CHOOSING COMMUNITY CHOICE AGGREGATION: THE EXPERIENCE OF ILLINOIS MUNICIPALITIES IN THE ELECTRICITY MARKET

HUGH BARTLING
DEPAUL UNIVERSITY

This study explores the community choice aggregation policy model in the electricity market of Illinois by reviewing community experiences under Public Act 96-0176. This act gave municipalities the authority to aggregate residential and small commercial retail electrical loads when approved by a referendum. Through an analysis of more than 700 referendums, 82% of which passed, the current study evaluates variables that affect voting behavior and draws new insights on the direction of a state's electrical policy. The results show that fluctuations in the electricity market, coupled with shifts in utility regulation, are affecting residents and municipalities in different but often predictable ways.

Since the late 1990s, Illinois has had a deregulated electricity market that has allowed customers to choose from multiple retail electricity suppliers. In 2009, Public Act 96-0176 gave municipalities and counties the authority to aggregate residential and small commercial retail electrical loads within their boundaries, providing participating local governments the ability to negotiate on their own behalf. With this authority, municipalities could conceivably negotiate for advantageous rates and green energy generation and generally have more control over their electricity provision than an individual consumer would have operating alone in the market (Burke & Stephens, 2017). The law requires municipalities to submit their intention to act as the community aggregation authority to voters in the form of a referendum. If the referendum receives a majority vote, the municipality can negotiate on behalf of all eligible customers—with the exception of those users who opt out of the program. Since 2009, over 700 Illinois cities, villages, towns, townships (Public Act 97-0823) and counties have held referendums on community choice aggregation, with a passage rate of 82%.

Although a large number of Illinois municipalities have held referendums, there has been little systematic analysis of the factors that go into passage and how various municipalities have engaged in the negotiation process. With

nearly 10 years having passed since the aggregation authority was established, an assessment of the effectiveness of this policy tool and the experience of Illinois municipalities that have used aggregation could benefit other states as they contemplate expanding the use of the community aggregation model.

This article will first provide a description of the community choice aggregation policy model and its use in Illinois. Next, the article will describe, in aggregate, the general trends of referendum support in the state. A focus will be placed on what, if any, variables relate to levels of support for a community choice aggregation referendum in Illinois municipalities. The article will conclude with a discussion of the current state of electricity aggregation and address how fluctuations in the electricity market, coupled with shifts in utility regulations, may affect policy experiences and the future promise of community choice aggregation as a strategy for electricity procurement.

BACKGROUND

Traditionally, electricity markets have been structured at the state level, where a single utility would be responsible for generation, transmission and distribution for a particular geographic area. In these markets, the Federal Energy Regulatory Commission regulates interstate commerce relating to electricity markets and state-level utility boards responsible for regulating the retail market, as well as generation and transmission within their state's boundaries. Illinois has a deregulated electricity market at both the wholesale and retail level, which was established beginning in the late 1990s. In 1997, the state passed the Illinois Electric Service Customer Choice and Rate Law, which phased in competition in the retail electricity market. Before this legislation was passed, a small number of monopolistic entities regulated by the state dominated electricity generation, transmission and distribution. In 1997, the legislation allowed new suppliers to enter the market while the traditional, vertically-oriented utility monopolies were encouraged to restructure operations and, in particular, divest parts of their electricity generation assets.

Beginning in 1999, large industrial and commercial electricity users were able to choose suppliers, whereas smaller commercial users could exert market choice in 2000 and residential users gained full access to the market in May 2002 (Borders, 2001). The phased-in approach also included specific provisions to protect consumers from significant price fluctuations that could accompany the transition to a less-restrictive market by requiring a rate freeze that was initially set to expire in 2005, but was extended to 2007 to ensure a smooth

transition (Carlson & Loomis, 2008). According to an analysis by Carlson and Loomis (2008), when compared to neighboring states, the deregulation experience in Illinois reduced the average retail price for electricity. This contributed to the momentum that sped toward experimenting with innovative market mechanisms.

The issue of enabling aggregation within the context of electricity deregulation was given consideration as early as 2003 when the Illinois Commerce Commission issued a report to the General Assembly discussing the prospects of municipal aggregation in light of the nascent deregulatory environment (Illinois Commerce Commission, 2003). When the report was written in 2003, no alternative retail electricity suppliers operated in Illinois residential markets. This was likely due to the higher costs suppliers had to spend to serve thousands of customers, the fluctuating load profiles of residential users and the rate freeze mentioned above. Aggregation could make the market more attractive for suppliers and consumers in the event that the rate freeze would be lifted. In the absence of private entities organizing to aggregate consumers, municipal governments could naturally serve that role because they are geographically concentrated and situated to potentially be a legitimate voice for the customers in their jurisdiction. Aggregation lessens the load profile for suppliers, making usage more predictable and, therefore, providing more incentive for additional electricity suppliers to enter the residential service market and offer competitive rates.

Municipal aggregation was first implemented in the United States in 1997 after Massachusetts passed the nation's first community aggregation legislation and the Cape Light Compact was established to serve customers in the communities of Cape Cod and Martha's Vineyard (Lichtenstein & Reid-Shaw, 2017). Subsequently, Ohio (1999), California (2002), Rhode Island (2002), New Jersey (2003), Illinois (2009) and New York (2014) have all pursued some variant of community choice aggregation as of 2018.

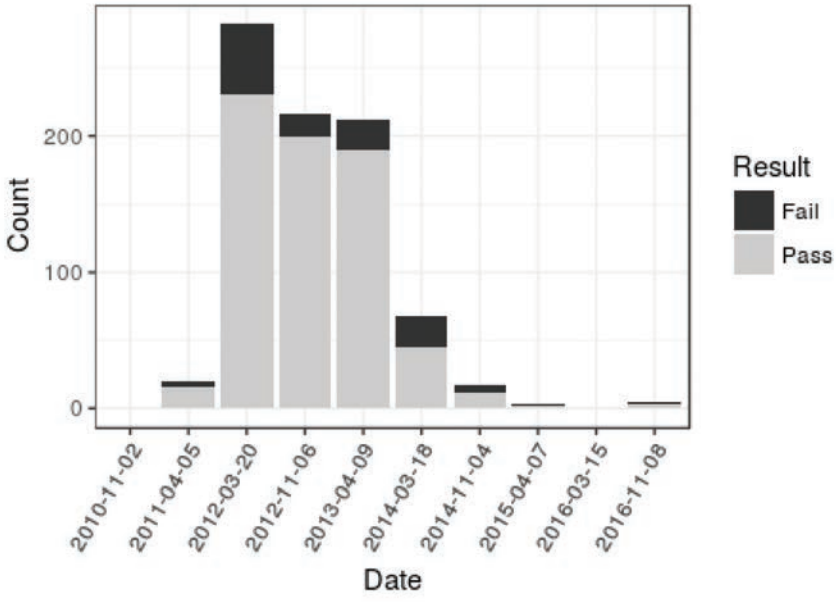
The mechanisms and governance structures of municipal aggregation can differ across states. With regard to establishing aggregation, in some cases, such as in Massachusetts, New Jersey, New York and California, the municipality initiates the process through approval by its board or council. In Illinois, Rhode Island and Ohio, aggregation is pursued after the majority of voters approve a referendum. In each case, state regulators have a role in overseeing implementation and in regulating suppliers. However, the municipality is the lead actor in negotiating with prospective suppliers.

Most states have an opt-out scheme whereby once an agreement is made by a municipality with an electricity supplier, all eligible customers within the municipality are automatically switched to the new supplier. Prior to the switch, customers are notified by mail, and if a consumer wants to purchase his or her electricity supply from another provider, he or she has the ability to opt out. Customers under aggregation generally do not see a different bill or have any service disruption because the electricity distribution is still provided by the investor-owned utility with whom they would have interacted prior to aggregation. This opt-out scheme is seen as preferable to an opt-in scheme. In some states, the latter is possible, but mobilizing enough consumers to opt in is difficult if the objective is to secure favorable electricity rates and encourage green energy production.

In Illinois, the legislation authorized community choice aggregation in 2009 as an amendment to the Illinois Power Agency Act. Public Act 96-0176 allows for both an opt-out and opt-in program, with the latter only being possible with the passage of a referendum during a scheduled primary or general election. The act also provides specific wording for a referendum and excludes municipalities that own and operate their own electric utilities from participating in aggregation.

FIGURE 1

COMMUNITY CHOICE AGGREGATION REFERENDUMS IN ILLINOIS, 2010-2016



ILLINOIS REFERENDUM PROCESS

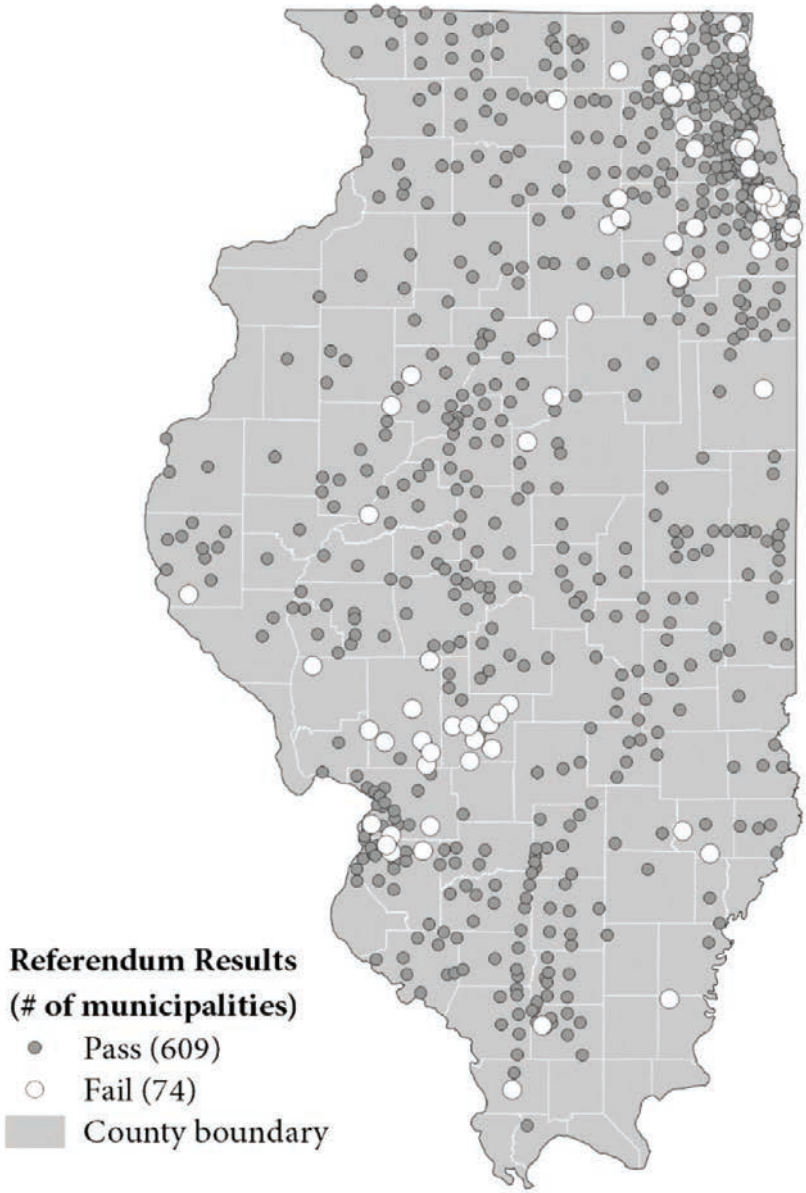
Public Act 96-0176 went into effect on January 1, 2010, and the state saw the first referendum placed on a local ballot the following November. In addition to cities and villages, unincorporated parts of counties and townships can hold referendums. Since 2010, 975 referendums have been conducted. There have been 62 held in counties, 87 held in townships and 826 held in cities, villages or towns. Several local governments held multiple referendums after an initial failure, including eight counties and 53 cities, villages or towns. While the rate of referendum passage in Illinois cities has been high at nearly 82%, the strength of support has varied. The data used in this study are restricted to cities and villages due to the large number. As Figure 1 shows, 2012 saw an initial surge of referendums in cities and villages, but the number of referendums declined significantly by 2014.

Figure 2 depicts all of the municipalities that have conducted aggregation referendums, with symbols indicating success or failure. Although the success of the referendums has been pronounced statewide, there are several discernible areas of opposition in the outer Chicago suburbs, as well as in the southwestern part of the state.

As mentioned above, for a municipality to have the authority to establish an aggregation of consumers and participate in an opt-out scheme, the municipality must hold a referendum that explicitly asks voters to grant it this authority. Rational theories of voting (e.g., Downs, 1957) would suggest that support for municipal aggregation should be strong. There are few downsides for individuals to vote in favor of an aggregation referendum. First, as required by state law, individuals have the right to opt out of any aggregation agreement signed by the city: An individual consumer can keep his or her current electricity provider or choose a different provider. Second, the deregulated nature of Illinois' electricity market was not necessarily adversely affected by the appearance of aggregation legislation. In fact, it could be argued that the market would be enhanced, as the proliferation of entities eligible to aggregate electricity supply would make more potential suppliers enter the market; and for those companies already participating in Illinois' market, the emergence of aggregation could offer more stability and incentives to remain in the market. Third, aggregation holds the promise of lower electricity prices for individual consumers. For those participating in aggregation schemes sponsored by municipalities, a primary benefit is that the aggregated entity can have a better negotiating position due to its size. Fourth, municipalities that engage in

FIGURE 2

ELECTRICITY REFERENDUM ELECTION RESULTS



aggregation have the potential to negotiate agreements beyond simply price. Efficiency measures and the provision of green energy are also often advertised as benefits of aggregation. For communities with residents interested in clean energy, aggregation could be a vehicle to increase its utilization.

Although the majority of cities in Illinois that held referendums passed electricity aggregation, a not insignificant number have failed. As more states contemplate adopting community choice aggregation, understanding the referendum process and experience in Illinois could be instructive. Additionally, over 300 Illinois municipalities have not elected to hold aggregation referendums. While the popularity of the mechanism has waned since 2012, electricity markets remain volatile. With the aggregation legislation still in effect, Illinois municipalities may revisit using referendums in the future in the face of uncertain market fluctuations.

DATA COLLECTION AND ANALYSIS

The literature lacks empirical studies on community choice aggregation referendums. As a preliminary effort, this project seeks to explore some of the underlying variables that influence support. Looking to previous studies on direct democracy and voting on referendums in U.S. state and local contexts, this study adopts similar assumptions about the types of variables that can explain support or opposition to local referendums. If the referendum mechanism is a requisite step in the process of adopting aggregation, looking at potential factors that affect support can be useful. With over 700 aggregation referendums executed in Illinois since 2010, there is a sufficient amount of data to analyze. This study constructed and employed a data set of each electricity aggregation referendum conducted since the legislation was passed. The Illinois Board of Elections website was consulted to construct a list of all of the Illinois communities that have conducted referendums. Next, election totals were compiled by visiting the websites of the proper election authorities. In Illinois, elections are administered at the county level with the exception of a handful of the state's large cities. Vote totals approving and rejecting each municipality's referendum were collected, and the percentage of support, which serves as the response variable, was calculated.

This study uses select variables from the 2015 American Community Survey's five-year estimates as explanatory variables. In a state with over 1,000 municipal governments, local referendums usually are not widely publicized

in the traditional print and broadcast media. Furthermore, the initiation of putting an electricity aggregation measure on the ballot is the responsibility of the municipal government as dictated by state statute. There is little evidence that electricity aggregation referendums were pushed by grassroots political groups. Because of the localized, elite nature of the referendum process and agenda-setting in this context, choices that voters make on whether to support or oppose community aggregation can be considered within the context of the literature on low-information elections.

In these contexts, factors such as length of tenure in a community, education and ethnicity can often act as predictors of support (Delmas & Locke, 2015; Holian & Kahn, 2015; Nelson, Uwasu, & Polasky, 2007). Because the particular nature of aggregation is focused on electricity supply, communities with a higher percentage of homeowners are assumed to be more inclined to support electricity aggregation. In addition, the American Community Survey includes a question on household heating fuel. Being situated in a climate with harsh winters, home heating is a necessary household expense. A higher percentage of households that rely on electricity for home heating should correspond to higher levels of support for electricity aggregation.

One peculiarity of municipal aggregation in Illinois has been the divergence in how municipalities have implemented the program. Once a referendum has passed in a municipality, local authorities issue a call for proposals from a state-licensed "alternative retail electric supplier." Suppliers make bids, and the municipality enters into a contract with its preferred supplier. These contracts have generally lasted for a period spanning 12 to 36 months. Upon the expiration of an agreement with a supplier, the municipality can restart the solicitation process or discontinue municipal aggregation. In the event of the latter, electricity users are automatically switched to one of the large, investor-owned utilities.

Market dynamics and changes in electricity pricing since 2013 have primarily resulted in the elimination of price gaps between the major investor-owned utilities (i.e., Ameren and ComEd) and alternative suppliers in recent years. Thus, many municipalities have decided to suspend their aggregation programs (Rockrohr, 2017). According to data kept by the Illinois Commerce Commission, as of July 2018, over 200 units of local government have passed referendums and either suspended their aggregation programs after the expiration of an initial contract or declined to negotiate an aggregation agreement. This termination of the policy serves to create two subsets of

TABLE 1

REGRESSION MODEL RESULTS
(Standard errors shown in parentheses below coefficients)

	DEPENDENT VARIABLE Percentage of Support for Aggregation in Communities		
	that have held referendums	**with expiring aggregation agreements**	**that have continued aggregation agreements**
% White population	0.037	–0.012	0.007
	(0.030)	(0.042)	(0.042)
% with bachelor's	0.141**	0.067	0.065
	(0.060)	(0.079)	(0.074)
% owner-occupied	0.082	0.137	0.174***
	(0.056)	(0.085)	(0.062)
% below poverty	0.065	0.126	0.197
	(0.087)	(0.153)	(0.090)
% unemployed	–0.307***	–0.527***	–0.069
	(0.132)	(0.176)	(0.157)
% Hispanic	–0.014	–0.042	–0.010
	(0.050)	(0.066)	(0.067)
% with electric heating fuel	0.141***	0.136	0.084*
	(0.043)	(0.090)	(0.043)
% 65 and over	0.302***	0.248***	0.369***
	(0.087)	(0.120)	(0.100)
Constant	44.348***	38.320***	49.129***
	(8.276)	(14.339)	(8.932)
Observations	688	211	382
R	0.096	0.178	0.080
Adjusted R	0.084	0.142	0.058
Residual std. error	10.939 (df = 678)	8.731 (df = 201)	9.116 (df = 372)
F statistic	7.972*** (df = 9; 678)	4.851*** (df = 9; 201)	3.588*** (df = 9; 372)

*Note. *: p < .1; **: p < .05; ***: p < .01.*

municipalities: Both subsets had supported aggregation referendums, but one group decided to close its programs as the electricity markets shifted. Both subsets exhibited similar levels of support in the aggregate, with a passage rate of 64% for those municipalities that let their aggregation programs expire compared to a passage rate of 63% for those municipalities that continued to sponsor aggregation.

The model being used in this article is concerned with understanding what variables affect levels of support for municipal aggregation referendums in communities where elections on the issue have been held and discerning the differences in levels of support for the referendums in communities that allowed aggregation agreements to expire versus those where they have continued. For each of these sets and subsets, the percentage of "yes" votes for aggregation represents the measure for the response variable. The analysis focuses on cities, towns and villages that have held referendums. Although townships and counties have also held aggregation referendums, they have been excluded from the analysis to ensure that the analysis only contains governmental units that are similar across the state. Some municipalities have held multiple referendums after the failure of an initial effort. The explanatory variables used are the demographic and housing measures mentioned above and listed in Table 1.

RESULTS

For all Illinois cities, villages and towns that have held electricity aggregation referendums, results show that municipalities with higher percentages of their population aged 65 and older are more likely to show higher levels of support for aggregation. The age variable is statistically significant in the first model and has a positive coefficient in each of the three models considered. There are several possible explanations for this finding. Some studies of direct democracy have found that older voters show higher levels of civic connectivity and, thus, are more likely to support elite-generated ballot measures (Button & Rosenbaum, 1989; Davidson & Cotter, 1993). Additionally, the potentially favorable electricity rates associated with aggregation could be more meaningful for retired populations living on fixed incomes.

Not surprisingly, the percentage of households that use electricity as the source of heating fuel has a positive and statistically significant relationship with support for electricity aggregation. If a fundamental part of the appeal

of aggregation is to provide municipal governments with better bargaining power in the electricity supply market than their constituents could achieve individually, then communities with higher percentages of electricity use for heating would have an interest in aggregation.

From the standpoint of class and demographics, some of the results are surprising. Education was expected to have a significant positive relationship with degree of support for aggregation. Some of the prominent literature on direct democracy suggests that people with higher levels of education are more enthusiastic about direct democracy mechanisms such as referendums, and come to the ballot box informed about the topics at hand (Inglehart, 1990). If that assumption has validity, it could explain the relationship between education and referendum support. Utility markets are complex, and the referendums were not prominently covered in the media. Previous research has suggested that communities with a lower median income and smaller proportions of residents with a college education have lower participation rates when it comes to voting on referendum questions (Nelson et al., 2007; Vanderleeuw & Engstrom, 1987).

More surprising was the relationship between levels of unemployment and support for aggregation. Although only significant at $p < .05$, the model suggests that when holding other variables constant, each percent increase in unemployment in a community corresponds to a 0.32% decrease in support for electricity aggregation. Although the model was tested to ensure the avoidance of multicollinearity (with variance infraction factors < 2), unemployment levels could suggest an interest in avoiding risk with regard to electricity prices—particularly if the implications of the establishment of an aggregation scheme were not clearly understood by voters. Other variables by which economic conditions in communities could be inferred—such as the percentage of households below poverty—showed a positive (but not statistically significant) relationship to aggregation support.

With regard to the subset of municipalities that have let their contracts expire after successful passage of a referendum, the unemployment rate factors prominently in referendum support levels in a negative direction and has a higher degree of significance and influence. Higher percentages of a population with people 65 and older were also found to be positively related to referendum support, but not to the same extent as they were in the universe of all municipalities that have held referendums.

In multiple explanations provided by municipalities after they have allowed aggregation agreements to expire, the overriding stated reason is that the price advantages of aggregation had evaporated with changes in the electricity market and pricing mechanisms. Municipalities that have decided to continue their aggregation programs have often used aggregation to include green energy options, so their motivation may not simply be based on pricing alone.

In looking at the results relating to communities that have continued electricity aggregation, electoral support for the referendums is positively associated with the over-65 population percentage as well as the percentage of owner-occupied homes. One possible explanation for this finding could be, following Fischel (2009), that trust in local government may be higher in communities with higher proportions of homeowners and older populations, giving local leaders confidence in negotiating electricity supply agreements that do not overwhelmingly outperform offers that individuals can obtain themselves on the market with regard to price.

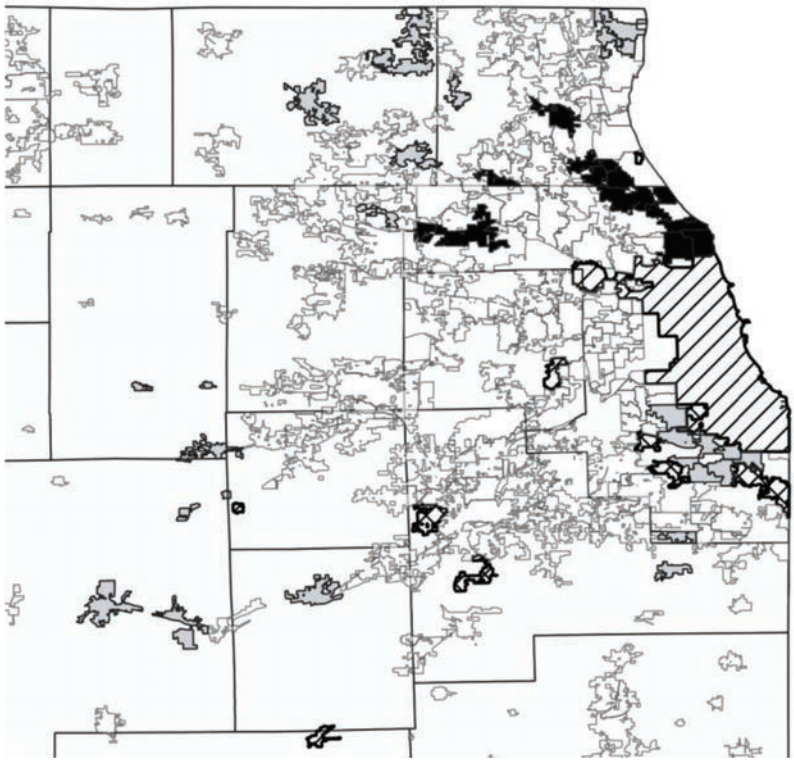
Given the R^2 values for the models analyzing support in all referendum communities and those that have continued to execute aggregation agreements, there could be confounding variables that could help add robustness to the model. Measures of political ideology or partisanship, for example, have been found to be significant in studies of local open space referendums (Nelson et al., 2007) and in local referendums related to support for public transit (Kinsey, Bartling, Peterson, & Baybeck, 2010). With many municipalities seeing aggregation as a way to encourage green energy provision, a measure for partisanship could be useful for future researchers.

As was mentioned at the outset of the article, Illinois' implementation of municipal aggregation is relatively unique in that referendums must be passed to give the municipality the authority to negotiate with electricity suppliers on behalf of their residential consumers, and with over 600 referendums on the issue being held, it far surpasses the volume held in Ohio cities and villages (n = 331; Public Utilities Commission of Ohio, 2017). One question that arises from this experience is whether any spatial patterns of support exist. There was little explicit electioneering nor high-profile campaigning for support or opposition on matters relating to aggregation referendums. In some cases, city governments initiated their own publicity campaigns (City of Urbana, 2012), while in others, the advocacy was limited to energy consultants speaking before city councils (City of Hickory Hills, 2011). Testing for spatial clustering could determine if any localized dynamics in various parts of the state influenced referendum support.

For the spatial analysis, Moran's I is computed. Moran's I is a measure of global spatial autocorrelation that can show if municipalities with similar rates of support for electricity aggregation tend to cluster together. A Global Moran's I with higher values indicates higher levels of spatial clustering compared with the null hypothesis. The values are computed as a cross-product between the variable being measured, expressed as deviations from the mean and its spatial lag, which is based on a weights matrix measuring distance between observations. Because of the geographic size of Illinois and the fact that not all municipalities held aggregation referendums and those that did were not contiguous, a k-nearest neighbor weights matrix was used to determine proximity. Using Luc Anselin's GeoDa software (Anselin, Syabri, & Kho, 2006), Moran's I was conducted on the percentage of "yes" votes for all referendum elections in Illinois cities, towns and villages, returning a score of 0.26 (pseudo $p < .001$). This suggests that there is spatial clustering.

FIGURE 3

LOCAL INDICATOR OF SPECIAL ASSOCIATION (LISA) CLUSTER MAP



Spatial clustering can be visualized by mapping a local indicator of spatial association (LISA; Anselin, 1995). The LISA map shows local Moran scores by municipality and depicts spatial clusters of high-high and low-low values as well as spatial outliers where neighbors exhibit high-low and low-high values. High and low values are defined by their relativity to the mean, and the values mapped are those that show significant local clustering or outliers.

Figure 3 shows the LISA cluster map for northeastern Illinois. In terms of spatial clusters of significance, the most prominent high-high cluster lies in the north suburbs of Chicago, where higher education and older populations are evident. In the near southwest suburbs of Chicago, low-low spatial clustering is evident, meaning that municipal neighbors with lower levels of support for electricity referendums are concentrated. These patterns of clustering mimic the evolution of class and racial divides in Chicago's suburbs identified by Walker (2018). Given the preliminary results of the local clustering analysis, future research could possibly benefit from developing a geographically weighted regression model to assess the importance of spatial variability.

THE FUTURE OF AGGREGATION IN ILLINOIS

Illinois has been at the forefront of implementing community choice aggregation, and its use of the referendum as an initiating device makes it rather unique among the six states that allow aggregation. As other states pursue aggregation schemes, and as the Illinois legislature contemplates expanding aggregation by referendum to natural gas loads (see HB 5101, introduced in 2018 at the 100th General Assembly), analyzing the patterns of support can be useful for understanding aggregation's proliferation. As the previous analysis suggests, age, education and use of electricity as a heating fuel are all positively correlated with aggregation support.

The recent trend seen in many municipalities that have decided to suspend their aggregation programs after successful referendums suggests an uncertain future for this policy. To understand the future efficacy of aggregation, situating it within the context of the evolving Illinois energy markets is essential. At the time of the spike of aggregation referendums in 2012, the state witnessed a confluence in which wholesale electricity prices on the spot market were relatively low and ComEd—the large investor-owned utility whose pricing was subject to state regulatory approval—was stuck in high-priced, long-term contracts minimizing its ability to compete in a deregulated environment (Haas, 2014).

Thus, aggregation municipalities were able to secure advantageous pricing from alternative suppliers and, in many cases, multi-year agreements. Unusually cold winters in 2013 and 2014 resulted in higher wholesale prices for electricity and, in turn, influenced the prices alternative suppliers offered to municipalities, as some early adopters were in the process of renegotiating rates. Additionally, the operator of the regional power grid, PJM Interconnection, increased the capacity charge to suppliers (Prejzner, 2014). This charge is levied on consumers to ensure there is enough supply to meet potential demand. Finally, in 2014, the alternative retail energy suppliers—who were largely responsible for entering into aggregation contracts with municipalities—faced more stringent regulatory oversight after numerous issues with fraud and overpricing of consumers in the deregulated market (Office of Consumer Counsel, 2017).

With these factors combining to radically diminish the pricing advantages that were apparent at the beginning of the 2010s, municipalities that are not suspending aggregation programs are pursuing other added values to justify maintaining their programs. Oak Park, for example, moved from an initial agreement that began in January 2012 with a supplier who offered 100% wind-powered renewable energy credit at 5.79 cents per kilowatt-hour to a contract in April 2014 that increased to 7.47 cents per kilowatt-hour of conventionally generated electricity. Participants were given the option of paying 7.57 cents per kilowatt-hour for the 100% renewable energy credits; 13% of the village's residents already participated in the program. Beginning in 2016, the village board negotiated a rate of 6.799 cents per kilowatt-hour of standard power and a 0.3 cent per kilowatt-hour fee on all users that would go into a village-controlled fund designated for renewable energy projects (Pavlicek, 2017). The most current agreement combines the rate provided by the supplier and the ComEd rate and maintains the allocated fee for renewable energy projects (Schering, 2018).

Other municipalities continuing aggregation have had different experiences. In 2018, Clarendon Hills was able to negotiate a fixed rate slightly higher than ComEd's, but the supplier will issue 100% renewable energy credits for all participants (Fieldman, 2018). In the City of Columbia in Monroe County, the city council negotiated a higher rate than was being offered by Ameren, the regulated utility that covers southern Illinois (Saathoff, 2018). The diversity of experiences with aggregation suggests that the present and future evolution of the policy is uncertain. From the supply side, shifts in state and federal regulatory emphasis can continue to influence pricing. From the demand side,

technological change, economic activity and growing interest in green energy alternatives could provide the impetus for more cities to establish or resurrect their aggregation programs. Illinois' experience can also provide an example to other states that may be considering aggregation as a strategy for increasing consumer choice and possibly encouraging green energy generation.

Hugh Bartling is Associate Professor in the Public Policy Studies Department at DePaul University.

REFERENCES

Anselin, L. (1995). Local indicators of spatial association—LISA. Geographical Analysis, 27(2), 93–115.

Anselin, L., Syabri, I., & Kho, Y. (2006). GeoDa: An introduction to spatial data analysis. *Geographical Analysis, 38*(1), 5–22.

Borders, W. A. (2001). Learning from the storm: Lessons for Illinois following California's experience with electricity restructuring. *Chicago-Kent Law Review, 77*(1), 333–371.

Burke, M. J., & Stephens, J. C. (2017). Energy democracy: Goals and policy instruments for sociotechnical transitions. *Energy Research & Social Science, 33*, 35–48.

Button, J. W., & Rosenbaum, W. A. (1989). Seeing gray: School bond issues and the aging in Florida. *Research on Aging 11*(2), 158–173.

Carlson, J. L., & Loomis, D. (2008). An assessment of the impact of deregulation on the relative price of electricity in Illinois. *The Electricity Journal, 21*(6), 60–70.

City of Hickory Hills. (2011). *November 11, 2011 City Council Meeting Minutes*. Retrieved from http://hickoryhillsil.org/2011/11/november-11-2011-city-council-meeting-minutes/

City of Urbana. (2012). Municipal electric aggregation POWER IS MONEY your vote your choice. Retrieved from https://www.urbanaillinois.us/posts/2012/01/frequently-asked-questions-about-municipal-electric-aggregation

Davidson, W. B., & Cotter, P. R. (1993). Psychological sense of community and support for public school taxes. *American Journal of Community Psychology, 21*(1), 59–66.

Delmas, M. A., & Locke, S. L. (2015). Voting with your senses? The impact of local environmental conditions on preferences for environmental regulation. Retrieved from https://www.anderson.ucla.edu/Documents/areas/ctr/ziman/2015-16WP.pdf

Downs, A. (1957). *An economic theory of democracy*. New York, NY: Harper-Row.

Fieldman, C. (2018, June 28). The Clarendon Hills village board discusses electrical aggregation options. *Chicago Tribune*. Retrieved from http://www.chicagotribune.com/suburbs/clarendon-hills/news/ct-dch-green-electricity-tl-0628-story.html

Fischel, W. A. (2009). *The homevoter hypothesis*. Boston, MA: Harvard University Press.

Haas, K. (2014, July 25). Electric aggregation's "era of easy savings" is over for Illinois cities. *Freeport Journal-Standard*. Retrieved from http://www.journalstandard.com/article/20140725/News/140729538

Holian, M. J., & Kahn, M. E. (2015). Household demand for low-carbon policies: Evidence from California. *Journal of the Association of Environmental and Resource Economists, 2*(2), 205–234. Chicago, IL: University of Chicago Press.

Illinois Commerce Commission & Center for Neighborhood Technology. (2003). *Municipal aggregation in Illinois: An estimate of the potential costs and savings from municipal aggregation for selected Illinois communities: A report to the Illinois General Assembly. Illinois Commerce Commission*. Springfield, IL: Author.

Inglehart, R. (1990). *Culture shift*. Princeton, NJ: Princeton University Press.

Kinsey, B. S., Bartling, H., Peterson, A. F., & Baybeck, B. P. (2010). Location of public goods and the calculus of voting: the Seattle monorail referendum. *Social Science Quarterly, 91*(3), 741–761.

Lichtenstein, G., & Reid-Shaw, I. (2017). *Community choice aggregation (CCA) in Massachusetts*. Durham, NH: University of New Hampshire Sustainability Institute.

Nelson, E., Uwasu, M., & Polasky, S. (2007). Voting on open space: What explains the appearance and support of municipal-level open space conservation referendums in the United States? *Ecological Economics, 62*(3–4), 580–593.

Office of Consumer Counsel. (2017). *Illinois Commerce Commission strengthens rules for retail electric marketplace*. State of Connecticut. Retrieved from http://www.ct.gov/occ/lib/occ/icc_strengthens_rules_for_retail_electric_marketplace.pdf

Pavlicek, C. (2017). *Update on the electric power supply contract with Constellation Energy Services, Inc. for the Oak Park Community Choice Aggregation Program*. Retrieved from https://oak-park.legistar.com/LegislationDetail.aspx?ID=3102886&GUID=2AC552DC-DED0-469A-AF42-A1C95A56A176

Prejzner, J. (2014). *Wilmette power purchasing program*. Retrieved from https://www.wilmette.com/download/agendas_and_minutes/administration_committee/packets/2014/Administration-Committee-Packet-03-7-14.pdf

Public Utilities Commission of Ohio. (2017). Electric government aggregators. Retrieved from http://www.puco.ohio.gov/puco/index.cfm/utility-maps/electric-maps/electric-govt-aggregator-map/

Rockrohr, P. (2017, February 13). Seven northwest suburbs suspend consumer electricity program over increasing rates. *Chicago Tribune*. Retrieved from http://www.chicagotribune.com/suburbs/barrington/news/ct-bgc-energy-aggregation-suspension-tl-0216-20170213-story.html

Saathoff, A. F. D. (2018, July 31). Columbia residents urged to revisit electric aggregation. *Republic-Times*. Retrieved from http://www.republictimes.net/columbia-residents-urged-to-revisit-electric-aggregation/

Schering, S. (2018, August 23). New Oak Park electric aggregation contract states participants will not pay more than current ComEd rates. *Chicago Tribune*. Retrieved from http://www.chicagotribune.com/suburbs/oak-park/news/ct-oak-electric-aggregation-tl-0823-story.html

Vanderleeuw, J. M., & Engstrom, R. L. (1987). Race, referendums, and roll-off. *The Journal of Politics, 49*(4), 1081–1092.

Walker, K. (2018). Locating neighbourhood diversity in the American metropolis. *Urban Studies, 55*(1), 116–132.