

# The effect of English learner reclassification on student achievement and noncognitive outcomes

Mark J. Chin  
Harvard University

Comments welcome: [mark\\_chin@g.harvard.edu](mailto:mark_chin@g.harvard.edu) @MemeMedianMode

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# Background

- Growing proportion of students in US K12 are English learners (ELs)
- State/district policies determine EL identification, support through English fluency, and reclassification as fully English proficient (RFEP)
- Types of policy studies:
  - Efficacy of different supports towards fluency
  - Effects of classification as EL, i.e., what happens when students do not receive supports they might need?

# Reclassification as an intervention

- Reclassification often the desired outcome of programs serving ELs
- Reclassification itself is an intervention worth evaluating; being reclassified changes the day-to-day experiences of students in schools  
(Robinson 2011; Umansky 2018)
  - *Intended consequences*: losing access to English Language Development instruction and linguistically accessible core academic content
  - *Unintended consequences*: removal of the EL label and associated stigma; reintegration with English-speaking peers in mainstream classrooms

# Evidence on the impact of classification

- Naïve comparisons conflate the effect of EL classifications with other observed/unobserved student characteristics, e.g., English proficiency
- More “rigorous” studies employ regression discontinuity (RD) to evaluate the impacts of:
  - Classification (Shin 2018; Umansky 2016)
  - Reclassification (e.g., Carlson & Knowles 2016; Pope 2016; Robinson 2011)

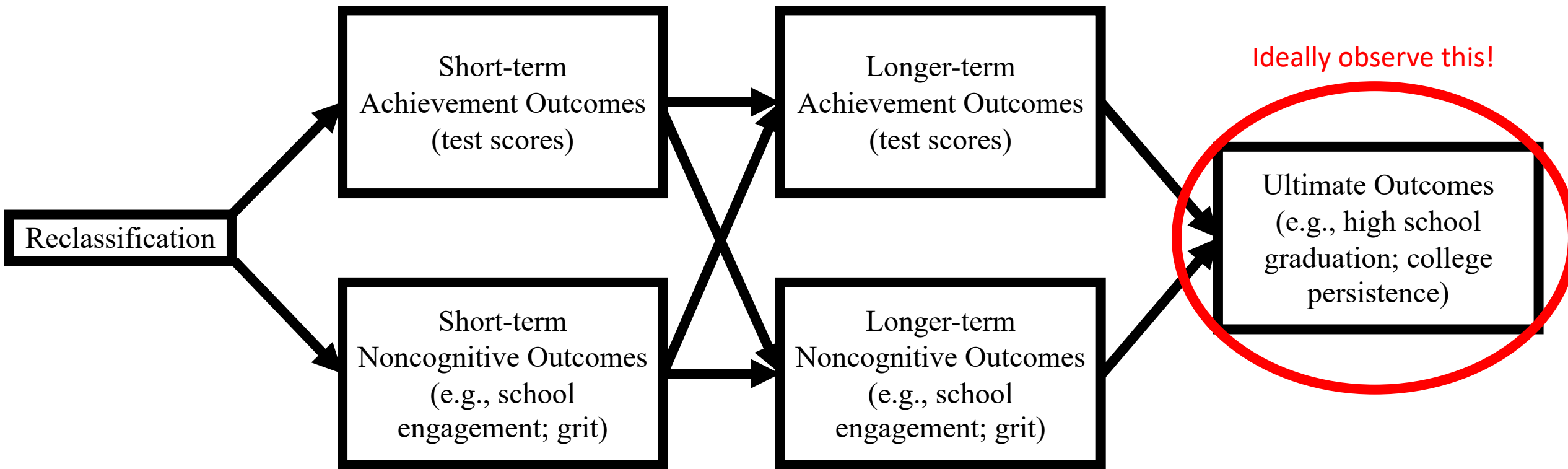
# Interpreting RD study results

- Mixture of positive, negative, and null impacts of reclassification on student test scores and high school graduation
- Differences in policies, student populations, and instruction across contexts likely means that no single estimate of the impact of reclassification exists
- Robinson 2011: Non-null impacts imply that a better policy exists in the given context
  - E.g., negative impacts may suggest that the policy determining reclassification is not stringent enough

# Current study

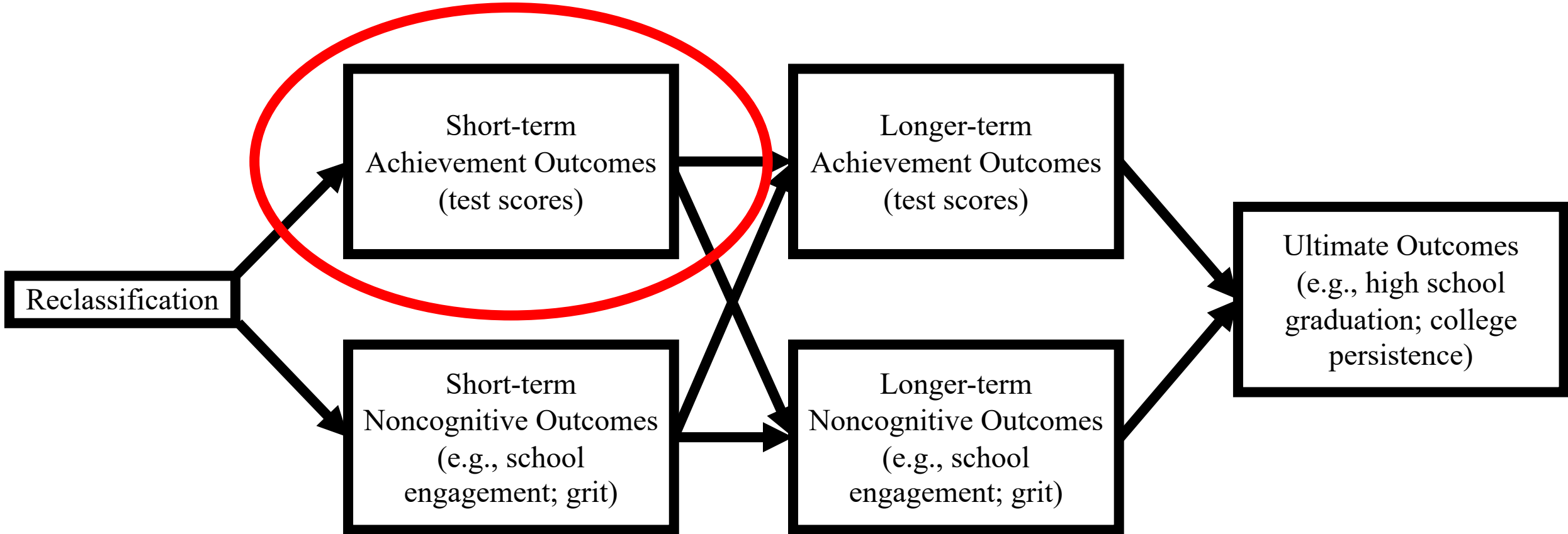
- What is the impact of reclassification on noncognitive outcomes?
  - Null impacts on achievement still does not indicate current policy is the best policy (Robinson, 2011)
  - Unintended consequences of reclassification, e.g., removal of social stigma when losing the EL label, theoretically could impact non-achievement outcomes (Umansky 2016, 2018)
  - Ideally observe null impacts on a variety of important student outcomes
- What are the longer-term impacts of reclassification on outcomes in elementary/middle school? (Pope 2016)

# Simple motivating schema



# Simple motivating schema

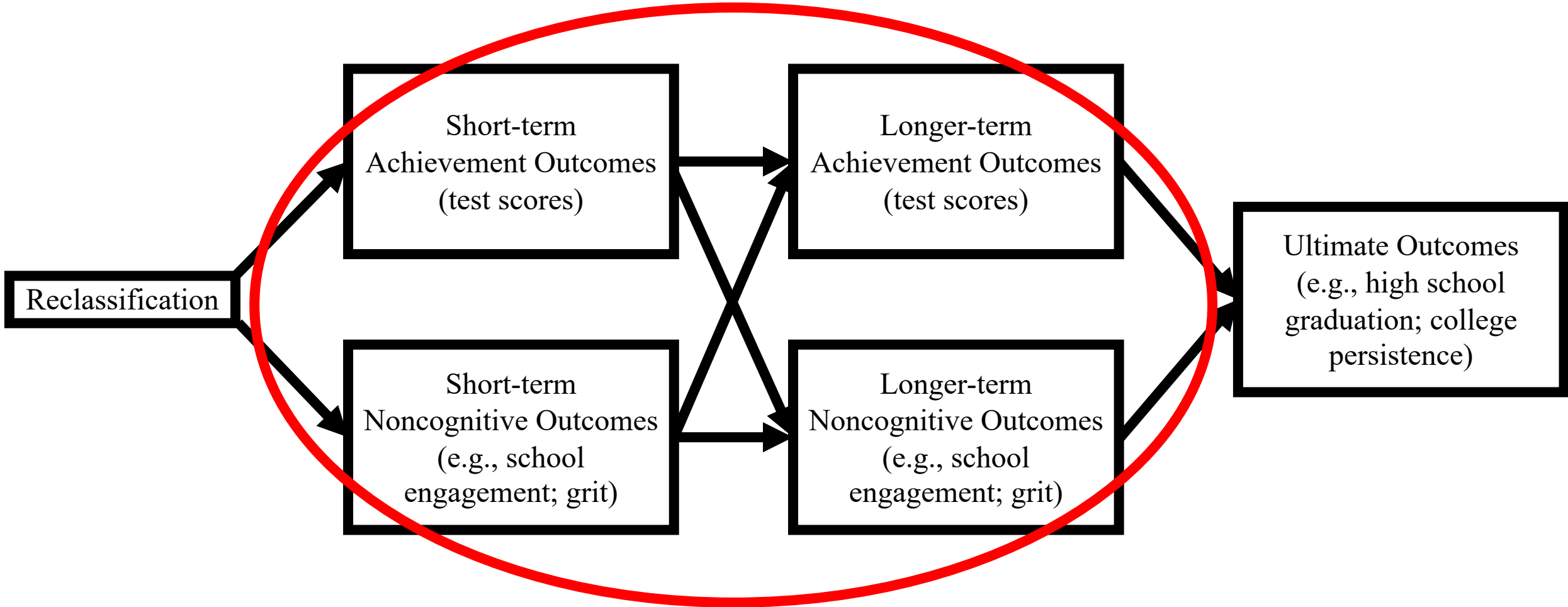
Most existing studies focus on this!





# Simple motivating schema

This study looks at all four sets of intermediary outcomes.



# Study context

- Large school district in the south
- ~11k active ELs per year
- Reclassification determined by performance on an annual test (AT); of ELs that are reclassified, the plurality are reclassified in 3<sup>rd</sup> grade
  - Focus on impacts of reclassification following 3<sup>rd</sup> grade on 5<sup>th</sup>/8<sup>th</sup> grade outcomes

# Outcomes in 5<sup>th</sup> and 8<sup>th</sup> grade

- Achievement: math and reading end-of-year standardized test scores
- Noncognitive:
  - *Challenge level of schoolwork assigned* (1 item)
  - *In-school engagement* (15 items, alpha .89): teacher-student relationships; relevance of schoolwork
  - *Duckworth Grit* (15 items, alpha .75)
  - *Out-of-school engagement* (8 items, alpha .81): Future goals and aspirations; civic engagement
  - *Peer relationships* (6 items, alpha .84)
  - *Family support* (4 items, alpha .81)

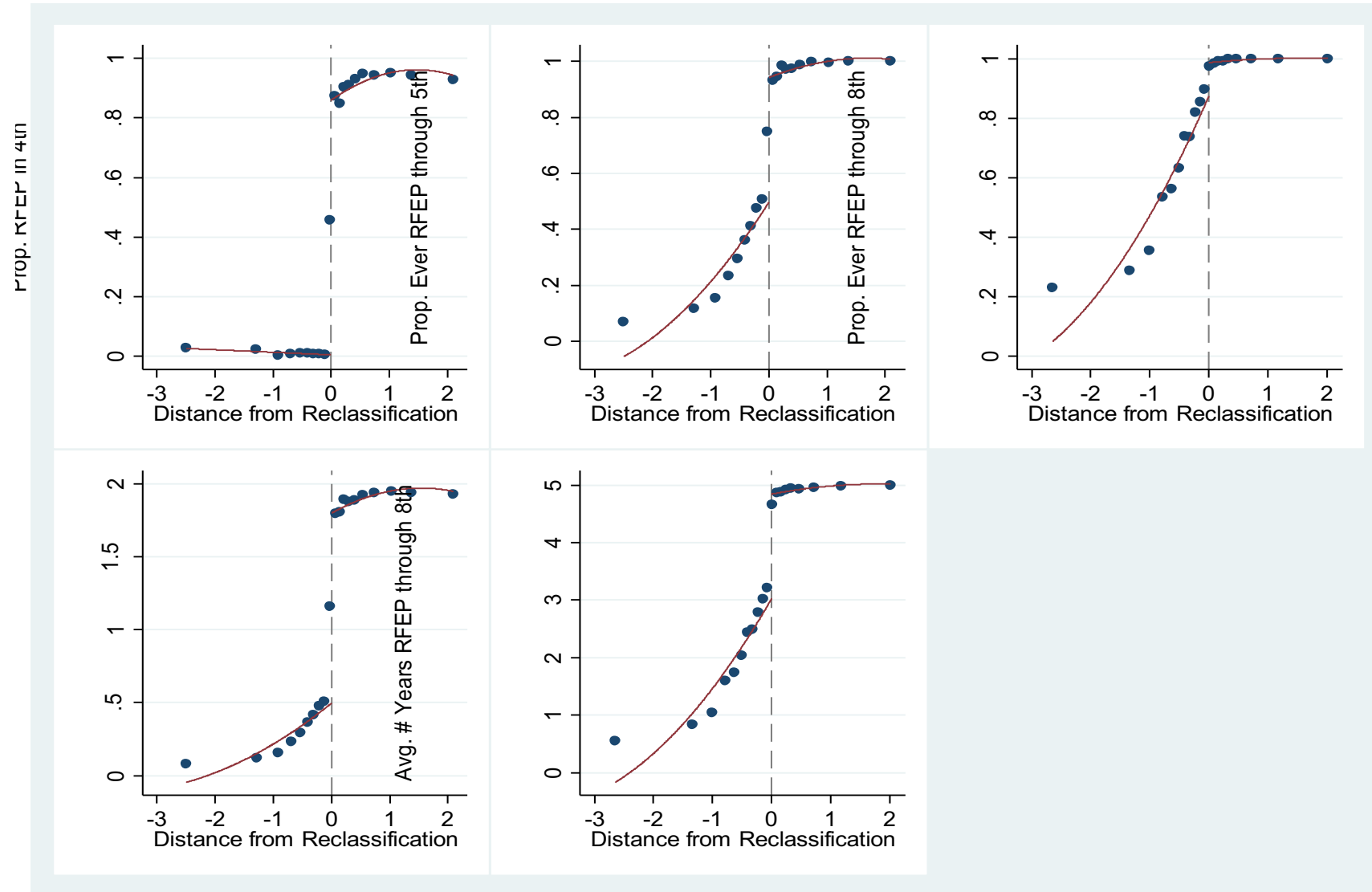
# Identification: Regression discontinuity

- ELs scoring  $< 0$  on AT remain EL; those scoring  $\geq 0$  are reclassified
- ELs scoring at and around 0 on AT (e.g., scoring 1 vs. 0) should be nearly identical except for differences in reclassification status
- Differences in outcomes can be attributed to the impact of reclassification (under certain assumptions)

# Instrumental variables + RD

- Some ELs who just fail AT in 3<sup>rd</sup> grade become reclassified in later grades → comparing outcomes is not a true test of the impact of reclassification
- An IV + RD approach permits identification of the impact of ever being reclassified / years of being reclassified (i.e., by focusing only on ELs who “comply” with the reclassification policy)

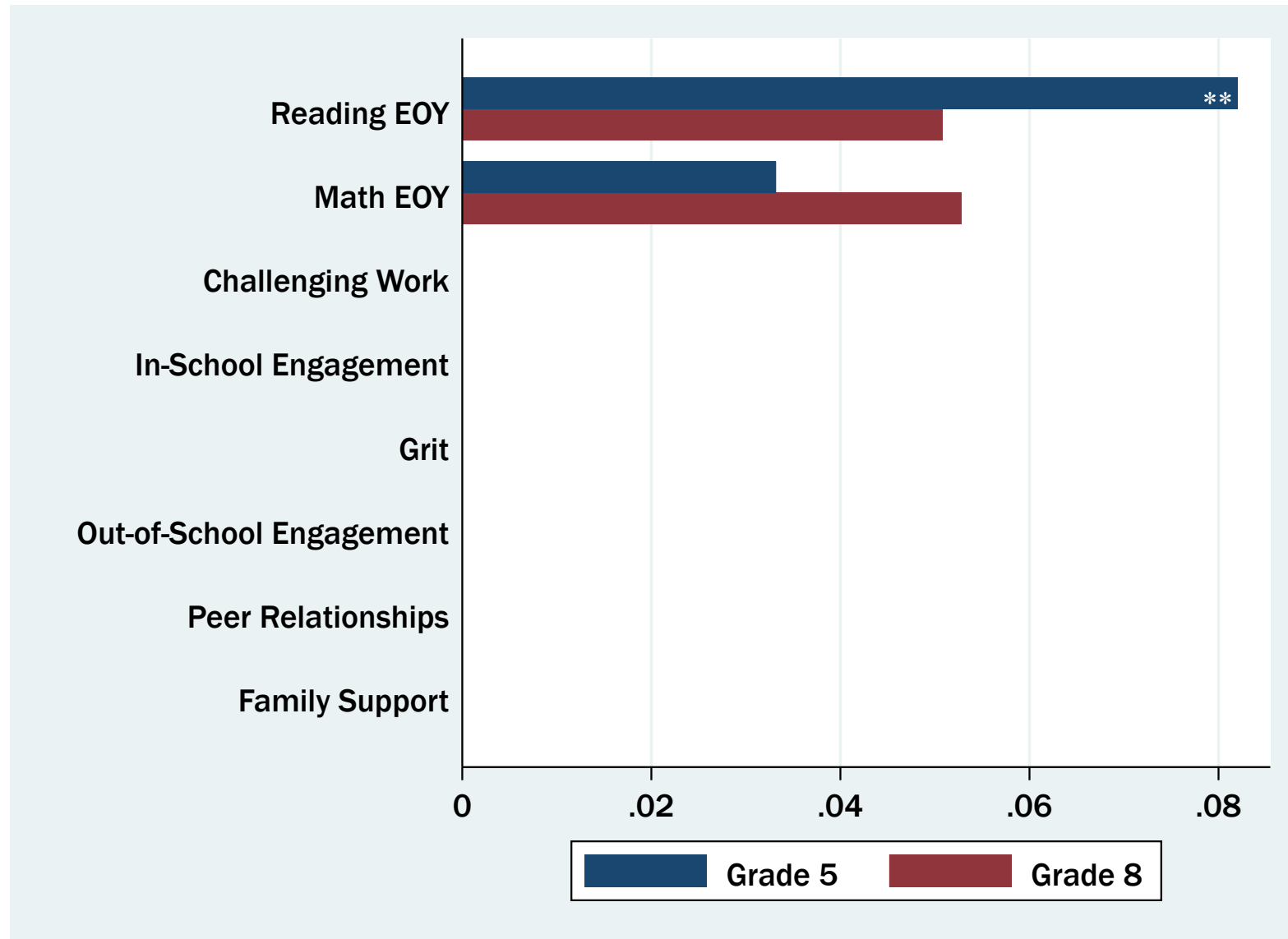
# AT scores predict reclassification status



# Model estimation

- All models include a set of baseline covariates (race, gender, disability status, 3<sup>rd</sup> grade cohort)
- Estimated using Stata *rdrobust*, optimal bandwidth, triangular kernel, linear relationship between outcomes and the running variable (score on AT)
- Investigated several other models, including varying bandwidths, uniform kernel, quadratic relationships, etc.

# RD-IV: Impact of each year of reclassification on cognitive outcomes

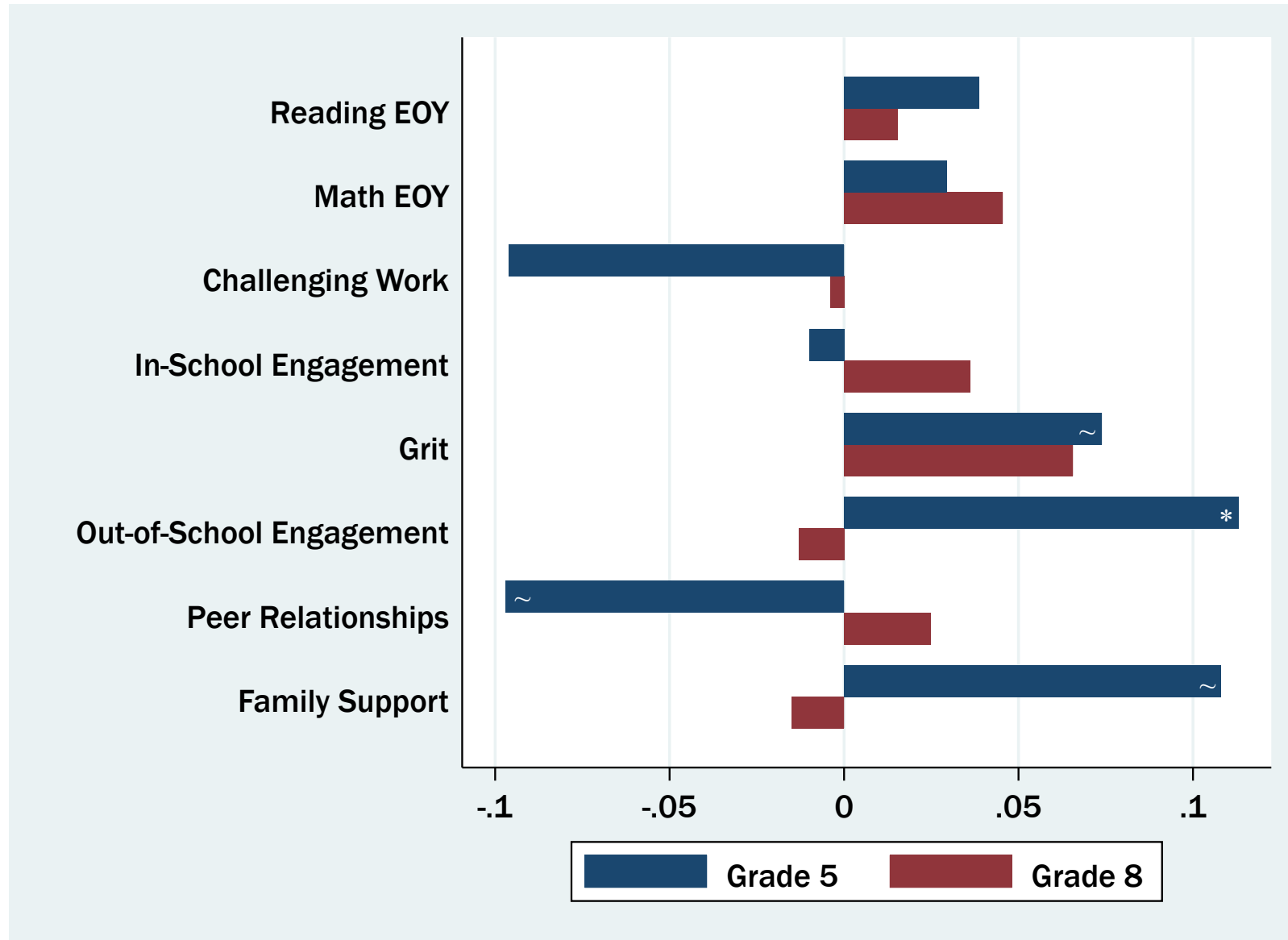




# Impact of each year of reclassification on cognitive outcomes

- Suggestive evidence that each year of reclassification improves students' test scores
- Potential policy implication? Maybe weaken requirements for reclassification so more ELs reap the benefits of reclassification...  
**unless there are other impacts of reclassification.**

# RD-IV: Impact on each year of reclassification on noncognitive outcomes



# Impact on each year of reclassification on noncognitive outcomes

- Slightly weaker (but still consistently positive) effects for years of reclassification on test scores for this sample
- Short-term (5<sup>th</sup> grade) impacts on grit (+), out-of-school engagement (+), family support (+), and peer relationships (-)
- Longer-term (8<sup>th</sup> grade) impacts fade away (except potentially for grit)

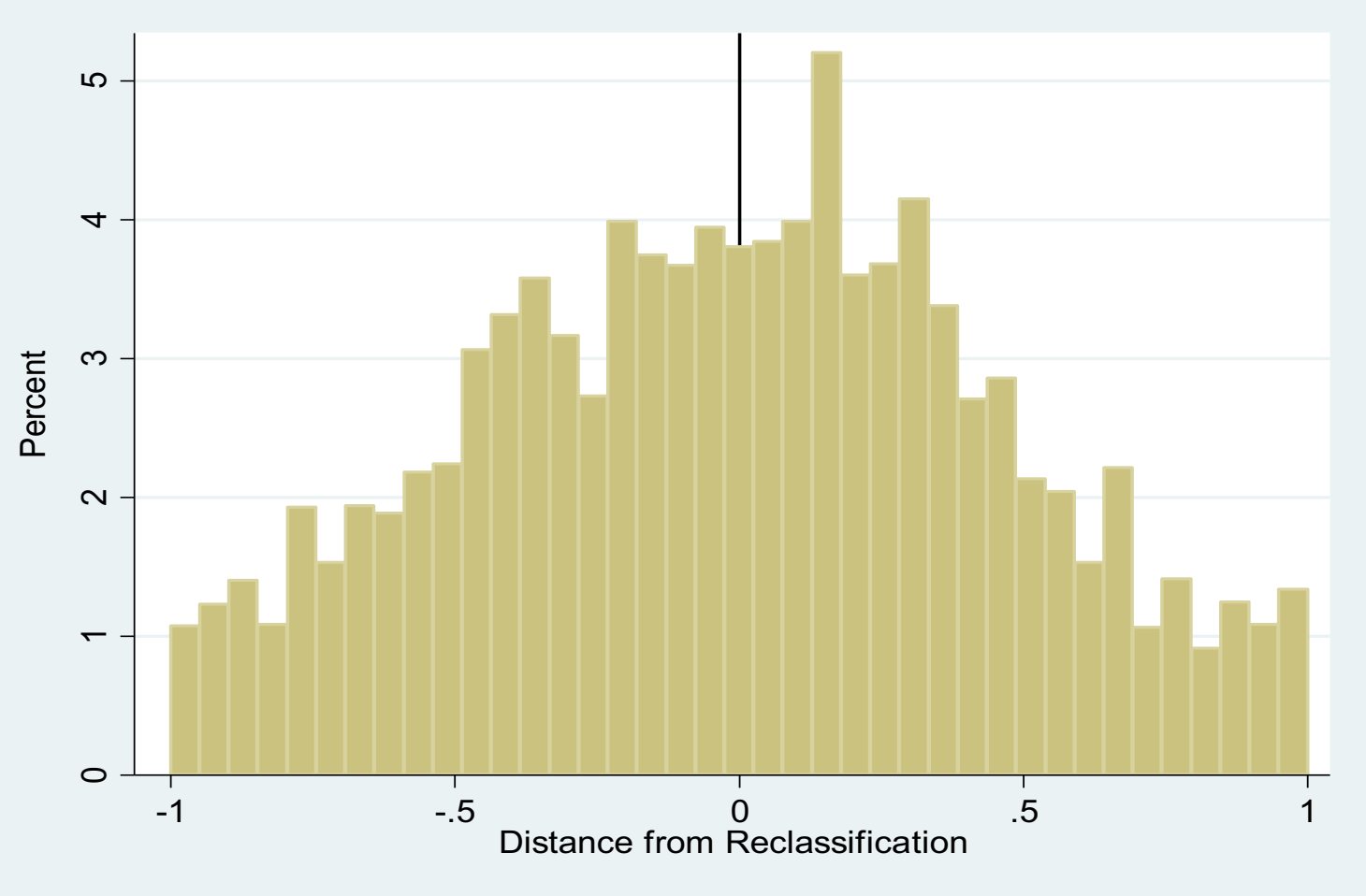
# Implications

- Positive impact estimates for student achievement outcomes suggest that more ELs may benefit from reclassification
- Measuring impacts on noncognitive outcomes show other potential short-term (i.e., through 5<sup>th</sup> grade) benefits and downsides to changing reclassification policies, highlighting the need to evaluate policies on multiple measures
- Impacts on noncognitive outcomes that “fade out” over time highlight the need to evaluate policies effects over time when impacts on ultimate outcomes are unavailable

# Thanks!

- Questions and comments
  - [Mark\\_chin@g.Harvard.edu](mailto:Mark_chin@g.Harvard.edu)
  - Twitter: @MemeMedianMode

# Appendix slides - McCrary



# Appendix slides – Balance on baseline covariates

	1	BW	n	2	3	4	5	6	7
In G5 Achievement Sample	0.00762 (0.0189)	0.506	6033	-0.0000369 (0.0182)	0.00844 (0.0214)	0.00611 (0.0174)	0.0128 (0.0215)	0.00762 (0.0240)	0.0170 (0.0199)
In G8 Achievement Sample	0.00497 (0.0440)	0.542	4162	0.0130 (0.0431)	0.00285 (0.0488)	0.00878 (0.0415)	0.0113 (0.0507)	-0.00000433 (0.0550)	0.0186 (0.0487)
In G5 Noncog Sample	0.0574 (0.0406)	0.456	2045	0.0240 (0.0424)	0.0934* (0.0471)	0.0368 (0.0377)	0.0633 (0.0460)	0.101~ (0.0529)	0.0527 (0.0418)
In G8 Noncog Sample	0.0357 (0.0427)	0.529	2779	0.0362 (0.0427)	0.0338 (0.0469)	0.0374 (0.0403)	0.0431 (0.0484)	0.0393 (0.0525)	0.0434 (0.0461)
Male	-0.0146 (0.0239)	0.649	7081	-0.0104 (0.0219)	-0.0154 (0.0260)	-0.0122 (0.0222)	-0.0211 (0.0313)	-0.0223 (0.0356)	-0.0149 (0.0283)
Asian non-Hispanic	-0.000763 (0.0168)	0.439	5462	0.00101 (0.0155)	-0.00282 (0.0191)	0.000757 (0.0153)	-0.00328 (0.0178)	-0.00202 (0.0201)	-0.000299 (0.0165)
Hispanic	0.0190 (0.0226)	0.429	5363	0.0307 (0.0248)	0.0175 (0.0237)	0.0211 (0.0222)	0.0263 (0.0257)	0.0182 (0.0258)	0.0278 (0.0251)
Has disability	-0.0174 (0.0174)	0.464	5764	-0.0153 (0.0169)	-0.0214 (0.0196)	-0.0148 (0.0161)	-0.0249 (0.0196)	-0.0268 (0.0215)	-0.0201 (0.0183)
Local polynomial	1			1	1	1	2	2	2
Bandwidth	Opt			Opt	Opt*.08	Opt*1.2	Opt	Opt*.08	Opt*1.2
Kernel	Tri			Uni	Tri	Tri	Tri	Tri	Tri
Covariates	Yes			Yes	Yes	Yes	Yes	Yes	Yes

# Appendix slides – Descriptives

	G5 Achievement		G8 Achievement		G5 Noncognitive		G8 Noncognitive	
	2009	2016	2009	2013	2013	2015	2010	2012
Year range: 3rd Grade Cohorts								
Has ACCESS scores?	0.911		0.912		0.923		0.911	
Has baseline demo data?	0.974		0.966		0.974		0.970	
Did not leave district?	0.908		0.837		0.911		0.845	
Has achievement data?	0.905		0.857		0.939		0.898	
Has noncognitive data?					0.826		0.684	
In sample?	0.772		0.693		0.682		0.546	
	Below	Above	Below	Above	Below	Above	Below	Above
Male	0.567	0.508	0.555	0.498	0.591	0.513	0.541	0.496
Hispanic	0.826	0.699	0.836	0.69	0.844	0.725	0.825	0.671
Asian, non-Hispanic	0.077	0.166	0.072	0.165	0.077	0.161	0.074	0.183
With Disability	0.149	0.044	0.154	0.04	0.209	0.048	0.135	0.039
Math EOY	-0.878	-0.139	-0.687	-0.036	-0.864	-0.13	-1.186	-0.282
	(0.818)	(0.842)	(0.789)	(0.876)	(0.826)	(0.845)	(0.752)	(0.839)
Reading EOY	-1.176	-0.288	-0.925	-0.111	-0.719	-0.014	-0.829	-0.003
	(0.817)	(0.78)	(0.799)	(0.808)	(0.826)	(0.78)	(0.811)	(0.785)
Challenging Work					-0.011	-0.051	0.033	0.079
					(1.048)	(1.061)	(0.924)	(0.903)
In-school Engagement					0.387	0.452	-0.454	-0.501
					(0.814)	(0.845)	(0.938)	(0.975)
Grit					0.173	0.385	-0.358	-0.238
					(0.862)	(0.963)	(0.901)	(1.004)
Out-of-school Engagement					0.021	0.233	-0.21	-0.06
					(0.968)	(0.859)	(1.045)	(1.039)
Peer Relationships					0.061	0.178	-0.2	-0.055
					(0.978)	(0.96)	(1.015)	(0.989)
Family Support					0.018	0.257	-0.239	-0.133



# Appendix slides – Cognitive ITT

	1	BW	n	2	3	4	5	6	7	8
Grade 5										
Reading EOY	0.0977* (0.0384)	0.337	3946	0.0878~ (0.0459)	0.0593 (0.0419)	0.110** (0.0416)	0.0790* (0.0361)	0.0892* (0.0454)	0.121* (0.0488)	0.0795~ (0.0420)
Math EOY	0.0393 (0.0489)	0.411	4674	0.0215 (0.0541)	0.00113 (0.0450)	0.0571 (0.0545)	0.0311 (0.0441)	0.0553 (0.0673)	0.0815 (0.0743)	0.0372 (0.0609)
Ever reclassified	0.341*** (0.0361)	0.409	4674	0.337*** (0.0371)	0.347*** (0.0330)	0.347*** (0.0403)	0.340*** (0.0327)	0.338*** (0.0471)	0.345*** (0.0528)	0.326*** (0.0427)
Years reclassified	1.185*** (0.0393)	0.390	4436	1.178*** (0.0397)	1.182*** (0.0399)	1.189*** (0.0417)	1.186*** (0.0370)	1.169*** (0.0474)	1.179*** (0.0510)	1.161*** (0.0444)
Grade 8										
Reading EOY	0.0736 (0.0601)	0.384	2495	0.0697 (0.0658)	0.0388 (0.0598)	0.105 (0.0678)	0.0660 (0.0552)	0.0617 (0.0637)	0.0808 (0.0725)	0.0420 (0.0596)
Math EOY	0.0763 (0.0570)	0.441	2836	0.0567 (0.0630)	0.0685 (0.0542)	0.103 (0.0640)	0.0730 (0.0525)	0.0689 (0.0655)	0.0861 (0.0734)	0.0644 (0.0608)
Ever reclassified	0.0539*** (0.0155)	0.435	2797	0.0547*** (0.0150)	0.0474* (0.0207)	0.0602*** (0.0152)	0.0541*** (0.0151)	0.0588** (0.0214)	0.0576* (0.0227)	0.0485* (0.0195)
Years reclassified	1.448*** (0.0850)	0.461	2957	1.454*** (0.0850)	1.463*** (0.0930)	1.454*** (0.0888)	1.454*** (0.0808)	1.425*** (0.113)	1.439*** (0.123)	1.403*** (0.103)
Local polynomial	1			1	1	1	1	2	2	2
Bandwidth	Opt			Opt	Opt	Opt*.08	Opt*1.2	Opt	Opt*.08	Opt*1.2
Kernel	Tri			Tri	Uni	Tri	Tri	Tri	Tri	Tri
Covariates	Yes			No	Yes	Yes	Yes	Yes	Yes	Yes

# Appendix slides - IV

	Grade 5 Achievement	Grade 8 Achievement	Grade 5 Noncognitive	Grade 8 Noncognitive
Reading EOY	0.0820** (0.0313)	0.0508 (0.0401)	0.0386 (0.0512)	0.0154 (0.0471)
Math EOY	0.0332 (0.0410)	0.0528 (0.0391)	0.0295 (0.0501)	0.0455 (0.0453)
Challenging Work			-0.0960 (0.0643)	-0.00423 (0.0696)
In-school Engagement			-0.0101 (0.0764)	0.0361 (0.0464)
Grit			0.0739~ (0.0378)	0.0656 (0.0566)
Out-of-school Engagement			0.113* (0.0469)	-0.0134 (0.0390)
Peer Relationships			-0.0979~ (0.0511)	0.0248 (0.0757)
Family Support			0.108~ (0.0590)	-0.0158 (0.0760)

# Appendix slides – Noncog ITT Grade 5

	1	BW	n	2	3	4	5	6	7	8
Reading EOY	0.0474 (0.0633)	0.346	1240	0.0988 (0.0671)	0.0975 (0.0833)	0.0314 (0.0549)	0.0592 (0.0652)	0.0393 (0.0772)	0.0455 (0.0726)	0.0731 (0.0775)
Math EOY	0.0363 (0.0613)	0.382	1359	0.0699 (0.0741)	0.0680 (0.0665)	0.00115 (0.0630)	0.0469 (0.0556)	0.0151 (0.0786)	-0.00776 (0.0825)	0.0491 (0.0761)
Challenging Work	-0.119 (0.0813)	0.525	1697	-0.142~ (0.0790)	-0.0900 (0.0876)	-0.122 (0.0868)	-0.104 (0.0790)	-0.137 (0.101)	-0.140 (0.109)	-0.139 (0.0953)
In-school Engagement	-0.0125 (0.0952)	0.577	1823	-0.00546 (0.0928)	-0.0178 (0.0827)	-0.00650 (0.105)	-0.000521 (0.0859)	-0.0161 (0.121)	0.0343 (0.122)	-0.0298 (0.116)
Grit	0.0907~ (0.0484)	0.425	1448	0.0937 (0.0593)	-0.0126 (0.0630)	0.150** (0.0487)	0.0387 (0.0503)	0.108~ (0.0609)	0.198** (0.0645)	0.0465 (0.0599)
Out-of-school Engagement	0.139* (0.0560)	0.368	1315	0.158** (0.0547)	0.0524 (0.0699)	0.198*** (0.0539)	0.0991~ (0.0565)	0.0990 (0.0722)	0.169* (0.0697)	0.0972 (0.0672)
Peer Relationships	-0.122~ (0.0667)	0.637	1917	-0.120~ (0.0636)	-0.113~ (0.0666)	-0.122~ (0.0739)	-0.103~ (0.0621)	-0.135 (0.1000)	-0.147 (0.105)	-0.158 (0.0963)
Family Support	0.133~ (0.0699)	0.374	1359	0.141* (0.0697)	0.00465 (0.0970)	0.189** (0.0692)	0.0651 (0.0749)	0.146 (0.0901)	0.225* (0.0894)	0.0714 (0.0902)
Local polynomial	1			1	1	1	1	2	2	2
Bandwidth	Opt			Opt	Opt	Opt*.08	Opt*1.2	Opt	Opt*.08	Opt*1.2
Kernel	Tri			Tri	Uni	Tri	Tri	Tri	Tri	Tri
Covariates	Yes			No	Yes	Yes	Yes	Yes	Yes	Yes

# Appendix slides – Noncog ITT Grade 8

	1	BW	n	2	3	4	5	6	7	8
Reading EOY	0.0225 (0.0686)	0.327	1248	0.0212 (0.0686)	0.0144 (0.0721)	0.0176 (0.0764)	0.0166 (0.0627)	-0.00618 (0.0690)	0.00296 (0.0789)	-0.00997 (0.0633)
Math EOY	0.0651 (0.0644)	0.348	1336	0.0487 (0.0796)	0.0383 (0.0676)	0.0822 (0.0633)	0.0537 (0.0632)	0.0469 (0.0735)	0.0748 (0.0711)	0.0264 (0.0733)
Challenging Work	-0.00615 (0.101)	0.332	1248	-0.00626 (0.0960)	-0.0122 (0.0956)	0.0115 (0.113)	-0.0168 (0.0927)	0.0252 (0.116)	0.0170 (0.135)	0.0216 (0.102)
In-school Engagement	0.0507 (0.0653)	0.386	1414	0.0796 (0.0633)	0.0395 (0.0784)	0.0495 (0.0693)	0.0361 (0.0654)	0.0929 (0.0795)	0.0994 (0.0887)	0.0536 (0.0762)
Grit	0.0936 (0.0809)	0.351	1336	0.103 (0.0740)	0.0609 (0.0848)	0.0964 (0.0793)	0.0772 (0.0757)	0.142 (0.0927)	0.130 (0.0968)	0.134 (0.0855)
Out-of-school Engagement	-0.0187 (0.0545)	0.437	1548	0.00385 (0.0560)	-0.0183 (0.0671)	-0.0152 (0.0531)	-0.0386 (0.0539)	0.0267 (0.0669)	-0.0203 (0.0731)	0.0200 (0.0632)
Peer Relationships	0.0348 (0.106)	0.396	1460	0.0467 (0.109)	-0.0412 (0.0969)	0.0726 (0.118)	0.0148 (0.0944)	0.0200 (0.130)	0.0976 (0.144)	0.0155 (0.116)
Family Support	-0.0225 (0.108)	0.357	1380	-0.0187 (0.108)	0.0323 (0.117)	-0.0924 (0.103)	-0.0124 (0.104)	-0.0645 (0.132)	-0.244~ (0.125)	-0.0323 (0.126)
Local polynomial	1			1	1	1	1	2	2	2
Bandwidth	Opt			Opt	Opt	Opt*.08	Opt*1.2	Opt	Opt*.08	Opt*1.2
Kernel	Tri			Tri	Uni	Tri	Tri	Tri	Tri	Tri
Covariates	Yes			No	Yes	Yes	Yes	Yes	Yes	Yes