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**Working Paper**

## Political Turnover Negatively Affects the Quality of Public Services: A Replication

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No. 39  
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Sebastian Gallegos

June 2023

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I4R DP No. 39

# Political Turnover Negatively Affects the Quality of Public Services: A Replication

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# Political Turnover Negatively Affects the Quality of Public Services: A Replication<sup>1</sup>

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June, 2023

## Abstract

The politically motivated replacement in local governments is a pervasive fact in our modern democracies. Whether it has causal effects on the quality of public services, such as education, is a critical question and yet understudied. This paper uses a regression discontinuity design (RDD) for close elections to replicate Akthari, Moreira and Trucco (2022) who find negative effects on the quality of public education in Brazil (.05-.08 standard deviations of lower test scores). I first reproduce these main results, finding minor computational differences that have no effect on the conclusions. I also show that the estimates for Brazil are in general robust to different specifications following Brodeur, Cook and Heyes (2020). Finally, I implement the same RDD framework now applied to Chilean administrative records to find null effects on test scores. Taken together, these results suggest that political turnover has weakly negative effects on service quality.

*Keywords:* Replication; Robustness; Political Turnover, Regression Discontinuity, Quality of Public Services

*JEL codes:* D72, D73, H75, H76, J45, O17

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## 1 Introduction

Akthari, Moreira and Trucco (AER, 2022), henceforth AMT, investigate how political turnover affects bureaucracy and its performance. AMT use a regression discontinuity design applied to mayoral elections in Brazil to estimate causal effects. The authors argue that close elections generate an exogenous source of variation in political party turnover for the mayoral position. Among their main findings, they find that an arguably exogenous increase in the replacement rate of municipal school's personnel lowers test scores by .05-.08 standard deviations. These results suggests that political turnover negatively affects the quality of public services.

This is an important finding by itself, but the most important contribution of AMT's paper might be more related to their identification strategy than to their specific estimates. Their empirical strategy relies on data that most countries have, like information on close elections, educational personnel and students' test scores. This method could therefore be empirically implemented in many countries and potentially help in 'scaling' the research question and inform the externally validity of the findings.

In this paper I first aim to achieve computational reproducibility, using the authors data and writing similar codes. I find minor computational differences that have no effect on their main results. I also document how causal effects vary considering a host of different specifications, and implement a test for p-hacking following Brodeur, Cook and Heyes (2020).

I find that the main estimates are stable to the choices made by the authors in the original article, with one exception: the effects on individual test scores do not appear robust to the exclusion of school-level baseline scores. However, my takeaway is that these results do not pose a threat to AMT conclusions. The reason is that I understand that the policy variation occurs at the school level rather than at the individual level. I still missed a justification along these lines in the original paper. All specifications using individual test scores as an outcome vary the set of controls included in the regressions, but always include school-level baseline scores as a covariate.

This study ends up implementing the same RDD framework applied to Chilean administrative records to find null effects on test scores. Taken together, these results suggest that political turnover has a weak negative effect on service quality. Implementing this identification strategy in other contexts would inform the critical question in public economics of how political turnover affects bureaucracy and its performance.

## 2 Computational Reproducibility

This section compares AMT's main original findings with results that I reproduced with new code from the raw data. I build detailed versions of AMT's Tables 1 to 5 and present them along their original counterparts in [Appendix A](#). The specifications discussed in this section are the same in both the reproduced and the original sets of estimates.

The main takeaway from this section is that AMT’s main results are reproducible. There are minor computational differences on a host of results, but these do not change the paper’s conclusions or interpretations.

I start finding small discrepancies in the descriptive statistics (see [Table A.1](#), corresponding to Table 1 in AMT). The population mean for the ‘Party Turnover’ column is 20,199 in the reproduced version but 20,096 in the original Table. All the rest of the statistics are the same. Regarding the effects of political turnover on new municipal personnel, my reproduced table ([Table A.2a](#)) rendered almost the same exact results as the original table ([Table A.2b](#), corresponding to Table 2 in AMT).

I then turn to examine the educational outcomes, which proxy the quality of public services: test scores in 4th and 8th grade, headmaster’s replacements and the share of new teachers in municipal schools. In the original paper the authors estimate effects on these outcomes using three bandwidths: one that is ‘optimal’ (following Calonico et al., 2019) and two other hand-chosen bandwidths (of 0.07 and 0.11).

My code reproduces the exact same estimates for all outcomes when imposing these last two bandwidths but produces slightly different estimates when using the optimal bandwidth. See the reproduced and original results in [Tables A.3, A.4, A.5, and A.6](#), corresponding to Tables 3, 4 and 5 in AMT.

The reason is that the optimal bandwidth computed by my code is different than the one in AMT, even though computed using the same software, procedure and specification described in the paper.<sup>1</sup>

The different bandwidths affect the estimation samples, but even so there are only small differences in the lower digits of the main estimates. [Table 1](#) summarizes the main differences, reporting both the original and my reproduced estimates of political turnover on test scores (4th and 8th grade), headmaster’s replacement and the share of new teachers.

**Table 1:** Original and Reproduced RDD Estimates for the Main Outcomes

	4th Grade Test Scores		8th Grade Test Scores		Headmaster Replacements		New Teachers (Share)	
	Original	Reproduced	Original	Reproduced	Original	Reproduced	Original	Reproduced
$1\{IncumbVoteMargin < 0\}$	-0.082 (0.028)	-0.070 ( 0.025)	-0.054 (0.023)	-0.053 ( 0.023)	0.278 (0.027)	0.277 ( 0.030)	0.117 (0.018)	0.111 ( 0.018)
Observations	325,554	414,675	245,302	235,509	15,011	12,593	38,065	36,180
Optimal Bandwidth	0.078	0.105	0.151	0.140	0.157	0.124	0.130	0.122

Note: [Table 1](#) reports estimates of political turnover on AMT’s main outcomes: test scores (4th and 8th grade), headmaster replacement and share of new teachers. The ‘original’ columns show the same estimates reported in AMT (2022). The ‘reproduced’ columns show the estimates produced with new code from raw data.

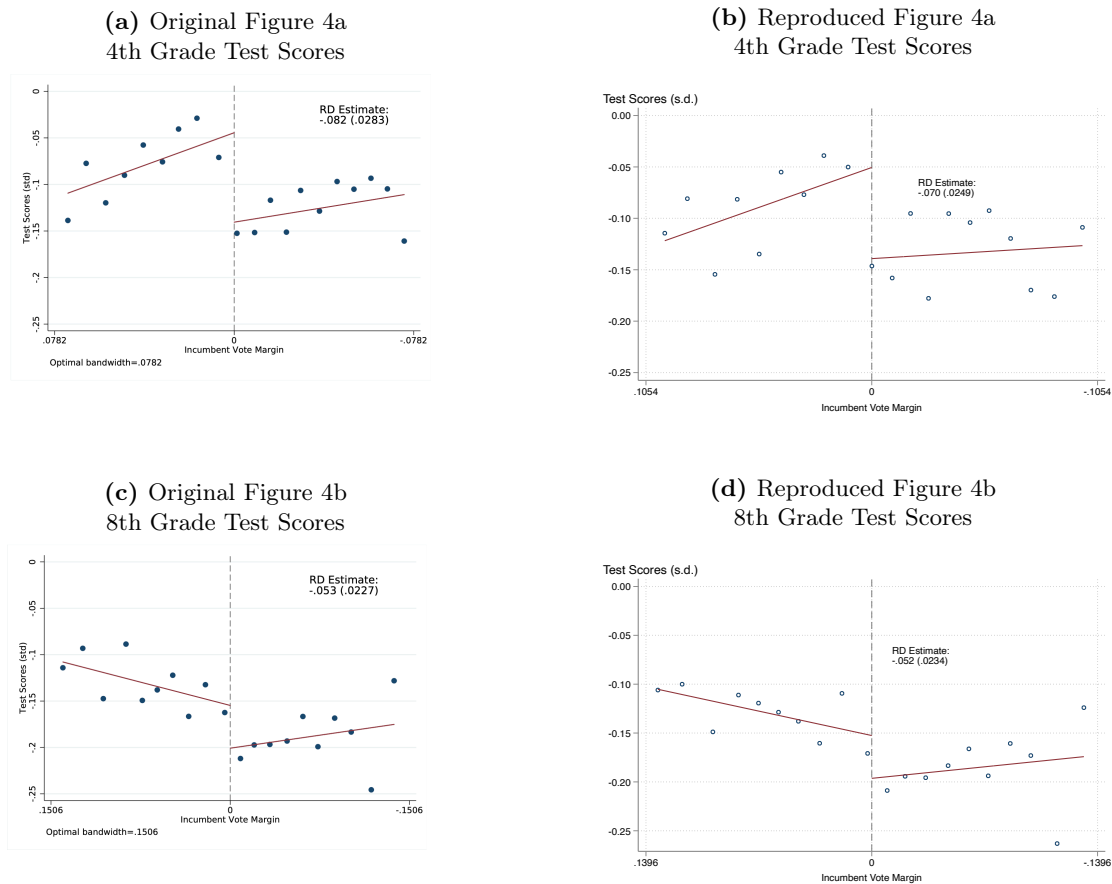
The magnitude of the estimates on test scores is somewhat smaller (in absolute terms) for 4th grade (-.07 in the reproduced version versus the original estimate of -.08), and equal for 8th grade (-.053 versus -.054). The precision of the estimates is about the same.

<sup>1</sup>We both use the *rdwselect* package. I initially thought that the difference could be traced to my use of the most updated packages in Stata, downloaded from <https://raw.githubusercontent.com/rdpackages/rdrobust/master/stata>. But the last update to the package stems from year 2020, and authors seem to have run their final code in 2021, so I was expecting no differences.

The estimates for headmaster replacements and the share of new teachers are almost exactly the same in terms of magnitude and precision, despite differences in the optimal bandwidth and sample size.

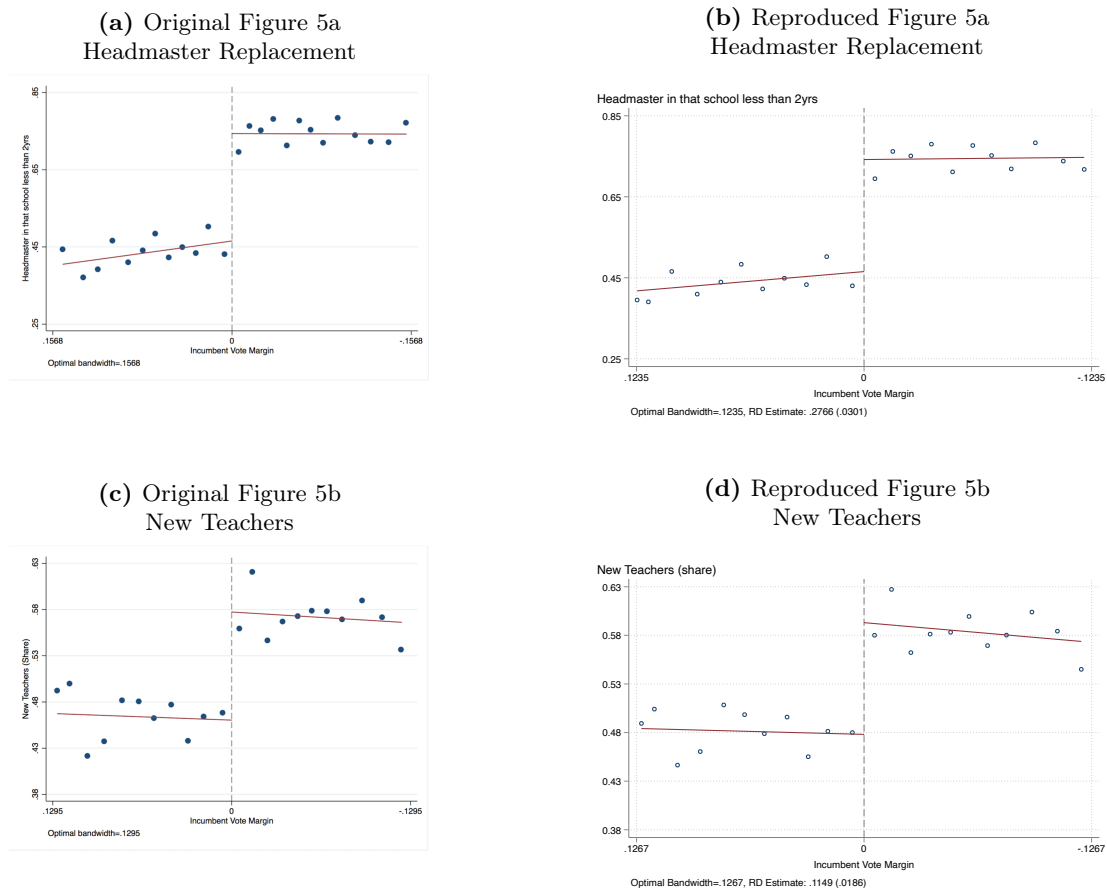
I also present the corresponding graphical evidence for all these outcomes in [Figure 1](#) and [Figure 2](#), which correspond to Figures 4 and 5 in AMT. The figures show the reproduced and original graphs for each outcome.

**Figure 1:** Political Turnover and Fourth and Eighth-grade Test Scores (Figure 4 in AMT)



Note: [Figure 1](#) shows original and reproduced figures of political turnover and fourth and eighth-grade Test Scores (Figure 4 in AMT). Each graph plots the mean of the y-axis variable within bins of the vote margin of the incumbent. In [Figure 1a](#) and [Figure 1b](#) the y-axis is test scores in 4th grade. In [Figure 1c](#) and [Figure 1d](#) the y-axis is test scores in 8th grade. In all graphs, the x-axis values to the right side of the zero are negative (political turnover), while values on the left side are positive (no political turnover).

**Figure 2:** Political Turnover and School Personnel Changes (Figure 5 in AMT)



Note: **Figure 2** shows original and reproduced figures of Political Turnover and School Personnel Changes (Figure 5 in AMT). Each graph plots the mean of the y-axis variable within bins of the vote margin of the incumbent. In **Figure 2a** and **Figure 2b** the y-axis is the share of schools with a new headmaster. In **Figure 2c** and **Figure 2d** the y-axis is the share of teachers that are new to the school. In all graphs, the x-axis values to the right side of the zero are negative (political turnover), while values on the left side are positive (no political turnover).



### 3 Robustness to Specification

This section describes how the choice of the specification affects the estimates of political turnover on educational outcomes (test scores, as in AMT’s Table 3) and on school personnel movements (Table 5 in AMT).

I implement two complementary approaches to perform this exercise. First, I compute the main estimates varying which controls are included in each regression and each corresponding bandwidth. Second, I implement the specification check for p-hacking proposed by Brodeur, Cook and Heyes (2020).

I find that the main estimates are stable to the choices made by the authors in the original article with one exception: the effects on individual test scores do not appear robust to the exclusion of school-level baseline scores. The point estimates lose statistical significance and shrink substantially, in particular for 4th grade test scores, as shown in [Figure 4](#).

However, my takeaway is that these results do not invalidate AMT conclusions. The reason is that I see the ‘treatment’ acting at the school level rather than at the individual level. I missed a justification along this lines in the original paper, because the specifications (using individual test scores as an outcome) vary which covariates are included while the school-level baseline scores are always kept as a control.

#### 3.1 Testing Different Specifications

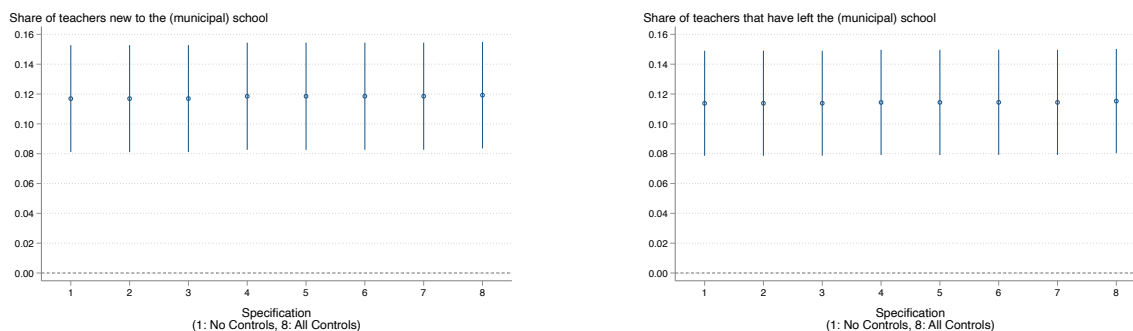
In the original article authors readily show how estimates change for three different bandwidths and whether they include all controls or none. However, there are no specifications varying the inclusion of different controls.

I start testing how the estimates on school personnel movements change with different specifications. [Figure 3](#) displays the results for the share of new teachers (panel a) and the share of teachers that left municipal schools (panel b). The respective graphs plot the regression discontinuity estimates produced from the eight specifications. The first has no controls, and the eighth has all controls, resembling AMT results. Specifications 2 to 7 display the results switching which controls are included or excluded from the estimation.

The graphs show that the effects on political turnover on the share of new teachers ([Figure 3a](#)) and the share of teacher who have left ([Figure 3b](#)) are robust to the inclusion and exclusion of controls. These results are computed using AMT’s optimal bandwidth, but I repeat them with the two hand-chosen bandwidths and results are the same (see [Table A.7](#), [Table A.8](#), and [Table A.9](#)).

**Figure 3:** School Personnel Movements: Robustness to Different Specifications

(a) Share of teachers new to the (municipal) school      (b) Share of teachers that have left the (municipal) school



Note: [Figure 3](#) displays the results for the share of new teachers (panel a) and the share of teachers that left municipal schools (panel b). The respective graphs plot the regression discontinuity estimates produced from the eight specifications, using AMT’s optimal bandwidth. The first has no controls, and the eighth has all controls, resembling AMT results. Specifications 2 to 7 display the results switching which controls are included or excluded from the estimation. See the corresponding results in [Table A.7](#). All coefficients are (individually) statistically significant at the 1% level.

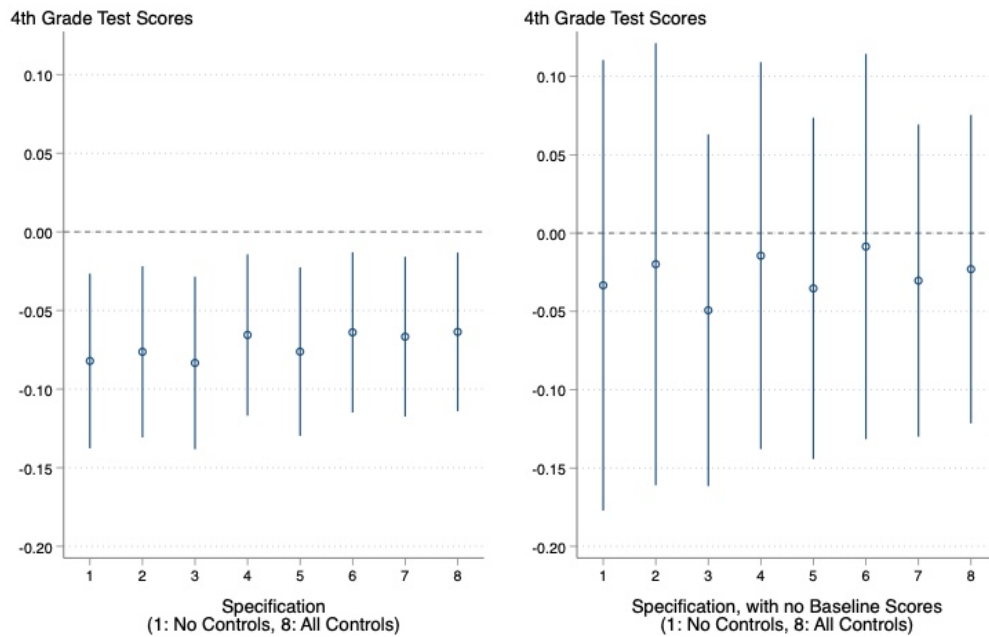
Next, I test the robustness of the effects on individual 4th and 8th grade test scores. In this case AMT’s set of controls consists in three groups: student-level demographics, school-level characteristics, and an election cycle dummy. They also include school-level baseline test scores in every specification, but I will come back to this later on.

The graphs to the left in [Figure 4](#) show that the negative effects on the quality of public education in Brazil (.05-.08 standard deviations of lower test scores) are robust to the inclusion or exclusion of the student-level demographics, school-level characteristics, and an election cycle dummy. As before, these results are computed using AMT’s optimal bandwidth, but I repeat them with the 0.07 and 0.11 bandwidths and results are the same (see [Table A.10](#), [Table A.11](#), and [Table A.12](#)).

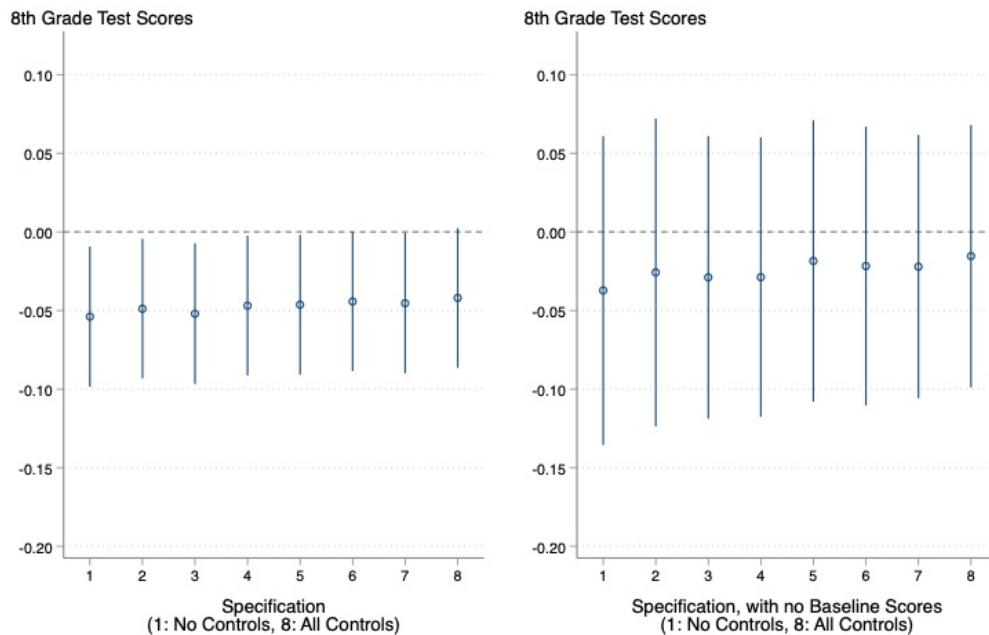
As mentioned before, all specifications using individual test scores as an outcome in AMT include school-level baseline scores as another control. The original article does not include a particular theoretical nor empirical reason to do so, and describes the school-level baseline scores as just another control in their empirical strategy.

**Figure 4:** Test Scores: Robustness to Different Specifications

(a) Including School-Level Baseline Scores (left) and Excluding School-Level Baseline Scores (right)



(b) Including School-Level Baseline Scores (left) and Excluding School-Level Baseline Scores (right)



Note: Each graph [Figure 4](#) plot the RD estimates of political turnover on 4th and 8th grade test scores against eight different specifications using AMT’s optimal bandwidth. From the list of student-level demographics, school-level characteristics, and an election cycle dummy, the first specification has none of these controls, and the eighth has all of them, resembling AMT’s results. Specifications 2 to 7 display the results switching which controls are included or excluded from the estimation. The graphs to the left always include school level baseline scores as a covariate while 10 the graphs to the right exclude them. See the corresponding results in [Table A.10](#) and [Table A.13](#).

The paper goes on to show that school-level baseline scores behave smoothly near the threshold (in Appendix Figure A.3) so I was not expecting to see meaningful changes in their magnitude (though point estimates would lose precision).

The graphs to the right in Figure 4 show the results this time excluding the school-level baseline scores from all specifications (and using AMT optimal bandwidth). As expected, the noise of the point estimates is larger compared to including the school-level baseline scores. But unexpectedly, the magnitude drops importantly in absolute terms. Taking specification 1 as an example, the estimates change from a significant -0.082 to a non statistically significant effect of -0.033 for 4th grade, and from -0.054 to a non-significant -0.037 for 8th grade. The drop in magnitude and significance also appears for the set of results computed using the 0.07 and 0.11 bandwidths, though it is always less pronounced for 8th grade compared to 4th grade (see Table A.13, Table A.14, and Table A.15).

### 3.2 Specification Check

In this section I implement the specification check proposed by Brodeur, Cook and Heyes (2020). Their method is stricter than just checking estimates for the exclusion or inclusion of some covariates (as we did in the previous section) because it examines both statistical significance and effect sizes after estimating a regression for each of the possible combinations of controls.

Suppose that we have  $k$  available covariates. Then the method computes  $2^k$  regressions, which include a regression with no covariates and one with all covariates.<sup>2</sup> A set of four graphs (two distributions and two box-and-whisker plots) summarizes the results: (i) the distribution of the t-statistic for the coefficient of interest, called ‘t-curve’, (ii) the distribution of the effect size, called ‘effect-curve’, (iii) a box-and-whisker plot of the t-statistics by number of controls, and (iv) a box-and-whisker plot of the effect sizes by number of controls.

I run the specification check for 4th and 8th grade test scores with AMT’s ‘optimal’ bandwidth. Then I vary whether school-level baseline scores are always included as a regressor or whether we consider it just as another control.

The results in Figure 5 and Figure 6 show that if baseline scores are always included as a regressor (see Figure 5a and Figure 6a) then the coefficient of interest is always statistically significant with stable estimated effect sizes.

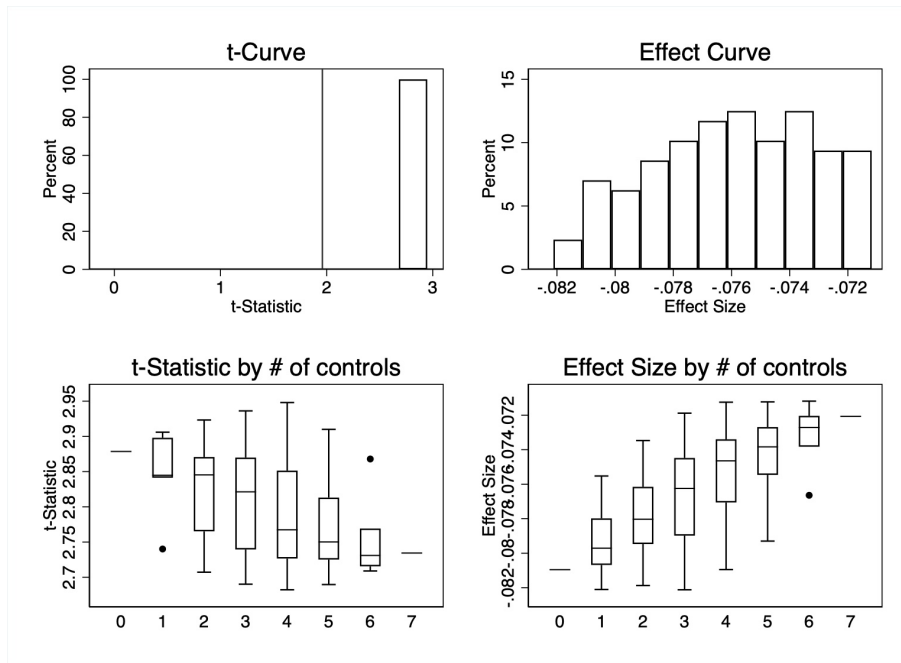
However, the specification check shows that if we treat baseline school-level scores as another control (thus including or excluding it from the regressions), then the estimates are far less robust (see Figure 5b and Figure 6b), consistent with Figure 4. The t-curves show that for about half of the regressions the coefficient of interest becomes statistically insignificant; and the effect curves show that the range and dispersion of the estimated effect widens importantly. The box-and-whisker plots show that both the statistical significance and the effect size recover once four controls are included in the regressions, which is when baseline school-level scores enter the specifications.

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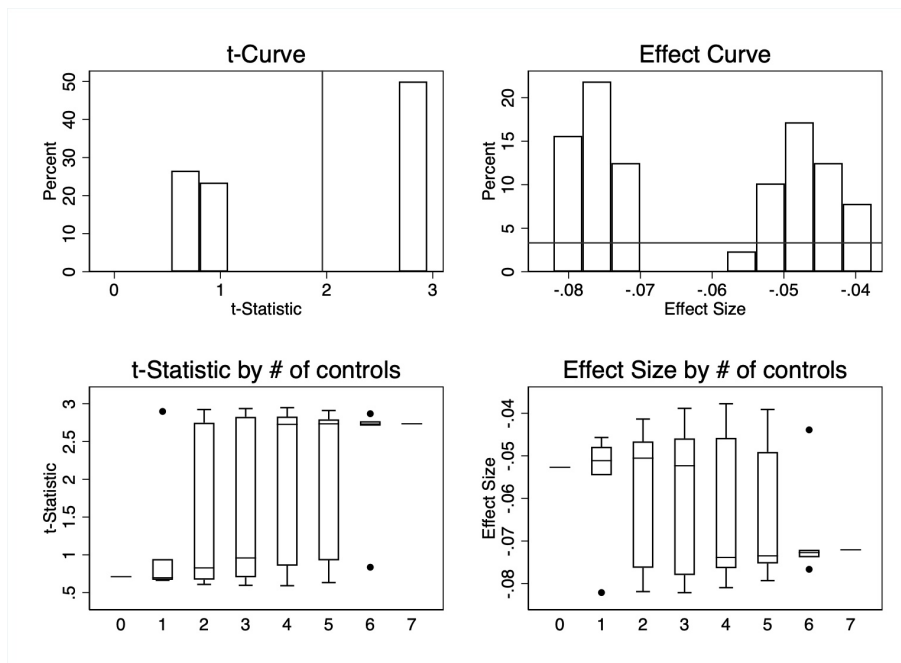
<sup>2</sup>Say we have three covariates  $x_1, x_2$  and  $x_3$ , so  $k = 3$ . Then the method computes  $2^3 = 8$  regressions. One with no controls, three regressions with 1 control each, three regressions with 2 controls each ( $x_1, x_2; x_1, x_3$ ; and  $x_2, x_3$ ) and one with all controls.

**Figure 5:** Specification Check for 4th Grade Test Scores

(a) Always including School-Level Baseline Scores



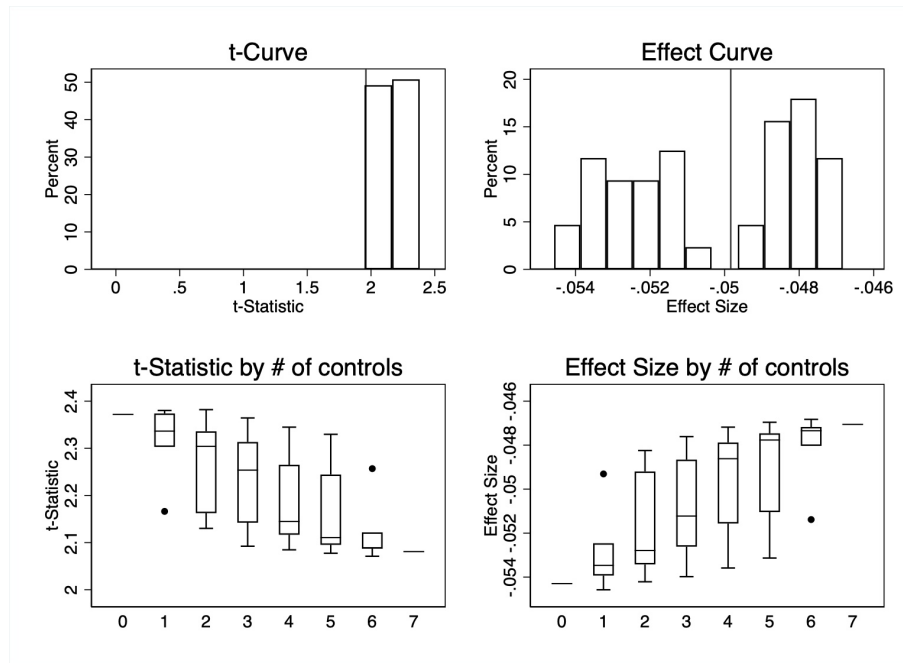
(b) Including & Excluding School-Level Baseline Scores



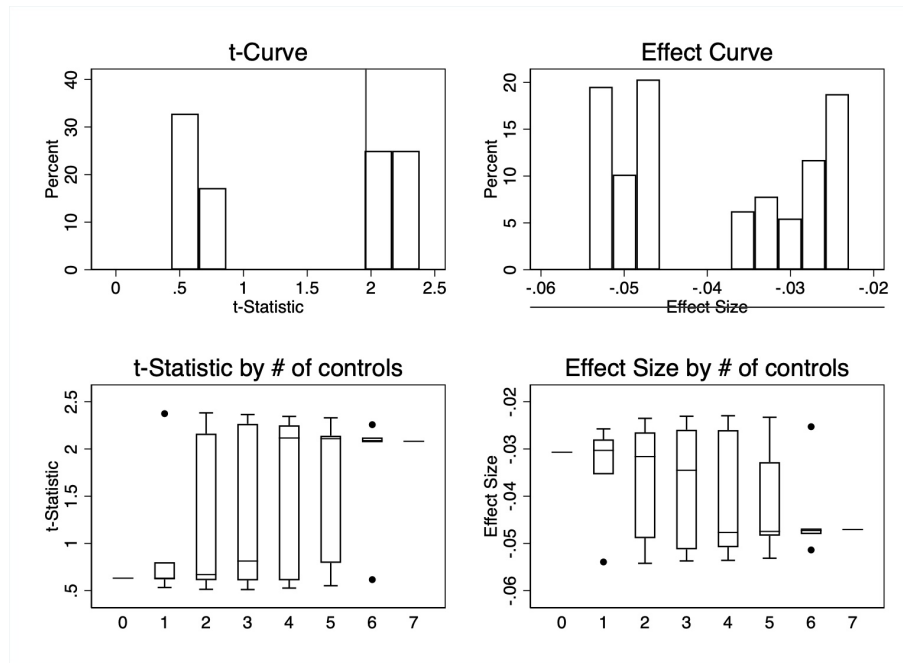
Note: **Figure 5** show two sets of graphs summarizing the results from the specification check described in the main text. The regressions used to produce the **Figure 5a** always include School-Level Baseline Scores, while those in **Figure 5b** do not. In both cases, all possible combinations of the following controls are used: whether the school is located in an urban or rural area, a summary variable on whether the school is connected to water network, sewage system, internet and if its trash is regularly collected, an indicator variable for gender, whether the student is white, and whether the student sees their mother reading), and a 2012 election-cycle indicator. The total permutations in both cases is 128, and the sample size is  $N=325,554$ .

**Figure 6:** Specification Check for 8th Grade Test Scores

(a) Always including School-Level Baseline Scores



(b) Including & Excluding School-Level Baseline Scores



Note: **Figure 6** show two sets of graphs summarizing the results from the specification check described in the main text. The regressions used to produce the **Figure 6a** always include School-Level Baseline Scores, while those in **Figure 6b** do not. In both cases, all possible combinations of the following controls are used: whether the school is located in an urban or rural area, a summary variable on whether the school is connected to water network, sewage system, internet and if its trash is regularly collected, an indicator variable for gender, whether the student is white, and whether the student sees their mother reading), and a 2012 election-cycle indicator. The total permutations in both cases is 128, and the sample size is  $N=245,302$ .

## 4 Replication

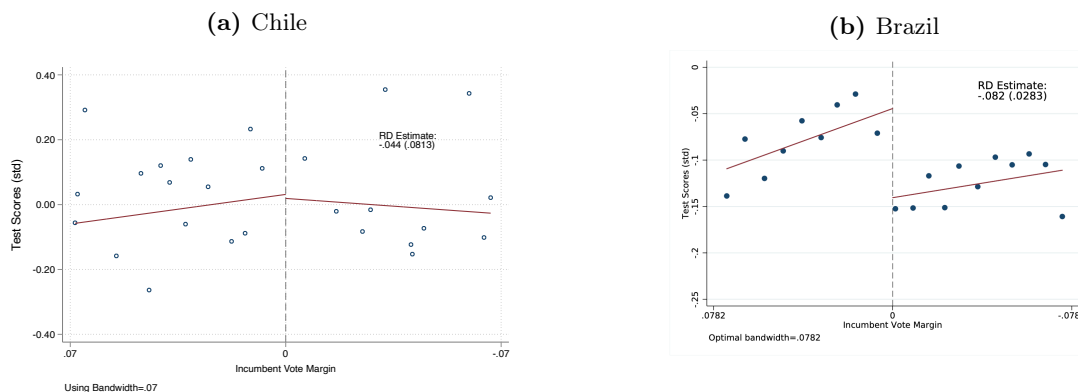
We now turn our attention to our replication. I use the same RDD framework now applied to Chilean mayoral elections to examine effects on educational outcomes.

**Context.** As in Brazil, Chilean municipalities are decentralized units of local government that provide public services (like education), with a mayor as the head of the municipal board. The mayors are also elected in municipal elections that are held every four years and they can hold office for two consecutive terms.

There are different types of schools in Chile, which differ in their funding and administration. Public (municipal) schools concentrate about 35-40% of students, receive public funds and are administered by the mayor; voucher schools enroll about 45%-50% of the students, are funded with both public and private funds and administered by privates (similar to charter schools in the U.S.); and about 10-15% of students attend private schools which are both privately funded and administered.

**Timeline.** The Chilean timeline of elections and measurement of outcomes shares many similarities with the Brazilian case. Municipal elections are held in October (every four years) and the mayor takes office in January of the following year. The academic year also begins in March and ends in December, as customary in the Southern Hemisphere. The Chilean national standardized exam, known as SIMCE (*Sistema de Medición de Calidad de Educación*) is administered in October each year, while the Brazilian Prova exam is administered every two years in November.

**Figure 7:** Political Turnover and Fourth Grade Test Scores in Chile and Brazil



Note: The graphs in Figure 7 plot the mean of test scores in 4th grade, within bins of the vote margin of the incumbent for Chile (Figure 7a) and Brazil (Figure 7b). The Brazilian Figure is the same as in AMT. The x-axis values to the right side of the zero are negative (political turnover), while values on the left side are positive (no political turnover).

**Data.** I use publicly available data from Chilean mayoral elections for years 2004 and 2008.<sup>3</sup> The standardized test scores come from the SIMCE taken by 4th graders. I use year 2004 to determine which incumbents are running in the 2008 election, and then combine the data with national standardized test scores. I use school-level baseline scores measured one year before the

<sup>3</sup>The election data comes from the Chilean Electoral Service, downloadable at <https://www.servel.cl>, while the educational data can be accessed at the National Agency of Education website <https://www.agenciaeducacion.cl>.

election (in October 2007) and outcomes measured at the individual level collected one after the election (in October 2009).

**Results.** We rely on the exact same specifications as in AMT’s paper. [Figure 7](#) and [Table 2](#) report the estimates on political turnover on individual-level fourth-grade test scores in Chile (panel a) and Brazil (panel b). These last estimates are the same as in AMT, and added for comparison purposes. The results show a null effect on test scores in Chile. This finding is robust to the inclusion of additional controls and changing the using bandwidth in the estimation.

**Table 2:** Political Turnover and Fourth Grade Test Scores in Chile and Brazil

(a) Chile

	Outcome: individual fourth-grade test scores (standardized)					
	(1)	(2)	(3)	(4)	(5)	(6)
<b>1</b> $\{IncumbentVoteMargin < 0\}$	0.040 ( 0.075) [ 0.593]	0.041 ( 0.074) [ 0.582]	-0.045 ( 0.081) [ 0.582]	-0.029 ( 0.082) [ 0.726]	0.011 ( 0.065) [ 0.870]	0.034 ( 0.064) [ 0.601]
School-level baseline scores	0.273 ( 0.029)	0.209 ( 0.029)	0.282 ( 0.032)	0.223 ( 0.032)	0.290 ( 0.023)	0.234 ( 0.023)
Observations	14,286	14,286	11,159	11,159	19,378	19,378
R-squared	0.045	0.059	0.043	0.054	0.048	0.061
Controls	No	Yes	No	Yes	No	Yes
Clusters	543	543	417	417	715	715
Using Bandwidth	0.091	0.091	0.070	0.070	0.110	0.110
Optimal Bandwidth	0.091	0.091	0.091	0.091	0.091	0.091

(b) Brazil

	Outcome: individual fourth-grade test scores (standardized)					
	(1)	(2)	(3)	(4)	(5)	(6)
<b>1</b> $\{IncumbentVoteMargin < 0\}$	-0.082 (0.028) [0.003]	-0.064 (0.026) [0.014]	-0.091 (0.029) [0.002]	-0.075 (0.027) [0.005]	-0.067 (0.024) [0.005]	-0.055 (0.022) [0.012]
School-level baseline scores	0.869 (0.014)	0.739 (0.014)	0.864 (0.015)	0.737 (0.015)	0.861 (0.012)	0.732 (0.012)
Observations	325,554	325,554	295,170	295,170	429,979	429,979
R-squared	0.218	0.252	0.213	0.248	0.218	0.252
Controls	No	Yes	No	Yes	No	Yes
Clusters	1669	1669	1538	1538	2101	2101
Using Bandwidth	0.0782	0.0782	0.0700	0.0700	0.110	0.110
Optimal Bandwidth	0.0782	0.0782	0.0782	0.0782	0.0782	0.0782

Note: [Table 2](#) reports the estimates on political turnover on individual-level fourth-grade test scores in Chile (panel a) and Brazil (panel b), with standard errors in parentheses, and p-values in brackets. All specifications control for school-level, average test scores for the respective grader at baseline (one year before the respective election). Controls for Chile include whether the school is located in an urban or rural area, school socioeconomic status, an indicator variable for gender. The specifications for Brazil are the same as in the original AMT paper.



## 5 Conclusion

This manuscript replicates AMT's important paper, addressing whether political turnover affects personnel replacement and quality of public service. My results show that AMT's results are reproducible. I replicate the empirical strategy using Chilean data, finding null results on quality of public service, proxied by educational outcomes at public schools.

I believe that this exercise achieves the objective of drawing further attention to the importance of the science and practice of replication in economics, because of two reasons. First, the question is relevant for almost all of our modern democracies. Second, since it only requires data on elections outcomes and standardized test scores, AMT's identification strategy is implementable in most countries with some established information systems.

## References

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## A Reproduced and Original Tables (1 to 5)

**Table A.1:** Descriptive Statistics by Party Turnover in Close Elections (Table 1 in AMT)

(a) Reproduced Table

	No Party Turnover	Party Turnover	P-value
Number of Municipalities	1,233	1,195	-
<b><i>Municipal Characteristics</i></b>			
Population	18,300	20,199	0.723
Ruling party from left	0.248	0.234	0.777
Winning party from left	0.248	0.299	0.040
Ruling party from right	0.566	0.573	0.359
Wining party from right	0.566	0.519	0.573
Number of Municipal Personnel	642.435	707.357	0.804
New Personnel High Manager (% of category)	0.283	0.279	0.553
New Personnel Low Manager (% of category)	0.230	0.221	0.356
New Personnel Not Manager (% of category)	0.246	0.238	0.669
New Personnel Education (% of category)	0.271	0.266	0.735
New Personnel Health (% of category)	0.287	0.284	0.961
New Personnel Construction (% of category)	0.195	0.196	0.373
New Personnel Multiple (% of category)	0.220	0.213	0.772
New Personnel Other (% of category)	0.261	0.262	0.862
Personnel that Left High Manager (% of category)	0.245	0.254	0.842
Personnel that Left Low Manager (% of category)	0.194	0.179	0.840
Personnel that Left Not Manager (% of category)	0.164	0.163	0.264
Personnel that Left Education(% of category)	0.194	0.196	0.333
Personnel that Left Health (% of category)	0.177	0.176	0.482
Personnel that Left Construction (% of category)	0.143	0.140	0.868
Personnel that Left Multiple (% of category)	0.142	0.144	0.473
Personnel that Left Other (% of category)	0.184	0.185	0.212
<b><i>School Characteristics</i></b>			
Share urban	0.264	0.282	0.495
Share connected to water network	0.388	0.412	0.845
Share connected to sewage system	0.155	0.162	0.787
Share with Internet	0.165	0.203	0.211
Number of school staff	15.132	16.239	0.777
Number of teachers per school	7.580	8.051	0.954
Teacher age	36.573	36.599	0.443
Share of female teachers	0.822	0.824	0.169
Share of teachers born in same municipality	0.690	0.691	0.410
Share of teachers with B.A.	0.434	0.444	0.480
Share of teachers who took Concurso	0.663	0.684	0.200
Share of teachers who are temporary	0.335	0.314	0.204
Number of classrooms taught per teacher	1.874	1.901	0.250
Number of schools taught per teacher	1.290	1.288	0.500
Share of teachers who teach only in municipal schools	0.927	0.922	0.991
<b><i>Outcome of interest</i></b>			
4th grade test scores (only in PB)	-0.158	-0.119	0.105
8th grade test scores (only in PB)	-0.185	-0.161	0.216
Dropout rate	0.044	0.039	0.849
New headmaster (only in PB)	0.357	0.333	0.803
Share of teachers who are new to the school	0.514	0.517	0.683
Share of teachers who have left the school	0.501	0.510	0.478
New Municipal Personnel (share)	0.251	0.240	0.923
Municipal Personnel that Left (share)	0.170	0.166	0.447

Note: [Table A.1a](#) reproduces Table 1 in AMT (2022) with new code from raw data. Table 1b is the same as the original Table 1 in AMT (2022).

(b) Original Table

	No Party Turnover	Party Turnover	P-value
Number of Municipalities	1,233	1,195	-
<b><i>Municipal Characteristics</i></b>			
Population	18,299.92	20,095.88	.72
Ruling party from left	.25	.23	.78
Winning party from left	.25	.30	.04
Ruling party from right	.57	.57	.36
party from right	.57	.52	.57
Number of Municipal Personnel	642.43	707.36	.80
New Personnel High Manager (% of category)	.28	.28	.55
New Personnel Low Manager (%of category)	.23	.22	.36
New Personnel Not Manager (% of category)	.25	.24	.67
New Personnel Education (% of category)	.27	.27	.73
New Personnel Health (% of category)	.29	.28	.96
New Personnel Construction (% of category)	.20	.20	.37
New Personnel Multiple (% of category)	.22	.21	.77
New Personnel Other (% of category)	.26	.26	.86
Personnel that Left High Manager (% of category)	.24	.25	.84
Personnel that Left Low Manager (% of category)	.19	.18	.84
Personnel that Left Not Manager (% of category)	.16	.16	.26
Personnel that Left Education (% of category)	.19	.20	.33
Personnel that Left Health (% of category)	.18	.18	.48
Personnel that Left Construction (% of category)	.14	.14	.87
Personnel that Left Multiple (% of category)	.14	.14	.47
Personnel that Left Other (% of category)	.18	.19	.21
<b><i>School Characteristics</i></b>			
Share urban	.26	.28	.50
Share connected to water network	.39	.41	.84
Share connected to sewage system	.15	.16	.79
Share with Internet	.17	.20	.21
Number of school staff	15.13	16.24	.78
Number of teachers per school	7.58	8.05	.95
Teacher age	36.57	36.60	.44
Share of female teachers	.82	.82	.17
Share of teachers born in same municipality	.69	.69	.41
Share of teachers with B.A.	.43	.44	.48
Share of teachers who took Concurso	.66	.68	.20
Share of teachers who are temporary	.33	.31	.20
Number of classrooms taught per teacher	1.87	1.90	.25
Number of schools taught per teacher	1.29	1.29	.50
Share of teachers who teach only in municipal schools	.93	.92	.99
<b><i>Outcome of interest</i></b>			
4th grade test scores (only in PB)	-.16	-.12	.10
8th grade test scores (only in PB)	-.18	-.16	.22
Dropout rate	.044	.039	.85
New headmaster (only in PB)	.36	.33	.80
Share of teachers who are new to the school	.51	.52	.68
Share of teachers who have left the school	.50	.51	.48
New Municipal Personnel (share)	.25	.24	.92
Municipal Personnel that Left (share)	.17	.17	.45

Note: [Table A.1a](#) reproduces Table 1 in AMT (2022) with new code from raw data. Table 1b is the same as the original Table 1 in AMT (2022).

**Table A.2:** Political Turnover and Municipal Personnel Replacement (Table 2 in AMT)

## (a) Reproduced Table

Outcome:	New Municipal personnel(share)			Municipal personnel who left(share)		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A. Municipal personnel one year after the election</i>						
$\mathbf{1}\{IncumbVoteMargin < 0\}$	0.0693 (0.0188)	0.0715 (0.0242)	0.0621 (0.0196)	0.0249 (0.0169)	0.0326 (0.0220)	0.0204 (0.0176)
Observations	2,533	1,656	2,381	2,574	1,656	2,381
R-squared	0.0315	0.0264	0.0318	0.0156	0.0116	0.0159
Clusters	2,157	1,507	2,052	2,193	1,507	2,052
Mean Dep Variable	0.306	0.317	0.308	0.226	0.235	0.227
Using Bandwidth	0.119	0.070	0.110	0.121	0.070	0.110
Optimal Bandwidth	0.119	0.119	0.119	0.121	0.121	0.121
<i>Panel B. Municipal Personnel from one to two years after the election</i>						
$\mathbf{1}\{IncumbVoteMargin < 0\}$	0.0152 (0.0150)	0.0290 (0.0208)	0.0147 (0.0166)	0.0051 (0.0136)	0.0165 (0.0187)	0.0043 (0.0150)
Observations	2,832	1,650	2,373	2,780	1,650	2,373
R-squared	0.0019	0.0031	0.0030	0.0065	0.0045	0.0060
Clusters	2,360	1,503	2,047	2,326	1,503	2,047
Mean Dep Variable	0.236	0.238	0.235	0.177	0.183	0.179
Using Bandwidth	0.138	0.070	0.110	0.135	0.070	0.110
Optimal Bandwidth	0.138	0.138	0.138	0.135	0.135	0.135

## (b) Original Table

Outcome:	New Municipal personnel(share)			Municipal personnel who left(share)		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A. Municipal personnel one year after the election</i>						
$\mathbf{1}\{IncumbVoteMargin < 0\}$	0.0693 (0.0188)	0.0715 (0.0242)	0.0621 (0.0196)	0.0233 (0.0168)	0.0326 (0.0220)	0.0204 (0.0176)
Observations	2,533	1,656	2,381	2,589	1,656	2,381
R-squared	0.0315	0.0264	0.0318	0.0159	0.0116	0.0159
Clusters	2157	1507	2052	2205	1507	2052
Mean Dep Variable	0.306	0.317	0.308	0.226	0.235	0.227
Using Bandwidth	0.119	0.0700	0.110	0.122	0.0700	0.110
Optimal Bandwidth	0.119	0.119	0.119	0.122	0.122	0.122
<i>Panel B. Municipal Personnel from one to two years after the election</i>						
$\mathbf{1}\{IncumbVoteMargin < 0\}$	0.0169 (0.0150)	0.0290 (0.0208)	0.0147 (0.0166)	0.0051 (0.0136)	0.0165 (0.0187)	0.0043 (0.0150)
Observations	2,826	1,650	2,373	2,780	1,650	2,373
R-squared	0.0019	0.0031	0.0030	0.0065	0.0045	0.0060
Clusters	2,357	1,503	2,047	2,326	1,503	2,047
Mean Dep Variable	0.235	0.238	0.235	0.177	0.183	0.179
Using Bandwidth	0.137	0.0700	0.110	0.135	0.0700	0.110
Optimal Bandwidth	0.137	0.137	0.137	0.135	0.135	0.135

Note: [Table A.2a](#) reproduces Table 2 in AMT (2022) with new code from raw data. [Table A.2b](#) is the same as the original Table 2 in AMT (2022).

**Table A.3:** Political Turnover and Fourth Grade and Eighth-grade Test Scores (Table 3 in AMT)  
(a) Reproduced Table

<i>Panel A</i>		Outcome: individual fourth-grade test scores (standardized)					
		(1)	(2)	(3)	(4)	(5)	(6)
<b>1</b>	<i>{IncumbentVoteMargin &lt; 0}</i>	-0.070 ( 0.025)	-0.059 ( 0.023)	-0.091 ( 0.029)	-0.075 ( 0.027)	-0.067 ( 0.024)	-0.055 ( 0.022)
	School-level baseline scores	0.863 ( 0.012)	0.734 ( 0.012)	0.864 ( 0.015)	0.737 ( 0.015)	0.861 ( 0.012)	0.732 ( 0.012)
	Observations	414,675	414,675	295,170	295,170	429,979	429,979
	R-squared	0.218	0.253	0.213	0.248	0.218	0.252
	Controls	No	Yes	No	Yes	No	Yes
	Clusters	2,045	2,045	1,538	1,538	2,101	2,101
	Using Bandwidth	0.105	0.105	0.070	0.070	0.110	0.110
	Optimal Bandwidth	0.105	0.105	0.140	0.140	0.140	0.140
<i>Panel B</i>		Outcome: individual eight-grade test scores (standardized)					
		(1)	(2)	(3)	(4)	(5)	(6)
<b>1</b>	<i>{IncumbentVoteMargin &lt; 0}</i>	-0.053 ( 0.023)	-0.043 ( 0.023)	-0.050 ( 0.030)	-0.046 ( 0.029)	-0.059 ( 0.025)	-0.049 ( 0.025)
	School-level baseline scores	0.790 0.012	0.726 0.013	0.783 0.016	0.725 0.017	0.783 0.013	0.722 0.014
	Observations	235,509	235,509	126,855	126,855	191,169	191,169
	R-squared	0.163	0.175	0.158	0.170	0.157	0.169
	Controls	No	Yes	No	Yes	No	Yes
	Clusters	1,540	1,540	965	965	1,335	1,335
	Using Bandwidth	0.140	0.140	0.070	0.070	0.110	0.110
	Optimal Bandwidth	0.140	0.140	0.140	0.140	0.140	0.140

(b) Original Table

<i>Panel A</i>		Outcome: individual fourth-grade test scores (standardized)					
		(1)	(2)	(3)	(4)	(5)	(6)
<b>1</b>	<i>{IncumbentVoteMargin &lt; 0}</i>	-0.082 (0.028)	-0.064 (0.026)	-0.091 (0.029)	-0.075 (0.027)	-0.067 (0.024)	-0.055 (0.022)
	School-level baseline scores	0.869 (0.014)	0.739 (0.014)	0.864 (0.015)	0.737 (0.015)	0.861 (0.012)	0.732 (0.012)
	Observations	325,554	325,554	295,170	295,170	429,979	429,979
	R-squared	0.218	0.252	0.213	0.248	0.218	0.252
	Controls	No	Yes	No	Yes	No	Yes
	Clusters	1669	1669	1538	1538	2101	2101
	Using Bandwidth	0.0782	0.0782	0.0700	0.0700	0.110	0.110
	Optimal Bandwidth	0.0782	0.0782	0.0782	0.0782	0.0782	0.0782
<i>Panel B</i>		Outcome: individual eight-grade test scores (standardized)					
		(1)	(2)	(3)	(4)	(5)	(6)
<b>1</b>	<i>{IncumbentVoteMargin &lt; 0}</i>	-0.054 (0.023)	-0.042 (0.023)	-0.050 (0.030)	-0.046 (0.029)	-0.059 (0.025)	-0.049 (0.025)
	School-level baseline scores	0.789 (0.012)	0.729 (0.013)	0.783 (0.016)	0.725 (0.017)	0.783 (0.013)	0.722 (0.014)
	Observations	245,302	245,302	126,855	126,855	191,169	191,169
	R-squared	0.162	0.174	0.158	0.170	0.157	0.169
	Controls	No	Yes	No	Yes	No	Yes
	Clusters	1602	1602	965	965	1335	1335
	Using Bandwidth	0.151	0.151	0.0700	0.0700	0.110	0.110
	Optimal Bandwidth	0.151	0.151	0.151	0.151	0.151	0.151

Note: [Table A.3a](#) reproduces Table 3 in AMT (2022) with new code from raw data. [Table A.3b](#) is the same as the original Table 3 in AMT (2022).

**Table A.4:** Political Turnover and Headmaster Replacements (Table 4 in AMT)  
(a) Reproduced Table

Outcome:	Headmaster Replacements					
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbf{1}\{IncumbVoteMargin < 0\}$	0.277 ( 0.030)	0.276 ( 0.030)	0.273 ( 0.040)	0.272 ( 0.039)	0.271 ( 0.032)	0.270 ( 0.032)
Observations	12,593	12,593	7,517	7,517	11,196	11,196
R-squared	0.095	0.099	0.090	0.096	0.096	0.099
Controls	No	Yes	No	Yes	No	Yes
Clusters	2,326	2,326	1,562	1,562	2,139	2,139
Mean Dep Variable	0.442	0.442	0.454	0.454	0.446	0.446
Using Bandwidth	0.124	0.124	0.070	0.070	0.110	0.110
Optimal Bandwidth	0.124	0.124	0.124	0.124	0.124	0.124

(b) Original Table

Outcome:	Headmaster Replacements					
	(1)	(2)	(3)	(4)	(5)	(6)
$\mathbf{1}\{IncumbVoteMargin < 0\}$	0.278 (0.027)	0.275 (0.026)	0.273 (0.040)	0.272 (0.039)	0.271 (0.032)	0.270 (0.032)
Observations	15,011	15,011	7,517	7,517	11,196	11,196
R-squared	0.099	0.103	0.090	0.096	0.096	0.100
Controls	No	Yes	No	Yes	No	Yes
Clusters	2,648	2,648	1,562	1,562	2,139	2,139
Mean Dependent Variable	0.435	0.435	0.454	0.454	0.446	0.446
Using Bandwidth	0.157	0.157	0.0700	0.0700	0.110	0.110
Optimal Bandwidth	0.157	0.157	0.157	0.157	0.157	0.157

Note: [Table A.4a](#) reproduces Table 4 in AMT (2022) with new code from raw data. [Table A.4b](#) is the same as the original Table 4 in AMT (2022).



**Table A.5:** Political Turnover and New Teachers in Municipal and Non-municipal Schools (Table 5.1 in AMT)

**(a) Reproduced Table**

Outcome:	Share of teachers new to school					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A. Municipal</i>						
<b>1</b> $\{IncumbVoteMargin < 0\}$	0.111 ( 0.018)	0.113 ( 0.018)	0.112 ( 0.022)	0.113 ( 0.022)	0.101 ( 0.019)	0.103 ( 0.019)
Observations	36,180	36,180	21,885	21,885	32,883	32,883
R-squared	0.028	0.031	0.027	0.029	0.030	0.032
Controls	No	Yes	No	Yes	No	Yes
Clusters	2,213	2,213	1,509	1,509	2,056	2,056
Mean Dep Variable	0.516	0.516	0.520	0.520	0.516	0.516
Using Bandwidth	0.122	0.122	0.070	0.070	0.110	0.110
Optimal Bandwidth	0.122	0.122	0.122	0.122	0.122	0.122
<i>Panel B. Non-Municipal schools</i>						
<b>1</b> $\{IncumbVoteMargin < 0\}$	0.010 ( 0.013)	0.015 ( 0.013)	0.037 ( 0.019)	0.037 ( 0.018)	0.021 ( 0.015)	0.025 ( 0.015)
Observations	14,099	14,099	7,449	7,449	10,774	10,774
R-squared	0.001	0.018	0.003	0.013	0.001	0.015
Controls	No	Yes	No	Yes	No	Yes
Clusters	2,505	2,505	1,521	1,521	2,064	2,064
Mean Dep Variable	0.481	0.481	0.479	0.479	0.478	0.478
Using Bandwidth	0.151	0.151	0.070	0.070	0.110	0.110
Optimal Bandwidth	0.151	0.151	0.151	0.151	0.151	0.151

**(b) Original Table**

Outcome:	Share of teachers new to school					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A. Municipal</i>						
<b>1</b> $\{IncumbVoteMargin < 0\}$	0.117 (0.018)	0.119 (0.018)	0.112 (0.022)	0.113 (0.022)	0.101 (0.019)	0.103 (0.019)
Observations	38,065	38,065	21,885	21,885	32,883	32,883
R-squared	0.026	0.029	0.027	0.029	0.030	0.032
Controls	No	Yes	No	Yes	No	Yes
Clusters	2297	2297	1509	1509	2056	2056
Mean LHS	0.464	0.464	0.464	0.464	0.459	0.459
Using Bandwidth	0.130	0.130	0.0700	0.0700	0.110	0.110
Optimal Bandwidth	0.130	0.130	0.130	0.130	0.130	0.130
<i>Panel B. Non-municipal schools</i>						
<b>1</b> $\{IncumbVoteMargin < 0\}$	0.011 (0.013)	0.016 (0.013)	0.037 (0.019)	0.037 (0.018)	0.021 (0.015)	0.025 (0.015)
Observations	13,819	13,819	7,449	7,449	10,774	10,774
R-squared	0.001	0.017	0.003	0.013	0.001	0.015
Controls	No	Yes	No	Yes	No	Yes
Clusters	2466	2466	1521	1521	2064	2064
Mean LHS	0.477	0.477	0.475	0.475	0.475	0.475
Using Bandwidth	0.147	0.147	0.0700	0.0700	0.110	0.110
Optimal Bandwidth	0.147	0.147	0.147	0.147	0.147	0.147

Note: [Table A.5a](#) reproduces Table 5.1 in AMT (2022) with new code from raw data. [Table A.5b](#) is the

**Table A.6:** Political Turnover and New Teachers in Municipal and Non-municipal Schools (Table 5.2 in AMT)

**(a) Reproduced Table**

Outcome:	Share of teachers that have left the school					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel C. Municipal</i>						
<b>1</b> <i>{IncumbVoteMargin&lt;0}</i>	0.112 ( 0.018)	0.114 ( 0.018)	0.106 ( 0.022)	0.107 ( 0.022)	0.098 ( 0.019)	0.099 ( 0.019)
Observations	38,152	38,152	21,885	21,885	32,883	32,883
R-squared	0.024	0.026	0.025	0.026	0.027	0.029
Controls	No	Yes	No	Yes	No	Yes
Clusters	2,300	2,300	1,509	1,509	2,056	2,056
Mean Dep Variable	0.499	0.499	0.503	0.503	0.499	0.499
Using Bandwidth	0.130	0.130	0.070	0.070	0.110	0.110
Optimal Bandwidth	0.130	0.130	0.130	0.130	0.130	0.130
<i>Panel D. Non-municipal schools</i>						
<b>1</b> <i>{IncumbVoteMargin&lt;0}</i>	0.012 ( 0.012)	0.014 ( 0.012)	0.039 ( 0.018)	0.038 ( 0.018)	0.023 ( 0.014)	0.025 ( 0.014)
Observations	14,757	14,757	7,449	7,449	10,774	10,774
R-squared	0.002	0.021	0.003	0.018	0.002	0.020
Controls	No	Yes	No	Yes	No	Yes
Clusters	2,588	2,588	1,521	1,521	2,064	2,064
Mean Dep Variable	0.465	0.465	0.460	0.460	0.463	0.463
Using Bandwidth	0.161	0.161	0.070	0.070	0.110	0.110
Optimal Bandwidth	0.161	0.161	0.161	0.161	0.161	0.161

**(b) Original Table**

Outcome:	Share of teachers that have left the school					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel C. Municipal</i>						
<b>1</b> <i>{IncumbVoteMargin&lt;0}</i>	0.114 (0.018)	0.115 (0.018)	0.106 (0.022)	0.107 (0.022)	0.098 (0.019)	0.099 (0.019)
Observations	38,808	38,808	21,885	21,885	32,883	32,883
R-squared	0.024	0.026	0.025	0.026	0.027	0.029
Controls	No	Yes	No	Yes	No	Yes
Clusters	2327	2327	1509	1509	2056	2056
Mean LHS	0.448	0.448	0.449	0.449	0.444	0.444
Using Bandwidth	0.133	0.133	0.0700	0.0700	0.110	0.110
Optimal Bandwidth	0.133	0.133	0.133	0.133	0.133	0.133
<i>Panel D. Non-municipal schools</i>						
<b>1</b> <i>{IncumbVoteMargin&lt;0}</i>	0.015 (0.012)	0.017 (0.012)	0.039 (0.018)	0.038 (0.018)	0.023 (0.014)	0.025 (0.014)
Observations	14,427	14,427	7,449	7,449	10,774	10,774
R-squared	0.001	0.021	0.003	0.018	0.002	0.020
Controls	No	Yes	No	Yes	No	Yes
Clusters	2551	2551	1521	1521	2064	2064
Mean LHS	0.460	0.460	0.455	0.455	0.458	0.458
Using Bandwidth	0.156	0.156	0.0700	0.0700	0.110	0.110
Optimal Bandwidth	0.156	0.156	0.156	0.156	0.156	0.156

Note: [Table A.6a](#) reproduces Table 5.2 in AMT (2022) with new code from raw data. [Table A.6b](#) is the

## **B Robustness to Specification**

**Table A.7:** Specification Test 1 (of 3) for Table 5 in AMT

	Share of teachers new to the school							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel A. Municipal</i>								
<b>1</b> $\{IncumbVoteMargin < 0\}$	0.117 ( 0.018)	0.117 ( 0.018)	0.117 ( 0.018)	0.119 ( 0.018)	0.119 ( 0.018)	0.119 ( 0.018)	0.119 ( 0.018)	0.119 ( 0.018)
Observations	38,065	38,065	38,065	38,065	38,065	38,065	38,065	38,065
R-squared	0.026	0.026	0.026	0.028	0.028	0.028	0.028	0.029
Sewer controls	No	No	Yes	No	Yes	No	Yes	Yes
Urban school controls	No	Yes	No	No	Yes	No	Yes	Yes
Year controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
All school controls	No	No	No	No	No	No	No	Yes
Clusters	2,297	2,297	2,297	2,297	2,297	2,297	2,297	2,297
Mean LHS	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
Using Bandwidth	0.130	0.130	0.130	0.130	0.130	0.130	0.130	0.130
<i>Panel B. Non-municipal schools</i>								
<b>1</b> $\{IncumbVoteMargin < 0\}$	0.011 ( 0.013)	0.015 ( 0.013)	0.013 ( 0.013)	0.012 ( 0.013)	0.016 ( 0.013)	0.014 ( 0.013)	0.016 ( 0.013)	0.016 ( 0.013)
Observations	13,819	13,819	13,819	13,819	13,819	13,819	13,819	13,819
R-squared	0.001	0.013	0.009	0.001	0.014	0.009	0.016	0.017
Sewer controls	No	No	Yes	No	Yes	No	Yes	Yes
Urban school controls	No	Yes	No	No	Yes	No	Yes	Yes
Year controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
All school controls	No	No	No	No	No	No	No	Yes
Clusters	2,466	2,466	2,466	2,466	2,466	2,466	2,466	2,466
Mean LHS	0.477	0.477	0.477	0.477	0.477	0.477	0.477	0.477
Using Bandwidth	0.147	0.147	0.147	0.147	0.147	0.147	0.147	0.147
	Share of teachers that have left the school							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel C. Municipal</i>								
<b>1</b> $\{IncumbVoteMargin < 0\}$	0.114 ( 0.018)	0.114 ( 0.018)	0.114 ( 0.018)	0.114 ( 0.018)	0.114 ( 0.018)	0.114 ( 0.018)	0.114 ( 0.018)	0.115 ( 0.018)
Observations	38,808	38,808	38,808	38,808	38,808	38,808	38,808	38,808
R-squared	0.024	0.024	0.024	0.024	0.024	0.025	0.025	0.026
Sewer controls	No	No	Yes	No	Yes	No	Yes	Yes
Urban school controls	No	Yes	No	No	Yes	No	Yes	Yes
Year controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
All school controls	No	No	No	No	No	No	No	Yes
Clusters	2,327	2,327	2,327	2,327	2,327	2,327	2,327	2,327
Mean LHS	0.448	0.448	0.448	0.448	0.448	0.448	0.448	0.448
Using Bandwidth	0.133	0.133	0.133	0.133	0.133	0.133	0.133	0.133
<i>Panel D. Non-municipal schools</i>								
<b>1</b> $\{IncumbVoteMargin < 0\}$	0.015 ( 0.013)	0.019 ( 0.012)	0.018 ( 0.012)	0.013 ( 0.012)	0.017 ( 0.012)	0.015 ( 0.012)	0.018 ( 0.012)	0.017 ( 0.012)
Observations	14,427	14,427	14,427	14,427	14,427	14,427	14,427	14,427
R-squared	0.001	0.015	0.012	0.004	0.017	0.014	0.021	0.021
Sewer controls	No	No	Yes	No	Yes	No	Yes	Yes
Urban school controls	No	Yes	No	No	Yes	No	Yes	Yes
Year controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
All school controls	No	No	No	No	No	No	No	Yes
Clusters	2,551	2,551	2,551	2,551	2,551	2,551	2,551	2,551
Mean LHS	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
Using Bandwidth	0.156	0.156	0.156	0.156	0.156	0.156	0.156	0.156

Notes: **Table A.7** shows how the RD estimates change as we vary the controls included in the specifications. See the

**Table A.8:** Specification Test 2 (of 3) for Table 5 in AMT

	Share of teachers new to the school							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel A. Municipal</i>								
<b>1</b> $\{IncumbVoteMargin < 0\}$	0.112 ( 0.022)	0.112 ( 0.022)	0.112 ( 0.022)	0.113 ( 0.022)	0.113 ( 0.022)	0.113 ( 0.022)	0.113 ( 0.022)	0.113 ( 0.022)
Observations	21,885	21,885	21,885	21,885	21,885	21,885	21,885	21,885
R-squared	0.027	0.027	0.027	0.028	0.028	0.028	0.028	0.029
Sewer controls	No	No	Yes	No	Yes	No	Yes	Yes
Urban school controls	No	Yes	No	No	Yes	No	Yes	Yes
Year controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
All school controls	No	No	No	No	No	No	No	Yes
Clusters	1,509	1,509	1,509	1,509	1,509	1,509	1,509	1,509
Mean LHS	0.464	0.464	0.464	0.464	0.464	0.464	0.464	0.464
Using Bandwidth	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070
<i>Panel B. Non-municipal schools</i>								
<b>1</b> $\{IncumbVoteMargin < 0\}$	0.037 ( 0.019)	0.040 ( 0.019)	0.038 ( 0.019)	0.037 ( 0.019)	0.040 ( 0.019)	0.038 ( 0.019)	0.040 ( 0.019)	0.037 ( 0.018)
Observations	7,449	7,449	7,449	7,449	7,449	7,449	7,449	7,449
R-squared	0.003	0.009	0.009	0.003	0.009	0.009	0.012	0.013
Sewer controls	No	No	Yes	No	Yes	No	Yes	Yes
Urban school controls	No	Yes	No	No	Yes	No	Yes	Yes
Year controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
All school controls	No	No	No	No	No	No	No	Yes
Clusters	1,521	1,521	1,521	1,521	1,521	1,521	1,521	1,521
Mean LHS	0.475	0.475	0.475	0.475	0.475	0.475	0.475	0.475
Using Bandwidth	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070
	Share of teachers that have left the school							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel C. Municipal</i>								
<b>1</b> $\{IncumbVoteMargin < 0\}$	0.106 ( 0.022)	0.106 ( 0.022)	0.107 ( 0.022)	0.107 ( 0.022)	0.107 ( 0.022)	0.107 ( 0.022)	0.107 ( 0.022)	0.107 ( 0.022)
Observations	21,885	21,885	21,885	21,885	21,885	21,885	21,885	21,885
R-squared	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.026
Sewer controls	No	No	Yes	No	Yes	No	Yes	Yes
Urban school controls	No	Yes	No	No	Yes	No	Yes	Yes
Year controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
All school controls	No	No	No	No	No	No	No	Yes
Clusters	1,509	1,509	1,509	1,509	1,509	1,509	1,509	1,509
Mean LHS	0.449	0.449	0.449	0.449	0.449	0.449	0.449	0.449
Using Bandwidth	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070
<i>Panel D. Non-municipal schools</i>								
<b>1</b> $\{IncumbVoteMargin < 0\}$	0.039 ( 0.019)	0.042 ( 0.019)	0.040 ( 0.018)	0.037 ( 0.018)	0.040 ( 0.019)	0.038 ( 0.018)	0.040 ( 0.019)	0.038 ( 0.018)
Observations	7,449	7,449	7,449	7,449	7,449	7,449	7,449	7,449
R-squared	0.003	0.009	0.010	0.008	0.014	0.015	0.017	0.018
Sewer controls	No	No	Yes	No	Yes	No	Yes	Yes
Urban school controls	No	Yes	No	No	Yes	No	Yes	Yes
Year controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
All school controls	No	No	No	No	No	No	No	Yes
Clusters	1,521	1,521	1,521	1,521	1,521	1,521	1,521	1,521
Mean LHS	0.455	0.455	0.455	0.455	0.455	0.455	0.455	0.455
Using Bandwidth	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070

**Table A.9:** Specification Test 3 (of 3) for Table 5 in AMT

	Share of teachers new to the school							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel A. Municipal</i>								
<b>1</b> $\{IncumbVoteMargin < 0\}$	0.101 ( 0.019)	0.101 ( 0.019)	0.101 ( 0.019)	0.102 ( 0.019)	0.102 ( 0.019)	0.102 ( 0.019)	0.102 ( 0.019)	0.103 ( 0.019)
Observations	32,883	32,883	32,883	32,883	32,883	32,883	32,883	32,883
R-squared	0.030	0.030	0.030	0.031	0.031	0.031	0.031	0.032
Sewer controls	No	No	Yes	No	Yes	No	Yes	Yes
Urban school controls	No	Yes	No	No	Yes	No	Yes	Yes
Year controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
All school controls	No	No	No	No	No	No	No	Yes
Clusters	2,056	2,056	2,056	2,056	2,056	2,056	2,056	2,056
Mean LHS	0.459	0.459	0.459	0.459	0.459	0.459	0.459	0.459
Using Bandwidth	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110
<i>Panel B. Non-municipal schools</i>								
<b>1</b> $\{IncumbVoteMargin < 0\}$	0.021 ( 0.015)	0.024 ( 0.015)	0.022 ( 0.015)	0.021 ( 0.015)	0.025 ( 0.015)	0.023 ( 0.015)	0.025 ( 0.015)	0.025 ( 0.015)
Observations	10,774	10,774	10,774	10,774	10,774	10,774	10,774	10,774
R-squared	0.001	0.011	0.009	0.001	0.011	0.009	0.014	0.015
Sewer controls	No	No	Yes	No	Yes	No	Yes	Yes
Urban school controls	No	Yes	No	No	Yes	No	Yes	Yes
Year controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
All school controls	No	No	No	No	No	No	No	Yes
Clusters	2,064	2,064	2,064	2,064	2,064	2,064	2,064	2,064
Mean LHS	0.475	0.475	0.475	0.475	0.475	0.475	0.475	0.475
Using Bandwidth	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110
	Share of teachers that have left the school							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>Panel C. Municipal</i>								
<b>1</b> $\{IncumbVoteMargin < 0\}$	0.098 ( 0.019)	0.098 ( 0.019)	0.098 ( 0.019)	0.098 ( 0.020)	0.098 ( 0.020)	0.098 ( 0.019)	0.098 ( 0.019)	0.099 ( 0.019)
Observations	32,883	32,883	32,883	32,883	32,883	32,883	32,883	32,883
R-squared	0.027	0.027	0.028	0.028	0.028	0.028	0.028	0.029
Sewer controls	No	No	Yes	No	Yes	No	Yes	Yes
Urban school controls	No	Yes	No	No	Yes	No	Yes	Yes
Year controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
All school controls	No	No	No	No	No	No	No	Yes
Clusters	2,056	2,056	2,056	2,056	2,056	2,056	2,056	2,056
Mean LHS	0.444	0.444	0.444	0.444	0.444	0.444	0.444	0.444
Using Bandwidth	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110
<i>Panel D. Non-municipal schools</i>								
<b>1</b> $\{IncumbVoteMargin < 0\}$	0.023 ( 0.015)	0.026 ( 0.014)	0.025 ( 0.014)	0.020 ( 0.014)	0.024 ( 0.015)	0.022 ( 0.014)	0.024 ( 0.015)	0.025 ( 0.014)
Observations	10,774	10,774	10,774	10,774	10,774	10,774	10,774	10,774
R-squared	0.002	0.012	0.012	0.006	0.016	0.015	0.020	0.020
Sewer controls	No	No	Yes	No	Yes	No	Yes	Yes
Urban school controls	No	Yes	No	No	Yes	No	Yes	Yes
Year controls	No	No	Yes	Yes	Yes	Yes	Yes	Yes
All school controls	No	No	No	No	No	No	No	Yes
Clusters	2,064	2,064	2,064	2,064	2,064	2,064	2,064	2,064
Mean LHS	0.458	0.458	0.458	0.458	0.458	0.458	0.458	0.458
Using Bandwidth	0.110	0.110	0.110	0.110	0.110	0.110	0.110	0.110

**Table A.10:** Specification Test 1 (of 3) for Table 3 in AMT

<i>Panel A</i>		Outcome: individual fourth-grade test scores (standardized)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<b>1</b> $\{IncumbentVoteMargin < 0\}$	-0.082 ( 0.028)	-0.076 ( 0.028)	-0.083 ( 0.028)	-0.066 ( 0.026)	-0.076 ( 0.027)	-0.064 ( 0.026)	-0.067 ( 0.026)	-0.064 ( 0.026)	
School-level baseline scores	0.869 ( 0.014)	0.865 ( 0.014)	0.802 ( 0.015)	0.797 ( 0.013)	0.798 ( 0.015)	0.797 ( 0.013)	0.741 ( 0.014)	0.739 ( 0.014)	
Observations	325,554	325,554	325,554	325,554	325,554	325,554	325,554	325,554	
R-squared	0.218	0.219	0.223	0.248	0.224	0.249	0.252	0.252	
Year Control	No	Yes	No	Yes	No	Yes	Yes	Yes	
Student Controls	No	No	No	Yes	No	Yes	Yes	Yes	
School Controls	No	No	Yes	No	Yes	No	Yes	Yes	
Clusters	1,669	1,669	1,669	1,669	1,669	1,669	1,669	1,669	
Using Bandwidth	0.0782	0.0782	0.0782	0.0782	0.0782	0.0782	0.0782	0.0782	
<i>Panel B</i>		Outcome: individual eight-grade test scores (standardized)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<b>1</b> $\{IncumbentVoteMargin < 0\}$	-0.054 ( 0.028)	-0.049 ( 0.028)	-0.052 ( 0.028)	-0.047 ( 0.026)	-0.046 ( 0.027)	-0.044 ( 0.026)	-0.045 ( 0.026)	-0.042 ( 0.026)	
School-level baseline scores	0.789 ( 0.012)	0.786 ( 0.012)	0.765 ( 0.013)	0.750 ( 0.012)	0.762 ( 0.012)	0.748 ( 0.012)	0.730 ( 0.013)	0.729 ( 0.013)	
Observations	245,302	245,302	245,302	245,302	245,302	245,302	245,302	245,302	
R-squared	0.162	0.163	0.163	0.173	0.164	0.173	0.174	0.174	
Year Control	No	Yes	No	No	Yes	Yes	No	Yes	
Student Controls	No	No	No	Yes	No	Yes	Yes	Yes	
School Controls	No	No	Yes	No	Yes	No	Yes	Yes	
Clusters	1,602	1,602	1,602	1,602	1,602	1,602	1,602	1,602	
Using Bandwidth	0.1506	0.1506	0.1506	0.1506	0.1506	0.1506	0.1506	0.1506	

Note: [Table A.10](#) shows how the RD estimates change as we vary the controls included in the specifications. See the main text for details.

**Table A.11:** Specification Test 2 (of 3) for Table 3 in AMT

<i>Panel A</i>		Outcome: individual fourth-grade test scores (standardized)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<b>1</b> $\{IncumbentVoteMargin < 0\}$	-0.091 ( 0.029)	-0.087 ( 0.029)	-0.092 ( 0.029)	-0.075 ( 0.027)	-0.087 ( 0.028)	-0.074 ( 0.027)	-0.077 ( 0.027)	-0.075 ( 0.027)	
School-level baseline scores	0.864 ( 0.015)	0.861 ( 0.015)	0.799 ( 0.015)	0.793 ( 0.014)	0.796 ( 0.015)	0.792 ( 0.014)	0.738 ( 0.015)	0.737 ( 0.015)	
Observations	295,170	295,170	295,170	295,170	295,170	295,170	295,170	295,170	
R-squared	0.213	0.214	0.218	0.244	0.219	0.244	0.247	0.248	
Year Control	No	Yes	No	Yes	No	Yes	Yes	Yes	
Student Controls	No	No	No	Yes	No	Yes	Yes	Yes	
School Controls	No	No	Yes	No	Yes	No	Yes	Yes	
Clusters	1,538	1,538	1,538	1,538	1,538	1,538	1,538	1,538	
Using Bandwidth	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	
<i>Panel B</i>		Outcome: individual eight-grade test scores (standardized)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<b>1</b> $\{IncumbentVoteMargin < 0\}$	-0.050 ( 0.029)	-0.048 ( 0.029)	-0.052 ( 0.029)	-0.044 ( 0.027)	-0.051 ( 0.028)	-0.044 ( 0.027)	-0.046 ( 0.027)	-0.046 ( 0.027)	
School-level baseline scores	0.783 ( 0.016)	0.782 ( 0.016)	0.762 ( 0.016)	0.742 ( 0.016)	0.761 ( 0.016)	0.742 ( 0.016)	0.725 ( 0.017)	0.725 ( 0.017)	
Observations	126,855	126,855	126,855	126,855	126,855	126,855	126,855	126,855	
R-squared	0.158	0.158	0.159	0.170	0.159	0.170	0.170	0.170	
Year Control	No	Yes	No	No	Yes	Yes	No	Yes	
Student Controls	No	No	No	Yes	No	Yes	Yes	Yes	
School Controls	No	No	Yes	No	Yes	No	Yes	Yes	
Clusters	965	965	965	965	965	965	965	965	
Using Bandwidth	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	

Note: [Table A.11](#) shows how the RD estimates change as we vary the controls included in the specifications. See the main text for details.



**Table A.12:** Specification Test 3 (of 3) for Table 3 in AMT

<i>Panel A</i>		Outcome: individual fourth-grade test scores (standardized)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<b>1</b> $\{IncumbentVoteMargin < 0\}$	-0.067 ( 0.024)	-0.062 ( 0.024)	-0.071 ( 0.024)	-0.054 ( 0.023)	-0.065 ( 0.024)	-0.053 ( 0.023)	-0.058 ( 0.022)	-0.055 ( 0.022)	
School-level baseline scores	0.861 ( 0.012)	0.858 ( 0.012)	0.795 ( 0.013)	0.790 ( 0.011)	0.791 ( 0.013)	0.789 ( 0.011)	0.733 ( 0.012)	0.732 ( 0.012)	
Observations	429,979	429,979	429,979	429,979	429,979	429,979	429,979	429,979	
R-squared	0.218	0.218	0.222	0.248	0.223	0.248	0.252	0.252	
Year Control	No	Yes	No	Yes	No	Yes	Yes	Yes	
Student Controls	No	No	No	Yes	No	Yes	Yes	Yes	
School Controls	No	No	Yes	No	Yes	No	Yes	Yes	
Clusters	2,101	2,101	2,101	2,101	2,101	2,101	2,101	2,101	
Using Bandwidth	0.1100	0.1100	0.1100	0.1100	0.1100	0.1100	0.1100	0.1100	
<i>Panel B</i>		Outcome: individual eight-grade test scores (standardized)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<b>1</b> $\{IncumbentVoteMargin < 0\}$	-0.059 ( 0.024)	-0.055 ( 0.024)	-0.056 ( 0.024)	-0.053 ( 0.023)	-0.052 ( 0.024)	-0.052 ( 0.023)	-0.051 ( 0.022)	-0.049 ( 0.022)	
School-level baseline scores	0.783 ( 0.013)	0.781 ( 0.013)	0.759 ( 0.014)	0.743 ( 0.013)	0.757 ( 0.014)	0.742 ( 0.013)	0.722 ( 0.014)	0.722 ( 0.014)	
Observations	191,169	191,169	191,169	191,169	191,169	191,169	191,169	191,169	
R-squared	0.157	0.157	0.158	0.168	0.158	0.168	0.169	0.169	
Year Control	No	Yes	No	No	Yes	Yes	No	Yes	
Student Controls	No	No	No	Yes	No	Yes	Yes	Yes	
School Controls	No	No	Yes	No	Yes	No	Yes	Yes	
Clusters	1,335	1,335	1,335	1,335	1,335	1,335	1,335	1,335	
Using Bandwidth	0.1100	0.1100	0.1100	0.1100	0.1100	0.1100	0.1100	0.1100	

Note: [Table A.12](#) shows how the RD estimates change as we vary the controls included in the specifications. See the main text for details.

**Table A.13:** Specification Test 1 (of 3) for Table 3 in AMT (Excluding School Level Baseline Scores)

<i>Panel A</i>		Outcome: individual fourth-grade test scores (standardized)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<b>1</b> $\{IncumbentVoteMargin < 0\}$	-0.033 ( 0.073)	-0.020 ( 0.072)	-0.049 ( 0.057)	-0.014 ( 0.063)	-0.035 ( 0.056)	-0.009 ( 0.063)	-0.030 ( 0.051)	-0.023 ( 0.050)	
School-level baseline scores	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	
Observations	325,554	325,554	325,554	325,554	325,554	325,554	325,554	325,554	
R-squared	0.000	0.004	0.078	0.076	0.081	0.077	0.133	0.134	
Year Control	No	Yes	No	Yes	No	Yes	Yes	Yes	
Student Controls	No	No	No	Yes	No	Yes	Yes	Yes	
School Controls	No	No	Yes	No	Yes	No	Yes	Yes	
Clusters	1,669	1,669	1,669	1,669	1,669	1,669	1,669	1,669	
Using Bandwidth	0.0782	0.0782	0.0782	0.0782	0.0782	0.0782	0.0782	0.0782	
<i>Panel B</i>		Outcome: individual eight-grade test scores (standardized)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<b>1</b> $\{IncumbentVoteMargin < 0\}$	-0.037 ( 0.073)	-0.026 ( 0.072)	-0.029 ( 0.057)	-0.029 ( 0.063)	-0.019 ( 0.056)	-0.022 ( 0.063)	-0.022 ( 0.051)	-0.015 ( 0.050)	
School-level baseline scores	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	
Observations	245,302	245,302	245,302	245,302	245,302	245,302	245,302	245,302	
R-squared	0.001	0.003	0.035	0.036	0.037	0.037	0.063	0.064	
Year Control	No	Yes	No	No	Yes	Yes	No	Yes	
Student Controls	No	No	No	Yes	No	Yes	Yes	Yes	
School Controls	No	No	Yes	No	Yes	No	Yes	Yes	
Clusters	1,602	1,602	1,602	1,602	1,602	1,602	1,602	1,602	
Using Bandwidth	0.1506	0.1506	0.1506	0.1506	0.1506	0.1506	0.1506	0.1506	

Note: [Table A.13](#) shows how the RD estimates change as we vary the controls included in the specifications. See the main text for details.

**Table A.14:** Specification Test 2 (of 3) for Table 3 in AMT (Excluding School Level Baseline Scores)

<i>Panel A</i>		Outcome: individual fourth-grade test scores (standardized)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<b>1</b> $\{IncumbentVoteMargin < 0\}$	-0.025 ( 0.074)	-0.016 ( 0.073)	-0.045 ( 0.058)	-0.010 ( 0.064)	-0.036 ( 0.057)	-0.007 ( 0.064)	-0.030 ( 0.052)	-0.025 ( 0.052)	
School-level baseline scores	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	
Observations	295,170	295,170	295,170	295,170	295,170	295,170	295,170	295,170	
R-squared	0.001	0.004	0.074	0.075	0.077	0.075	0.129	0.130	
Year Control	No	Yes	No	Yes	No	Yes	Yes	Yes	
Student Controls	No	No	No	Yes	No	Yes	Yes	Yes	
School Controls	No	No	Yes	No	Yes	No	Yes	Yes	
Clusters	1,538	1,538	1,538	1,538	1,538	1,538	1,538	1,538	
Using Bandwidth	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	
<i>Panel B</i>		Outcome: individual eight-grade test scores (standardized)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<b>1</b> $\{IncumbentVoteMargin < 0\}$	-0.024 ( 0.074)	-0.022 ( 0.073)	-0.040 ( 0.058)	-0.019 ( 0.064)	-0.038 ( 0.057)	-0.018 ( 0.064)	-0.033 ( 0.052)	-0.033 ( 0.052)	
School-level baseline scores	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	
Observations	126,855	126,855	126,855	126,855	126,855	126,855	126,855	126,855	
R-squared	0.001	0.002	0.030	0.038	0.031	0.038	0.060	0.060	
Year Control	No	Yes	No	No	Yes	Yes	No	Yes	
Student Controls	No	No	No	Yes	No	Yes	Yes	Yes	
School Controls	No	No	Yes	No	Yes	No	Yes	Yes	
Clusters	965	965	965	965	965	965	965	965	
Using Bandwidth	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	0.0700	

Note: [Table A.14](#) shows how the RD estimates change as we vary the controls included in the specifications. See the main text for details.

**Table A.15:** Specification Test 3 (of 3) for Table 3 in AMT (Excluding School Level Baseline Scores)

<i>Panel A</i>		Outcome: individual fourth-grade test scores (standardized)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<b>1</b> $\{IncumbentVoteMargin < 0\}$	-0.048 ( 0.060)	-0.035 ( 0.059)	-0.068 ( 0.048)	-0.030 ( 0.052)	-0.054 ( 0.047)	-0.025 ( 0.052)	-0.049 ( 0.043)	-0.042 ( 0.043)	
School-level baseline scores	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	
Observations	429,979	429,979	429,979	429,979	429,979	429,979	429,979	429,979	
R-squared	0.000	0.004	0.077	0.076	0.080	0.077	0.133	0.134	
Year Control	No	Yes	No	Yes	No	Yes	Yes	Yes	
Student Controls	No	No	No	Yes	No	Yes	Yes	Yes	
School Controls	No	No	Yes	No	Yes	No	Yes	Yes	
Clusters	2,101	2,101	2,101	2,101	2,101	2,101	2,101	2,101	
Using Bandwidth	0.1100	0.1100	0.1100	0.1100	0.1100	0.1100	0.1100	0.1100	
<i>Panel B</i>		Outcome: individual eight-grade test scores (standardized)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
<b>1</b> $\{IncumbentVoteMargin < 0\}$	-0.070 ( 0.060)	-0.062 ( 0.059)	-0.057 ( 0.048)	-0.060 ( 0.052)	-0.050 ( 0.047)	-0.055 ( 0.052)	-0.049 ( 0.043)	-0.046 ( 0.043)	
School-level baseline scores	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	No (-)	
Observations	191,169	191,169	191,169	191,169	191,169	191,169	191,169	191,169	
R-squared	0.000	0.002	0.033	0.036	0.034	0.037	0.061	0.061	
Year Control	No	Yes	No	No	Yes	Yes	No	Yes	
Student Controls	No	No	No	Yes	No	Yes	Yes	Yes	
School Controls	No	No	Yes	No	Yes	No	Yes	Yes	
Clusters	1,335	1,335	1,335	1,335	1,335	1,335	1,335	1,335	
Using Bandwidth	0.1100	0.1100	0.1100	0.1100	0.1100	0.1100	0.1100	0.1100	

Note: [Table A.15](#) shows how the RD estimates change as we vary the controls included in the specifications. See the main text for details.