Appendices for
Elections and the Regression-Discontinuity Design: Lessons from Close U.S. House Races, 1942–2008

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A Data Appendix

This appendix provides an overview of how the dataset used in this study was constructed. In terms of basic structure, the dataset consists of 14,793 observations, 435 for each biennial general election 1942–2008 (plus one extra election in 1958 and two in 1960 resulting from Alaska and Hawaii's entries into the Union). The combination of year, state, and seat number uniquely identifies every observation except ones corresponding to elections for at-large House seats in states with more than one such seat. *The Historical Atlas of United States Congressional Districts* (Martis, Lord, Rowles, and Historical Records Survey of New York, 1982) was used to determine whether each state elected its representatives by district, in at-large elections, or through some combination of both. Such complexities disappear by 1970, after which all states except those with a single representative used district-based seats.

A number of sources were used to determine when district lines were redrawn. Martis et al. (1982), which provides details on each instance of redistricting since the 1st Congress, was our primary source of pre-1982 data. CQ Press's online Voting and Elections Collection (CQ Press, 2010) contains data on state-level redistricting dates since 1968, and these were used both to validate the information in Martis et al. (1982) for the period 1968–1980 and to determine redistricting dates after 1980. The CQ Press data were checked for discrepancies with Martis, Rowles, and Pauer (1989), Aldrich, Brady, de Marchi, McDonald, Nyhan, Rohde, and Tofias (2006), and data provided by Gary Jacobson and Scott Adler (Adler, 2009), as well as with congressional district maps printed by the U.S. Census Bureau. The sources sometimes disagreed when a state changed some of its districts but left others intact, in which case only those districts actually redrawn were coded as having been redistricted. States with a single at-large seat were coded as unredistricted as long as that seat remained in existence. Under this coding scheme, 27% of elections in years ending in "2," which Lee (2008) treats as having been redistricted, were instead coded as unchanged since the previous election. In addition, 9% of elections in years Lee (2008) designates as non-redistricting years were in fact changed since the previous election by a

mid-decade redistricting.

Observations were included in RD sample if and only if (a) the district existed in the same form in both the preceding and subsequent election; (b) they are not an at-large seat in a state with more than one such seat; (c) the previous and subsequent elections are included the dataset; and (d) the value of the forcing variable (Democratic margin) is not missing for the observation. Democratic margin was defined as the difference between the largest vote total of any Democrat in the race and the largest vote total of any non-Democrat, divided by the total number of votes cast in the election. Elections in which the top two vote-getters were both Democrats were coded NA; so were "jungle" elections in Louisiana and Texas that were followed by a later runoff election.

The data used to calculate Democratic margin and other electoral variables were derived from several sources. These include Gary Jacobson's House elections dataset (1946–2008), the CQ Press Voting and Election Collection (post-1968), and the dataset used in Lee (2008) (1946–1998), which is itself an improved version of ICPSR study 7757 (ICPSR, 1995). Data on elections in 1942 and 1944 were only collected if the election preceded a close election or was itself determined to be a close election based on ICPSR study 7757. In cases of discrepancy or ambiguity, the electoral data were visually checked against the official results of the Office of the Clerk of the U.S. House of Representatives (2010), which also provided candidate names. The Office of the Clerk was treated as the definitive source, except in the very few cases where the election was still unresolved at the time of the report's printing.

In addition to the differences in redistricting coding and the extended time span, our dataset departs from the one used in Lee (2008) in a number of other respects. Close inspection of Lee's data revealed a great many coding errors, which we corrected. Many of the errors were logically inconsistent, such as observations where the Democratic margin was greater than zero but the outcome was coded as a loss for the Democratic candidate. Some observations in the dataset did not correspond to any actual election, whereas other elections appeared in the dataset more than once. One of the closest elections was erroneously coded as a Democratic loss when in fact the Democrat won. Instances where the state branch of a major party used a state-specific name, such as Minnesota's Democratic-Farmer-Labor Party, were mistakenly coded as third parties. Other complications, such as candidates nominated by multiple parties, two candidates from the same party, and at-large seats in states with district-based ones as well, created similar problems. Important covariates exhibited substantial measurement error. Inconsistent spelling of candidate names in meant that the name-matching algorithm Lee used was far from perfect. Lee's practice of imputing missing variables with the state-district-decade (or state-decade) mean resulted in hundreds of cases where integer variables, like number of previous terms in office, had non-integer values.

To the basic set of electoral variables were added variables from other data sources. Merging in Poole and Rosenthal's very clean DW-NOMINATE dataset (Poole, 2009) had the additional benefits of revealing a great many of the errors in the electoral data and of providing a unique numeric identifier that enabled the previous terms of each House member to be determined with a high degree of accuracy. Personal information on members of Congress was obtain from the *Biographical Directory of the United States Congress* (United States Congress,

2010). District- and state-level census characteristics were obtained from Adler (2009). Data on district-level presidential vote were provided by David W. Brady. Gary Jacobson provided data on incumbency and candidate experience, as well as on campaign expenditures. Campaign donation data were obtained from Jonathan Wand. *CQ* race ratings were transcribed from the issues of *CQ Weekly* that preceded each election.

Given the centrality of very close elections to our study, we concentrated our efforts on correcting errors and filling in missing data in cases where the Democratic margin was less than 2%. We are therefore most confident in the quality of the data in this subset of the data. The data used for intensive analysis of races decided by less than 0.75% were collected by four research assistants. Each was assigned a random sample of these elections and instructed to use newspapers and other contemporary sources to determine whether there was a recount in the race and how the vote totals changed over the course of the tabulation process. They were also asked to write a short qualitative summary of the post-election, noting any evidence of vote fraud or other reasons why the candidate who ultimately prevailed did so.

B Sensitivity Analysis

In Paul Rosenbaum's version of sensitivity analysis, the parameter Γ represents an upper bound on the degree to which two observably equivalent units j and k—the former assigned to treatment and the latter to control—differ in their *a priori* odds of being assigned to treatment. If π_i represents the probability that unit i is assigned to treatment, then:

$$\frac{1}{\Gamma} \leq \frac{\pi_j(1-\pi_k)}{\pi_k(1-\pi_j)} \leq \Gamma, \tag{1}$$

which implies that $\log(\Gamma)$ must be at least as large as the absolute value of the difference between unit j's log-odds of treatment assignment and unit k's. Rosenbaum shows that $\log(\Gamma)$ can be understood as an upper bound on the coefficient γ relating a unobserved covariate u_i to unit i's log-odds of being treated. The confounder u_i is assumed to be nearly perfectly predictive of the outcome and to vary between 0 and 1. Specifically, if $\pi_j \geq \pi_k$:

$$\log\left(\frac{\pi_j(1-\pi_k)}{\pi_k(1-\pi_j)}\right) = \gamma(u_j - u_k) \leq \log(\Gamma) \tag{2}$$

Rosenbaum-style sensitivity analysis asks how the results of statistical tests change under different assumptions regarding $\Gamma = e^{\gamma(u_j - u_k)}$.

Here we examine the sensitivity of the estimated incumbent party advantage to unobserved confounding using the 85 elections decided by less than 0.5% for which both lagged and lead data are available. In this sample, a Democrat won 74% of $t+1$ elections in districts where the party also won election t (the treated group), but only 33% of elections where a non-Democrat won the previous election (control). Under Fisher's exact test, the one-sided *p*-value of this difference in the proportions of *Democratic Victory* $t+1$ is 0.0001. According to the procedure outlined in Section 4.4 of Rosenbaum (2002), a Γ of about 2.4 is needed to cast

Table 1: Cross-tabulations of *Democratic Victory* t with *Democratic Victory* $t-1$ and $t+1$

	Dem. loss $t-1$	Dem. win $t-1$	Dem. loss $t+1$	Dem. win $t+1$
Dem. loss t	34	8	28	14
Dem. win t	18	25	11	32
	odds ratio $= 5.8$ ($p = 0.0002$)		odds ratio $= 5.7$ ($p = 0.0001$)	

doubt on the significance of this test at $\alpha = 0.05$. An analogous calculation for *Democratic Percentage* $t+1$ based on the Wilcoxon rank sum test yields a Γ of 3.7 (see Rosenbaum, 2002, Section 4.6).

These are quite large values of Γ for social science. Is it plausible that there exists an unobserved variable u with a strong enough relationship to treatment assignment to result in values of Γ this large? That is, are there believable values of γ and $(u_j - u_k)$ such that $\gamma(u_j - u_k) = \log(\Gamma) = \log(3.7) = 1.3$? One way to approach this question is to examine *Democratic Victory* $t-1$, an observed covariate that is highly imbalanced between treatment and control. In this sample, the Democratic Party was the incumbent party in 33 of the 85 observations, but the proportion among the treated ($25/43 = 0.58$) was much higher than the proportion in control ($8/42 = 0.19$). In fact, as Table 1 indicates, *Democratic Victory* t is at least as strongly associated with the outcome of the previous election as of the next election. The observed proportions of Democratic victories in Democrat-held and Republican-held districts are:

$$\mathrm{P}(\text{Dem. wins}_\mathrm{t} \mid \text{Dem. won}_{\mathrm{t}-1}) = \frac{25}{33} = 0.76 \quad \text{and} \quad \mathrm{P}(\text{Dem. wins}_\mathrm{t} \mid \text{Dem. lost}_{t-1}) = \frac{18}{52} = 0.35$$

The difference in these conditional probabilities is 0.41, and the natural log of their odds ratio is:

$$\log\left(\frac{0.76 \times 0.65}{0.24 \times 0.35}\right) = 1.8 \tag{3}$$

Let us assume for the moment that previous Democratic victory is the only covariate, observed or unobserved, that varies across units. Under this assumption, Equation 2 implies that the expression in Equation 3 is equal to $\gamma(1-0) = \gamma$, where as above γ is coefficient relating u (in this case, previous Democratic victory) to the log odds ratio of treatment. A value of $\gamma = 1.8$ implies that for observations with discordant values of *u*, Γ is no smaller than $e^\gamma \approx 6$.

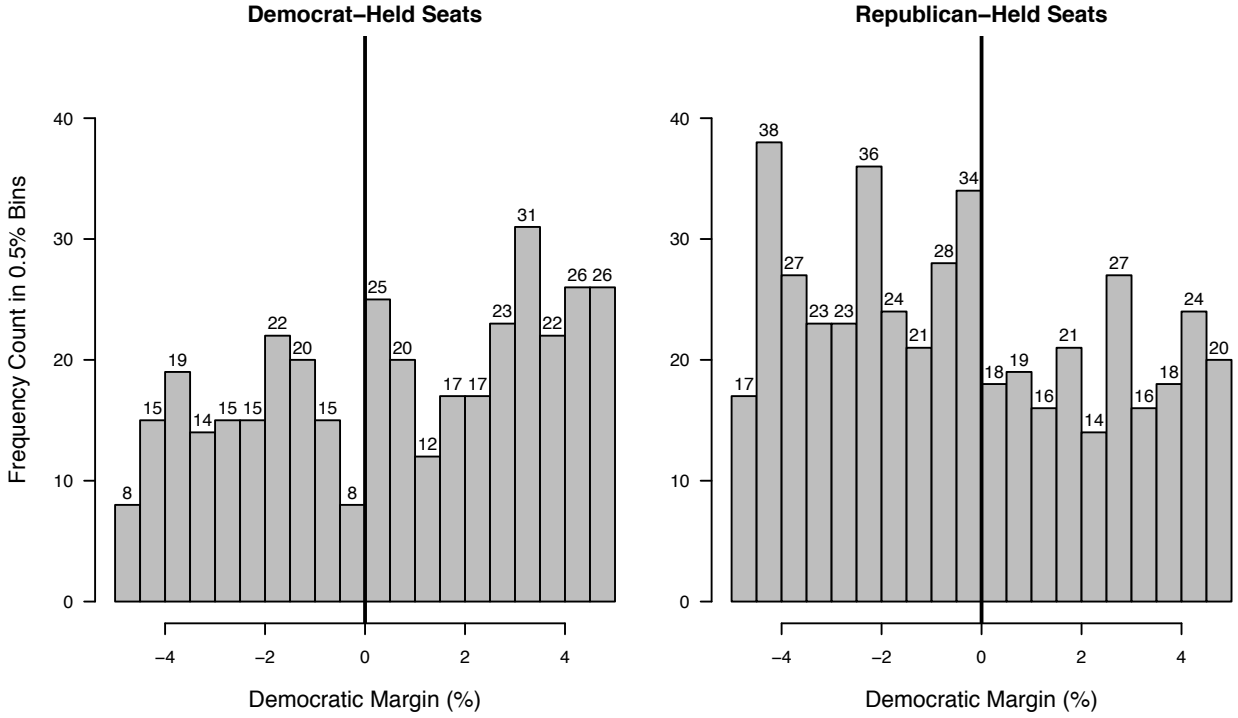
A Γ of 6 would be far more than sufficient to cast doubt on the statistical significance of the estimated treatment effect. However, since previous Democratic victory is not completely imbalanced between treated and control, $\Gamma = 6$ would be an overestimate of the true difference in the odds of treatment (still assuming that no other covariates are imbalanced). A more reasonable guess at the Γ implied by the imbalance in previous Democratic victory can be obtained by multiplying the estimated γ by the treated–control difference in this covariate:

$$\gamma(\bar{u}_T - \bar{u}_C) = 1.8 \times (0.58 - 0.19) = 0.7 = \log(\Gamma) \quad \Rightarrow \quad \Gamma \approx 2$$

This rough calculation suggests that a value of Γ sufficient to cast doubt on the significance of *Democratic Victory* $t+1$ ($\Gamma = 2.4$) is quite plausible. Of course, the preceding analysis is predicated on the assumption that *Democratic Victory* $t-1$ is the only covariate on which observations differ, when in fact imbalance is severe on a number of other observed covariates, such as the candidates' financial resources. Furthermore, these observed covariates are only imperfect proxies for unobservable differences in units' propensity to receive treatment. In light of these facts, a Γ equal to 3.7, which would cast doubt on *Democratic Percent* $t+1$, is well within the realm of possibility. We therefore conclude that despite the magnitude of RD estimates of the party incumbency advantage and the relatively large values of Γ needed to cast doubt on them, such values are in fact plausible based on the extent of imbalance in observed covariates.

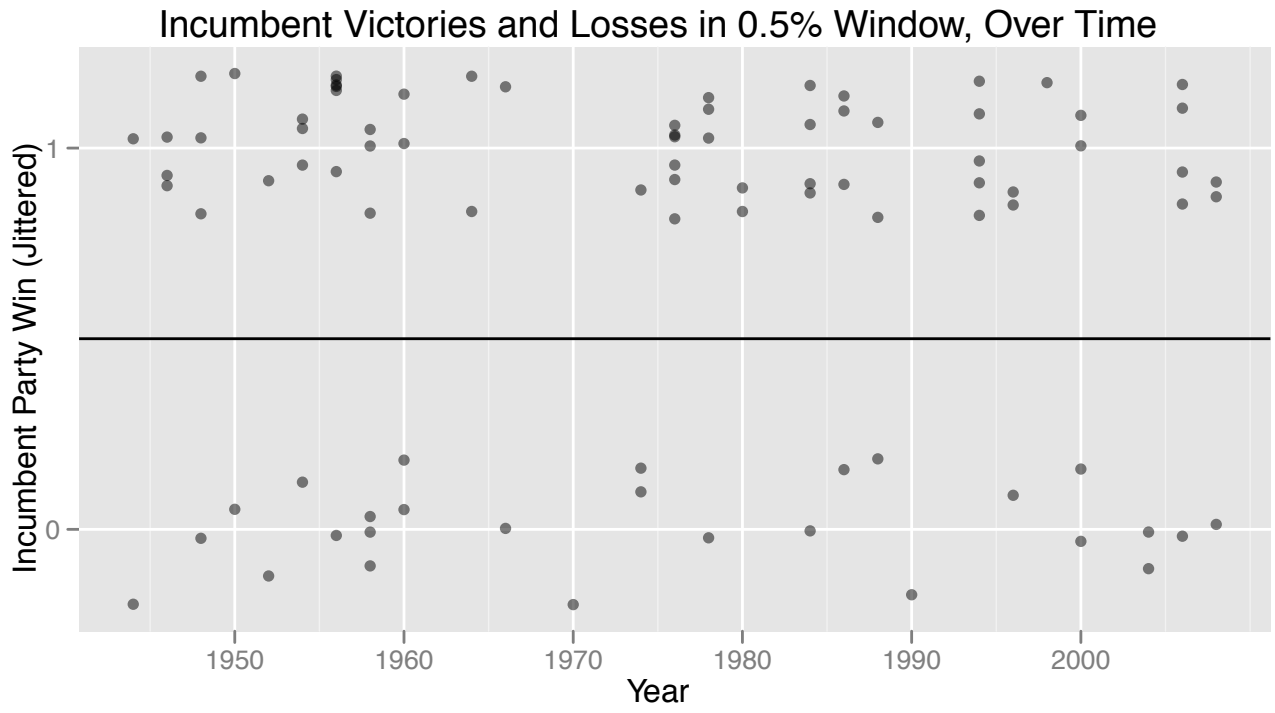
C Margin Histogram by Party

Figure 1: Histogram of *Democratic Margin* t in the neighborhood of the cut-point, broken down by incumbent party.



D Covariate Imbalance Over Time

Figure 2: Incumbent victories and losses in a 0.5% window, plotted over time



E Local Linear Regression Estimates of Covariate Discontinuities

The following section presents local linear regression estimates of the discontinuity in covariate distributions at the cut-point. All covariates in the balance plot in the paper are included, except for *Democrat's Previous Terms*, *Opponent's Previous Terms*, and *CQ Rating*, for which complete data are available only in close races.

E.1 Imbens–Kalyanaraman (2009a) Local Linear Estimates

The estimated covariate discontinuities at the cut-point listed below were calculated using the Stata program `rdob` (Imbens and Kalyanaraman, 2009b; Fuji, Imbens, and Kalyanaraman, 2009). The sample of elections consists of districts that existed the same form in the previous and subsequent elections and for which *Democratic Margin* $t-1$ and $t+1$ are available. The *p*-values are two-sided and based on the normal quantile of the z-score.

Democratic Victory $t-1$	
I-K optimal bandwidth:	1.80
RD point estimate:	0.431
RD standard error:	0.112
p-value:	< 0.001

Democratic Incumbent in Race	
I-K optimal bandwidth:	1.76
RD point estimate:	0.422
RD standard error:	0.106
p-value:	< 0.001

Democratic Percent Share $t-1$	
I-K optimal bandwidth:	7.33
RD point estimate:	2.98
RD standard error:	1.70
p-value:	0.079

Non-Democratic Incumbent in Race	
I-K optimal bandwidth:	2.18
RD point estimate:	-0.374
RD standard error:	0.108
p-value:	< 0.001

Democratic Percent Margin $t-1$	
I-K optimal bandwidth:	7.39
RD point estimate:	5.81
RD standard error:	3.38
p-value:	0.086

Republican Experience Advantage	
I-K optimal bandwidth:	2.47
RD point estimate:	-0.336
RD standard error:	0.102
p-value:	< 0.001

Incumbent's 1st-Dimension DW-NOMINATE	
I-K optimal bandwidth:	2.02
RD point estimate:	-0.274
RD standard error:	0.077
p-value:	< 0.001

Democratic Experience Advantage	
I-K optimal bandwidth:	1.86
RD point estimate:	0.345
RD standard error:	0.105
p-value:	< 0.001

Partisan Swing		*Democratic Governor*	
I-K optimal bandwidth:	4.73	I-K optimal bandwidth:	2.99
RD point estimate:	-3.14	RD point estimate:	-0.036
RD standard error:	1.24	RD standard error:	.097
p-value:	0.012	*p*-value:	0.711

Democratic Spending Percentage		*Democratic Presidential Percent Margin*	
I-K optimal bandwidth:	7.24	I-K optimal bandwidth:	1.84
RD point estimate:	7.12	RD point estimate:	0.013
RD standard error:	1.13	RD standard error:	0.039
p-value:	< 0.001	*p*-value:	0.731

Democratic Donation Percentage		*Democrat-Held Open Seat*	
I-K optimal bandwidth:	5.51	I-K optimal bandwidth:	2.21
RD point estimate:	7.84	RD point estimate:	0.030
RD standard error:	1.38	RD standard error:	0.058
p-value:	< 0.001	*p*-value:	0.608

Democratic Secretary of State		*Non-Democrat-Held Open Seat*	
I-K optimal bandwidth:	2.37	I-K optimal bandwidth:	1.76
RD point estimate:	0.177	RD point estimate:	-0.050
RD standard error:	0.106	RD standard error:	0.087
p-value:	0.094	*p*-value:	0.565

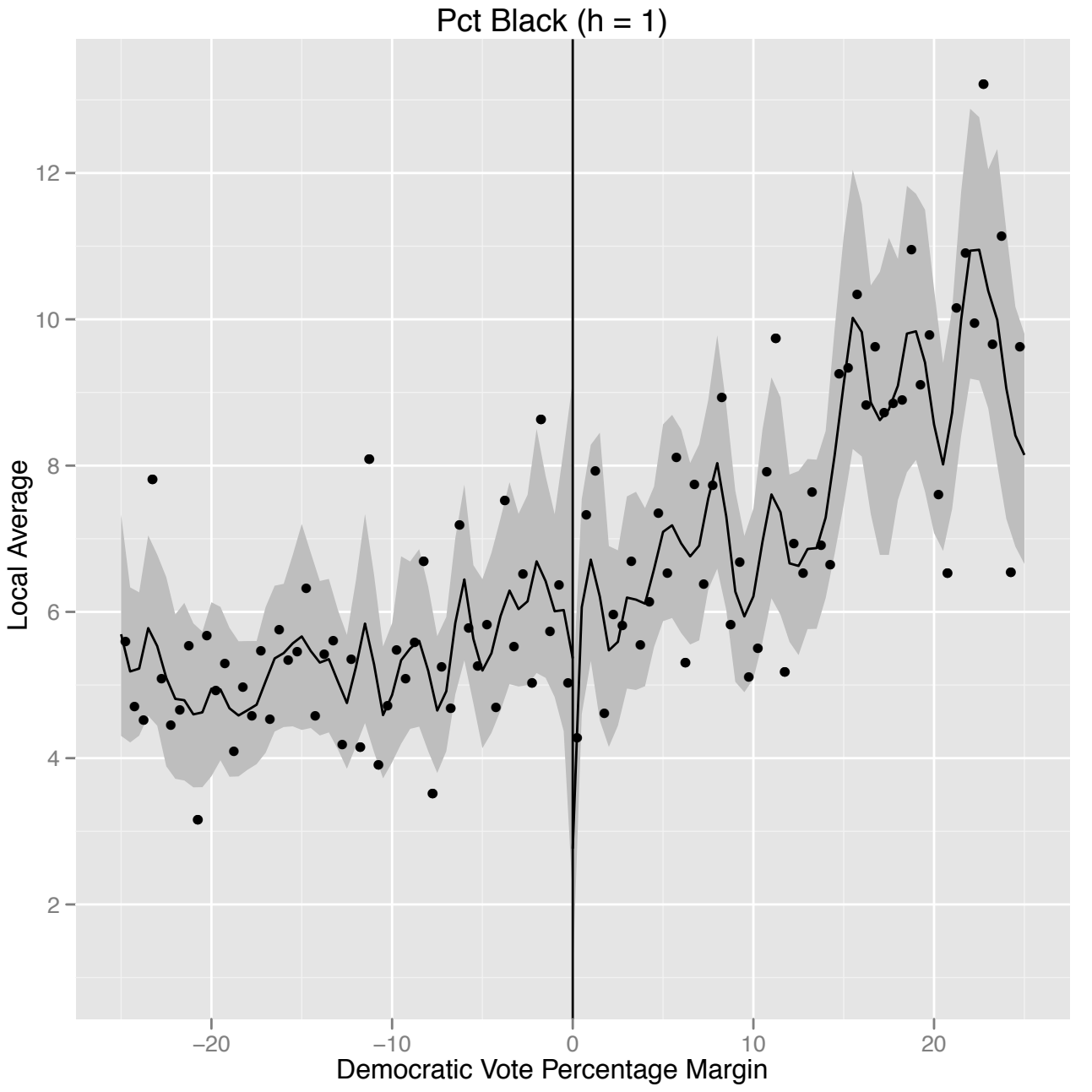
Open Seat		*District Percent Urban*	
I-K optimal bandwidth:	1.99	I-K optimal bandwidth:	9.01
RD point estimate:	-0.017	RD point estimate:	4.67
RD standard error:	0.097	RD standard error:	2.64
p-value:	0.856	p-value:	0.077

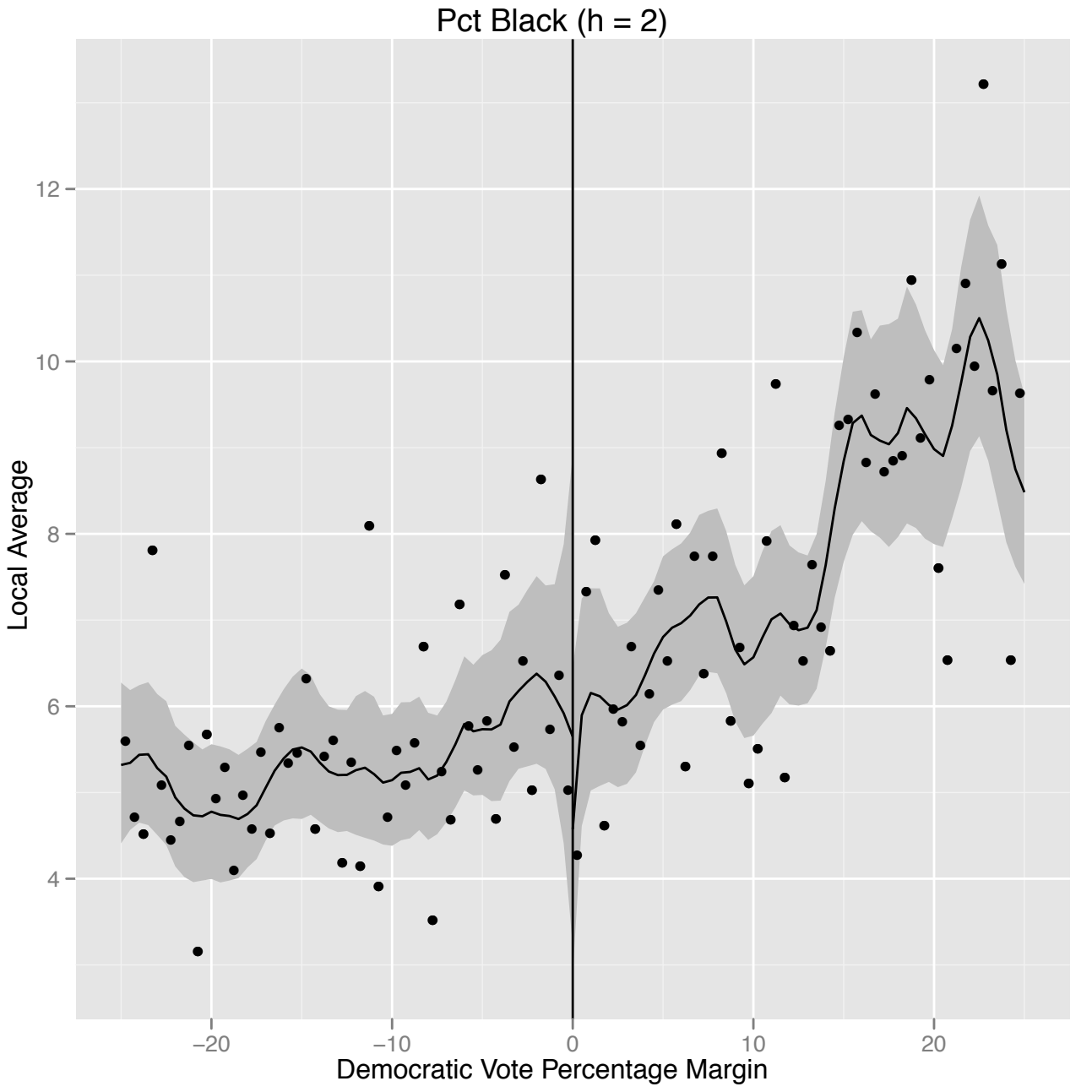
Voter Turnout Percent		*District Percent Black*	
I-K optimal bandwidth:	6.74	I-K optimal bandwidth:	6.41
RD point estimate:	0.363	RD point estimate:	-0.086
RD standard error:	2.52	RD standard error:	1.02
p-value:	0.885	p-value:	0.933

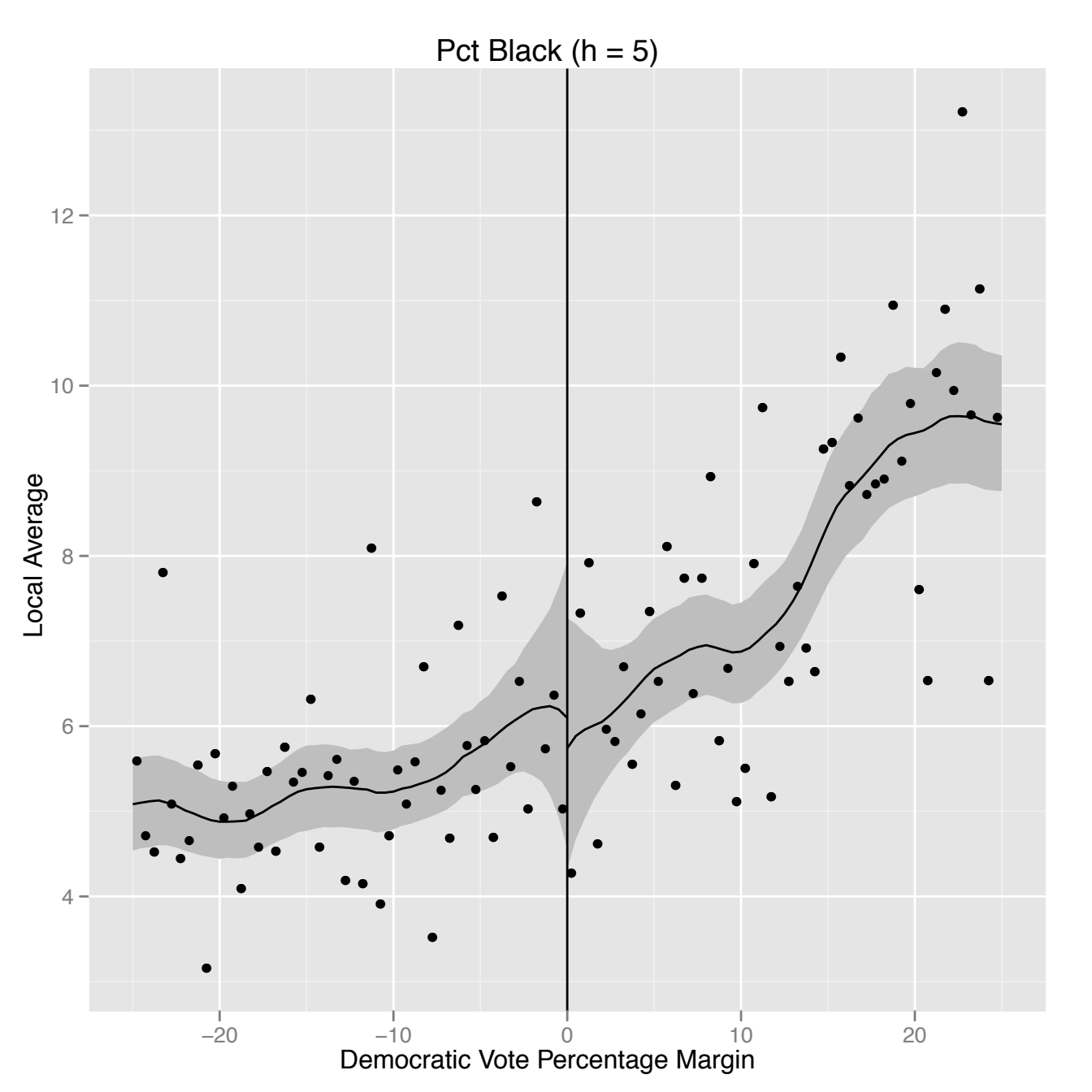
District Percent Government Worker		*District Percent Foreign-Born*	
I-K optimal bandwidth:	3.07	I-K optimal bandwidth:	4.87
RD point estimate:	0.518	RD point estimate:	0.546
RD standard error:	0.455	RD standard error:	0.742
p-value:	0.255	p-value:	0.462

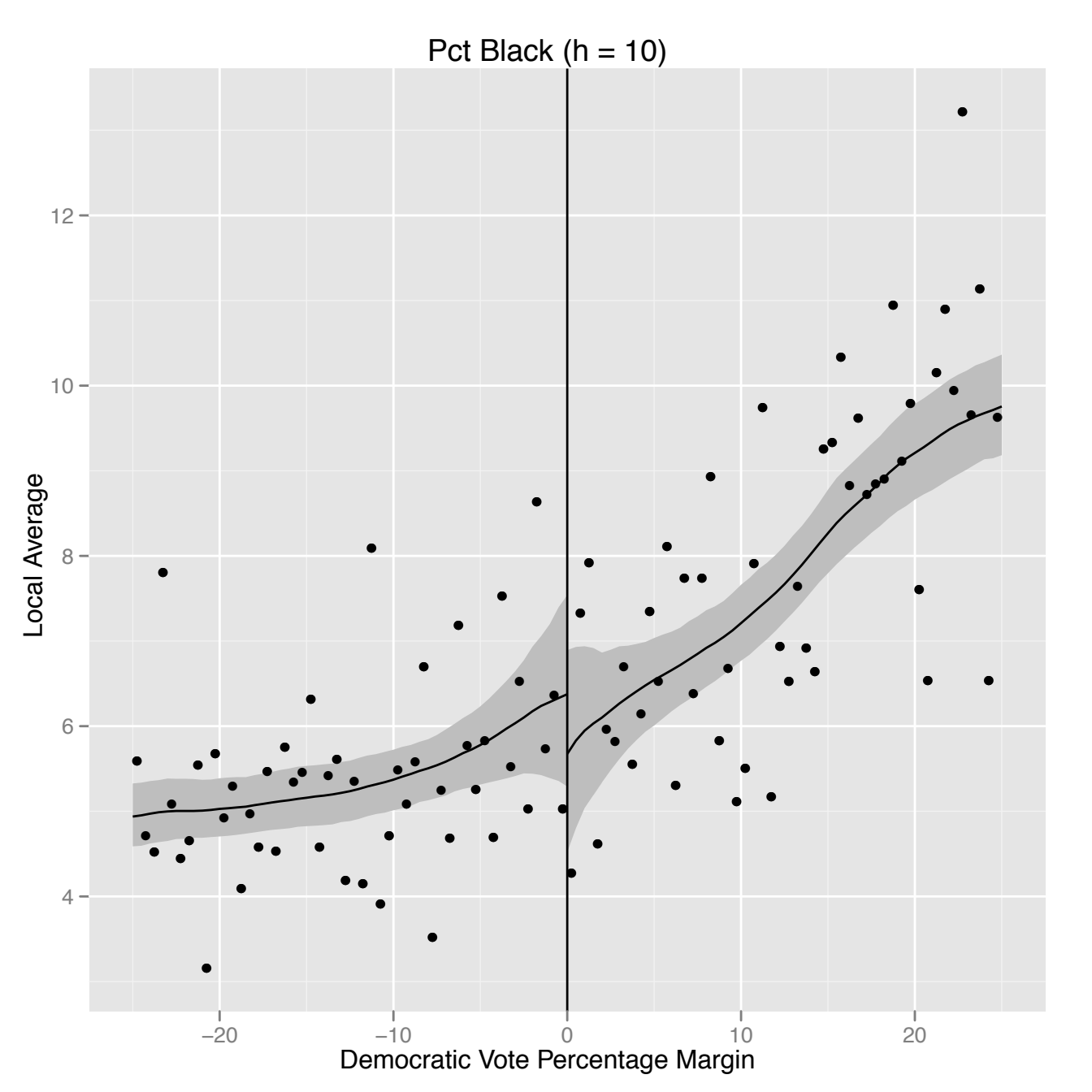
E.2 Bootstrapped Local Linear Regression Plots

The plots on the following pages display the fitted values of local linear regressions fitted separately to the left and rights side of the cut-point. The gray area around the fitted line represents a 95% confidence interval of the fit, based on 1,000 bootstrap samples. For each of the 22 covariates, six bandwidths (h) were tested: 1, 2, 5, 10, 15, and 20. Observations were weighted according to a triangular (edge) kernel, which gives positive weight to observations within $\pm h$ of the point at which the value is being estimated. In contrast with Figure 2 in the paper and Section E.1 above, each plot uses is based on all elections 1942–2008 for which data on the respective covariate are available. The plots appear in the following order: (1) *Percent Black in District*, (2) *Democratic Donation Percent*, (3) *Democratic Incumbent in Race*, (4) *Democratic Open Seat*, (5) *Democratic Experience Advantage*, (6) *Democratic Margin* $t-1$, (7) *Average Democratic Presidential Margin over Decade*, (8) *Democratic Percentage* $t-1$, (9) *Democratic Spending Percentage*, (10) *Democratic Victory* $t-1$, (11) *Election Swing*, (12) *Percent Foreign-Born in District*, (13) *Democratic Governor*, (14) *Percent Government Worker in District*, (15) *Incumbent's 1st Dimension DW-NOMINATE*, (16) *Non-Democratic Incumbent in Race*, (17) *Non-Democratic Open Seat*, (18) *Open Seat*, (19) *Republican Experience Advantage*, (20) *Democratic Secretary of State*, (21) *Percent Urban in District*, and (22) *Total Votes as Percentage of District Population*.


Pct Black (h = 1)
Local Average
12
10
8
6
4
2
−20
−10
0
10
20
Democratic Vote Percentage Margin


Pct Black (h = 2)
Local Average
12
10
8
6
4
−20
−10
0
10
20
Democratic Vote Percentage Margin


Pct Black (h = 5)
Local Average
12
10
8
6
4
−20
−10
0
10
20
Democratic Vote Percentage Margin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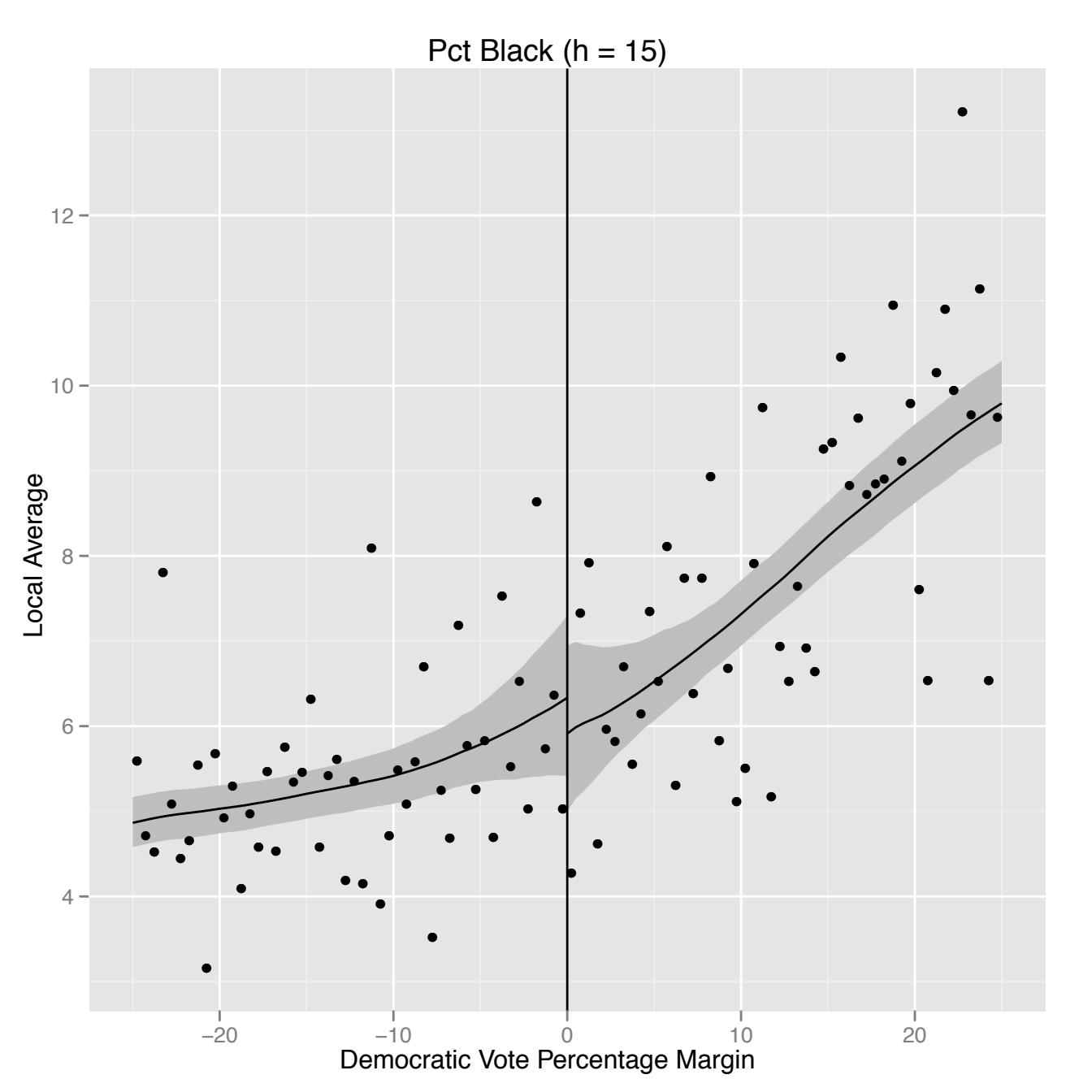
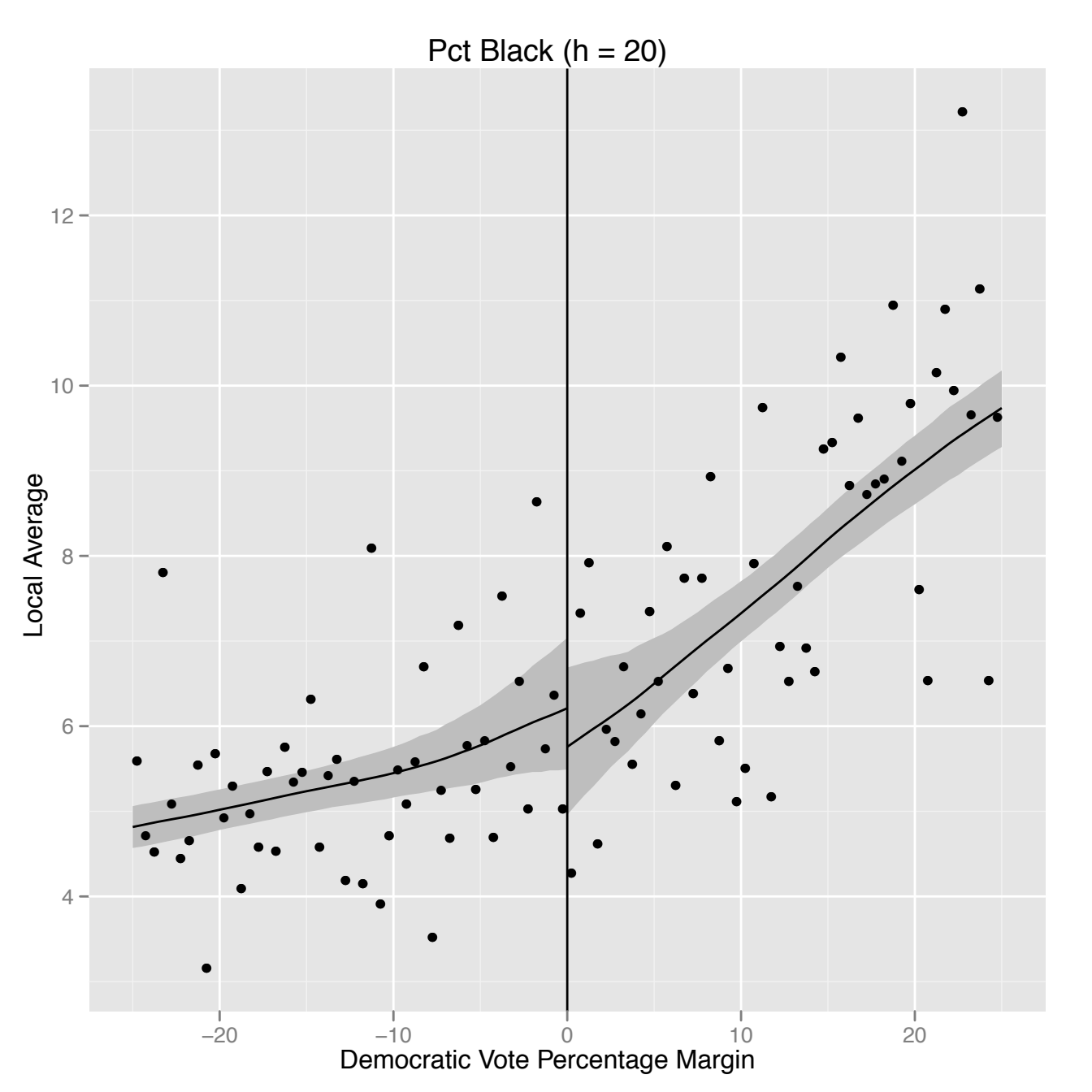
Local Average
12
10
8
6
4
−20
−10
0
10
20
Democratic Vote Percentage Margin


Pct Black (h = 15)
Local Average
12
10
8
6
4
−20
−10
0
10
20
Democratic Vote Percentage Margin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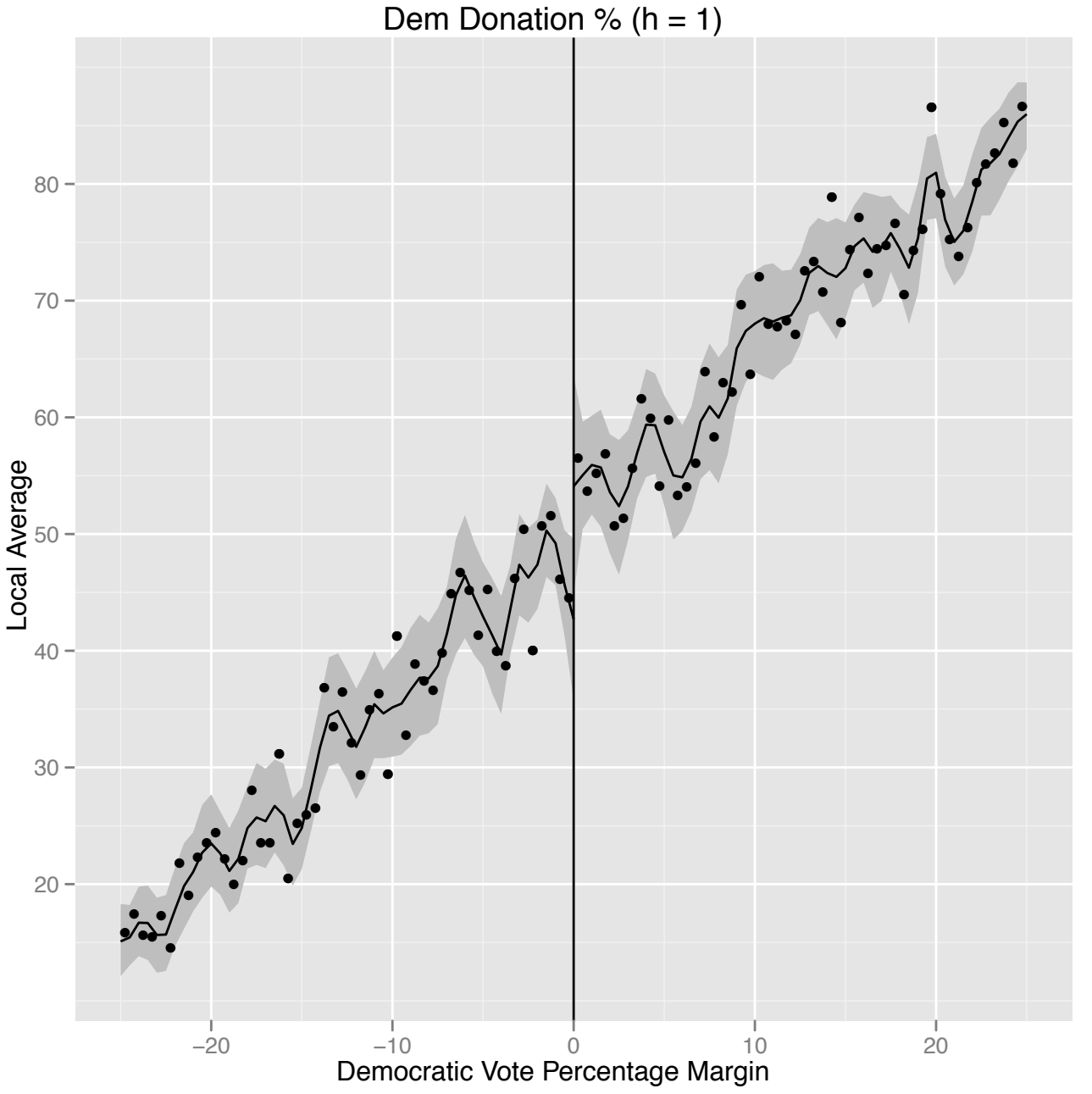
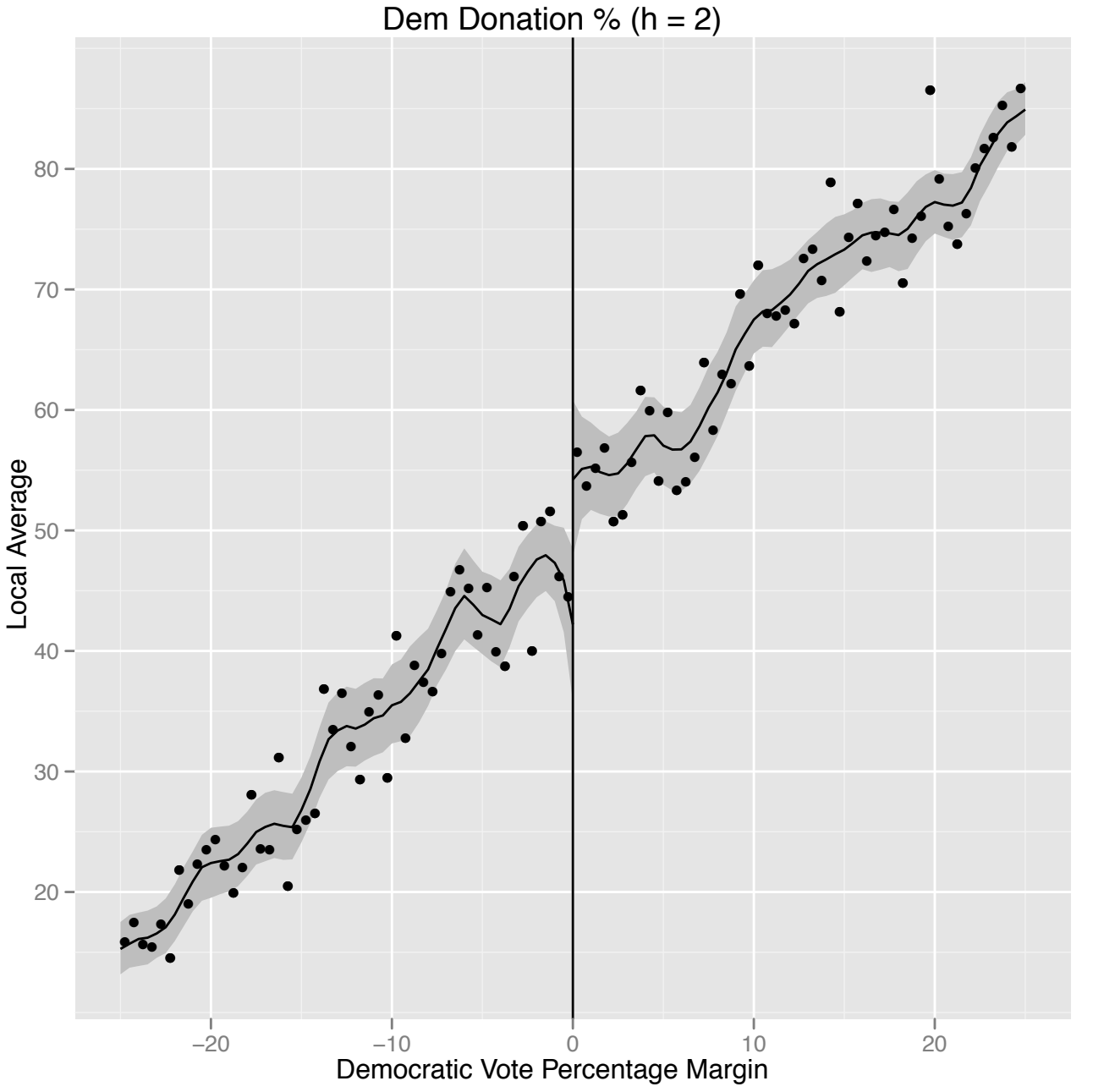
Local Average
12
10
8
6
4
−20
−10
0
10
20
Democratic Vote Percentage Margin


Dem Donation % (h = 1)
Local Average
80
70
60
50
40
30
20
−20
−10
0
10
20
Democratic Vote Percentage Margin


Dem Donation % (h = 2)
Local Average
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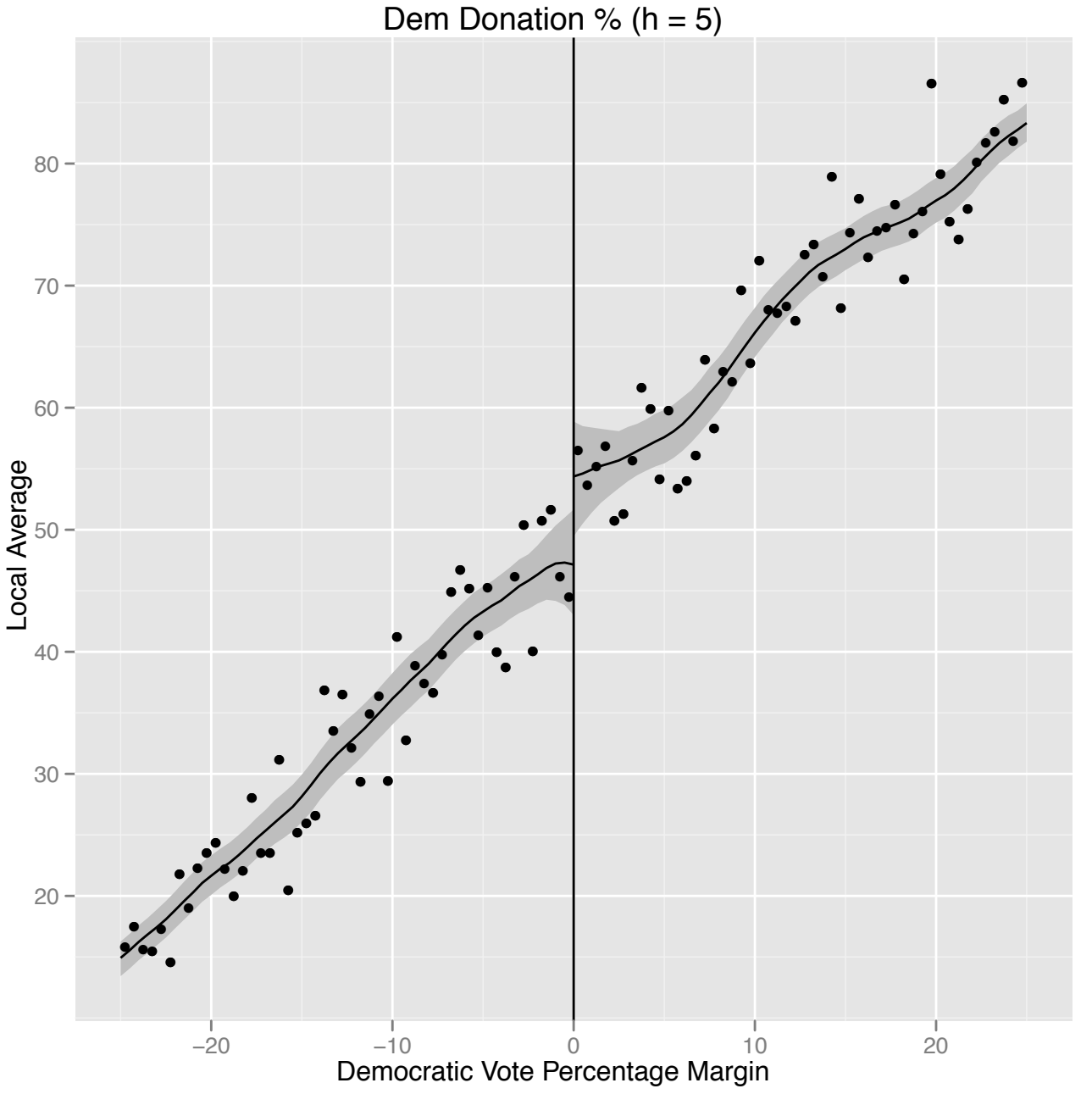
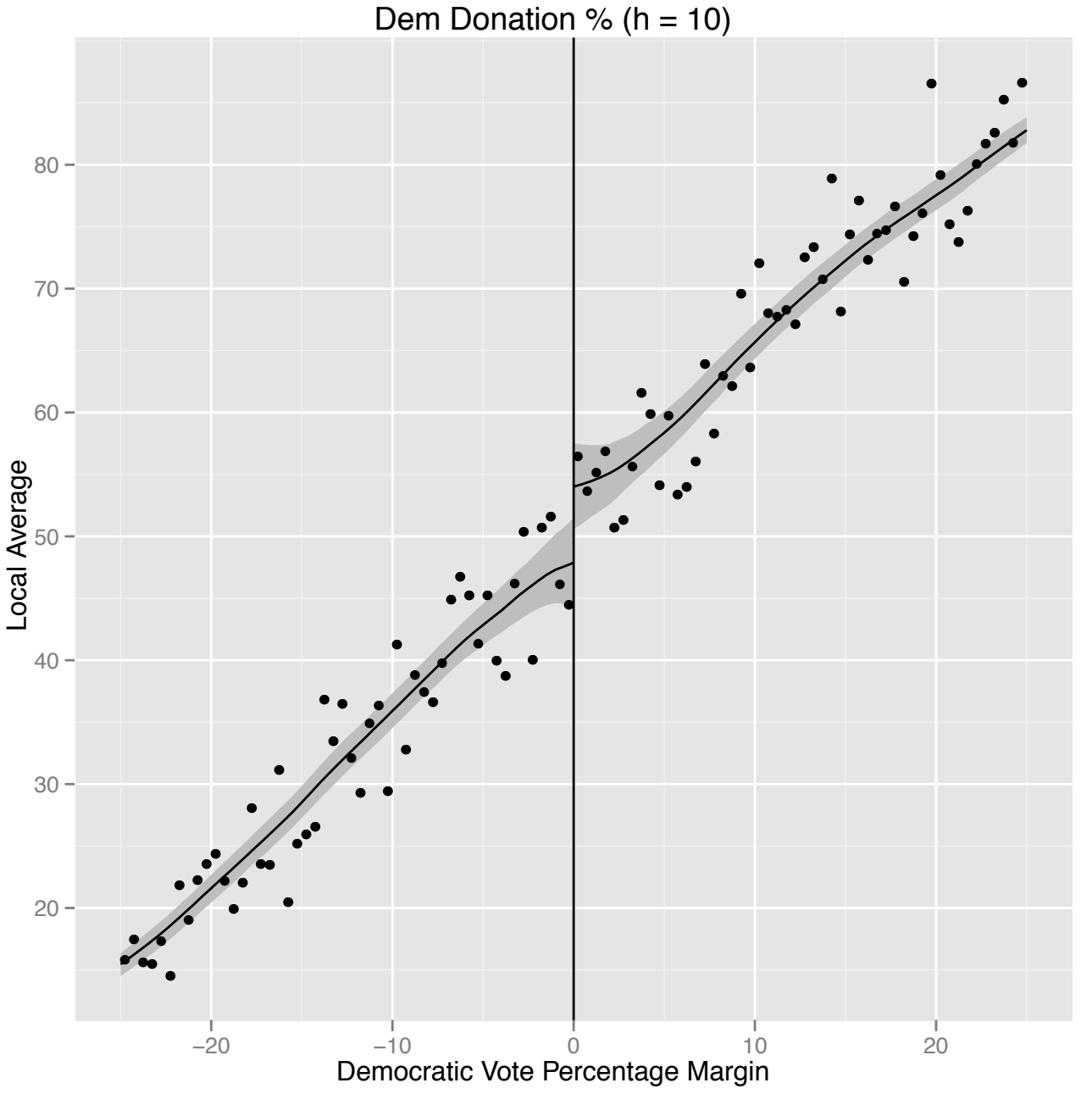
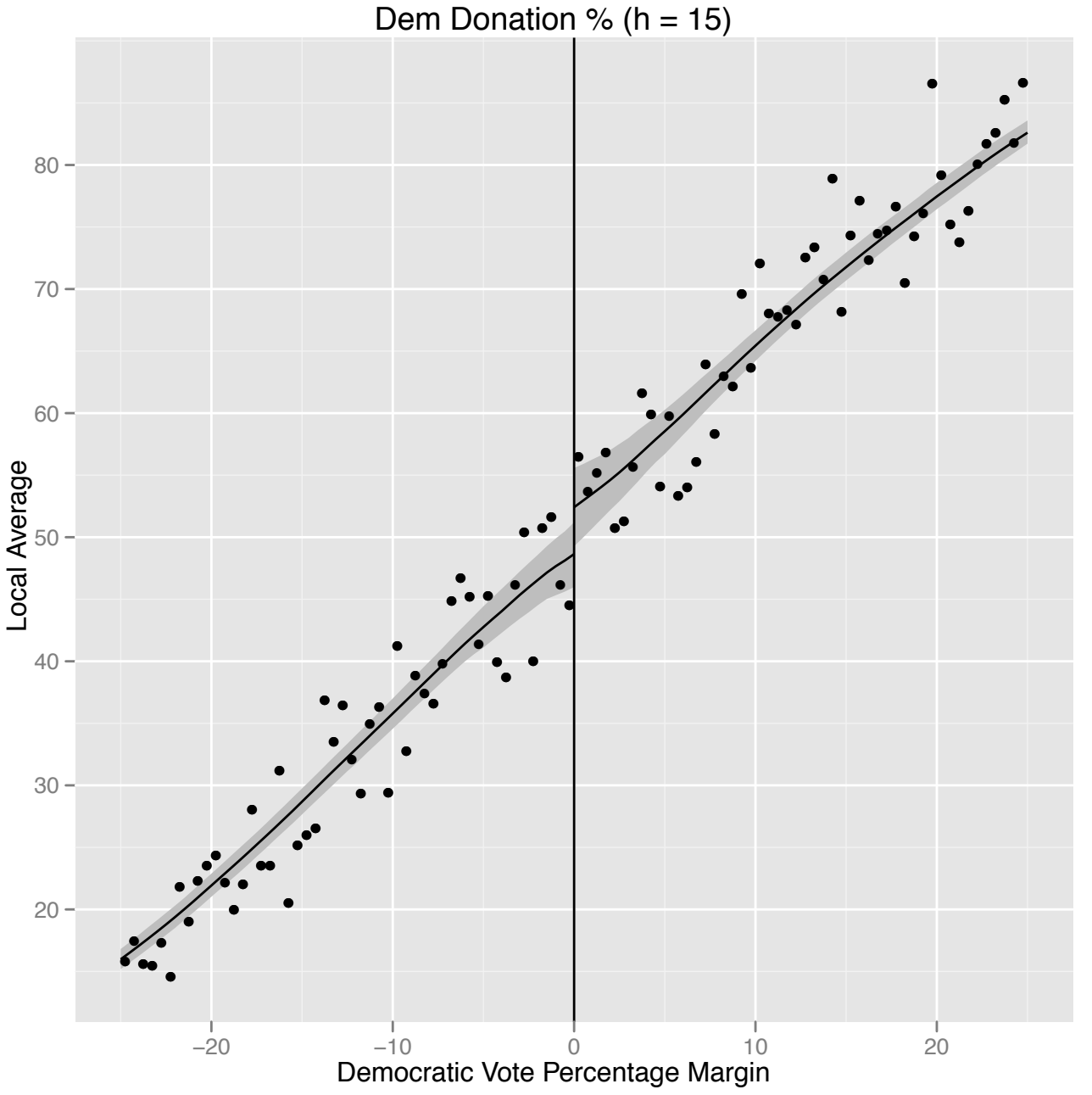
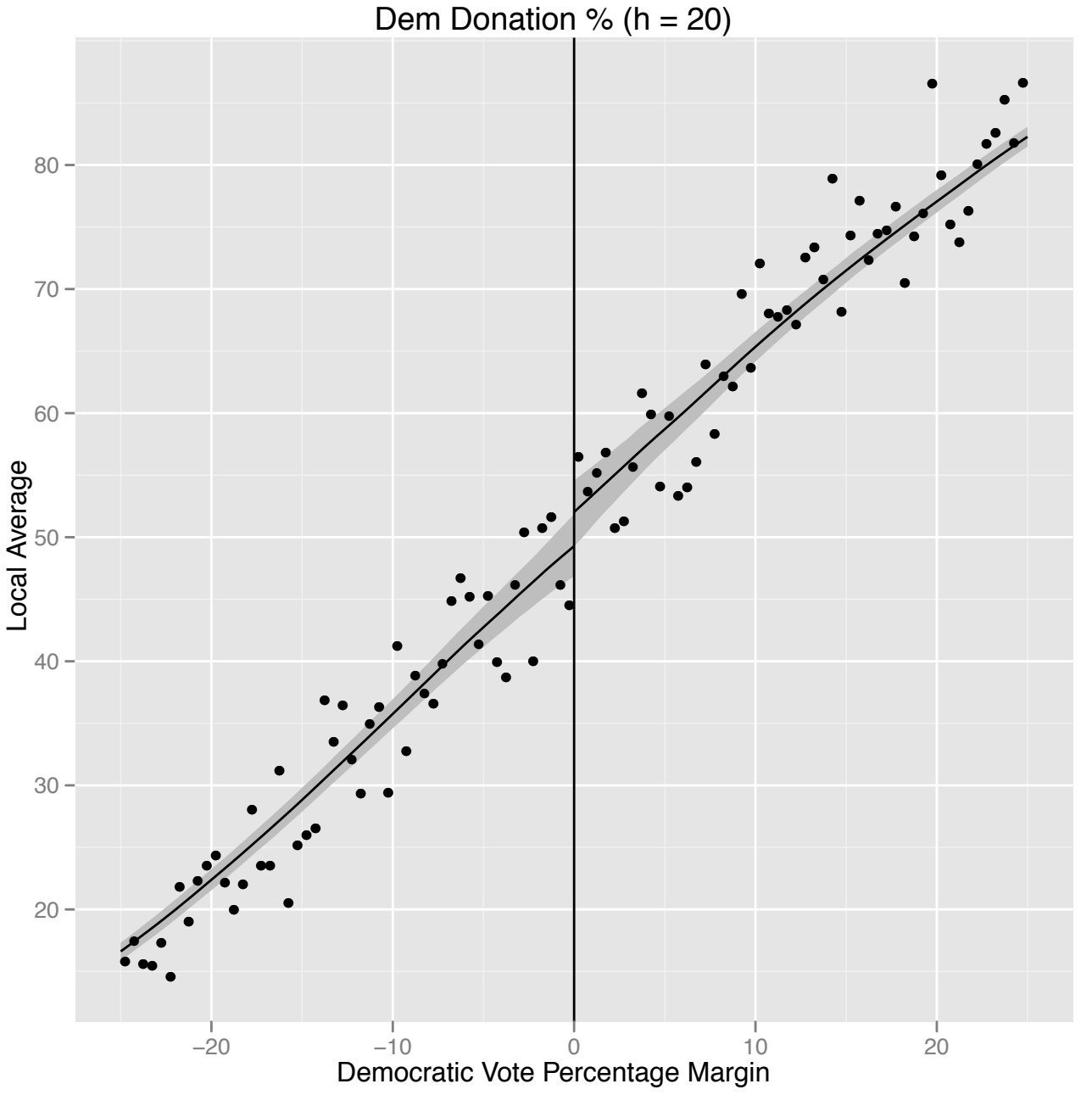
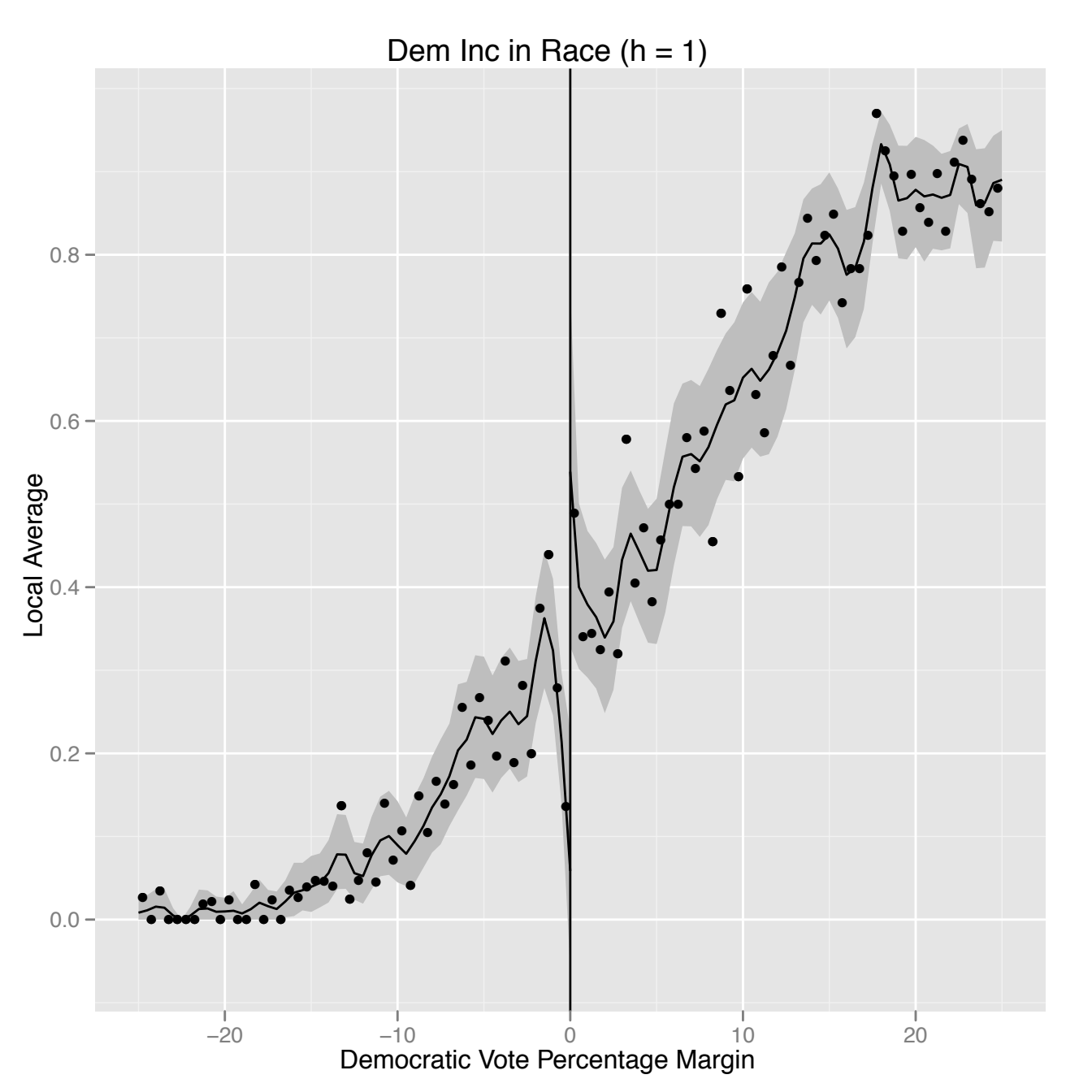
70
60
50
40
30
20
−20
−10
0
10
20
Democratic Vote Percentage Margin

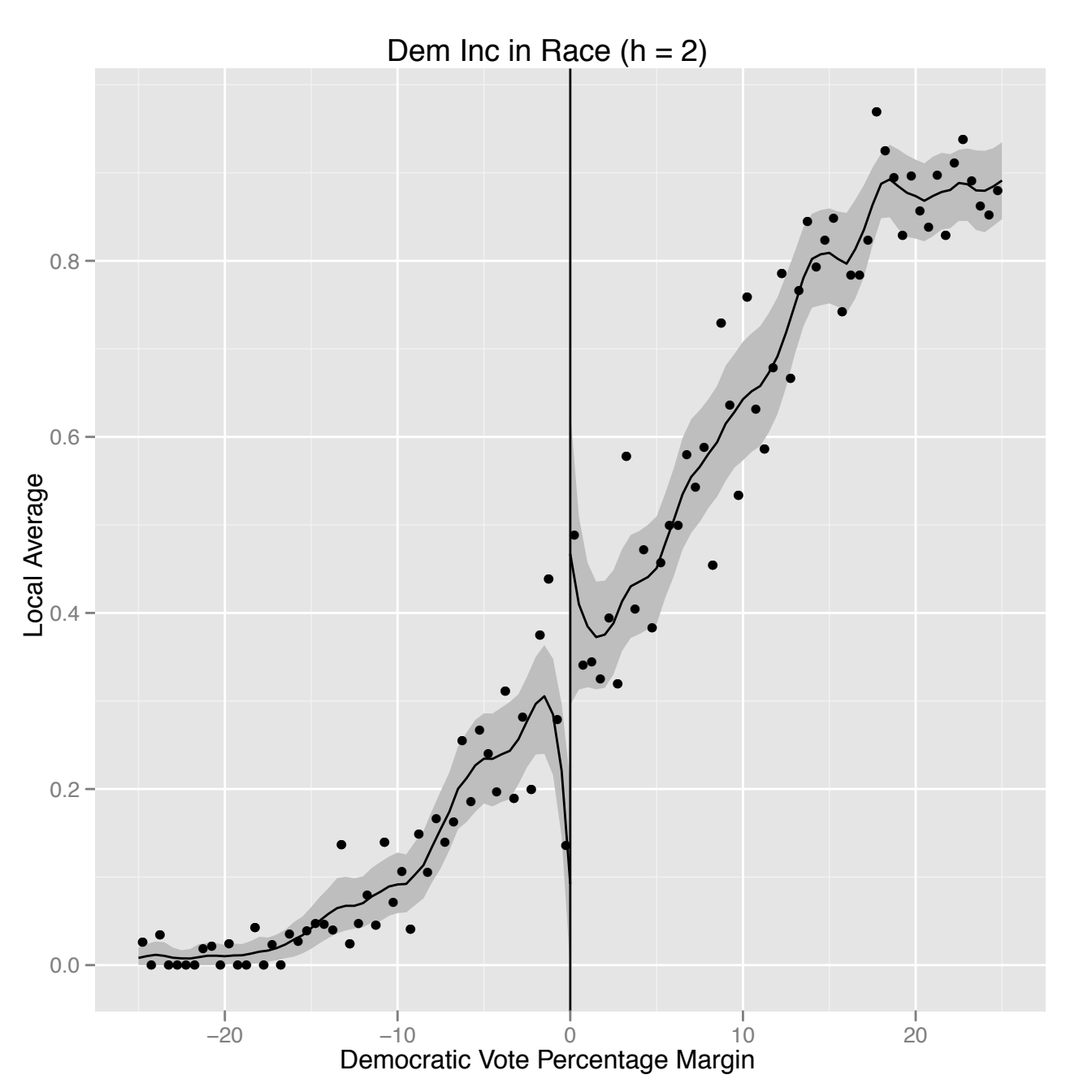

Dem Donation % (h = 5)
Local Average
80
70
60
50
40
30
20
−20
−10
0
10
20
Democratic Vote Percentage Margin

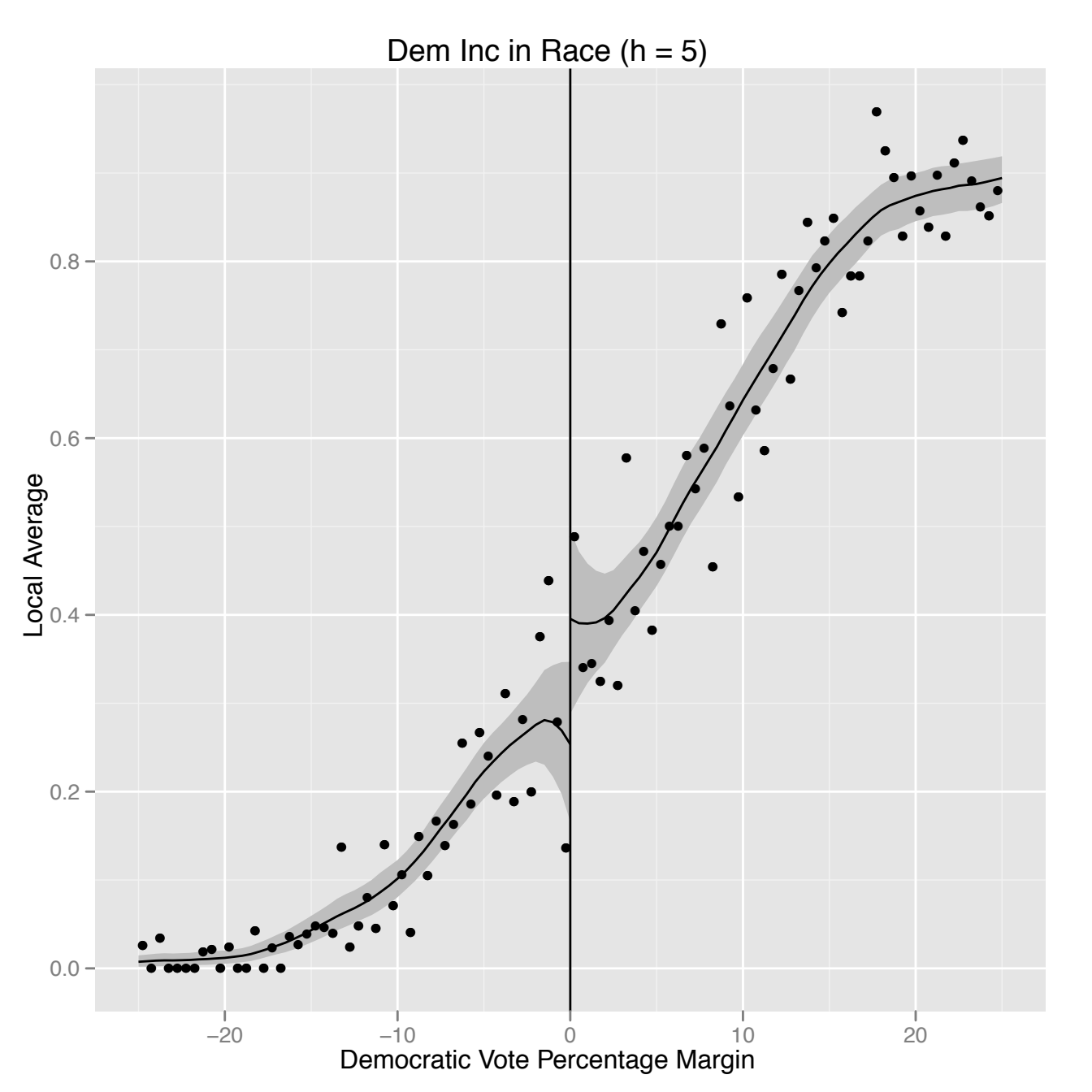

Dem Donation % (h = 10)
Local Average
80
70
60
50
40
30
20
−20
−10
0
10
20
Democratic Vote Percentage Margin

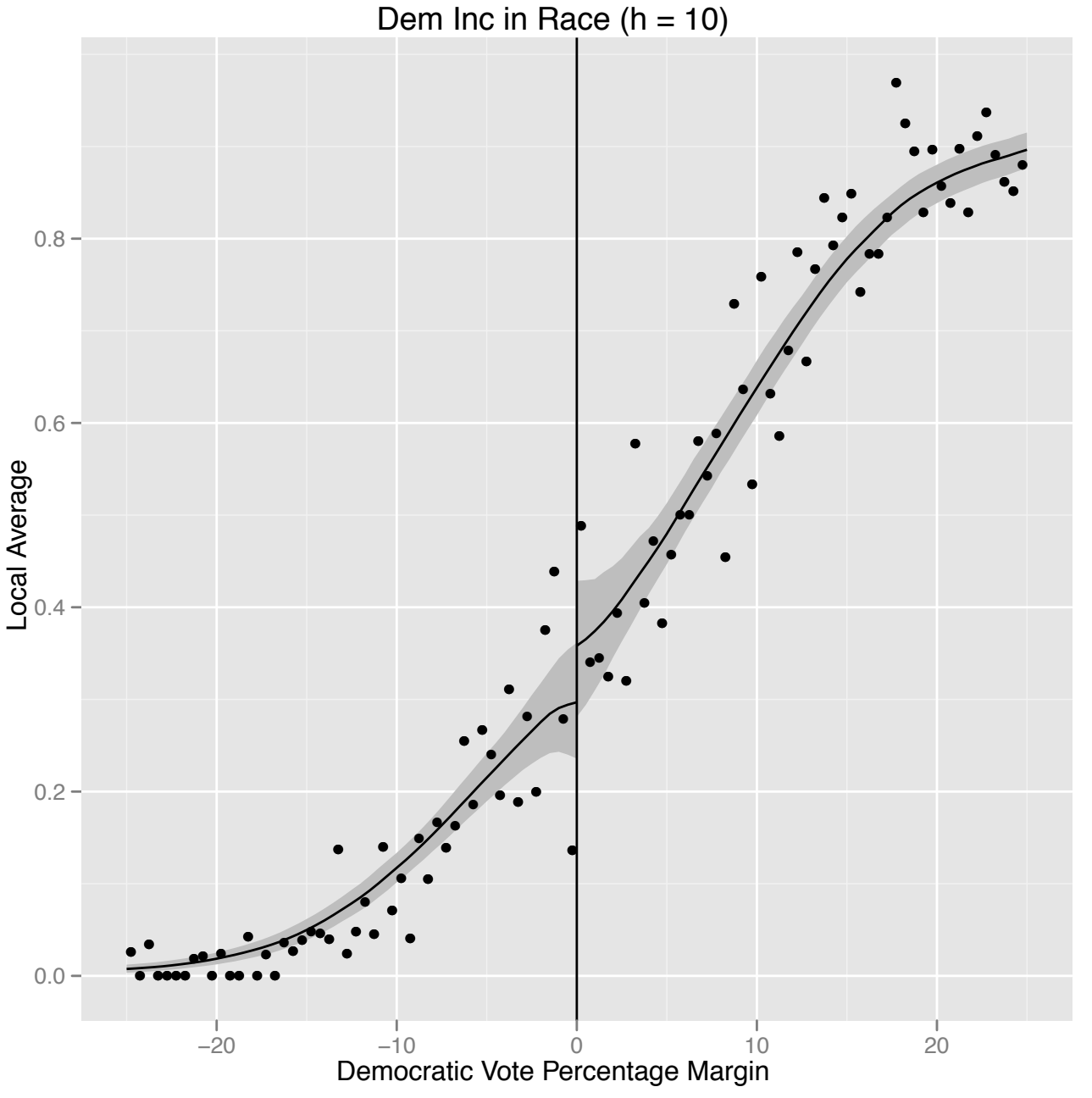

Dem Donation % (h = 15)
Local Average
80
70
60
50
40
30
20
−20
−10
0
10
20
Democratic Vote Percentage Margin

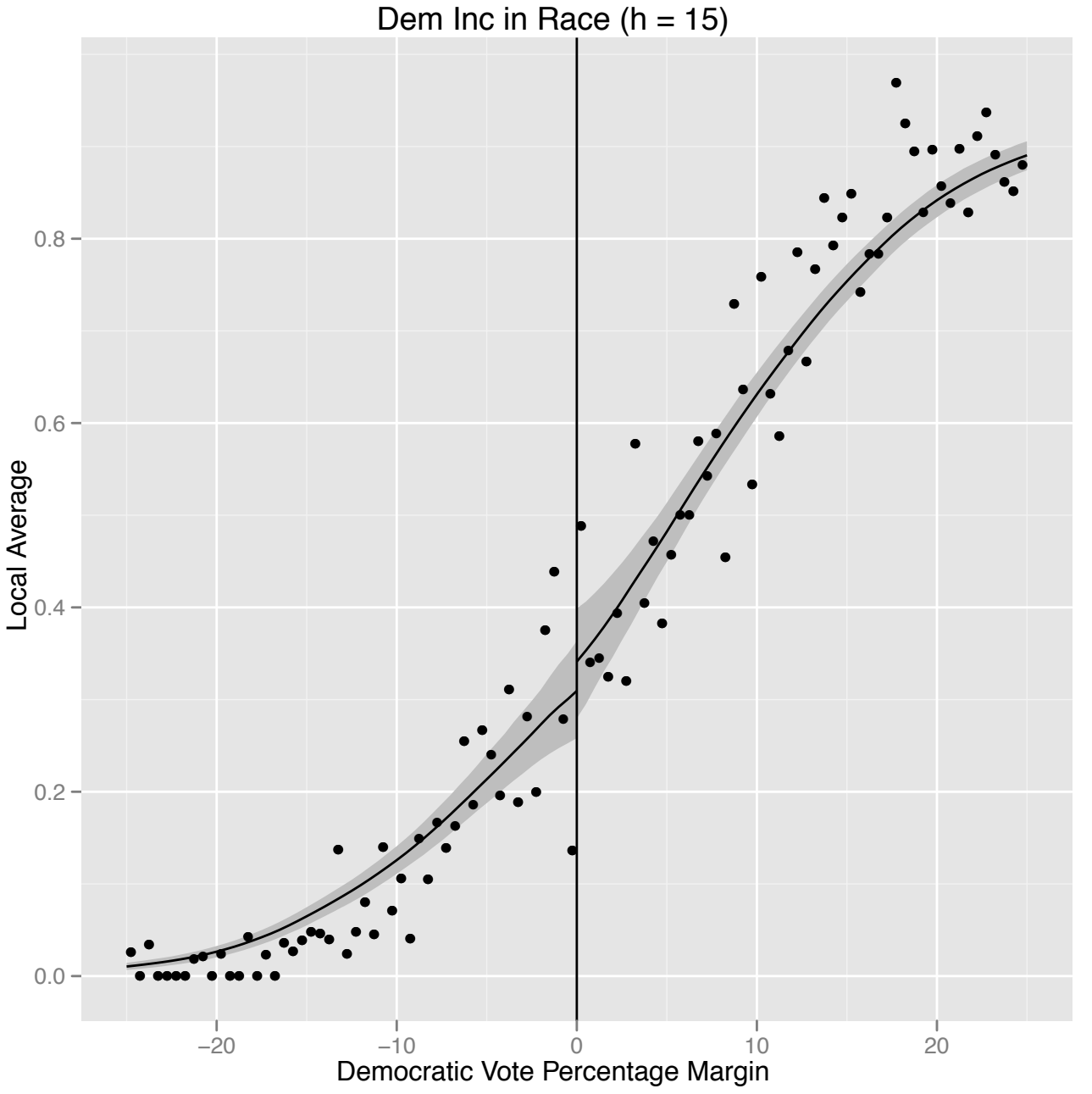

Dem Donation % (h = 20)
Local Average
80
70
60
50
40
30
20
−20
−10
0
10
20
Democratic Vote Percentage Margin

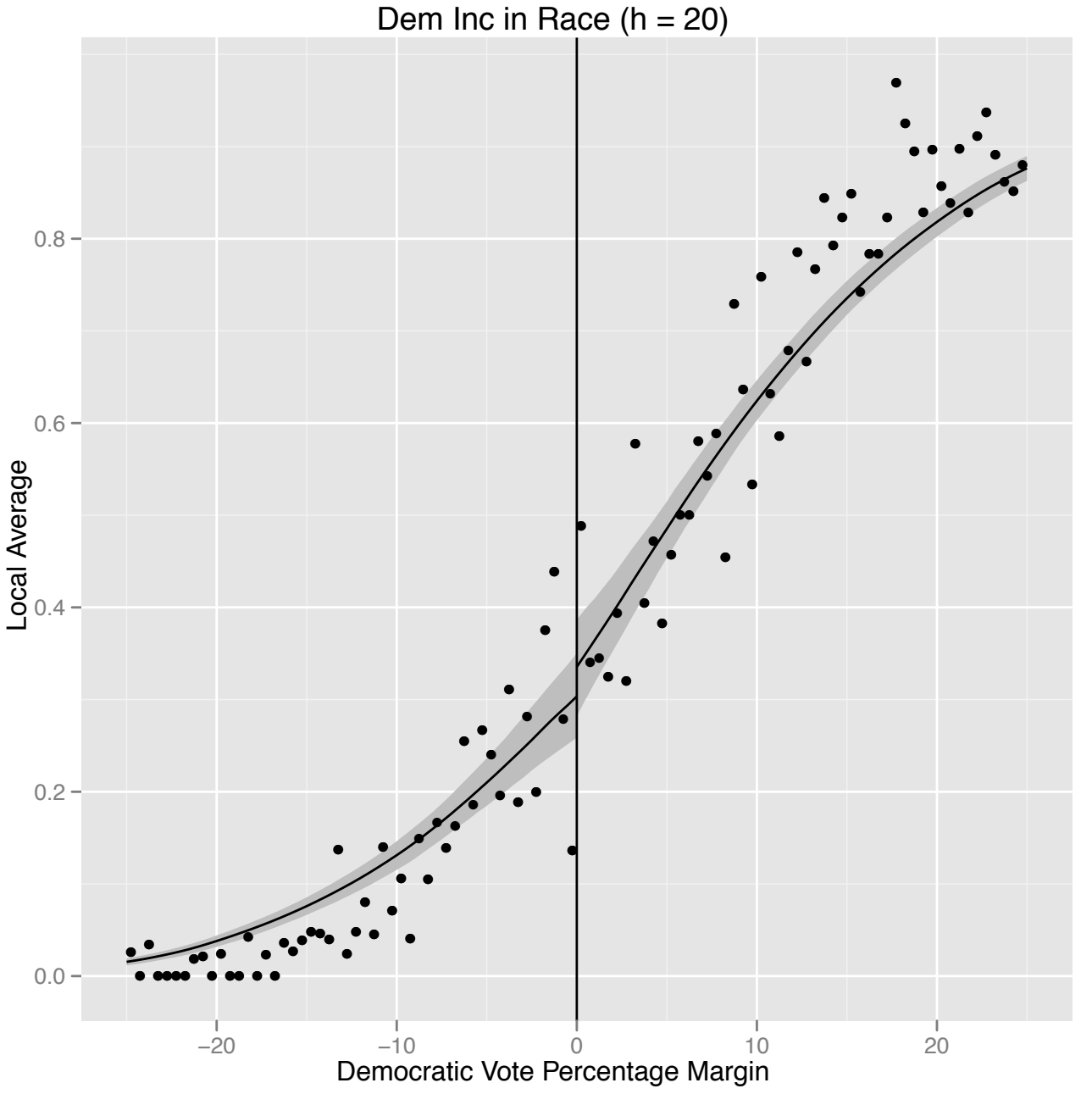

Dem Inc in Race (h = 1)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

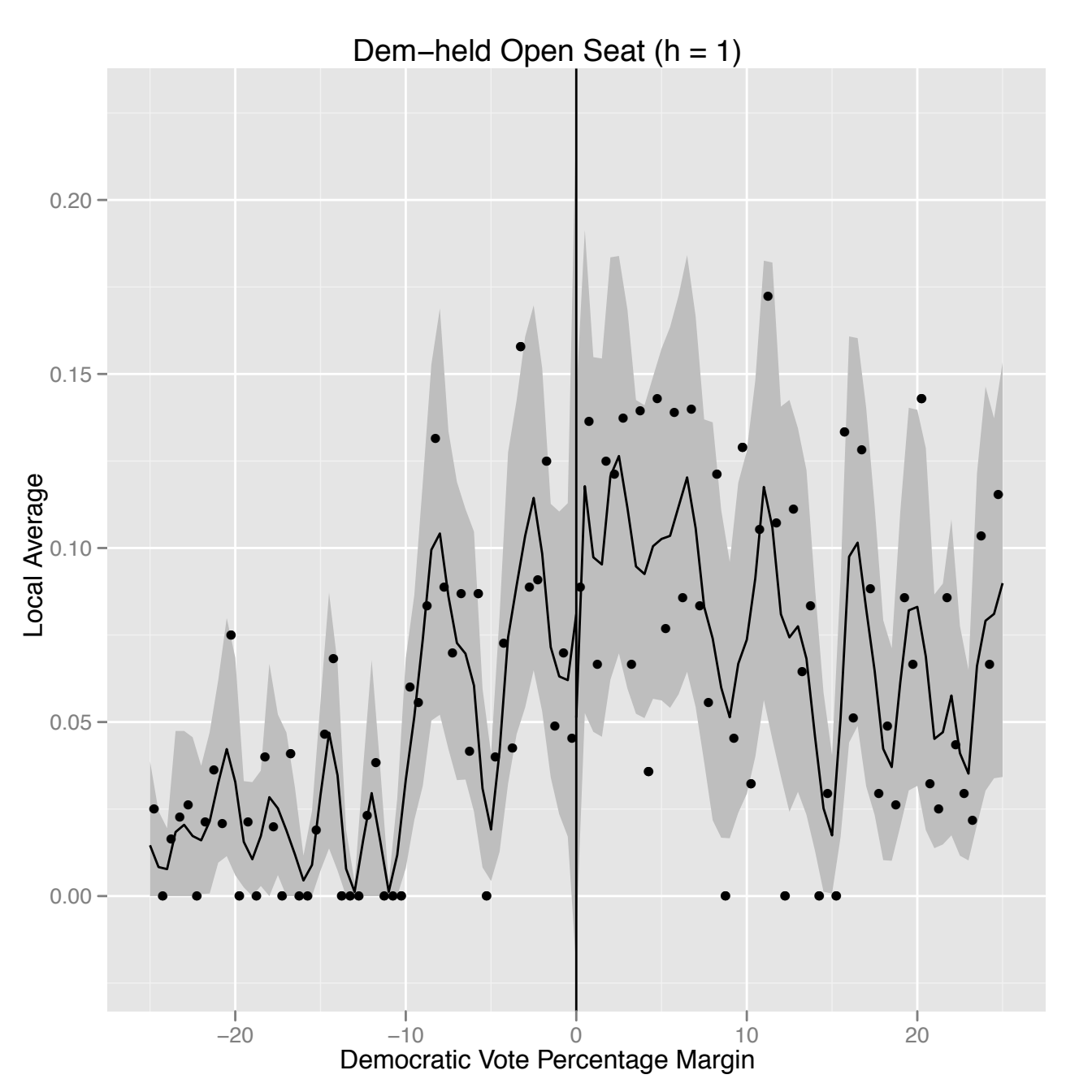

Dem Inc in Race (h = 2)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin


Dem Inc in Race (h = 5)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

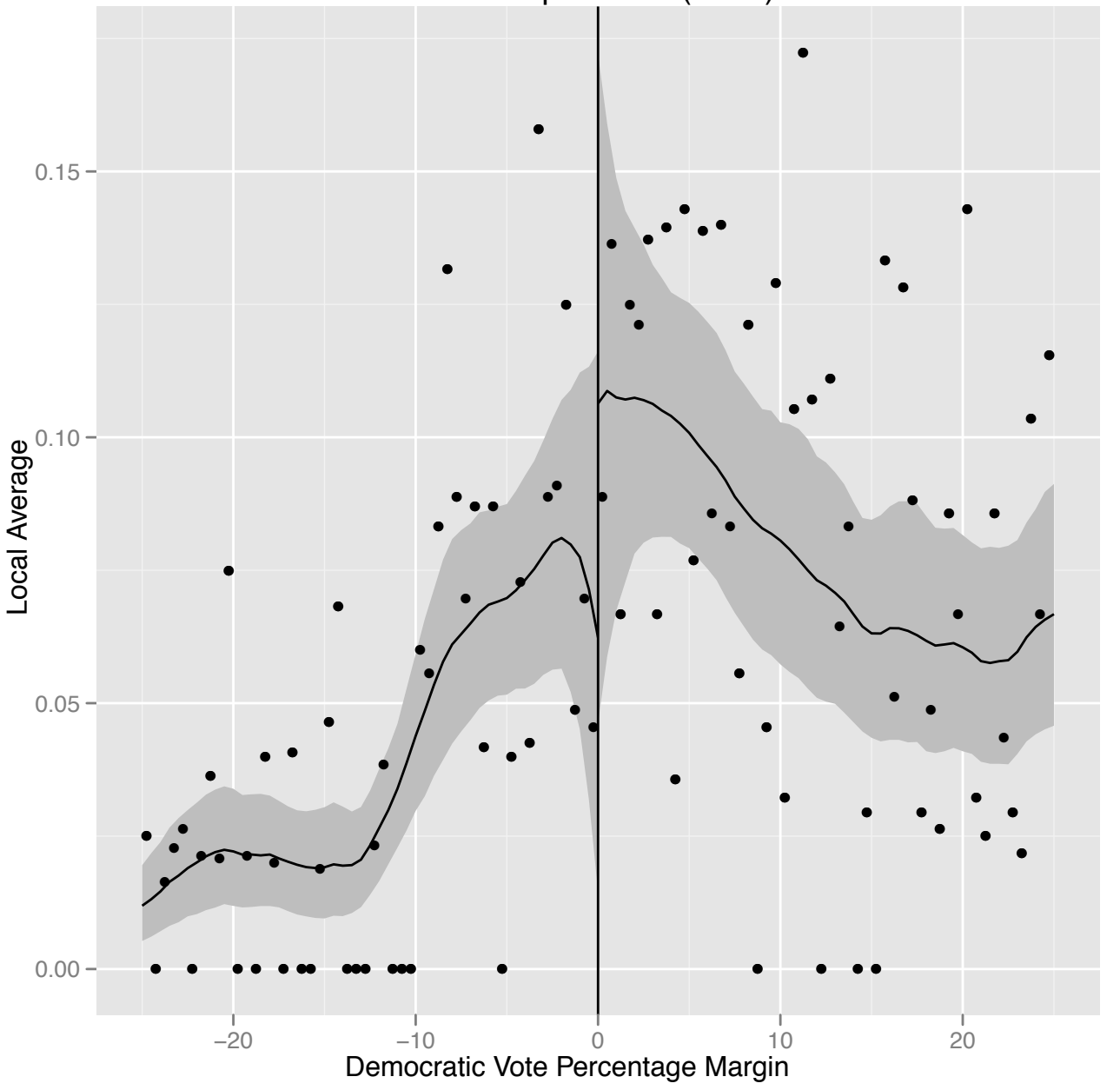

Dem Inc in Race (h = 10)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

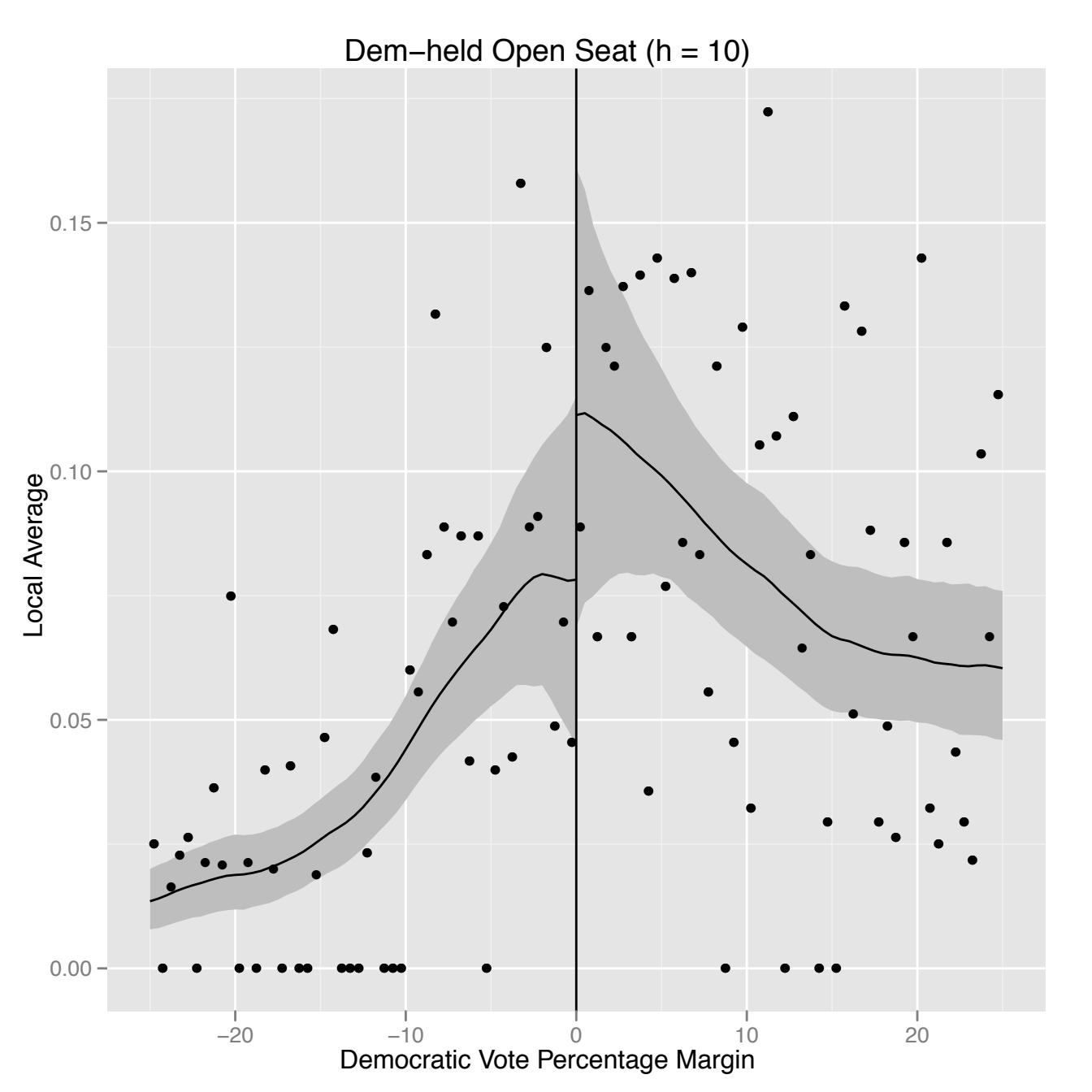

Dem Inc in Race (h = 15)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

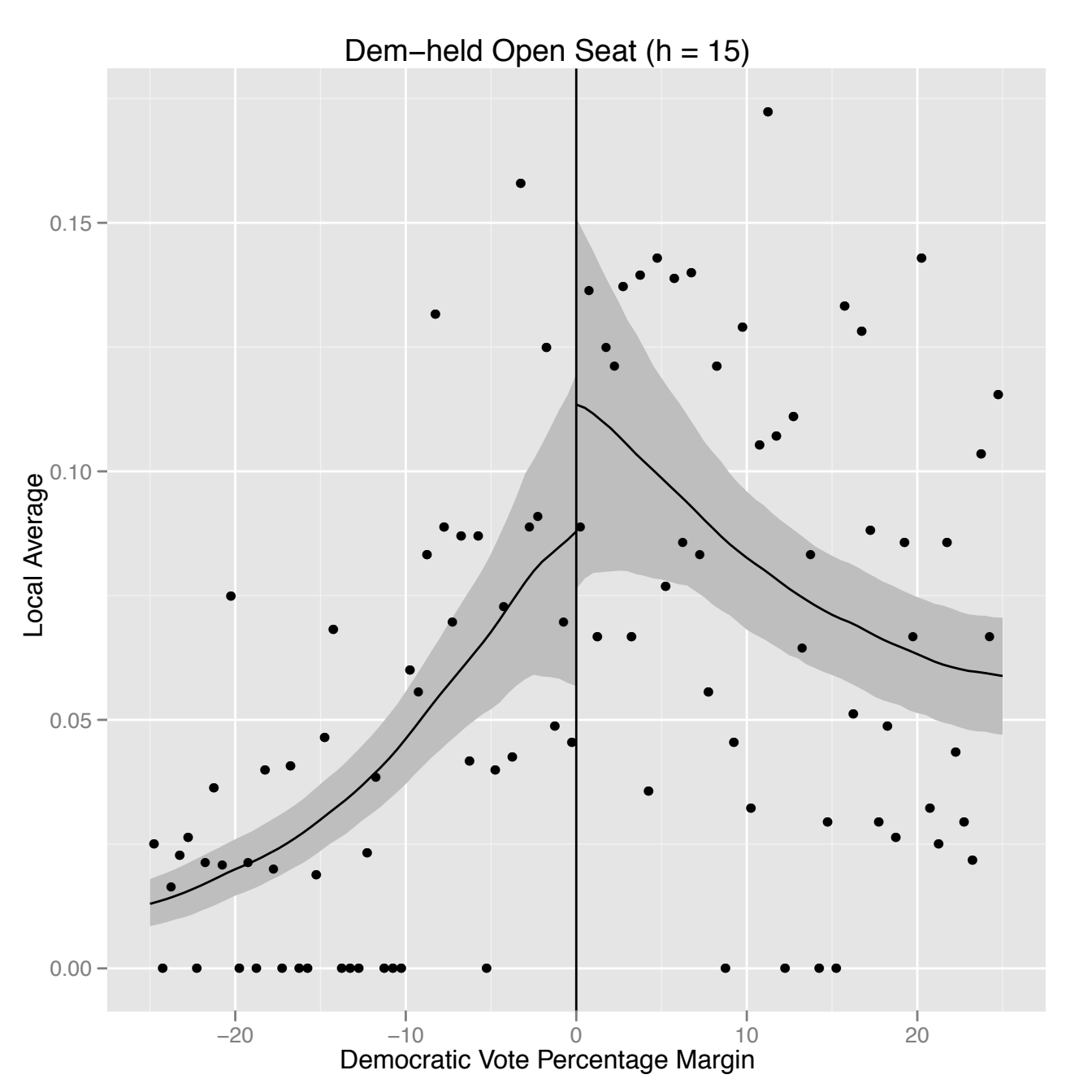

Dem Inc in Race (h = 20)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

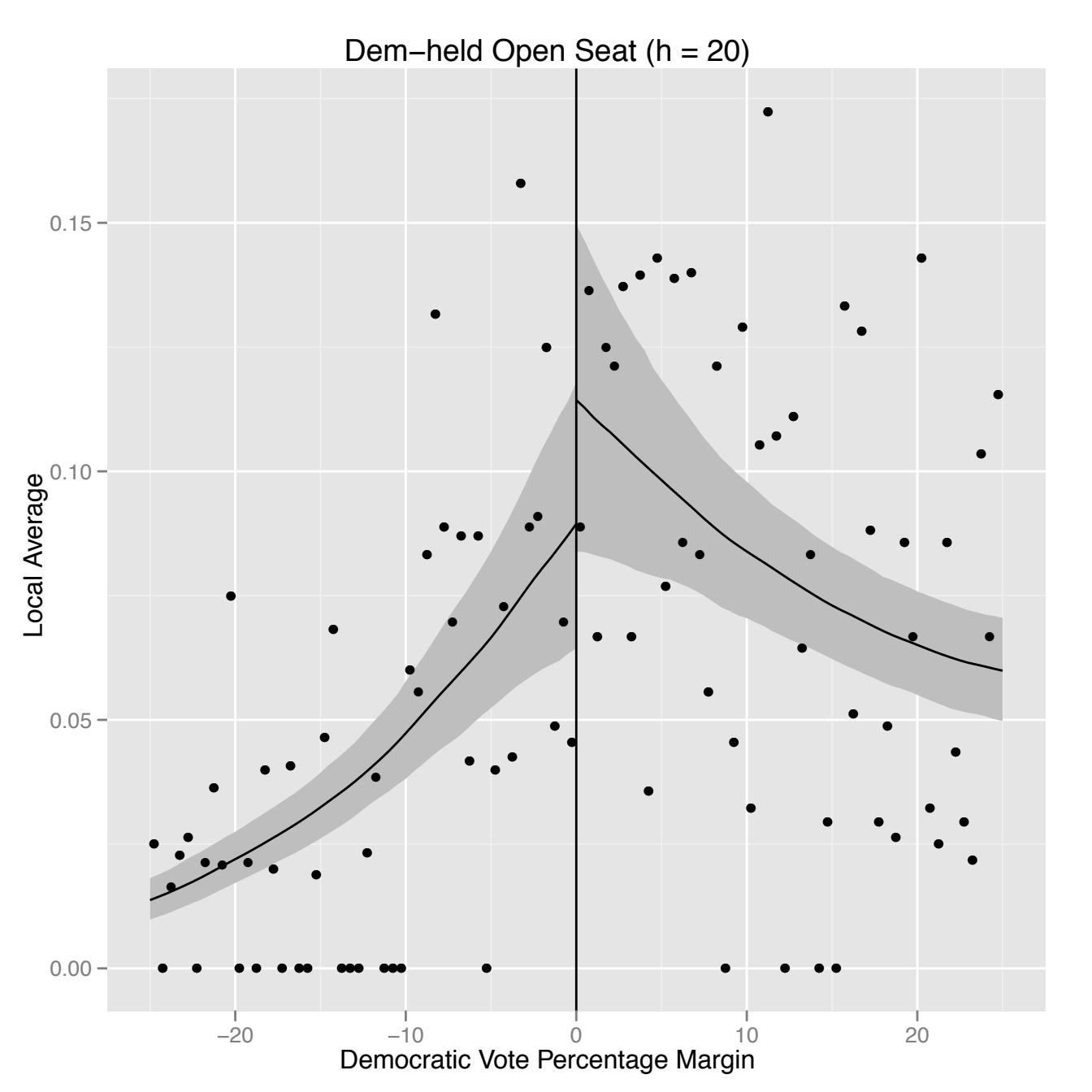

Dem−held Open Seat (h = 1)
Local Average
0.20
0.15
0.10
0.05
0.00
−20
−10
0
10
20
Democratic Vote Percentage Margin

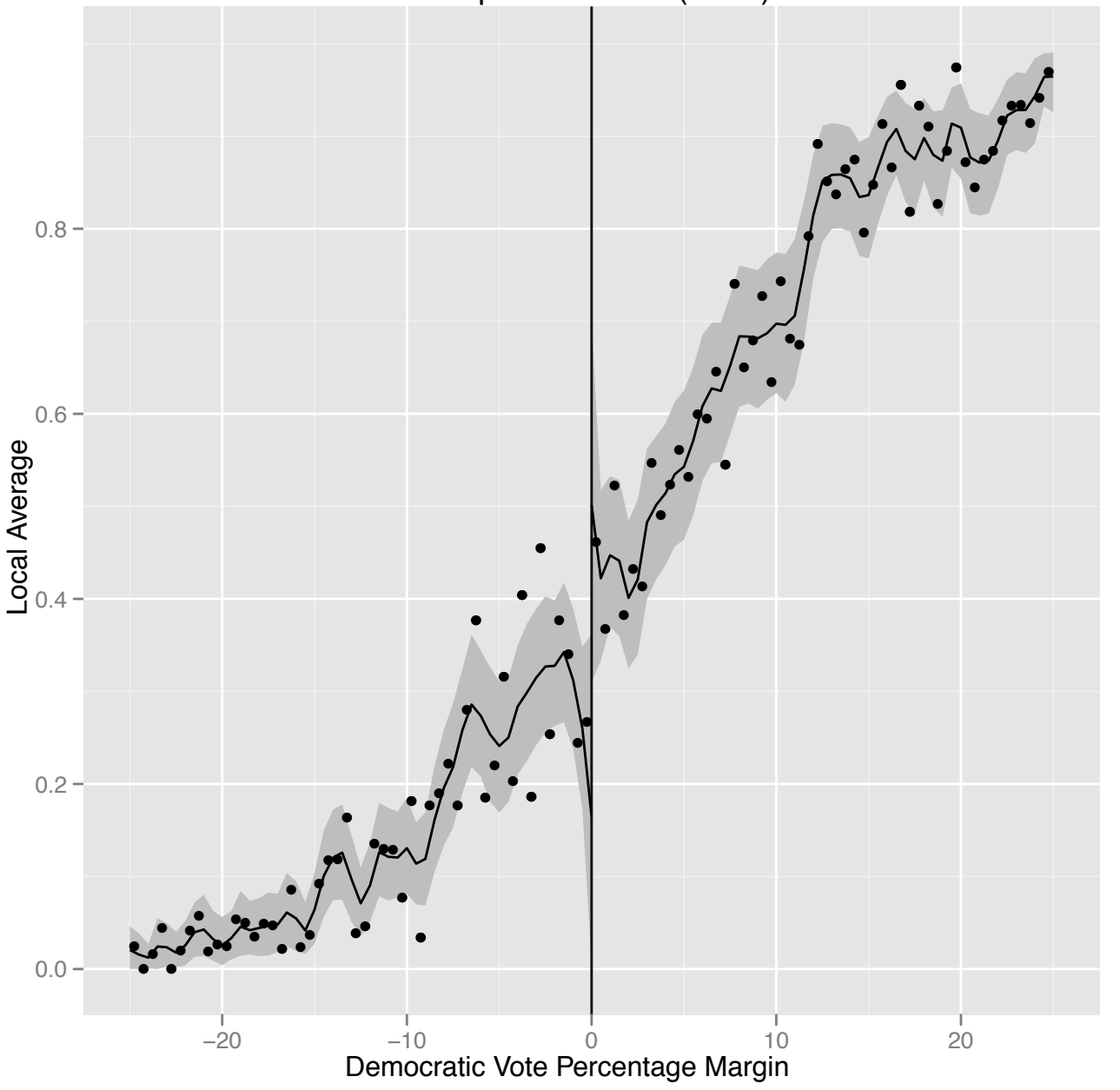

Dem−held Open Seat (h = 2)
Local Average
0.15
0.10
0.05
0.00
−20
−10
0
10
20
Democratic Vote Percentage Margin

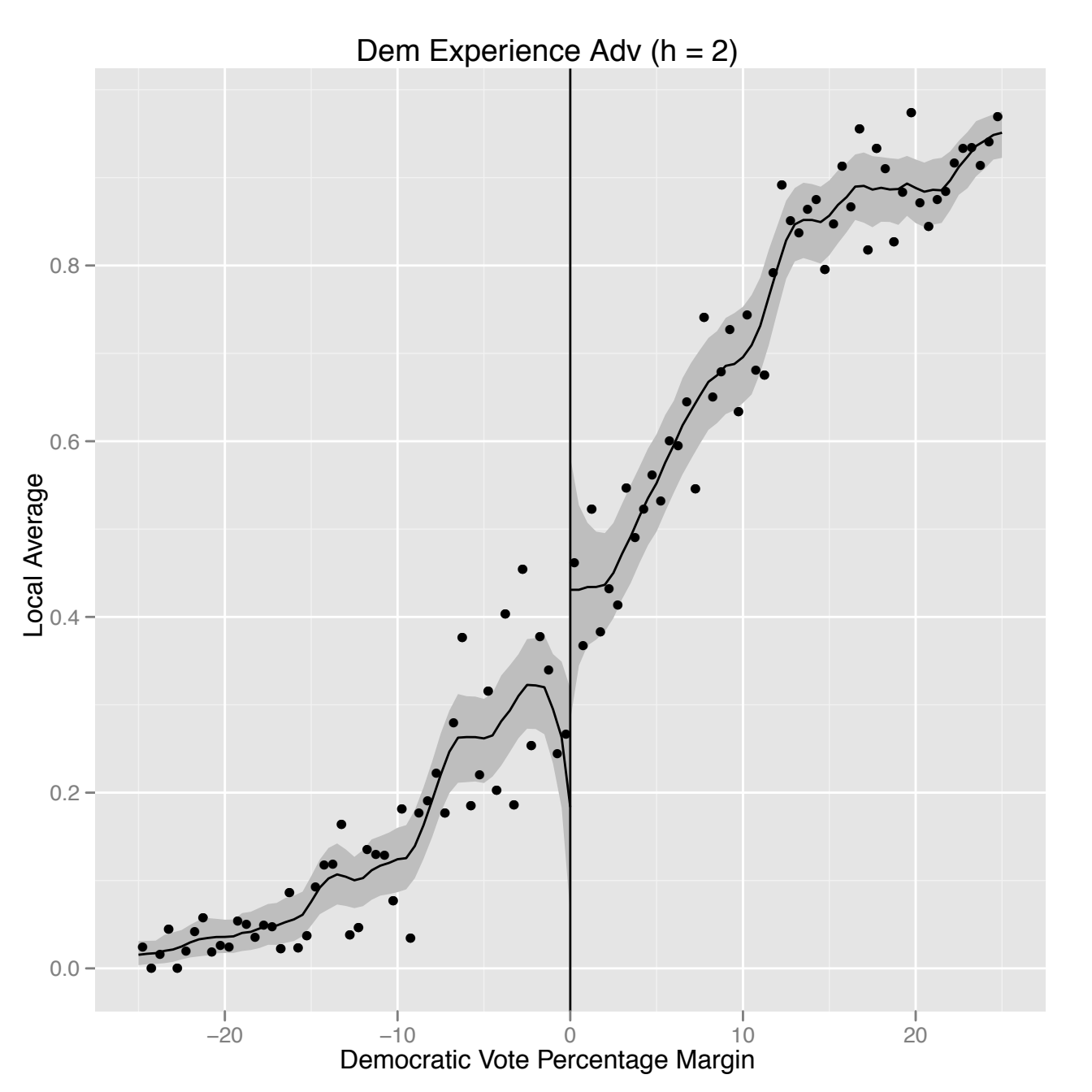

Dem−held Open Seat (h = 5)
Local Average
0.15
0.10
0.05
0.00
−20
−10
0
10
20
Democratic Vote Percentage Margin

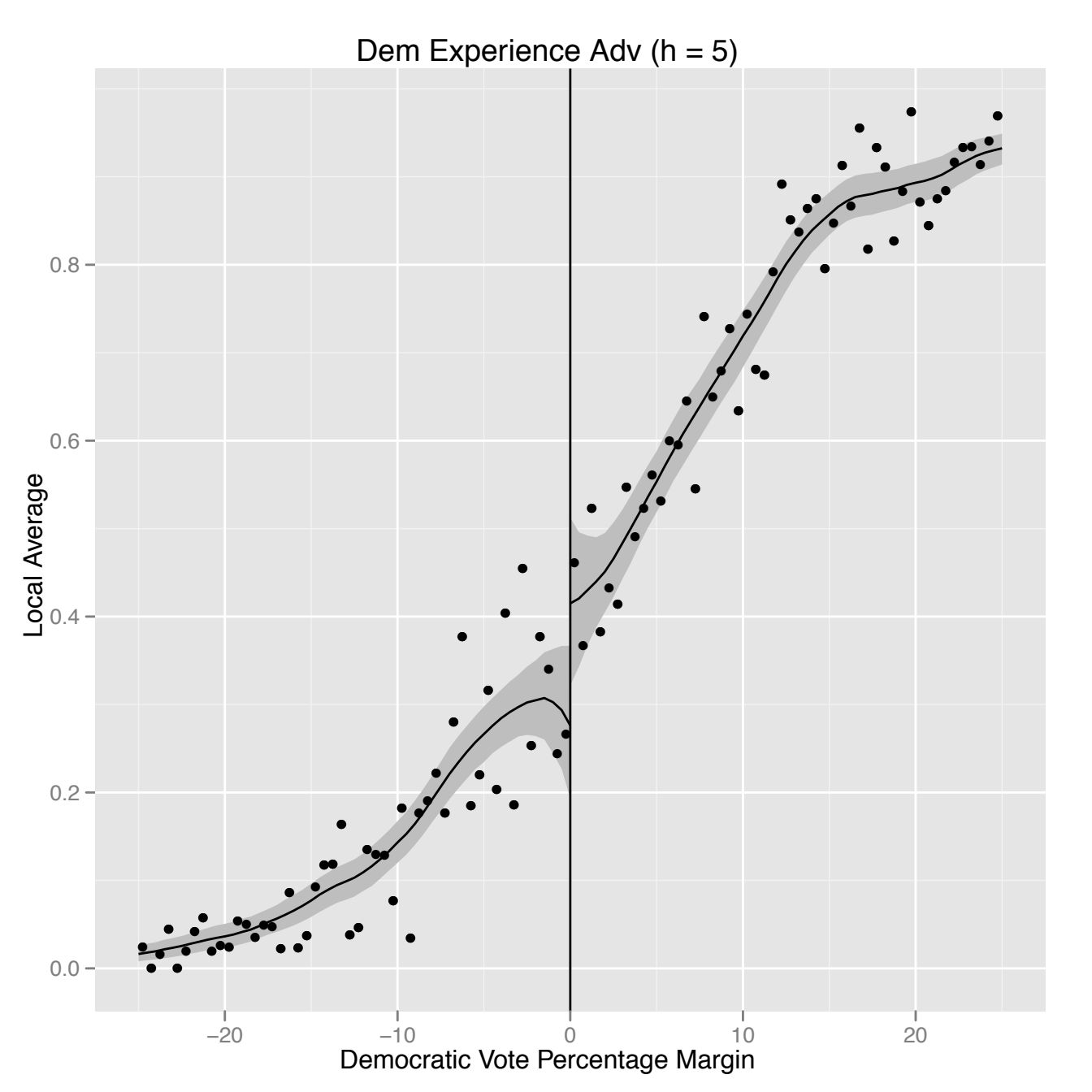

Dem−held Open Seat (h = 10)
Local Average
0.15
0.10
0.05
0.00
−20
−10
0
10
20
Democratic Vote Percentage Margin

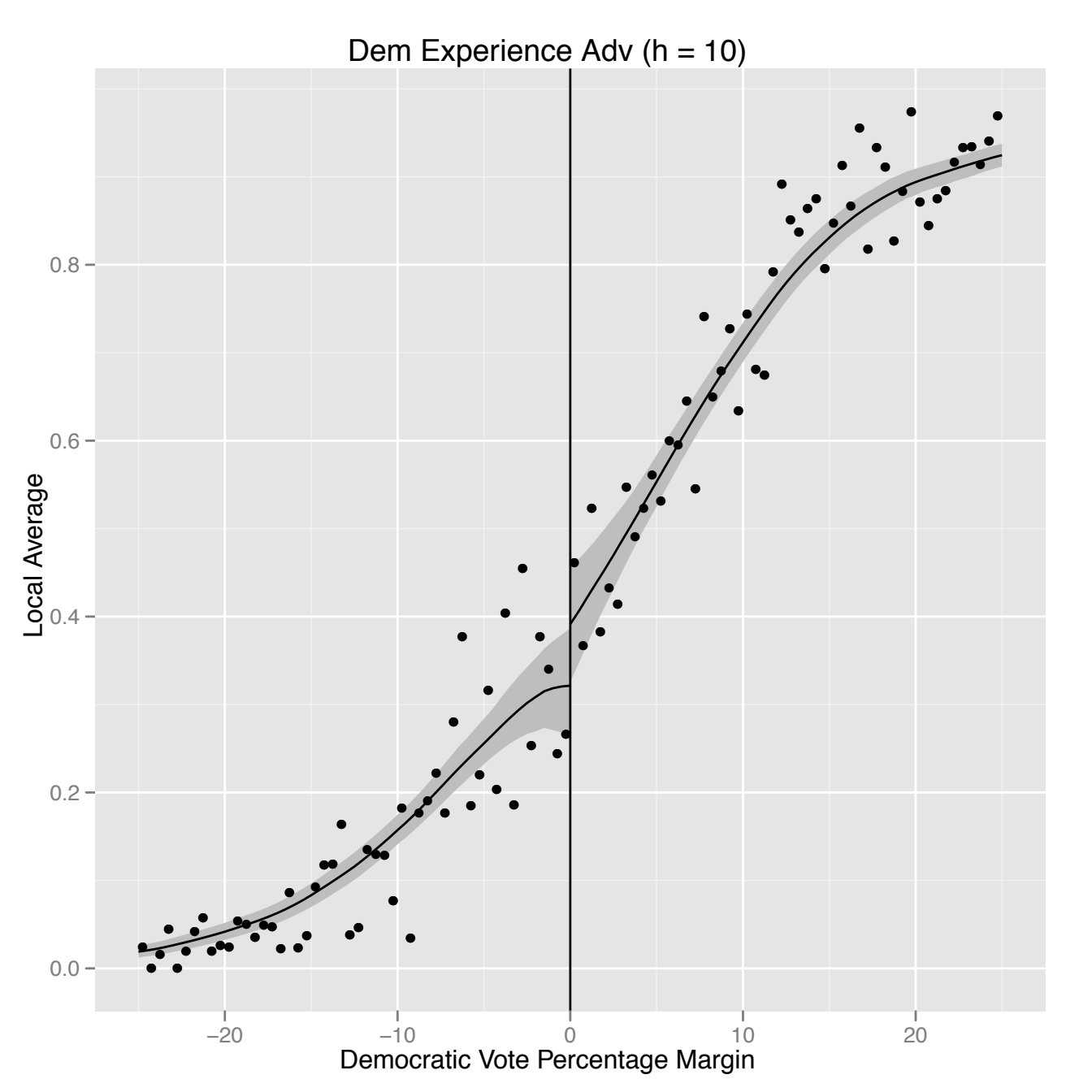

Dem−held Open Seat (h = 15)
Local Average
0.15
0.10
0.05
0.00
−20
−10
0
10
20
Democratic Vote Percentage Margin

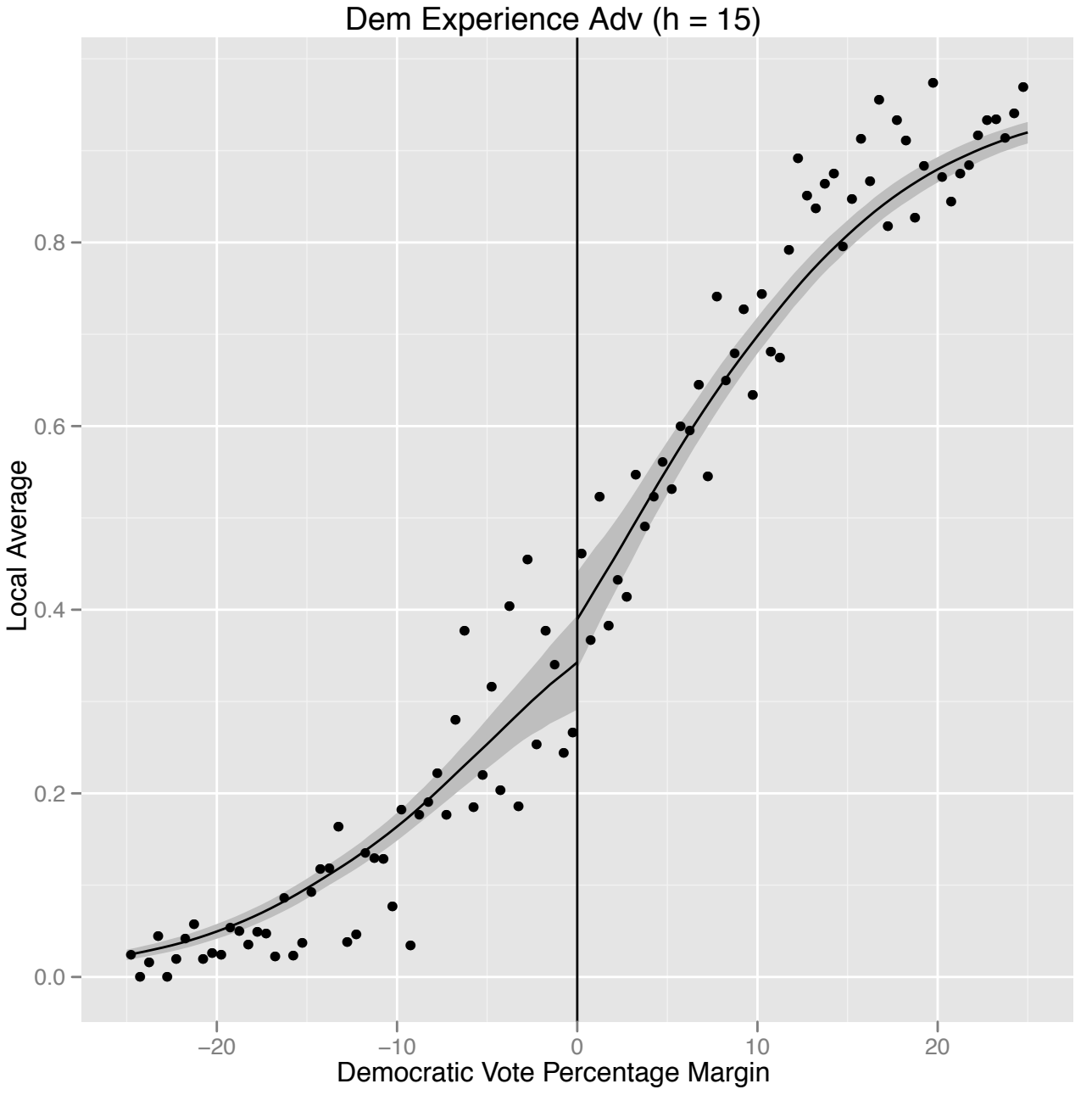

Dem−held Open Seat (h = 20)
Local Average
0.15
0.10
0.05
0.00
−20
−10
0
10
20
Democratic Vote Percentage Margin

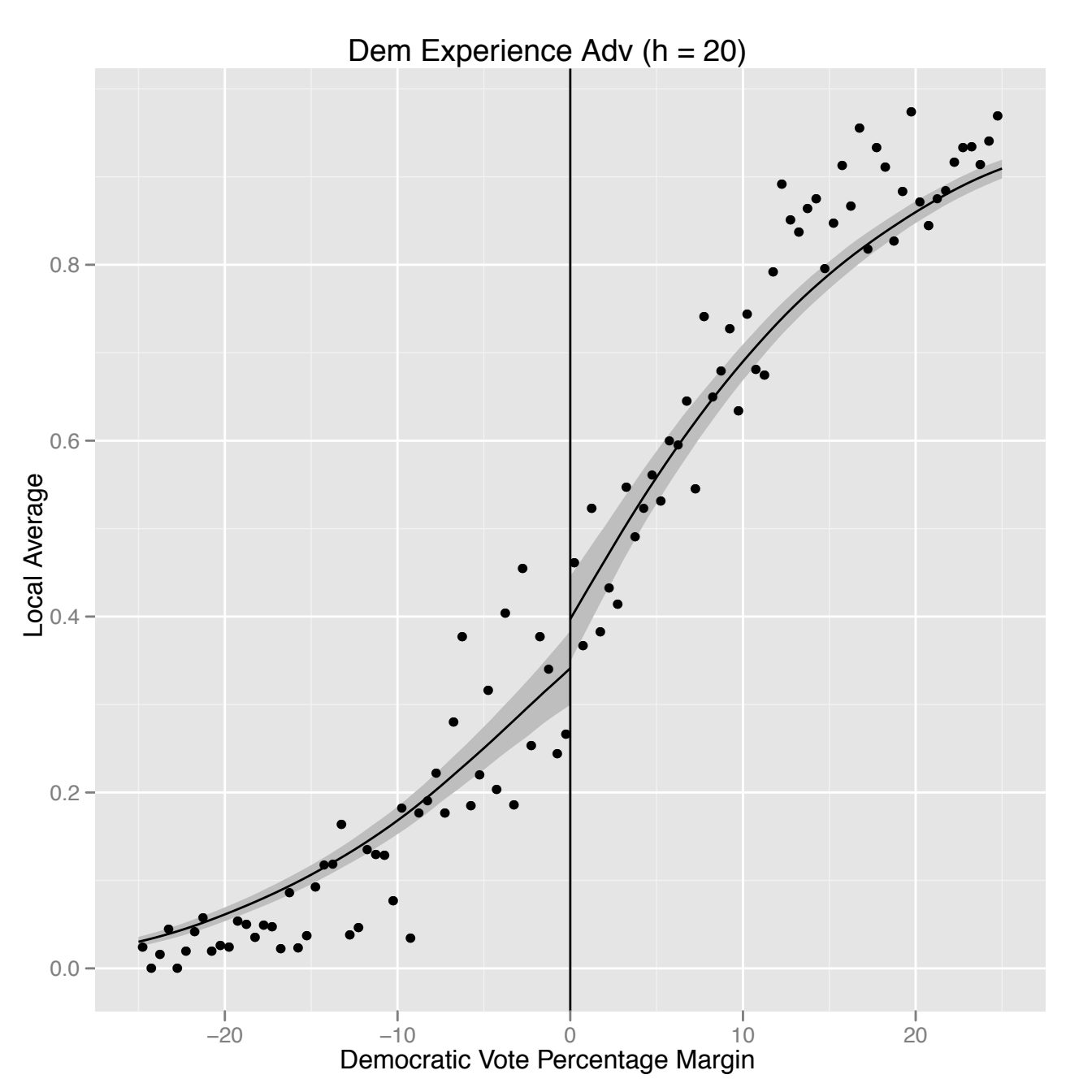

Dem Experience Adv (h = 1)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

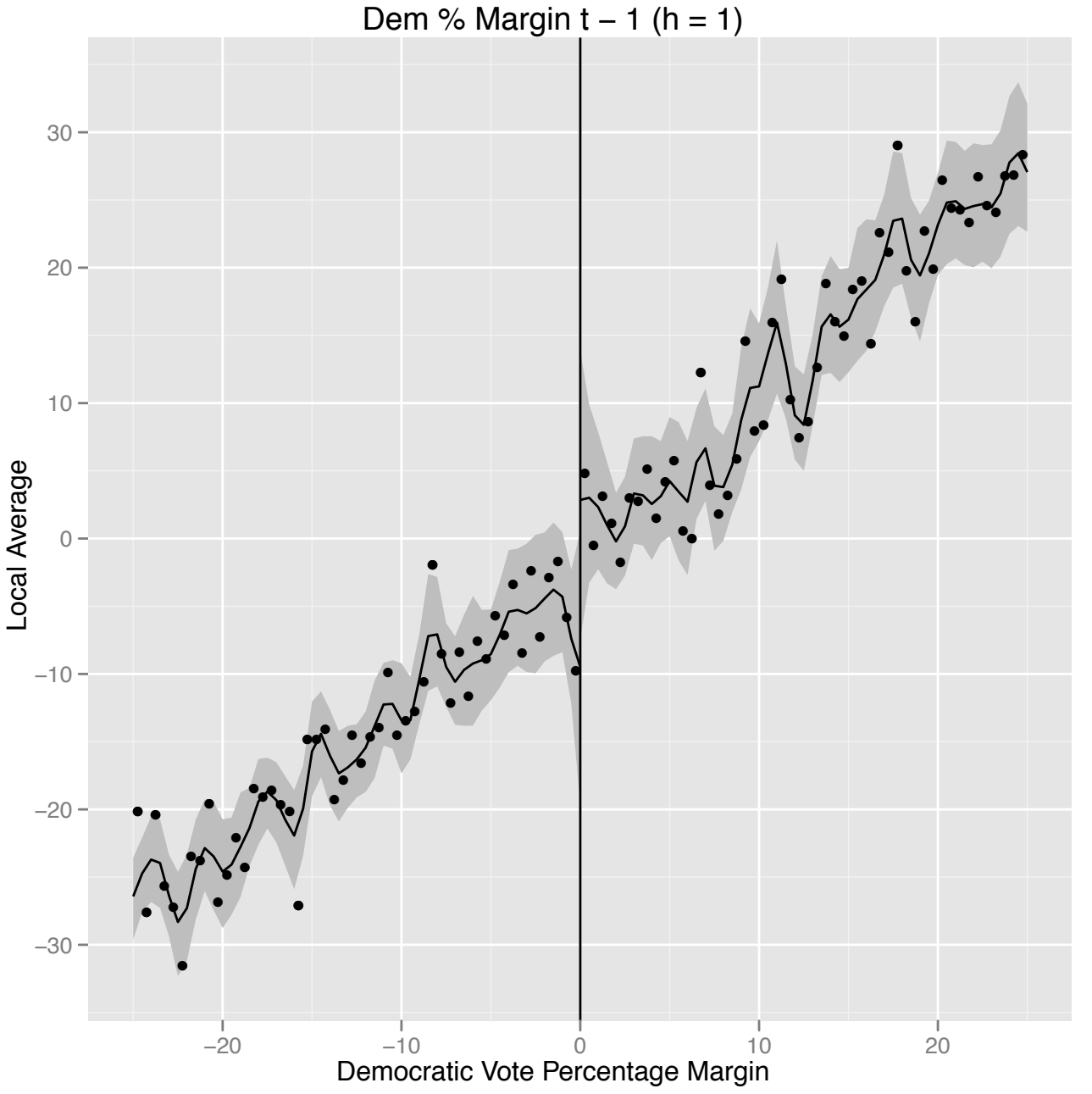

Dem Experience Adv (h = 2)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

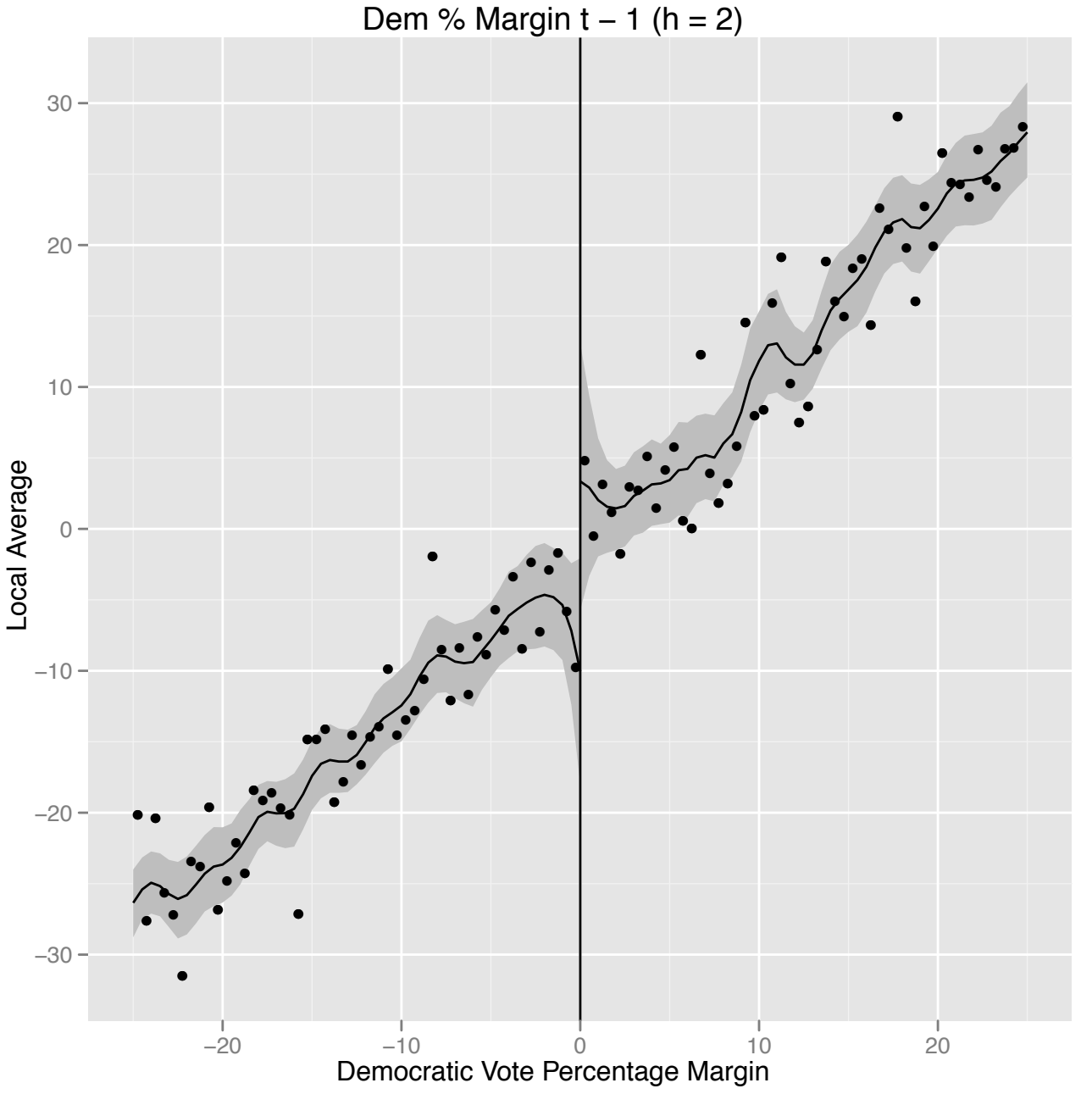

Dem Experience Adv (h = 5)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

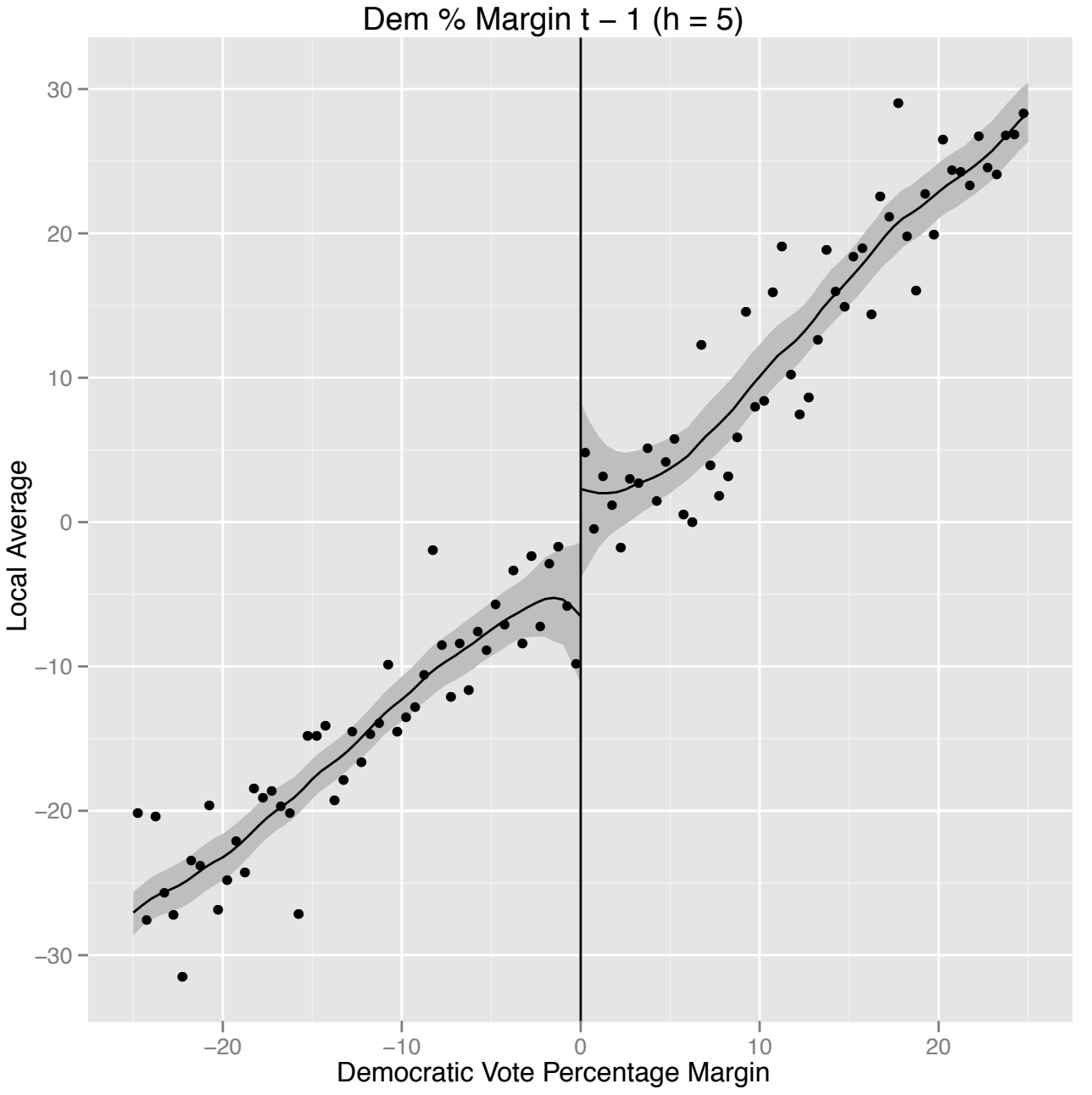

Dem Experience Adv (h = 10)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

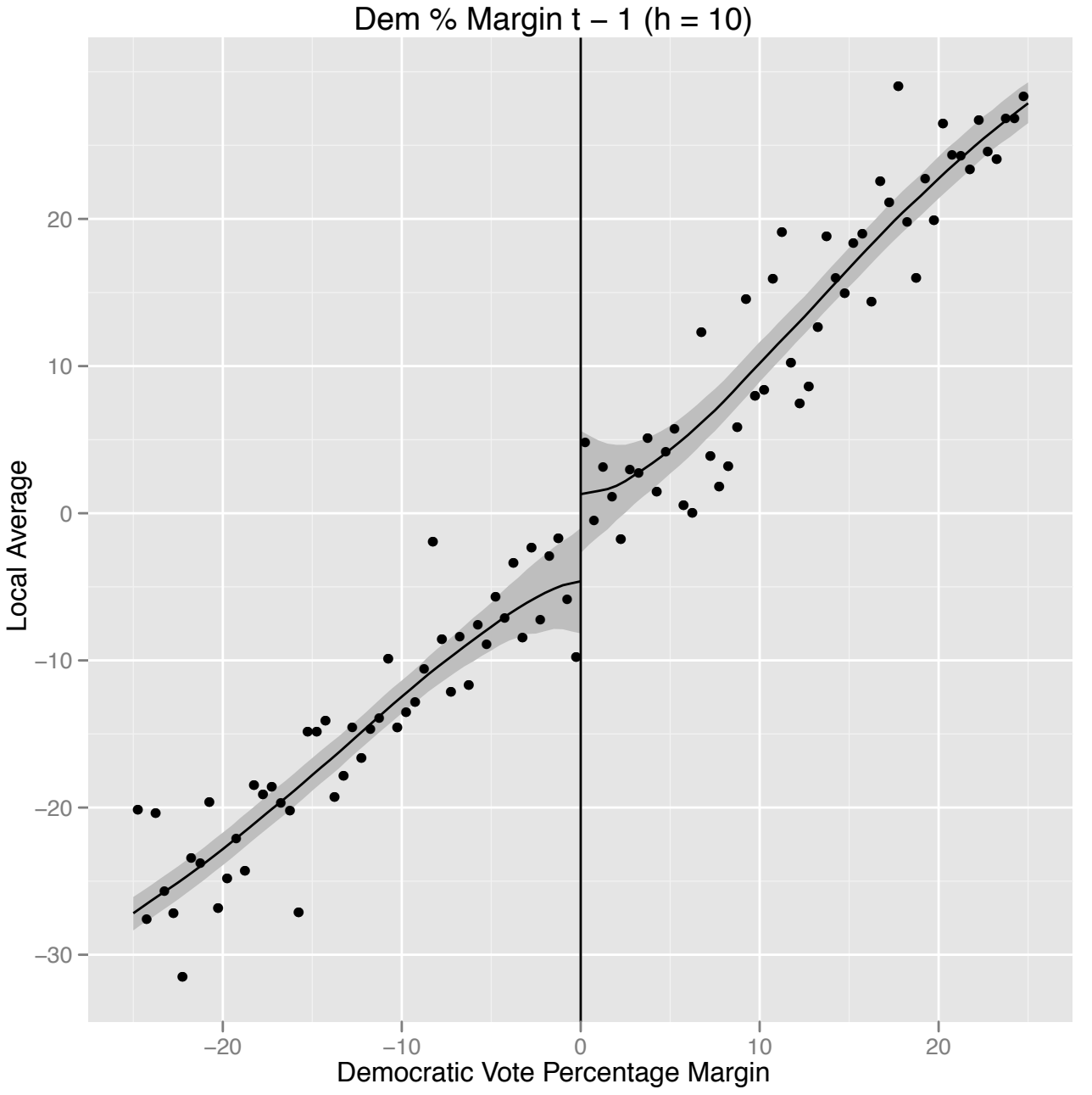

Dem Experience Adv (h = 15)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

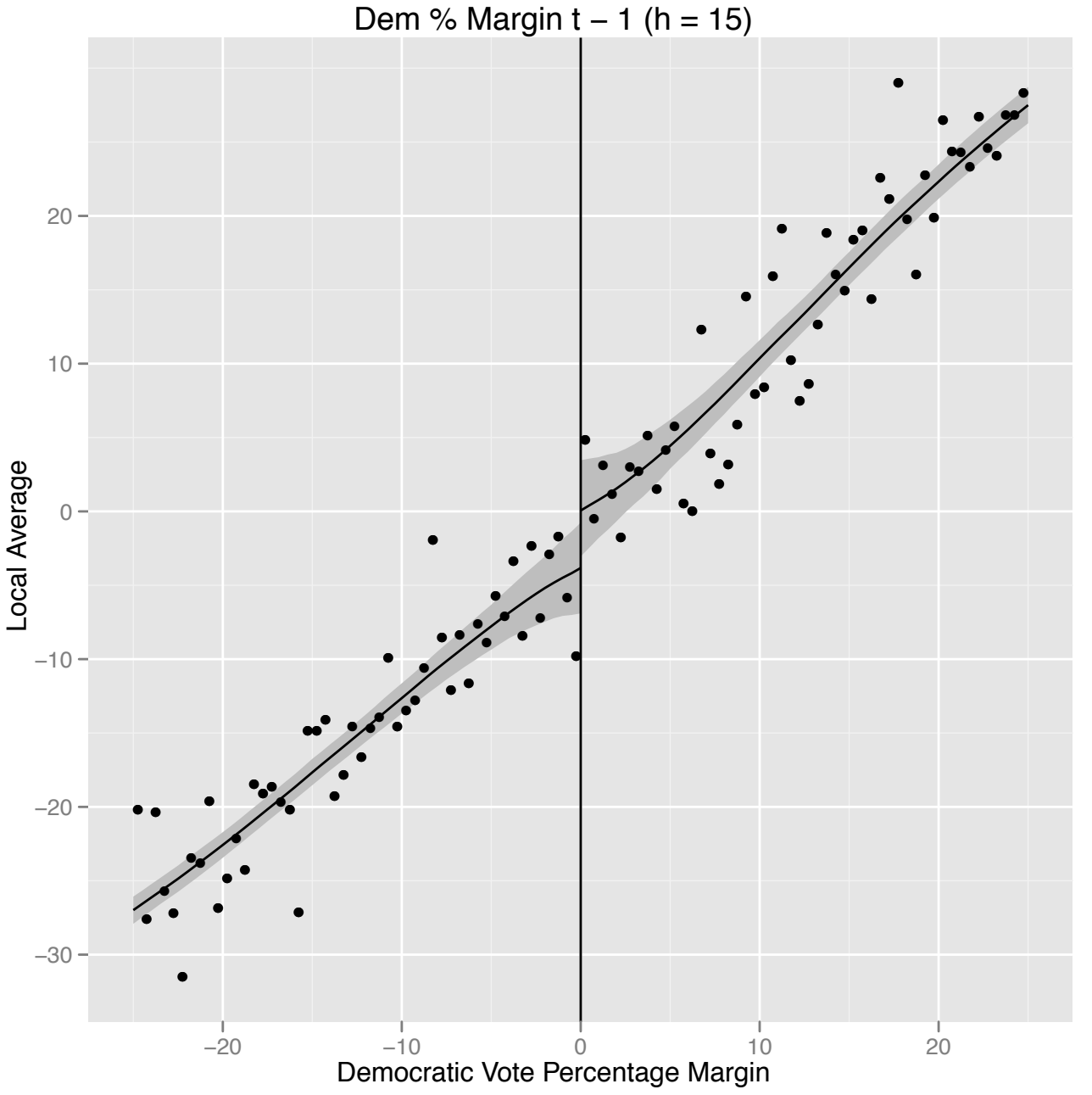

Dem Experience Adv (h = 20)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

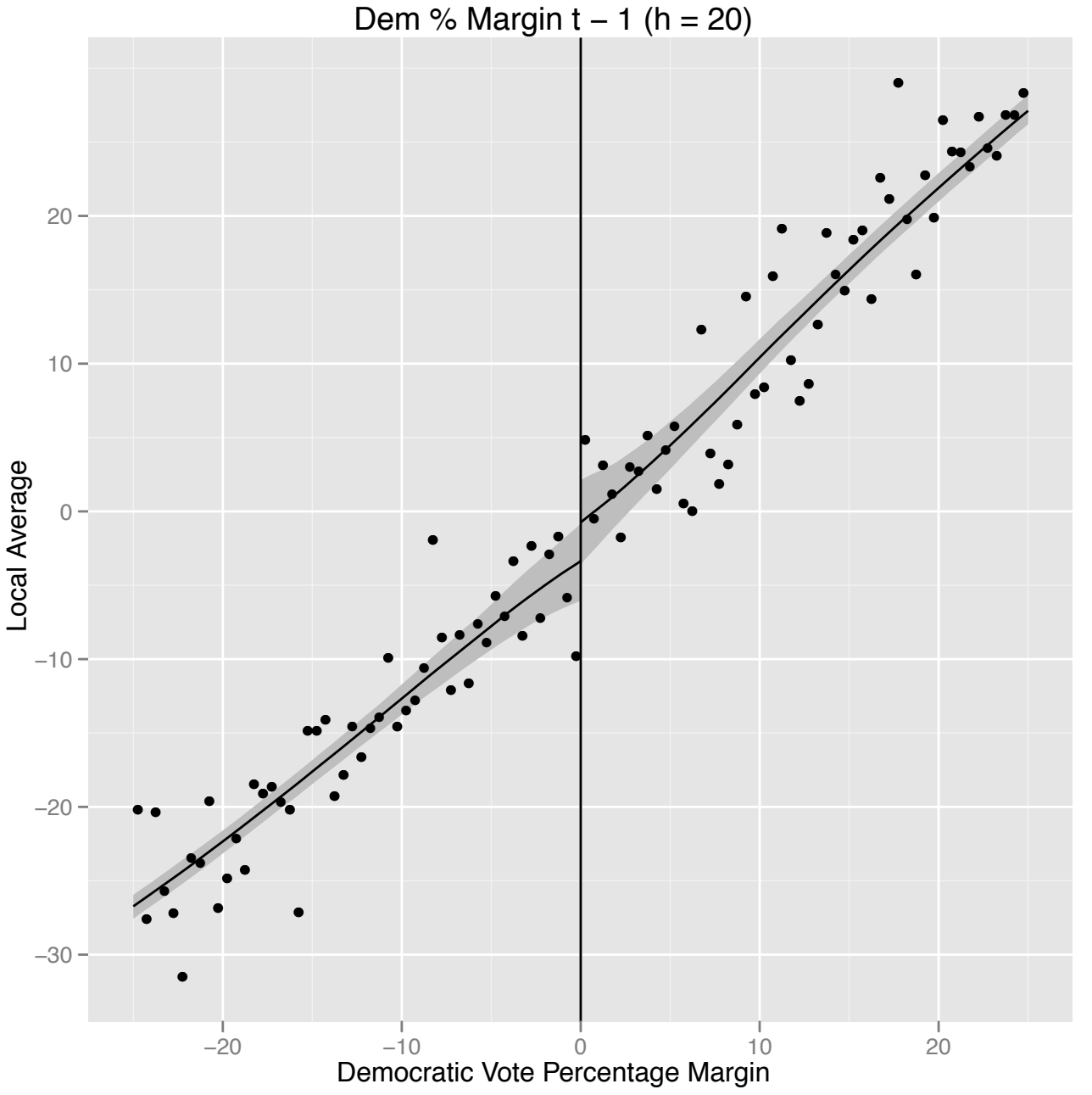

Dem % Margin t – 1 (h = 1)
Local Average
30
20
10
0
−10
−20
−30
−20
−10
0
10
20
Democratic Vote Percentage Margin

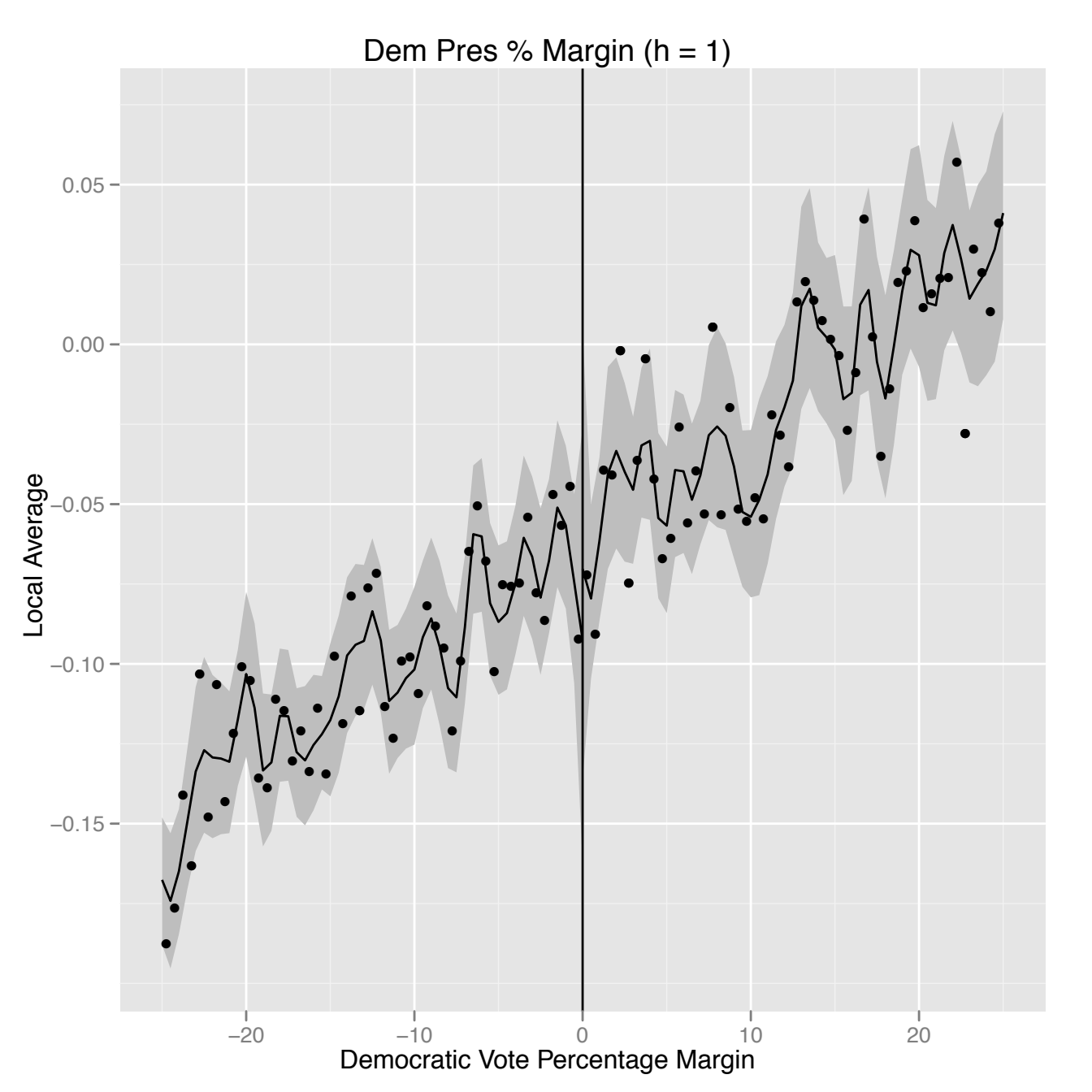

Dem % Margin t – 1 (h = 2)
Local Average
30
20
10
0
−10
−20
−30
−20
−10
0
10
20
Democratic Vote Percentage Margin

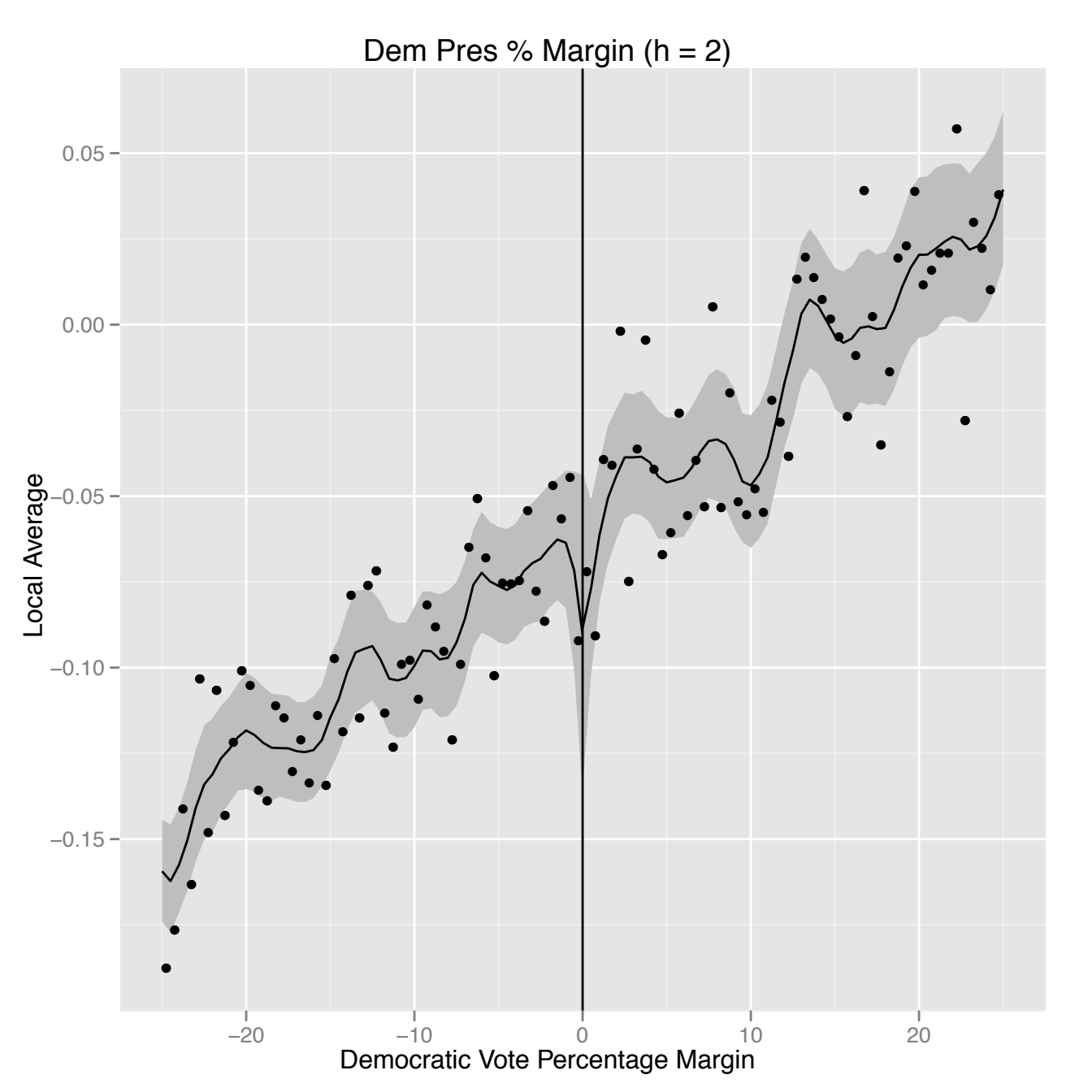

Dem % Margin t – 1 (h = 5)
Local Average
30
20
10
0
−10
−20
−30
−20
−10
0
10
20
Democratic Vote Percentage Margin

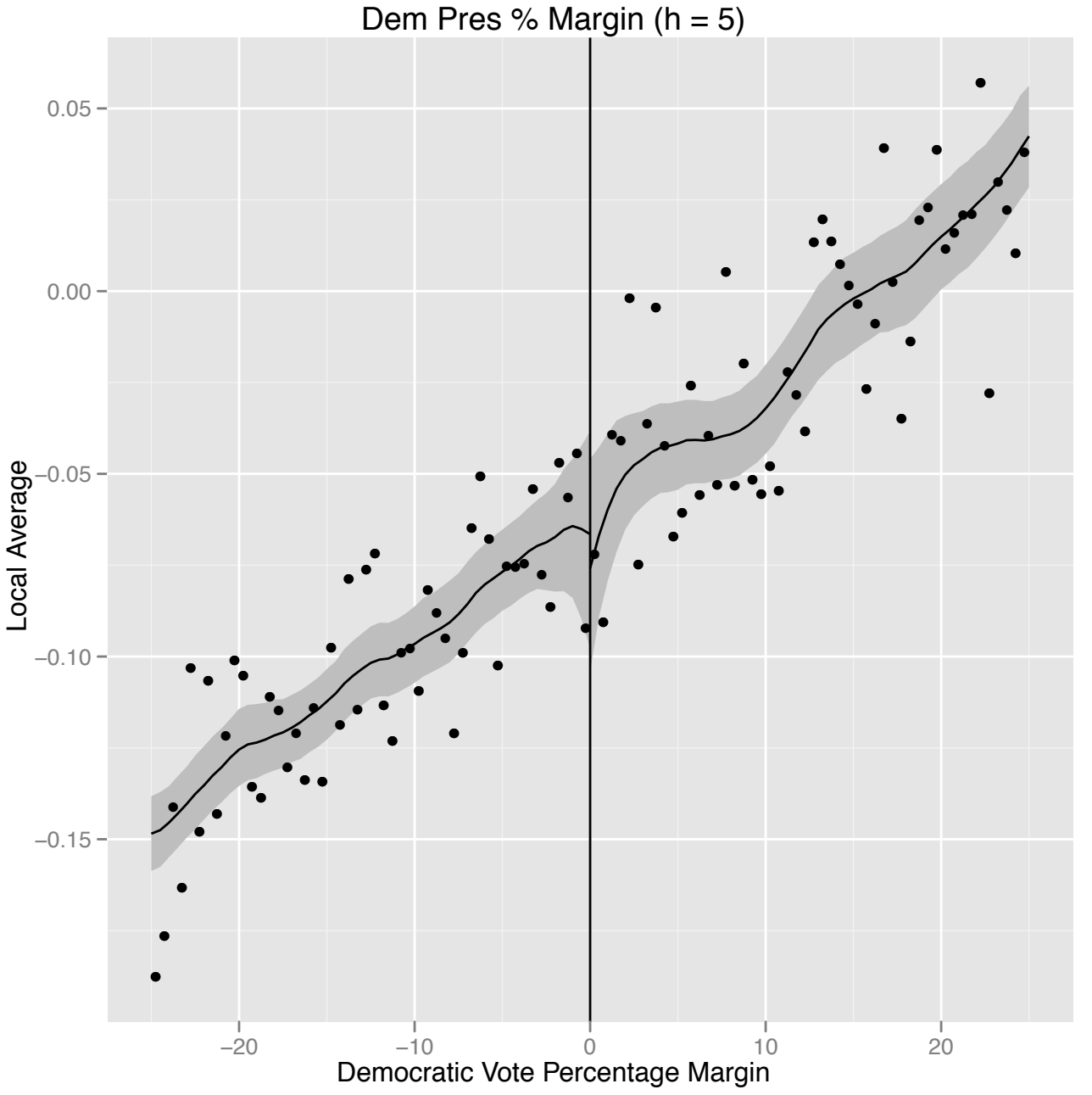

Dem % Margin t – 1 (h = 10)
Local Average
20
10
0
−10
−20
−30
−20
−10
0
10
20
Democratic Vote Percentage Margin

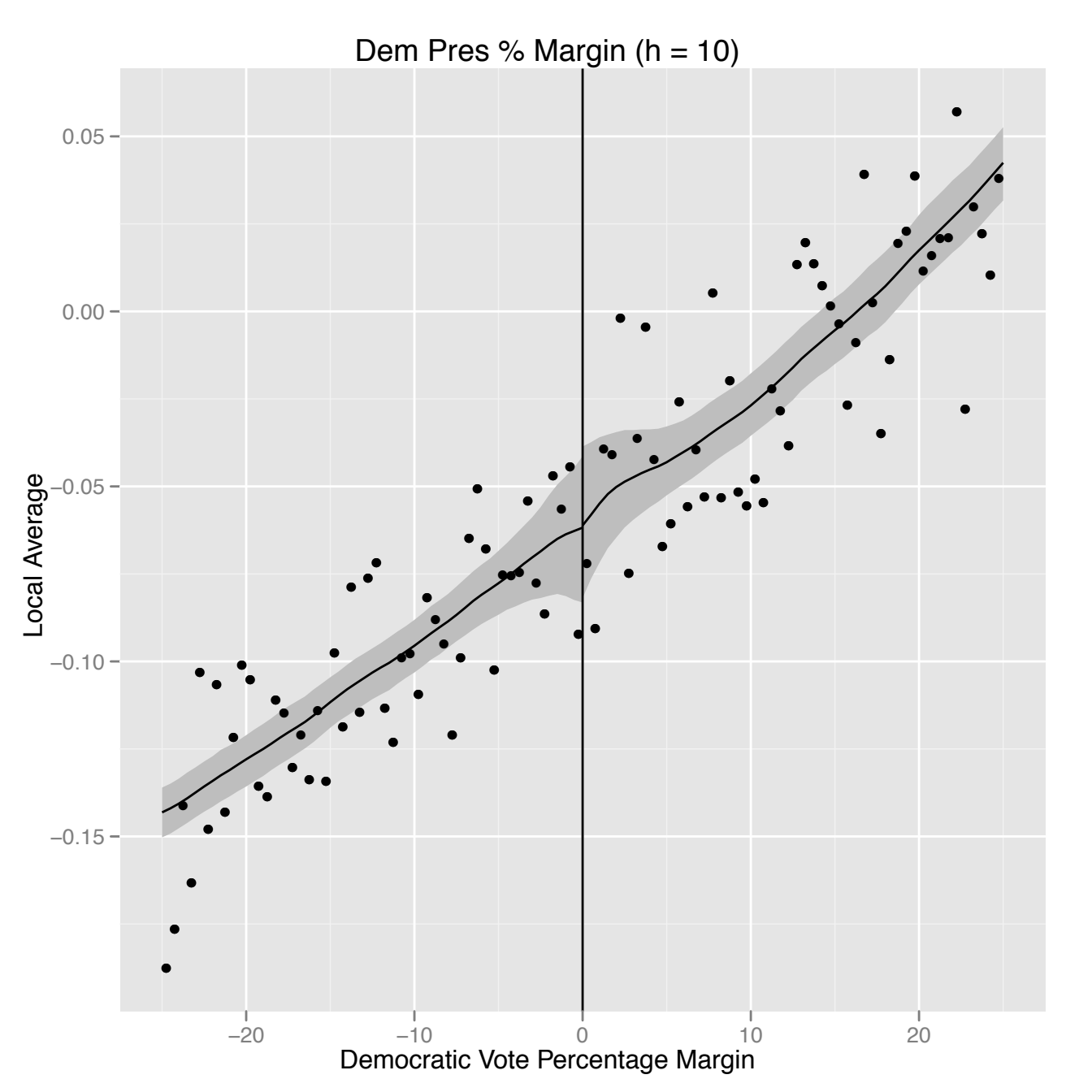

Dem % Margin t – 1 (h = 15)
Local Average
20
10
0
−10
−20
−30
−20
−10
0
10
20
Democratic Vote Percentage Margin


Dem % Margin t – 1 (h = 20)
Local Average
20
10
0
−10
−20
−30
−20
−10
0
10
20
Democratic Vote Percentage Margin

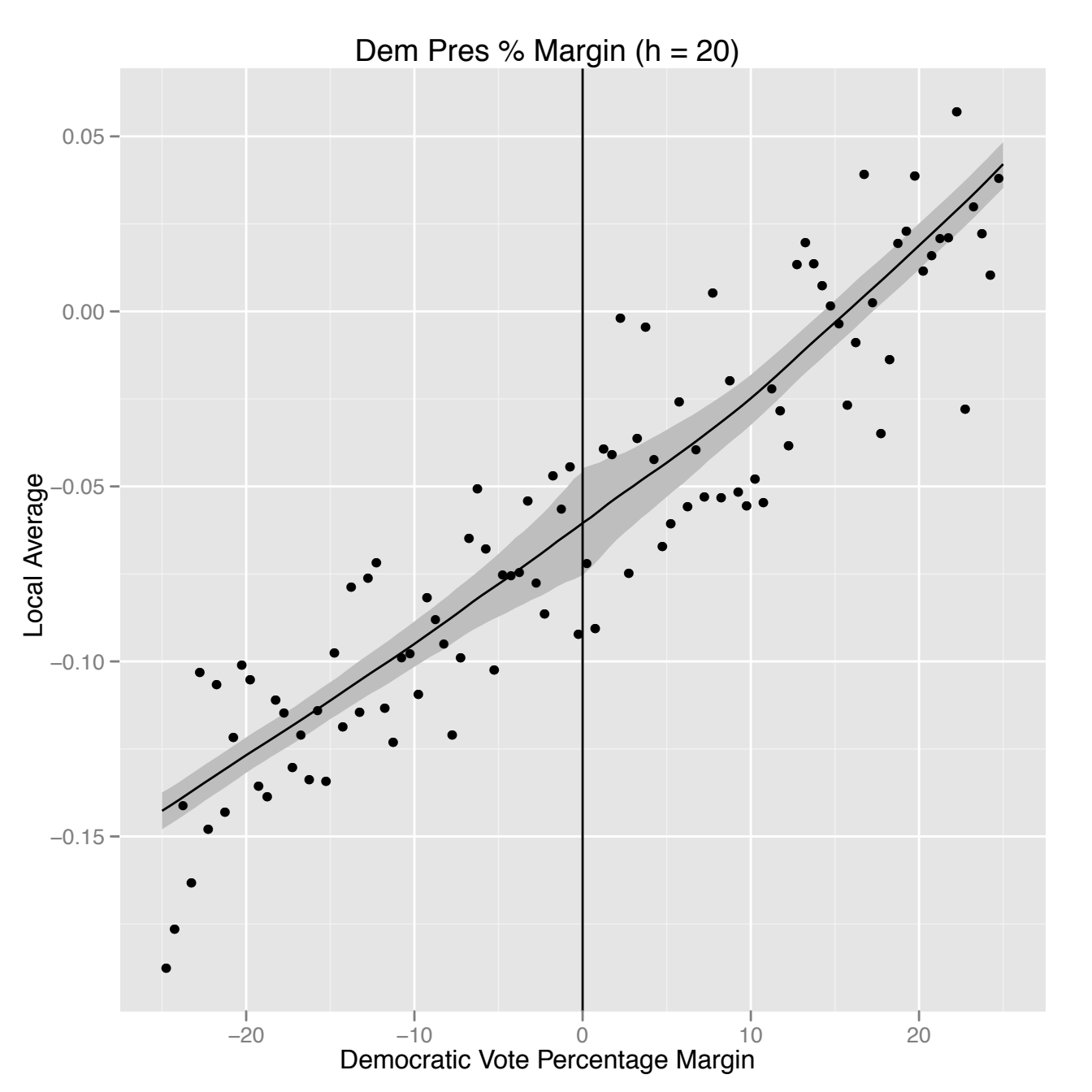

Dem Pres % Margin (h = 1)
Local Average
0.05
0.00
−0.05
−0.10
−0.15
−20
−10
0
10
20
Democratic Vote Percentage Margin

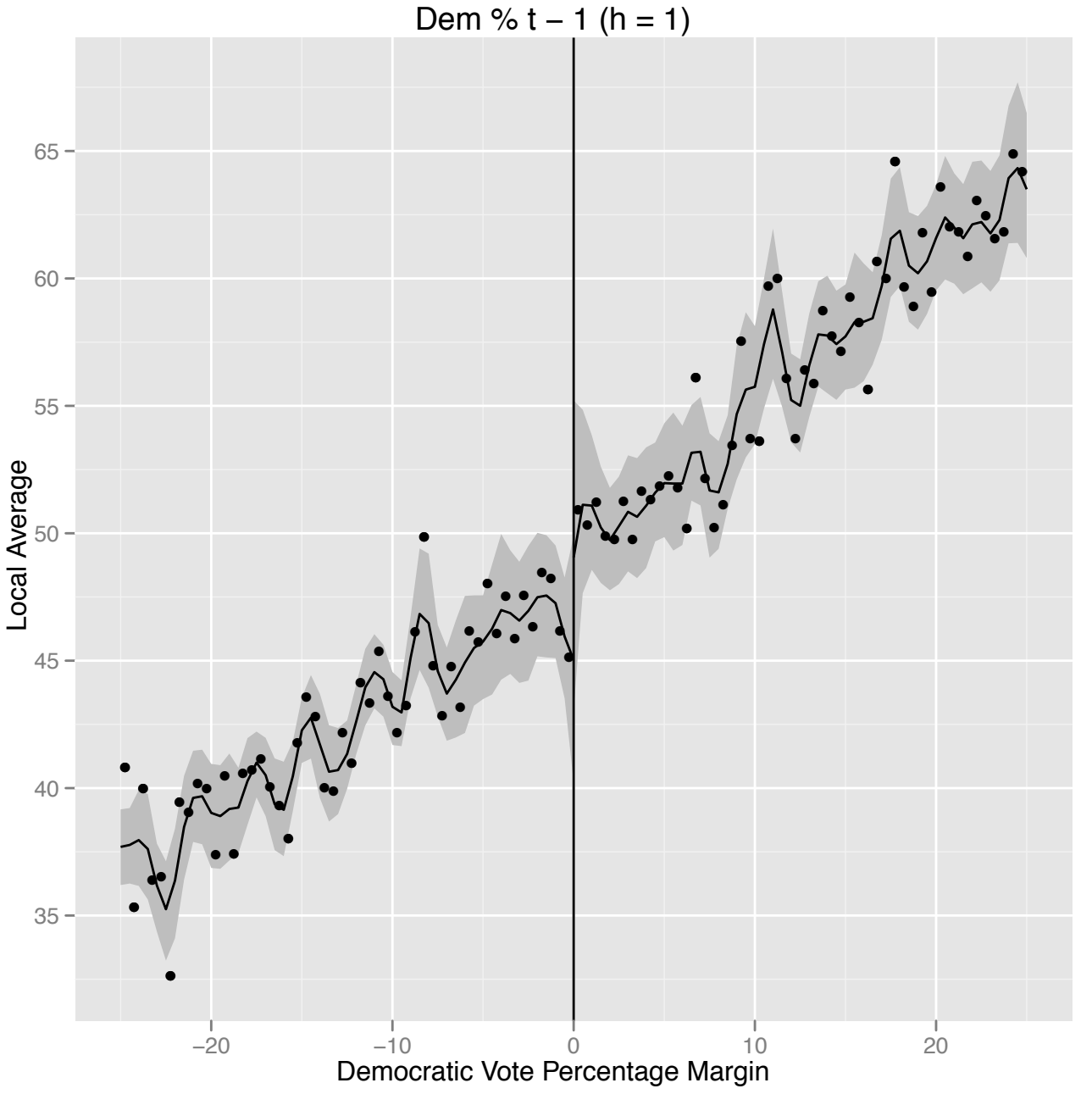

Dem Pres % Margin (h = 2)
0.05
0.00
−0.05
−0.10
−0.15
Local Average
−20
−10
0
10
20
Democratic Vote Percentage Margin

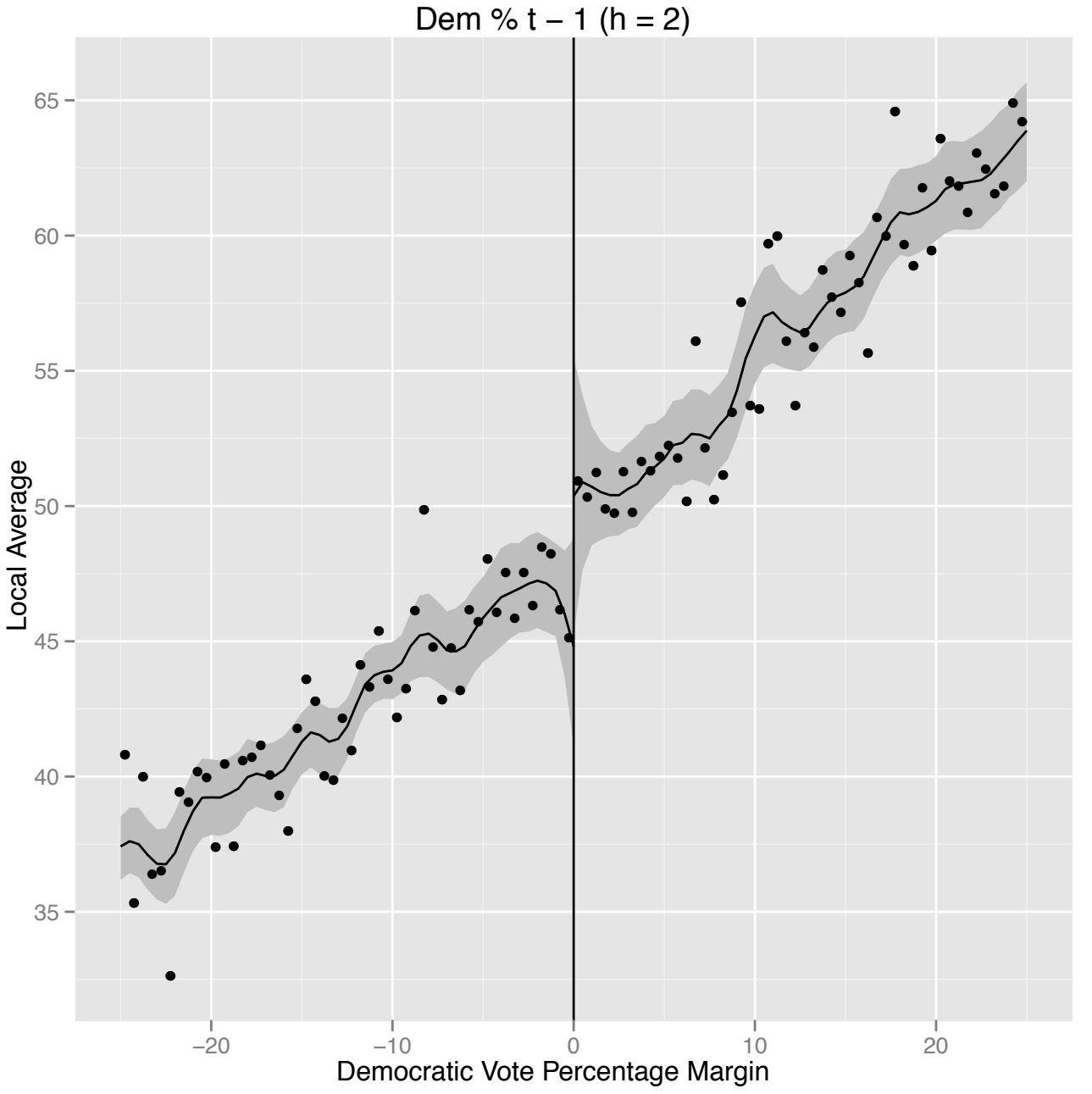

Dem Pres % Margin (h = 5)
0.05
0.00
−0.05
−0.10
−0.15
Local Average
−20
−10
0
10
20
Democratic Vote Percentage Margin

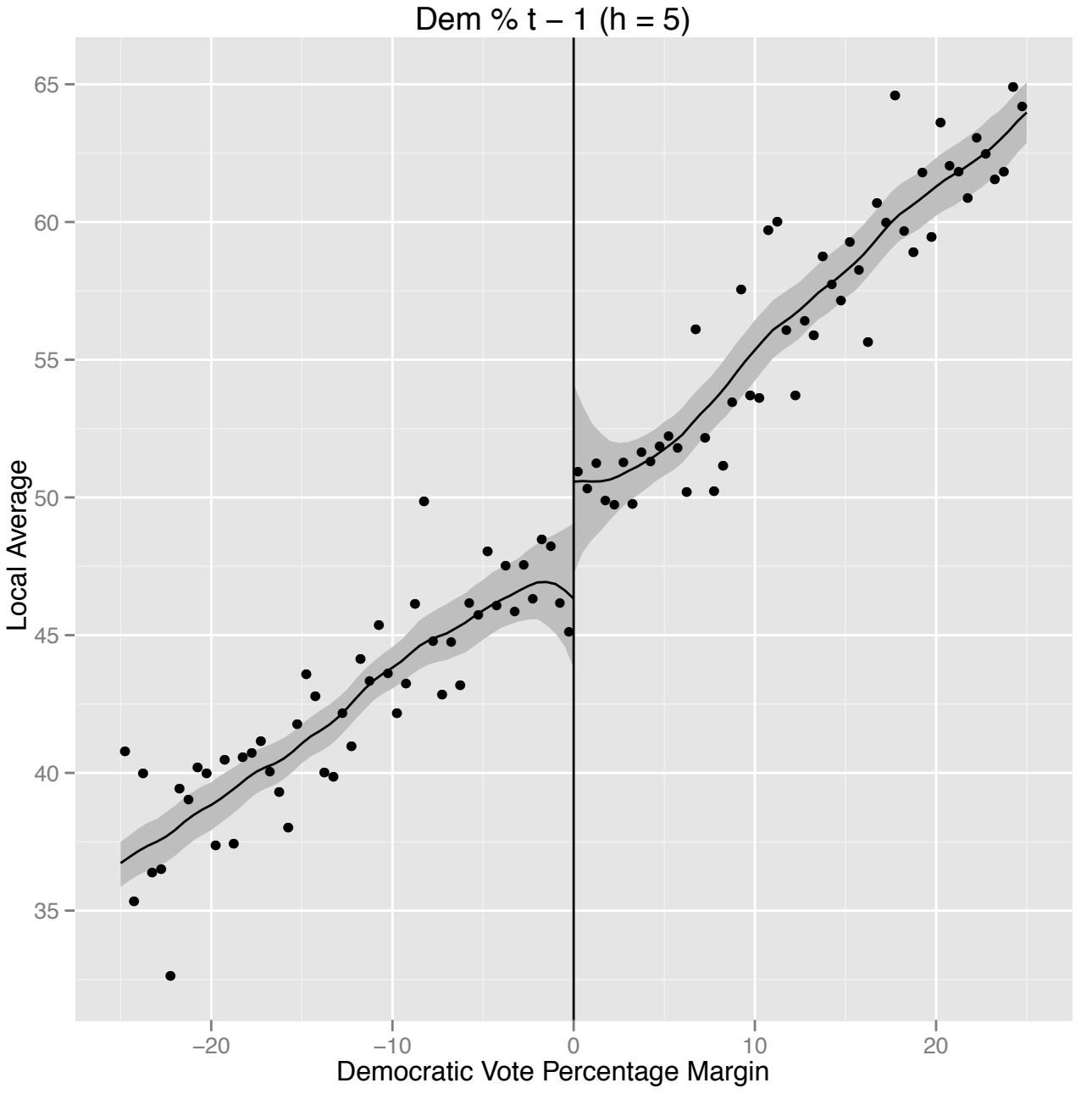

Dem Pres % Margin (h = 10)
0.05
0.00
−0.05
−0.10
−0.15
Local Average
−20
−10
0
10
20
Democratic Vote Percentage Margin

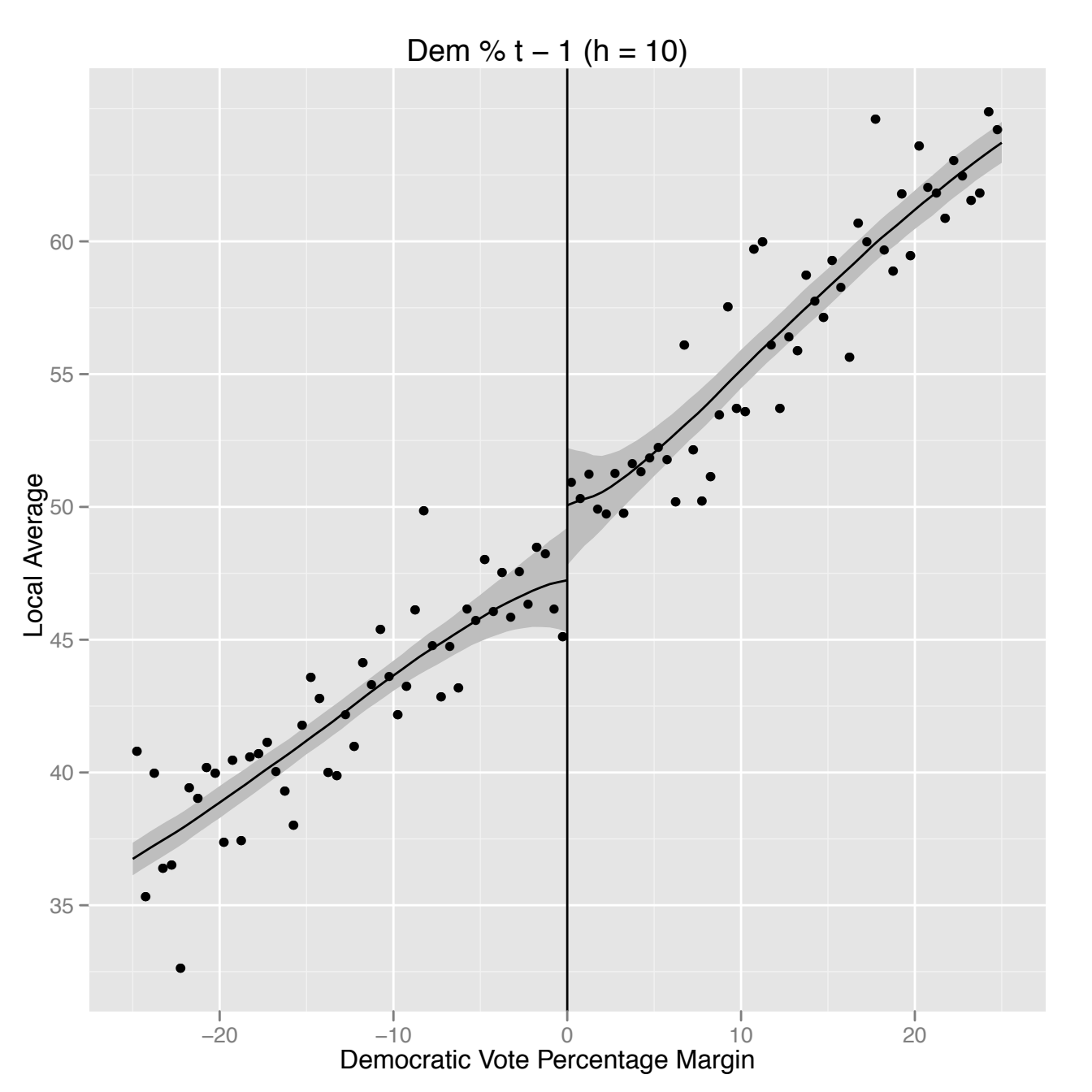

Dem Pres % Margin (h = 15)
0.05
0.00
−0.05
−0.10
−0.15
Local Average
−20
−10
0
10
20
Democratic Vote Percentage Margin

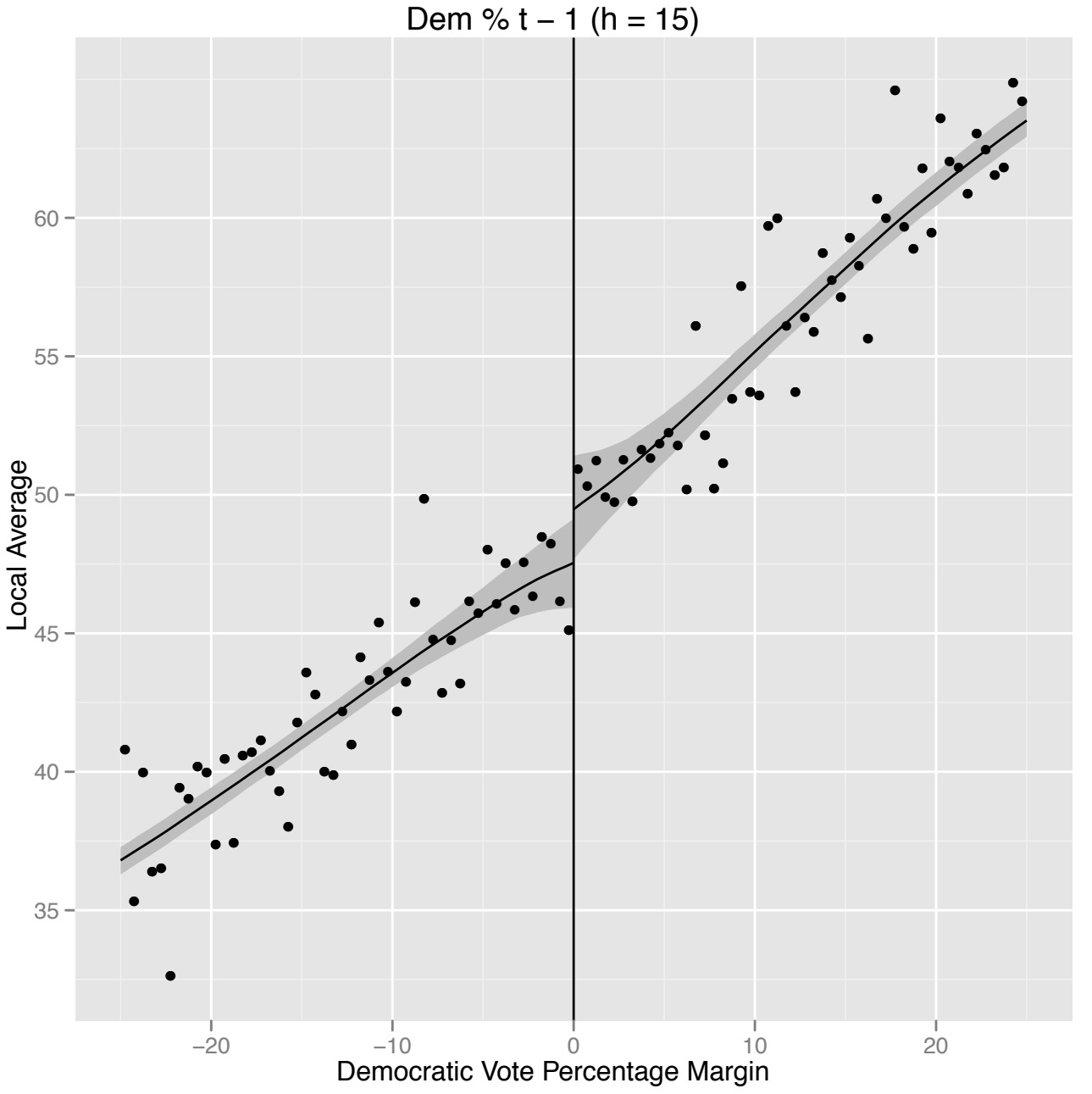

Dem Pres % Margin (h = 20)
0.05
0.00
−0.05
−0.10
−0.15
Local Average
−20
−10
0
10
20
Democratic Vote Percentage Margin

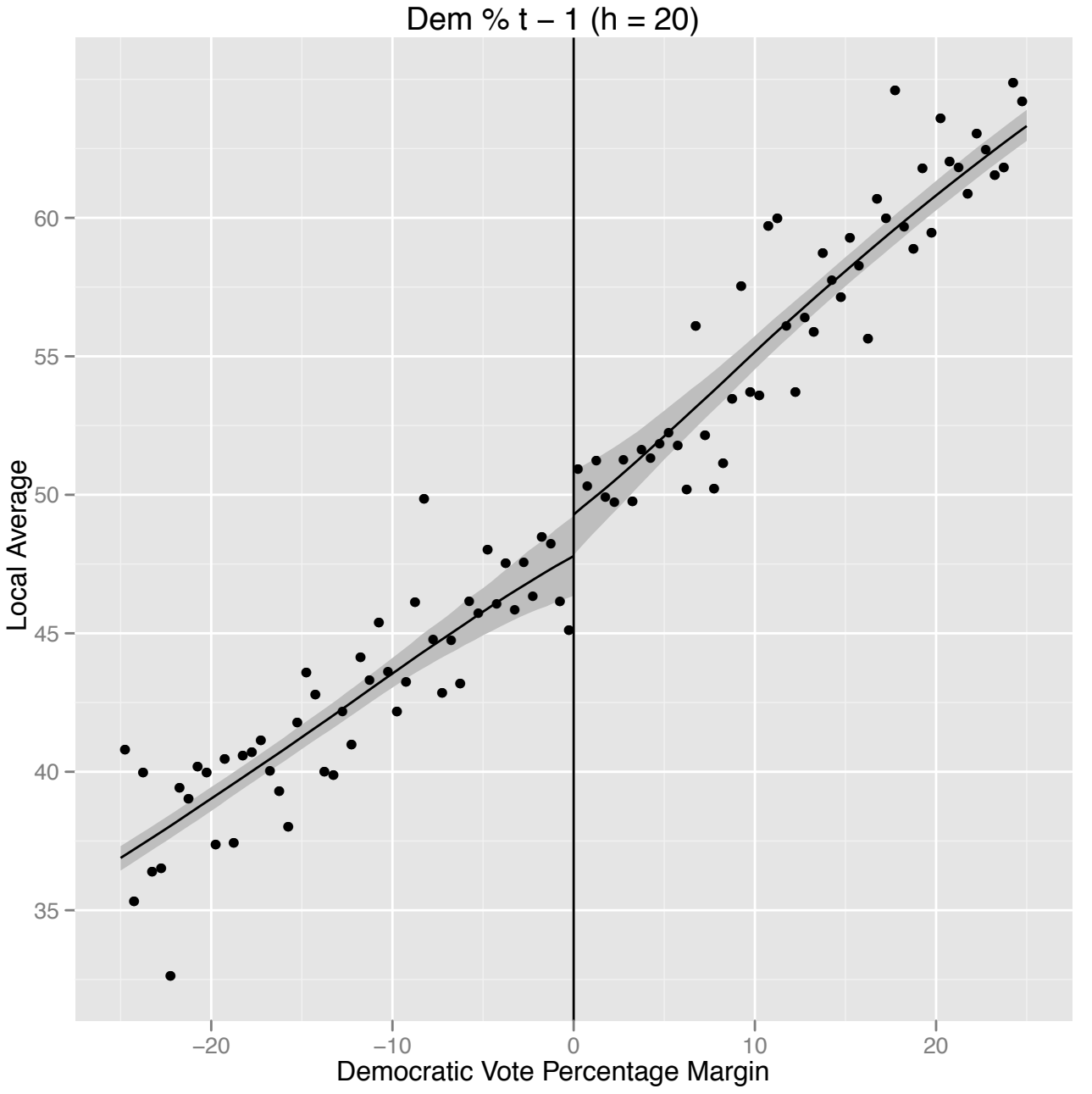

Dem % t – 1 (h = 1)
Local Average
65
60
55
50
45
40
35
–20
–10
0
10
20
Democratic Vote Percentage Margin

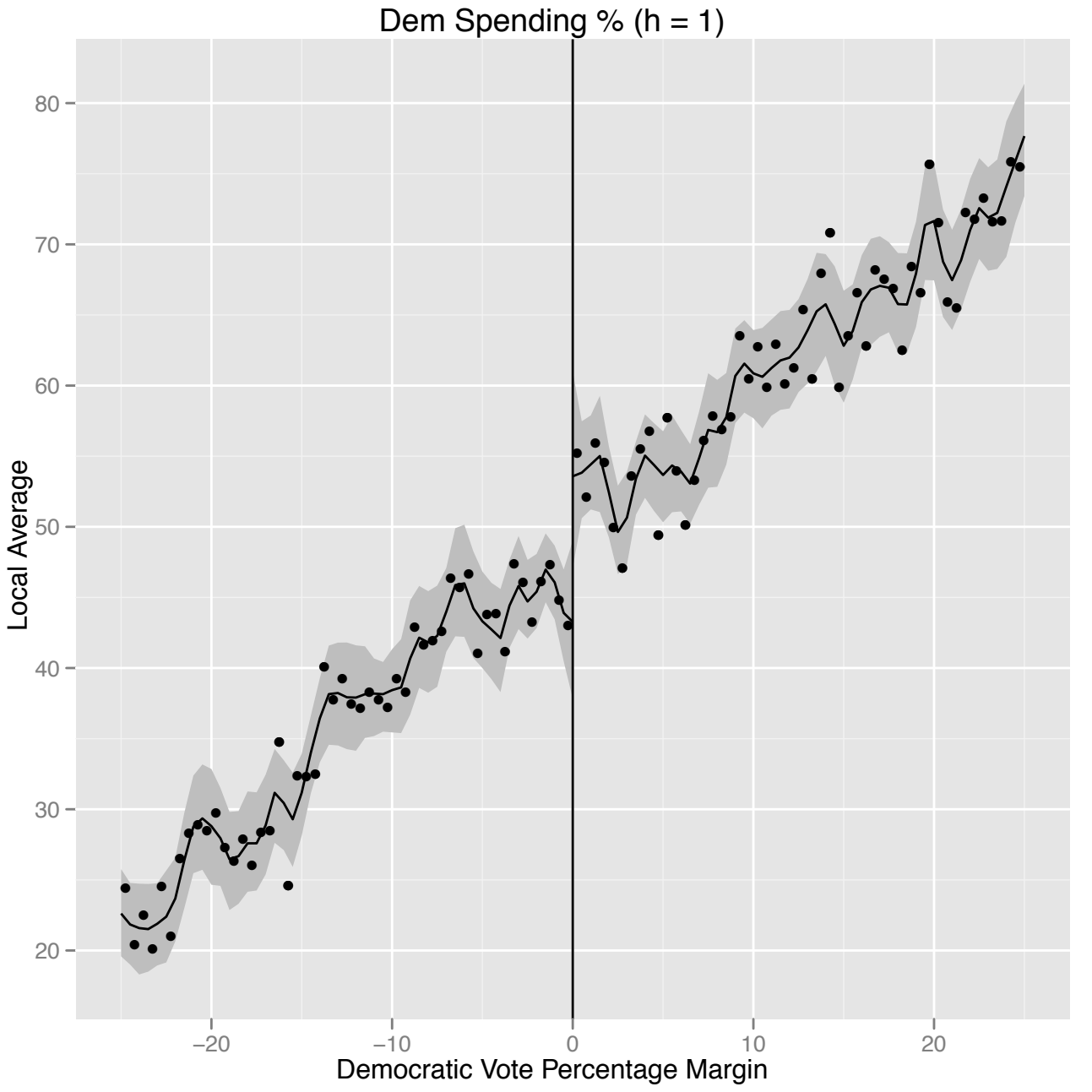

Dem % t – 1 (h = 2)
Local Average
65
60
55
50
45
40
35
–20
–10
0
10
20
Democratic Vote Percentage Margin

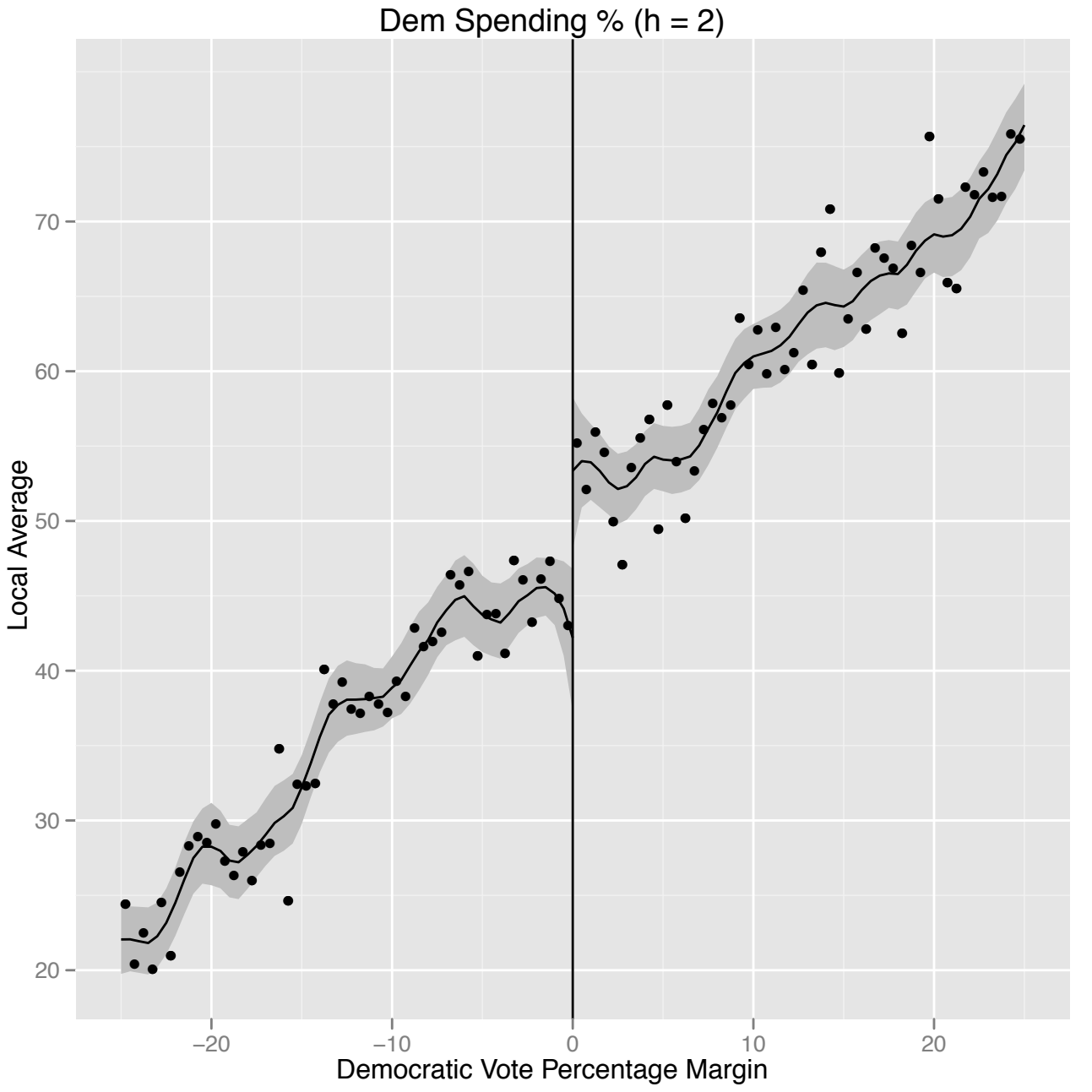

Dem % t – 1 (h = 5)
Local Average
65
60
55
50
45
40
35
–20
–10
0
10
20
Democratic Vote Percentage Margin

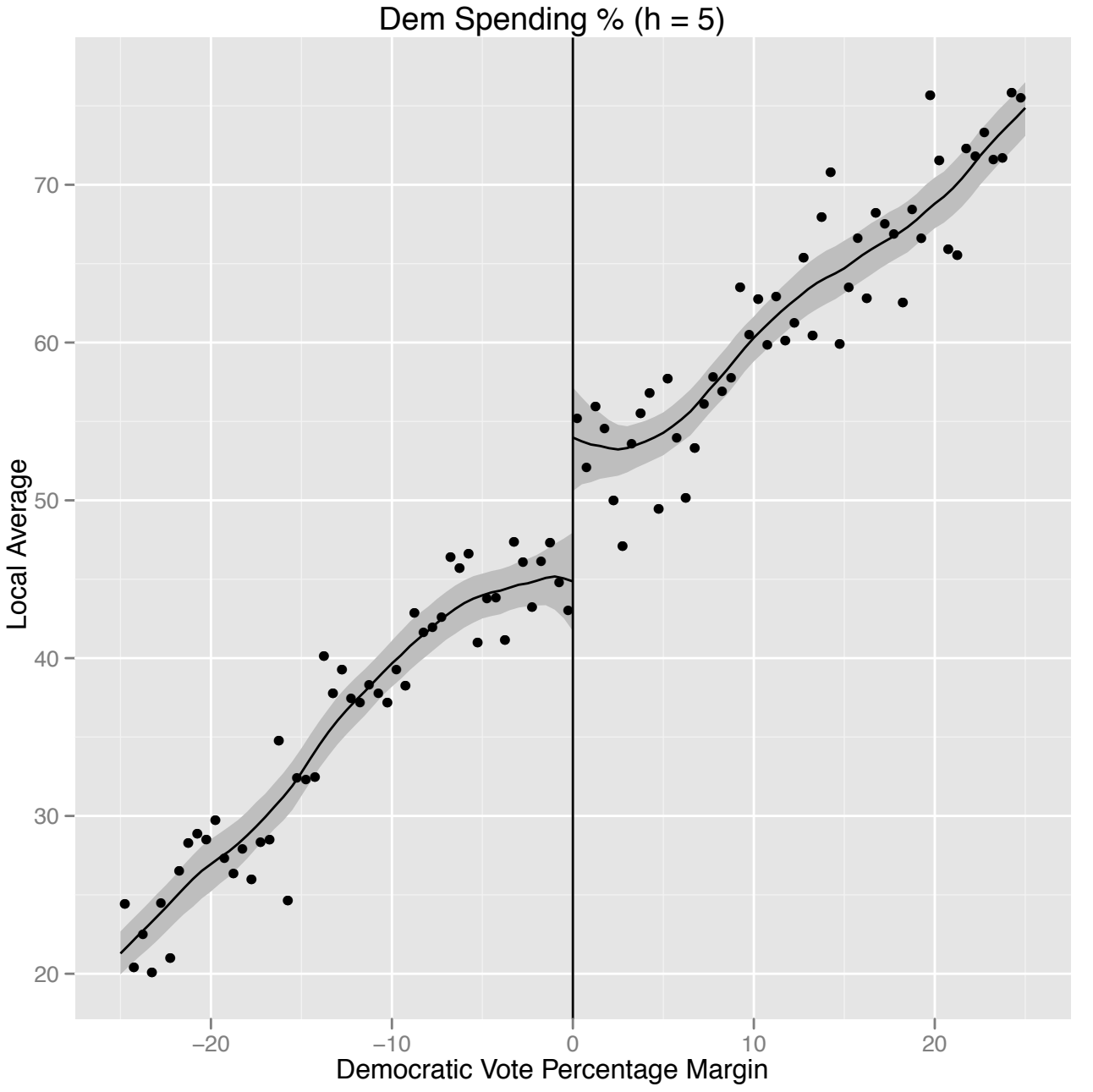

Dem % t – 1 (h = 10)
Local Average
60
55
50
45
40
35
–20
–10
0
10
20
Democratic Vote Percentage Margin

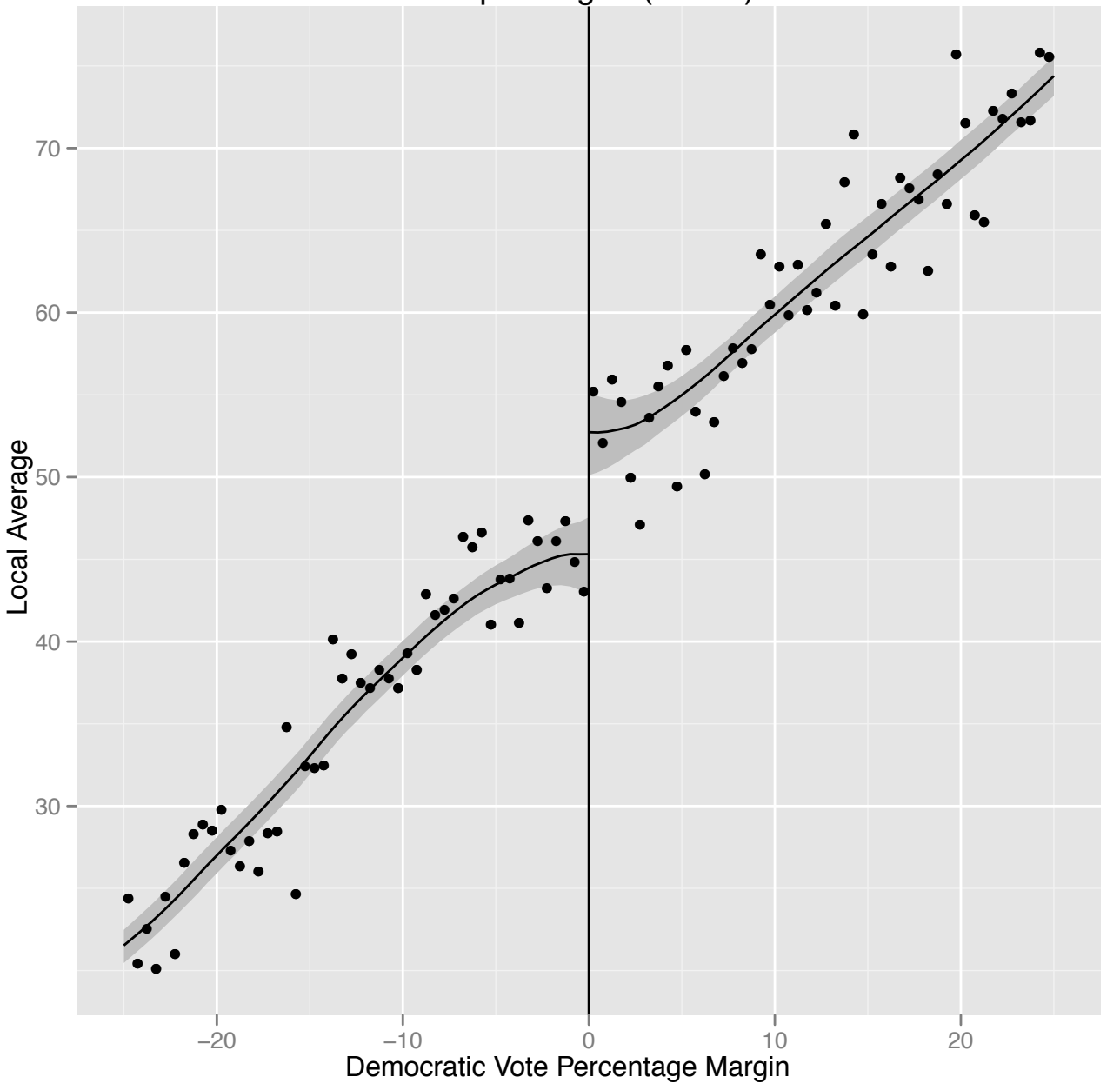

Dem % t – 1 (h = 15)
Local Average
60
55
50
45
40
35
–20
–10
0
10
20
Democratic Vote Percentage Margin

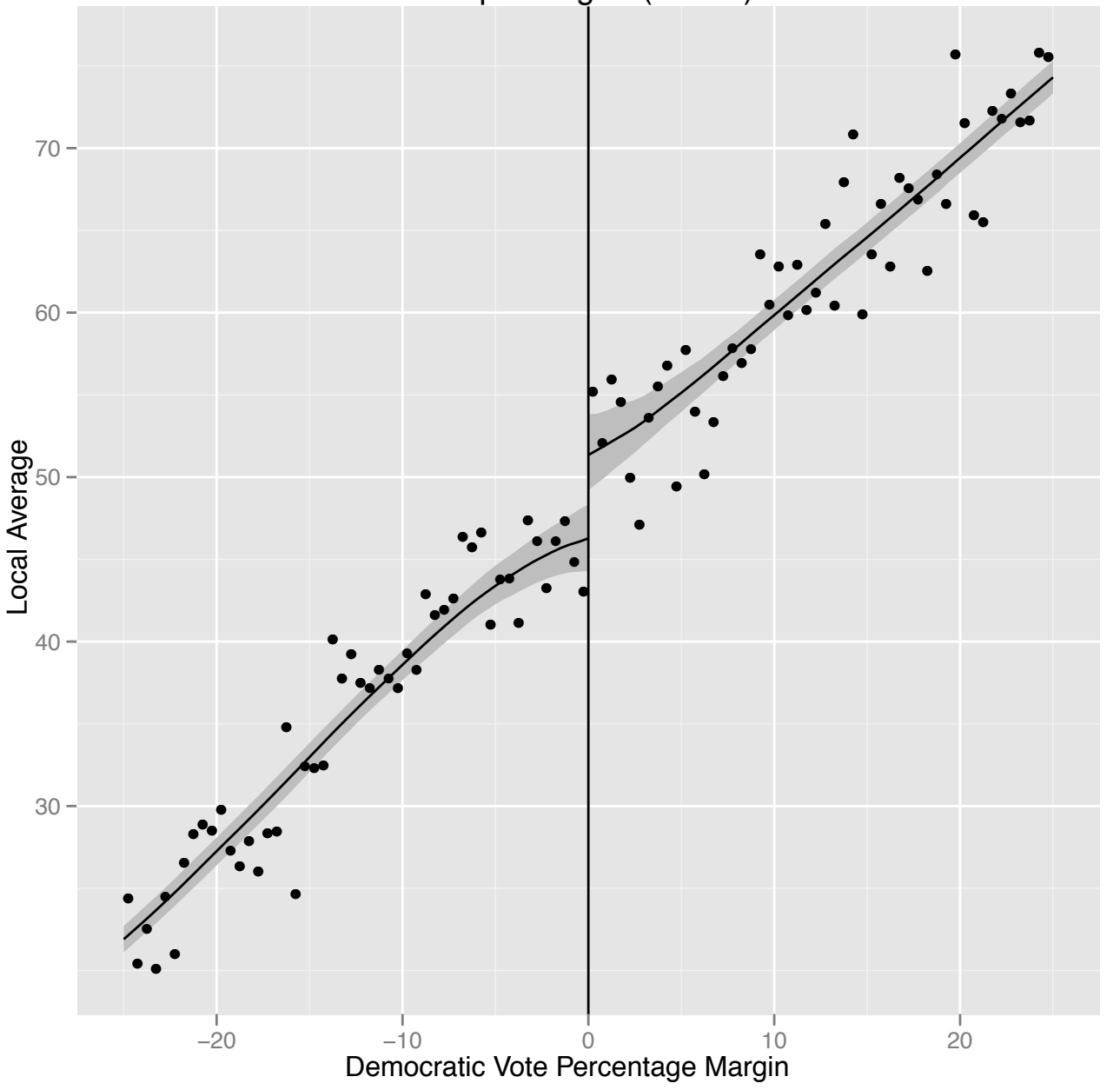

Dem % t – 1 (h = 20)
Local Average
60
55
50
45
40
35
–20
–10
0
10
20
Democratic Vote Percentage Margin

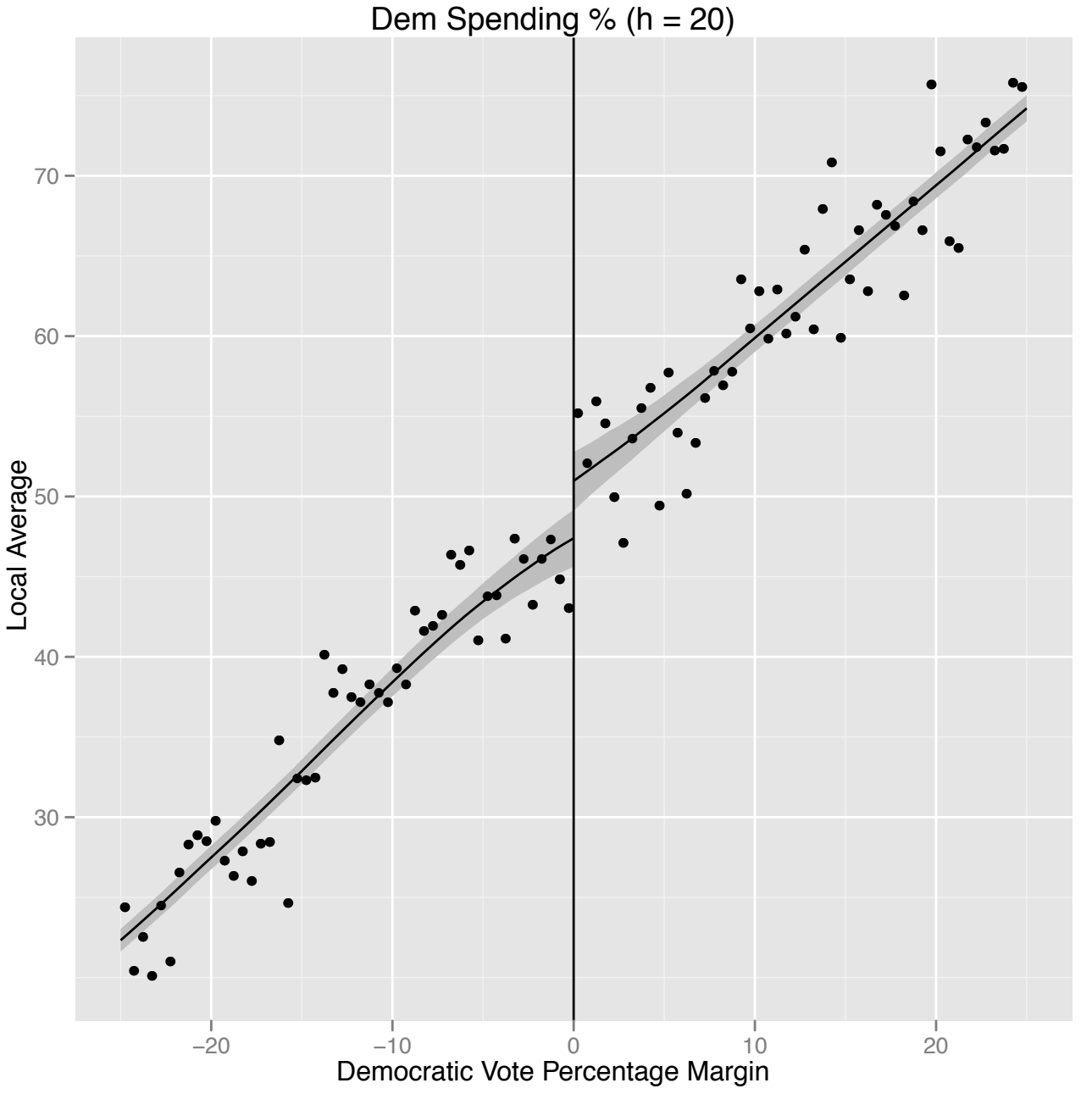

Dem Spending % (h = 1)
Local Average
80
70
60
50
40
30
20
−20
−10
0
10
20
Democratic Vote Percentage Margin

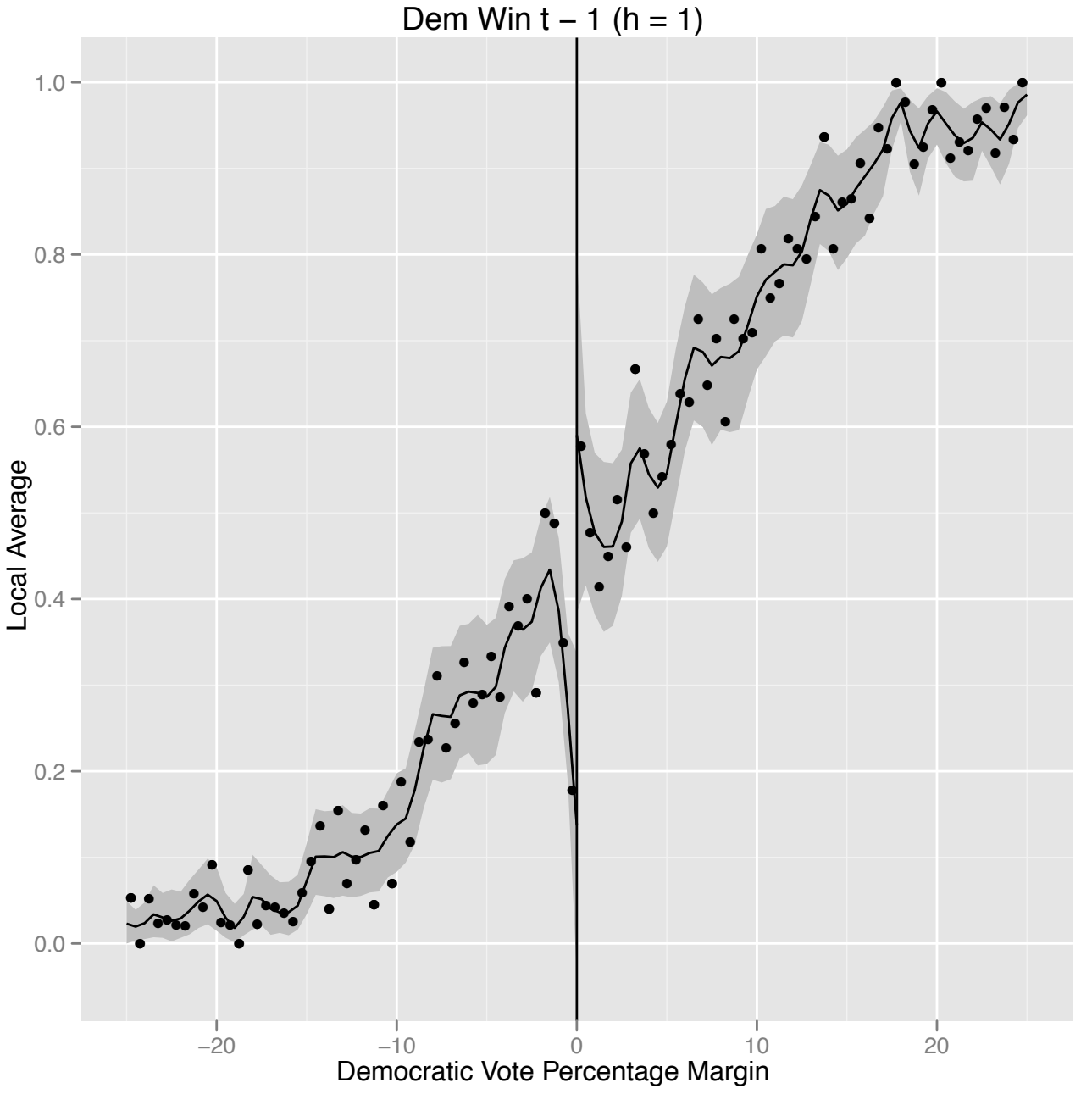

Dem Spending % (h = 2)
Local Average
70
60
50
40
30
20
−20
−10
0
10
20
Democratic Vote Percentage Margin

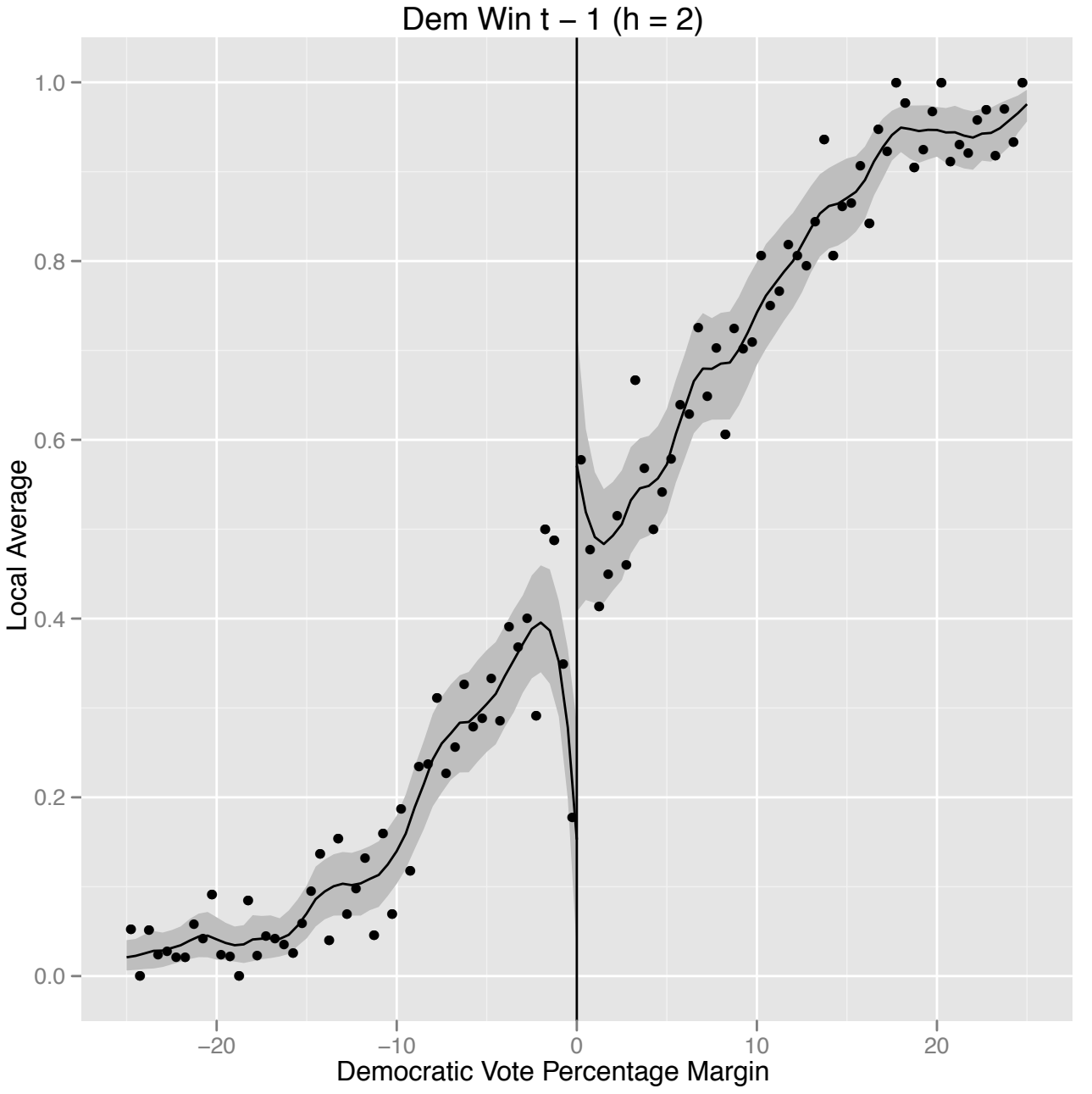

Dem Spending % (h = 5)
Local Average
70
60
50
40
30
20
−20
−10
0
10
20
Democratic Vote Percentage Margin

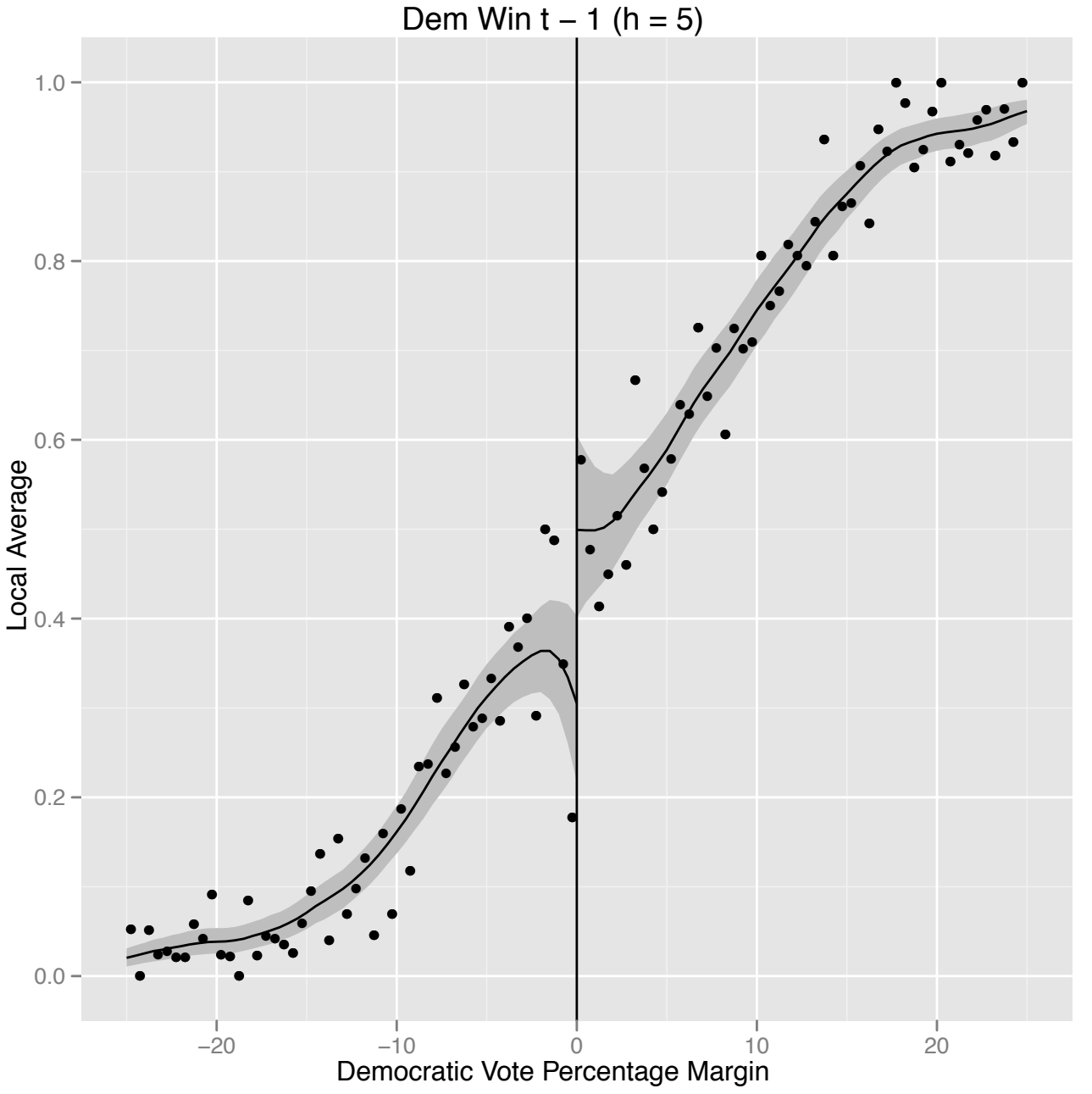

Dem Spending % (h = 10)
Local Average
70
60
50
40
30
−20
−10
0
10
20
Democratic Vote Percentage Margin

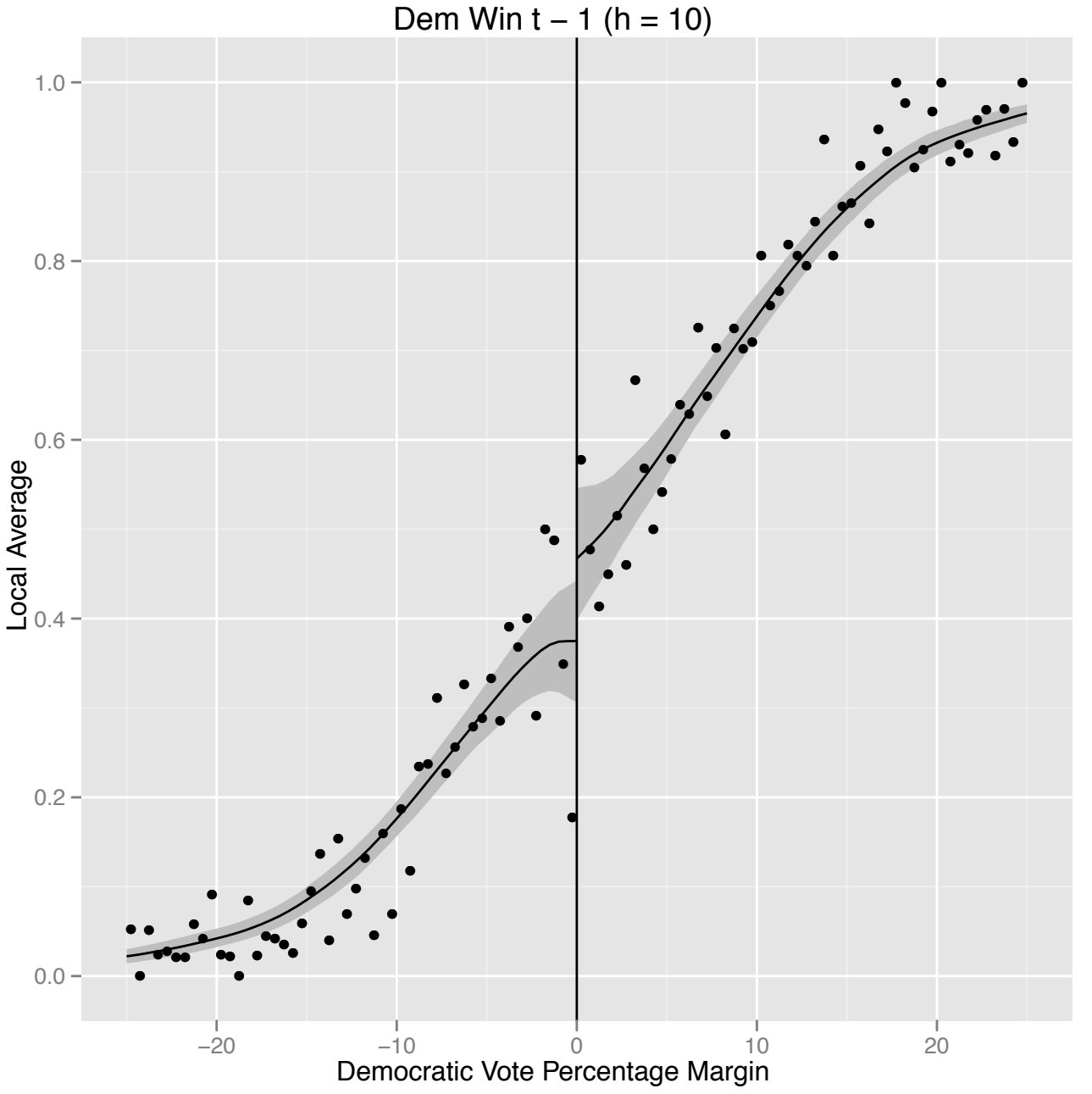

Dem Spending % (h = 15)
Local Average
70
60
50
40
30
−20
−10
0
10
20
Democratic Vote Percentage Margin

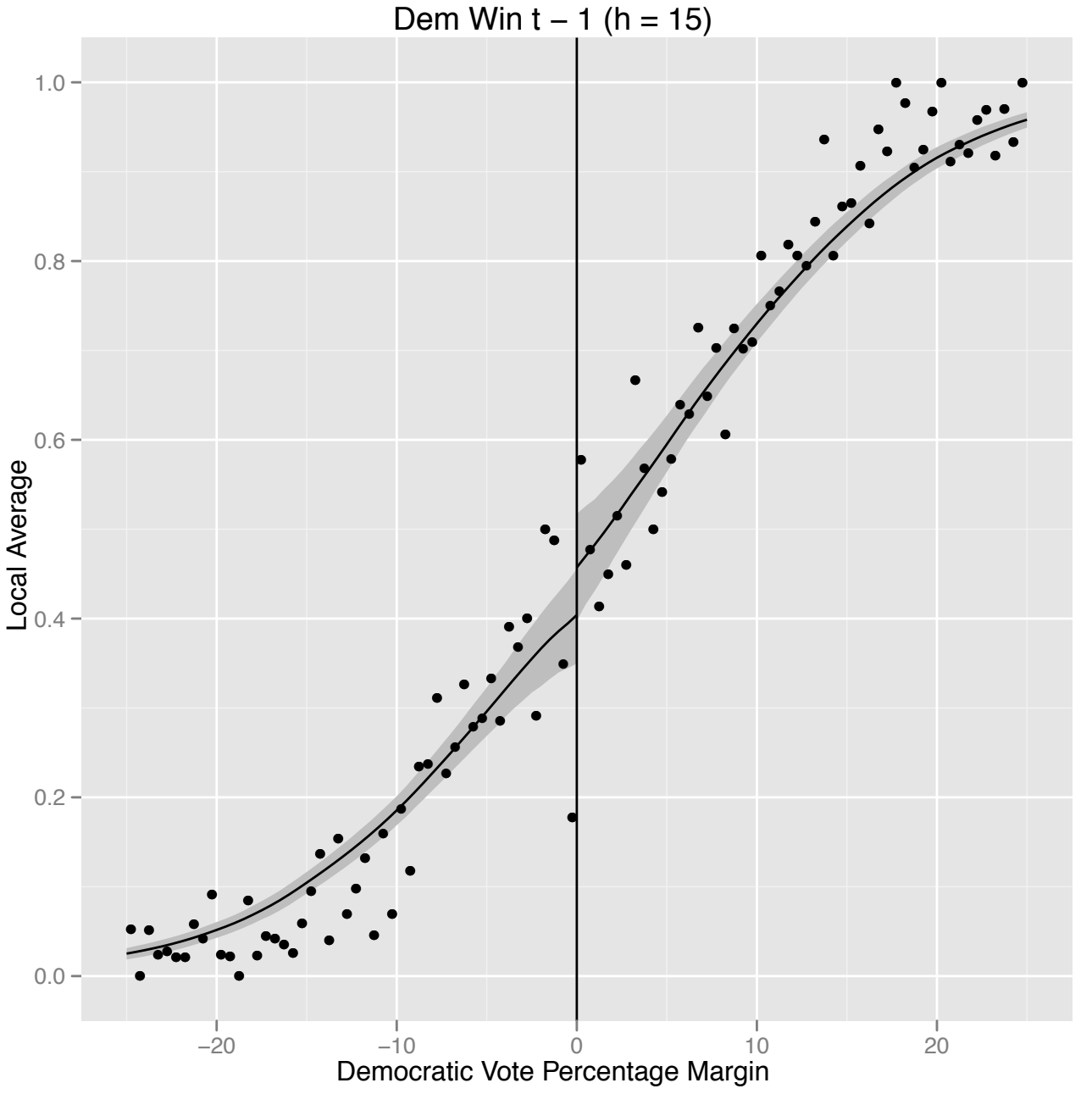

Dem Spending % (h = 20)
Local Average
70
60
50
40
30
−20
−10
0
10
20
Democratic Vote Percentage Margin

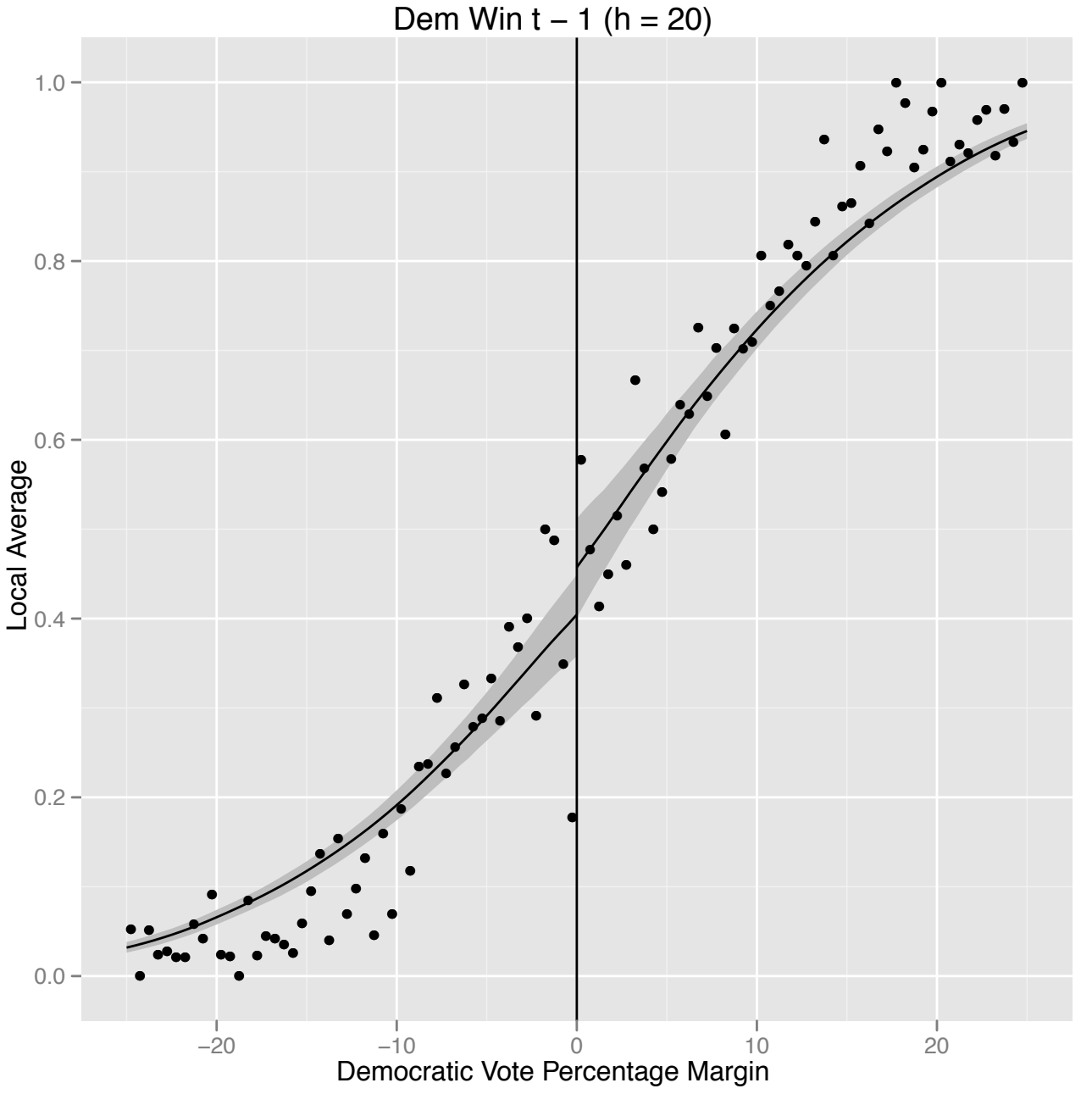

Dem Win t – 1 (h = 1)
1.0
0.8
0.6
0.4
0.2
0.0
Local Average
–20
–10
0
10
20
Democratic Vote Percentage Margin

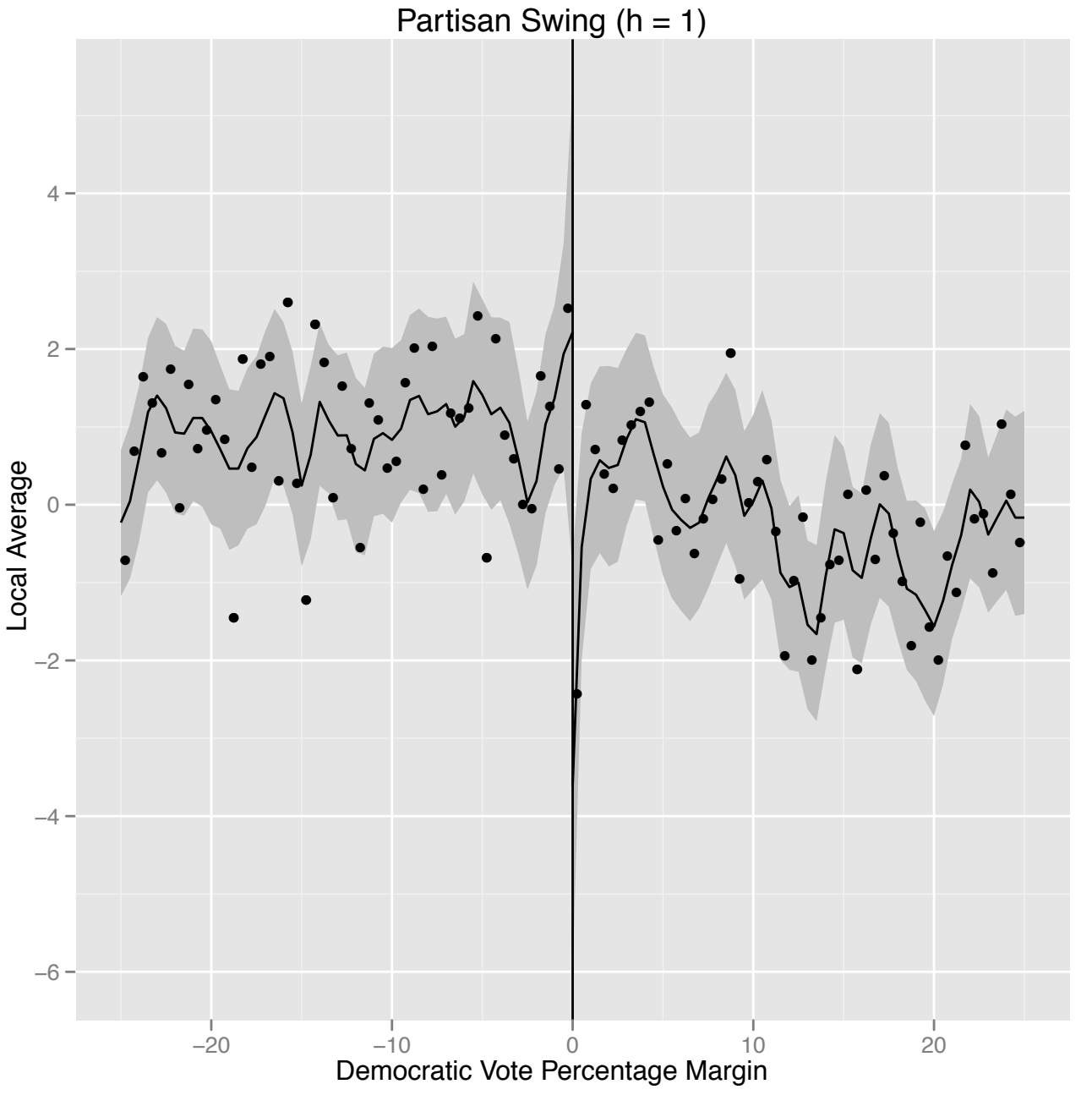

Dem Win t − 1 (h = 2)
1.0
0.8
0.6
0.4
0.2
0.0
Local Average
−20
−10
0
10
20
Democratic Vote Percentage Margin

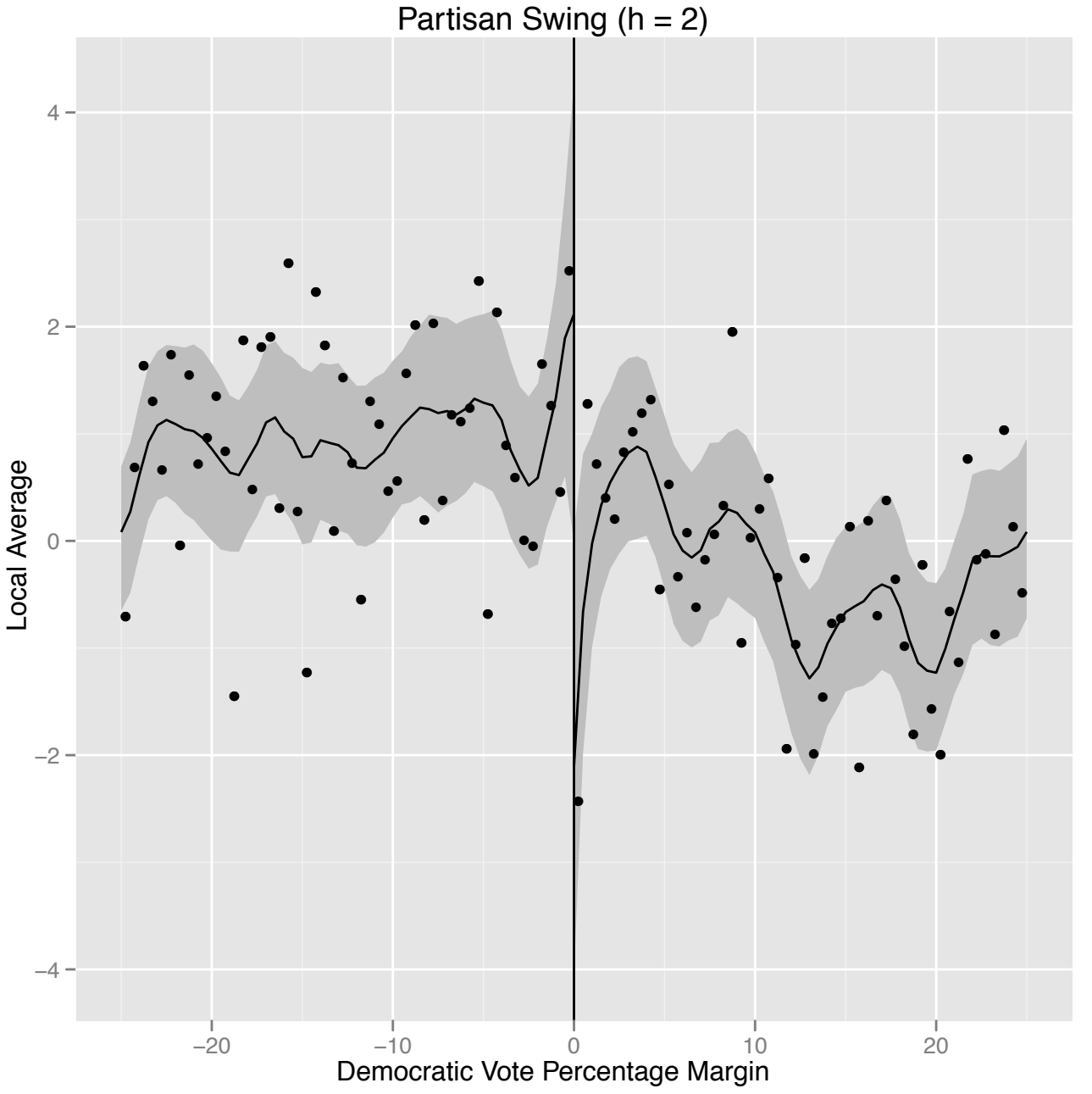

Dem Win t – 1 (h = 5)
Local Average
1.0
0.8
0.6
0.4
0.2
0.0
–20
–10
0
10
20
Democratic Vote Percentage Margin

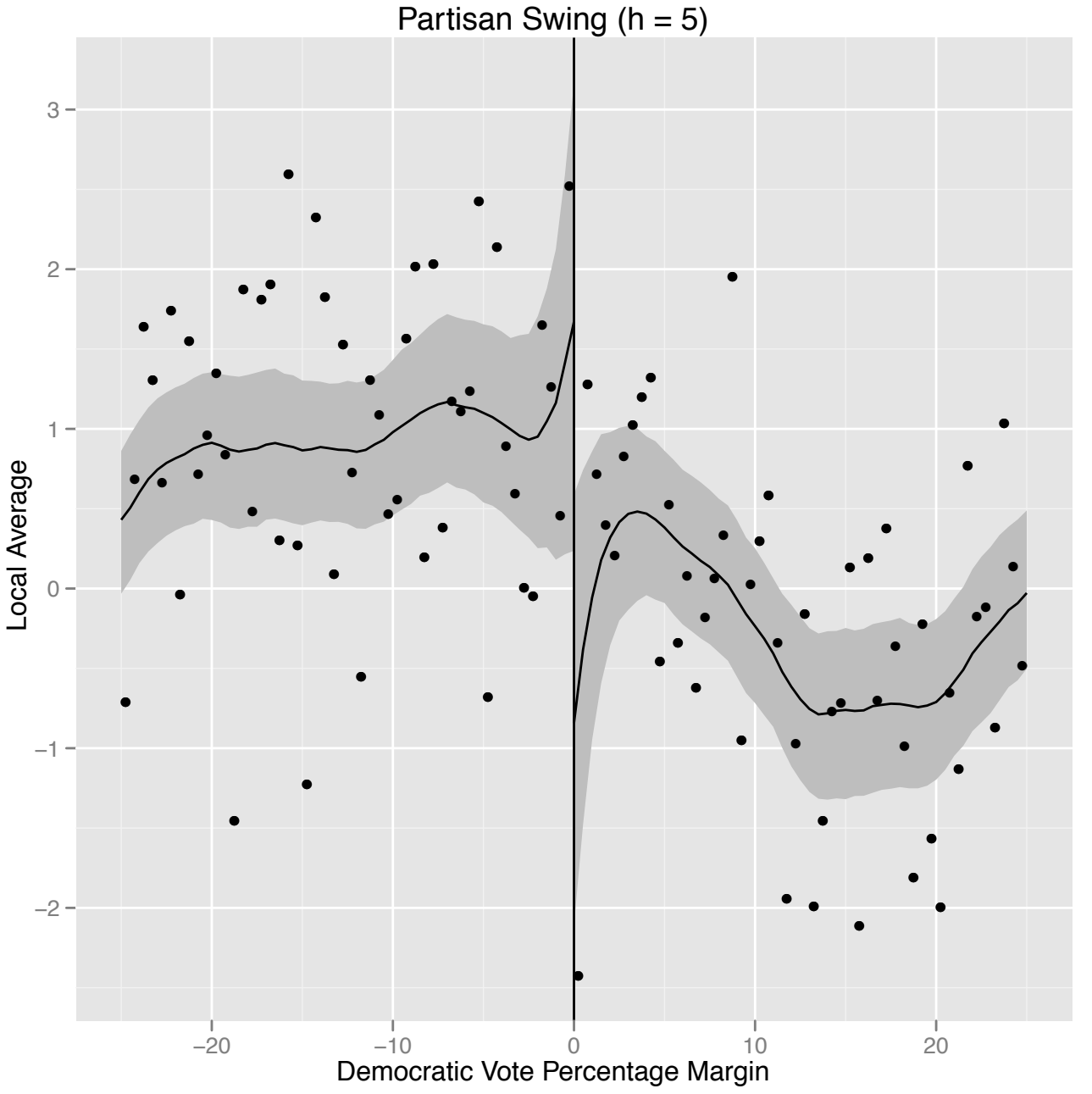

Dem Win t – 1 (h = 10)
1.0
0.8
0.6
0.4
0.2
0.0
Local Average
–20
–10
0
10
20
Democratic Vote Percentage Margin

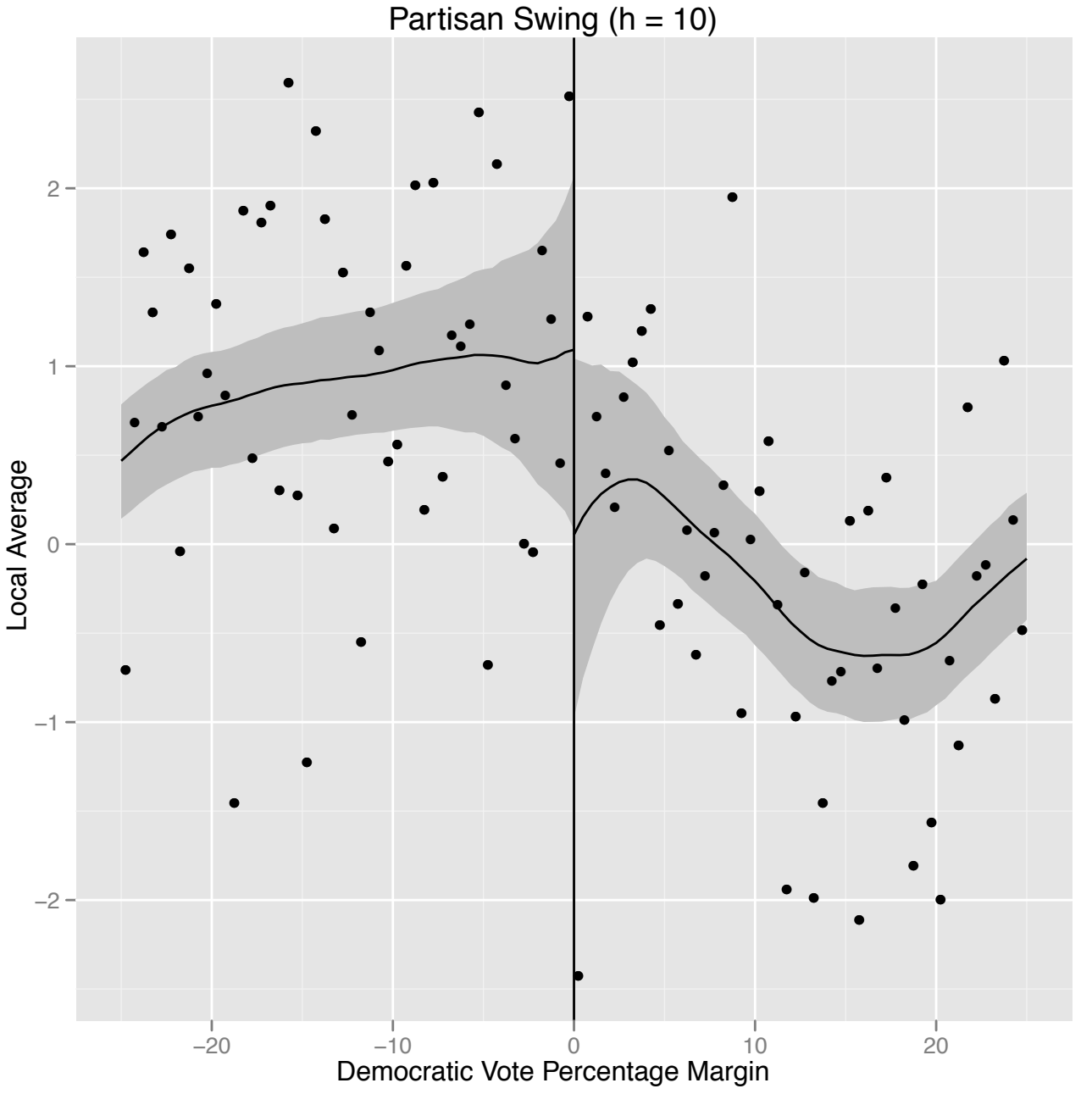

Dem Win t – 1 (h = 15)
Local Average
1.0
0.8
0.6
0.4
0.2
0.0
−20
−10
0
10
20
Democratic Vote Percentage Margin

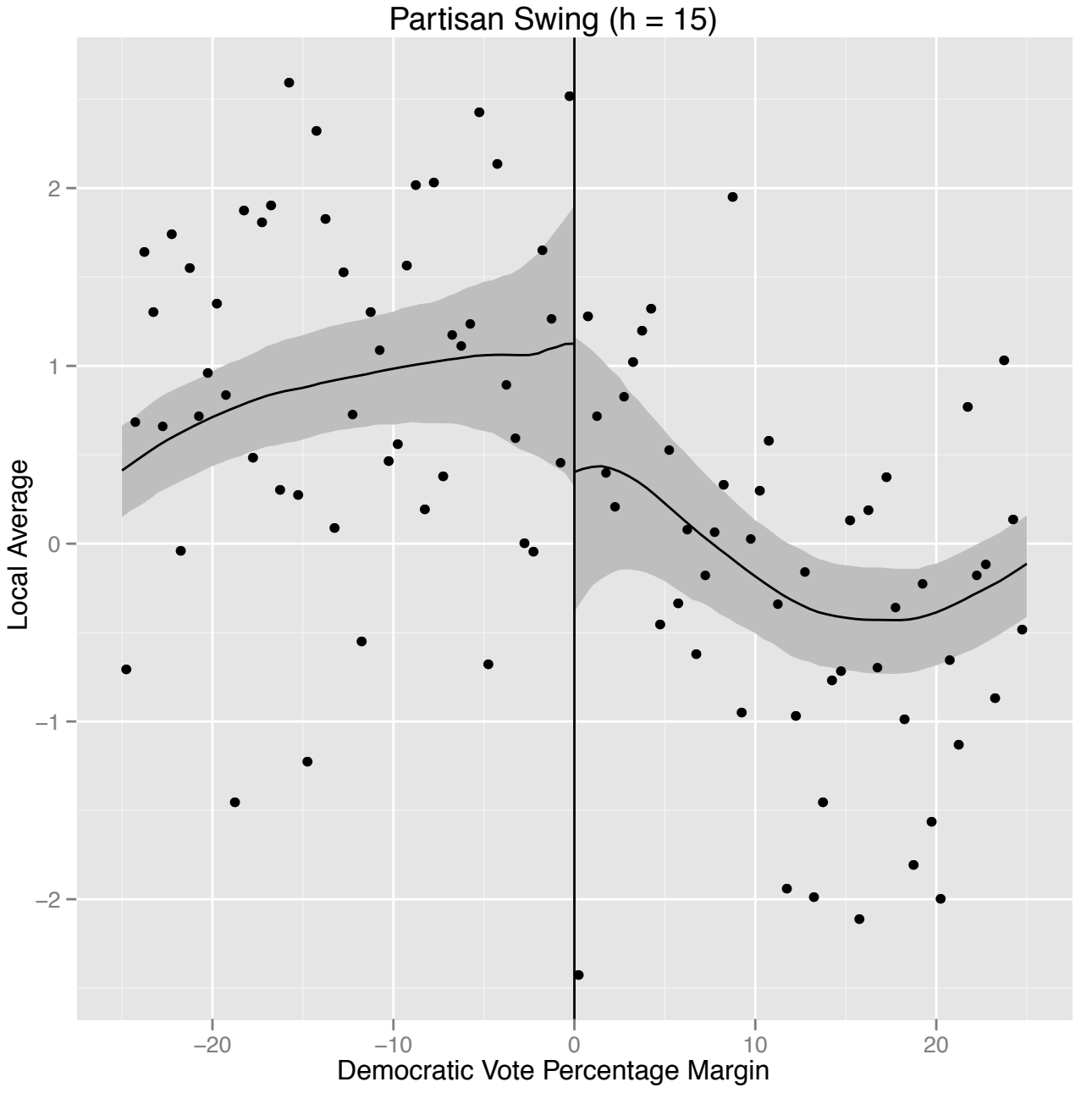

Dem Win t – 1 (h = 20)
1.0
0.8
0.6
0.4
0.2
0.0
Local Average
–20
–10
0
10
20
Democratic Vote Percentage Margin

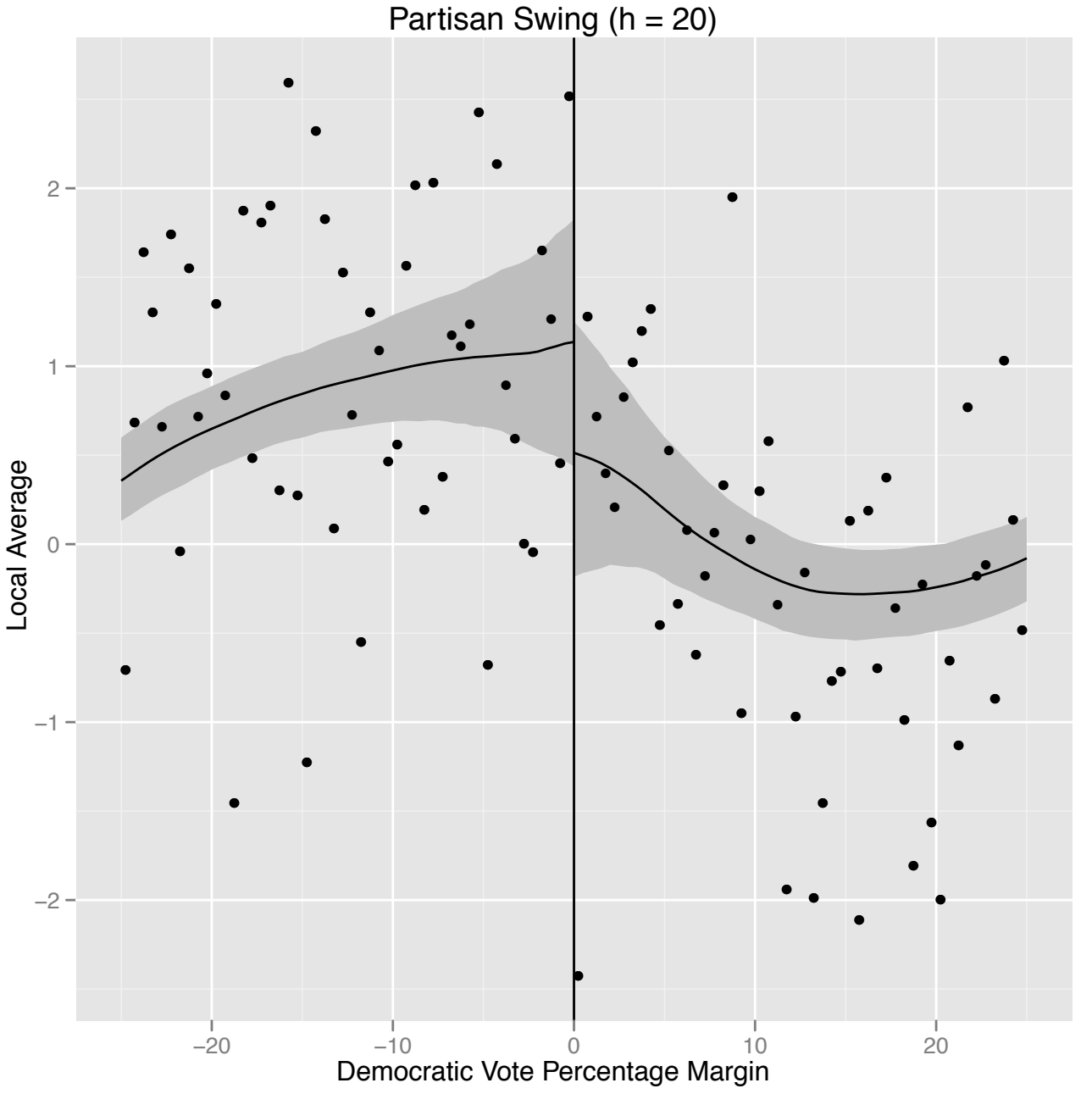

Partisan Swing (h = 1)
Local Average
4
2
0
−2
−4
−6
−20
−10
0
10
20
Democratic Vote Percentage Margin

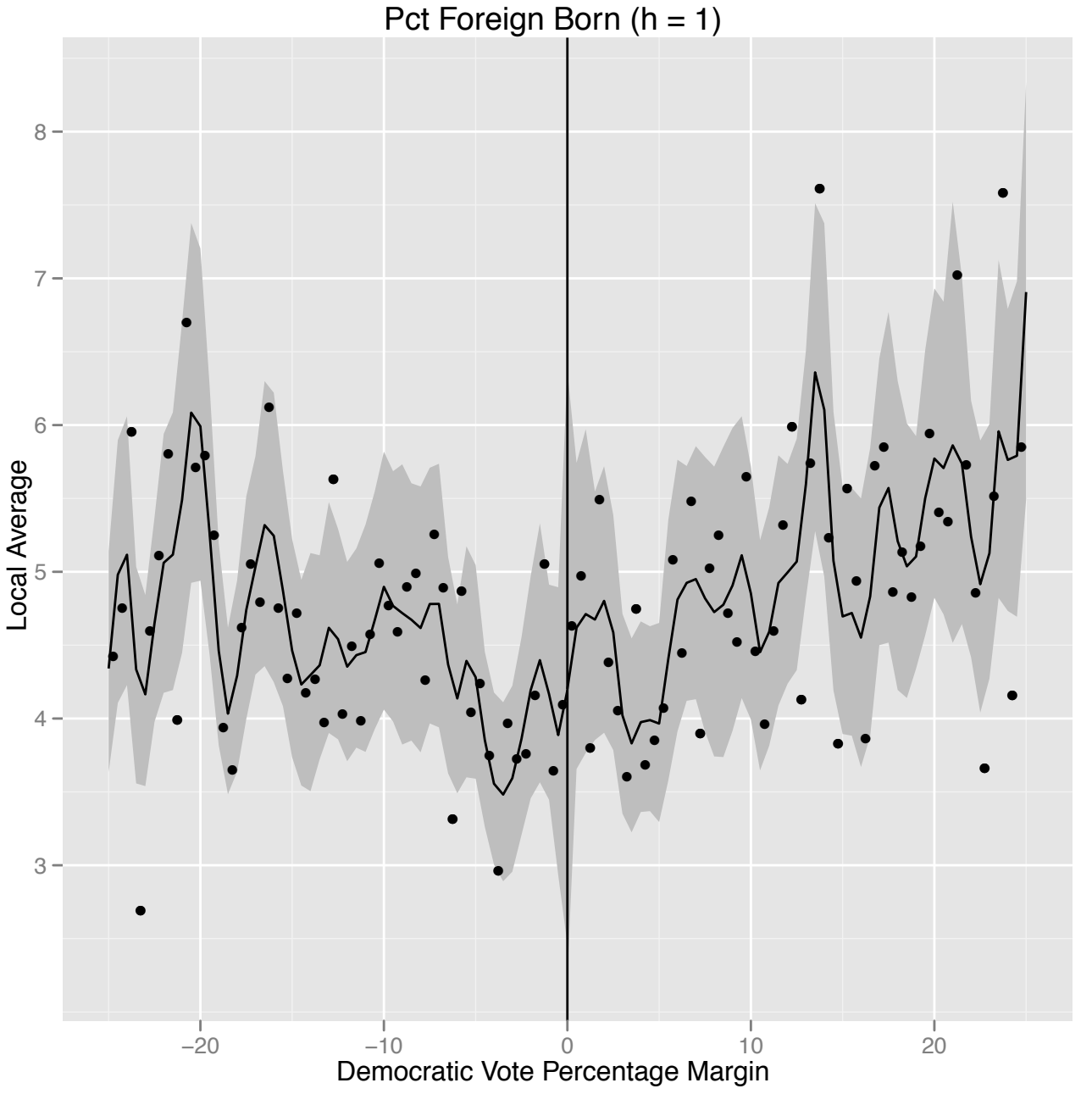

Partisan Swing (h = 2)
Local Average
4
2
0
−2
−4
−20
−10
0
10
20
Democratic Vote Percentage Margin

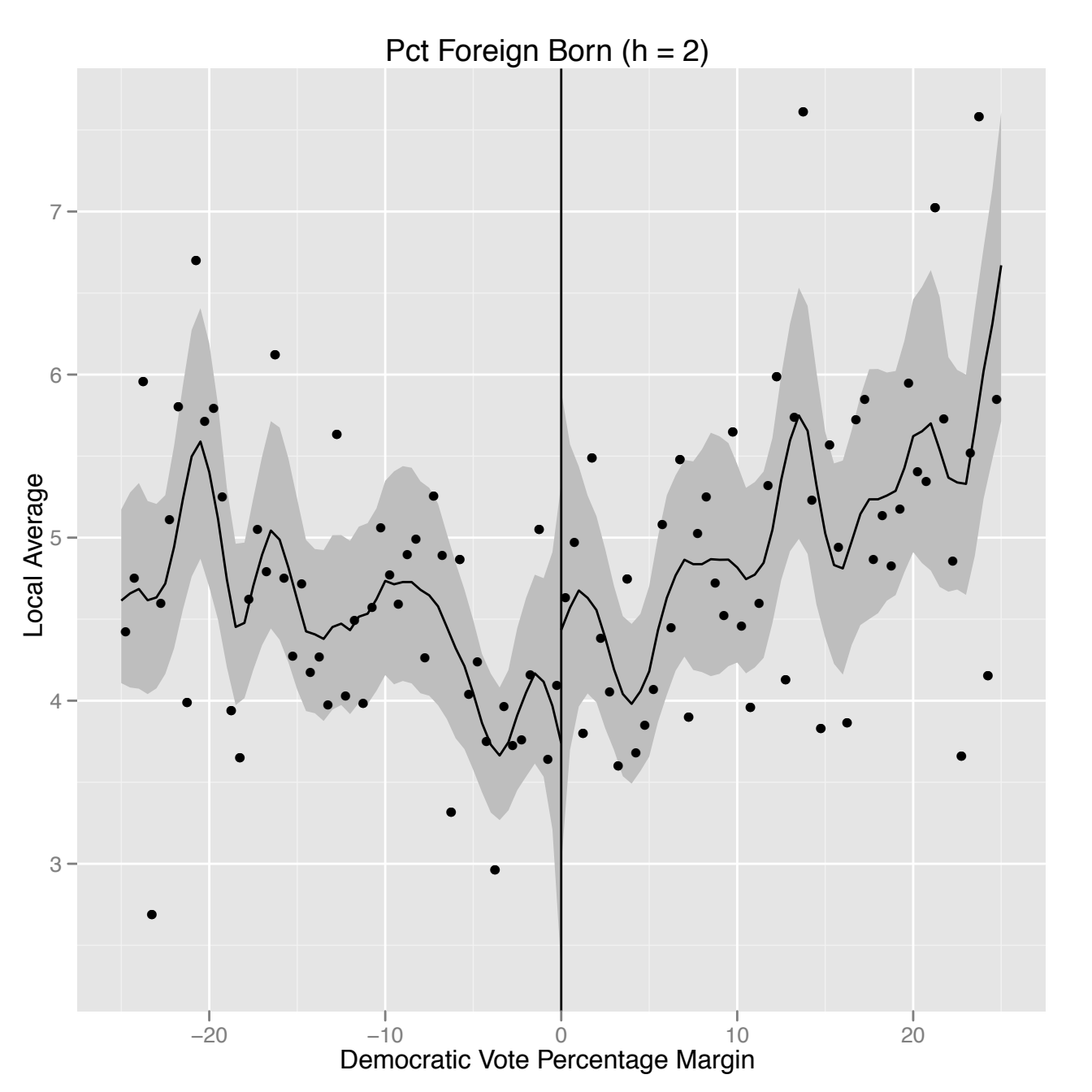

Partisan Swing (h = 5)
Local Average
3
2
1
0
−1
−2
−20
−10
0
10
20
Democratic Vote Percentage Margin

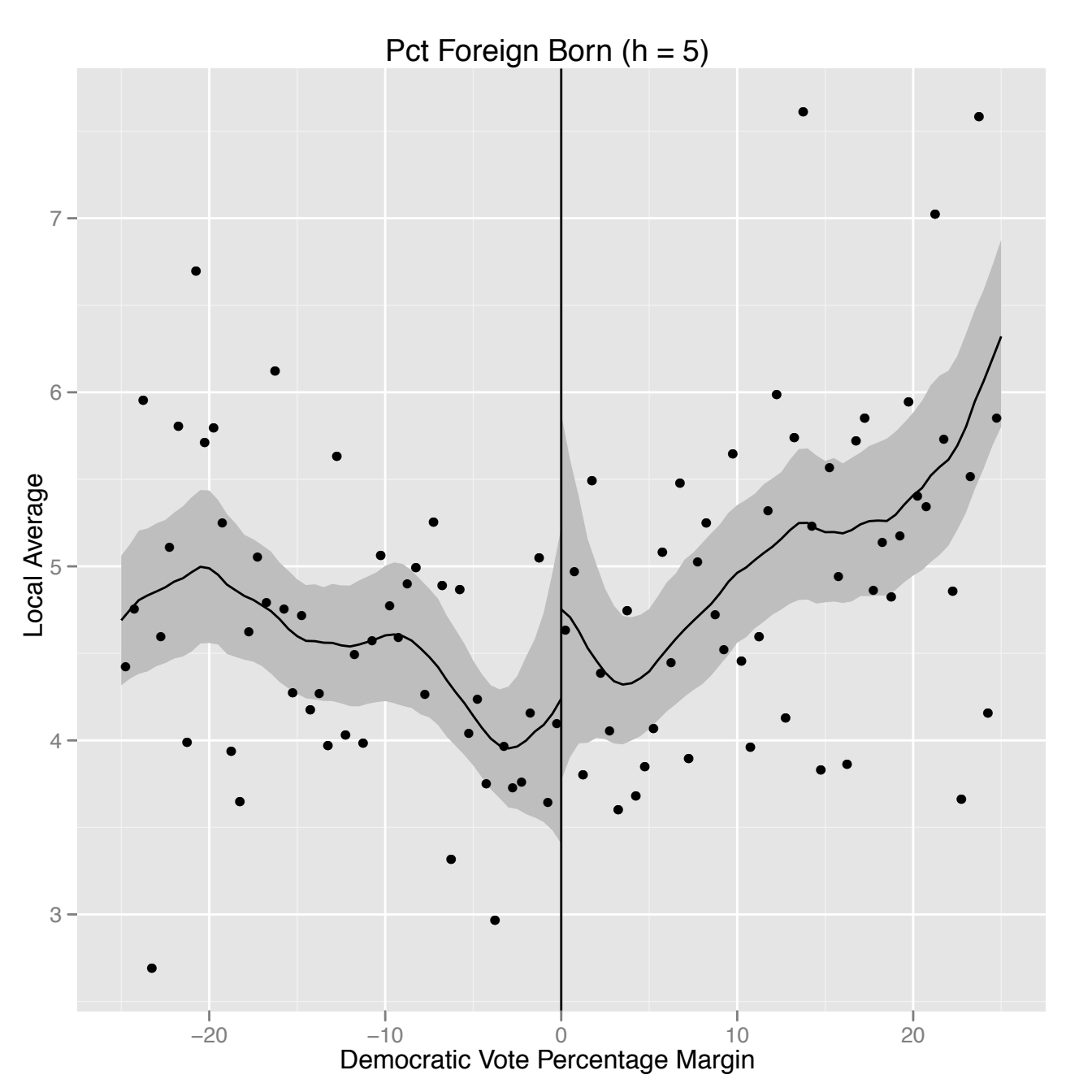

Partisan Swing (h = 10)
Local Average
2
1
0
−1
−2
−20
−10
0
10
20
Democratic Vote Percentage Margin

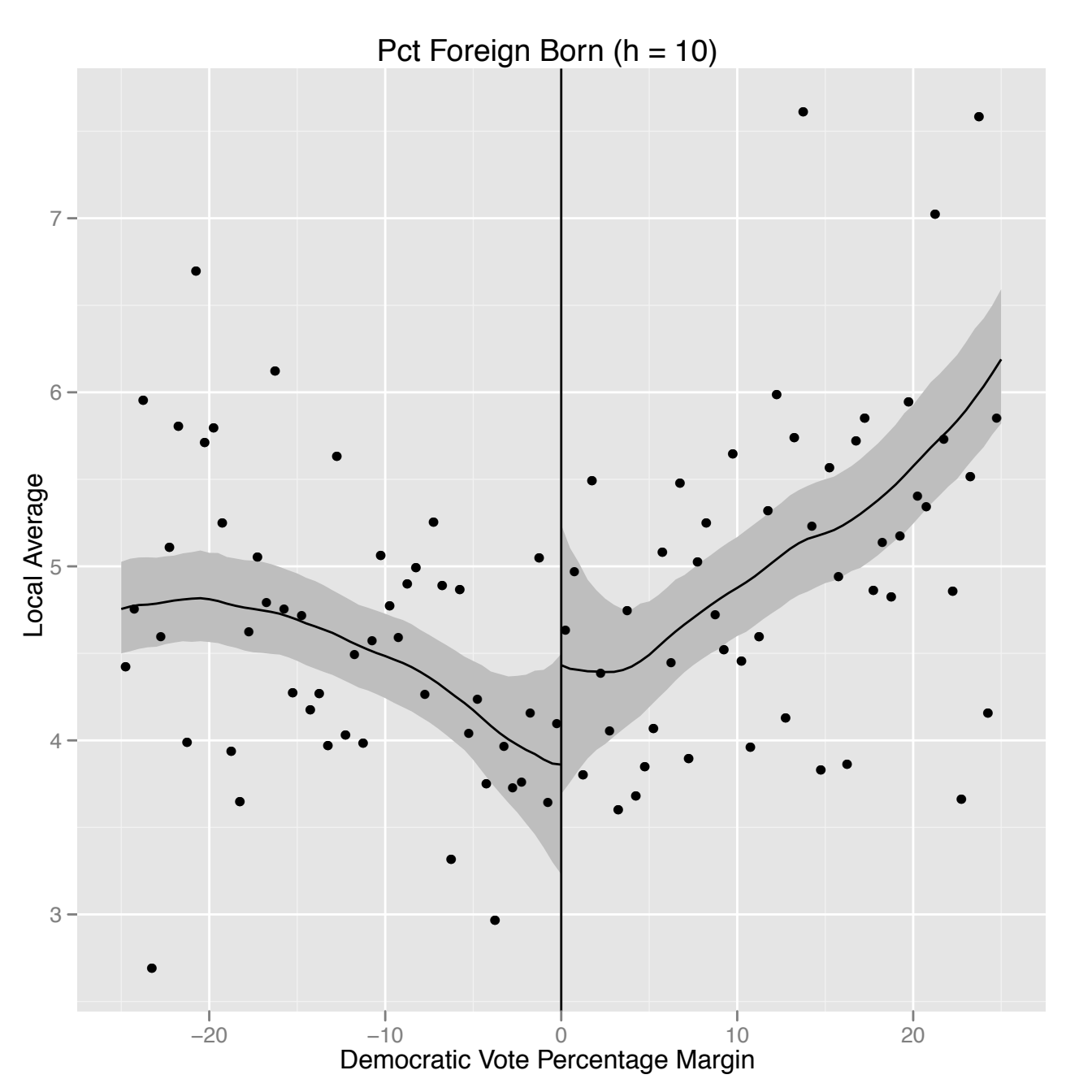

Partisan Swing (h = 15)
Local Average
2
1
0
−1
−2
−20
−10
0
10
20
Democratic Vote Percentage Margin

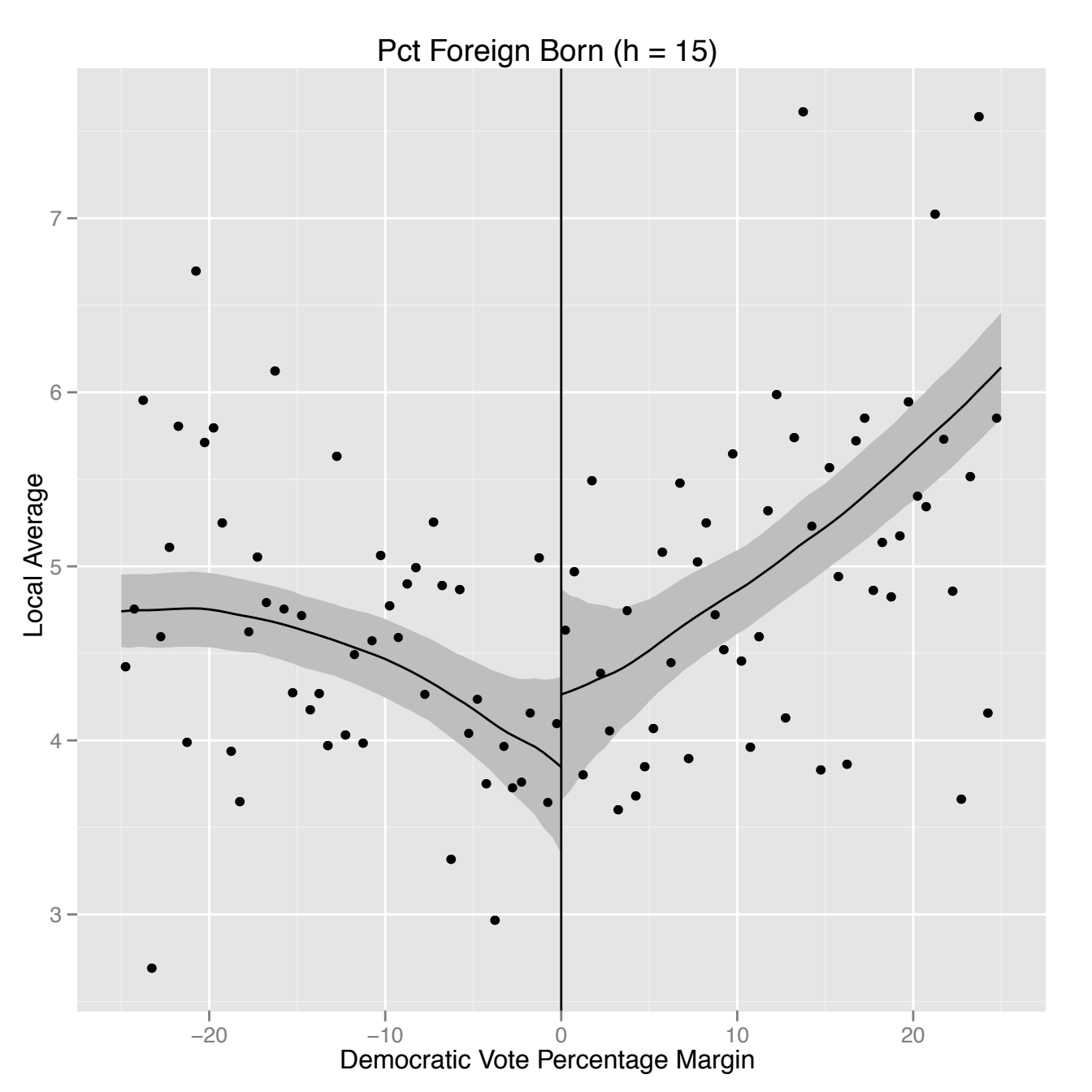

Partisan Swing (h = 20)
Local Average
2
1
0
−1
−2
−20
−10
0
10
20
Democratic Vote Percentage Margin

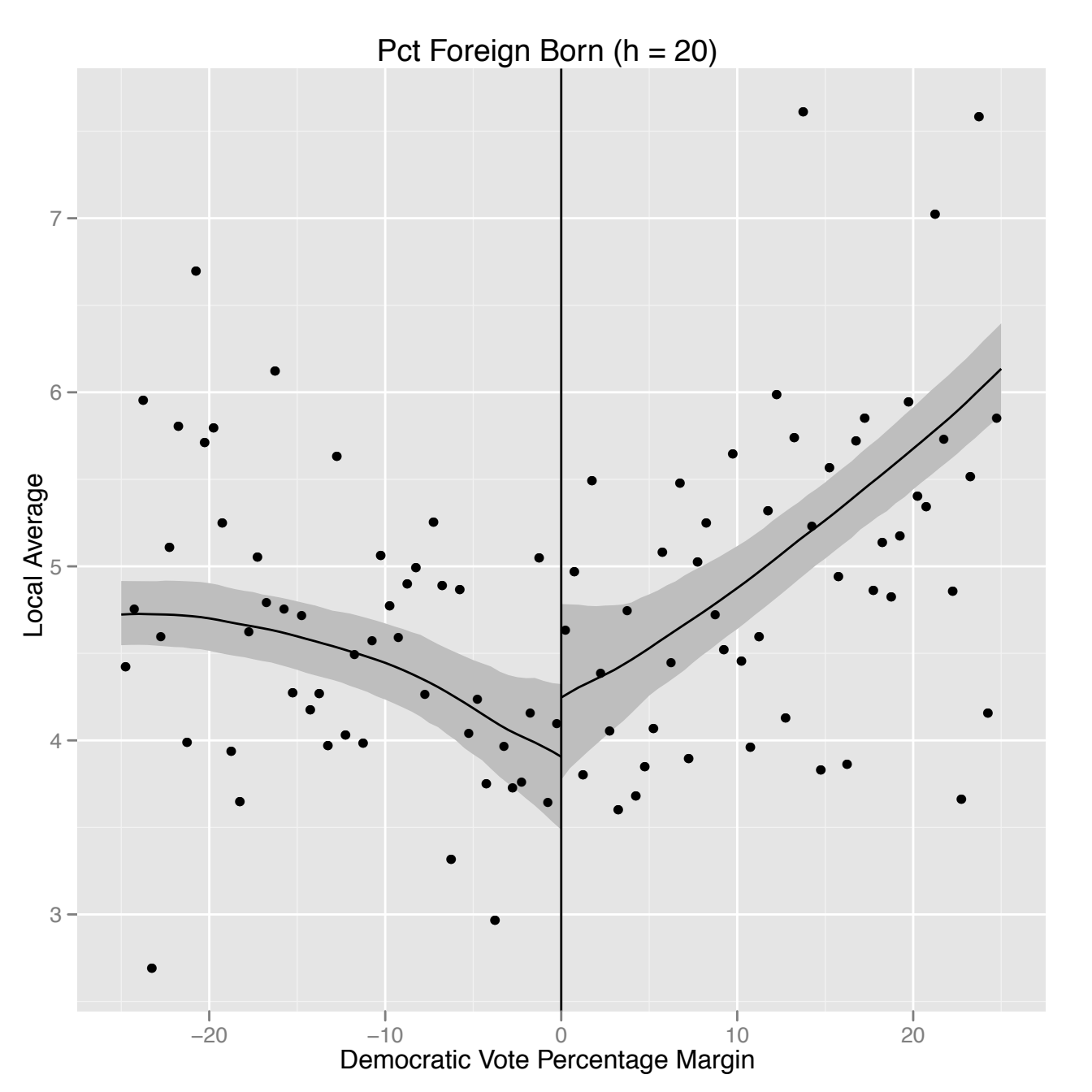

Pct Foreign Born (h = 1)
Local Average
8
7
6
5
4
3
−20
−10
0
10
20
Democratic Vote Percentage Margin

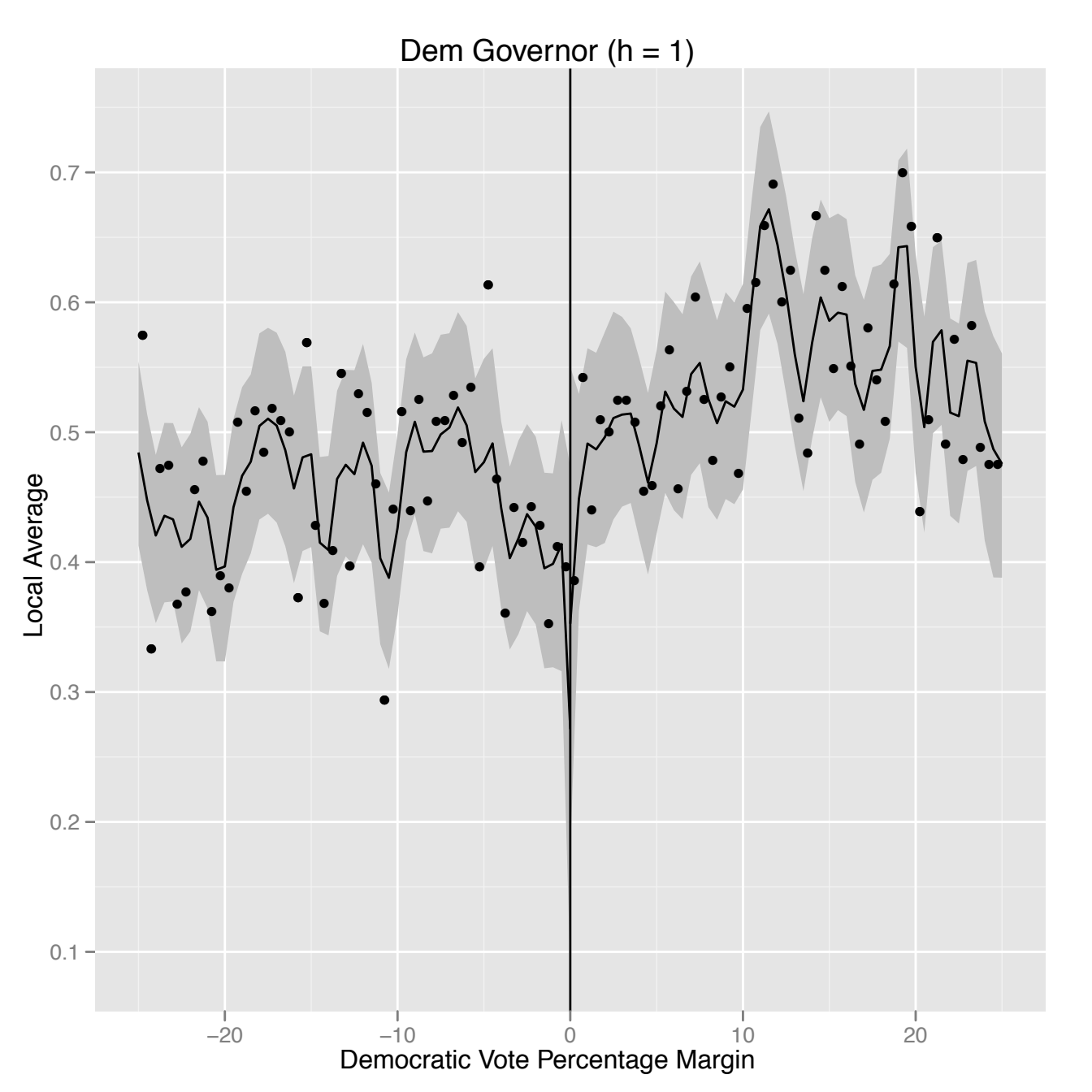

Pct Foreign Born (h = 2)
Local Average
7
6
5
4
3
−20
−10
0
10
20
Democratic Vote Percentage Margin

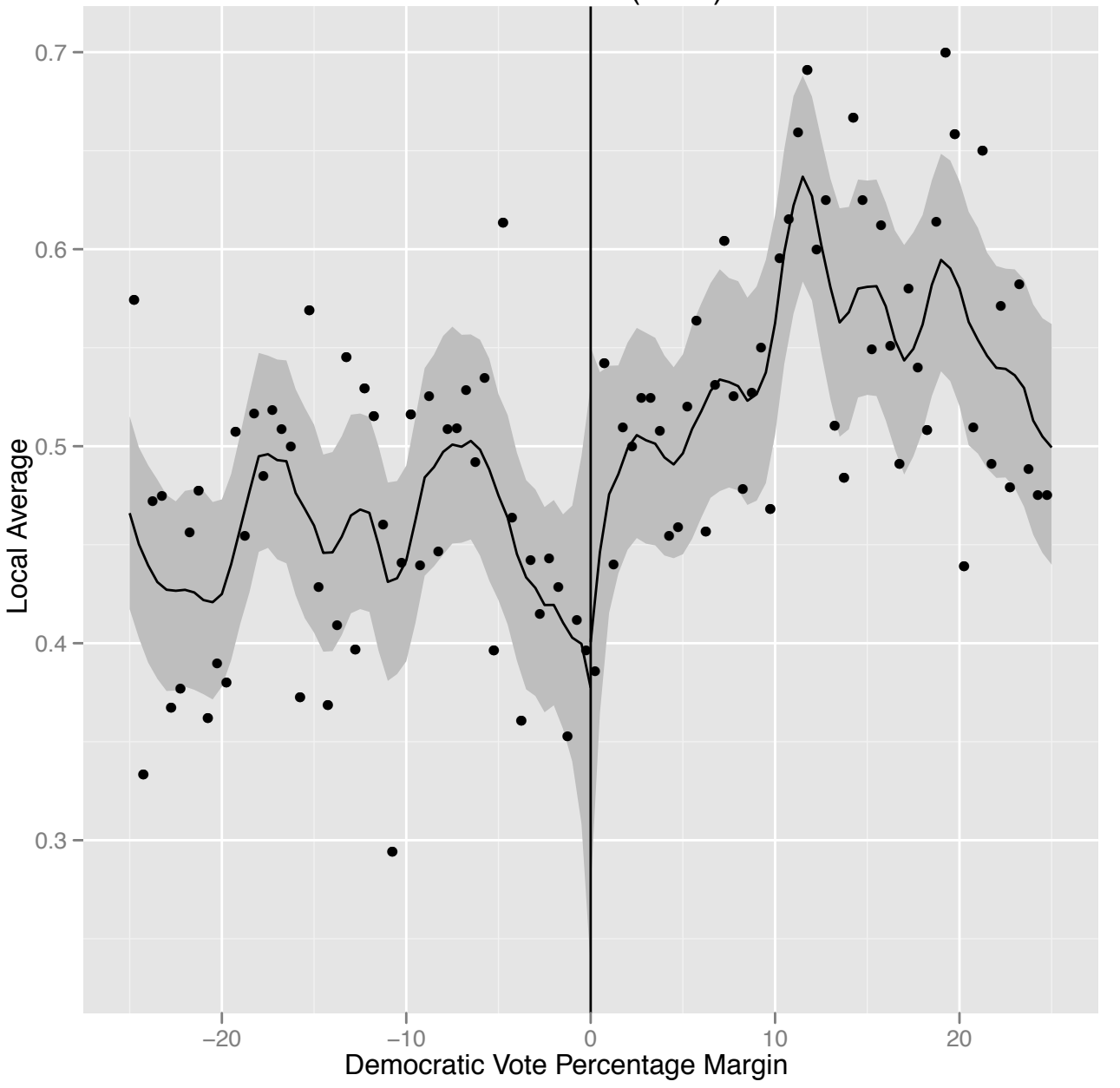

Pct Foreign Born (h = 5)
Local Average
7
6
5
4
3
−20
−10
0
10
20
Democratic Vote Percentage Margin

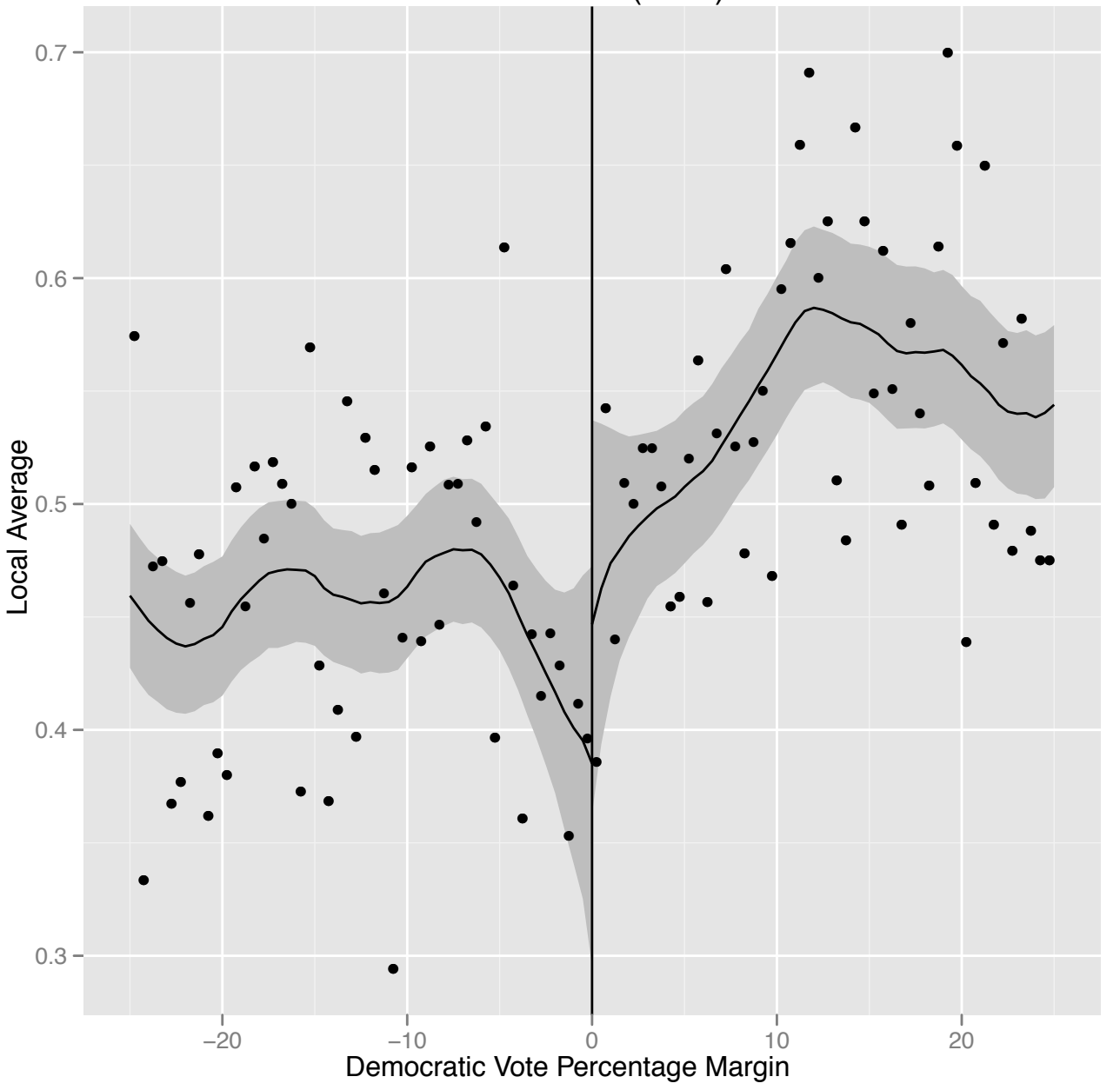

Pct Foreign Born (h = 10)
Local Average
7
6
5
4
3
−20
−10
0
10
20
Democratic Vote Percentage Margin


Pct Foreign Born (h = 15)
Local Average
7
6
5
4
3
−20
−10
0
10
20
Democratic Vote Percentage Margin

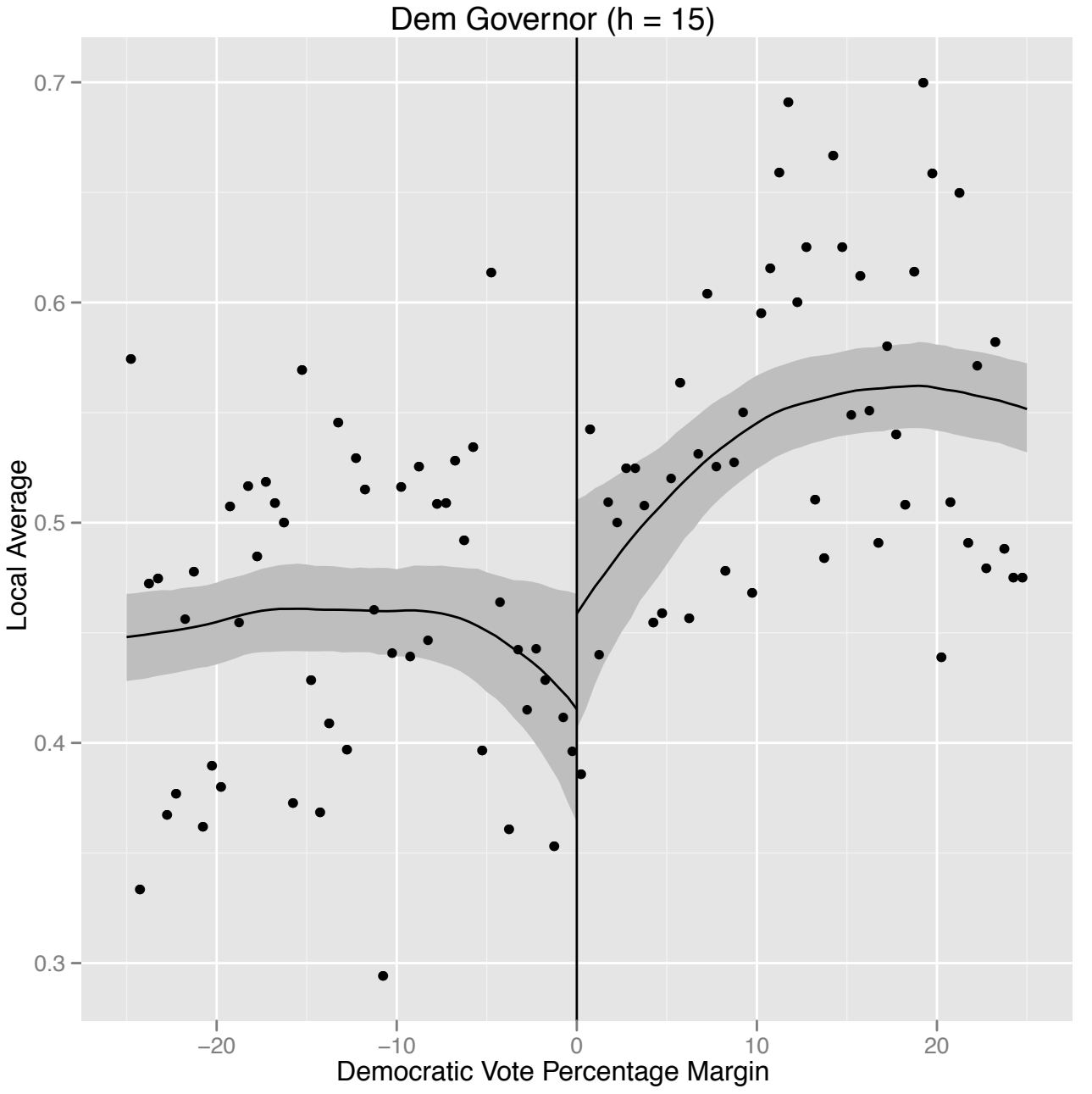

Pct Foreign Born (h = 20)
Local Average
7
6
5
4
3
−20
−10
0
10
20
Democratic Vote Percentage Margin

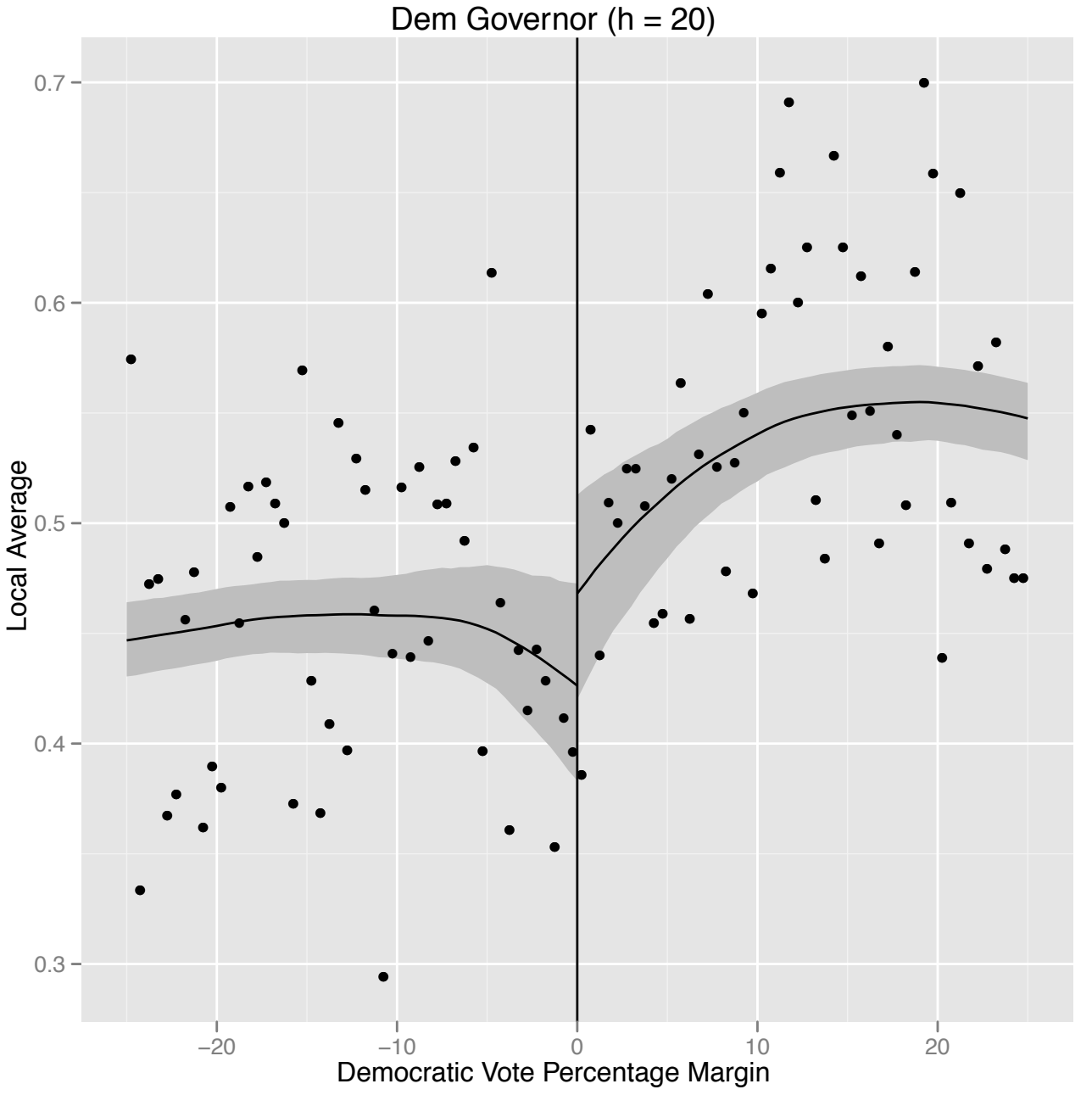

Dem Governor (h = 1)
Local Average
0.7
0.6
0.5
0.4
0.3
0.2
0.1
−20
−10
0
10
20
Democratic Vote Percentage Margin


Dem Governor (h = 2)
0.7
0.6
0.5
0.4
0.3
Local Average
−20
−10
0
10
20
Democratic Vote Percentage Margin


Dem Governor (h = 5)
Local Average
0.7
0.6
0.5
0.4
0.3
−20
−10
0
10
20
Democratic Vote Percentage Margin


Dem Governor (h = 10)
Local Average
0.7
0.6
0.5
0.4
0.3
−20
−10
0
10
20
Democratic Vote Percentage Margin


Dem Governor (h = 15)
0.7
0.6
0.5
0.4
0.3
Local Average
−20
−10
0
10
20
Democratic Vote Percentage Margin


Dem Governor (h = 20)
0.7
0.6
0.5
0.4
0.3
Local Average
−20
−10
0
10
20
Democratic Vote Percentage Margin


Pct Gov't Worker (h = 1)
Local Average
6.0
5.5
5.0
4.5
4.0
3.5
−20
−10
0
10
20
Democratic Vote Percentage Margin

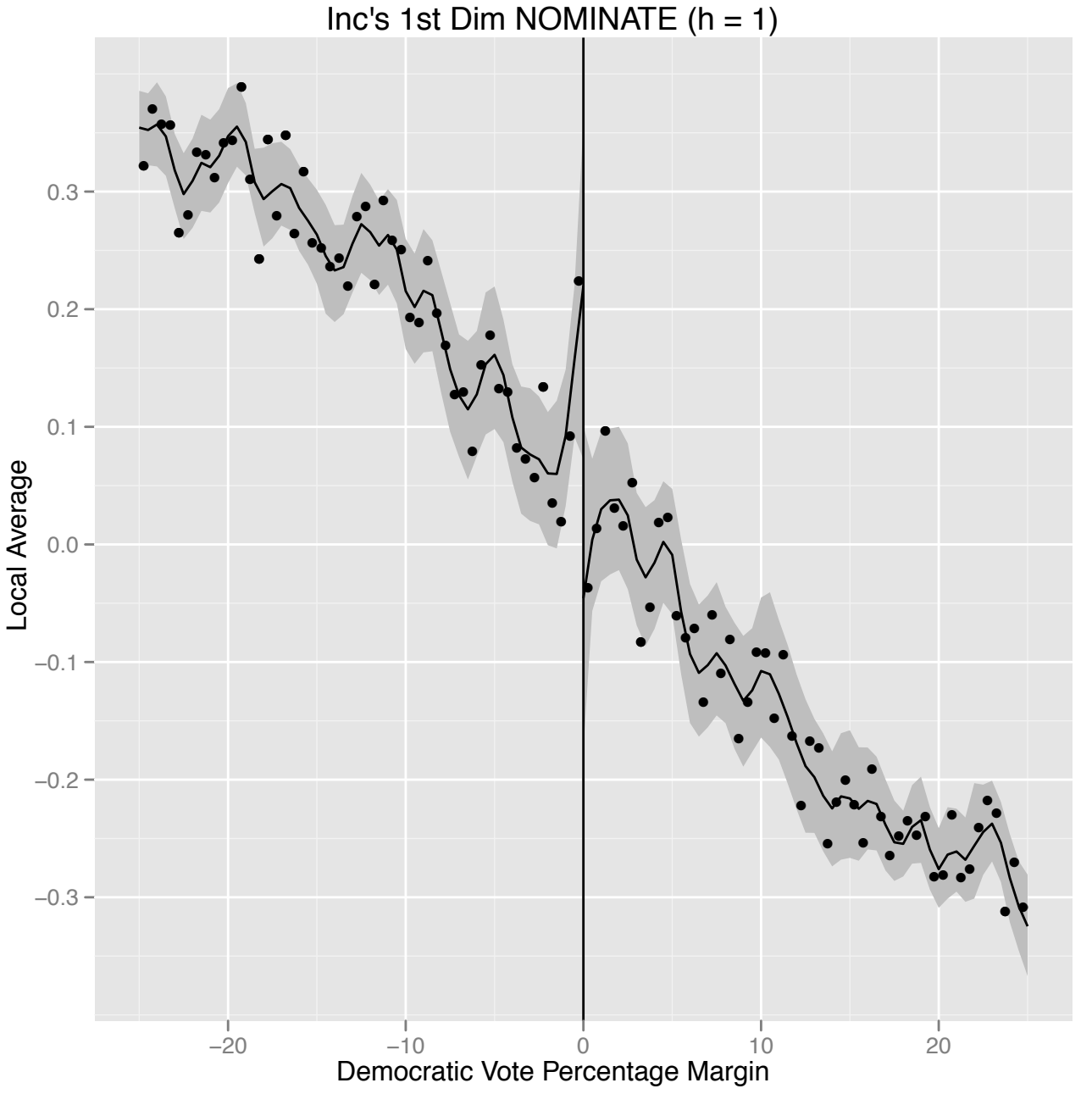

Pct Gov't Worker (h = 2)
Local Average
6.0
5.5
5.0
4.5
4.0
−20
−10
0
10
20
Democratic Vote Percentage Margin

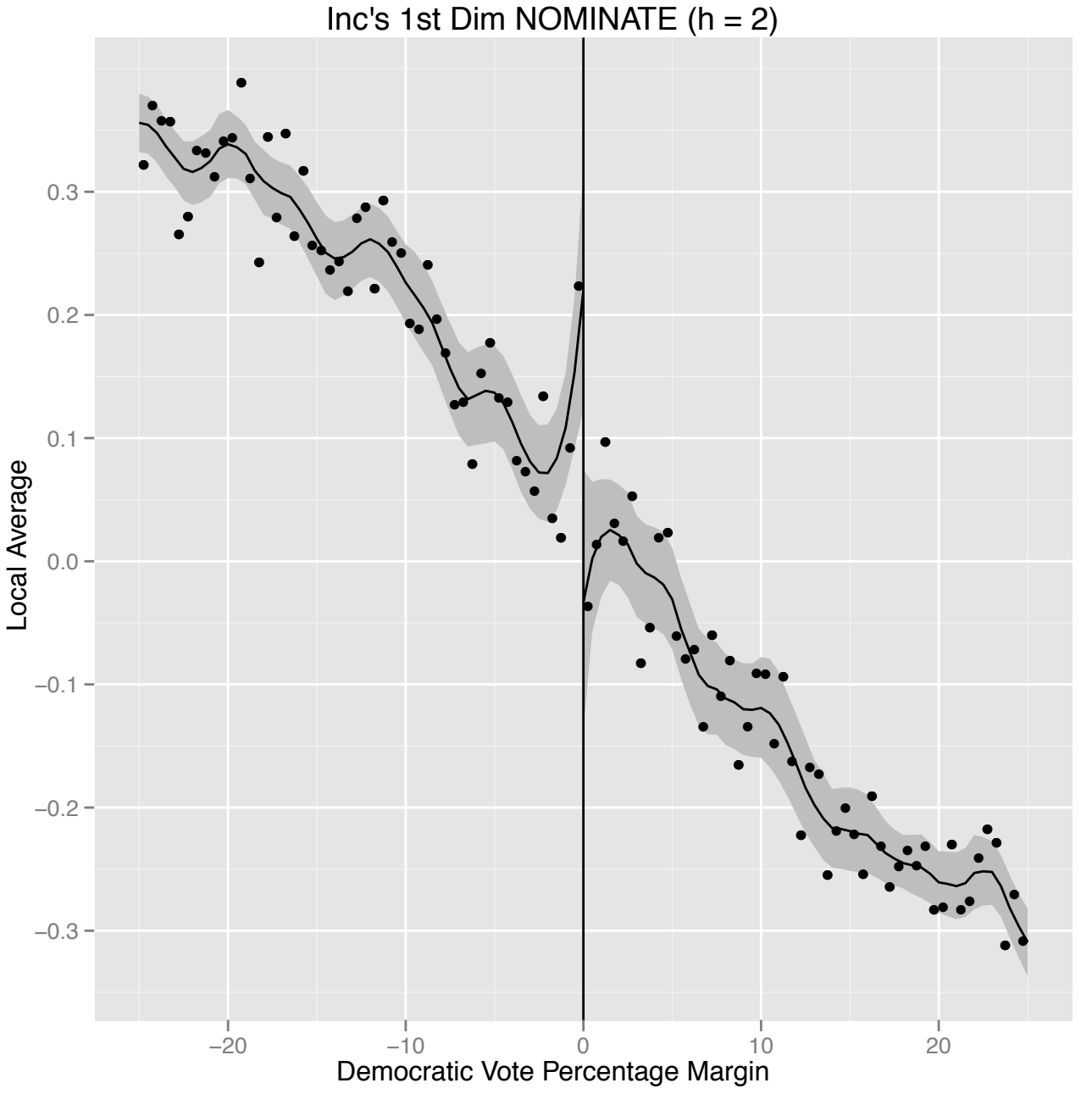

Pct Gov't Worker (h = 5)
Local Average
6.0
5.5
5.0
4.5
4.0
−20
−10
0
10
20
Democratic Vote Percentage Margin

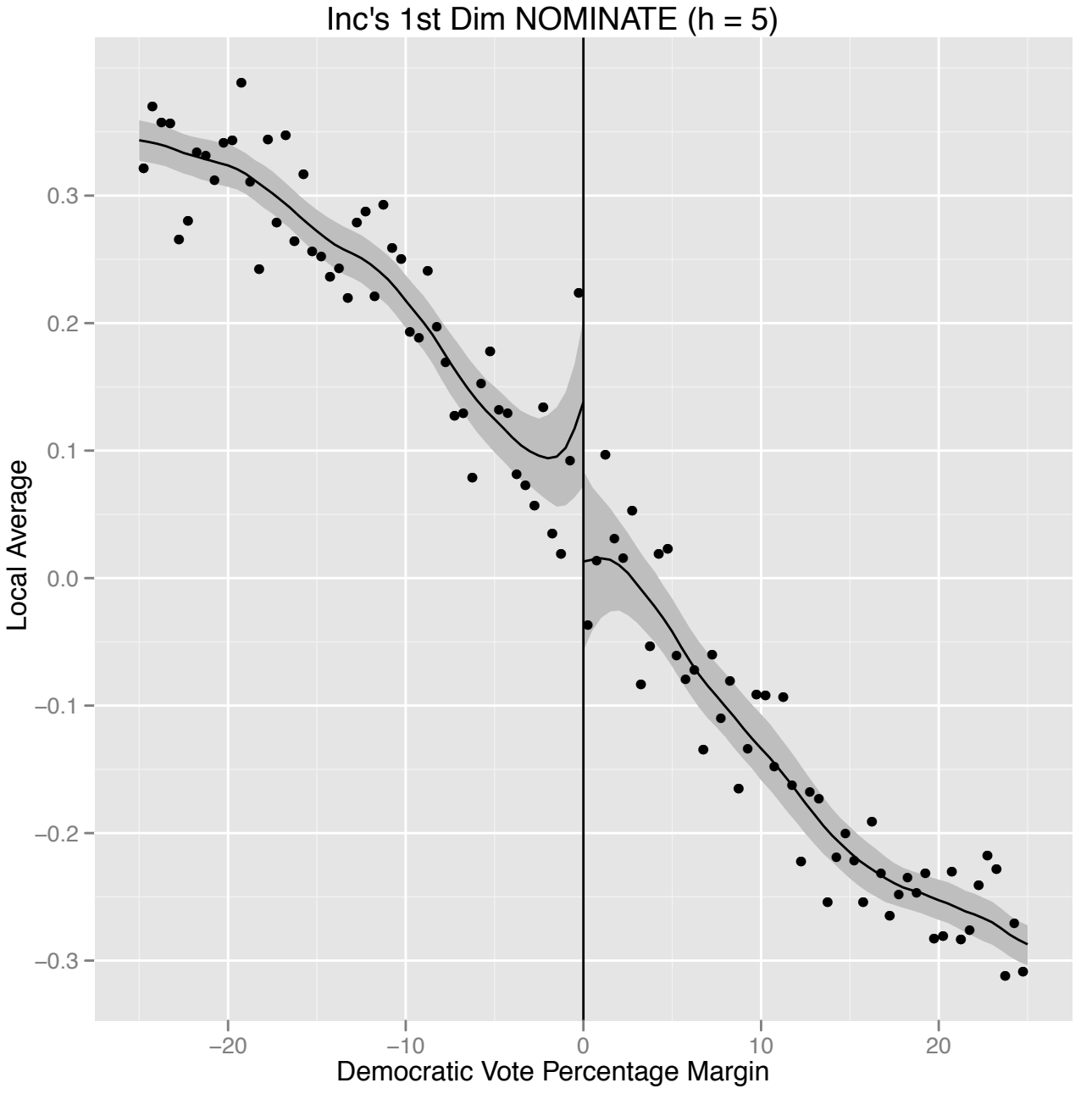

Pct Gov't Worker (h = 10)
Local Average
6.0
5.5
5.0
4.5
4.0
−20
−10
0
10
20
Democratic Vote Percentage Margin

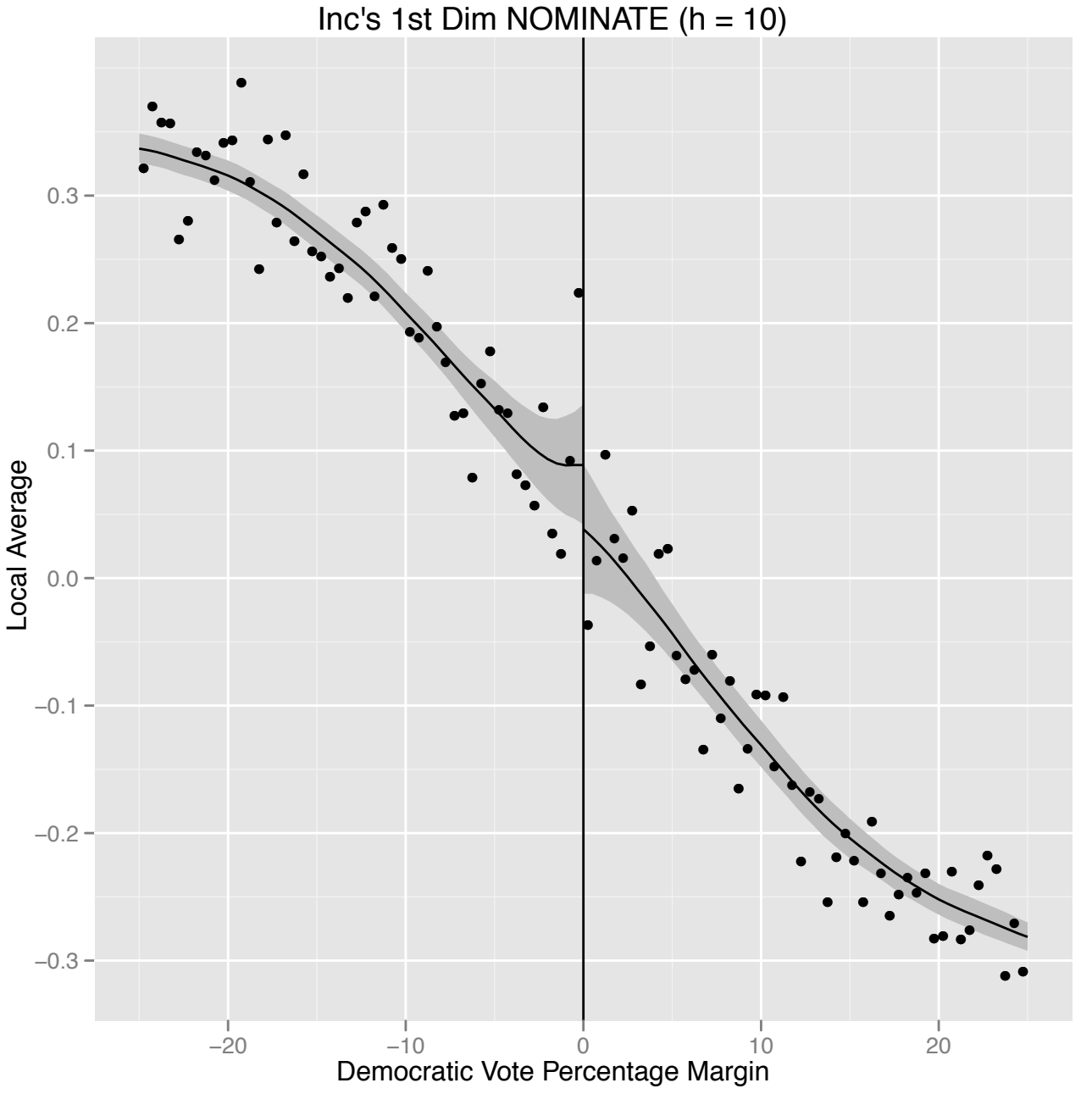

Pct Gov't Worker (h = 15)
Local Average
6.0
5.5
5.0
4.5
4.0
−20
−10
0
10
20
Democratic Vote Percentage Margin

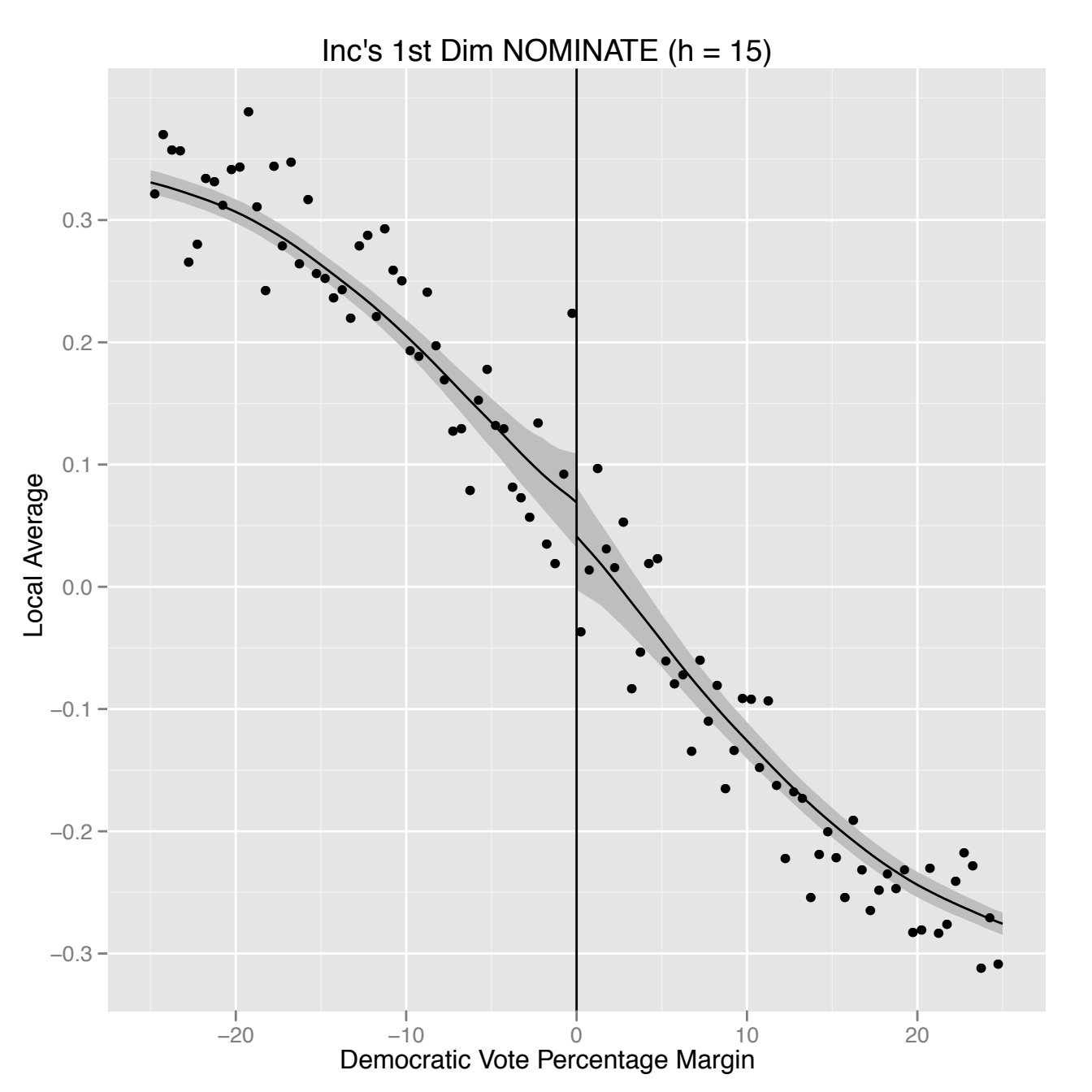

Pct Gov't Worker (h = 20)
6.0
5.5
5.0
4.5
4.0
Local Average
−20
−10
0
10
20
Democratic Vote Percentage Margin

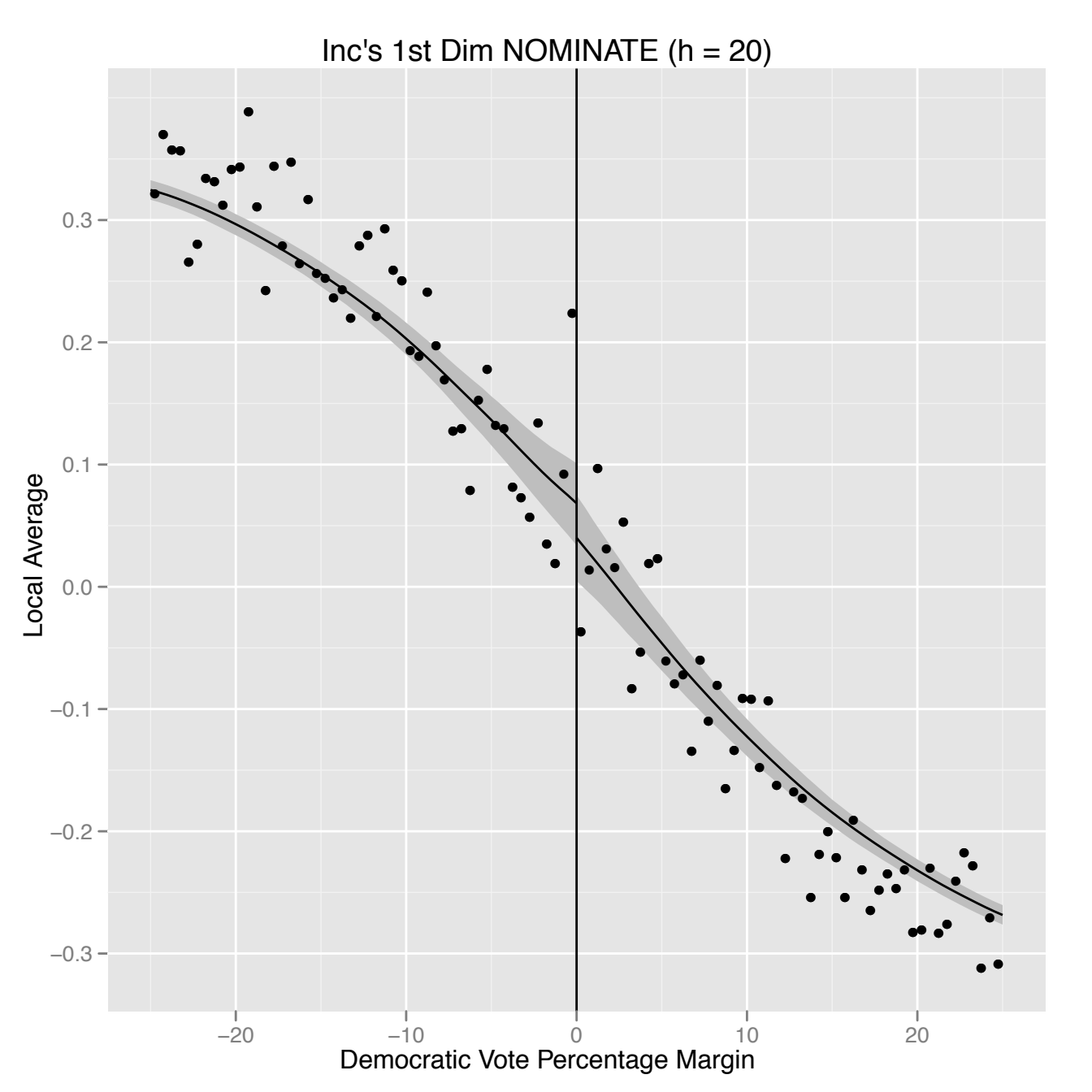

Inc's 1st Dim NOMINATE (h = 1)
Local Average
0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
−20
−10
0
10
20
Democratic Vote Percentage Margin

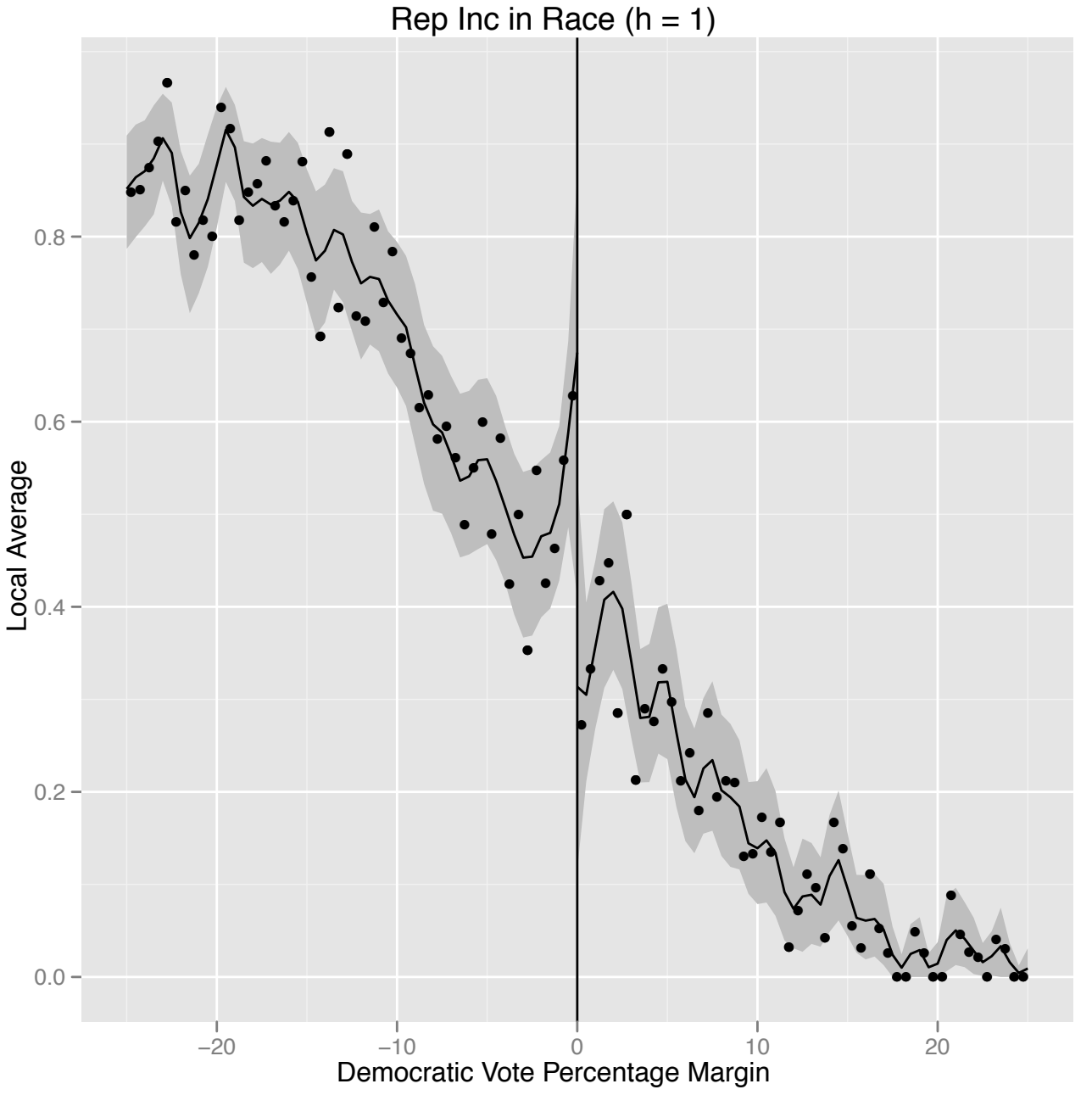

Inc's 1st Dim NOMINATE (h = 2)
Local Average
0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
−20
−10
0
10
20
Democratic Vote Percentage Margin

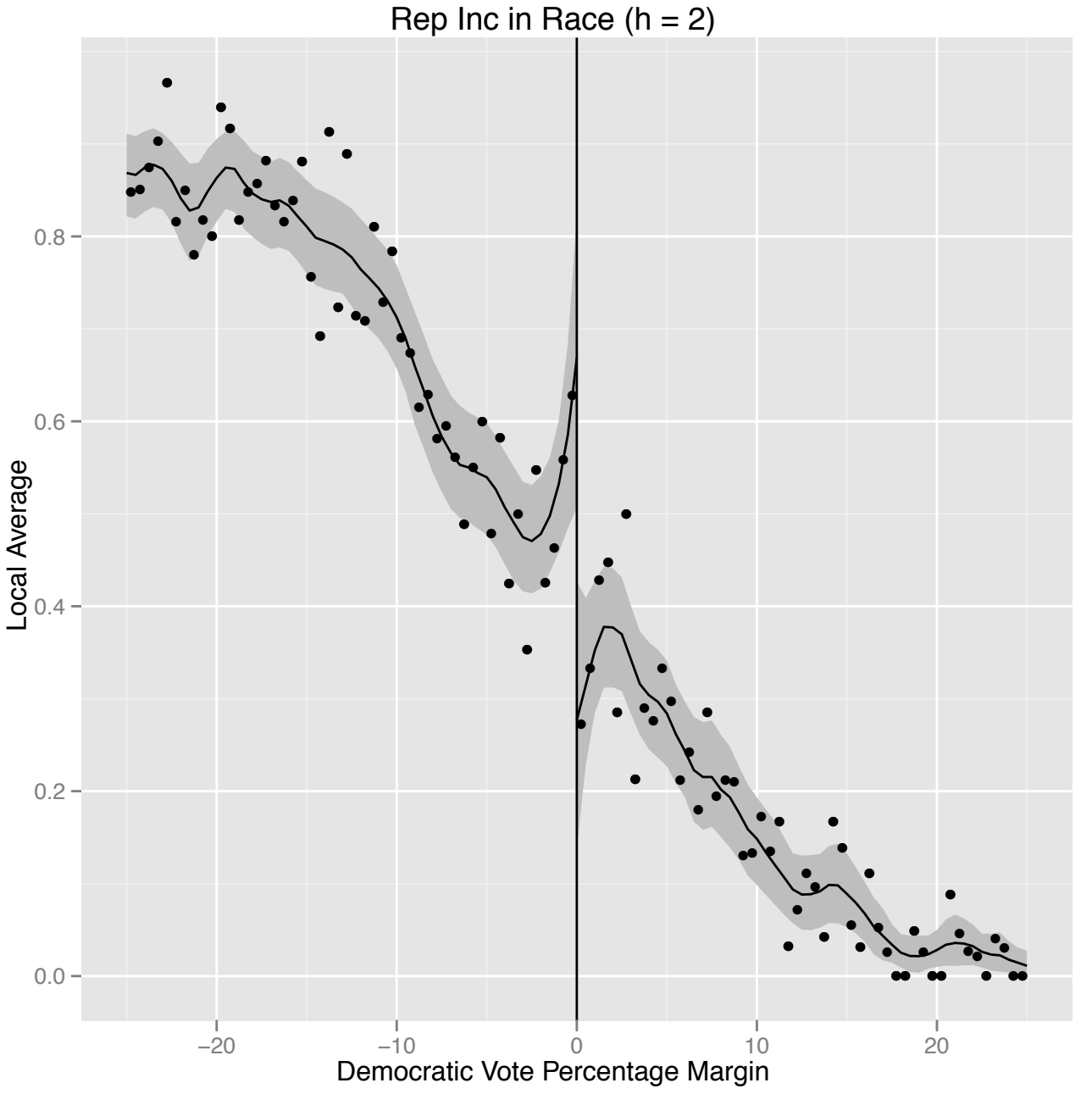

Inc's 1st Dim NOMINATE (h = 5)
Local Average
0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
−20
−10
0
10
20
Democratic Vote Percentage Margin

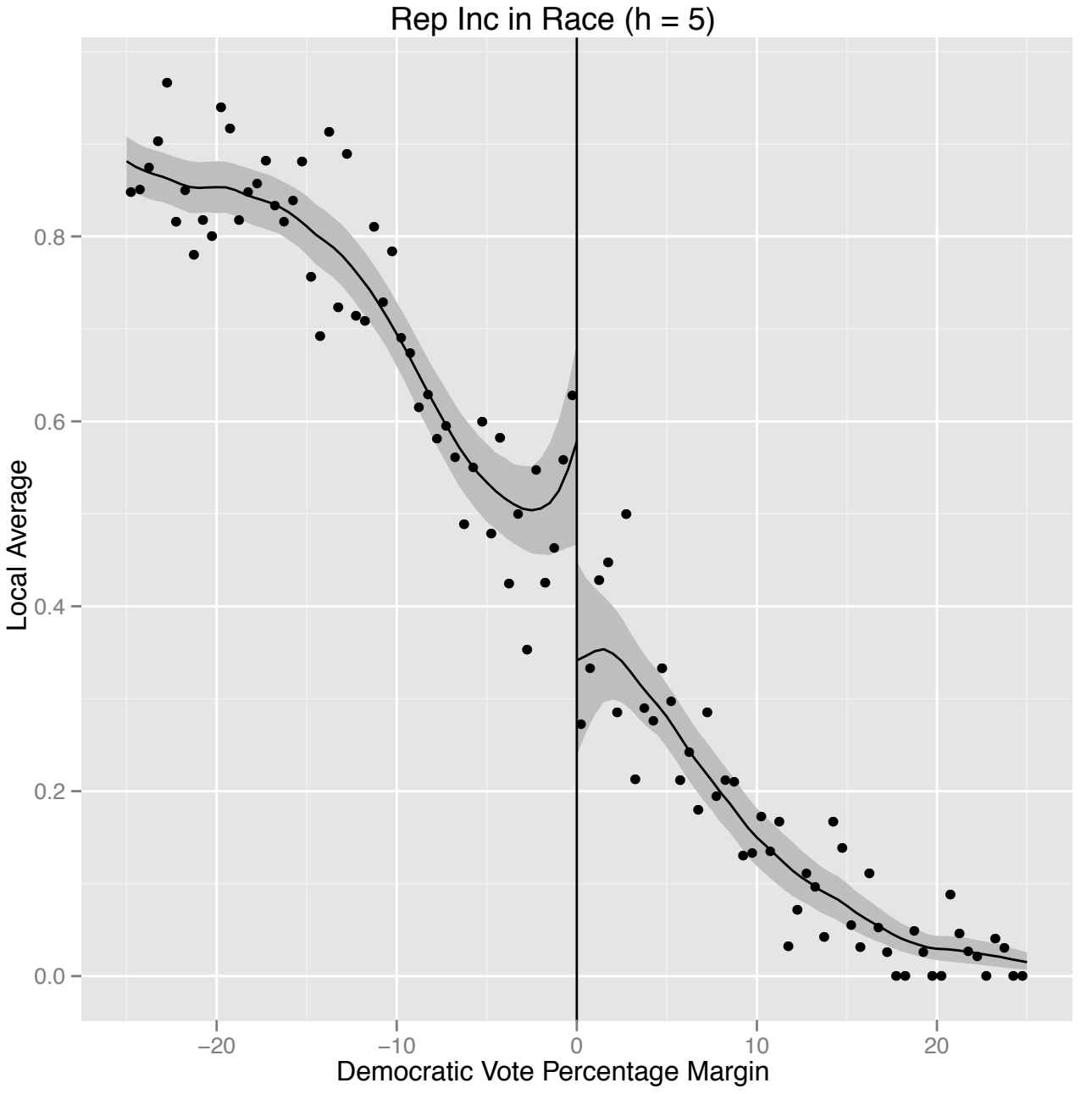

Inc's 1st Dim NOMINATE (h = 10)
Local Average
0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
−20
−10
0
10
20
Democratic Vote Percentage Margin

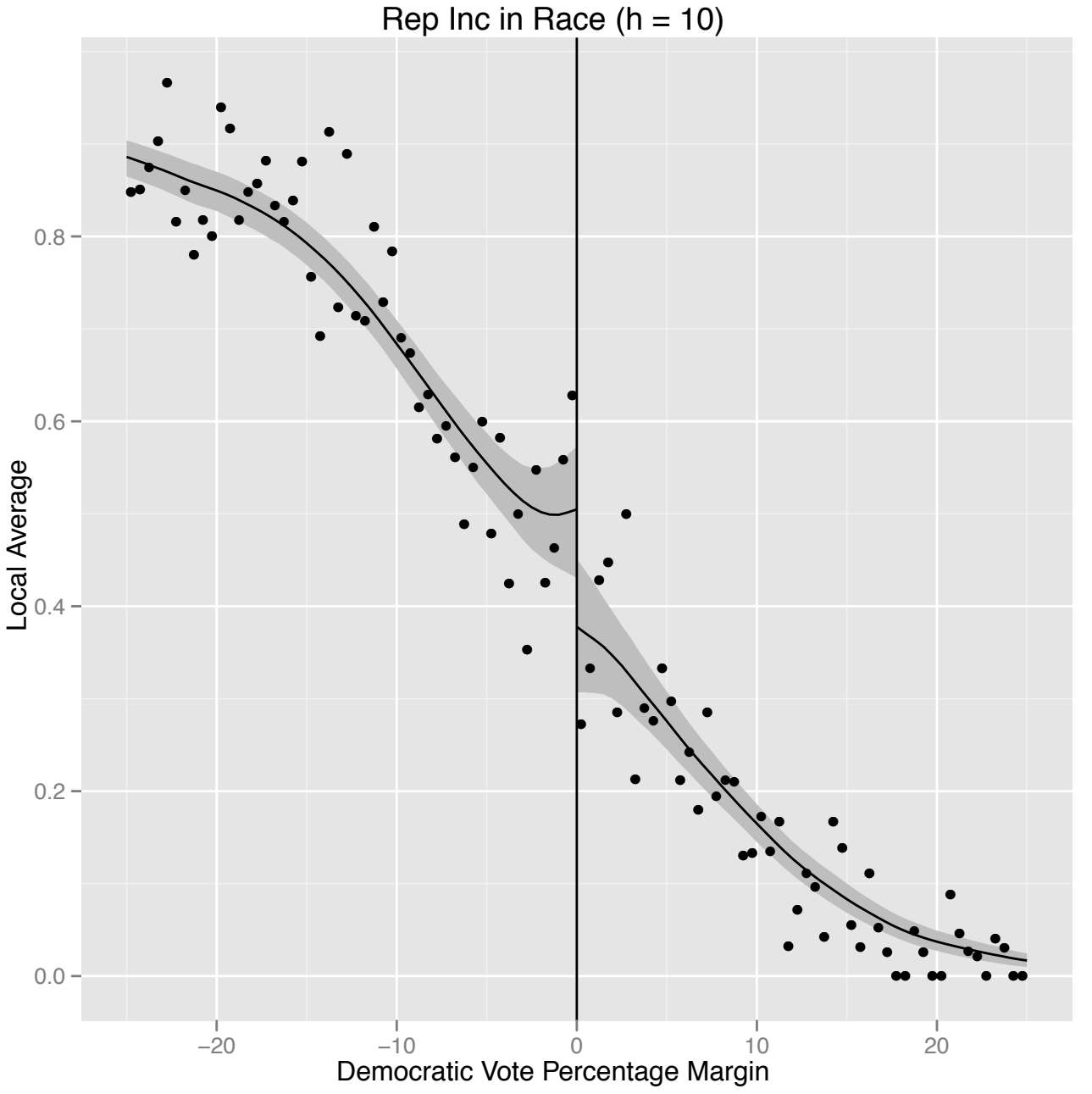

Inc's 1st Dim NOMINATE (h = 15)
Local Average
0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
−20
−10
0
10
20
Democratic Vote Percentage Margin

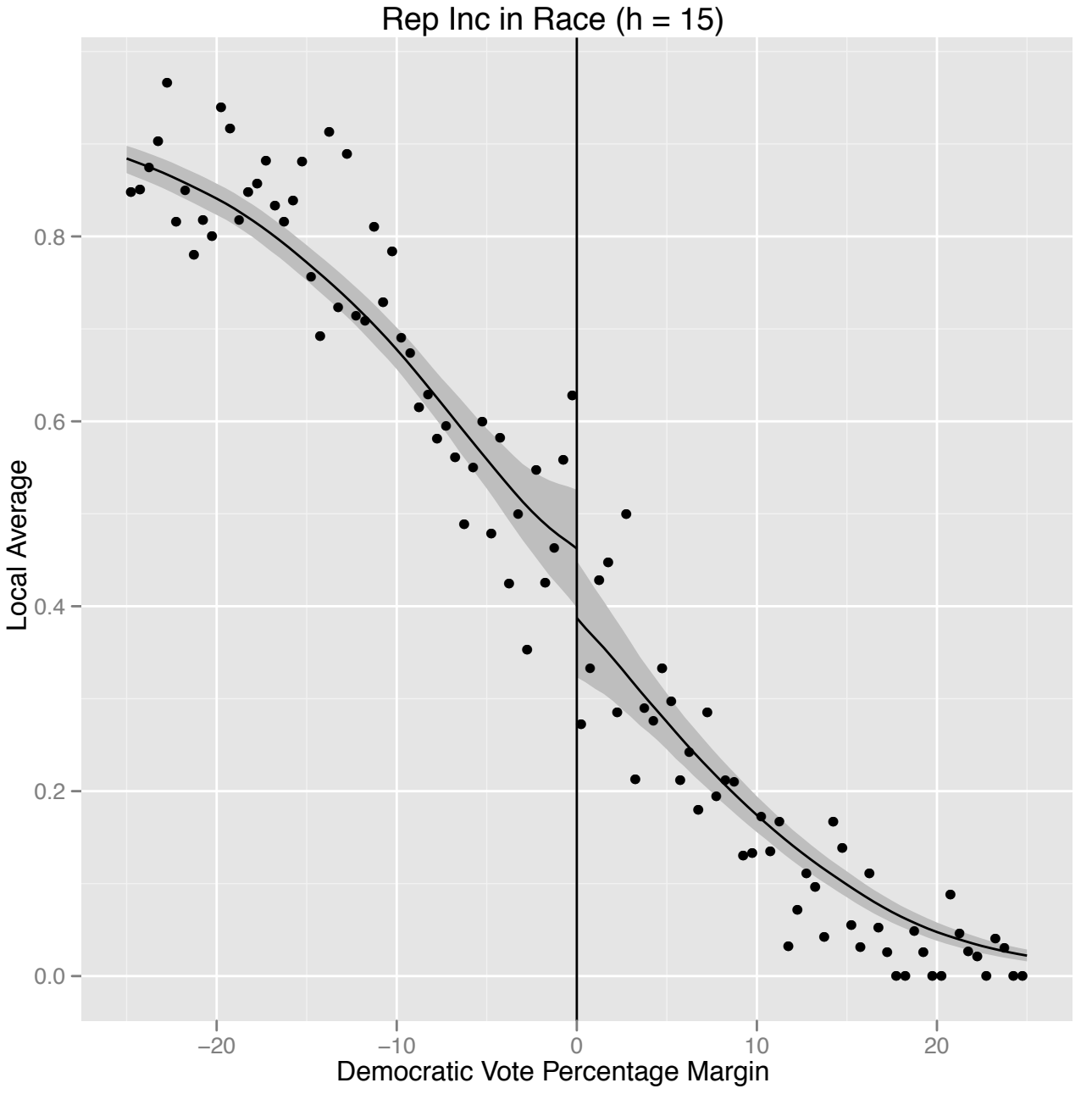

Inc's 1st Dim NOMINATE (h = 20)
Local Average
0.3
0.2
0.1
0.0
−0.1
−0.2
−0.3
−20
−10
0
10
20
Democratic Vote Percentage Margin

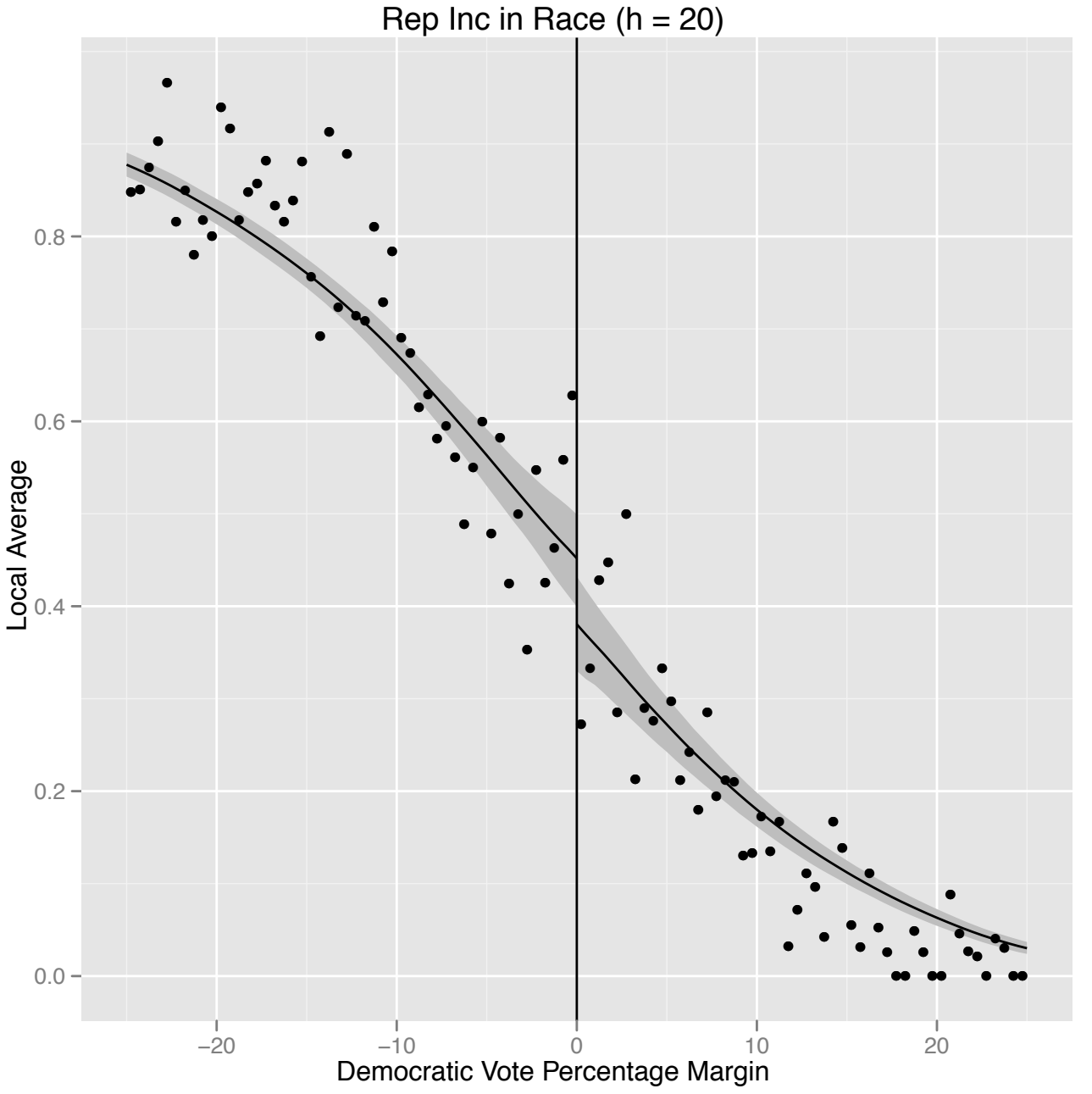

Rep Inc in Race (h = 1)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

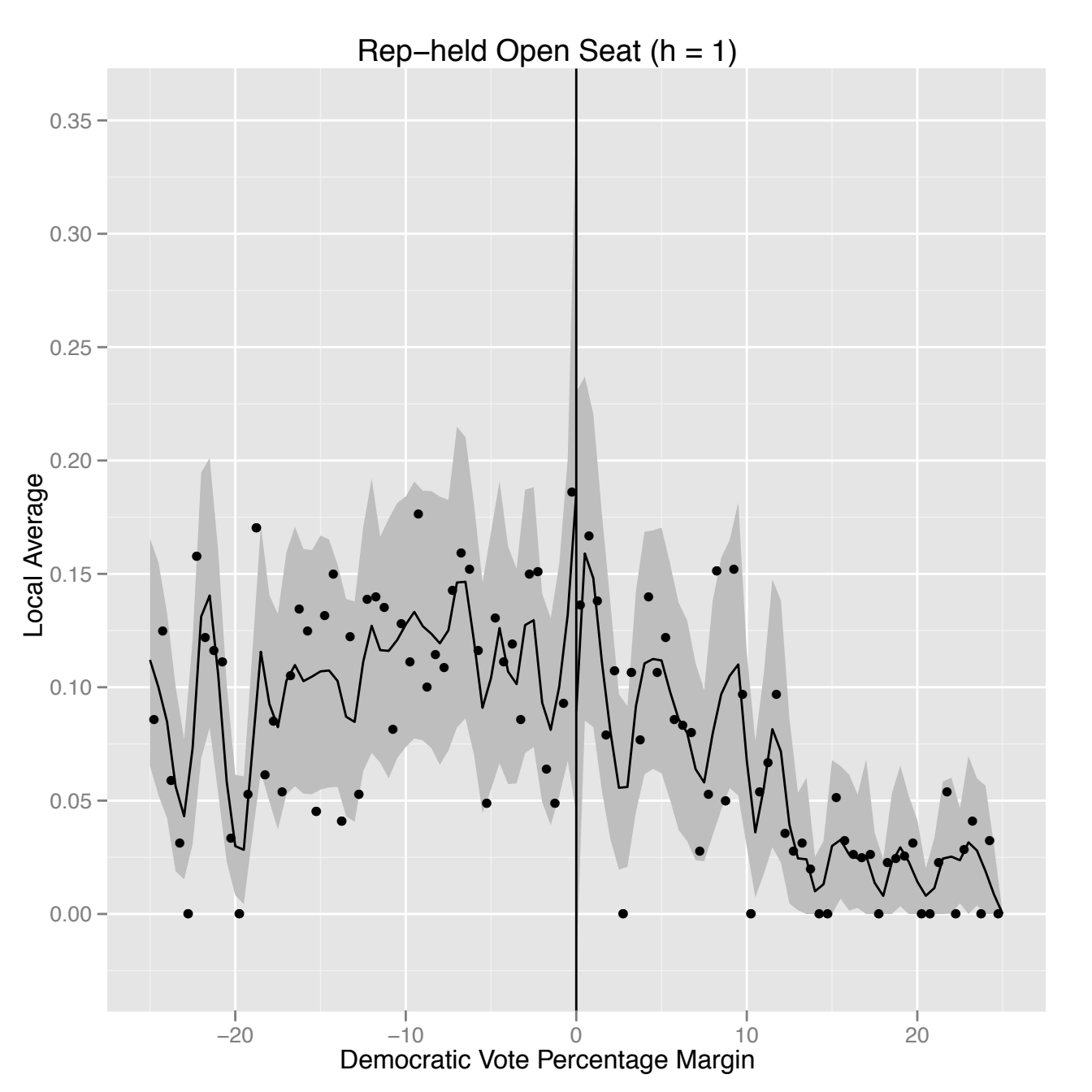

Rep Inc in Race (h = 2)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

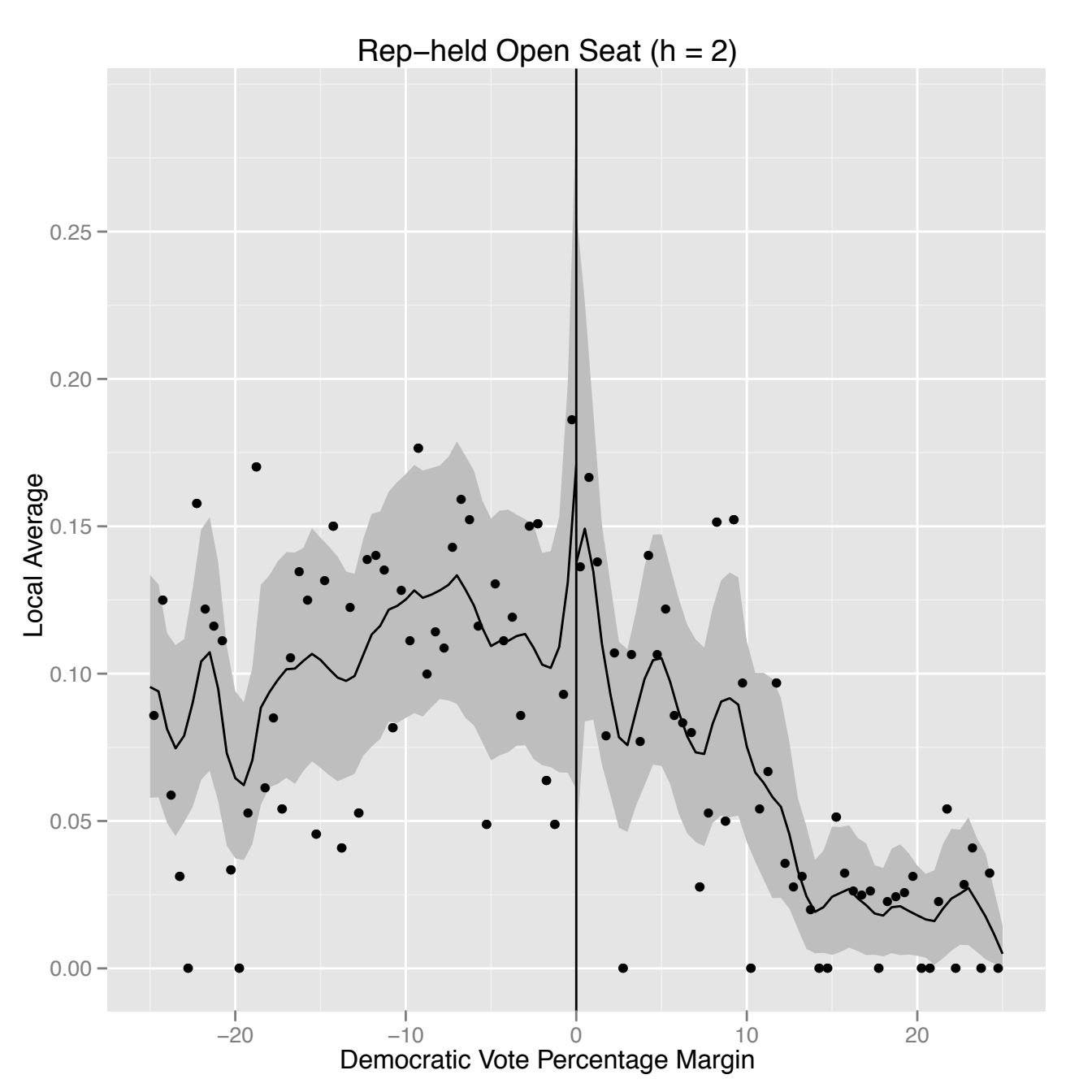

Rep Inc in Race (h = 5)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

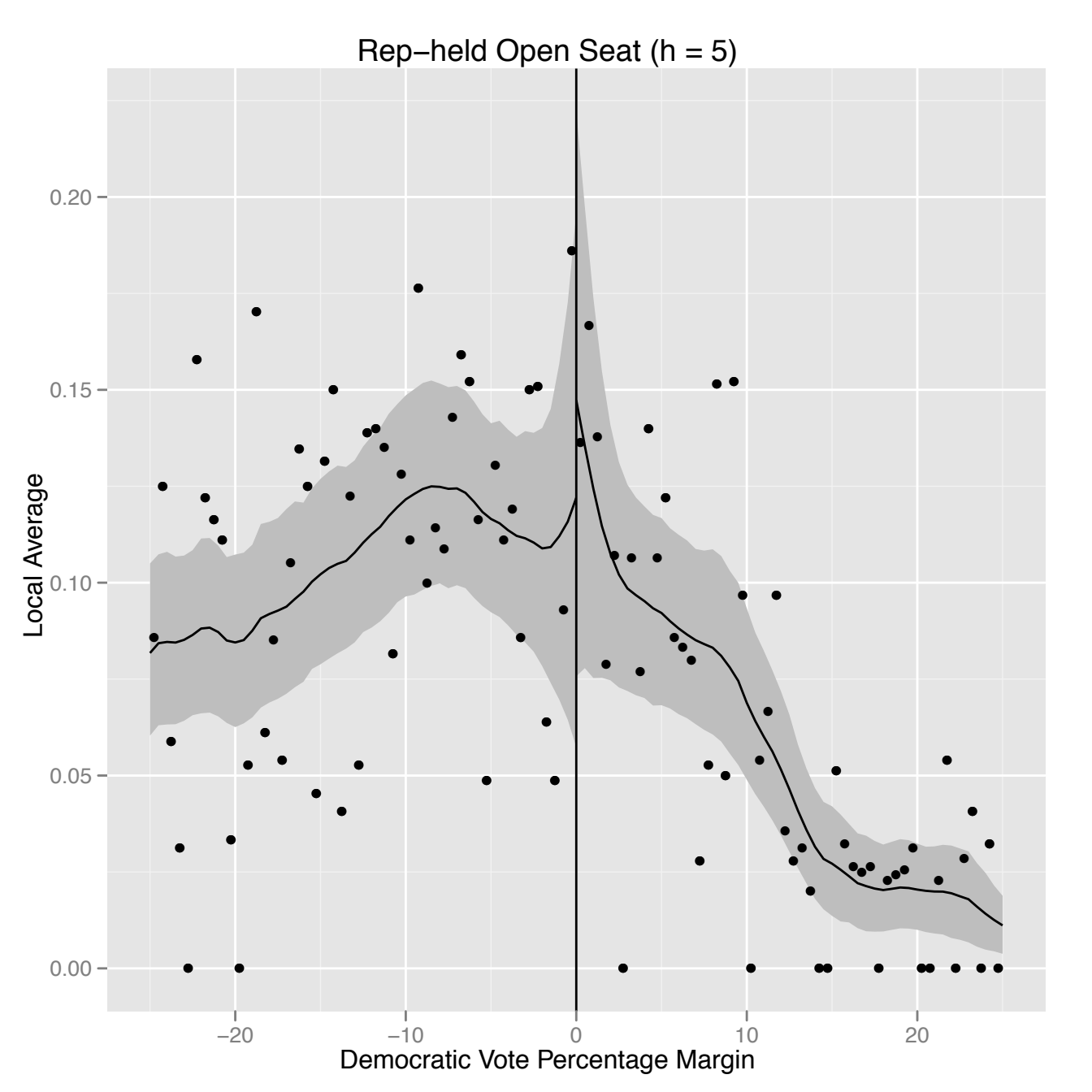

Rep Inc in Race (h = 10)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

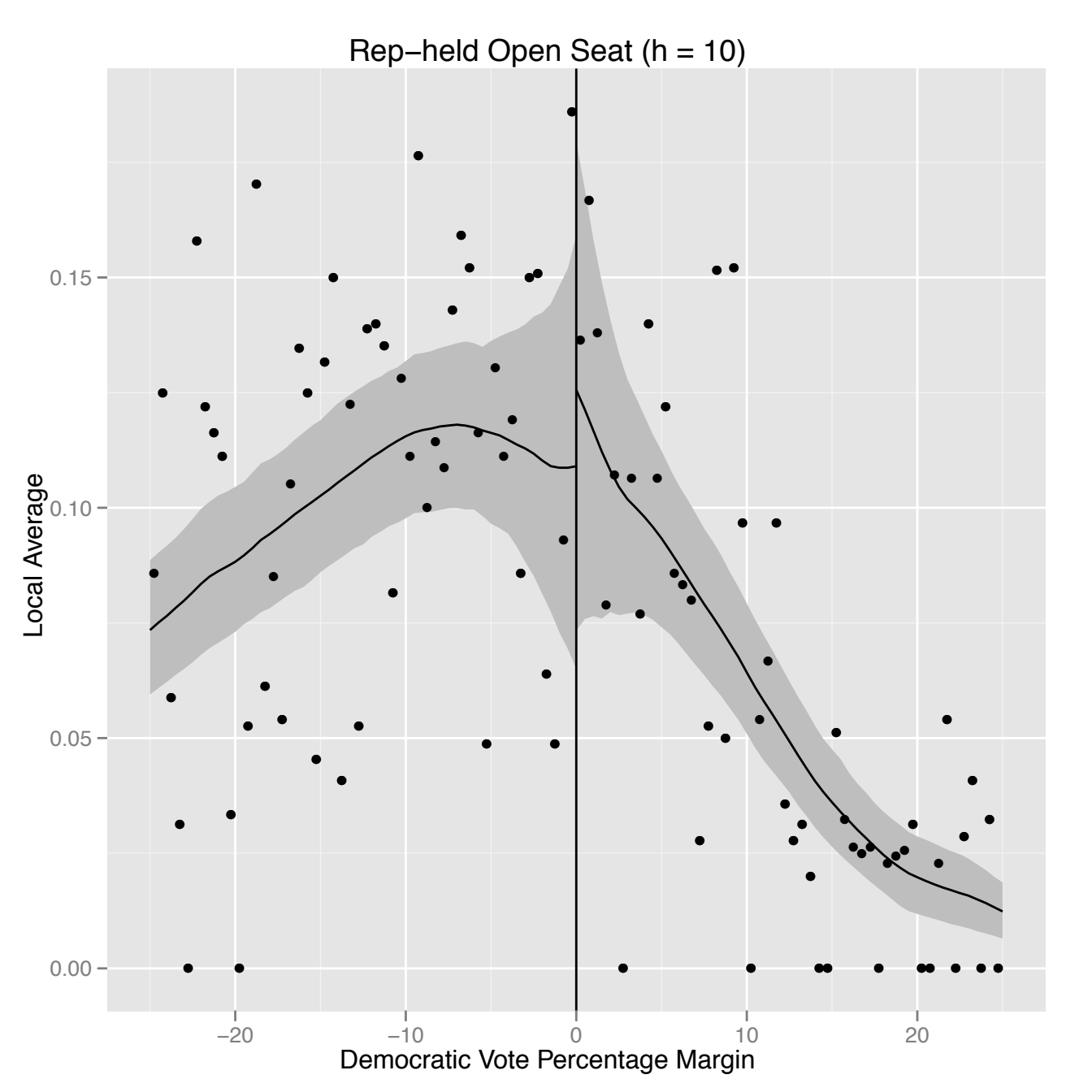

Rep Inc in Race (h = 15)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

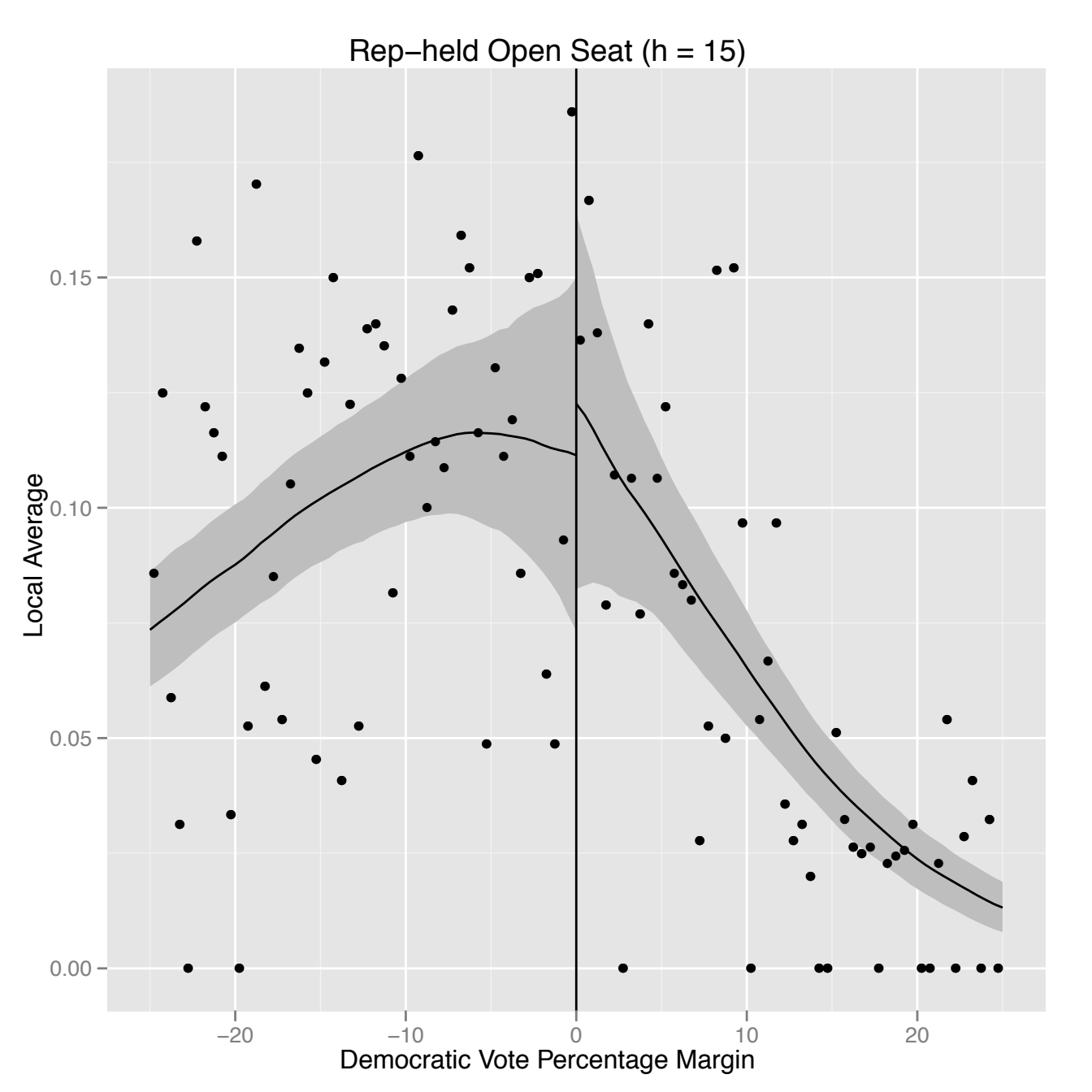

Rep Inc in Race (h = 20)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

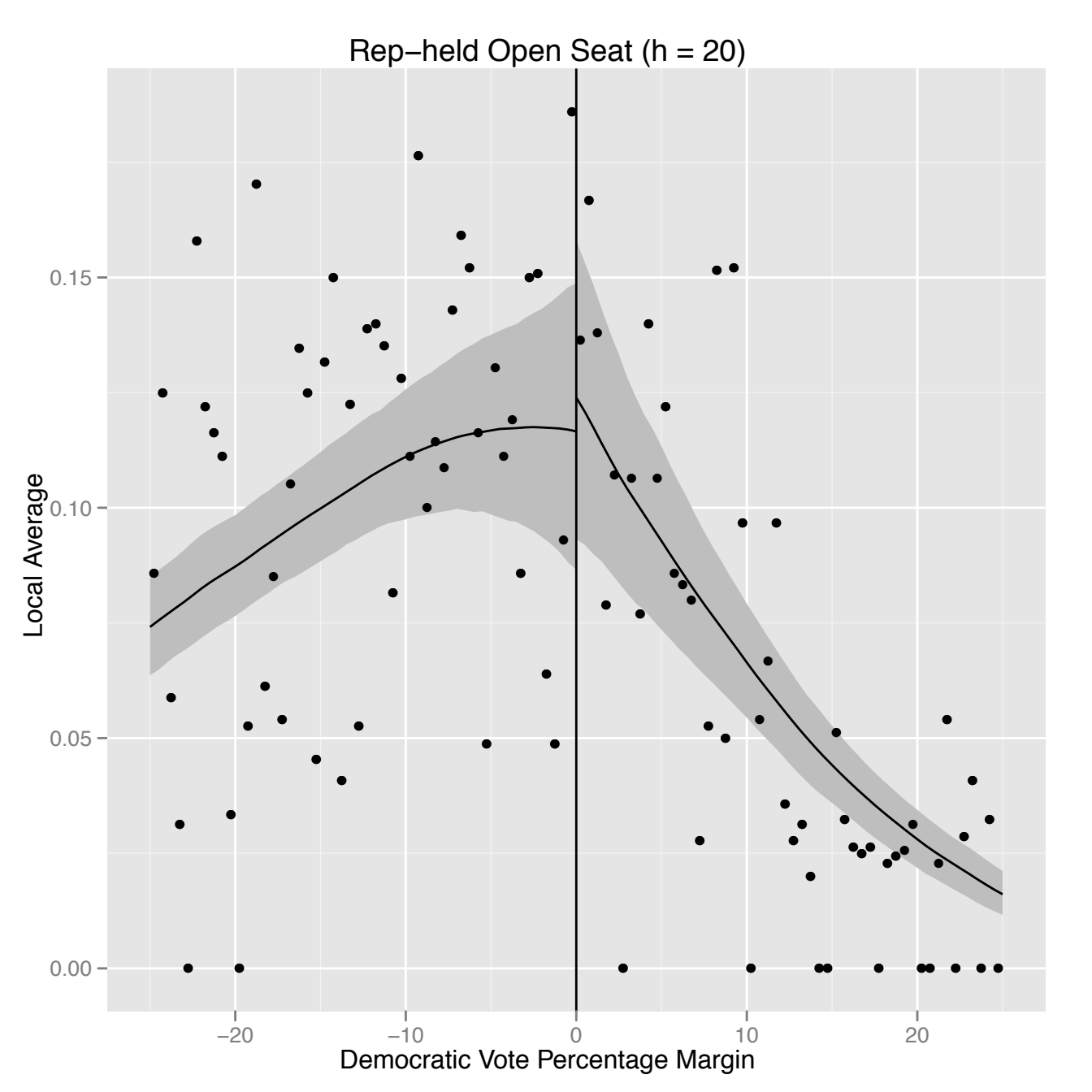

Rep−held Open Seat (h = 1)
Local Average
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
−20
−10
0
10
20
Democratic Vote Percentage Margin

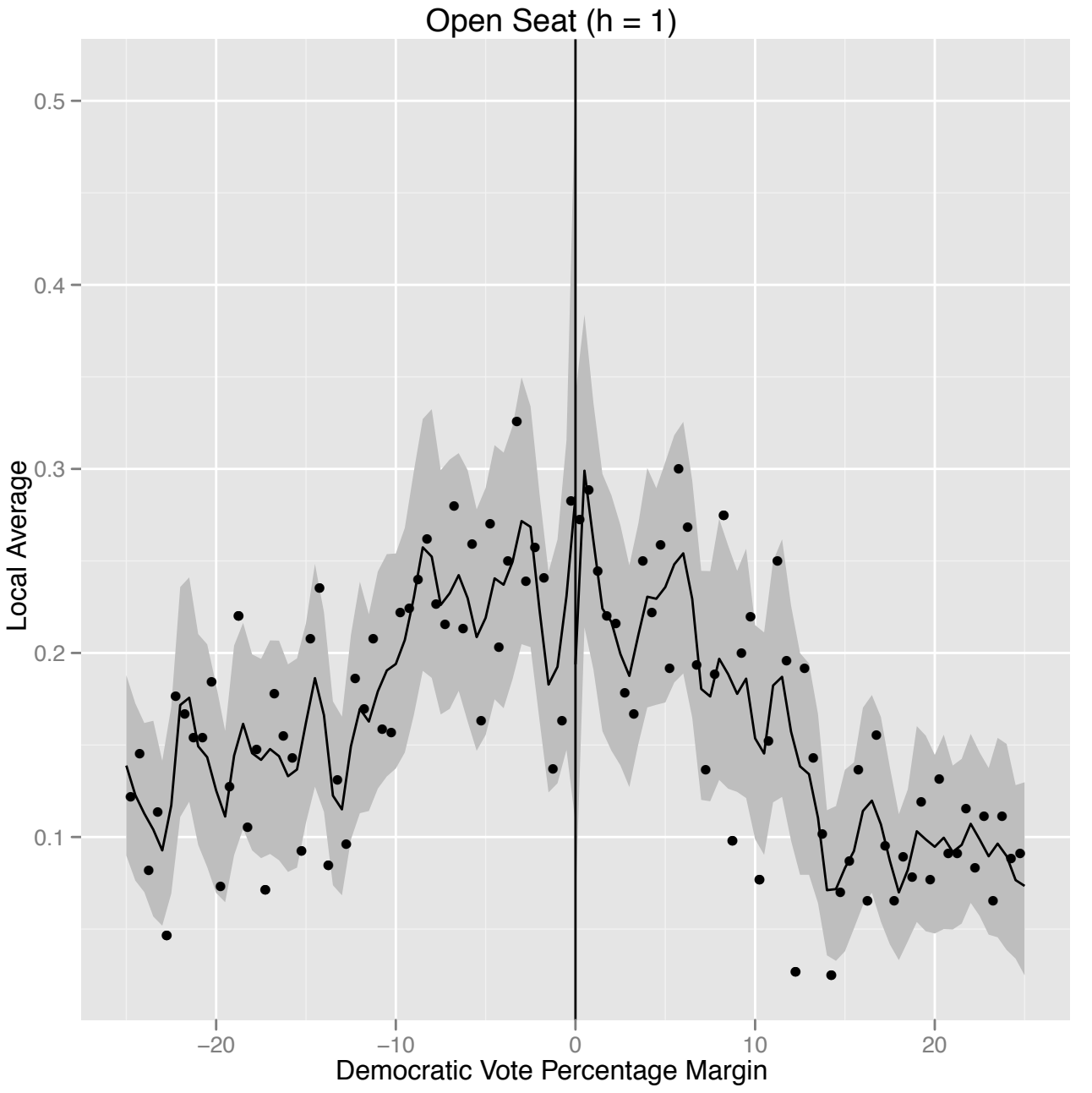

Rep−held Open Seat (h = 2)
Local Average
0.25
0.20
0.15
0.10
0.05
0.00
−20
−10
0
10
20
Democratic Vote Percentage Margin


Rep−held Open Seat (h = 5)
Local Average
0.20
0.15
0.10
0.05
0.00
−20
−10
0
10
20
Democratic Vote Percentage Margin


Rep−held Open Seat (h = 10)
Local Average
0.15
0.10
0.05
0.00
−20
−10
0
10
20
Democratic Vote Percentage Margin

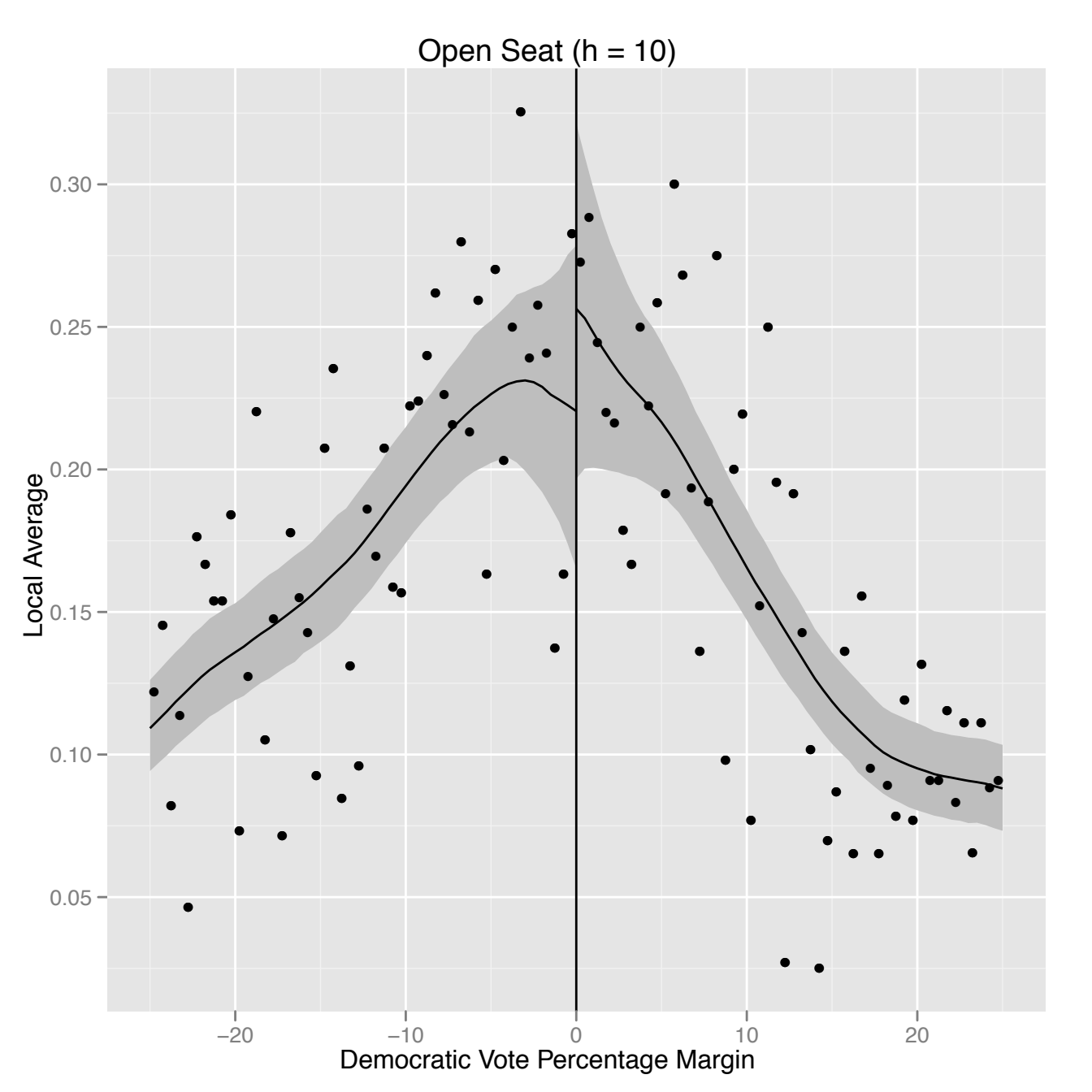

Rep−held Open Seat (h = 15)
Local Average
0.15
0.10
0.05
0.00
−20
−10
0
10
20
Democratic Vote Percentage Margin

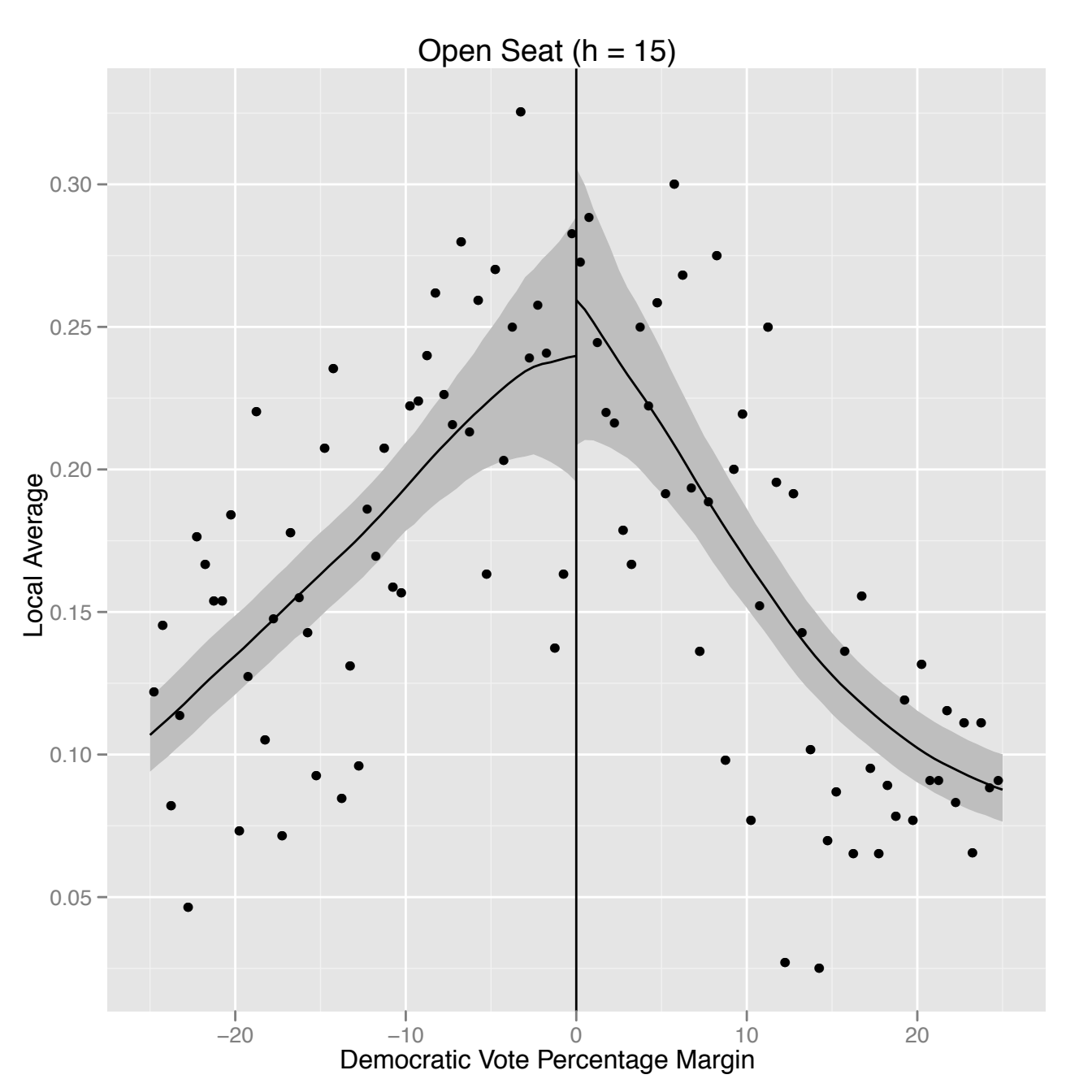

Rep−held Open Seat (h = 20)
Local Average
0.15
0.10
0.05
0.00
−20
−10
0
10
20
Democratic Vote Percentage Margin

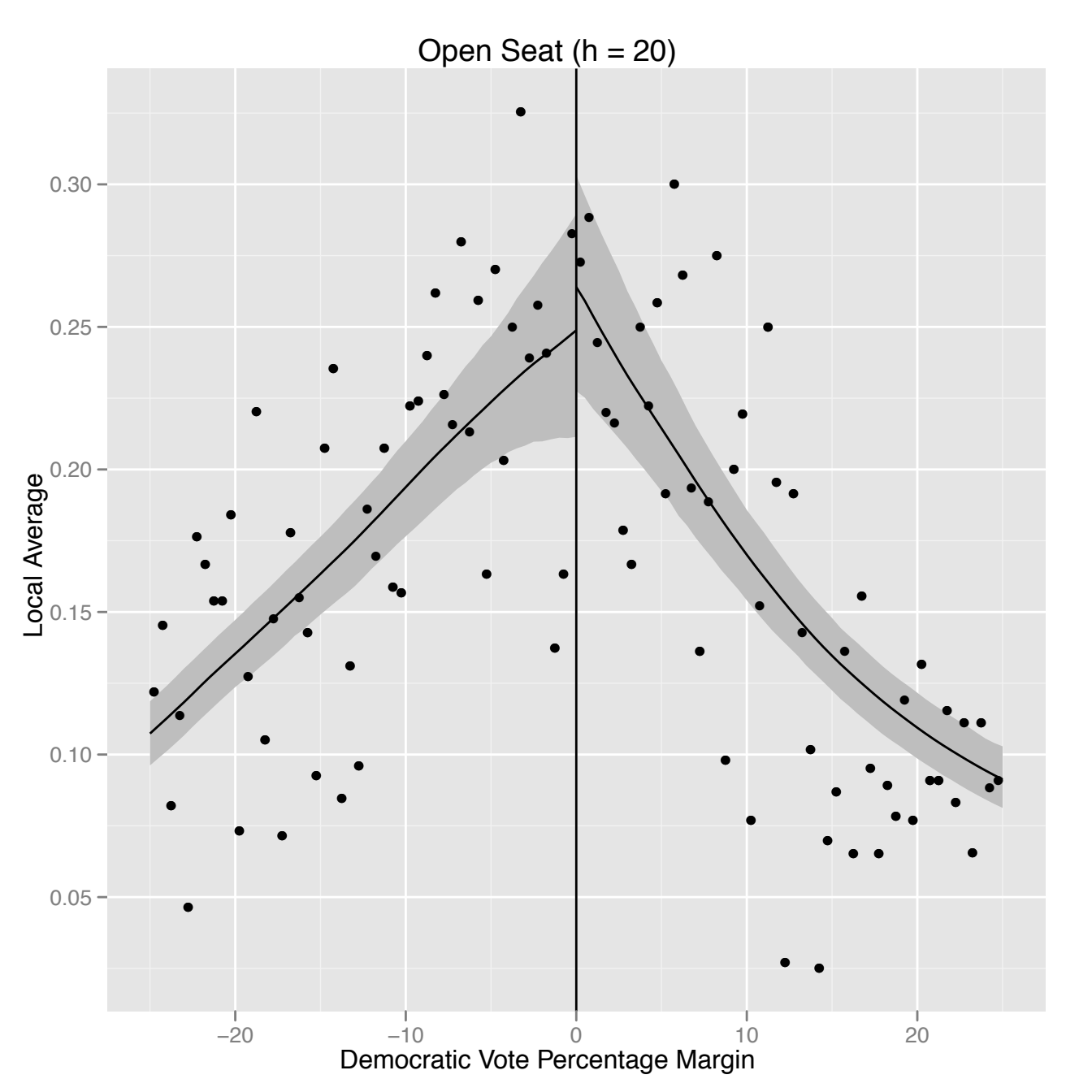

Open Seat (h = 1)
0.5
0.4
0.3
0.2
0.1
Local Average
−20
−10
0
10
20
Democratic Vote Percentage Margin

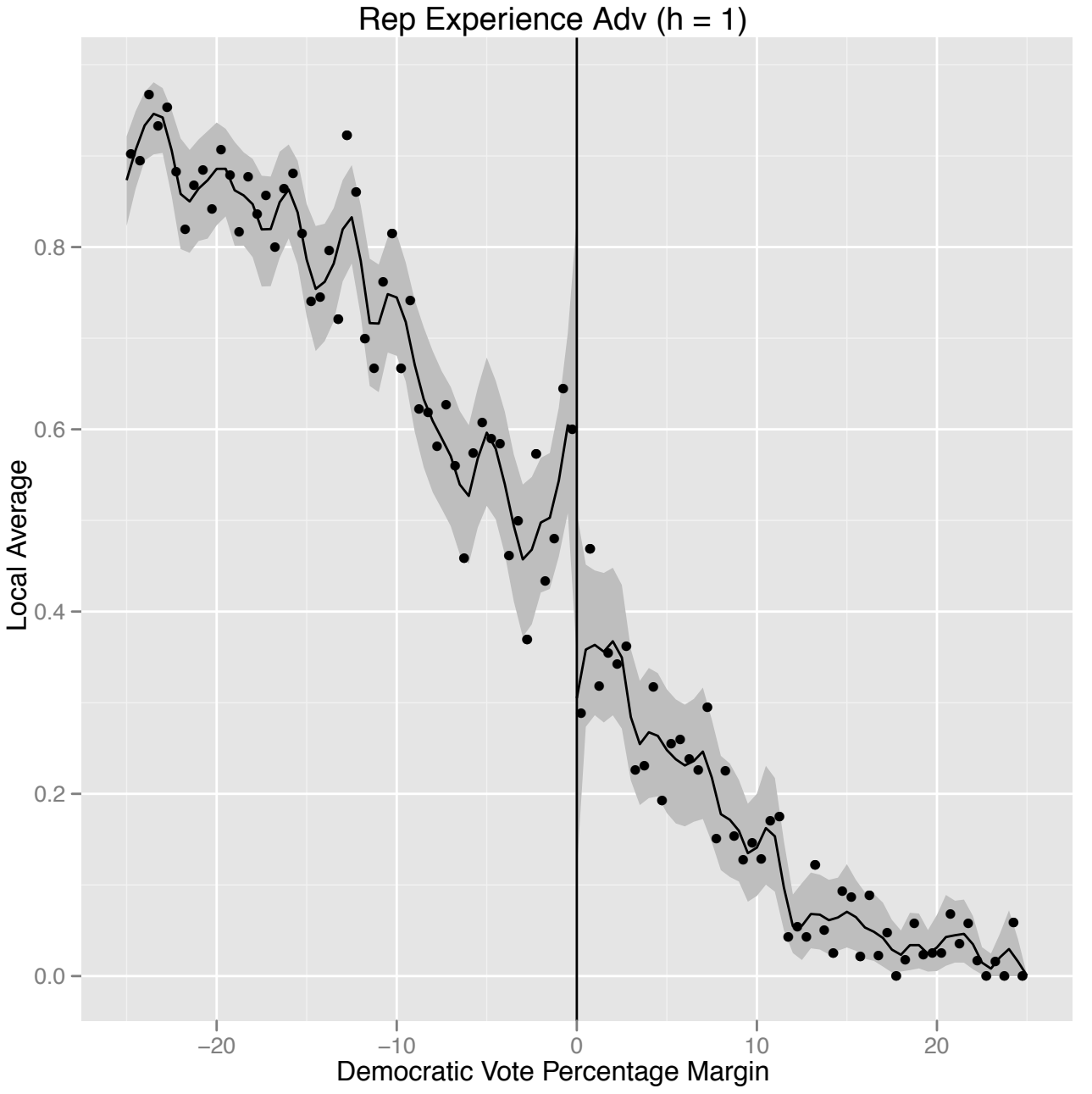

Open Seat (h = 2)
0.4
0.3
0.2
0.1
Local Average
−20
−10
0
10
20
Democratic Vote Percentage Margin

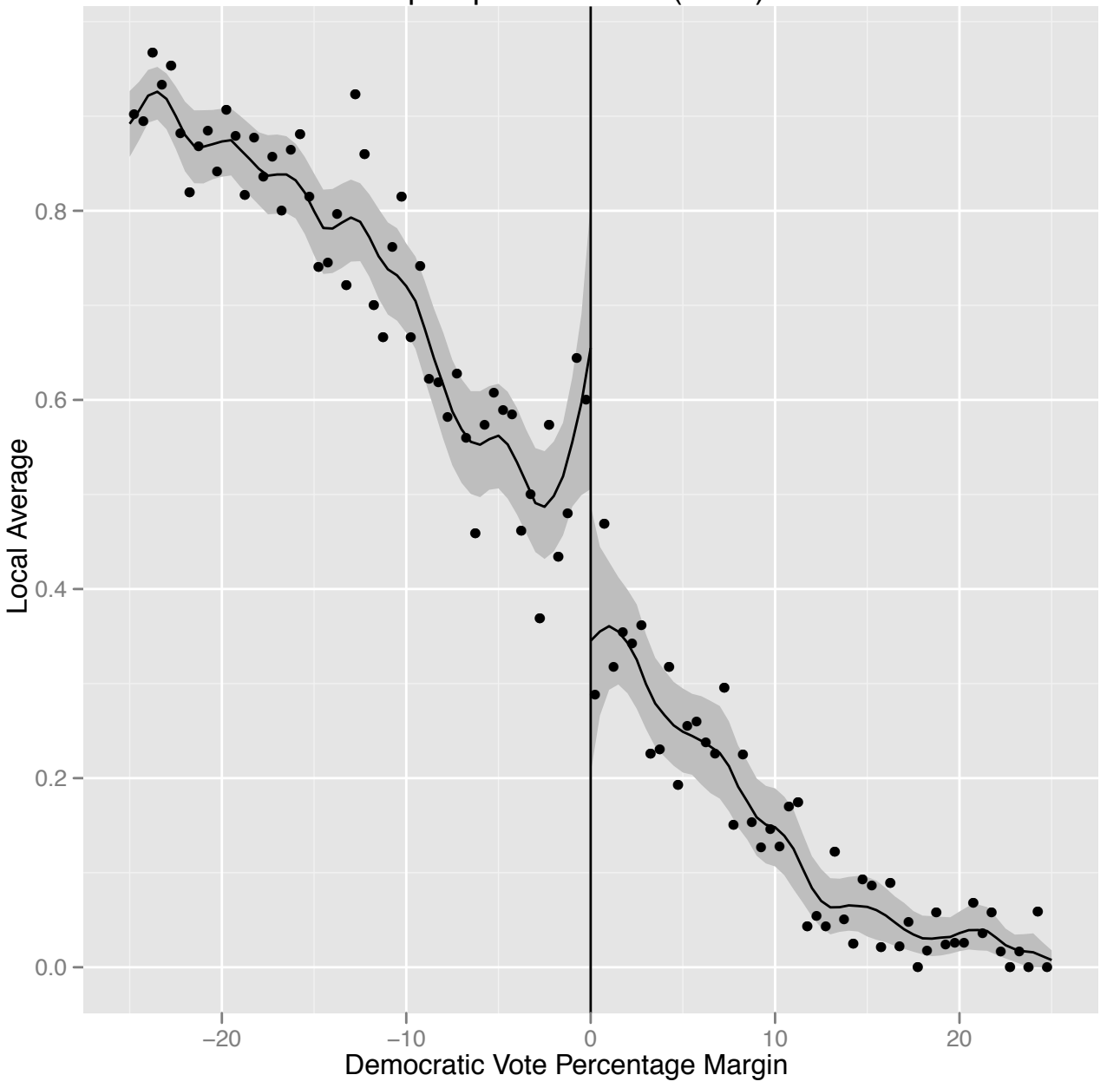

Open Seat (h = 5)
Local Average
0.35
0.30
0.25
0.20
0.15
0.10
0.05
−20
−10
0
10
20
Democratic Vote Percentage Margin

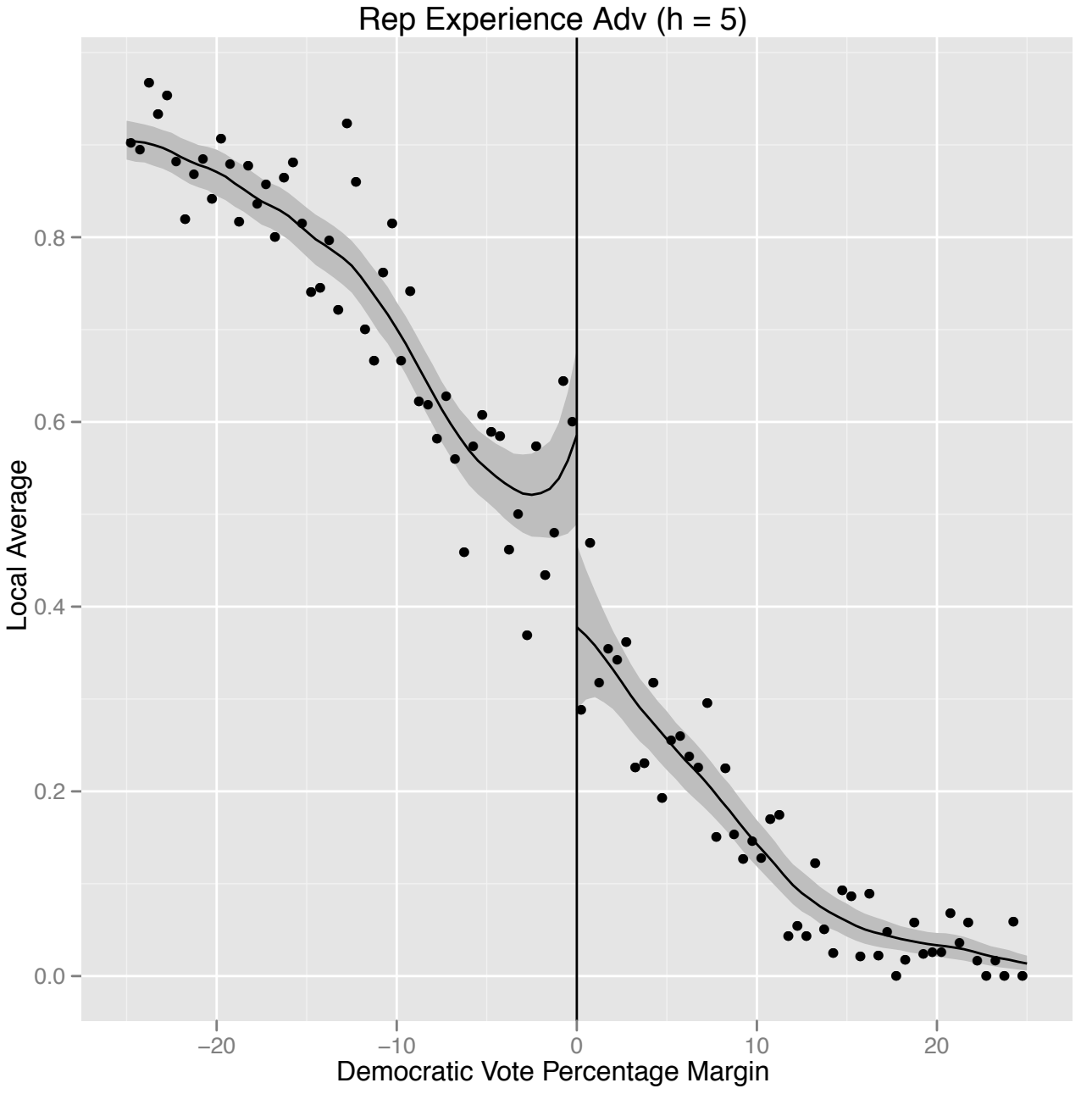

Open Seat (h = 10)
Local Average
0.30
0.25
0.20
0.15
0.10
0.05
−20
−10
0
10
20
Democratic Vote Percentage Margin

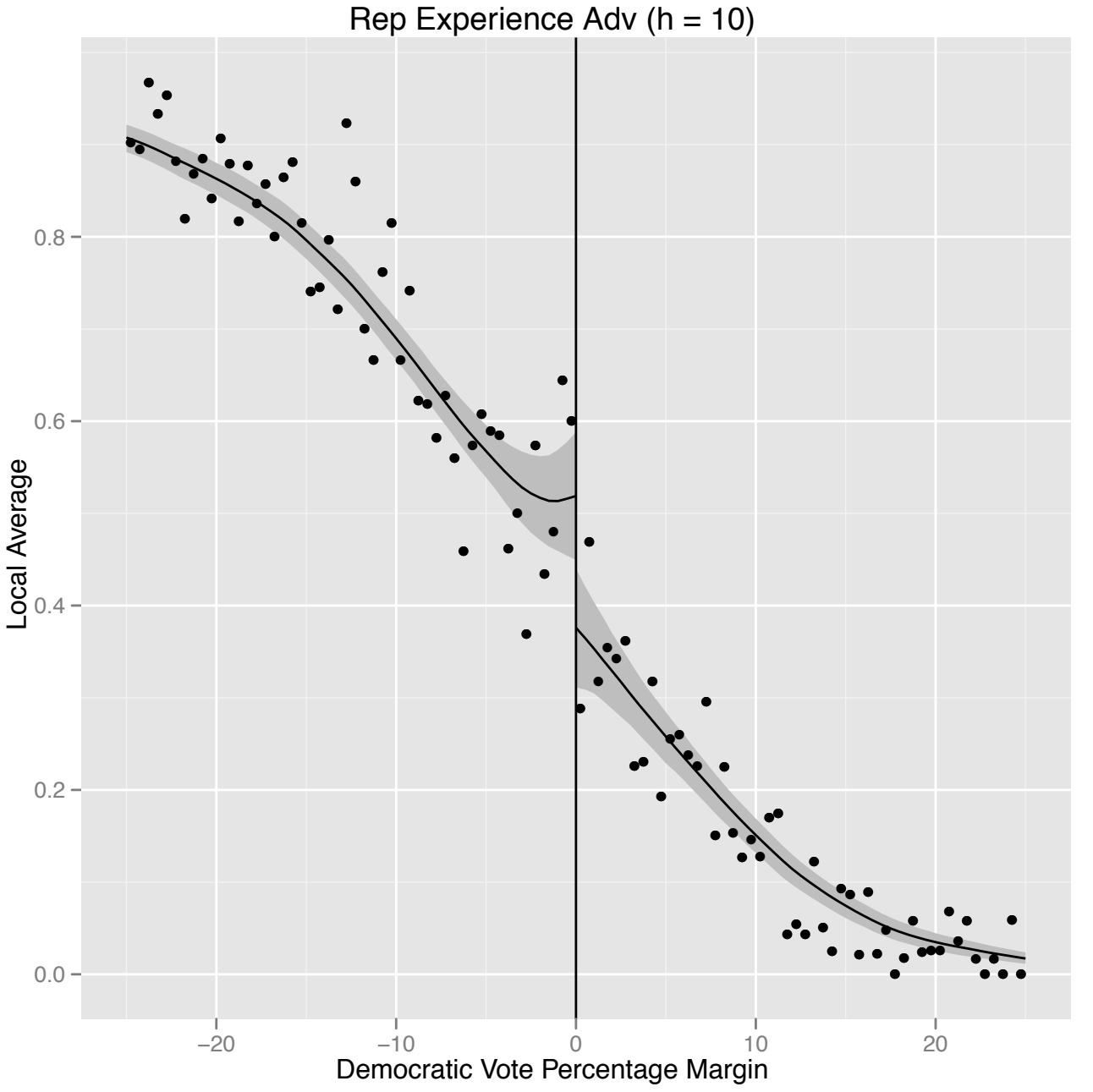

Open Seat (h = 15)
Local Average
0.30
0.25
0.20
0.15
0.10
0.05
−20
−10
0
10
20
Democratic Vote Percentage Margin

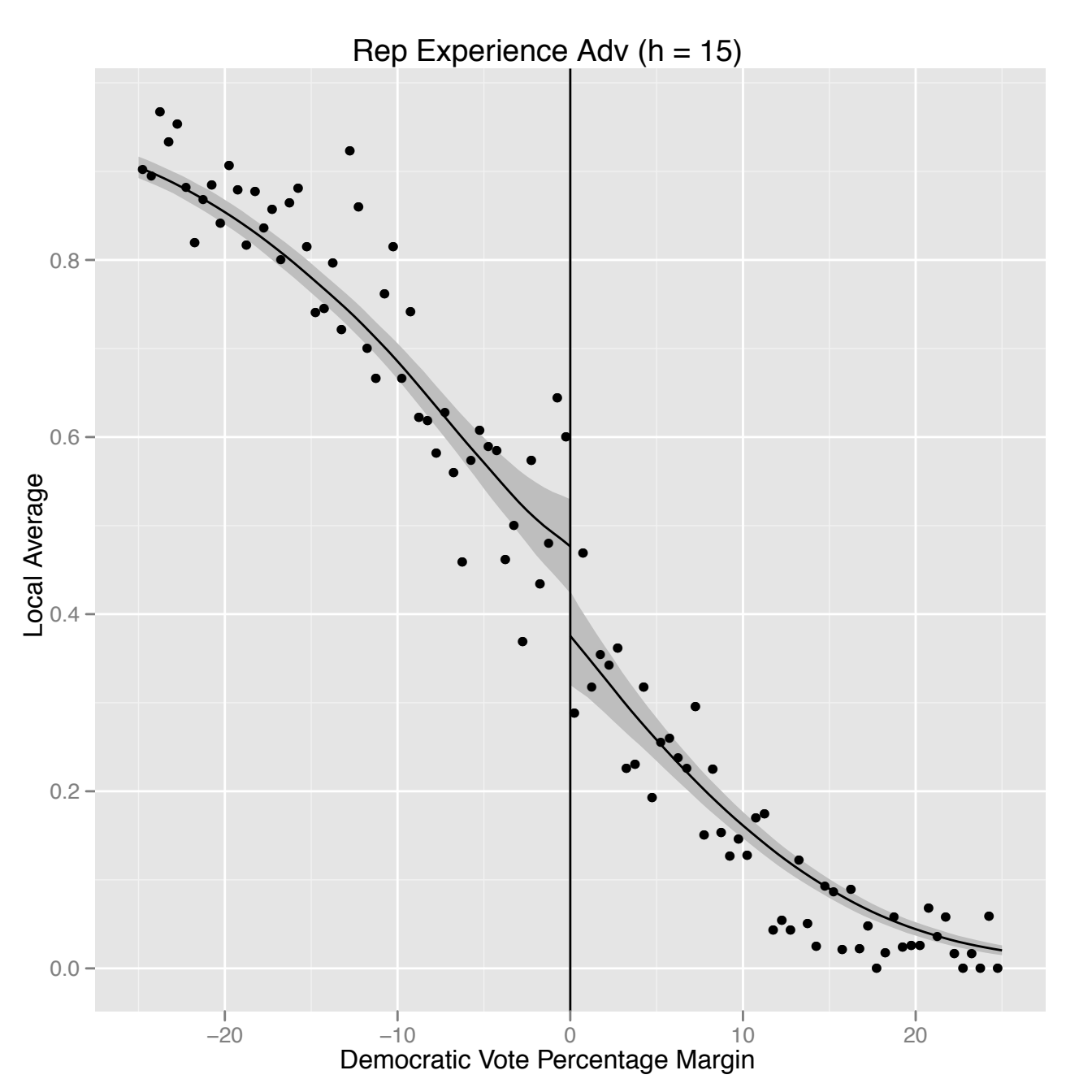

Open Seat (h = 20)
Local Average
0.30
0.25
0.20
0.15
0.10
0.05
−20
−10
0
10
20
Democratic Vote Percentage Margin

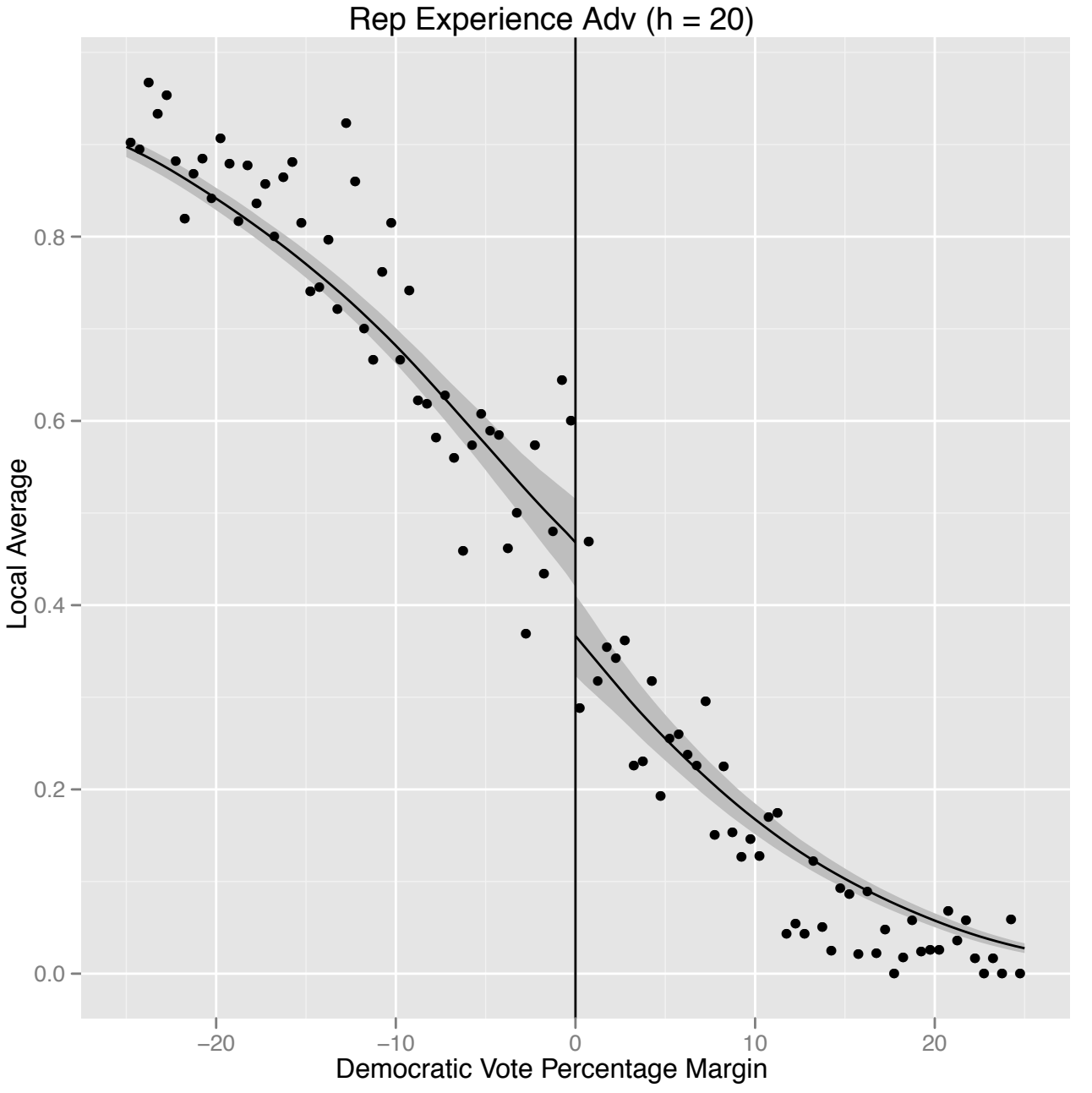

Rep Experience Adv (h = 1)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

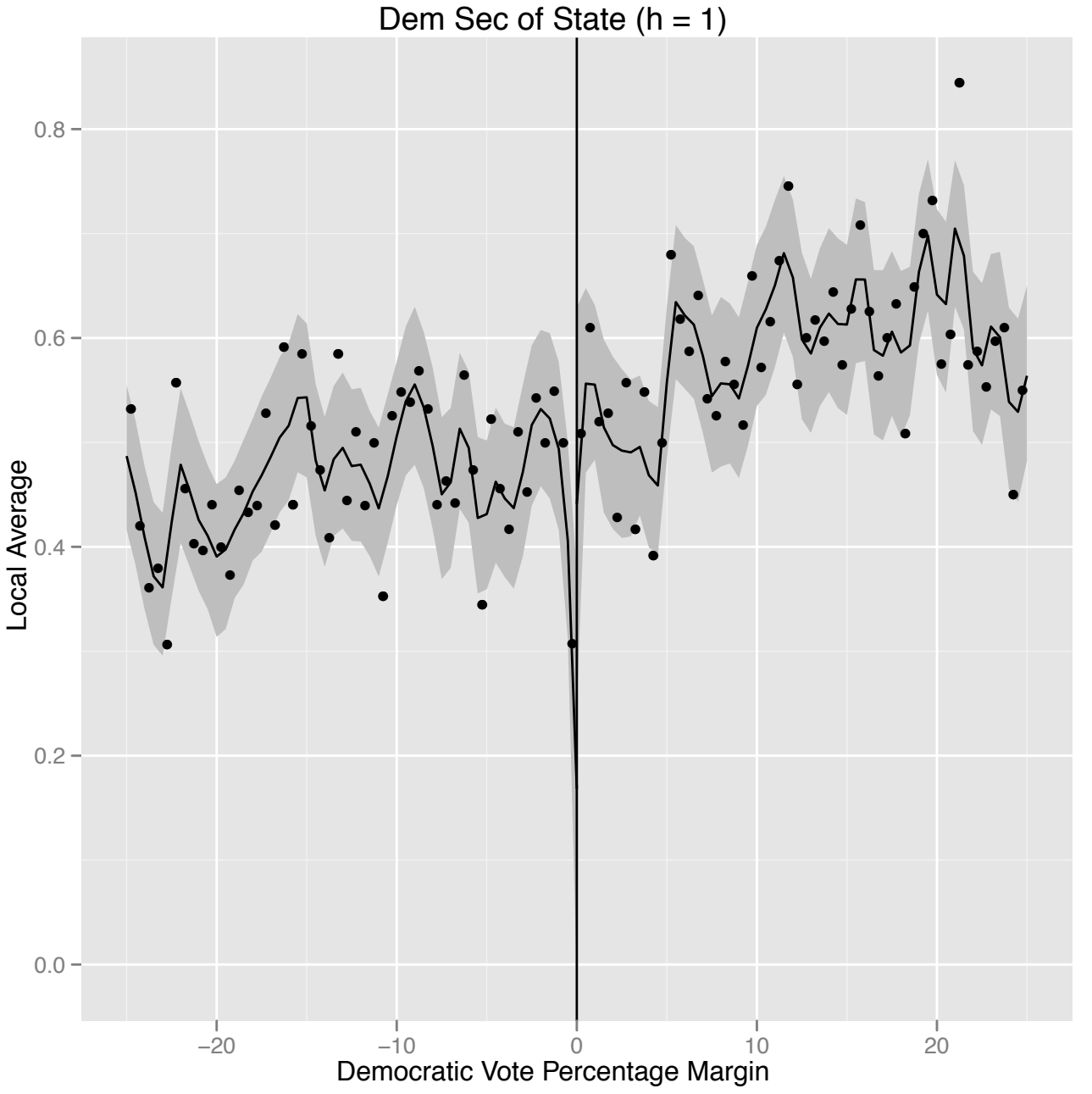

Rep Experience Adv (h = 2)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

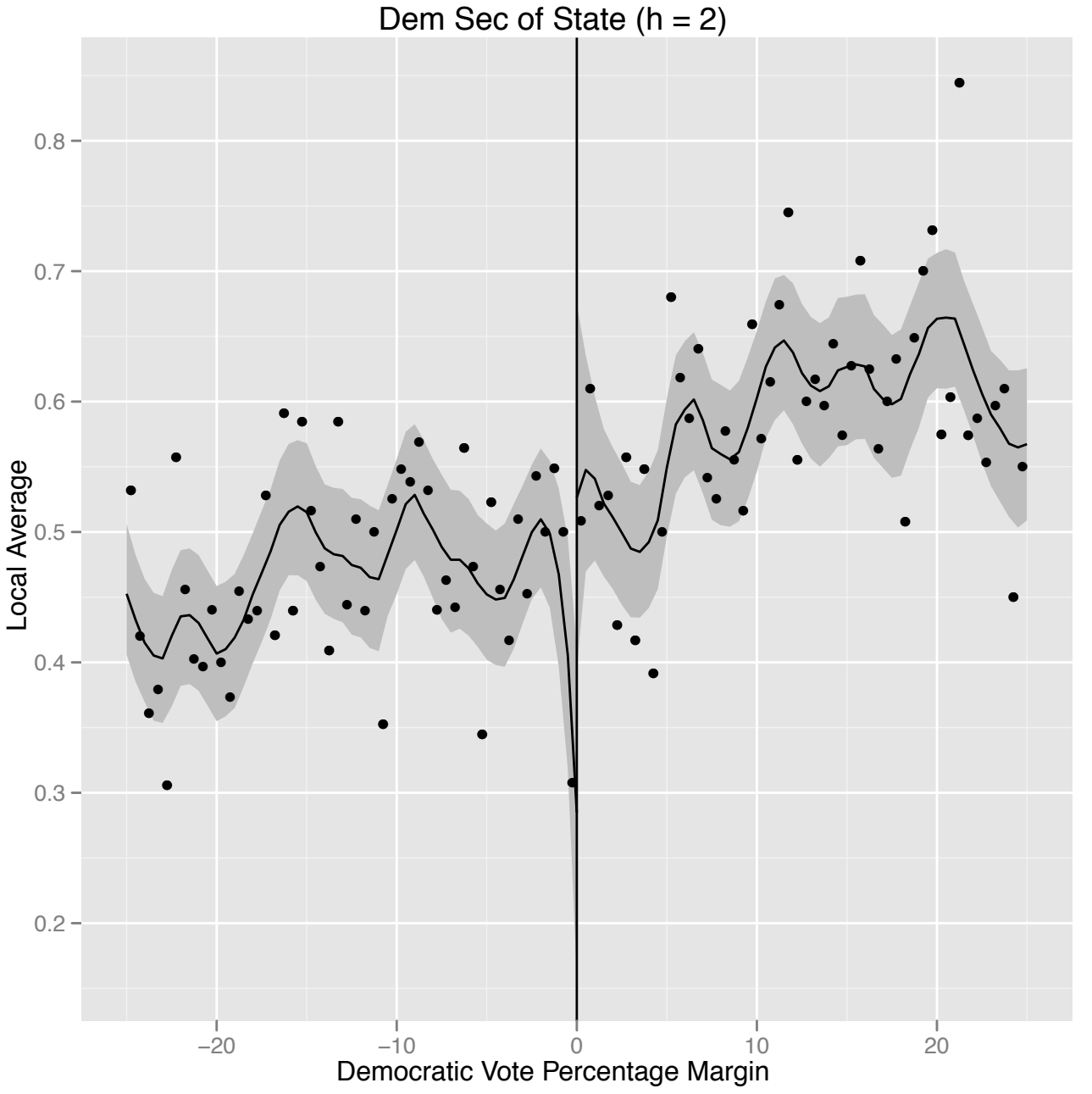

Rep Experience Adv (h = 5)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin


Rep Experience Adv (h = 10)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin


Rep Experience Adv (h = 15)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

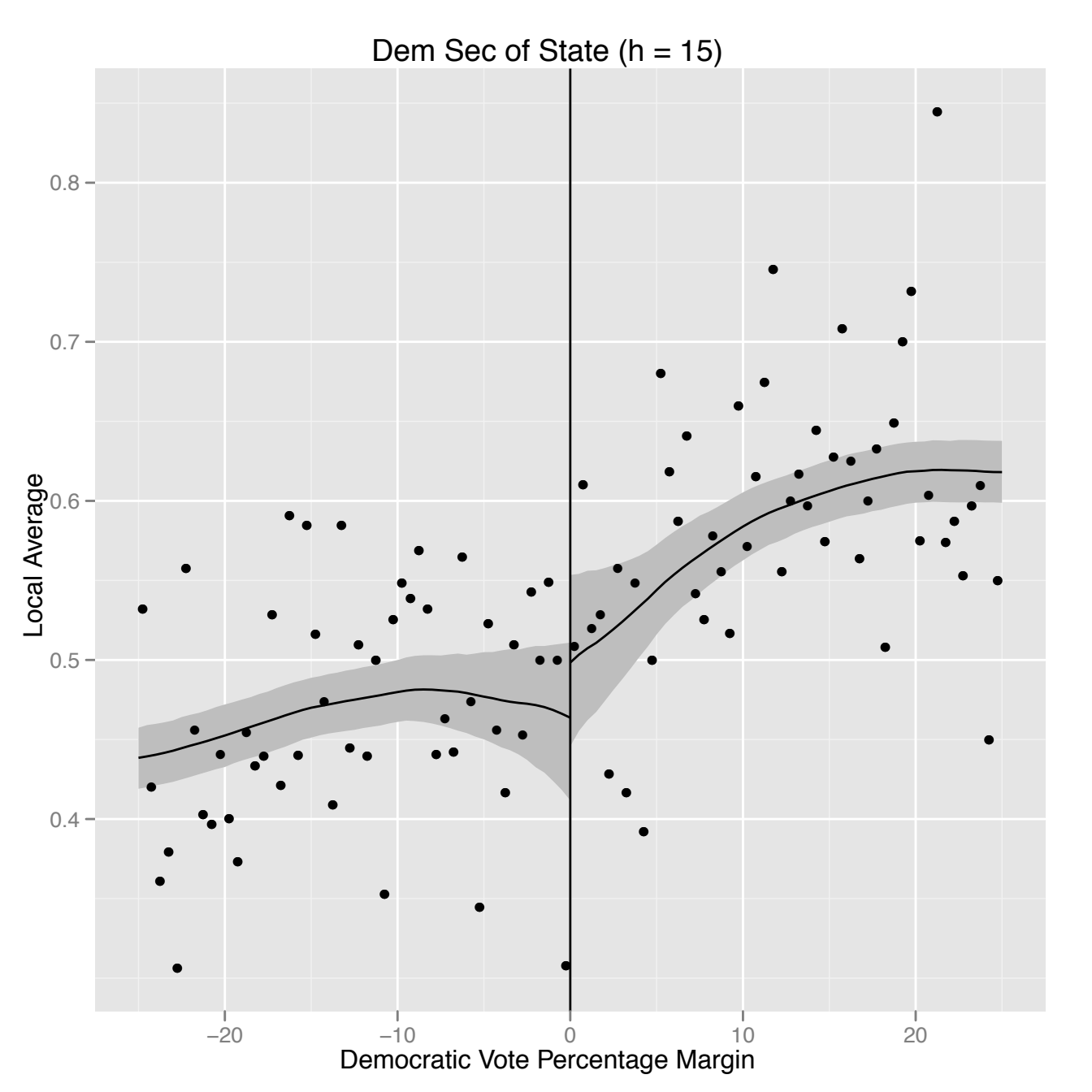

Rep Experience Adv (h = 20)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

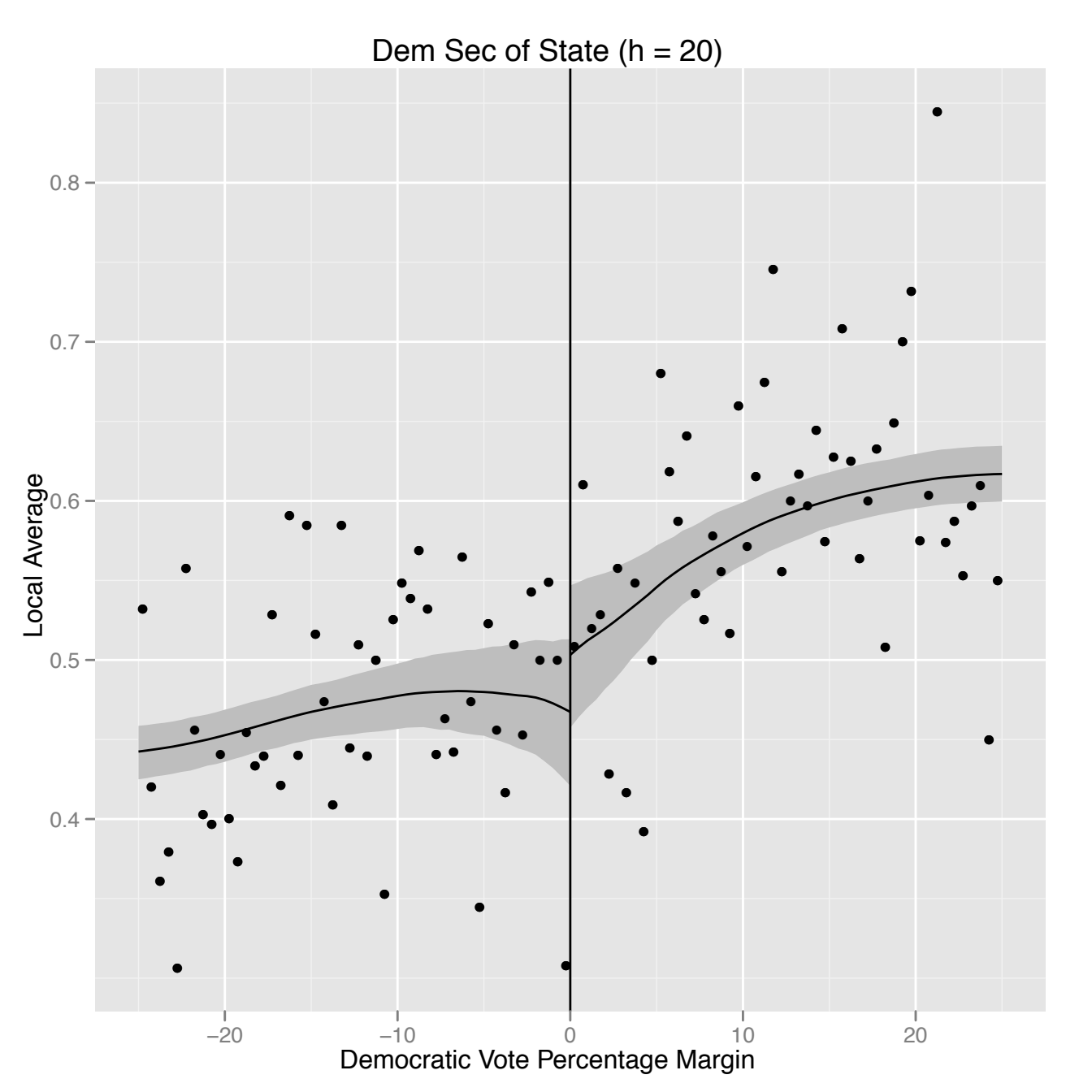

Dem Sec of State (h = 1)
Local Average
0.0
0.2
0.4
0.6
0.8
−20
−10
0
10
20
Democratic Vote Percentage Margin

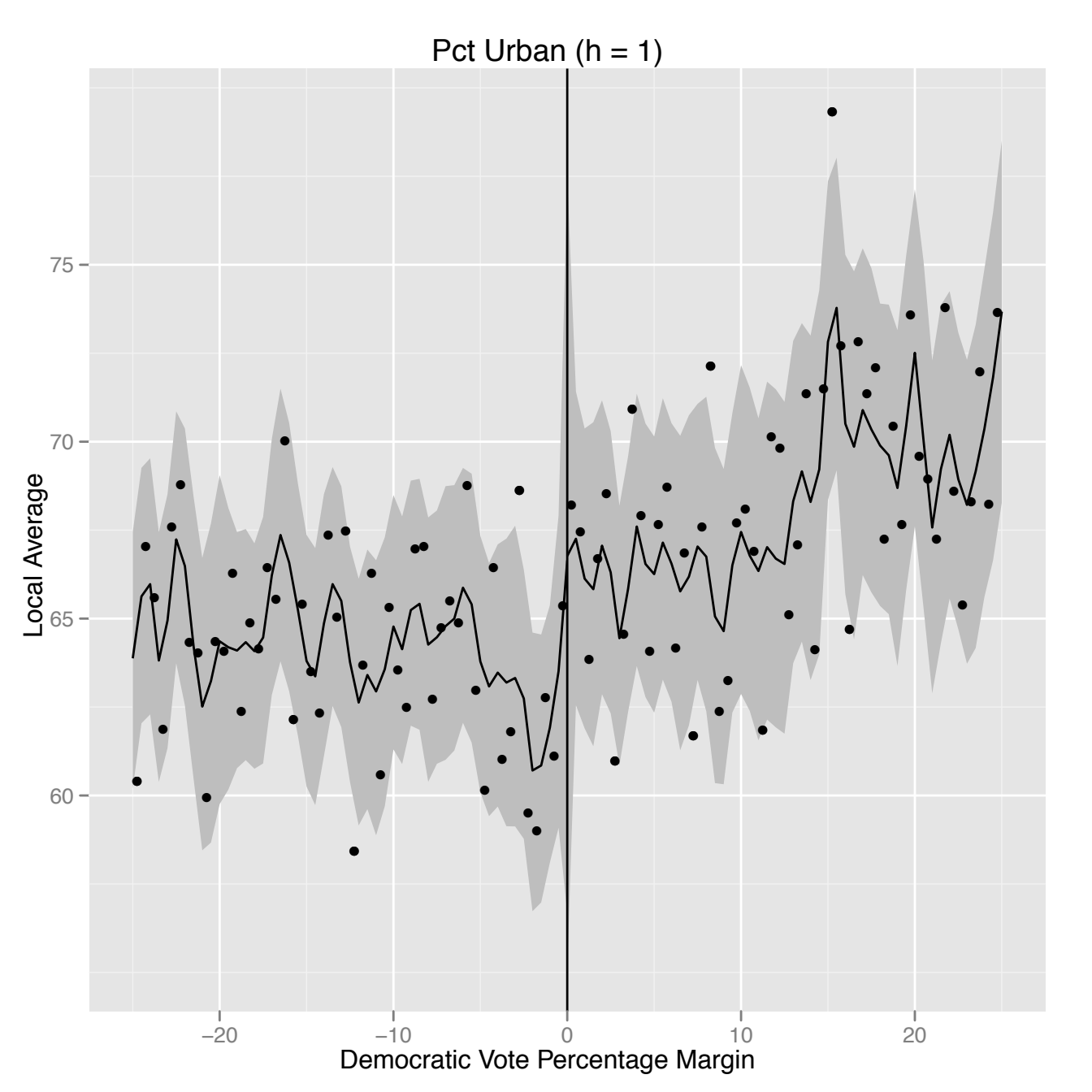

Dem Sec of State (h = 2)
Local Average
0.8
0.7
0.6
0.5
0.4
0.3
0.2
−20
−10
0
10
20
Democratic Vote Percentage Margin


Dem Sec of State (h = 5)
Local Average
0.8
0.7
0.6
0.5
0.4
−20
−10
0
10
20
Democratic Vote Percentage Margin

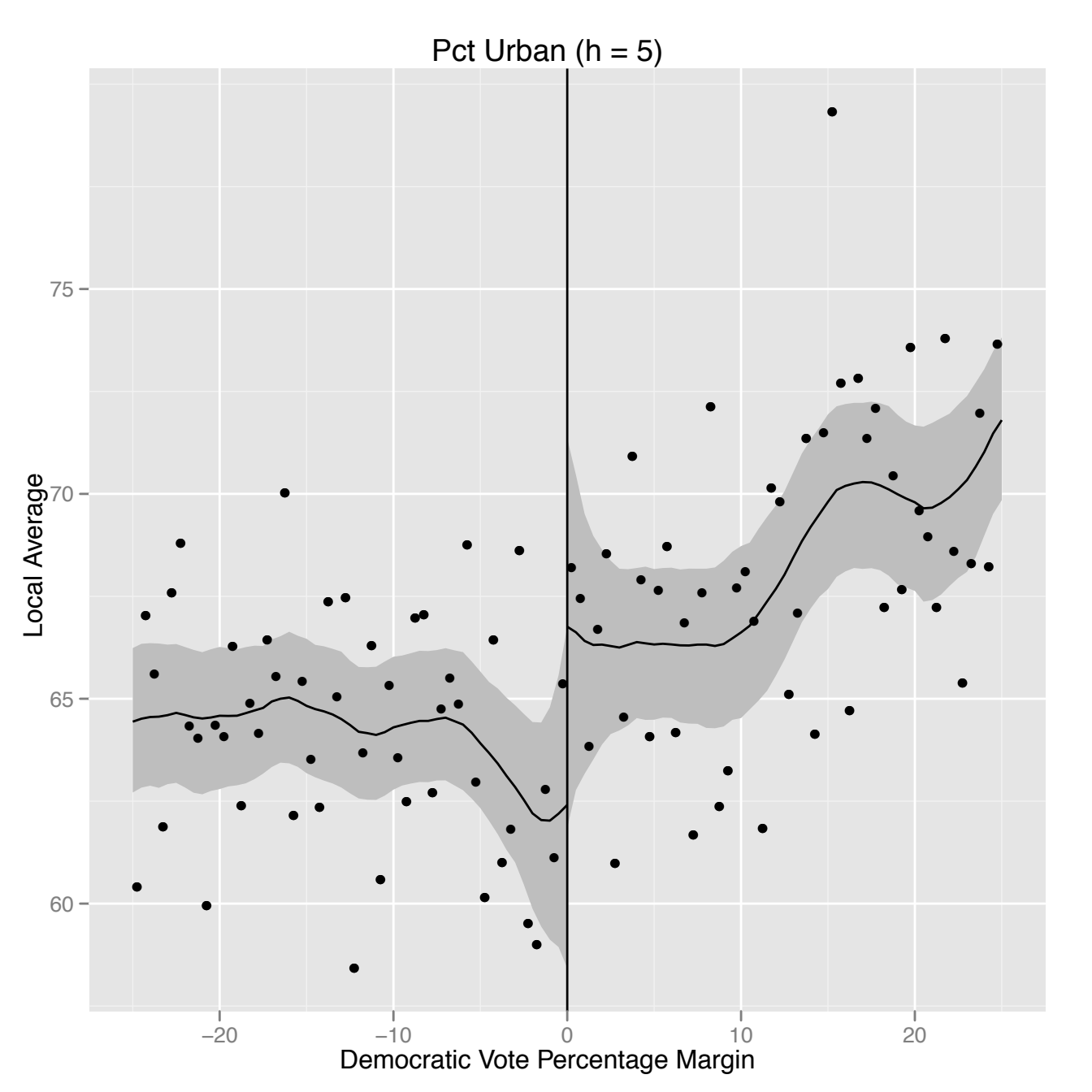

Dem Sec of State (h = 10)
Local Average
0.8
0.7
0.6
0.5
0.4
−20
−10
0
10
20
Democratic Vote Percentage Margin

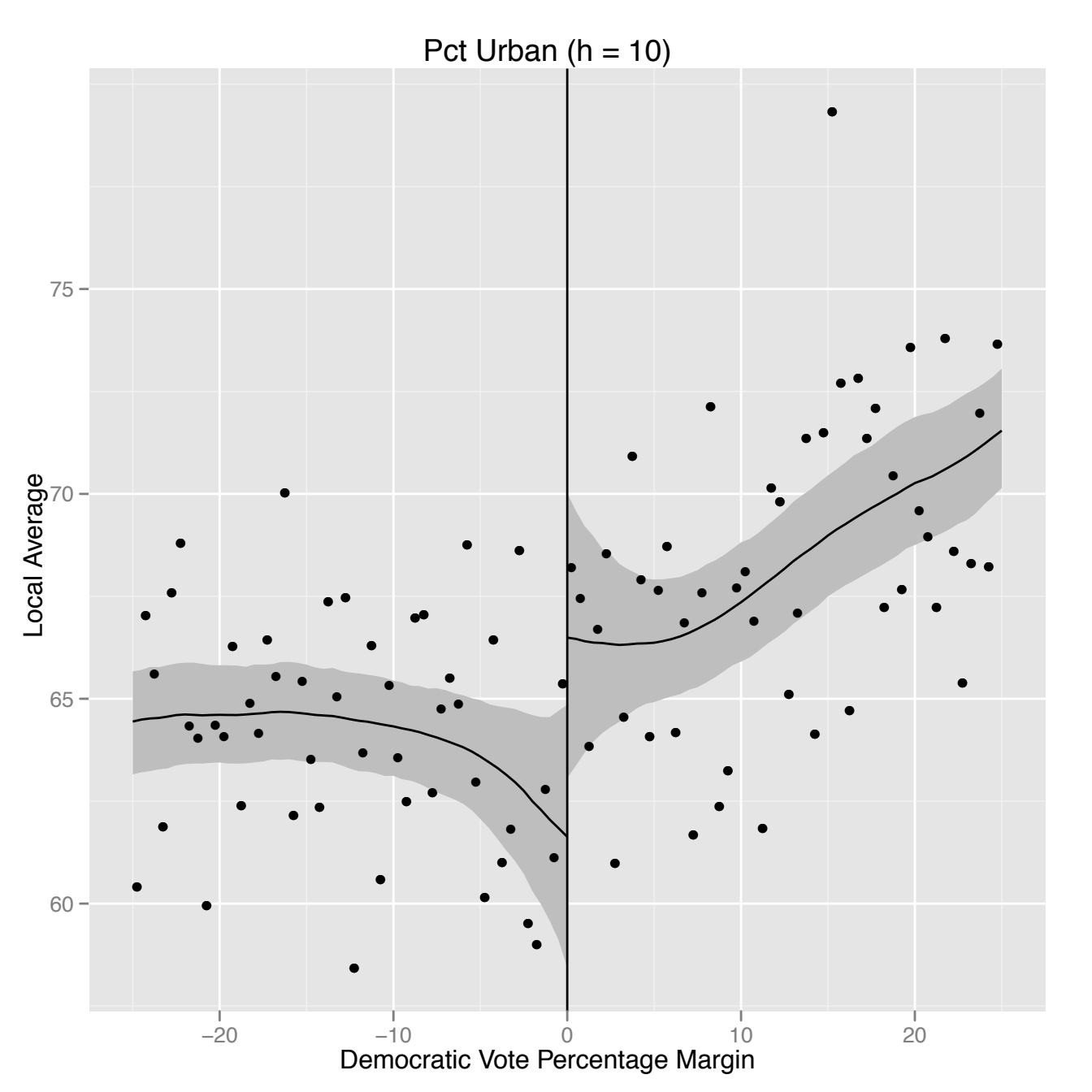

Dem Sec of State (h = 15)
Local Average
0.8
0.7
0.6
0.5
0.4
−20
−10
0
10
20
Democratic Vote Percentage Margin

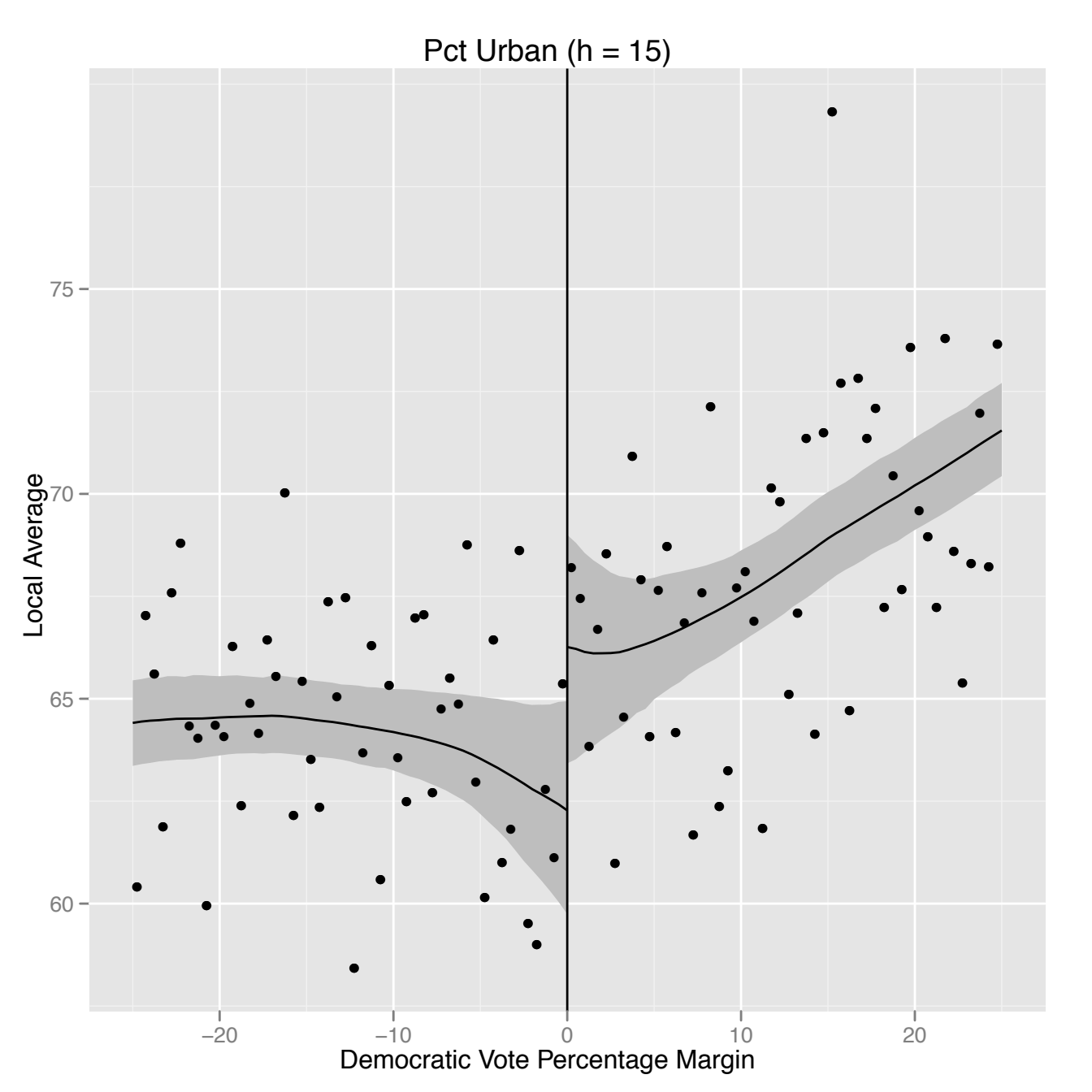

Dem Sec of State (h = 20)
Local Average
0.8
0.7
0.6
0.5
0.4
−20
−10
0
10
20
Democratic Vote Percentage Margin

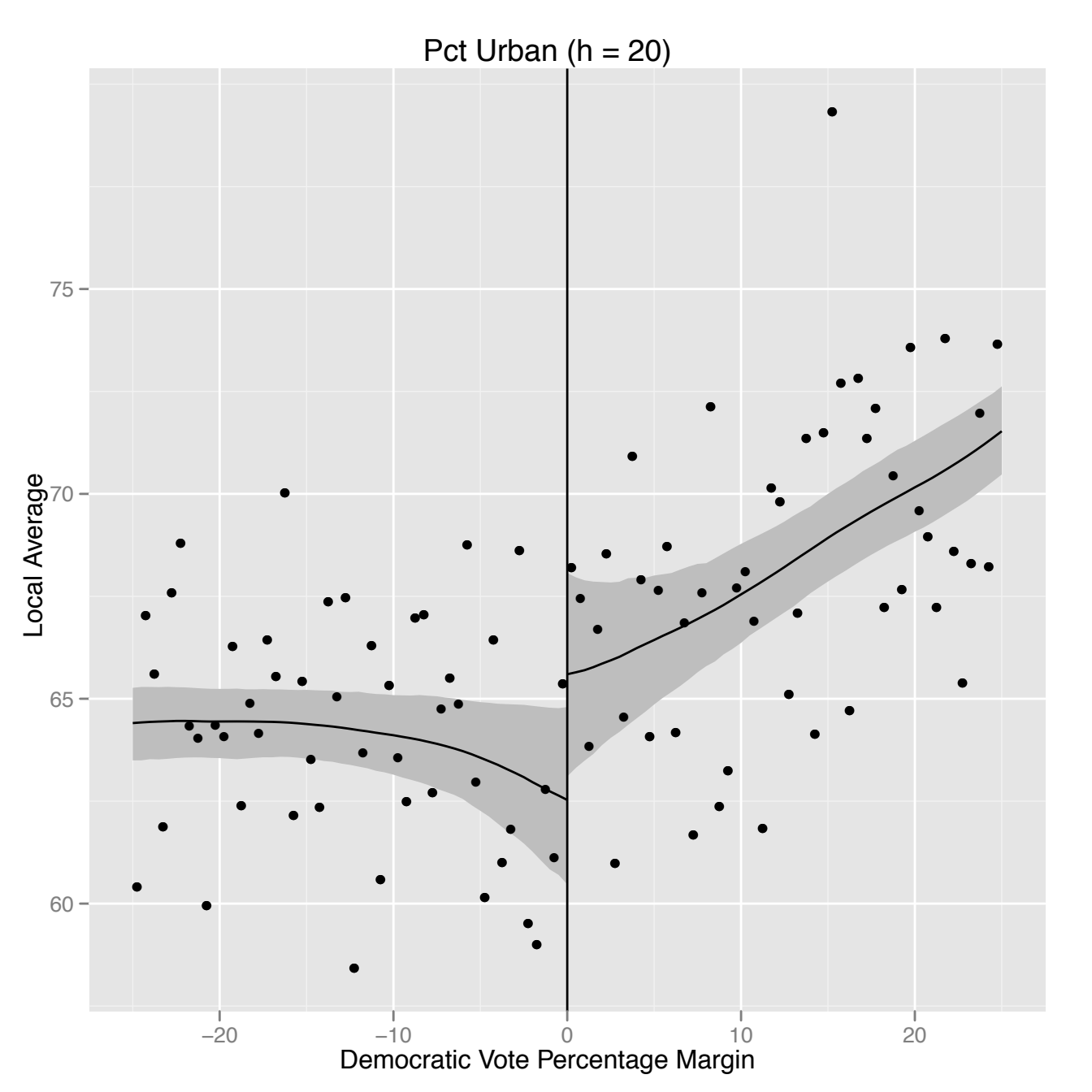

Pct Urban (h = 1)
Local Average
75
70
65
60
−20
−10
0
10
20
Democratic Vote Percentage Margin

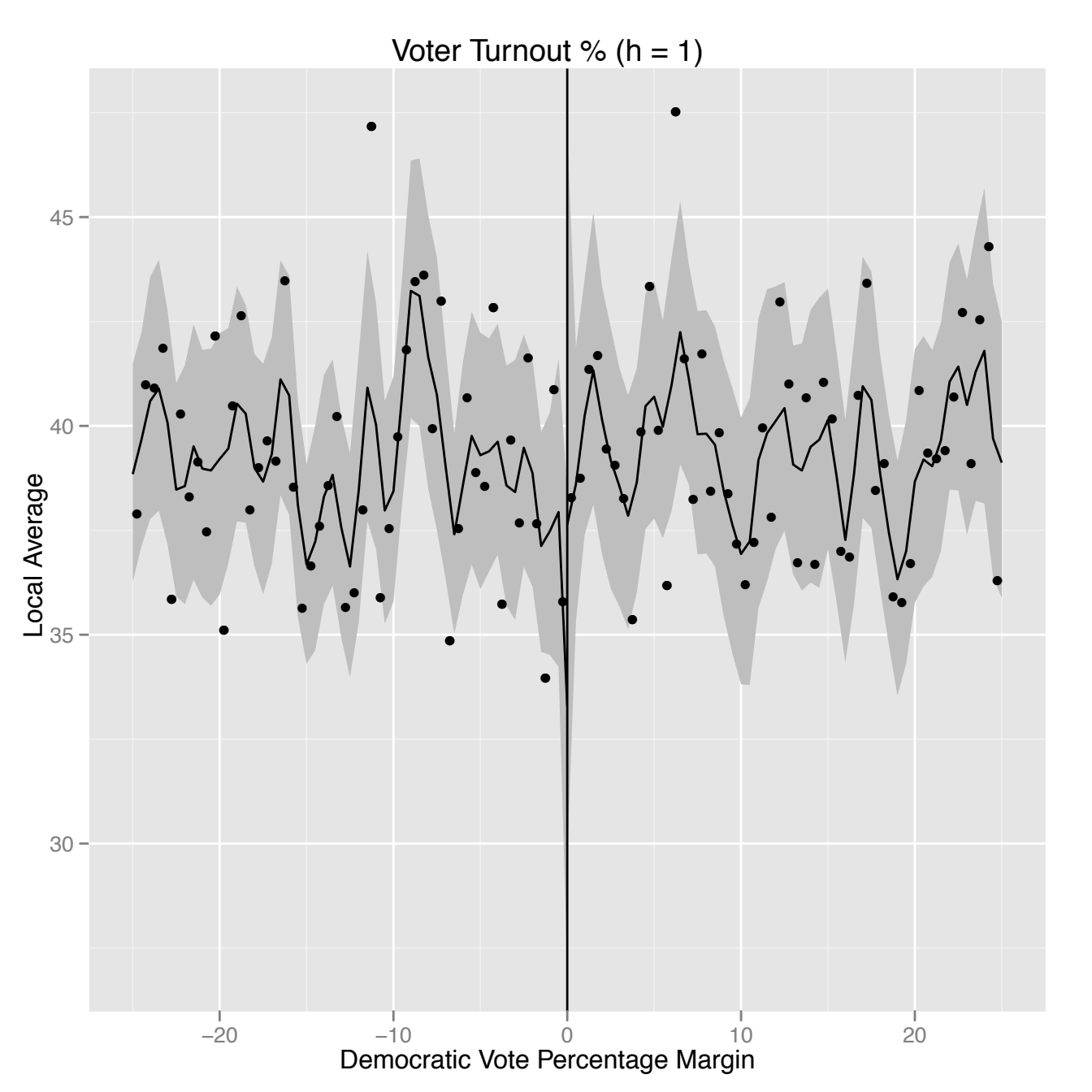

Pct Urban (h = 2)
Local Average
75
70
65
60
−20
−10
0
10
20
Democratic Vote Percentage Margin

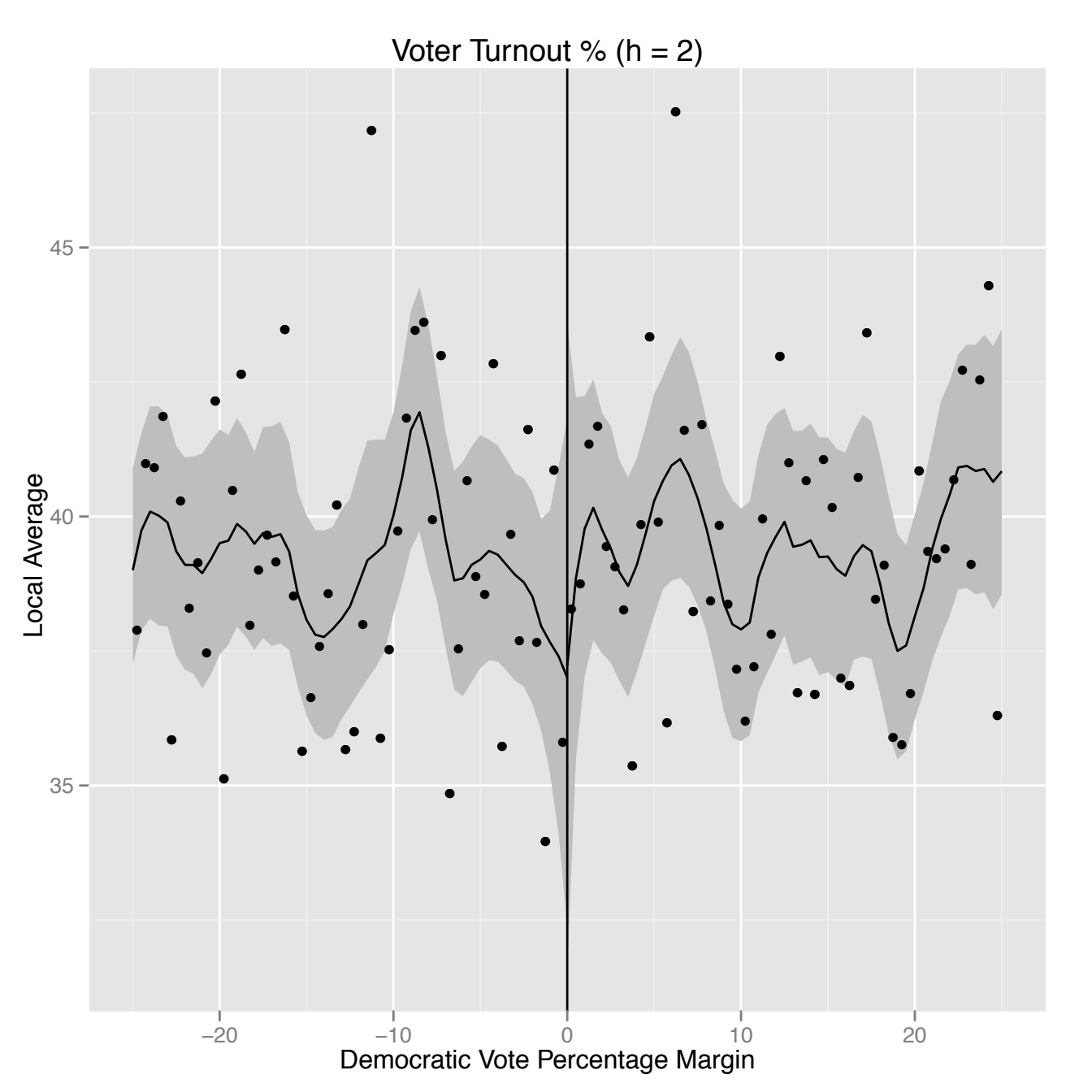

Pct Urban (h = 5)
Local Average
75
70
65
60
−20
−10
0
10
20
Democratic Vote Percentage Margin

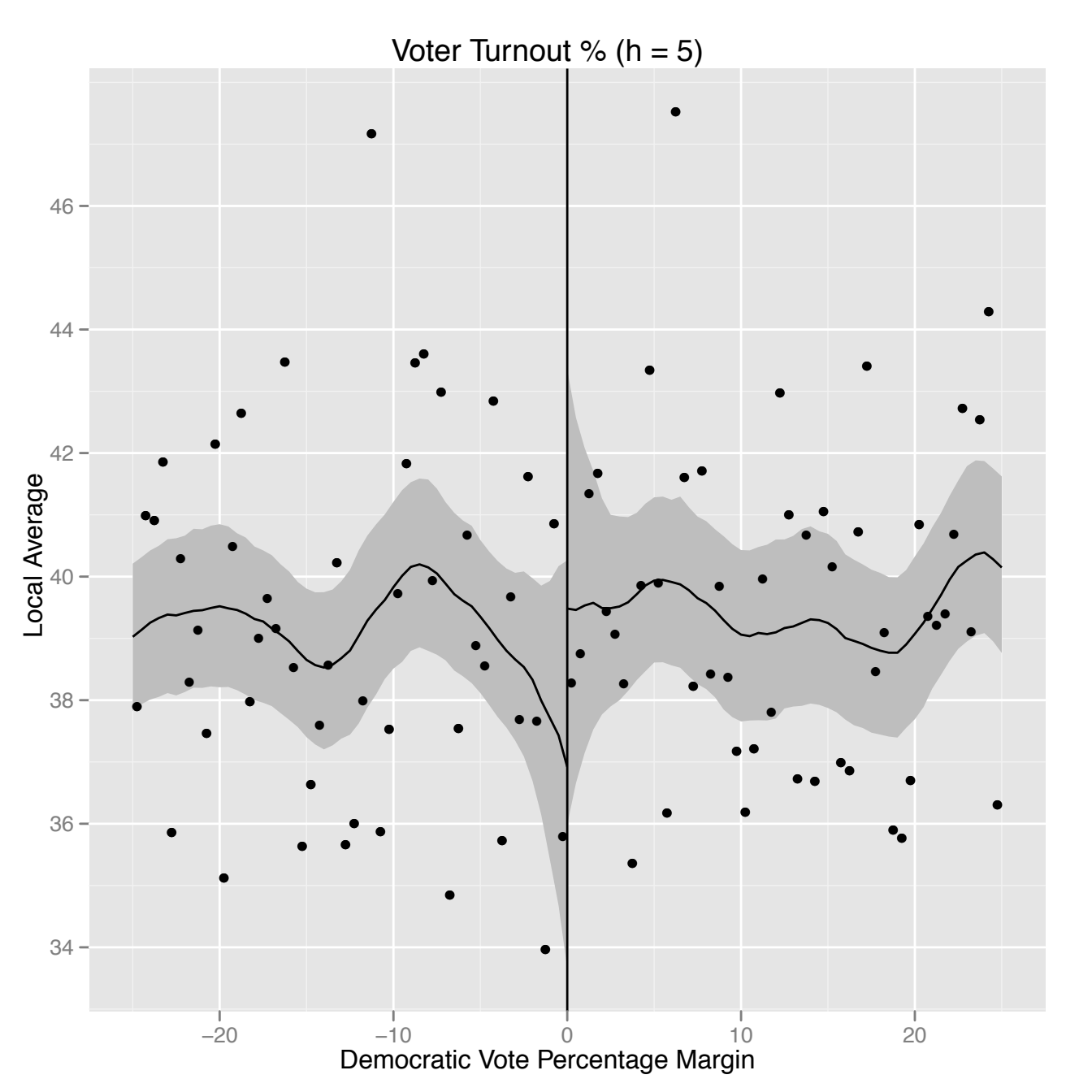

Pct Urban (h = 10)
Local Average
75
70
65
60
−20
−10
0
10
20
Democratic Vote Percentage Margin

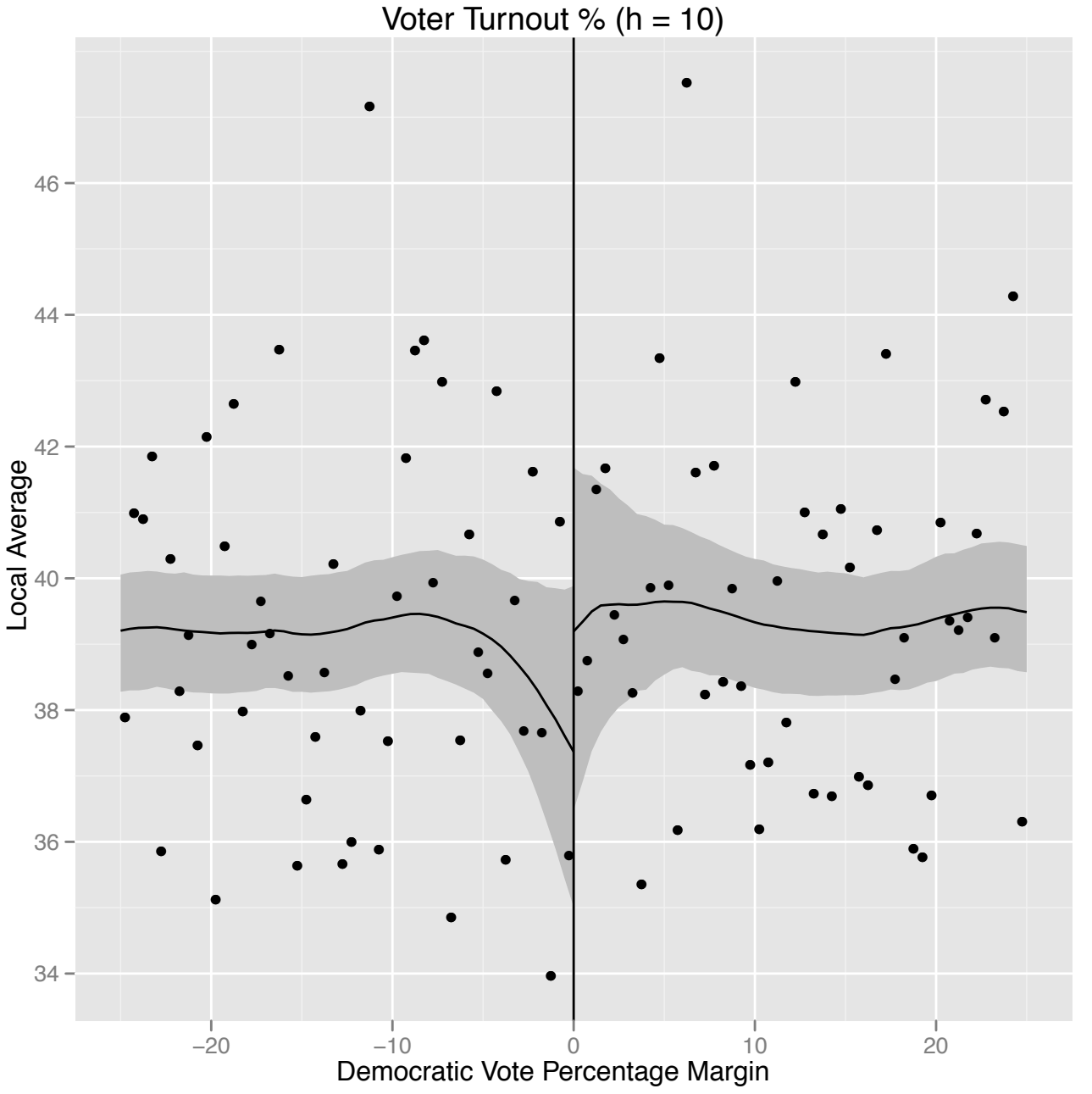

Pct Urban (h = 15)
Local Average
75
70
65
60
−20
−10
0
10
20
Democratic Vote Percentage Margin

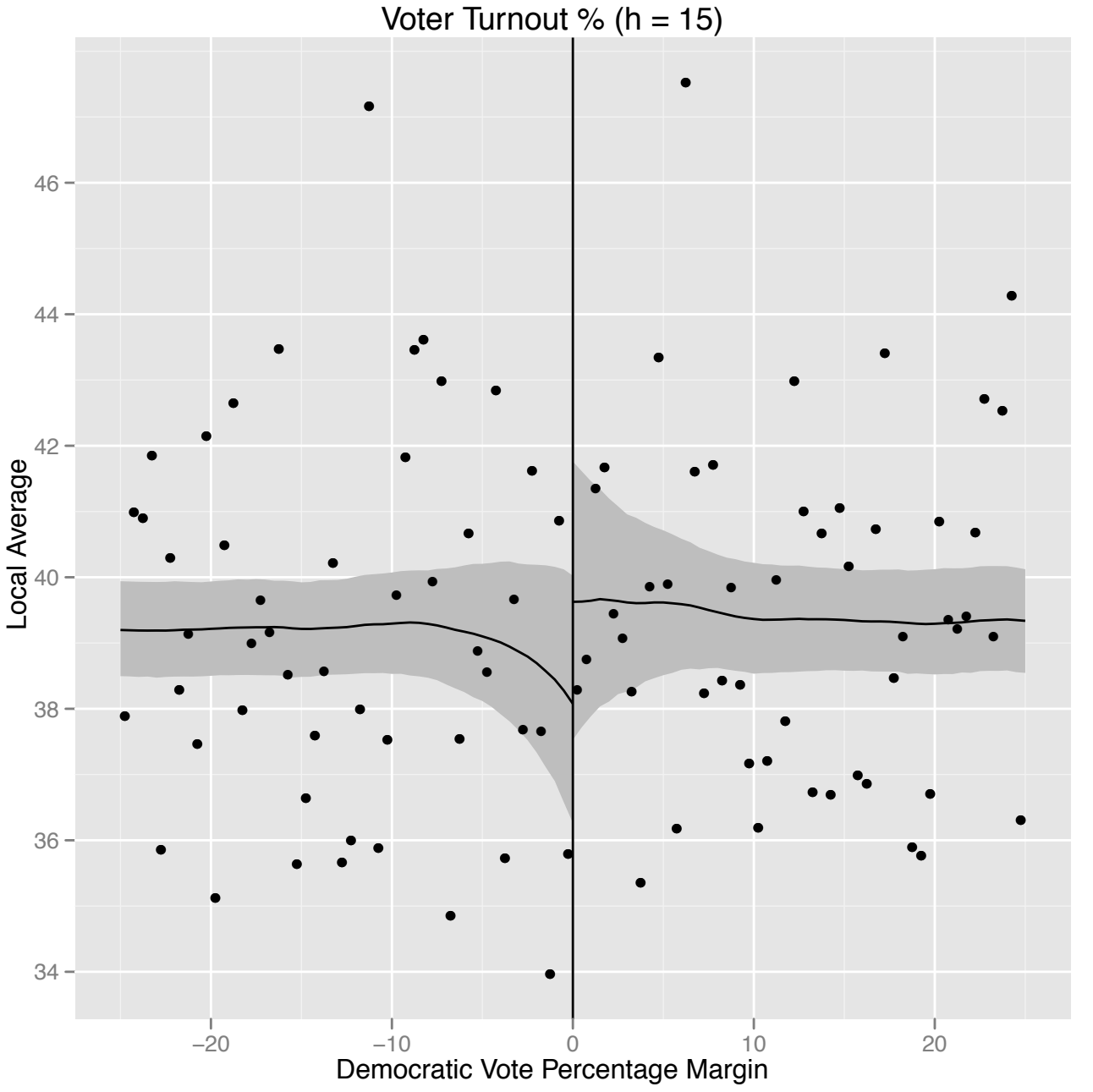

Pct Urban (h = 20)
Local Average
75
70
65
60
−20
−10
0
10
20
Democratic Vote Percentage Margin

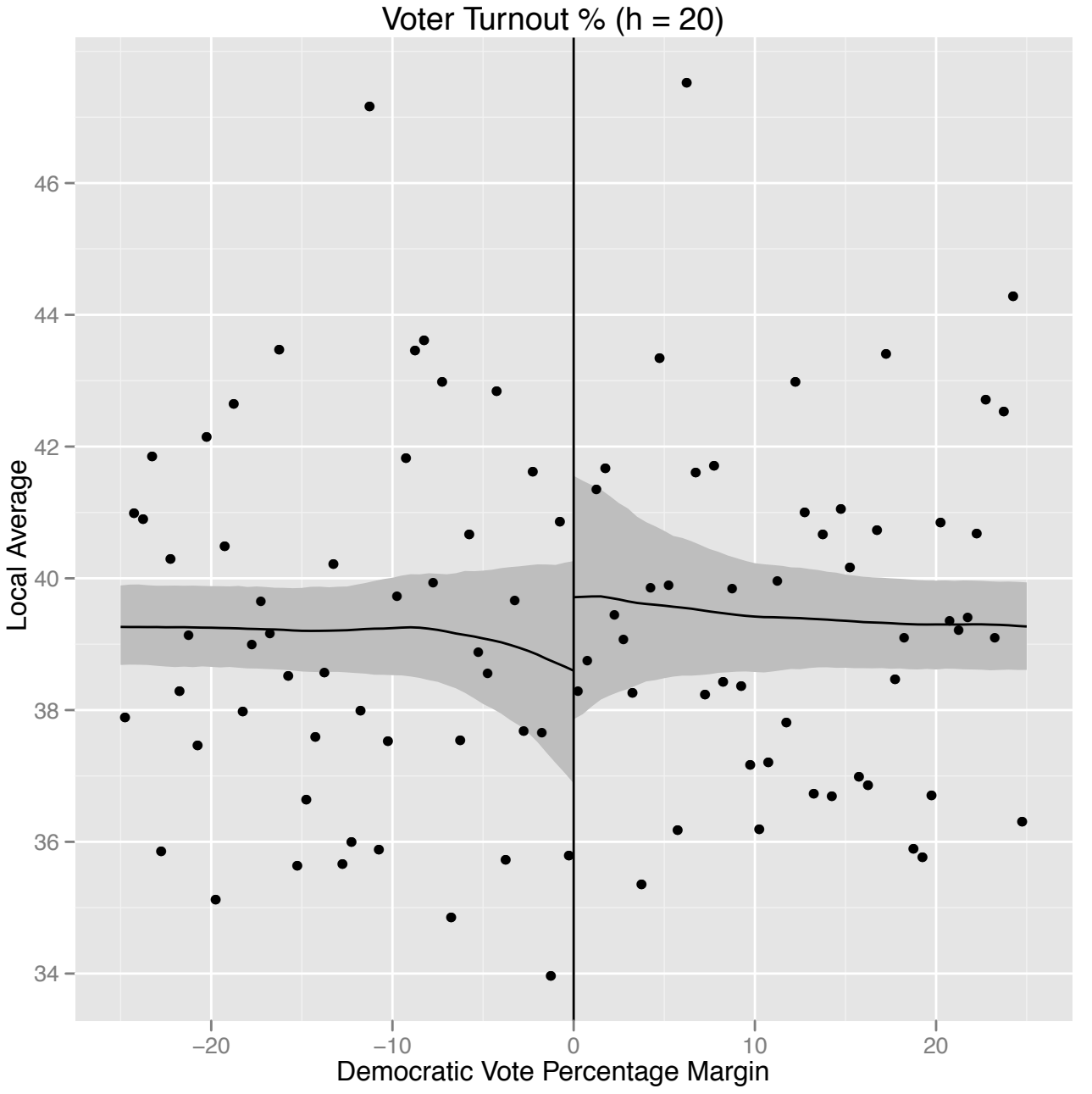

Voter Turnout % (h = 1)
Local Average
45
40
35
30
−20
−10
0
10
20
Democratic Vote Percentage Margin


Voter Turnout % (h = 2)
45
40
35
Local Average
−20
−10
0
10
20
Democratic Vote Percentage Margin


Voter Turnout % (h = 5)
Local Average
46
44
42
40
38
36
34
−20
−10
0
10
20
Democratic Vote Percentage Margin


Voter Turnout % (h = 10)
Local Average
46
44
42
40
38
36
34
−20
−10
0
10
20
Democratic Vote Percentage Margin


Voter Turnout % (h = 15)
Local Average
46
44
42
40
38
36
34
−20
−10
0
10
20
Democratic Vote Percentage Margin


Voter Turnout % (h = 20)
Local Average
46
44
42
40
38
36
34
−20
−10
0
10
20
Democratic Vote Percentage Margin

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