Supplementary materials: "Longevity Returns to Political Office"

November 17, 2019

1 Summary statistics

Table 1 contains summary statistics for all variables. From the table, we see that the candidates lived on average 10,309 days ($\sim$ 28 years) after the election. This is approximately 2.3 years longer than the life expectancy for the average American of the same age as the candidate at the time of the election. This supports the notion that candidates for political office are systematically different from the average citizen (Goldbaum, 2012), for example because they are richer or better educated, or because unhealthy citizens are less likely to run for office. We also see that there is considerable variation in the outcome variable, with one candidate having lived only 46 days after the election (i.e. this candidate died in office), whereas another went on to live 22,067 days ($\sim$ 60 years). Below, we show that the results are robust to the removal of such outliers. From the table we also see that the average candidate is slightly more than 52 years at the time of the election, that almost all of the candidates are male, and that we have almost complete balance in terms of party and geographic location of the candidates.

Table 1: Summary statistics

Statistic	N	Mean	St. Dev.	Min	Pctl(25)	Pctl(75)	Max
Candidate:							
Days alive after election	1,092	10,309.56	4,885.95	46	6,418.8	14,123.8	22,067
Days alive before election (imputed)	1,092	18,892.42	3,181.47	11,450	16,561	20,995.8	30,633
Days alive before election (not imputed)	1,066	18,899.55	3,179.42	11,775.00	16,550.50	21,003.25	30,633.00
Life expectancy	1,092	9,192.08	2,384.77	1,850.55	7,508.05	10,845.97	16,366.60
Female	1,092	0.02	0.14	0	0	0	1
Democrat	1,092	0.51	0.50	0	0	1	1
Republican	1,092	0.48	0.50	0	0	1	1
State:							
Per capita income	1,072	0.55	0.84	0.03	0.11	0.57	8.75
Population	1,092	3,783,555.00	4,231,732.00	145,000	900,000	4,536,000	27,102,238
Total expenditure	1,090	2,744,112.00	7,158,777.00	9,618.00	210,726.00	1,825,083.00	79,121,781.00
Census region: South	1,092	0.27	0.44	0	0	1	1
Census region: West	1,092	0.25	0.43	0	0	0	1
Census region: Northeast	1,092	0.28	0.45	0	0	1	1
Census region: Midwest	1,092	0.21	0.41	0	0	0	1

2 Placebo regressions

Table 2: Placebo regressions

	Estimate	Std. Error	Z value	P value
Candidate:				
Democrat	0.057	0.100	0.568	0.570
Republican	-0.051	0.098	-0.518	0.605
Female	0.002	0.017	0.092	0.927
Days alive before election (imputed)	-262.985	536.326	-0.490	0.624
Days alive before election (not imputed)	-300.820	541.487	-0.556	0.579
Life expectancy	332.041	404.349	0.821	0.412
State:				
Per capita income	-0.079	0.181	-0.438	0.662
Population	287,278.000	717,470.100	0.400	0.689
Total expenditure	918,591.700	1,131,286.000	0.812	0.417
Census region: South (dummy)	0.044	0.064	0.696	0.487
Census region: West (dummy)	-0.023	0.086	-0.271	0.786
Census region: Northeast (dummy)	-0.022	0.075	-0.291	0.771
Census region: Midwest (dummy)	-0.010	0.074	-0.142	0.887

3 Robustness of main results

3.1 Removing candidates with incomplete information

For a few candidates, we are only able to identify the year of birth or death, not the exact date of the event. In order to maximize coverage and statistical power, we impute the exact date of birth or death for these candidates as July 1 of the given year in the main analysis. Table 3 shows the results when these cases are removed. As can be seen, the estimated effects are similar to those reported in the main analysis.

Table 3: Main results without imputed cases

	Days alive after election			
	(1)	(2)	(3)	(4)
Election win	2825.56***	2880.58***	1964.87**	1986.74**
	(976.70)	(988.27)	(790.14)	(788.40)
Observations	1074	1074	1074	1074
Effective observations	501	491	519	514
Bandwidth	10.21	10.03	10.66	10.55
State controls	No	Yes	No	Yes
Candidate controls	No	No	Yes	Yes

Main regression discontinuity results when candidates for which the exact date of birth or death was imputed. We use Calonico et al. (2016) optimal bandwith and triangular kernel weights in all columns. All models use local linear regression and include the bias correction and robust standard errors of Calonico et al. (2016). State controls add indicator variables for the Census region of the state, and an indicator variable for whether the state has gubernatorial term limits. Candidate controls include life expectancy at the time of the election, gender, and political party. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

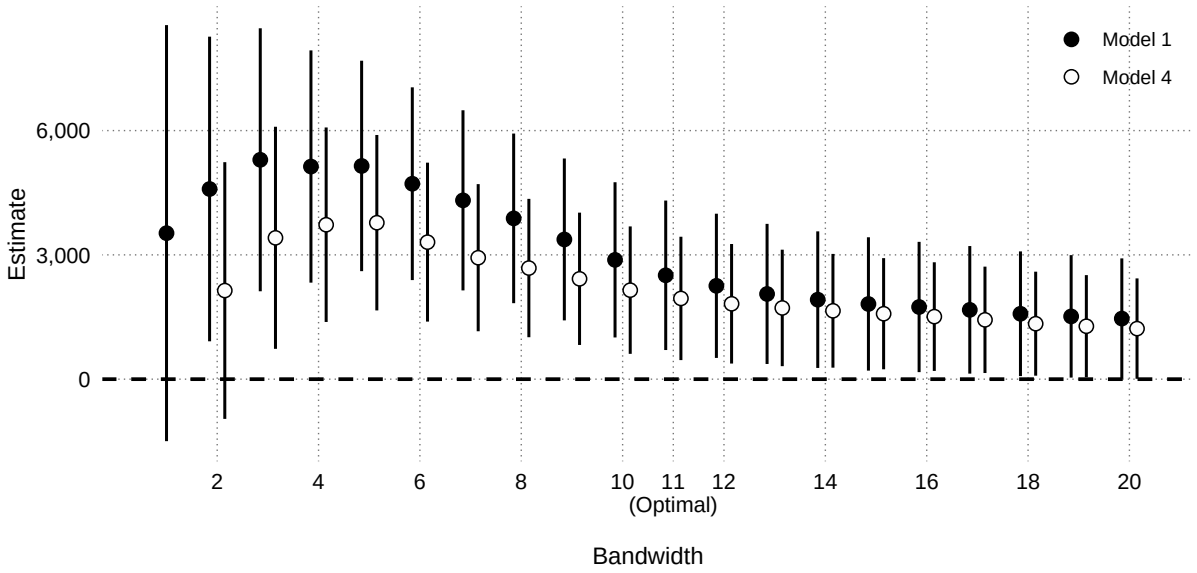
3.2 Different bandwidths

As picking an optimal bandwidth involves a bias-variance tradeoff, for small bandwidths the as good as random assumption is most likely to hold, leading to low bias. However, the effect can only be estimated on few observations, leading to high variance. We investigate the robustness of the choice of bandwidth by reestimating the raw treatment effect without controls, and the treatment effect when all controls are included (Model 4), under different bandwidths.[1] We again

[1]We are incapable of estimating the full model with controls due to lack of variation when the bandwidth is set at one percent.

apply bias correction and calculate robust standard errors. Results are presented graphically in Figure 1.

Figure 1: Robustness: Main result under different bandwidths



3.3 Removing outliers

There is substantial variation in the outcome variable. We make sure that our main results are not driven by a few number of outlier observations by censoring the number of days a candidate is measured to be alive after the election at the 2nd and 98th percentile of its distribution. Table 4 presents results of the RD analysis on this censored dataset. Reassuringly, our results only become stronger when estimated on the censored data, showing that our results are not driven by outlier observations.

3.4 Using only elections with open seats

The main analysis estimates the effect on the entire sample of candidates within the optimal bandwidth. In this sample, the same candidates can appear more than once, for example if they

Table 4: Main results without outliers

	Days alive after election			
	(1)	(2)	(3)	(4)
Election win	3388.61***	3465.03***	2388.28***	2411.46***
	(963.83)	(977.99)	(795.40)	(796.29)
Observations	1048	1048	1048	1048
Effective observations	445	442	482	476
Bandwidth	9.24	9.03	9.99	9.86
State controls	No	Yes	No	Yes
Candidate controls	No	No	Yes	Yes

Main regression discontinuity results when the outcome variable (days alive after election) is censored at the 2nd and 98th percentile. We use Calonico et al. (2016) optimal bandwith and triangular kernel weights in all columns. All models use local linear regression and include the bias correction and robust standard errors of Calonico et al. (2016). State controls add indicator variables for the Census region of the state, and an indicator variable for whether the state has gubernatorial term limits. Candidate controls include life expectancy at the time of the election, gender, and political party. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

run as incumbents. We assess the validity of our results when we use only the sample of candidates from elections for open seats. This guarantees that none of the candidates appear more than once in the dataset, and that the sample of candidates include only candidates who have not been elected governor before. Table 5 reports the results when estimated on this restricted dataset. As can be seen from the table, making this sample restriction does not alter the results substantially although there is less statistical power. The table shows that the results also remain significant when we censor the data at the 2nd and 98th percentile of the outcome variable.

3.5 Main results when using a second order polynomial

The main analysis estimates the causal effect of holding gubernatorial office using local linear regression. In Table 6, we show the robustness to this choice of estimator by using a second order polynomial instead. We refrain from using higher order polynomials as they have been shown to have poor properties (Gelman and Imbens, 2014). Reassuringly, our results only become stronger when estimated with a quadratic polynomial instead of local linear regression.

Table 5: Main results when looking only at elections for open seats

	Days alive after election			
	(1)	(2)	(3)	(4)
Full sample				
Election win	2324.24**	2320.50**	1760.24*	1823.68**
	(1129.86)	(1132.21)	(905.46)	(901.57)
Observations	765	765	765	765
Effective observations	388	388	444	442
Bandwidth	10.96	10.99	12.84	12.76
Removing outliers				
Election win	2972.69***	3048.43***	2438.18**	2466.60***
	(1112.83)	(1119.92)	(946.74)	(927.96)
Observations	731	731	731	731
Effective observations	360	350	372	369
Bandwidth	10.37	10.16	11.00	10.87
State controls	No	Yes	No	Yes
Candidate controls	No	No	Yes	Yes

Main regression discontinuity results when we restrict the sample to include only elections for open seats. We use Calonico et al. (2016) optimal bandwith and triangular kernel weights in all columns. All models use local linear regression and include the bias correction and robust standard errors of Calonico et al. (2016). State controls add indicator variables for the Census region of the state, and an indicator variable for whether the state has gubernatorial term limits. Candidate controls include life expectancy at the time of the election, gender, and political party. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table 6: Main results when estimated using a second order polynomial

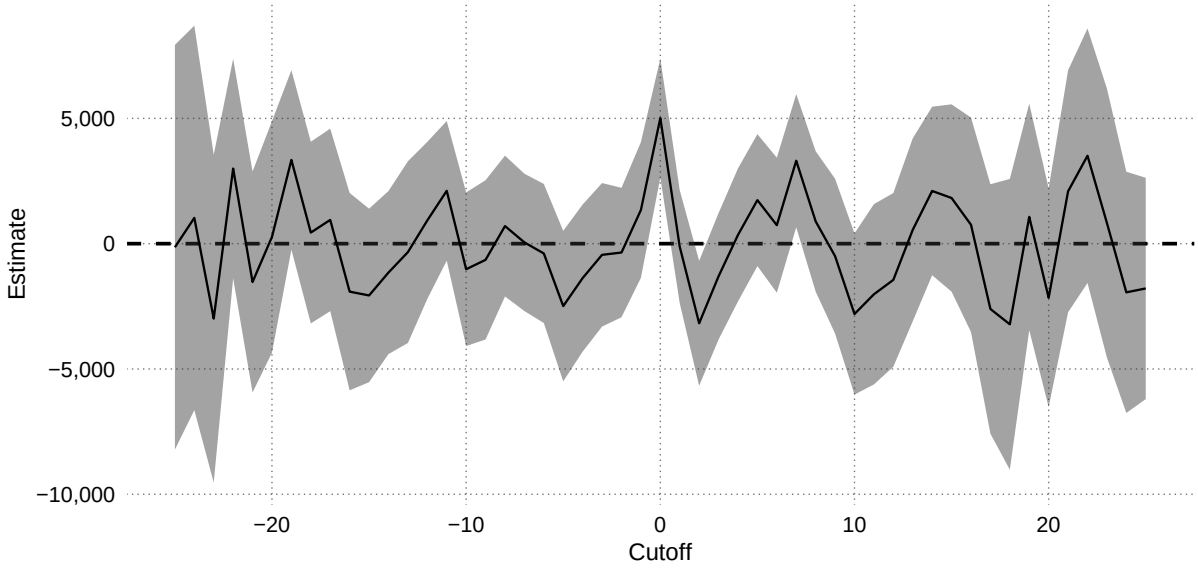
	Days alive after election			
	(1)	(2)	(3)	(4)
Election win	4090.02***	4085.41***	2552.30***	2547.09***
	(1126.77)	(1135.19)	(886.57)	(880.30)
Observations	1092	1092	1092	1092
Effective observations	654	653	726	726
Bandwidth	13.95	13.91	16.00	16.02
State controls	No	Yes	No	Yes
Candidate controls	No	No	Yes	Yes

Main regression discontinuity results when estimated using a second order polynomial. We use Calonico et al. (2016) optimal bandwith and triangular kernel weights in all columns. All models include the bias correction and robust standard errors of Calonico et al. (2016). State controls add indicator variables for the Census region of the state, and an indicator variable for whether the state has gubernatorial term limits. Candidate controls include life expectancy at the time of the election, gender, and political party. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

3.6 Alternative cutoffs

As an additional robustness check, we estimate the treatment effect at different synthetic cutoff points. Results are presented in Figure 2. Since there should only be a true discontinuity at zero, we should not expect to detect effects at other cutoffs. Reassuringly, we do not find evidence of any effects at these synthetic cutoffs.

Figure 2: Main result at alternative cutoffs



3.7 Results on 1945-1969 sample

As candidates from recent elections are more likely to be alive, we estimate the treatment effect on the sample with elections in the period from 1945 to 1969. This sample consists mostly of deceased politicians. The results remain significant through the different models.

Table 7: The causal effect of election win on longevity, 1945-1969

	Days alive after election			
	(1)	(2)	(3)	(4)
Election win	2204.71**	2183.94**	1665.03**	1656.03**
	(1094.04)	(1091.10)	(840.79)	(822.64)
Observations	713	713	713	713
Effective observations	426	436	467	480
Bandwidth	13.65	13.86	15.19	15.74
State controls	No	Yes	No	Yes
Candidate controls	No	No	Yes	Yes

Regression discontinuity results. We use Calonico et al. (2016) optimal bandwith and triangular kernel weights in all columns. All models use local linear regression and include the bias correction and robust standard errors of Calonico et al. (2016). State controls add indicator variables for the Census region of the state, and an indicator variable for whether the state has gubernatorial term limits. Candidate controls include life expectancy at the time of the election, and political party. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

3.8 Results with no missing candidate information

Some politicians are included in our sample despite missing data on the death date of the contestant. To ensure this have no implications for the findings, we estimated the models on the sample where all candidates, i.e. candidates running against each other, had available data on death date. Noteworthy, this does not affect the main finding that winning office has an positive impact on longevity.

Table 8: The causal effect of election win on longevity, no missing data

	Days alive after election			
	(1)	(2)	(3)	(4)
Election win	3754.46***	3736.18***	2217.38***	2130.41***
	(1072.46)	(1075.05)	(819.16)	(803.56)
Observations	832	832	832	832
Effective observations	378	378	472	494
Bandwidth	9.20	9.23	11.56	12.11
State controls	No	Yes	No	Yes
Candidate controls	No	No	Yes	Yes

Regression discontinuity results. We use Calonico et al. (2016) optimal bandwith and triangular kernel weights in all columns. All models use local linear regression and include the bias correction and robust standard errors of Calonico et al. (2016). State controls add indicator variables for the Census region of the state, and an indicator variable for whether the state has gubernatorial term limits. Candidate controls include gender, life expectancy at the time of the election, and political party. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

4 Party heterogeneity

Last, we reestimate the main effects separately for candidates belonging to the two major parties. Several studies indicate that conservative politicians have larger pecuniary gains from office (Eggers and Hainmueller, 2009; Palmer and Schneer, 2016, 2015), and the effect on longevity might therefore also be larger for Republicans due to the income-health gradient. Results are presented in Table 9. The table reports inconclusive evidence. The raw estimates are larger for Democratic candidates, but when we include controls, the estimates are larger for Republican candidates. When we include both predetermined state and candidate controls, the estimate for Republican candidates is 50 percent larger than that for Democratic candidates, but the difference between the two estimates is not statistically significant.

Table 9: Main results by party

	Days alive after election			
	(1)	(2)	(3)	(4)
Republican				
Election win	2590.11**	3090.45**	3077.52***	3161.49***
	(1270.85)	(1334.36)	(1129.11)	(1143.83)
Observations	527	527	527	527
Effective observations	289	256	247	228
Bandwidth	11.90	10.26	9.89	9.30
Democrat				
Election win	3231.94**	2942.18*	1753.16	1723.29
	(1599.06)	(1578.87)	(1217.85)	(1215.35)
Observations	557	557	557	557
Effective observations	228	228	263	263
Bandwidth	9.12	9.17	10.67	10.73
State controls	No	Yes	No	Yes
Candidate controls	No	No	Yes	Yes

Main regression discontinuity results by party. We use Calonico et al. (2016) optimal bandwith and triangular kernel weights in all columns. All models use local linear regression and include the bias correction and robust standard errors of Calonico et al. (2016). State controls add indicator variables for the Census region of the state, and an indicator variable for whether the state has gubernatorial term limits. Candidate controls include life expectancy at the time of the election and gender. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

References

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