Campaign Spending in City Council Elections: A Comparison of At-Large and District Contests

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Abstract

This study seeks to add to the research literature on city council electoral systems by investigating the association between campaign spending and whether councilmembers are elected at-large or by district. In doing so, it incorporates an original dataset collected from various public sources and applies a mixed effects model to account for the nesting of election contests within cities. This study finds that winning candidates for at-large contests expend approximately $76,000 more (in 2012 dollars) than district candidates after controlling for a variety of contest and city-related effects. This finding has relevance to cities that are evaluating a change to their electoral system in order to increase political participation and decrease special interest influence.

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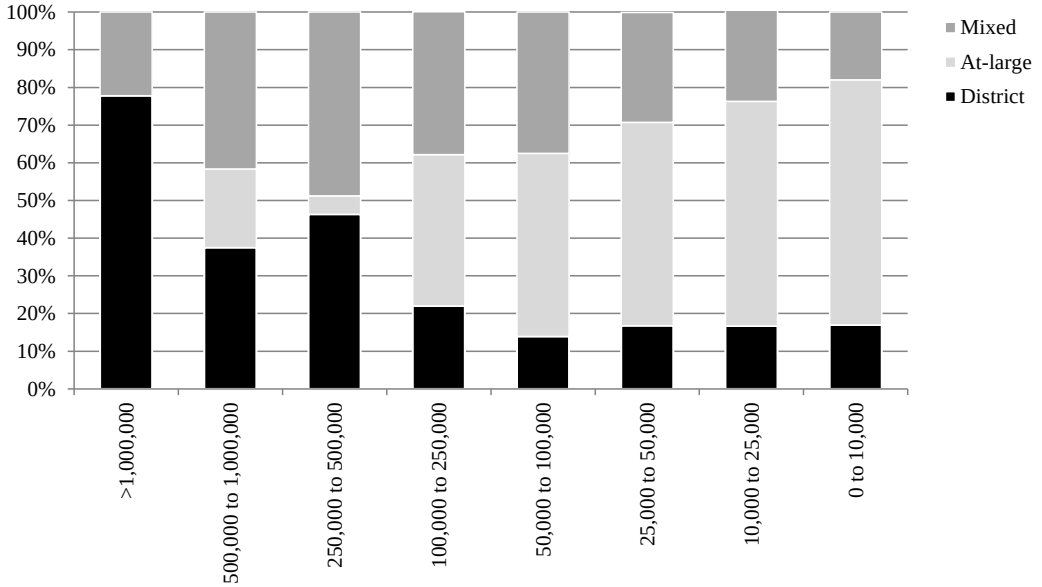
Section 1: Introduction

A subtle link between the progressive era and the civil rights movement is that both sparked changes in how many American cities elect their councilmembers. From 1900 to 1920, the National Municipal League and other "good government" reformers advocated at-large election of city councilmembers in order to combat political machines. Later in the twentieth century, civil rights reformers urged district elections to promote the political influence of minority communities (Troustine, 2010).

These movements contributed to an evolution in city council electoral systems. As shown in Appendix A, only 7 of the 33 most populous cities employed exclusively district seats in 1970, whereas 16 used only at-large seats and 9 a mixed system of both district and at-large (Washington D.C. was appointed). This has changed dramatically to 16 district, 5 at-large and 12 mixed systems in 2012, with two of these at-large cities slated to change by 2014. While there has been significant change through time, there remains significant cross-sectional variation

Exhibit 1: Electoral System for Cities by Population Size



Note: Electoral system for cities >250,000 as of 2012, cities <250,000 as of 1998 (Christensen 2006)

today. Exhibit 1 presents a percentage breakdown of electoral system for cities by population size. There is a clear trend where larger cities are more likely to employ districts while smaller cities prefer an at-large system. Despite the diversity in electoral systems across cities of different populations, there is also heterogeneity within similarly sized cities.

The apparent variation across time and city provides an opportunity to assess the impact of electoral system on aspects of politics and governance. This is a unique opportunity afforded by local government elections, as federal and state legislators are uniformly elected by district. A majority of the research literature on the effects of electoral system has focused on minority representation. Strong evidence has been found that changing from an at-large to a district system increases the number of minority city councilmembers when there is a material and geographically concentrated minority population (Heilig, 1983; Trounstine, 2008). Other potential effects, such as on voter turnout and government expenditures, have been explored to a lesser degree with generally mixed results (Wood, 2002; Southwick, 1997). Another relatively unexplored area has been the relationship between electoral system and campaign spending, which is the focus of this study. The rest of this paper is organized as follows: the remainder of Section 1 describes the purpose of the study, Section 2 reviews theoretical and empirical literature on the relationship of electoral system and campaign spending, Section 3 discusses the methodology employed, Section 4 describes findings from the research and Section 5 provides concluding remarks.

Statement of Purpose

The purpose of this study is to investigate whether electoral system, specifically whether a council seat is elected by district rather than an at-large, impacts the amount of campaign expenditures for a winning candidate. The level of campaign spending is relevant for at least two reasons. Firstly, campaign spending provides a barrier to entry for potential candidates. This limits the accessibility of those who are not strong fundraisers or independently wealthy to participate in the political process. It can also have a broader impact since local office is a frequent starting point for state and federal elected officials (Adams, 2010). Secondly, moneyed special interests are expected to play a reduced role if less money is required to win an election. This may allow elected officials to place greater prioritization on the needs of their constituents rather than those of special interests (Heilig, 1984).

If a relationship exists between electoral system and campaign spending, then changing the means by which city councilmembers are elected may increase political participation while decreasing the influence of special interests. This linkage is suggested by Seattle Districts Now, a group advocating a change from an at-large to a mixed system in Seattle, who believes that districts allow "grassroots candidates and the replacement of unresponsive incumbents with good old fashion legwork and people power. By contrast, under the existing citywide system, you need $250,000-$300,000 just to match the incumbent's war chest and get your message out to the city's 600,000 residents" (Seattle Districts Now, 2012, "What It Can Do For You," para. 5). The goal of this study is to empirically assess these claims for the consideration of cities that are evaluating whether to change their city council electoral system.

Section 2: Literature Review

Welch (1974) and Snyder (1990) provide an economic framework that defines a candidate's level of campaign contributions, and therefore funds available for expenditure, as a function of supply and demand forces. Both analyses focus on federal legislative races, so electoral system was not considered explicitly. Regardless, these forces provide insight into whether electoral system will impact the level of campaign spending.

From a demand perspective, a candidate weighs their perceived increased probability of victory from a greater amount of campaign funds against the implicit costs of raising incremental contributions. At-large candidates are likely to perceive an increased need for campaign spending given their wider constituent base, while district candidates may be able to rely on grassroots tactics that emphasize more personal interaction (Gierzynski, 1998). However, the rate at which a candidate's preferred level of spending will increase with more constituents is unclear. A candidate may employ direct mailing or other campaign tactics that scale with the number of constituents or introduce more expensive forms of communication, such as media advertising, to reach a wider audience (Adams, 2010). To the extent that a limited staff or office space dominate a campaign budget, then the desire for increased spending may not keep pace with the number of constituents. Implicit costs, such as an expectation to deliver undesirable political favors, also weigh on the candidate's demand for contributions. If electoral system effects the engagement of voters and their likelihood of voting against candidates who operate on behalf of moneyed special interests, then this may also impact the candidate's preferred level of campaign spending.

The supply of campaign funds depends on whether contributors are ideologues or investors (Welch, 1974). Ideological contributors are motivated by advancing their own beliefs

and are not self-interested from a monetary perspective. Their supply of campaign funds will be greatest in close races as they seek to maximize the number of elected officials who share their ideology. Investor contributors are motivated by earning a positive return on their contributions from increased political influence. They are more apt to contribute to races where the elected position has greater power and whose outcome is relatively known. It is not clear that electoral system will impact the political power of city councilmembers. While at-large councilmembers have a greater number of constituents, political power is derived from the influence of their vote, which is more likely tied to the number of council seats, size of the city budget and mayoral strength. Contributions from both ideologues and investors are impacted by the competitiveness of city council elections, but in opposing ways. Accordingly, even if electoral system influences competitiveness, the effect on aggregate supply is unclear.

Considering the potential impact of electoral system and campaign spending from a theoretical perspective suggests that the demand for funds is heightened in at-large systems while supply is less clearly impacted. There is limited literature that empirically assesses this theory. Heilig (1984) suggests that the lack of research is because most cities enacted campaign finance reporting requirements in the mid-1970s, which coincided with a large shift from at-large to district systems and made longitudinal analyses challenging. In spite of the scarce literature, Exhibit 2 presents three studies that have addressed the topic in some detail. The construction of these analyses with respect to their comparative framework, measurement of campaign expenditures and selection of cities were considered when formulating this study.

Exhibit 2: Related Empirical Research

Literature	Methodology	Measure	Cities
Heilig (1984)	Longitudinal analysis of campaign expenditures for cities that underwent an electoral system change	Campaign expenditures for all, losing and winning candidates	Charlotte, Dallas, Fort Worth, Memphis*, Raleigh*, Richmond*, Sacramento, San Antonio
Lindgren (2006)	Longitudinal analysis of campaign expenditures for a city that underwent an electoral system change	Campaign expenditures for all and winning candidates	San Francisco
Adams (2010)	Cross-sectional comparison of campaign fundraising across cities with at-large, district and mixed systems	Fundraising threshold, defined as the median amount raised by non-incumbents who received at least 80% of an equal vote share	Chicago, Lexington, Long Beach, Los Angeles, Louisville, Miami, New York, Sacramento, San Francisco, Seattle, Tampa

*Campaign finance data not available pre-change

Heilig (1984) and Lindgren (2006) considered cities that underwent a change from an at-large to a district or mixed system. By focusing on a particular city with a defined date when the electoral system changed, the impact on campaign spending is more apparent. However, according to Heilig, a limitation of comparing "successive time periods is the overall rapid inflation rate in campaign costs, with a result that any reduction of expenses in a district system may be hidden when the district system follows an at-large plan" (Heilig, 1984, p. 73). Adams (2010) takes an alternative approach by performing a cross-sectional comparison of cities with different electoral systems. He does not account for differences across cities besides presenting a comparison of fundraising in terms of votes cast and voting age population.

In measuring campaign fundraising, Heilig and Lindgren used mean campaign expenditures for all and winning candidates. Adams developed a unique measure called fundraising threshold, which he defines as the median amount raised by non-incumbents who received at least 80% of an equal vote share. For example, if four candidates are running in a primary, then the equal vote share is 25%, and the fundraising threshold would be the median amount raised by candidates who received at least 20% (80% of 25%). With respect to the fundraising threshold, Adams writes that "this is the best available measure of the funds

candidates need to mount a credible campaign because it indicates the funding levels of the typical competitive candidate seeking local office" (Adams, 2010, p. 51).

Heilig focused on cities with a population of 100,000 or more, that had changed from an at-large to a mixed or district system and had varied levels of minority population. Lindgren focused exclusively on San Francisco, which happened to be the last large city to change from an at-large to district system at the time of his analysis. And Adams included cities based on data availability, specifically the requirement of electronic disclosure of campaign contributions.

Findings from the literature were mixed. While Heilig hypothesized that a change from at-large to district would decrease campaign spending, she found inconsistent evidence with a decrease in Charlotte and San Antonio and an increase in Dallas, Fort Worth and Sacramento. She did note that at-large seats in mixed systems had uniformly higher spending than district seats. On the other hand, Lindgren found compelling evidence of decreased campaign spending in San Francisco from a change to a district system in 2000. In an analysis of Board of Supervisor races, he found that winning candidates in at-large races spent an average of $338,108 compared to $135,667 in district races. The results of the all candidate analysis were similar ($188,729 at-large; $74,200 district) and both differences were statistically significant. Unlike the prior two studies, Adams' primary intent was to explore the relationship between campaign fundraising and the number of voters in a district or city, regardless of the electoral system. On this point, he concluded, "some scholars have hypothesized that campaign spending in at-large elections will be significantly higher than district elections because candidates will use more expensive electronic media to their message one. Not only is this argument undermined . . . but the evidence supports the exact opposite conclusion: candidates in at-large elections spend much less per potential voter than they do in districts" (Adams, 2010, p. 88). However,

when he instead compared the absolute level of the fundraising threshold in cities with district and at-large systems, his results are mixed.

The existing literature on the relationship between electoral system and campaign finance has focused on descriptive statistics. There are several reasons for this. Firstly, each prior study used city as the unit of analysis. As a result, there was a reduced need to control for variables that are influential on a contest-by-contest basis. Secondly, Heilig and Lindgren considered changes within particular cities, which lessened the need to account for city-specific factors that were unrelated, but potentially distortionary, to their hypothesis. And thirdly, Adams performed a cross-city comparison of campaign fundraising data that had been normalized by district size, rather than statistically evaluate the relationship of these two variables.

Section 3: Methodology

This study employs a cross-sectional analysis of campaign spending in large cities. Large cities are of primary interest because money is expected to be more relevant where there are a greater number of voters (Hogan, 2000). Campaign finance records are also expected to be more readily available in large cities. An optimal sample of cities would display comparable population and meaningful variation in electoral system. If the threshold for a large city is set at 250,000 residents, then there are 74 large American cities with only 7 employing an at-large system. No city with a population in excess of 1,000,000 has an exclusively at-large system. 5 of the 24 cities (20.8%) with populations between 500,000 and 1,000,000 have at-large systems, as do only 2 of the 41 (4.9%) with between 250,000 and 500,000 residents. As a result, this study focuses on a restricted set of large cities with populations between 500,000 and 1,000,000 to provide greater electoral system diversity. According to the 2010 Census, cities within this population segment range from Tucson with 520,116 residents to San Jose with 945,942. Appendix B presents the composition of each city council by at-large and district seats. In addition to the 5 cities with at-large systems, 9 have district systems and 10 have mixed systems. City councils range in size from Portland with 4 councilmembers to Nashville with 40.

Tucson employs a unique system where the primary election is held within a district followed by an at-large general election. Because this system does not allow for an at-large or district characterization, Tucson is removed from the analysis. Detroit and Austin, two current at-large cities, have recently passed ballot measures to change their electoral system to a mixed and district system, respectively. For purposes of this analysis, these cities continue to be characterized as at-large since the changes had not taken place as of the last election cycle.

Going forward, these two cities will provide an opportunity to assess the relationship between electoral system and campaign spending on a longitudinal basis.

Campaign spending for winning candidates is the output measure rather than spending for all candidates. Winning candidate spending is considered exclusively because of the dual concern that spending erects a barrier to entry and increases special interest influence, which is more closely related to the funds required for victory than total funds spent. This is not to imply that winning candidate spending is synonymous with the amount required to win, because theory suggests that funds both increase the probability of victory and flow to otherwise attractive candidates. In addition, Heilig (1984) and Lindgren (2006) found comparable results when evaluating winning candidate and all candidates spending.

Data

There is no centralized database for election and campaign finance data at the city-level. Data was therefore collected and aggregated from a variety of electronically available sources that are detailed in Appendix C. Four cities – Memphis, Milwaukee, Nashville and Oklahoma City – were removed from the analysis because campaign finance records were not available electronically or were of poor quality. Accordingly, 19 cities remained in the sample with 5 at-large, 7 district and 7 mixed systems.

Election data included votes for the winning candidate and total votes cast in the primary and general election, where applicable. Campaign finance data, including monetary expenditures and in-kind contributions, was collected for the winning candidate. For purposes of this study, campaign spending is defined as monetary expenditures plus in-kind contributions, and further adjusted to 2012 dollars based on the percentage change in the Consumer Price Index between the election year and 2012. Unfortunately, six cities – Austin, El Paso, Fort Worth, Indianapolis, Seattle and Washington D.C. – do not report in-kind contributions in a separate and aggregated

manner, so only monetary expenditures are incorporated. As this will bias campaign spending downwards in these six cities, the Appendix includes a separate analysis on monetary expenditures to accompany the total expenditures analysis in Section 4.

Data collection was restricted to contests in the last two election cycles, on or before 2012, because it coincided with the availability of electronically available campaign finance records for many cities. Four cities – Austin, Detroit, Las Vegas and San Jose – did not have complete electronically available records for the last two election cycles, so only those election years with records were included. Special elections that were held off cycle were excluded. Three individual contests were also excluded due to missing records (Warren Cooksey: Charlotte 2011; Brenda Jones: Detroit 2009) or a concurrent run for mayor without separate financial reporting (Ken Cockrel: Detroit 2009). The resulting sample included 434 winning candidates in 108 at-large contests and 326 district contests.

In addition to election and campaign finance records, descriptive information was collected for candidates and cities. Candidates were identified as an incumbent based on prior cycle election records, and as a minority based on visual and surname cues. Several city governance and demographic attributes were also collected and employed as control variables in the regression analysis described later in this section.

Analysis

The analysis is composed of two parts. Firstly, a comparison of descriptive statistics for winning candidate spending by: (1) district and at-large seat across the 434 contests that compose the sample; (2) cities sorted by electoral system; and (3) electoral seat type in cities with mixed systems. Secondly, a regression analysis is conducted of winning candidate spending.

The analysis considers the relationship between winning candidate spending (EXPEND) and electoral system (ELECSYS). EXPEND is defined as total campaign expenditures of the

winning candidate including monetary expenditures and in-kind contributions, where available. ELECSYS is structured as a dichotomous variable with 1 for at-large seat and 0 for district seat. Electoral contest serves as the unit of analysis. As contests are nested within a particular city, this creates dependence amongst observations that violates an assumption of ordinary least squares regression that error terms are uncorrelated. In order to address this limitation, a mixed effects model is utilized where a city-specific intercept is estimated contemporaneously with sensitivities to the observed variables. The mixed effects model is structured as:

$$EXPEND_{ij} = \beta_{00} + \beta_{ELECSYS} ELECSYS_{ij} + \sum_{k} \beta_k X_{kij} + \beta_{0j} + e_{ij}$$

where:

$EXPEND_{ij}$ = total campaign expenditures of winning candidate for contest *i* within city *j*;
$ELECSYS_{ij}$ = electoral seat type of contest *i* within city *j*;
X_{kij} = control variable *k* for contest *i* within city *j*;
β_{00} = overall intercept;
$\beta_{ELECSYS}$ = slope for electoral system;
β_k = slope for control variable *k;*
β_{0j} = intercept for city *j;*
e_{ij} = error associated with contest *i* within city *j*.

In an attempt to isolate the effect of electoral system, a number of contest and city-level control variables are included in the full regression model. Variables are defined in Appendix D. Unfortunately, the literature on local election campaign finance is sparse and of limited utility in explicitly identifying suitable controls. Instead, the economic framework from Welch (1974) and Snyder (1990) is primarily drawn upon to determine additional variables that may be related to campaign spending.

A candidate's demand for campaign funds is positively related to the number of votes that they perceive to be required for victory. Cities with more residents will generally have more

voters, so city population (POPULATION) is included as a city-level control. Voter turnout (TURNOUT) is directly related to the number of votes, so it too is included as a contest-level control. However, while higher turnout is expected to increase the need for campaign spending, there is an alternative explanation where higher spending could invigorate voters and increase turnout. In order to mitigate the potential for reverse causality, TURNOUT is based on the prior election. Candidates may also have a reduced need for campaign spending if they have other available resources. For example, political party spending may replace candidate spending, particularly in cities that hold partisan elections. Election partisanship (PARTISAN) is therefore included as a dichotomous city-level control.

On the supply side, contributions are in part related to competitiveness where ideologues seek more competitive races and investors seek less competitive races. Vote share (SHARE), or the percentage of votes received by the winning candidate, is included as a contest-specific control to measure election competitiveness. Like TURNOUT, SHARE is based on the prior election given the potential for a reverse causal relationship where, for example, high fundraising may frighten would-be challengers leading to unopposed contests with high vote share. Theory also suggests that investor contributors are drawn by councilmember power. Leadership positions offer one form of power (Hogan, 2000), but unlike federal and state legislatures, city councils are typically governed less by seniority and longstanding committee chairmanships. Exceptions are Baltimore and Washington who have a unique structure whereby they hold a designated contest for Council President (PRESIDENT), which is included as a dichotomous contest-level control. More broadly, power can originate from the structure of city governance. A greater number of city council seats will dilute the power of an individual councilmember, so seat count (SEATS) is included as a city-level control. City councils may differ by their term

with longer terms offering an increased opportunity to legislate and greater power, so elected term (TERM) is included as a city-level control. And cities with a weak mayor form of government have no distinct executive branch, which leads to increased councilmember power versus a strong mayor form. Mayoral strength (MAYOR) is therefore included as a dichotomous city-level control with 1 representing a strong mayor system. Another contributor to power is the amount of resources that a city council commands. Investor contributors, who are interested in a return on their contribution, are expected to invest more heavily in cities where councilmembers have greater resources to distribute. As a result, the size of the general fund budget in fiscal year 2012 (BUDGET) is included as a city-level control.

Aside from aggregate supply and demand dynamics, candidates may have differential access to campaign funds based on other attributes. For example, incumbents generally have existing relationships with funders, so may have greater access. In support of this, Krebs (2001) and Hogan (2000) found that incumbents were better financed than challengers in analyses that considered both winning and losing candidates. Incumbency (INCUMBENT) is therefore included as a dichotomous contest-level control. Minority candidates may have reduced access to campaign funds, which Fleischmann (1998) identified in a study of St. Louis Board of Alderman elections. Minority status (MINORITY) is also included as a dichotomous contest-level control.

The regression analysis is performed in a staged approach where sets of variables are added to build up to the full model. Initially, only the overall intercept (β_{00}) and city-specific intercepts (β_{0j}) are estimated. The independent variable (ELECSYS) is subsequently added to the model, followed by the contest-level controls (PRESIDENT, INCUMBENT, MINORITY, TURNOUT, SHARE) and finally the city-level controls (MAYOR, SEATS, TERM, PARTISAN, POPULATION, BUDGET).

Section 4: Results

Results from both the comparison of descriptive statistics and the regression analysis demonstrate that winning candidates for at-large seats expend greater campaign funds than those for district seats. Exhibit 3 presents descriptive statistics across the at-large, district and all contest samples. Mean winning candidate expenditures are $214,311 in the 108 at-large contests

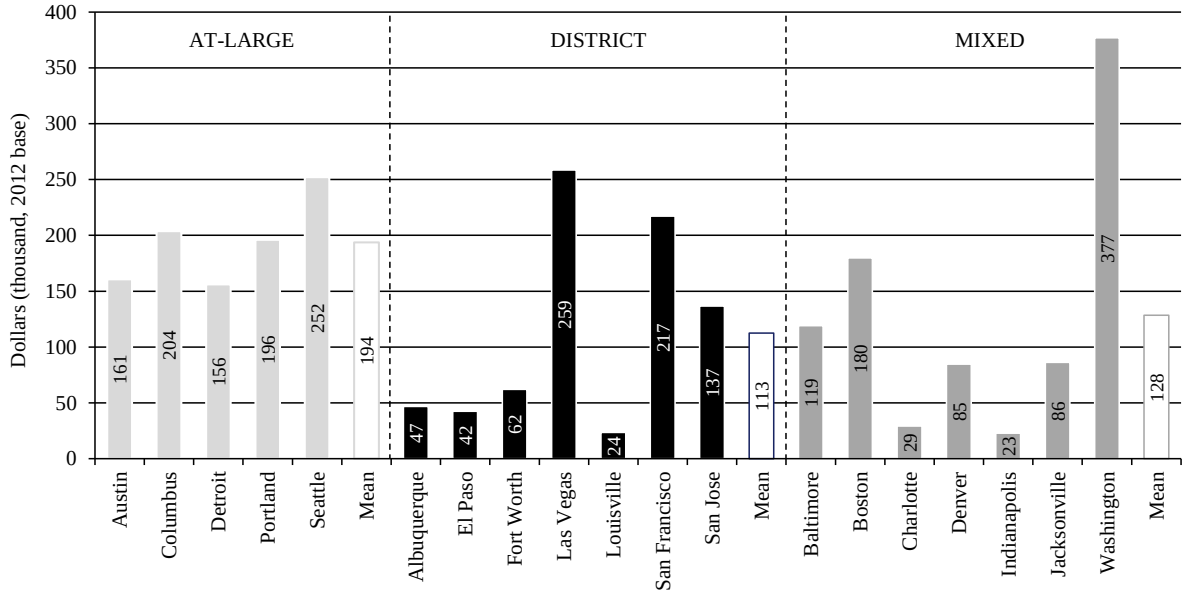
Exhibit 3: Winning Candidate Expenditures (Thousand, 2012 Base)

	At-large Contests	District Contests	All Contests
Observations	108	326	434
Mean	214.3	82.5	115.3
Standard deviation	181.3	94.0	134.2
Percentile			
90%	403.8	193.3	276.8
75%	289.6	110.2	164.3
50%	174.3	46.3	66.3
25%	81.9	19.5	23.5
10%	33.5	9.5	10.9

compared to $82,498 in the 326 district contests, for a difference of $131,814. Median winning candidate expenditures presents a similar picture with $174,276 and $46,337 in at-large and district contests, respectively, for a difference of $127,940. Percentile measures highlight that the top decile district candidate spends a modest amount more than the median at-large candidate ($193,350 versus $174,276), while the median district candidate spends approximately the same as the bottom decile at-large candidate ($46,337 versus $33,535). The dispersion of spending in at-large contests is approximately twice as great as district contests based on standard deviation ($181,338 versus $94,026) and interdecile range ($370,274 versus $183,811). While these results illustrate a wide disparity in spending based on electoral system, they do not account for other factors that may contribute to campaign expenditures.

Exhibit 4 presents a subset of data found in Appendix E on mean campaign expenditures by city. A winning candidate in a city with an at-large system spends $193,732 on average,

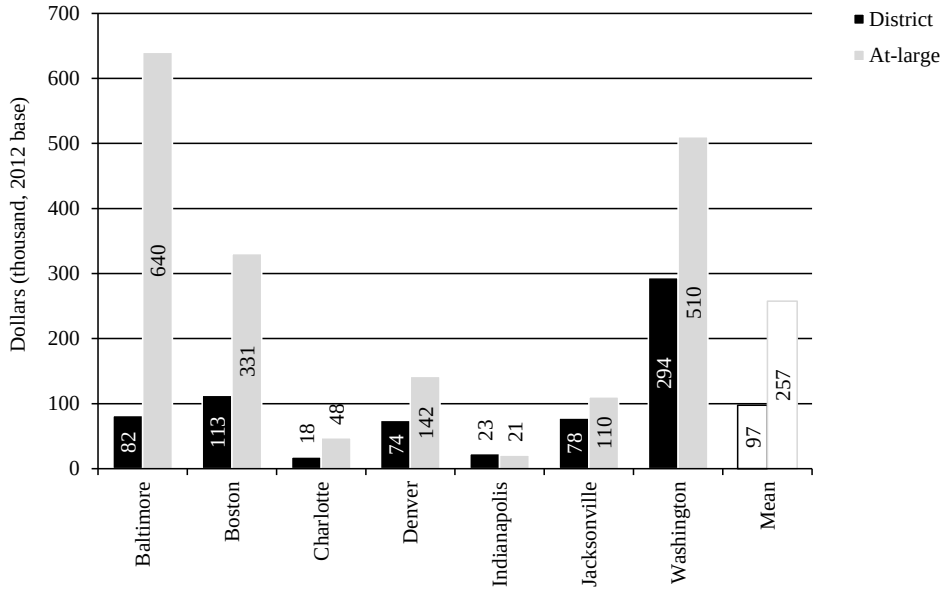
Exhibit 4: Mean Campaign Expenditures of Winning Candidates by City



compared to $112,512 in a district system ($85,220 less than at-large) and $128,406 in a mixed system ($69,326 less). Cities with at-large systems have comparable levels of above average spending, whereas there is a high degree of variation in district and mixed system cities. For example, the spread between the highest and lowest cost at-large system is $96,108 (Seattle: $252,154; Detroit: $156,054), compared to $234,941 in district systems (Las Vegas: $258,606; Louisville: $23,665) and $354,200 in mixed systems (Washington D.C.: $376,976; Indianapolis: $22,776). A limitation of this cross-sectional comparison is that it does not account for city differences other than electoral system. For example, Washington D.C., a mixed system with 8 district and 5 at-large seats, has the highest mean campaign spending at $376,976. It is also a unique American city in that it performs the functions of a city, county and state government and accordingly has the highest budget of the 19 cities in the sample. Louisville, a district system with twice as many seats (26) and a city budget that is less than 10% of Washington D.C.'s size, has campaign spending that is the second lowest at $23,665.

The final component of the descriptive statistics analysis considers mixed systems. A benefit of mixed systems is that they offer a direct comparison between at-large and district contests without having to account for city-level effects. Exhibit 5 presents mean campaign spending for winning candidates of at-large and district seats in the 7 mixed system cities included in the sample. Winning at-large candidates have greater campaign spending than district candidates in all cities, except Indianapolis. For the average mixed system, spending for

Exhibit 5: Mean Campaign Expenditures of Winning Candidates in Mixed System Cities by Seat Electoral Type



at-large seats is $257,394 compared to $97,324 for district seats ($160,070 difference). While a comparison within a mixed system accounts for city-level effects, a potential limitation is that at-large and district seats may offer different levels of power or prestige. This difference is most explicit in Baltimore where the only at-large seat is for City Council President, a position that holds greater responsibility than other city councilmembers. Accordingly, winning candidate spending for this at-large seat averages $640,182, compared to an average of $81,853 in the 14 district seats ($558,329 difference).

Exhibit 6 presents a regression analysis with four mixed effects models of winning candidate expenditures. Each presented model includes city-specific intercepts (β_{0j}) that are available in Appendix F. R^2 measures model explanatory power relative to a null model that

Exhibit 6: Mixed Effects Models of Winning Candidate Expenditures

Coefficient	I	II	III	IV
Intercept	138,819***	99,282***	97,440***	38,451
ELECSYS	-	114,220***	78,461***	76,094***
PRESIDENT	-	-	486,430***	485,912***
INCUMBENT	-	-	2,013	2,412
MINORITY	-	-	-15,714*	-17,365**
TURNOUT	-	-	43,197	36,460
SHARE	-	-	10,596	11,627
MAYOR	-	-	-	7,168
SEATS	-	-	-	-4,650
TERM	-	-	-	20,875
PARTISAN	-	-	-	-30,862
POPULATION	-	-	-	-11
BUDGET	-	-	-	42***
R^2	0.55	0.61	0.71	0.71

Observations = 434
City-specific effects included in each regression, shown in Appendix F
*p<0.1; **p<0.05; ***p<0.01

includes just the overall intercept (β_{00}). Models I to IV are structured so that additional variables are included successively. In Model I, only the overall and city-specific intercepts are included. With an R^2 of 0.55, city-specific effects are found to explain the majority of variation in candidate spending. In Model II, electoral system (ELECSYS) is added and found to be statistically significant at 99% confidence. The interpreted effect is that winning candidates in at-large seats are estimated to have $114,220 greater spending than district candidates. While the difference in R^2 between Model I and Model II appears modest (0.55 versus 0.61), the city-specific intercepts in Model I may reflect electoral system differences, particularly for cities that are exclusively district or at-large systems.

In Model III, contest-level control variables (PRESIDENT, INCUMBENT, MINORITY, TURNOUT, SHARE) are included. The estimated effect of ELECSYS decreases to $78,461 while it remains statistically significant. Designated contests for Council President (PRESIDENT) are estimated to have $486,430 greater winning candidate spending than other contests. This finding is consistent with theory, where positions of leadership and greater power are expected to attract additional investor contributions. As Council President is elected at-large in the two cities that hold a designated contest (Baltimore, Washington D.C.), the inclusion of this control variable is primarily responsible for the decline in the ELECSYS effect. Minority status (MINORITY) is also found to have a statistically significant effect, where winning minority candidates are estimated to raise $15,714 less than white candidates.

City-level control variables (MAYOR, SEATS, TERM, PARTISAN, POPULATION) are added in Model IV to arrive at the full regression model. ELECSYS is relatively unchanged from Model III where winning candidate spending for at-large seats is now estimated to be $76,094 greater than for district seats. The size of the general fund budget (BUDGET) is found to be the only statistically significant city-level control variable. The estimated effect is such that a one million dollar increase in city budget is expected to coincide with $42 greater campaign spending. This finding is consistent with the theory that investor contributors are likely to provide additional funds to councilmembers that distribute increased resources, as it leads to a greater potential return on their investment.

Limitations

There are several limitations to this study. While more expansive than the existing literature on city council electoral system and campaign spending, the sample set is comprised of only 19 cities from a relatively narrow population segment. There is also a potential for omitted variable bias given, for example, the idiosyncrasies of city campaign finance regulations. From a

data perspective, the study relies upon campaign finance records that were manually collected from a number of electronically available sources of varied quality. A particular data concern is the six cities where in-kind contributions were not available in a separate and aggregated manner and were assumed to be zero for purposes of analyzing total campaign expenditures. Appendix G presents a separate regression analysis of monetary expenditures, which excludes in-kind contributions, and finds the estimated effect of electoral system is modestly lower than the total expenditures analysis ($73,273 versus $76,094).

Another limitation is that a regression analysis will be unable to detect whether the relationship between electoral system and campaign spending is endogenous. If cities with high campaign expenditures decided to change their electoral system for the purported goal of lower spending, then the current composition of cities by electoral system may reflect a correlation to spending irrespective of whether it arises from electoral system. Mitigating this concern is that, of the 19 cities in the sample, 7 have changed from an at-large to a mixed or district system from 1970 to 2012, whereas none have changed to an at-large system. Because of this movement away from at-large systems, if endogeneity is present, then the findings in this study serve as a lower bound of the magnitude by which spending in at-large seats exceeds that of district seats.

Section 5: Conclusion

The existing literature on the relationship between city council electoral system and campaign finance is limited. This study adds to it by employing an original dataset on an objectively defined set of cities and applying a mixed effects model to account for nesting and other contest or city-related factors.

In doing so, this study finds a strong relationship between city council electoral system and the amount of campaign funds spent by winning candidates. Specifically, it finds that candidates for at-large contests expend a significantly greater amount of funds than district candidates. This observation appears consistently across a set of description statistics comparisons and regression analyses. The difference in spending is estimated to be approximately $76,000. These findings suggest that cities with at-large systems, who want to increase political participation and decrease the influence of moneyed special interests, may wish to evaluate a change to a district or mixed electoral system.

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Appendix A

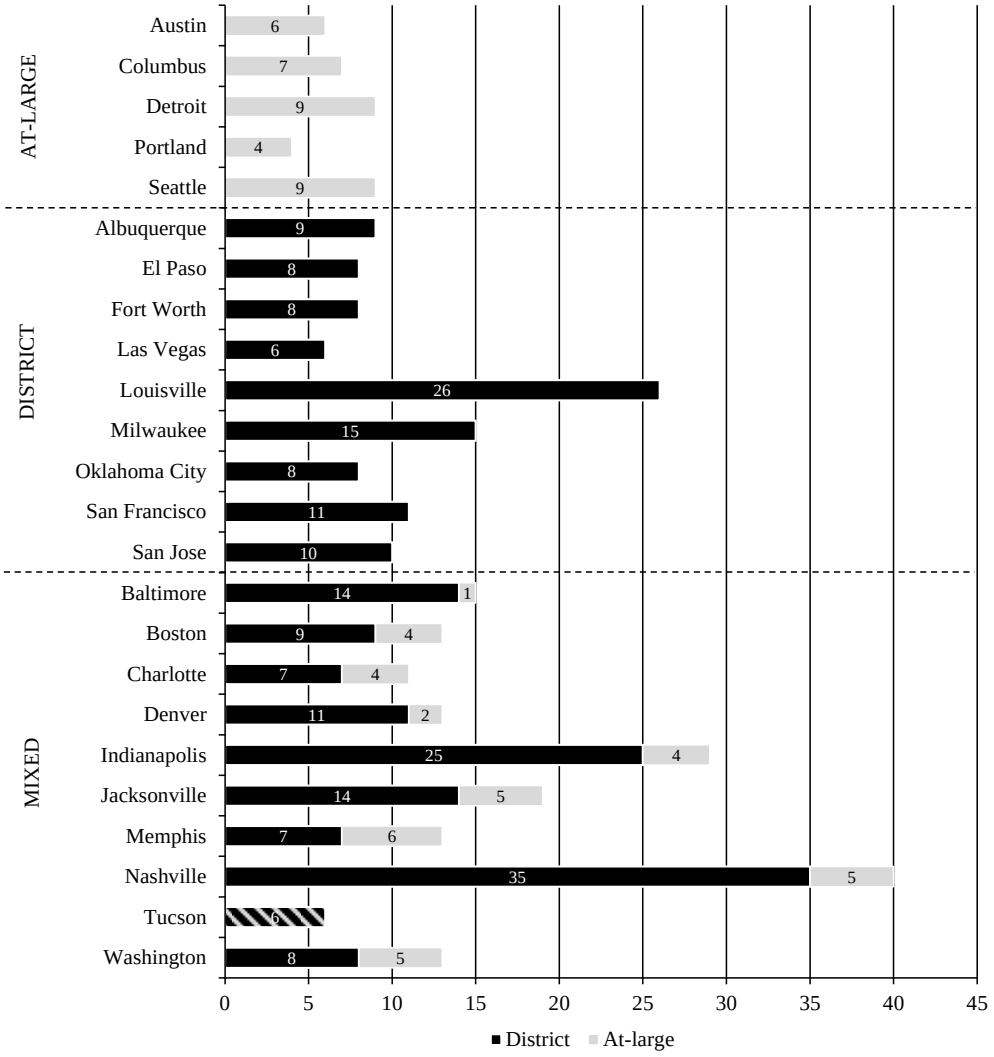
Electoral System for Cities with greater than 500,000 Current Residents (1970 – 2014)

City	State	Population (2010)	1970	1980	1990	2000	2014
New York	New York	8,175,133					
Los Angeles	California	3,792,621					
Chicago	Illinois	2,695,598					
Houston	Texas	2,100,263					
Philadelphia	Pennsylvania	1,526,006					
Phoenix	Arizona	1,445,632					
San Antonio	Texas	1,327,407					
San Diego	California	1,307,402					
Dallas	Texas	1,197,816					
San Jose	California	945,942					
Jacksonville	Florida	821,784					
Indianapolis	Indiana	820,445					
San Francisco	California	805,235					
Austin	Texas	790,390					
Columbus	Ohio	787,033					
Fort Worth	Texas	741,206					
Charlotte	North Carolina	731,424					
Detroit	Michigan	713,777					
El Paso	Texas	649,121					
Memphis	Tennessee	646,889					
Baltimore	Maryland	620,961					
Boston	Massachusetts	617,594					
Seattle	Washington	608,660					
Washington	District of Columbia	601,723					
Nashville	Tennessee	601,222					
Denver	Colorado	600,158					
Louisville	Kentucky	597,337					
Milwaukee	Wisconsin	594,833					
Portland	Oregon	583,776					
Las Vegas	Nevada	583,756					
Oklahoma City	Oklahoma	579,999					
Albuquerque	New Mexico	545,852					
Tucson	Arizona	520,116					

Election system count by decade						
District	7	12	14	15	16	17
At-large	16	8	6	5	5	3
Mixed	9	13	13	13	12	13
Other	1	0	0	0	0	0

Appendix B

City Council Seats for Cities with 500,000 to 1,000,000 Residents



Note: Electoral system as of 2012; Austin changing to a district system in 2014; Detroit changing to a mixed system in 2013; Tucson holds district primaries and an at-large general election

Appendix C
Sources of Election and Campaign Finance Data

City	Election Data Source	Campaign Finance Data Source (if different)
Albuquerque	Bernalillo County Department of Elections	Albuquerque City Clerk
Austin	Travis County Clerk	Austin City Clerk
Baltimore	Maryland State Board of Elections	-
Boston	Boston Election Department	Boston City Clerk
Charlotte	Mecklenburg County Board of Elections	-
Columbus	Franklin County Board of Elections	-
Denver	Denver Office of the Clerk and Recorder	-
Detroit	Detroit Department of Elections	Wayne County Clerk
El Paso	El Paso County Elections	El Paso City Clerk
Fort Worth	Fort Worth City Secretary	-
Indianapolis	Marion County Election Board	-
Jacksonville	Duval County Supervisor of Elections	-
Las Vegas	Clark County Election Department	Las Vegas City Clerk
Louisville	Jefferson County Clerk	Kentucky Registry of Election Finance
Portland	Portland City Auditor	Oregon Secretary of State
San Francisco	San Francisco Department of Elections	San Francisco Ethics Commission
San Jose	San Jose City Clerk	-
Seattle	Seattle Ethics and Elections Commission	-
Washington	District of Columbia Board of Elections	District of Columbia Office of Campaign Finance

Appendix D
Regression Variables

Variable	Definition	Level	Hierarchy	Type	Source
EXPEND	Campaign spending of winning candidate	Ratio	Contest	Dependent	Original data set from public sources in Appendix C
ELECSYS	Electoral system (1 if at-large, 0 if district)	Nominal	Contest	Independent	City council websites
PRESIDENT	Council president contest (1 if designated seat, 0 if undesignated or none)	Nominal	Contest	Control	City council websites
INCUMBENT	Incumbency of winning candidate (1 if incumbent, 0 if non-incumbent)	Nominal	Contest	Control	Original data set from public sources in Appendix C
MINORITY	Minority status of winning candidate (1 if minority, 0 if white)	Nominal	Contest	Control	Original data set from public sources in Appendix C
TURNOUT	Maximum voters in the prior primary or general election for the seat divided by voting-age population	Ratio	Contest	Control	Original data set from public sources in Appendix C
SHARE	Maximum voters in the prior primary or general election for the seat divided by total votes	Ratio	Contest	Control	Original data set from public sources in Appendix C
MIXED	Mixed system (1 if mixed system, 0 if exclusive district/at-large)	Nominal	City	Control	City council websites
MAYOR	Mayoral system (1 if strong mayor, 0 if weak mayor)	Nominal	City	Control	City council websites
SEATS	Number of city council seats	Ratio	City	Control	City council websites
TERM	City council elected term (years)	Ratio	City	Control	City council websites
PARTISAN	Election partisanship (1 if partisan election, 0 if non-partisan)	Ratio	City	Control	City council websites
POPULATION	City population (thousands)	Ratio	City	Control	Census 2010
INCOME	Mean household income (thousands)	Ratio	City	Control	American Community Survey 2011
BUDGET	General fund budget for Fiscal Year 2012 (millions)	Ratio	City	Control	City government websites

Appendix E
Campaign Expenditures of Winning City Council Candidates by City

City	Election Contests			Mean Expenditures ($000)			Median Expenditures ($000)		
	District	At-large	Total	District	At-large	Total	District	At-large	Total
At-Large									
Austin	NA	9	9	NA	160.7	160.7	NA	142.7	142.7
Columbus	NA	15	15	NA	203.7	203.7	NA	190.1	190.1
Detroit	NA	7	7	NA	156.0	156.0	NA	133.4	133.4
Portland	NA	9	9	NA	196.0	196.0	NA	171.3	171.3
Seattle	NA	18	18	NA	252.2	252.2	NA	252.8	252.8
Mean (City-Weighted)	NA	58	58	NA	193.7	193.7	NA	178.1	178.1
District									
Albuquerque	18	NA	18	46.9	NA	46.9	41.4	NA	41.4
El Paso	20	NA	20	42.4	NA	42.4	37.6	NA	37.6
Fort Worth	16	NA	16	62.2	NA	62.2	51.8	NA	51.8
Las Vegas	9	NA	9	258.6	NA	258.6	271.9	NA	271.9
Louisville	55	NA	55	23.7	NA	23.7	18.6	NA	18.6
San Francisco	23	NA	23	217.3	NA	217.3	195.2	NA	195.2
San Jose	10	NA	10	136.6	NA	136.6	139.4	NA	139.4
Mean (City-Weighted)	151	NA	151	112.5	NA	112.5	108.0	NA	108.0
Mixed									
Baltimore	28	2	30	81.9	640.2	119.1	84.1	640.2	86.5
Boston	18	8	26	112.9	330.5	179.9	108.2	226.9	153.6
Charlotte	13	8	21	18.0	47.5	29.2	11.9	57.1	15.0
Denver	22	4	26	74.3	141.7	84.6	59.0	146.2	71.5
Indianapolis	50	8	58	23.1	20.9	22.8	17.9	13.3	17.4
Jacksonville	28	10	38	77.6	110.5	86.3	78.2	83.2	78.2
Washington	16	10	26	293.6	510.4	377.0	277.8	436.7	330.1
Mean (City-Weighted)	175	50	225	97.3	257.4	128.4	91.0	229.1	107.5
Total									
Mean (City-Weighted)	326	108	434	104.9	230.9	139.7	99.5	207.8	126.2

Appendix F

City-Specific Intercepts for Mixed Effects Models of Winning Candidate Expenditures

Coefficient	I	II	III	IV
Albuquerque	-87,405	-49,752	-58,249	-49,725
Austin	19,819	-47,672	-18,425	-11,579
Baltimore	-19,145	11,797	-25,546	-6,851
Boston	39,626	43,819	47,091	21,669
Charlotte	-104,892	-108,555	-102,494	-14,905
Columbus	61,105	-9,164	22,173	6,098
Denver	-52,301	-31,069	-34,441	-34,396
Detroit	15,189	-50,480	-21,271	-34,699
El Paso	-92,105	-54,266	-54,454	-44,007
Fort Worth	-72,388	-34,983	-38,467	-975
Indianapolis	-114,195	-90,747	-97,774	21,050
Jacksonville	-51,284	-42,003	-42,592	-18,378
Las Vegas	108,473	143,859	141,060	113,985
Louisville	-113,222	-74,310	-98,199	6,746
Portland	51,788	-15,796	-225	-9,641
San Francisco	75,363	113,213	106,176	6,556
San Jose	-2,001	34,053	25,597	16,846
Seattle	107,717	36,680	58,220	38,247
Washington	229,858	225,376	191,822	-6,040

Appendix G

Mixed Effects Regression of Winning Candidate *Monetary* Expenditures

Coefficient	I	II	III	IV
Intercept	133,078***	95,135***	89,452***	34,172
ELECSYS	-	109,912***	75,752***	73,273***
PRESIDENT	-	-	494,073***	493,053***
INCUMBENT	-	-	7,153	7,564
MINORITY	-	-	-18,208**	-19,823**
TURNOUT	-	-	38,539	31,660
SHARE	-	-	13,637	14,174
MAYOR	-	-	-	-4,953
SEATS	-	-	-	-3,282
TERM	-	-	-	19,330
PARTISAN	-	-	-	-36,786
POPULATION	-	-	-	-25
BUDGET	-	-	-	45***
R^2	0.51	0.57	0.68	0.68

Observations = 434
City-specific effects included in each regression but not shown
*p<0.1; **p<0.05; ***p<0.01