

Fighting Corruption in Education: What Works and Who Benefits?

Online Appendix

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Appendix A - Further Tables and Sensitivity Checks

Table A1. Descriptive statistics by early and late installers

	2009		2010		2011		2012	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Panel A: Counties that installed camera in 2011 (early installers)								
Written Romanian score	6.752	1.839	7.020	1.676	6.069	2.157	6.242	2.102
Baccalaureate Pass	0.797	0.403	0.681	0.466	0.451	0.498	0.496	0.500
Overall Baccalaureate score	7.999	1.171	6.929	1.679	5.869	2.060	6.113	2.134
Oral Romanian score	.	.	2.472	0.692	2.526	0.682	2.527	0.691
Percentile rank oral ¹⁾	.	.	0.492	0.250	0.515	0.246	0.520	0.246
Percentile rank written ¹⁾	.	.	0.580	0.258	0.445	0.300	0.469	0.297
Poor	0.147	0.354	0.154	0.361	0.161	0.367	0.174	0.379
Male	0.482	0.500	0.490	0.500	0.479	0.500	0.461	0.498
Theoretical track	0.453	0.498	0.435	0.496	0.451	0.498	0.481	0.500
Rural	0.046	0.209	0.052	0.222	0.053	0.224	0.049	0.217
Low ability ²⁾	0.504	0.500	0.515	0.500	0.496	0.500	0.461	0.499
N ³⁾	130,470		129,442		120,352		101,563	
Panel B: Counties that installed camera in 2012 (late installers)								
Written Romanian score	6.934	1.773	7.010	1.639	6.296	1.984	5.960	2.193
Baccalaureate Pass	0.846	0.361	0.714	0.452	0.543	0.498	0.455	0.498
Overall Baccalaureate score	8.171	1.097	7.046	1.580	6.345	1.834	5.930	2.153
Oral Romanian score	.	.	2.434	0.704	2.459	0.706	2.455	0.719
Percentile rank oral ¹⁾	.	.	0.477	0.254	0.488	0.253	0.491	0.255
Percentile rank written ¹⁾	.	.	0.574	0.253	0.471	0.286	0.433	0.298
Poor	0.205	0.404	0.216	0.412	0.232	0.422	0.252	0.434
Male	0.484	0.500	0.489	0.500	0.483	0.500	0.467	0.499
Theoretical track	0.436	0.496	0.432	0.495	0.440	0.496	0.448	0.497
Rural	0.079	0.270	0.089	0.285	0.095	0.293	0.078	0.268
Low ability ²⁾	0.517	0.500	0.513	0.500	0.509	0.500	0.481	0.500
N ³⁾	66,217		66,313		62,587		54,561	

Notes: The table displays descriptive statistics for our working sample of students who took the Baccalaureate exam in 2009-2012. The statistics are presented by year and separately for counties that installed the cameras in 2011 (Panel A) and those that installed cameras in 2012 (Panel B). Our main outcome variables are: “written Romanian score”, which is the student’s score in the Romanian language written exam (scale 1-10); “Baccalaureate pass”, which is an indicator equal to 1 for students that passed the overall Baccalaureate exam, and 0 for students who failed; “Overall Baccalaureate score”, which is the student’s average score in the overall Baccalaureate exam (scale 1-10).

- 1) In the regression analysis we use the standardized percentile rank scores at the written and oral Romanian exams with respect to 2010 overall sample mean and standard deviation;
- 2) The low ability is an indicator for students that have 5th-8th grade scores below the median score in the sample and is available only for 70% of the sample;
- 3) The number of observations for the Romanian written and oral exams is slightly smaller.

Robustness and further tests

In this section we present further tests to rule out concerns that our estimates may be biased, due to: 1) underlying pre-campaign trends; 2) compositional changes in the Baccalaureate students in response to the campaign; 3) sample definition.

Firstly, in the main tables, all regressions include county fixed effects and/or county specific trends, to account for potential selection of counties due to pre-campaign performance or corruption trends (assuming these would be linear). In addition, to insure that we are adequately controlling for pre-existing trends, we estimate the baseline results from the complete sample 2004-2012 (without including controls, as we do not have all the reliable controls for the years 2004-2008).¹ The results are displayed in Table A2 below and are all significant. The camera effects are only slightly smaller than the estimates in Table 2, while the 2012 and 2011 year effects are slightly larger.

Secondly, Table A3 demonstrates that our results in Table 2 are robust to different specifications (in Panel A for the written Romanian test, Panel B for the probability of passing the Baccalaureate and Panel C for the overall Baccalaureate score). Column (2) adds a placebo camera indicator (equal to 1 in 2010 for the counties that were first monitored in 2011 and in year 2011 for the counties that were first monitored in 2012, and 0 otherwise), which is not significant, while the magnitude of the main coefficients changes very little.

We also exclude observations in 2010 and hold as benchmark the year 2009. This is done to rule out concerns about the estimates of interest being driven by the contrast to the exceptional events in the 2010 “Xeroxed exam.” The results shown in columns (5) confirm that this is not the case. Additionally, we exclude the year 2012, to assess the campaign impact in the first year only. We find that the additional effect of the camera is similar to the overall effect (albeit slightly larger in 2011 for the Romanian exam, and slightly lower for the pass probability and the overall exam score). Moreover, when restricting the sample to 2011 and 2012, where the variation in monitoring comes only from late implementers (column 7), we find that counties that implemented the camera later sustained a larger drop in scores than the early implementers.

One might also worry that our controls are not sufficient to adjust for compositional differences between counties that were early or late camera implementers. In column (3) we replace the county indicators with school indicators and find that the estimates and standard errors are almost identical to the baseline ones. Lastly, using the location, family name, and father’s initial, we detect a

¹ The 2004-2012 dataset covers the entire population of students enrolled at the Baccalaureate. The 2009-2012 part of this dataset differs slightly from our main 2009-2012 sample, which excludes 2% of the student population for which we do not have some controls.

sample of about 90,000 sibling students. In this sample, the exogenous variation in scores stems from a monitored and an un-monitored sibling, after netting out everything common to the siblings (e.g., family investment in children's education).² The estimates shown in column (4) do not depart from the baseline results, supporting that the pre-2011 scores were artificially inflated and that the sharp drop in scores is the impact of the anti-corruption intervention.

Further checks for compositional changes are displayed in Table A4. One concern is that there might have been a differential student dropout rates in response to the campaign. To address this concern we compute the ratio of students enrolled at the Baccalaureate to students who were admitted into high school 4 years earlier, in every county and year.³ This ratio is on average similar in early and late CCTV installing counties, and it is about 86% in 2009, 97% in 2010, 95% in 2011 and 90% in 2012. We include this county-year level control in the main regressions, in addition to the usual controls (columns 1, 3 and 5) and the main camera estimates remain very similar to the baseline estimates, while the coefficient of the Baccalaureate-to-high school-enrolled ratio is insignificant. In addition, we introduce in the regressions our proxy for ability (the overall scores in grades 5th-8th, which are averages of numerous tests throughout middle school, but are not guaranteed to be free from grade inflation). Although the sample is reduced due to the fact that we only have the ability measure for 70% of the sample, the results remain consistent with the baseline estimates.

Since the camera implementation decision was made at the county level, a further check was to match the counties that installed cameras in 2011 with those that installed cameras in 2012. We matched each of the 17 late installers with one early installer, based on: county population, county level share of poor students, male students, theoretical track and rural, as well as exam outcomes at the Baccalaureate in 2009 (in the year before the exam changed and the anticorruption campaign). The results are displayed in Table A5 and are all significant and similar (even slightly larger for county pass rate and overall exam score) in magnitude to the estimates in Table 2.

Finally, we have also checked whether our results are affected by the fact that our main sample excludes exam retakes (47,910 observations), which yields similar results as our baseline analysis.

² Based on intra-class correlations of 5th-8th grade performance, we keep the groups of two assumed siblings (for whom the intra-family correlation is 30%, a typical estimate from the literature on sibling correlations in educational achievement; see Björklund and Jäntti, 2012). Thus, the most popular surnames (seemingly yielding larger groups of siblings) are automatically excluded, thereby increasing the likelihood that we indeed identify siblings. A critique to this approach is that the exclusion of most popular names could entail the systematic exclusion of low-income students. We therefore face a trade-off between precision of sibling pairing and the extent to which the sibling sample is representative. Yet, the analysis using the extended sample of siblings (allowing for up to four students per "family") yields very similar results. At worst we have a random sample of students, and the results should be similar to the baseline estimates if the anti-corruption campaign had an effect on exam outcomes.

³ Note that this ratio could be smaller than 1, if fewer students enrolled at the baccalaureate than those that entered high school in every cohort, but it could also be larger than 1, if students who entered high school more than 4 years before the Baccalaureate exam enroll.

Table A2. The camera effect on exam outcomes 2004-2012

	Written Romanian Score		Baccalaureate Pass		Overall Baccalaureate Score	
	(1)	(2)	(3)	(4)	(5)	(6)
Camera	-0.178 (0.114)	-0.281** (0.109)	-0.068** (0.032)	-0.083*** (0.028)	-0.420*** (0.151)	-0.469*** (0.140)
Year 12	-0.703*** (0.090)	-0.651*** (0.080)	-0.147*** (0.025)	-0.142*** (0.020)	-0.509*** (0.118)	-0.520*** (0.099)
Year 11	-0.763*** (0.067)	-0.718*** (0.070)	-0.171*** (0.019)	-0.165*** (0.017)	-0.672*** (0.092)	-0.668*** (0.087)
Year 09	-0.185*** (0.052)	-0.159*** (0.048)	0.122*** (0.011)	0.127*** (0.011)	1.116*** (0.041)	1.145*** (0.038)
Year 08	-0.059 (0.055)	-0.007 (0.046)	0.091*** (0.015)	0.101*** (0.015)	1.014*** (0.042)	1.072*** (0.037)
Year 07	-0.335*** (0.060)	-0.256*** (0.048)	0.130*** (0.016)	0.146*** (0.017)	1.030*** (0.049)	1.119*** (0.044)
Year 06	-0.483*** (0.057)	-0.374*** (0.046)	0.111*** (0.017)	0.133*** (0.015)	0.928*** (0.047)	1.048*** (0.043)
Year 05	-0.098** (0.044)	0.040 (0.035)	0.148*** (0.016)	0.176*** (0.016)	1.037*** (0.051)	1.190*** (0.048)
Year 04	0.144*** (0.037)	0.314*** (0.038)	0.114*** (0.011)	0.148*** (0.014)	1.019*** (0.038)	1.207*** (0.052)
County FE	Yes	Yes	Yes	Yes	Yes	Yes
County FE x Yearly Trends	No	Yes	No	Yes	No	Yes
Observations	1,642,857	1,642,857	1,683,796	1,683,796	1,626,604	1,626,604
R-squared	0.057	0.061	0.110	0.115	0.253	0.259

Notes: 1) The table displays the OLS estimates from the baseline DD specifications that regress the Romanian exam scores, exam pass probability and overall Baccalaureate scores on “Camera” treatment and year dummies, for the extended sample 2004-2012 school years. The “Camera” treatment is equal to 1 for all students in counties that implemented the CCTV monitoring in 2011 and in all counties in 2012, and 0 otherwise.

2) The standard errors are clustered at county level (there are 42 clusters).

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Table A3. Sensitivity analysis

	Exam Outcomes						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A: Romanian Written Exam Score							
Camera	-0.355*** (0.106)	-0.303* (0.171)	-0.368*** (0.100)	-0.358** (0.168)	-0.342*** (0.118)	-0.415*** (0.125)	-0.495*** (0.142)
Placebo camera		0.040 (0.073)					
Observations	712,298	712,298	712,298	99,674	520,350	562,611	327,698
R-squared	0.075	0.075	0.425	0.732	0.064	0.075	0.032
Panel B: Bacalaureate Pass							
Camera	-0.096*** (0.026)	-0.113** (0.049)	-0.100*** (0.025)	-0.114** (0.042)	-0.100*** (0.029)	-0.074 (0.051)	-.129*** (0.032)
Placebo camera		-0.012 (0.028)					
Observations	731,505	731,505	731,505	101,268	535,750	575,381	339,063
R-squared	0.116	0.116	0.398	0.716	0.135	0.121	0.024
Panel C: Overall Bacalaureate Score							
Camera	-0.511*** (0.139)	-0.588** (0.244)	-0.531*** (0.132)	-0.576** (0.227)	-0.528*** (0.159)	-0.406** (0.171)	-0.644*** (0.178)
Placebo camera		-0.058 (0.110)					
Observations	706,895	706,895	706,895	99,164	515,744	559,155	324,023
R-squared	0.221	0.221	0.608	0.787	0.264	0.247	0.036
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	No	No	Yes	Yes	Yes
County x Yearly Trends	Yes	Yes	Yes	Yes	Yes	Yes	No
School FE	No	No	Yes	No	No	No	No
Family FE	No	No	No	Yes	No	No	No
Sample	All	All	All	All	No 2010	No 2012	2011-2012

Notes: 1) The table displays the OLS estimates from alternative DD specifications that regress the Romanian written exam scores (Panel A), Bacalaureate pass probability (Panel B) and overall Bacalaureate score (Panel C) on “Camera” treatment and year dummies. Estimates based on our working sample of students who took the Bacalaureate exam in 2009-2012. The “Camera” treatment is defined as reported in Table A2.

2) Columns 1, 2, 5, 6 and 7 include county fixed effects. Columns 1- 6 include county fixed effects interacted with yearly trends. For this reason, we control for but do not report the year fixed effects, which are not straightforward to interpret. Column 2 includes a placebo camera indicator equal to 1 in 2010 for the counties that were first monitored in 2011 and in year 2011 for the counties that were first monitored in 2012, and 0 otherwise. Column 3 includes school fixed effects. Column 4 includes family fixed effects. Columns 5 and 6 display estimates excluding the year 2010 and 2012, respectively. Column 7 restricts the sample to 2011-2012.

3) The standard errors are clustered at county level (there are 42 clusters).

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Table A4. Sensitivity checks: Further composition controls

	Romanian written exam score		Baccalaureate Pass		Overall Baccalaureate score	
	(1)	(2)	(3)	(4)	(5)	(6)
Camera	-0.359*** (0.103)	-0.321*** (0.084)	-0.099*** (0.023)	-0.101*** (0.023)	-0.526*** (0.127)	-0.523*** (0.115)
Male	-0.852*** (0.016)	-0.648*** (0.015)	-0.109*** (0.003)	-0.067*** (0.003)	-0.590*** (0.013)	-0.419*** (0.012)
Poor	-0.222*** (0.022)	-0.387*** (0.018)	-0.045*** (0.004)	-0.076*** (0.005)	-0.260*** (0.020)	-0.387*** (0.019)
Theoretic	1.457*** (0.049)	0.941*** (0.036)	0.318*** (0.012)	0.240*** (0.010)	1.559*** (0.051)	1.115*** (0.040)
Rural	-0.665*** (0.067)	-0.328*** (0.056)	-0.137*** (0.020)	-0.065*** (0.016)	-0.654*** (0.086)	-0.321*** (0.067)
County Share enrolled Bac/High school	-0.567 (0.770)		-0.397 (0.237)		-1.384 (1.010)	
Low Ability		-1.375*** (0.030)		-0.257*** (0.011)		-1.321*** (0.037)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes	Yes
County FE x Yearly Trends	Yes	Yes	Yes	Yes	Yes	Yes
Observations	712,298	547,447	731,505	553,903	706,895	545,121
R-squared	0.289	0.446	0.254	0.359	0.433	0.585

Note: 1) The table presents OLS estimates from the main DD regressions, as reported in Table A2, where we include additional controls to account for compositional changes across years and counties. Estimates based on our working sample of students who took the Baccalaureate exam in 2009-2012. . The “Camera” treatment is defined as reported in Table A2.

2) Columns 1, 3 and 5 include the fraction of students enrolled at the Baccalaureate exam in each year relative to the number of students who were enrolled in high school 4 years before (and should be in the same cohort). This should capture differences in high school/Baccalaureate dropout rates across counties and over time. Columns 2, 4 and 6 include a proxy for student ability (which is a dummy for students who have 5th-8th grade scores below the median score in the sample).

3) The standard errors are clustered at county level (there are 42 clusters).

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Table A5. Estimations on matched counties

	Average Written Romanian Score	Average Baccalaureate Pass Rate	Average Overall Baccalaureate Score
	(1)	(2)	(3)
Camera	-0.275* (0.138)	-0.100*** (0.032)	-0.518*** (0.160)
Year 12	-0.678*** (0.136)	-0.148*** (0.033)	-0.541*** (0.153)
Year 11	-0.737*** (0.090)	-0.179*** (0.025)	-0.716*** (0.107)
County FE	Yes	Yes	Yes
Observations	102	102	102
R-squared	0.555	0.598	0.577

Note: 1) The table presents OLS estimates from DD specifications using data aggregated at county level, on a 2010-2012 sample of counties where each control county (each county that installed camera late, in 2012) is matched with a county that installed camera already in 2011. The dependent variables are: county level average written Romanian exam score (column 1), county level average Baccalaureate pass rate (column 2) and county level average score in the overall Baccalaureate exam. . The “Camera” treatment is 1 for counties that implemented the CCTV monitoring in 2011 and for all counties in 2012, and 0 otherwise. We matched counties based on: county population, county share of poor students enrolled at the Baccalaureate in 2009, county share of male students, county share students in a theoretic track and in rural areas (all for students enrolled at the Baccalaureate in 2009), county average Romanian written exam score and average pass rate in 2009.

2) Each regression is weighted by the number of students in the county.

3) The standard errors are clustered at county level (there are 42 clusters).

*** Significant at the 1 percent level.

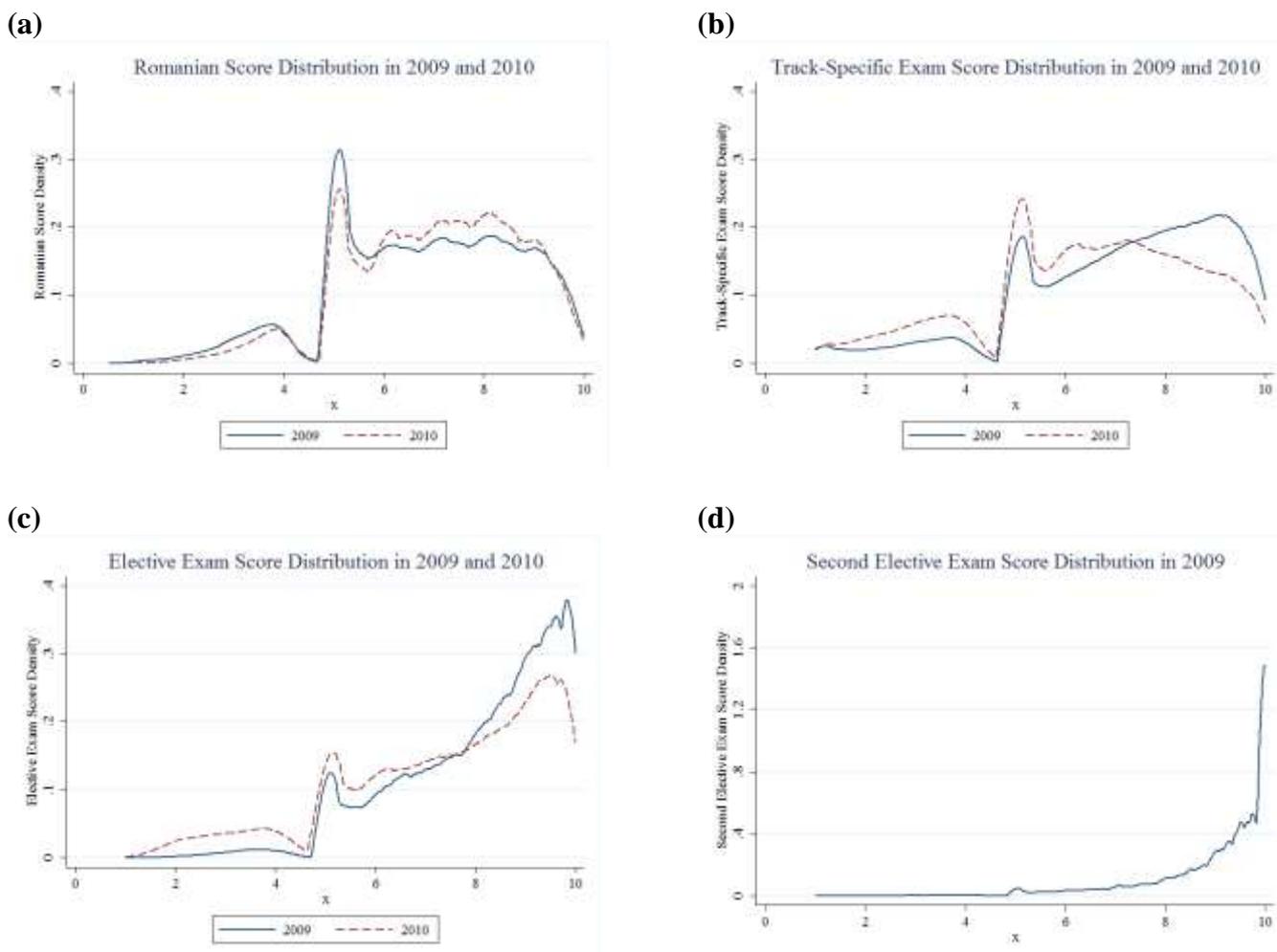
** Significant at the 5 percent level.

* Significant at the 10 percent level.

Appendix B – Further Figures and Results

FURTHER FIGURES

Figure B1. Changes at the 2010 exam. All test score distributions in 2009 and 2010

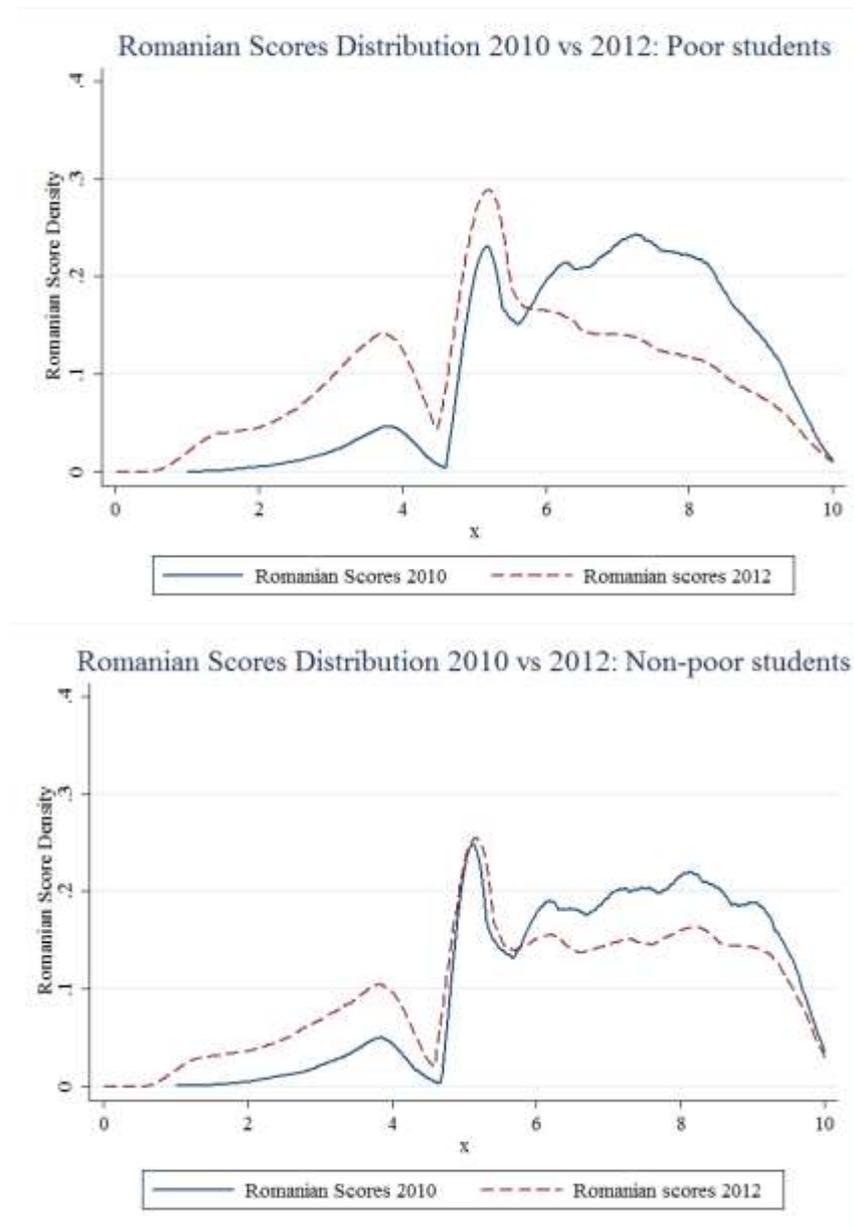


Notes: The figures display the score distributions for each written test in 2009 (solid line) and 2010 (dashed line):

- (a) the written Romanian exam;
- (b) the track-specific exam;
- (c) the first elective exam;
- (d) the second elective exam.

Estimates based on our working sample of students who took the baccalaureate exam in 2009-2012. Note that the second elective was removed in 2010, and before that, around 75% of the students chose physical education as their second elective test.

Figure B2. Romanian written exam scores density 2010 vs. 2012 separately by poor and non-poor students



Notes: The figure displays written Romanian exam score distributions in 2010 (solid line) vs. 2012 (dashed line) for poor and non-poor students. Estimates based on our working sample of students who took the bacalaureate exam in 2009-2012.

FURTHER TABLES

Table B1. Self-selection into camera treatment

	Early installation	Late installation	Difference	County clustered SE p-value
Romanian exam score	6.886	6.972	-0.087	0.499
Baccalaureate Pass	0.739	0.780	-0.041	0.251
Overall Baccalaureate Score	7.466	7.608	-0.142	0.264
Poor	0.150	0.211	-0.061	0.051*
Low Ability	0.510	0.515	-0.005	0.749
Male	0.486	0.487	-0.001	0.962
Theoretical	0.444	0.434	0.010	0.699
Rural	0.049	0.084	-0.035	0.219
Log county population	13.420	13.019	0.401	0.031**
Trust in justice	1.864	2.034	-0.170	0.097*
Corruption BOP	0.557	0.387	0.171	0.356
Unemployment	7.958	8.975	-1.016	0.349
County share Romanians	0.850	0.800	0.050	0.366
N	259912	132530		

- Notes:** 1) The figure displays individual and county summary statistics for the joint years 2009-2010, separately by counties that installed the cameras early and late. We use the 2009-2010 student data of our working sample.
- 2) The trust in justice variable is an average county score calculated by us using the answers to the question “Can justice courts be trusted?”, from the Romanian Barometer of Public Opinion 2007, Soros Foundation. The variable Corruption BOP is a proxy developed by our calculations using the same Public Opinion Barometer. We use the question: “*Is there anyone (i.e., informal network) that could “help” you solve (i.e., informally): issues in court/trials, medical problems, city hall, police, or issues related to the local authorities?*”
- 3) P-values are based on standard errors clustered at county level. *** p<0.01, ** p<0.05, * p<0.1

Table B2. Heterogeneous effects of the anti-corruption campaign by poverty: a fully interacted model – no county trends

	Written Romanian Score				Baccalaureate Pass				Overall Baccalaureate Score			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Camera		-0.206*	-0.177**	-0.082		-0.066**	-0.076***	-0.070***		-0.375**	-0.391***	-0.277***
		(0.113)	(0.085)	(0.060)		(0.031)	(0.025)	(0.017)		(0.150)	(0.117)	(0.082)
Poor x Camera		-0.220***	-0.253***	-0.212***		-0.056***	-0.047***	-0.043***		-0.331***	-0.323***	-0.276***
		(0.066)	(0.055)	(0.055)		(0.018)	(0.015)	(0.016)		(0.085)	(0.065)	(0.068)
Year 12	-0.888***	-0.681***	-0.786***	-0.586***	-0.197***	-0.131***	-0.148***	-0.075***	-0.911***	-0.536***	-0.623***	-0.434***
	(0.060)	(0.088)	(0.061)	(0.046)	(0.022)	(0.024)	(0.017)	(0.011)	(0.085)	(0.118)	(0.081)	(0.052)
Year 11	-0.890***	-0.750***	-0.676***	-0.491***	-0.206***	-0.161***	-0.141***	-0.061***	-0.950***	-0.697***	-0.619***	-0.456***
	(0.059)	(0.079)	(0.053)	(0.040)	(0.023)	(0.019)	(0.014)	(0.008)	(0.091)	(0.100)	(0.069)	(0.045)
Year 09	-0.238***	-0.238***	-0.326***	-0.244***	0.114***	0.114***	0.079***	0.020***	1.043***	1.043***	0.946***	0.684***
	(0.057)	(0.057)	(0.056)	(0.039)	(0.011)	(0.011)	(0.009)	(0.004)	(0.039)	(0.039)	(0.030)	(0.026)
Poor x Year 12	-0.423***	-0.201***	-0.106*	-0.027	-0.141***	-0.085***	-0.075***	-0.045**	-0.563***	-0.228**	-0.175**	-0.092
	(0.042)	(0.074)	(0.056)	(0.052)	(0.017)	(0.021)	(0.019)	(0.018)	(0.063)	(0.087)	(0.071)	(0.070)
Poor x Year 11	-0.109***	-0.005	-0.081**	-0.026	-0.059***	-0.033**	-0.057***	-0.030**	-0.160***	-0.009	-0.100**	-0.049
	(0.039)	(0.052)	(0.034)	(0.032)	(0.014)	(0.014)	(0.012)	(0.012)	(0.057)	(0.064)	(0.044)	(0.045)
Poor x Year 09	0.014	0.014	0.088**	0.085*	0.011	0.011	0.046***	0.027***	0.084**	0.083**	0.178***	0.085**
	(0.041)	(0.041)	(0.041)	(0.043)	(0.010)	(0.010)	(0.011)	(0.010)	(0.032)	(0.032)	(0.038)	(0.034)
County FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County FE x Yearly Trends	No	No	No	No	No	No	No	No	No	No	No	No
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Poor Interactions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ability Interactions	No	No	No	Yes	No	No	No	Yes	No	No	No	Yes
Observations	712,298	712,298	547,447	547,447	731,505	731,505	553,903	553,903	706,895	706,895	545,121	545,121
R-squared	0.277	0.277	0.343	0.444	0.241	0.243	0.299	0.381	0.419	0.421	0.491	0.600

Notes: 1) The table displays the OLS estimates from the baseline DD specifications, as reported in Table A2, with interaction terms between poverty status and all variables, for the 2009-2012 school years (based on our working sample of students. The estimations include county fixed effects (and their interaction with poverty status). The dependent variables are: the written Romanian exam scores (columns 1-4), Baccalaureate pass (columns 5-8) and overall Baccalaureate score (columns 9-12). The “Camera” treatment is defined as reported in Table A2.

2) Columns 1, 5 and 9 exclude camera and poor x camera interactions. Columns 1-2, 5-6 and 9-10 include only poverty status interactions. Columns 3, 7 and 10 include only poverty status interactions, based on a sample for which we have a proxy for ability. Columns 3, 6 and 9 include all interactions between an ability dummy and all variables, including county fixed effects. In columns 4, 8, and 12 we control for students of low ability, using an indicator equal to 1 for students with scores in 5th-8th grade below the median score in the sample.

3) Controls include: poor, gender, theoretical track and rural indicators.

4) The standard errors are clustered at county level (there are 42 clusters).

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Table B3. Heterogeneous effects of the anti-corruption campaign by poverty, with controls for ability: a fully interacted model. Written vs. oral Romanian score, standardized with respect to 2010; 2010-2012 academic years, no country trends

	High-stakes exam: Written Romanian exam (Percentile rank, standardized)				Low-stakes exam: Oral Romanian exam (Percentile rank, standardized)			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Camera		-0.149*** (0.051)	-0.139*** (0.043)	-0.089** (0.035)		0.030 (0.020)	0.015 (0.018)	-0.003 (0.014)
Poor x Camera		-0.108*** (0.030)	-0.117*** (0.026)	-0.100*** (0.026)		-0.033 (0.022)	-0.019 (0.021)	-0.025 (0.020)
Year 12	-0.483*** (0.030)	-0.333*** (0.040)	-0.414*** (0.036)	-0.334*** (0.034)	0.075*** (0.015)	0.044* (0.024)	-0.002 (0.023)	0.020 (0.021)
Year 11	-0.488*** (0.030)	-0.387*** (0.041)	-0.371*** (0.036)	-0.290*** (0.031)	0.068*** (0.012)	0.047*** (0.017)	0.050*** (0.017)	0.054*** (0.014)
Poor x Year 12	-0.226*** (0.021)	-0.116*** (0.034)	-0.043 (0.032)	-0.006 (0.030)	-0.081*** (0.012)	-0.048* (0.024)	-0.005 (0.023)	0.005 (0.023)
Poor x Year 11	-0.064*** (0.019)	-0.017 (0.025)	-0.036 (0.022)	-0.010 (0.021)	-0.008 (0.015)	0.015 (0.018)	0.011 (0.016)	0.010 (0.016)
County FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
County FE x Yearly Trends	No	No	No	No	No	No	No	No
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Poor Interactions	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ability Interactions	No	No	No	Yes	No	No	No	Yes
Observations	515,102	515,102	400,088	400,088	515,102	515,102	400,088	400,088
R-squared	0.294	0.296	0.360	0.466	0.147	0.147	0.183	0.250

Notes: 1) The table displays the OLS estimates from the baseline DD specifications, as reported in Table A2, including interaction terms between poverty status and all variables, for the 2010-2012 school years (a subset of our working sample which includes students who took the Baccalaureate exam in 2009-2012). The estimations include county fixed effects (and their interaction with poverty status). The dependent variables are: the written Romanian exam scores (columns 1-4) and oral Romanian exam scores (columns 5-8). The “Camera” treatment is defined as reported in Table A2.

2) Columns 1 and 5 exclude the camera and the poor x camera interaction. Columns 1-2 and 5-6 include only poverty status interactions. Columns 3 and 7: include only poverty status interactions based on a sample for which we have a proxy for ability. Columns 4 and 8 include all interactions between an ability dummy and all variables, including county fixed effects. In columns 4 and 8 we control for students of low ability, using an indicator equal to 1 for students with scores in 5th-8th grade below the median score in the sample.

3) The Romanian oral exam performance does not count at all toward the Baccalaureate score, or university admission, and is simply indicated by a qualifier: “excellent”, “good” or “sufficient”. We assign scores 3, 2 and 1 to these qualifiers and then calculate the percentile rank scores associated. Thus, both dependent variables are expressed in standardized percentile rank scores with respect to the 2010 means and standard deviations.

4) Controls include: poor, gender, theoretical track and rural indicators.

5) The standard errors are clustered at county level (there are 42 clusters).

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Table B4. Heterogeneous effects of the anti-corruption campaign by poverty: a fully interacted model 2006-2012

	Written Romanian Score	Baccalaureate Pass	Overall Exam Score
	(1)	(2)	(3)
Camera	-0.279** (0.110)	-0.078*** (0.027)	-0.423*** (0.140)
Poor x Camera	-0.228*** (0.061)	-0.062*** (0.014)	-0.352*** (0.075)
Year FE	Yes	Yes	Yes
County FE	Yes	Yes	Yes
County FE x Yearly Trends	Yes	Yes	Yes
Controls	Yes	Yes	Yes
Poor Interactions	Yes	Yes	Yes
Observations	1,302,877	1,334,920	1,294,953
R-squared	0.254	0.217	0.434

Notes: 1) The table displays the OLS estimates from the baseline DD specifications as reported in Table A2, including interaction terms between poverty status and all variables, for an extended sample including the years 2006-2012. The estimations include county fixed effects and county trends (and their interaction with poverty status). The dependent variables are: the written Romanian exam scores (column 1), Baccalaureate pass (column 2) and overall Baccalaureate score (column 3). The “Camera” treatment is defined as reported in Table A2.

2) Controls include: poor, gender and a theoretical track indicator.

3) The standard errors are clustered at county level (there are 42 clusters).

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Table B5. Heterogeneous effects of the anti-corruption campaign by poverty: a fully interacted model – no county trends – 2006-2012

	Written Romanian Score	Baccalaureate Pass	Overall Baccalaureate Score
	(1)	(2)	(3)
Camera	-0.122 (0.121)	-0.055* (0.032)	-0.355** (0.158)
Poor x Camera	-0.238*** (0.068)	-0.056*** (0.018)	-0.311*** (0.086)
Year 12	-0.757*** (0.092)	-0.143*** (0.025)	-0.536*** (0.121)
Year 11	-0.813*** (0.076)	-0.173*** (0.020)	-0.711*** (0.102)
Year 09	-0.217*** (0.055)	0.115*** (0.010)	1.076*** (0.038)
Year 08	-0.075 (0.059)	0.089*** (0.017)	0.999*** (0.047)
Year 07	-0.435*** (0.062)	0.114*** (0.017)	0.941*** (0.051)
Year 06	-0.590*** (0.057)	0.091*** (0.016)	0.829*** (0.044)
Poor x Year 12	-0.191** (0.076)	-0.083*** (0.020)	-0.262*** (0.091)
Poor x Year 11	0.0190 (0.052)	-0.030** (0.014)	-0.019 (0.066)
Poor x Year 09	0.011 (0.040)	0.013 (0.010)	0.077** (0.032)
Poor x Year 08	0.078* (0.039)	0.011 (0.014)	0.082** (0.032)
Poor x Year 07	-0.013 (0.052)	-0.003 (0.016)	-0.026 (0.041)
Poor x Year 06	-0.112** (0.053)	0.015 (0.014)	-0.063 (0.041)
Year FE	Yes	Yes	Yes
County FE	Yes	Yes	Yes
County FE x Yearly Trends	No	No	No
Controls	Yes	Yes	Yes
Poor Interactions	Yes	Yes	Yes
Observations	1,302,878	1,334,920	1,294,953
R-squared	0.245	0.210	0.425

Notes: 1) The table displays the OLS estimates from the baseline DD specifications as reported in Table A2, including interaction terms between poverty status and all variables, for an extended sample including 2006-2012 school years. The estimations include only county fixed effects (and their interaction with poverty status). The dependent variables are: the written Romanian exam scores (column 1), Baccalaureate pass (column 2) and overall Baccalaureate score (column 3). The “Camera” treatment is defined as reported in Table A2.

2) Controls include: poor, gender and a theoretical track indicator.

3) The standard errors are clustered at county level (there are 42 clusters).

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Table B6. Heterogeneity by poverty, ability and gender. Fully interacted model

	Written Romanian Score	Baccalaureate Pass	Overall Baccalaureate Score	Percentile rank written Romanian (standardized)	Percentile rank oral Romanian (standardized)
	(1)	(2)	(3)	(4)	(5)
Camera	-0.095* (0.053)	-0.080*** (0.017)	-0.272*** (0.071)	-0.078** (0.035)	-0.002 (0.013)
Poor x Camera	-0.225*** (0.050)	-0.051*** (0.012)	-0.317*** (0.062)	-0.103*** (0.025)	-0.027 (0.020)
Low ability x Camera	-0.249*** (0.062)	-0.025 (0.018)	-0.259*** (0.081)	-0.103*** (0.023)	0.036 (0.026)
Male x Camera	-0.098** (0.037)	0.006 (0.006)	-0.099*** (0.031)	-0.032* (0.018)	-0.001 (0.014)
Year FE	Yes	Yes	Yes	Yes	Yes
County FE	Yes	Yes	Yes	Yes	Yes
County FE x Yearly Trends	No	No	No	No	No
Controls	Yes	Yes	Yes	Yes	Yes
Poverty Interactions	Yes	Yes	Yes	Yes	Yes
Low ability Interactions	Yes	Yes	Yes	Yes	Yes
Gender Interactions	Yes	Yes	Yes	Yes	Yes
Observations	547,447	553,903	545,121	400,088	400,088
R-squared	0.460	0.395	0.615	0.471	0.253

Notes: 1) The table displays the OLS estimates from the baseline DD specifications as reported in Table A2, with interaction terms between poverty status, ability, male and all variables, including county fixed effects and county trends, based on our working sample including students who took the Baccalaureate exam in 2009-2012 school years. The estimates are based on the restricted sample for which we have data on ability. The “Camera” treatment is defined as reported in Table A2.

2) We use a low ability indicator equal to 1 for students with scores in 5th-8th grade below the median score in the sample.

3) In columns 4 and 5 the dependent variables are expressed in standardized percentile rank scores with respect to the 2010 means and standard deviations. The Romanian oral exam performance does not count at all toward the Baccalaureate score, or university admission, and is simply indicated by a qualifier: “excellent”, “good” or “sufficient”. We assign scores 3, 2 and 1 to these qualifiers and then calculate the percentile rank scores associated.

4) Controls include: gender, theoretical track and rural indicators.

5) The standard errors are clustered at county level (there are 42 clusters).

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Table B7. Heterogeneity by poverty, ability and gender. Fully interacted model – excluding country trends

	Written Romanian	Baccalaureate pass	Overall Baccalaureate Score	Percentile rank written Romanian (standardized)	Percentile rank oral Romanian (standardized)
	(1)	(2)	(3)	(4)	(5)
Camera	-0.055 (0.056)	-0.075*** (0.017)	-0.246*** (0.078)	-0.077** (0.035)	-0.002 (0.013)
Poor x Camera	-0.221*** (0.054)	-0.042*** (0.015)	-0.285*** (0.067)	-0.105*** (0.025)	-0.027 (0.020)
Low ability x Camera	-0.198*** (0.061)	-0.017 (0.021)	-0.245*** (0.078)	-0.105*** (0.022)	0.036 (0.026)
Male x Camera	-0.074** (0.034)	0.011 (0.008)	-0.088*** (0.029)	-0.032* (0.018)	-0.001 (0.015)
Year 12	-0.548*** (0.046)	-0.070*** (0.011)	-0.432*** (0.052)	-0.326*** (0.034)	0.009 (0.019)
Year 11	-0.473*** (0.039)	-0.053*** (0.009)	-0.455*** (0.045)	-0.290*** (0.031)	0.045*** (0.012)
Year09	-0.221*** (0.036)	0.003 (0.005)	0.568*** (0.026)		
Poor x Year 12	-0.036 (0.053)	-0.046** (0.019)	-0.093 (0.070)	-0.007 (0.029)	0.010 (0.023)
Poor x Year 11	-0.029 (0.031)	-0.032** (0.012)	-0.050 (0.045)	-0.010 (0.021)	0.014 (0.016)
Poor x Year 09	0.079* (0.044)	0.032*** (0.010)	0.117*** (0.035)		
Low ability x Year 12	-0.509*** (0.057)	-0.176*** (0.020)	-0.534*** (0.064)	-0.220*** (0.026)	-0.088*** (0.031)
Low ability x Year 11	-0.397*** (0.036)	-0.173*** (0.016)	-0.367*** (0.054)	-0.178*** (0.017)	-0.018 (0.021)
Low ability x Year 09	-0.124*** (0.038)	0.118*** (0.012)	0.513*** (0.040)		
Male x Year 12	-0.099** (0.038)	-0.012 (0.009)	-0.002 (0.030)	-0.023 (0.020)	0.029* (0.015)
Male x Year 11	-0.049* (0.027)	-0.019*** (0.006)	-0.001 (0.021)	-0.002 (0.015)	0.022* (0.012)
Male x Year 09	-0.060*** (0.016)	0.044*** (0.005)	0.311*** (0.014)		
County FE	Yes	Yes	Yes	Yes	Yes
County FE x Yearly Trends	No	No	No	No	No
Controls	Yes	Yes	Yes	Yes	Yes
Poverty Interactions	Yes	Yes	Yes	Yes	Yes
Low ability Interactions	Yes	Yes	Yes	Yes	Yes
Gender Interactions	Yes	Yes	Yes	Yes	Yes
Observations	547,447	553,903	545,121	400,088	400,088
R-squared	0.445	0.382	0.602	0.467	0.252

Notes: 1) The table displays the OLS estimates from the baseline DD specifications as reported in Table A2, including interaction terms between poverty status, ability, male and all variables, including county fixed effects, based on for our working sample including students who took the Baccalaureate exam in the 2009-2012 school years. The estimates are based on the restricted sample for which we have data on ability. . The “Camera” treatment is defined as reported in Table A2.
2) We use a low ability indicator equal to 1 for students with scores in 5th-8th grade below the median score in the sample.
3) In columns 4 and 5 the dependent variables are expressed in standardized percentile rank scores with respect to the 2010 means and standard deviations. The Romanian oral exam performance does not count at all toward the Baccalaureate score, or university admission, and is simply indicated by a qualifier: “excellent”, “good” or “sufficient”. We assign scores 3, 2 and 1 to these qualifiers and then calculate the percentile rank scores associated.
4) Controls include: gender, theoretical track and rural indicators.
5) The standard errors are clustered at county level (there are 42 clusters).

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Table B8: The probability of being eliminated from the exam due to in-class cheating

	Eliminated from the Exam		
	(1)	(2)	(3)
Camera	0.0040** (0.0016)	0.0041** (0.0018)	0.0041** (0.0017)
Poor x Camera		-0.0007 (0.0013)	-0.0007 (0.0012)
Year 12	-0.0035** (0.0016)	-0.0037** (0.0017)	-0.0034** (0.0016)
Year 11	0.0005 (0.0006)	0.0006 (0.0007)	0.0007 (0.0005)
Year 09	0.0003 (0.0002)	0.0003 (0.0002)	0.0004* (0.0002)
Poor x Year 12		0.0011 (0.0014)	0.0008 (0.0012)
Poor x Year 11		-0.0004 (0.0007)	-0.0005 (0.0006)
Poor x Year 09		0.0000 (0.0004)	-0.0001 (0.0004)
County FE	Yes	Yes	No
County FE x Yearly Trends	No	No	No
School FE	No	No	Yes
Controls	Yes	Yes	Yes
Poor interactions	Yes	Yes	Yes
Observations	731,505	731,505	731,505
R-squared	0.0036	0.0038	0.0300

Notes: 1) The table displays OLS estimates from the baseline DD specifications, for the probability to be eliminated from the exam due to cheating, based on for our working sample including students who took the Baccalaureate exam in the 2009-2012 school years. The dependent variable is a dummy=1 for students that were eliminated from the exam due to cheating. The “Camera” treatment is defined as reported in Table A2.

2) In addition to the standard specification in column 1, we display the estimated parameters of all treatment and other variables’ interactions with poverty status in columns 2 and 3.

3) Controls include: poor, gender, track and rural indicators.

4) The standard errors are clustered at county level (there are 42 clusters).

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Table B9. The probability of scoring between different thresholds

	Score 5-6	Score 6-7	Score 7-8	Score 8-9	Score 9-10
	(1)	(2)	(3)	(2)	(3)
Camera	-0.067** (0.027)	-0.072** (0.034)	-0.075** (0.035)	-0.053* (0.028)	-0.028 (0.024)
Poor x Camera	-0.024 (0.019)	-0.055** (0.024)	-0.050* (0.027)	-0.032* (0.018)	-0.025 (0.015)
Year 12	-0.182*** (0.027)	-0.265*** (0.033)	-0.249*** (0.033)	-0.219*** (0.025)	-0.176*** (0.021)
Year 11	-0.178*** (0.023)	-0.282*** (0.027)	-0.291*** (0.026)	-0.256*** (0.020)	-0.198*** (0.018)
Year 09	-0.023** (0.010)	-0.095*** (0.014)	-0.093*** (0.016)	-0.075*** (0.017)	-0.040** (0.018)
Poor x Year 12	-0.041* (0.023)	-0.050* (0.028)	-0.070** (0.028)	-0.094*** (0.021)	-0.074*** (0.021)
Poor x Year 11	-0.005 (0.016)	0.005 (0.020)	0.002 (0.019)	-0.023 (0.015)	-0.024 (0.016)
Poor x Year 09	-0.040*** (0.012)	-0.027* (0.015)	-0.016 (0.015)	0.001 (0.014)	0.004 (0.016)
County FE	Yes	Yes	Yes	Yes	Yes
County FE x Yearly Trends	No	No	No	No	No
Controls	Yes	Yes	Yes	Yes	Yes
Poor Interactions	Yes	Yes	Yes	Yes	Yes
Observations	267,686	221,913	222,679	220,458	185,336
R-squared	0.085	0.181	0.277	0.388	0.518

Notes: 1) The table displays OLS estimates from the baseline DD specifications, which regress an indicator =1 for students who score in different score intervals: 5-6, 6-7, 7-8, 8-9, 9-10, as opposed to failing at the Romanian written exam, for the 2009-2012 school years. For all outcomes the baseline category is scoring below 5. The estimates are based on for our working sample including students who took the Bacalaureate exam in the 2009-2012 school years. . The “Camera” treatment is defined as reported in Table A2.

2) The estimations include interaction terms between poverty status and all variables. We include only county fixed effects (and their interaction with poverty status) in order to obtain a straightforward interpretation for the year indicators’ coefficients.

3) The controls include: poor, male, theoretic track and rural indicators.

4) The standard errors are clustered at county level (there are 42 clusters).

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

How good is our poverty proxy?

In this digression we scrutinize the quality of our poverty proxy. Firstly, we need to clarify what part of the income distribution the MHS status represents. Using the Romanian Household Budget Survey we have identified these students in households situated in the 10%-40% quantiles. This means that our analysis does not capture students living in extreme poverty, nor Roma children of the age of these cohorts, since these are the most likely to be high school dropouts. This is bound to slightly reduce the external validity of our finding.

Secondly, we try to rule out the concern that the effects of the MHS program on the beneficiaries' performance might confound our interpretation of the interaction estimates.⁴ We extract some evidence from a special feature of the MHS program. The disbursement of MHS funds has been carried out every year since 2004. However, in the beginning of the program, the funds fell short of the demand. From the students who enrolled at the Baccalaureate exam in 2006-2010, a total of about 76,850 were poor eligible students (income below 150 RON, equivalent to 35 EUR, per household member) in the academic year 2005-2006, and of these, 31,759 were omitted from the program.⁵ Some of these students applied and received the MHS funds in subsequent years, but 19,915 students never benefitted from the MHS. We therefore use a regression discontinuity design to estimate the treatment effect of receiving money on exam scores, for the marginal student just receiving money, relative to the marginal student who never received the money. The cutoff for receiving the money was 30.5 RON, and varied only marginally within counties. However, this means that as long as we include county fixed effects in the regression, we are able to use a sharp RD design. Hence, we estimate the effect for a weighted average of marginal students just receiving money, where the weights are given by the number of students at each cutoff. The drawback with the 2006-2010 sample is that we do not have corresponding data about the 5th-8th grade score, nor other background variables, apart from gender and high school track.

We estimate the following equation:

$$Y_{ict} = \alpha + \beta_0 NMHS_{ict} + \beta_1 inc06_{ict} + \gamma' X_{ict} + \theta_c + \varepsilon_{ict}, \quad (2)$$

⁴ To be sure that the income is correctly reported, students needed to bring official proves from their parents employers and Ministry of Work. Still, we cannot fully exclude that some students have misreported their household income.

⁵ We use the 2006-2010 to capture all targeted students' exam outcomes and to avoid the potential confounding effects of the anti-corruption campaign starting in 2011. In our sample, these students who were not allotted the MHS in 2005-2006 despite being eligible, report incomes between 30.5 and 150 RON per family member, and the mean income is 82.6 RON. In the subsequent years the funds allocated from the national budget for MHS were adjusted at the beginning of each year in response to the demand, leaving no more eligible requests unsatisfied. The schools where the applications were registered had to submit their lists of applicants to the Ministry, which disbursed the funds, and typically they ranked the students by income, drawing the line according to the funds available. However, because of rising demands, from 2009 to 2010 a new criterion was introduced demanding that the student must have a very good school attendance rate. A little over 100 students were denied the allowance because of low attendance in 2010-2011.

where $NMHS_{ict}$ is an indicator equal to 1 if the student is a non-beneficiary, $inc06_{ict}$ is the family income in 2006, and X_{ict} includes an indicator for male and for the theoretical track. The coefficient of interest, which yields the effect of the program, is β_0 .

When we estimate this model, we get virtually no effects from the program once we control for income (Table B10). We interpret this as evidence that the MHS program did not affect the performance of the recipients relative to their comparable peers, and thus it can be used as a proxy for poverty status. The caveat is that some students may have underreported income, making some sorting around the cutoff a possibility (see Figure B3). The results hold also when we exclude those with close to or zero income, the easiest to misreport. Nonetheless, we interpret the RD estimate as suggestive rather than causal here.

Table B10. The MHS treatment effect. RD regressions

	Written Romanian Score		Baccalaureate Pass		Overall Baccalaureate Score	
	(1)	(2)	(3)	(4)	(5)	(6)
NMHS	0.124*** (0.021)	-0.008 (0.041)	0.020*** (0.005)	0.001 (0.008)	0.111*** (0.012)	-0.011 (0.025)
Income 2006		0.002*** (0.000)		0.0002** (0.000)		0.001*** (0.000)
County FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	64,111	64,111	65,006	65,006	63,913	63,913
R-squared	0.223	0.224	0.185	0.185	0.442	0.442

Notes: 1) The table displays OLS estimates of the MHS impact on exam performance (Baccalaureate years 2006-2010) from a sharp Regression Discontinuity in exam scores around the cutoff of income below which students are treated with the “Money for Highschool” financial support.

2) NMHS is an indicator equal to 1 if the student did not receive the financial support.

3) Controls include gender and a track indicator.

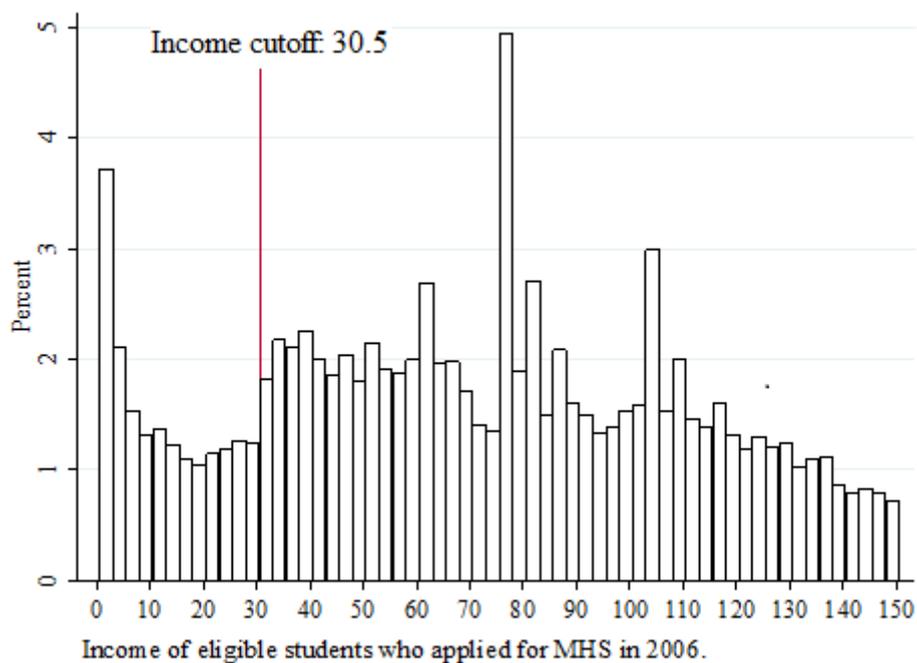
4) The standard errors are clustered at county level (there are 42 clusters).

*** Significant at the 1 percent level.

** Significant at the 5 percent level.

* Significant at the 10 percent level.

Figure B3. Income density of the MHS applicants in 2005-2006



Notes: 1) The figure displays the density bar chart of the MHS applicants' income relative to the income cutoff of 30.5 RON cutoff in 2005-2006, below which students became beneficiaries of the MHS.
2) The figure excludes applicants who reported 0 (or near 0) income.