterprise zone has been political (Hall, 1982; Massey, 1982; Taylor, 1982) and prior studies have demonstrated that Republican governors are more likely to favor supply-side policies while Democratic governors are more likely to favor demand-side policies (Boeckelman, 1996). In the case of this study, it could be expected that conservative counties will be more likely to adopt enterprise zones.

Lastly, economic development policymaking often receives considerable attention from state legislatures. Studies have found governors and state legislatures to be actively engaged in establishing and even evaluating economic development policies (Lane and Jolley, 2009; Jolley et al., 2015; Spindler, 1994). Even when these elected officials delegate responsibility to administrative agencies (in the case of this paper—enterprise zone designation), considerable room exists for political influence. Weingast and Moran (1983) demonstrate this through the Congressional dominance model, which argues that Congressional members influence administrative decision-making in a manner that benefits their constitutions (and the member's prospects of being re-elected). Across the public choice literature, numerous studies have examined political economy decision-making of agencies in areas such as FEMA payments (Garrett and Sobel, 2003), agricultural disaster payments (Garrett et al., 2006), stimulus spending (Young and Sobel, 2013), air service (Hall, Ross, & Yencha, 2015), rural business cooperatives (Matti, 2019), and vaccine allocation (Ryan, 2014). Such studies find

that political actors influence the decision-making or allocation of resources from administrative agencies.

4.3.3 Regional attributes of adoption

Regional diffusion patterns have been found in studies of policy and other forms of innovation. Early studies of general state innovations demonstrated regional diffusion patterns (McVoy, 1940; Walker, 1969, 1973). Emulation by nearby states and localities has been found across number policy areas, including lotteries (Berry and Berry, 1990), taxes (Berry, 1994), environmental policy (Daley and Garand, 2005), antismoking laws (Shipan and Volden, 2008), social security adoption among nations (Collier and Messick, 1975), and criminal justice (Makse and Volden, 2011). Proportion of adopters has been used as an additional measure of regional diffusion in numerous diffusion studies (Grattet et al., 1998; Ingram and Simons, 1995; Shipan and Volden, 2008).

5 Research Methods and Analysis

This study uses Cox proportional hazards modeling, an event history analysis method, to test determinants of enterprise zone designation in Illinois. Event history analysis is used to predict the probability of a governmental body adopting a policy in a given year if it has not already done so (Gray, 1994). Event history analysis is a general form of survival analysis statistical techniques in which an adopter is coded 0 until the year of adoption, at which time the adopter is coded 1 and then removed from the analysis. It is consistent with prior studies (Berry and Berry, 1999; Daley and Garand, 2005; Hoyman and Weinberg, 2006; Sewordor and Sjoquist, 2016) using unified models (Gray, 1994) to test the influence of both internal and external determinants on policy innovation.

5.1 Hypotheses

Consistent with the existing literature on policy adoption and innovation, a series of hypotheses are developed around demographic, economic, political, and regional variables.

Demographic hypotheses

H1: Counties that have a smaller population are more likely to adopt an enterprise zone.

One function of resources is that small local governments are more likely to follow state level programs such as enterprise zones and are less likely to have the capacity to develop innovations from within. Secondly, local governments in less populated areas may have more homogenous populations; increasing the likelihood of the adoption of policy innovations as opposition groups are reduced. Third, less populated governments may be more willing to engage in enterprise ones where some of the risks are shared with the state government.

Economic hypotheses

H2: Counties that have greater human capital are more likely to pursue demand-side policies and are therefore less likely to adopt an enterprise zone.

H3: Counties that have greater fiscal capacity (i.e. slack resources) have more economic development options and are therefore less likely to adopt an enterprise zone.

It is expected that counties possessing greater human capital and with greater fiscal capacity will have more resources to pursue alternative economic development approaches, while counties with less resources will be more likely to rely on state sponsored programs such as enterprise zones.

Human capital is measured by percentage of college graduates. The fiscal capacity of counties will vary depending on their property tax base, local sales tax revenue, and percentage of property tax base that is nonresidential. It is not posited here that fiscal capacity is one construct that can be represented by combining these variables into a scale. Rather, it suggests that property tax base, local sales tax revenue,

and balance between residential and nonresidential tax base are all annual factors influencing the fiscal health of local governments and are among the measures utilized by local economic developers to measure economic development needs. Therefore, these variables should be included and individually tested within the model. To control for population and geographic size differences, property tax revenues (or equalized assessed value) and local sales tax revenue will be examined on a per capita basis.

Sales tax revenue per capita has also been used in prior studies as a measure of fiscal capacity (Hoyman & Weinberg 2006). One well accepted principle supported by numerous, multi-state cost of community services studies is that residential development generally consumes more in government services than paid in taxes while nonresidential development is a net positive in property revenue generation (Heimlich and Anderson, 2001).[2] Therefore, the percentage of nonresidential property tax base is included in the model. This is worthy of exploration in this study, despite no significant findings in other studies (Boeckelman 1996; Hoyman & Weinberg 2006).

> *H4: Counties that suffer from more severe economic crises will be more likely rely on supply-side policies and are more likely to adopt an enterprise zone.*

Hypothesis 4 is related to hypothesis 3 in measuring the economic condition of a county. Counties suffering from severe economic crises have limited options for generating economic growth, therefore these counties are more likely to engage in innovative activities and rely on incentives and other supply-side mechanisms to stimulate development.

Political hypotheses

> *H5: Counties with a more conservative political orientation are more likely to support supply side policies and are therefore more likely to adopt an enterprise zone.*

Consistent with the history of enterprise zones originating out of national supply side policies, percentage support for Republican presidents in the most recent presidential election is examined as a predictor of conservative political orientation.

> *H6: Counties represented or partially represented by primary sponsors of enterprise zone legislation are more likely to adopt an enterprise zone.*

Hypothesis 6 may be construed as extending the congressional dominance model to state legislatures to explore if representation impacts designation. It is expected counties represented or partially represented by legislative sponsors are more likely to adopt. The presence of a legislative sponsor also provides policy entrepreneurship as counties represented by a legislative sponsor will be more aware of the policy option.

Regional diffusion hypotheses

> *H7: Counties located adjacent to previous adopters are more likely to adopt.*

Hypothesis 7 is a measure of regional diffusion or the extent to which adoption by neighboring governmental bodies influence diffusion of innovations.

6 Innovation equation

These hypotheses and associated literature review were used to develop a predictive innovation equation which will be tested using Cox proportional hazards modeling. The equation is as follows:

$$\begin{aligned} Adoption_{it} = \mathrm{f}\big(&population_{it}, \text{human capital}_{it}, \text{fiscal capacity}_{it}, \text{economic crisis}_{it}, \\ &conservatism_{it}, \text{policy entrepreneurship}_{it}, \text{and } propinquity_{it}\big) \end{aligned} \tag{1}$$

Table 3 reviews the hypotheses and their operationalization for this study.

[2]The cost of residential development varies depending on numerous factors, including size of household, number of children, location of development (i.e. urban sprawl), and infrastructure extensions. However, the general pattern of residential development being a net loss from fiscal perspective has held true in most cost of community services studies.

Table 3: Hypotheses

Hypothesis	Studies Using Similar Measures	Operationalization	Measurement Level	Expected Duration	Covariates
Internal: Demographics					
H1: Counties that have a smaller population are more likely to adopt an enterprise zone.	(Shipan 2005; Gianakis 1997)	Measured as population density calculated from annual certified population from US Census Bureau.	Continuous	-	Time dependent
Internal: Economic					
H2: Counties that have greater human capital are more likely to pursue demand-side policies and therefore less likely to adopt an enterprise zone.	(Hoyman and Weinberg 2006)	Measured as the percentage of college graduates in the most recent decennial census to the year of study.	Continuous	-	Time dependent
H3: Counties that have greater fiscal capacity (i.e. slack resources) have more economic development options and are therefore less likely to adopt an enterprise zone.	(Berry 1990; Berry 1994; Hoyman and Weinberg 2006)	(a) Measured as annual property tax revenues or equalized assessed value per capita; (b) Sales tax revenue per capita.; (c) Percentage of property tax base that is nonresidential	Continuous	-	Time dependent
H4: Counties that suffer from more severe economic crises will be more likely rely on supply-side policies and are more likely to adopt an enterprise zone.	(Boeckelman 1996; Hoyman and Weinberg 2006)	Measured as difference in annual unemployment rate from state average.	Continuous	+	Time dependent
Internal: Political					
H5: Counties with a more conservative political orientation are more likely to support supply side policies and are therefore more likely to adopt an enterprise zone.	(Berry 1990; Berry 1994; Martin 2001; Hoyman and Weinberg 2006; Hays 1997)	Measured as deviation from statewide vote for Republicans in two-party vote in most recent presidential election.	Continuous	+	Fixed
H6: Counties represented or partially represented by primary sponsors of enterprise zone legislation are more likely to adopt an enterprise zone.	An extension of the congressional dominance and political economy literature	Measured as yes or no for legislation sponsorship for years when sponsor is a representative in the general assembly.	Dichotomous: 0=No, 1=Yes	+	Fixed
External: Diffusion					
H7: Counties located adjacent to previous adopters are more likely to adopt.	(Berry 1990; Berry 1994; Shipan 2005)	Measured percentage of adjacent counties that have adopted.	Continuous	+	Time dependent

7 Data collection

The economic and political data used in this study were compiled solely from secondary data sources. The data sources include U.S. Census Bureau, U.S. and Illinois Departments of Labor, Illinois Board of Elections, Illinois Departments of Revenue, Illinois Enterprise Zone Associations, Illinois State Legislature, and Illinois Department of Commerce and Economic Opportunity.

Methodological choice has been a difficult problem within the broader literature on innovation, in both technological and social innovations such as policy (Tornatzky and Fleischer, 1990), and scholars have noted the difficulty of conceptualization, measurement, and analysis of the innovation process (Bamberger, 1991). Within the policy diffusion literature, event history models have become the preferred method for studying diffusion. Event history analysis within political science dates back to early studies of lottery adoption in the 1990s (Berry & Berry 1990) and refers to a general class of models used to study policy diffusion (Hoyman & Weinberg 2006). Various event history analysis procedures have been employed to study diffusion of innovation, including: Cox proportional hazards modeling (Hoyman & Weinberg 2006), generalized estimation equation (GEE) extensions of generalized least squares models (Daley & Garand 2005), logit (Grossback et al., 2004; Shipan and Volden, 2008) and probit (Wareham and Levy, 2002). Event history models such as these are generally preferred because they allow the researcher to include dependent variables over time and test internal determinants and external factors in a single model (Buckley and Westerland, 2004; Gray, 1994). These models rely on pooled or binary cross-sectional time series data with an observation for each independent variable per adopter per year (Gray, 1994).

For this study Cox proportional hazards modeling (hereafter "Cox") (also known as Cox regression or Cox duration models) will be the statistical procedure to test the determinants of enterprise zone adoption among counties in each state.[3] Cox has been used in prior studies of tax credit adoption in the public finance literature (Sewordor & Sjoquist, 2016). Scholars have determined that the pooled or binary time-series data are equivalent to duration data; therefore duration models such as Cox can be applied to this type of data (Box-Steffensmeier and Jones, 1997, 2004). Cox is a semi-parametric survival analysis technique used to study the effects of time dependent and fixed variables on survival (in this case adoption). Each county is coded 0 until the year of adoption where the county is coded 1. After adoption, the county drops out of the analysis. Cox has several advantages over logit and probit models of innovation (Jones and Branton, 2005).

First, within Cox there is no need to specify the baseline hazard function. The baseline hazard function is the hazard rate or probability of adoption of a policy over some period of time (Jones & Branton 2005). Logit and probit assume this probability is invariant overtime (Jones & Branton 2005), which is an unrealistic assumption for policy adoption modeling over a 23-year period in a study such as this one. Second, some scholars have argued that Cox better models innovation as a process by considering how long a government survives before adoption rather than as a binary event in logit-probit (Hoyman & Weinberg 2006). Using Cox as an analytical technique to study the determinants of diffusion should yield hazard ratios for each variable which can be used to determine the relative probability that each variable has on the likelihood of a county adopting an enterprise zone.

In this study, the Breslow method for ties in failure rates, which is the default in STATA, was selected. While additional methods for addressing ties are available, researchers have concluded that the method for handling ties rarely results in changes to substantive results. The Schoenfeld residual option was also selected at the time Cox was specified to aid in later testing of proportional hazards assumptions. Both population and population density were used in Cox regressions. No differences were found and the author elected to utilize population density and reports those findings in the analysis.

STATA requires that Schoenfeld residuals be specified at the time Cox modeling is conducted. One advantage of Cox regression is that a researcher does not have to specify a baseline hazard rate or specify the relationship between the "hazard" or event of interest occurring (in this case, enterprise zone adoption) and other variables. However, a key assumption in Cox regression is the hazard ratio or proportional relationship between two hazards remains constant overtime. First, the universal test and a test of each variable were conducted using Schoenfeld residuals to determine that the proportional hazards assumption was not violated. A significant chi-square result indicates that proportional hazards have been violated.

[3]See Box-Steffensmeier et al., 2001 for details on common misspecifications of Cox modeling.

The percentage of adjacent adopters and the percentage of non-residential tax base are significant at the 0.05 level. Population density, sales tax per capita, property tax per capita, and GOP vote difference are significant at the 0.10 level.

In an attempt to achieve a more parsimonious model and to eliminate the violation of proportional hazards assumptions, several modifications were made to the model. First, while percentage of adjacent adopters is one measure of regional diffusion found in the literature, another common measure utilizes a dichotomous variables coded 1 if an adjacent geography (state, city, or in this case, county) has adopted and 0 if no adjacent adopters are present. Propinquity, a dichotomous variable, was substituted for percentage of adjacent adopters. Second, the variable percentage of non-residential tax base was dropped from the model. Two measures of economic distress remain in the model in the form of property tax assessment per capita and sales tax per capita.

Table 4: Cox Regression Results

Variable	Hazard Ratio	Std. Error	z	P¿z	95% Conf Interval	
Population Density	.9999341	.0002108	-0.31	0.754	.9995209	1.000347
% College Graduates	.9739157	.0328788	-0.78	0.434	.9115602	1.040537
Property Tax Per Capita	.9999786	.0000301	-0.71	0.477	.9999196	1.000038
Sales Tax Per Capita	1.005163	.0055854	0.93	0.354	.9942755	1.01617
Unemploy. Rate	2.04922	.6950128	2.12	0.034	1.054133	3.983656
GOP Vote	.2861186	.5333034	-0.67	0.502	.0074126	11.04387
Propinquity	.5350253	.2547742	-1.31	0.189	.2103972	1.360532
Number of Subjects	2,346					
Number of Failures	68					
Number of Observation	2,346					
Times at Risk	4,673,232					
LR chi2(9)	30.34					
Prob ¿ chi2	0.0002					
Log likelihood	-491.656					

The Cox model in Table 4 reveals a statistically significant model with bill sponsorship, or representation by a sponsor of the original enterprise zone legislation, and an unemployment rate higher than the state average being significant predictors of enterprise zone adoption. Schoenfeld residuals were tested to ensure the included variables did not violate proportionality assumptions. Population density and difference in presidential vote for republican presidential candidates are both significant, which indicates the proportional hazards assumption is violated. The global test for the model is not significant. Theory suggests that population density and difference in presidential vote for republican candidates should be included in the model. While the variables violate proportional hazards assumptions, neither variable is significant and their inclusion is not expected to alter findings.

Table 5: Cox Proportional Hazards Test for Schoenfeld Residuals

Variable	Rho	Chi-square	d.f.	Prob Chi square
Population Density	-0.22139	3.58	1	0.0585
% College Graduates	-0.12146	1.35	1	0.2452
Property Tax Per Capita	-0.05092	0.17	1	0.6830
Sales Tax Per Capita	0.11610	0.74	1	0.3909
Unemploy. Rate	-0.05422	0.14	1	0.7106
GOP Vote	-0.24736	3.50	1	0.0613
Propinquity	0.17429	2.99	1	0.0838
Bill Sponsor	0.06698	0.44	1	0.5063
Global Test	12.78	8	0.1198	

After executing the parsimonious Cox model and successfully testing the Schoenfeld residuals, a linktest was executed in STATA to ensure the model was properly specified. A linktest assumes that under a properly

specified regression only additional independent variables would be found by chance. The test creates two variables: *hat* and hat^2. The *hat* variable is a predicted variable that is expected to be significant. The hat^2 variable should not have explanatory power and therefore not be significant if the model is properly specified Cleves et al. (2008); UCLA: Statistical Consulting Group (2010).

A linktest for the parsimonious model was performed and failed to reject the assumption that the model is specified correctly, which can be interpreted that this model does not have a specification error. The Schoenfeld residuals proportional hazards tests and linktest yield support for a properly specified model meeting Cox assumptions (Table 5. The model also met the standard assumptions for regression analysis, including tests for multicollinearity among the independent variables.

The Cox regression model findings are consistent with the difference in unemployment rate and representation by a sponsor of the enterprise zone legislation are positively correlated with enterprise zone adoption. The hazard ratio can be interpreted as the "probability of the event occurring in time t + 1, given survival to time t." The more the ratio is above 1, the greater the increase in the odds of the event occurring. A hazard ratio of 6.67 for bill sponsorship and 2.04 for the percentage difference in unemployment rate suggest that there is a greater increase in the odds of the event occurring for representation by bill sponsor than there is for having a higher percentage of unemployment for a county relative to the state average.

For bill sponsorship, the findings could also be interpreted such that for a county represented by a bill sponsor that had not adopted an enterprise zone would 6.67 times more likely to adopt an enterprise zone in the next period compared to a county not represented by a bill sponsor. Likewise, each unit difference in higher unemployment rate compared to the state average means a county would be two times more likely to adopt in the next period.

8 Conclusions and Policy Implications

Under Cox regression, a hazard ratio of 6.67 for bill sponsorship suggests that there is a greater increase in the odds of the event occurring for representation by bill sponsor than for a county represented by a non-sponsor. For bill sponsorship, the findings could also be interpreted such that for a county represented by a bill sponsor that had not adopted an enterprise zone would 6.67 times more likely to adopt an enterprise zone in the next period compared to a county not represented by an enterprise zone. These findings yield strong support for the extension of the congressional dominance model to state legislatures influence state administrative decision-making. Such an interpretation is reasonable considering the national and state attention around enterprise zones in the early 1980s.

Further, considerable concessions were made through the legislative process to gain political support for passage of the enterprise zone legislation, including eliminating the regulatory relief and extending benefits to large companies. The role of bill sponsors probably includes not only their formal actions as legislators, but also their informal actions to advance and encourage the pursuit of designation in their districts. Such findings also suggest a policy entrepreneurship role, which is analogous to product champions found in technological innovation literature (Tornatzky & Fleischer 1990).

Cox regression also found each unit difference in higher unemployment rate compared to the state average means a county would be two times more likely to adopt in the next period. This suggests that counties having an enterprise zone adopted within their boundaries experience not only higher unemployment within the narrowly defined geographic boundaries of an enterprise zone, but also within the much larger county itself.

9 Policy Implications

The intent of this study was to develop a predictive political economy model explaining enterprise zone designation in Illinois. This study provided an opportunity to test many of prior assumptions about the drivers of policy innovation at the local government level, which have been examined less often in the academic literature. While this study examines a retrospective policy initiative, the findings of state legislators providing issue salience to economic development issues is consistent with more recent studies demonstrating the

interest of state legislative bodies developing, evaluating, and reinventing state level economic development policies (e.g., Faulk (2002); Lane and Jolley (2009); Jolley et al. (2015)).

For a normative perspective, these findings should be encouraging. The findings support the importance of state legislators in driving policy innovation in their districts. However, the enterprise zones were designated in counties with a higher-than-average unemployment rate suggesting those counties in economic need were more likely to receive the intended benefit.

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