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Abstract

Educational accountability policies are a popular tool to close the achievement gaps between advantaged and disadvantaged students. However, these policies may exacerbate inequality if families from advantaged backgrounds are better able to advocate for their children and thus circumvent policy. We investigate this possibility in the context of the early grade retention policy in Florida, which requires all students with reading skills below grade level to be retained in the third grade, yet grants exemptions under special circumstances. We find that Florida's third-grade retention policy is in fact enforced differentially depending on children's socioeconomic background, especially maternal education. Holding exemption eligibility constant, scoring right below the promotion cutoff results increases the retention probability 14 percent more for children whose mothers have less than a high school degree as compared to children whose mothers have a bachelor's degree or more. We also find that the discrepancies in retention rates are mainly driven by the fact that students with well-educated mothers are more likely to be promoted based on subjective exemptions such as teacher portfolios.

1. Introduction

Research consistently demonstrates a strong, positive relationship between parents' socioeconomic status (SES) and children's educational achievement. While the last half-century has seen a slow narrowing of the achievement gap between black and white students, the gap between high- and low-SES students has remained persistent, actually increasing by approximately 40 percent over the last 30 years (Reardon, 2011). This achievement gap is already present when children enter school in kindergarten and, despite the numerous policies aimed at leveling the educational playing field for disadvantaged students, it does not dissipate as children progress in their schooling (Duncan & Magnuson, 2011).

Universal educational policies are a popular tool to address inequalities, with the underlying belief being that disparities can be overcome by holding all students to the same high standards and ensuring that all families have access to the same opportunities. However, these policies may be ineffective—and may actually exacerbate inequality—if high-SES families are better able to advocate for their children, make informed decisions, circumvent policy, or take advantage of opportunities in their children's schooling. We investigate this possibility in the context of a statewide grade retention policy aimed at ensuring that all students enter the fourth grade proficient in reading.

There is mounting evidence across social science disciplines that parents' behavior regarding their child's schooling does in fact differ depending on SES. Lower-SES parents have been found to be less likely to request a specific teacher (Jacob & Lefgren, 2005), challenge their children's placement into a lower curriculum track (Barg, 2012), and question the pedagogical authority of their child's teacher during parent-teacher conferences (Weininger & Lareau, 2003). Ethnographic work by Lareau and Calarco (2012) found that compared to lower-class parents, middle-class parents had greater knowledge of their child's school environment and experiences and were aware of a much wider variety of

opportunities for intervention in their child's schooling. Where middle-class parents "approached interactions with the school as an ongoing negotiation" (Lareau & Calarco, 2012, p. 74), lower-class parents rarely asked for any educational modifications even when they felt that their child might benefit from one. Furthermore, on the rare occasions that lower-class parents did try to engage the school, they often used less successful strategies, approaching school staff in an angry, confrontational manner, whereas middle-class parents were more apt to calmly but firmly try to engage school personnel in a partnership.

These differences in parents' behavior can amount to real impacts on the effectiveness of educational policy and have important educational consequences for children. One prominent example is school choice. Heralded as a mechanism to level the playing field between children in different neighborhoods, school choice policies allow children living in neighborhoods with poorer performing schools to have options beyond their neighborhood school. The evidence suggests, however, that less-educated and lower-income parents respond differently than middle-class parents when presented with a choice among schools, resulting in increased segregation by SES without improved academic performance (Hsieh & Urquiola, 2006; Fiske & Ladd, 2000; Cullen et al., 2005). Hastings, Kane, and Staiger (2006a) specifically find that the preference for school's mean test score increases with parent's income while preference for proximity decreases, resulting in two distinct types of parents—those with a preference for test scores regardless of proximity, who are more likely to be higher income, and those with a preference for proximity regardless of test scores, who are more likely to be lower income. These differences in preferences among parents translate into differences in academic achievement by SES. Children of parents who placed high weights on academics experienced academic gains when randomly assigned to their first-choice school, while children of parents who placed a low weight on academics experienced academic losses (Hastings, Kane & Staiger, 2006b).

Despite the potential for socioeconomic differences in parental knowledge, preferences, and behaviors to exacerbate inequality, there is little large-scale empirical evidence on the impact of parents' SES in the face of a broad policy that is intended to be enforced universally. The current examples from the literature have consisted of situations that either require an active choice by parents, in the case of school choice, or are cases where parents can choose to intervene regarding discretionary school decisions not based on formal policy. This paper builds upon the prior research into SES, parental behavior, and academic achievement by exploring the idea that due to these socioeconomic differences in behavior, seemingly universal educational policies may be differentially enforced for students of different backgrounds.

We examine this question in the context of a statewide grade retention policy enacted by the Florida state legislature in 2002. The Florida policy mandated that, in the absence of a specific exemption, promotion from the third grade to the fourth grade would be conditional upon meeting a minimum standard of reading. This policy presents an ideal opportunity to study the importance of family SES in the face of a broad universal policy for a number of reasons. In particular, although the policy allowed for exemptions in order to provide schools with flexibility in cases where there were extenuating circumstances that rendered retention inappropriate, a large proportion of students—over 40 percent —were granted an exemption. By allowing exemptions to the rule, this program provides a natural measure of differential enforcement: whether children were more likely to be granted an exemption based upon their socioeconomic background.

The Florida setting is particularly advantageous because we have had the unusual opportunity to link educational records to birth record data.[1] Doing so is essential in order to deeply investigate the role of SES in the implementation of a universal educational policy. Administrative data in education are

[1] For more information on the quality of the match between birth and school records, see Figlio, Guryan, Karbownik & Roth (2014).

limited to measures of race and free/reduced price lunch status (FRPL) and do not include other types of background or parental characteristics. National longitudinal data, while containing a broad range of background information, do not have sufficient numbers of observations, even if they happen to be timed in such a way as to observe children when a particular policy is implemented. Linking educational records to birth records, however, allows us to examine the impact of maternal characteristics including education, marital status, place of birth, and age, on the implementation of the Florida retention policy.

Furthermore, because the Florida policy relies on a strict score cutoff for determining retention, we are also able to rely on a regression discontinuity design to look at the implementation of the policy for the marginal student. This approach allows us to difference out any retention rate differences across students from different socioeconomic backgrounds who just make the cutoff and are therefore not affected by the retention policy. These differences might arise due to inherent biases teachers or school personnel might have, which would cause them to differentially retain students based on SES in the absence of the policy, or due to differences in reading skills that are not captured by test scores between high- and low-SES students.

We focus our analyses on differences in implementation using maternal education as the defining indicator of socioeconomic status while exploring implementation differences by other indicators as well. We focus on maternal education because it has been found to be the strongest predictor of children's academic achievement (Haveman & Wolfe, 1995) and we believe that the mechanisms that would likely lead to differential exemption—namely having the knowledge, agency, and desire to intervene in the policy's implementation—are most likely to be impacted by maternal educational attainment.

We find that Florida's third-grade retention policy is in fact enforced differentially depending on children's socioeconomic background, especially maternal education. Holding exemption eligibility

constant, scoring right below the promotion cutoff results in an increase in retention probability that is 7 percentage points larger for children whose mothers have less than a high school degree as compared to children whose mothers have a bachelor's degree or more, leading to a retention rate that is 14 percent higher for the former group right below the cutoff. Smaller increases in retention probability are associated with having a foreign born mother and qualifying for free or reduced price lunch. We also find that the discrepancies in retention rates are mainly driven by the fact that students with well-educated mothers are more likely to receive subjective exemptions such as teacher portfolios. These socioeconomic disparities are robust to a variety of different functional forms and bandwidths and remain stable even when comparing children only to other children within the same school.

2. Policy Background

In 2002, as part of an increasingly popular nationwide movement toward early grade retention to ensure reading proficiency that has only gained additional traction in the years since (Rose & Schmike, 2012), the Florida legislature mandated that third-grade students meet the Level 2 benchmark or higher (the second lowest of five levels) on the Florida Comprehensive Assessment Test (FCAT) reading exam in order to be promoted to the fourth grade.[2] The focus on third grade reading scores highlights the belief among educators that it is at this time when reading proficiency becomes crucial for success across subjects and children transition from "learning to read" to "reading to learn." Students who do not score at a Level 2 or higher and do not obtain an exemption are subject to retention in conjunction with a number of other interventions intended to ensure that they are able to be promoted the following year. Retained students must also be assigned to a high-performing teacher, receive

[2] During the 2 years prior to the implementation of Florida's mandatory grade retention policy, 24% of the state's third graders scored a Level 1 on the third-grade FCAT reading exam. By 2009, this percentage dropped to below 15%.

intensive reading instruction during their retained year, and be given the opportunity to attend a summer reading program prior to the next school year.[3]

There are a number of "good cause exemptions" that allow students to be promoted to the fourth grade despite failing to score at the Level 2 benchmark or above. Students are eligible for an exemption if they have limited English proficiency (LEP) and have received fewer than 2 years of instruction in an English for Speakers of Other Languages program, have certain disabilities, or have received intensive reading remediation for 2 years and have already been retained twice between kindergarten and third grade. Additionally, students are able to obtain an exemption by demonstrating that they are reading at a level equal to or above a Level 2 on the FCAT by performing at an acceptable level on an alternative standardized reading assessment approved by the State Board of Education (51st percentile or above on the Stanford-10 reading exam[4], a level of proficiency much higher than that needed to meet a Level 2 on the FCAT), or by demonstrating proficiency through a teacher-developed portfolio.[5] A key feature of the good cause exemption policy that might lead to differential retention rates by SES is that parents need to contact their child's teacher or principal if they believe that their child is eligible for a good cause exemption.[6] Therefore, holding exemption eligibility constant, students from upper-class families might be less likely to be retained (compared to students from disadvantaged backgrounds) if their parents are more likely to advocate for their children's eligibility (as they are better

[3] For more detailed information on the Florida policy see http://www.fldoe.org/core/fileparse.php/7690/urlt/0070151-read_to_learn.pdf, accessed 8/3/16.
[4] Until 2008, the state administered both the FCAT and the Stanford 10 to all students in grades 3–10.
[5] The first group of exemptions is based upon the assumption that, despite their lack of reading proficiency, some students would be harmed by being retained and retention is not an appropriate educational strategy. The second group of exemptions, on the other hand, is for students who, in spite of their low FCAT scores, are actually proficient in reading and able to be successful in fourth grade.
[6] For a student to receive a good cause exemption, the teacher must submit documentation to the principal, who then reviews the documentation and decides whether the student should be promoted. If the principal determines that the student should indeed be promoted, the principal makes the recommendation to the school district superintendent, who then approves or rejects the recommendation.

informed about the retention policy) or are more likely to succeed in their efforts (as they have closer relationships with the teachers and/or the principals or use more successful negotiation strategies).

In spite of the intended benefits of the program and the extra services that retained children receive, there are numerous reasons why parents may prefer not to have their child retained. Perhaps most importantly, there is no clear evidence that retaining a child improves her academic outcomes. The overwhelming majority of the earlier literature on grade retention found that students perform significantly worse than their promoted peers in the years following their retention. Holmes (1989) and Jimerson (1999) provide high-quality meta-analysis of earlier research on grade retention. However, these studies were unable to account for omitted variables bias, making it likely that some of the perceived negative impact of grade retention was due not to retention itself, but instead to the fact that students who were retained were more likely to perform poorly in the future due to some other factors about themselves that also influenced the decision to retain them in the first place. More recent work using quasi-experimental designs to better address these identification challenges have found that, especially in early grades, retention may have a positive impact on test scores in the short term (Roderick & Nagaoka, 2005; Jacob & Lefgren, 2004; Jacob & Lefgren, 2009; Greene & Winters, 2007; Greene & Winters, 2012; Schwerdt et al., 2015). Recent research specifically on Florida's retention policy found that although retained students outperformed their same-age peers in the short term, after 6 years these achievement gains faded out entirely. Retained students were also no more likely to graduate from high school (Schwerdt et al., 2015).

Parents may also be concerned about the effects that grade retention will have on their child's social and emotional well-being. They may worry about their child having to adjust to a new peer group or being stigmatized by teachers and peers. Parents may also be concerned that being retained will make their children view themselves and their abilities more negatively, harming their self-esteem and

decreasing their school engagement. These objections are likely to be particularly pronounced for middle-class parents who have greater personal resources at their disposal to assist their child at home and who are more likely to uncover and better able to process research on the impacts of grade retention. Furthermore, they may view grade retention as particularly stigmatizing due to its extreme uncommonness among the children of parents in their social class.[7]

3. Data and Empirical Strategy

3.1 Data

The data for our analyses are drawn from two sources. The first are natality data provided by the Florida Department of Health. These data cover the universe of births in the state of Florida between the years of 1992 and 2002. At the time of each birth the mother and her health care provider complete a survey that covers maternal demographic information, pregnancy behaviors, and infant health at birth. The data report the mother's age, years of education, race, place of birth, place of residence, and marital status; behaviors during pregnancy such as tobacco and alcohol usage and prenatal care; information on prior births (if any); and information on birth outcomes.[8]

These data are then matched (79% matched)[9] to educational data containing information on all Florida students attending public schools from the 2000–2001 through 2007–2008 school years.[10] The

[7] During the 2 years before Florida's mandatory grade retention policy was enacted, less than 1% of students whose mother had a bachelor's degree or more were retained as compared to more than 6% of students whose mother had less than a high school degree.

[8] Birth outcome data include birth weight, gestational weeks, congenital anomalies, and complications of labor and delivery.

[9] Figlio et al. (2014) analyzed data from the Census Bureau's American Communities Survey (ACS) to estimate that they would have expected an 80% match rate given in- and out-migration to and from Florida.

[10] Because we only have access to birth records starting in 1992, we do not have a full cohort of students from the 2000 third-grade cohort (who would normally be born between September 1, 1991 and August 31, 1992). This results in our 2000 cohort consisting only of the approximately three-quarters of students we would expect to be born January 1, 1992 or after, therefore making the included students from the 2000 cohort slightly younger on average than students from full cohorts. We include this cohort in spite of this limitation in order to include more students and lend power in our comparisons between the before and after policy time periods. Because this cohort is

educational data include information on the school the child attended, their teachers, student characteristics such as ethnicity, gender, free or reduced price lunch eligibility, special education classification, English proficiency, and FCAT reading and math scores. Unlike other studies relying solely on educational records, the matching of these data to birth records gives us a unique opportunity to explore whether maternal education and other socioeconomic characteristics including mother's marital status, age, and country of origin, impact children's likelihood of receiving a retention exemption.[11] In our main analysis, we will utilize six cohorts of students entering third grade for the first time between 2002 and 2007 (712,231 unique students), all of whom were subjected to the retention policy. In additional analyses, we compare students entering third grade for the first time during the 2 years prior to the retention policy (2000 and 2001) to those after. The total number of third graders in our population over the 8 cohorts is 879,328.[12]

Table 1 shows the proportion of students who failed to reach Level 2 proficiency on the third-grade FCAT reading exam each year, the proportion retained, and the proportion retained separately for those who scored below versus above the cut-point. During the first year of the policy, the proportion of students retained increased from 3.36% to 15.04%. Among students who scored below the promotion cutoff, the retention percentage grew from 11.16% to 67.13%. Over the 6 years of policy implementation for which we have data, the proportion of students retained dropped from a high of

from before the policy was enacted, they are not included in any regression discontinuity analyses.

[11] Of the data used to create variables for our analyses, the following come from children's birth records: maternal education, maternal country of origin, maternal marital status, maternal birth date, child birth date, and child birth weight. Child race, free or reduced price lunch status, disability, limited English proficiency, and all test score data come from educational records. Because maternal education and marital status may change over time, it is important to note that our measures are taken at the time the child was born, not at the time they entered third grade.

[12] Observations were not included for three main reasons related to the design of, and questions put forth by, the study: (1) The student was not observed in the data the year after their first appearance as a third grader, rendering it impossible to know what grade the child was in the following year (1%); (2) The student did not have a third-grade FCAT reading score, rendering it impossible to know whether the child was subject to the policy (4%); (3) Data were missing on years of maternal education at birth (<1%). Observations were also not included if the child was born more than 2 years before or after the appropriate range of birthdates for first-time third graders for that cohort (<1%).

15.04% the first year to a low of 6.75% during 2005, and has increased slightly since. Some of the decrease in retention stems from a decrease in the proportion of students scoring below the cutoff (a decrease from over 21 percent to between 12 percent and 16 percent for many of the later cohorts). The remainder is due to a decrease in the proportion of failing students who are retained, primarily driven by the increase in the percentage of failing students receiving an exemption. In the first year of the policy, more than 67 percent of students scoring below the cutoff were retained. That proportion has remained below 60 percent for all subsequent cohorts and below 50 percent for two cohorts. During the same time frame, the percentage of students receiving an exemption increased for all exemption categories, more than doubling from 26 percent to 54 percent.

The proportion of students scoring a Level 1 on the FCAT reading exam differs dramatically by SES (Table 2). For instance, during the 2 years prior to the implementation of the policy, nearly 39 percent of children whose mothers had less than a high school degree scored at this level, less than 8 percent of children whose mothers had a Bachelor's degree or more did. These percentages have dropped to 29 percent and 5 percent, respectively over the 8 years since the retention policy was introduced. Similar patterns emerge when we compare students based on FRPL eligibility, mothers' marital status, and place of birth even though the differences are substantially smaller along the last dimension. There are significant discrepancies along racial/ethnic lines as well, with 30 percent of Black students scoring below the retention cutoff in the post-policy years, compared to 10 percent of white students.

More interestingly, retention probabilities differ markedly along SES conditional on scoring below the retention cutoff. For instance, after the policy was enacted, failing students with the most educated mothers are 11 percentage points (roughly 25 percent) less likely to be retained than failing students with the least educated mothers (38.4 percent for the most educated versus 49.3 for the least

educated). These retention gaps are also observed between FRPL-eligible and ineligible students (49 versus 41.5 percent), between students with foreign-born mothers and students with U.S.-born mothers (51.3 versus 45.9 percent), between students with married mothers and unmarried mothers (45 versus 49.1 percent), and across racial/ethnic groups (41.7 percent for whites versus 50 percent for blacks and Hispanics). However, these observed differences do not necessarily imply that high-SES parents are circumventing the retention policy; instead, they may reflect the actual differences in exemption eligibility.

Table 3 presents the descriptive statistics for our entire regression discontinuity sample (2002–2007 cohorts) in the first column, retained students who scored below the cutoff during the policy period (second column), and promoted students who scored below the cutoff during the policy period (third column). Conditional on scoring below the promotion cutoff, promoted students are more advantaged than students who were retained. Compared to retained students, promoted students were older, less likely to be eligible for free or reduced price lunch, more likely to be white, more likely to have been born to a married mother, less likely to have a foreign-born mother, and more likely to have a mother who had at least some college education at the time of their birth.

When all demographics are included simultaneously in an OLS regression (Table 4, column 1), these patterns all hold. Once we condition on students' standardized test performance, many of these associations decrease substantially (Table 4, column 2). This is because the further a students' score is below the cutoff, the more likely they are to be retained, and because less advantaged students have lower scores on average, not only are they more likely to score below the promotion cutoff, they are also more likely to score below the cutoff by a greater margin. Yet even accounting for test scores, the association between maternal education and retention remains substantial; children of mothers with a bachelor's degree or more who score below the promotion cutoff remain 6 percentage points less likely

to be retained than children of mothers with less than a high school degree, even after controlling for differences in achievement.

3.2 Empirical Framework

In order to examine whether Florida's retention policy is differentially enforced depending on student SES, we present both graphical evidence and difference-in-difference estimates of the impact of scoring below the promotion cutoff for students from different socioeconomic backgrounds, subtracting out differences in retention probabilities between socioeconomics groups above the promotion cutoff. This allows us to look at differences in the impact of scoring just below the promotion cutoff on retention, with differences between groups just above the promotion cutoff serving as a counter-factual for what we would expect to see in the absence of the policy. We estimate these impacts with the following equation:

(1) $$R_{i=}\,\phi + \delta F_i + k(S_i) + k(S_i)*F_i + \gamma SES_i + \lambda SES_i*F_i + k(S_i)*SES_i + k(S_i)*F_i*SES_i + \xi ELIG_i + \psi ELIG_i*F_i + k(S_i)*ELIG_i + k(S_i)*F_i*ELIG_i + \alpha X_i + \beta X_i*F_i + k(S_i)*X_i + k(S_i)*F_i*X_i + Year*School + \nu_i$$

where R_i is the probability of retention for student *i*; F_i is an indicator for failing to meet the promotion cutoff, $k(S_i)$ is a polynomial function of the relative reading score; SES_i is the vector of SES measures including maternal education, place of birth, age and marital status at birth, student's FRPL eligibility, and race/ethnicity; $ELIG_i$ is a vector of student exemption eligibility measures (i.e., LEP and special education status, student test scores in alternative tests, student age at the time he/she first enters the third grade compared to his/her peers), X_i is a vector of other student characteristics including gender, and ν_i is an error term.[13] By including student exemption eligibility measures, which

[13] Indicators for the level of maternal education were created in the following way: 11 or fewer years of education reported is coded as less than a high school degree, 12 years of education is coded as a high school degree, 13–15 years of education is coded as some college, and 16 or more years of education is coded as a bachelor's degree or

are then interacted with scoring below the promotion cutoff, we focus on differences in retention probability taking into account any differences in the proportion of students who fall into one of these formal exemption categories. Using this framework, our main parameter of interest, λ, presents the percentage point difference in the jump in probability of retention at the discontinuity for students from high-SES families, as compared to the rate for students from low-SES families—the difference-in-difference estimate for each of the SES measures in which we are interested. This specification also includes school by year fixed effects to take into account differences in retention trends within schools over time.

In our preferred specification, we estimate (1) using a linear specification, allowing for differences in slope on either side of the discontinuity, and limiting the analysis to students within a bandwidth of 20 points. We present graphical evidence that this specification appears to fit the data well, and check the robustness of our findings using different bandwidths (5, 10, 50, and all) and polynomial orders (1, 2, and 3). Following Lee and Card (2008), we cluster standard errors at the relative reading score level. We also present subgroup analysis to explore whether SES has a differential impact on rates of retention by student, teacher, or school characteristics.

4. Results

Figure 1 presents the local linear smoothing of the probability of retention on the relative reading score for cohorts subjected to the retention policy, calculated separately for each side of the cutoff using the triangle Kernel, with the solid circles representing the retention rate for each test score. In the upper panel, we use all possible scores and a bandwidth of 20 points whereas the lower panel uses only the scores within the 20 points on either side of the cutoff with a bandwidth of 5 points. These

more.

figures show that students just below the promotion cutoff are approximately 35 percentage points more likely to be retained than students who score just at the promotion cutoff. Within the 20 point bandwidth, the relationship between relative reading score and retention probability appears linear, with the local linear fit very closely aligned with the linear model, falling within the 95% confidence interval for nearly the whole 20 point range. Figure 2 presents a falsification test, replicating the same graphical analysis as Figure 1 but for the cohorts entering third grade during the 2 years before the policy was implemented. It is clear from these figures that while the retention rate is approximately the same before and after the policy for students scoring just at or above the promotion cutoff (approximately 5%), there is no discontinuity at the cutoff before the policy. This makes us confident that the jump in retention at the cutoff that is seen after the policy is introduced is in fact due to the retention policy.

Figures 3 and 4 use local linear regressions estimated separately on each side of the promotion cutoff to depict the relationship between relative reading score and retention around the promotion cutoff for students from different socioeconomic backgrounds after and before the policy implementation, respectively. Figure 3 shows that while retention rates above the promotion cutoff appear to be approximately the same regardless of family SES, for students who fail to meet the promotion cutoff, there are stark differences in retention rates by SES, especially by maternal education. For instance, across reading scores, students with more highly educated mothers are less likely to be retained, and this relationship appears to be monotonic, with each additional level of maternal education translating to a smaller fraction of students actually being retained in the event that they fail to meet the cutoff for promotion to fourth grade. Figure 4 provides a comparison by looking at the same relationship during the 2 years before the policy was implemented. Although students from high-SES families are less likely to be retained across the reading score spectrum, there is no significant jump at

the retention cutoff, providing evidence that high-SES parents responded differently to the retention policy.

Table 5 presents the effect of failing to meet the promotion cutoff for fourth grade on the likelihood of being retained. Note that all estimations are based on our preferred discontinuity sample within a 20 test-score-point bandwidth around the cutoff, using the post-policy years. The first column confirms the graphical analysis presented in Figure 1, revealing that the students who scored right below the cutoff were about 30 percentage points more likely to be retained than students who were right above. The second column introduces the SES indicators and their interactions given in equation (1). Similar to the findings presented in Figure 3, the difference-in-difference estimates suggest that students from high-SES families (especially those with well-educated mothers) are significantly less likely to be retained in response to just failing to meet the promotion cutoff. The impact of scoring below the cutoff is 1.6 percentage points smaller for students with mothers who have a high school degree, 3.9 percentage points smaller for those whose mothers have some college, and 9.1 percentage points smaller for those whose mother have a bachelor's degree or more when compared to students whose mothers have less than a high school degree. The impact of falling right below the promotion cutoff also varies significantly by FRPL eligibility (higher by 3.7 percentage points for eligible students), by mothers' place of birth (3.5 percentage points for students with foreign-born mothers), and by race/ethnicity (2.9 percentage points higher for black students compared to whites and Asians).

There are several ways to interpret these findings. First, these observed differences in the impact of failing the third grade reading test might indeed reflect the differences in parental behavior, with high-SES parents more actively advocating for their children's promotion or having more success in their efforts. Alternatively, these differences might reflect the actual differences in formal exemption eligibility if, for instance, students from high-SES families are more likely to demonstrate reading

proficiency on alternative tests. In the third column of Table 5, we consider the latter possibility and control for the aforementioned measures of exemption eligibility. The results remain almost unchanged, with the exception that the differential impact of failing the reading test between blacks and whites/Asians is completely explained by the differences in exemption eligibility.

Finally, holding exemption eligibility constant, the impact of failing might vary between students from different socioeconomic backgrounds if advantaged students are enrolled in schools or assigned to teachers that are more likely to grant exemption requests for failing students. Column (IV) introduce third grade school fixed-effects, and Column (V) introduces teacher fixed effects; both columns show that high-SES students remain less likely to repeat the third grade compared to their disadvantaged peers in the same school.[14]

In Table 6, we use the fully interacted school fixed effects model (Table 5, column (IV)) and compare the estimates in the face of the policy to those during the 2 years before the policy's implementation. If the observed differences in the impact of scoring in the lowest reading achievement level are indeed driven by differential parental response to the implementation of the retention policy, we would expect no such differences in the years leading to the policy. The pre-policy estimates presented in the first column are in accord with the graphical evidence presented in Figure 4 and reinforce the hypothesis that high-SES parents are responding differently to the retention policy.

The main mechanism that might drive the aforementioned differential impact of failing on retention is the differences in receiving an exemption between students from different socioeconomic backgrounds. To investigate this hypotheses, Table 7 replicates the analysis given in Table 5, replacing the retention indicator with exemption receipt as the outcome. The findings reveal a strong relationship between SES and the impact of scoring below the promotion cutoff on receiving an exemption, even

[14] Results broken out by cohort year can be found in Appendix Table A1.

after controlling for formal exemption eligibility. In particular, just-failing students whose mothers have some college education are 5.1 percentage points, and those whose mothers have a bachelor's degree or more are 6.7 percentage points more likely to receive an exemption compared to similar students whose mothers have less than a high school degree. The impact of scoring below the cutoff on receiving an exemption is also lower for students with foreign-born mothers and black students. These findings are robust to the inclusion of school fixed-effects and indicate that a significant portion of the differences in the impact of failing on retention across socioeconomic groups can be explained by the differences in exemption receipt between these groups.

Table 8 breaks down the effect of failing the third grade reading test on exemption receipt by the type of exemption received, focusing on the heterogeneity by maternal education. The results suggest that the relationship between maternal education and the effect on exemption receipt is mainly driven by discrepancies in alternative test and teacher portfolio exemptions. For instance, just-failing students whose mothers have a bachelor's degree or more are 4.4 percentage points more likely to receive a teacher portfolio exemption compared to failing students whose mothers have less than high school degree. This finding provides further evidence that high-SES parents are more likely to advocate for the promotion of their children and/or are more likely to succeed in their efforts.

4.1. Subgroup Analysis

Another interesting question in this context is whether the returns to SES on exemption receipt differ by student, teacher, or school characteristics in the third grade. This might take place, for instance, if high-SES parents are more likely to advocate for their children's exemption eligibility, yet their success in these efforts vary based on these attributes. Table 9 breaks down the analysis presented in Table 7 by student race/ethnicity (first 3 columns), and by FRPL eligibility (the last two columns). All estimates are obtained using the fully-interacted school fixed-effects model given in column (IV) of Table

5. The findings are relatively consistent, with well-educated parents more likely to be granted an exemption regardless of student race/ethnicity and poverty, though the coefficients are imprecisely estimated in some cases.

Tables 10 and 11 present the estimates obtained using various teacher and school subgroups of interest respectively. It is important to note that it is difficult to make causal inferences in this exercise about the relationship between teacher/school characteristics and the returns to SES on receiving an exemption because of the non-random nature of student-teacher or student-school matchings. Nevertheless, Table 10 breaks down the analysis by the third grade teacher's race/ethnicity (first two columns) and experience (last two columns). The maternal education and maternal place of birth gaps in exemption receipt exist for all teacher subgroups yet seem to be slightly larger when the teacher is of the same racial/ethnic group as the student, or if the teacher is an early career teacher with less than 3 years of experience.

Finally, Table 11 breaks down the analysis by school poverty level (top quartile in percent FRPL eligible versus bottom), school minority concentration (top quartile in percent white versus bottom), and school maternal education (top quartile in average maternal education versus bottom). The SES gaps are once again consistent across subgroups, albeit imprecisely estimated in some cases, suggesting that better educated mothers are able to receive exemptions for their failing children at higher rates regardless of the school setting.

4.2 Robustness Checks

To check the robustness of our findings to model specification, Appendix Table A2 presents the results of the interaction between our measures of SES and scoring below the promotion cutoff using various bandwidths and polynomial orders. The results in this table are obtained using the fully-interacted model given in column (III) of Table 5 with linear, quadratic, and cubic polynomial

specifications and bandwidths of 5, 10, 20, and 50 points. Estimated differences at the retention cutoff are very stable across bandwidths and specifications, yet imprecisely estimated in some specifications.

5. Conclusion

Our analysis relies on difference-in-difference framework at the retention cutoff to study whether Florida's test-based promotion policy is differentially enforced for students depending on their mother's socioeconomic background, specifically educational attainment. We find that the more educated a student's mother is, the less likely she is to be retained due to the Florida policy. Students are also more likely to be retained due to the policy if their mother is foreign born, if they qualify for free or reduced price lunch, or if they are black. We also find that the socioeconomic differences in the effect of the policy are mainly driven by the fact that students from high-SES families are more likely to be granted an exemption even after we control for exemption eligibility. These findings are robust to various model specifications and hold true for different student, teacher, and school subgroups of interest.

Our results have important implications for public policy. Broad, universal educational policies are often implemented to address inequalities in outcomes for students of differing backgrounds by holding all children to the same standards. Although the allowance for exemptions in the Florida retention policy is in place in order to avoid retaining students for whom retention is seen to be harmful or inappropriate, it is important to understand whether an unintended consequence of this allowance is that children are being retained differentially based on their mother's education or other characteristics which should not impact whether or not the policy is appropriate for them. Although we cannot discern the exact reason why Florida's retention policy is more strictly enforced for the children of less educated, poor, and foreign-born women from our study, prior research findings indicating that parents of lower SES have less knowledge of their children's educational context and are less likely to intervene

in school decisions led us to hypothesize that these same dynamics are at play in this context. This hypothesis is reinforced by the estimated socioeconomic differences in exemption receipt, especially the differences in teacher portfolio exemption receipt, for which the policy requires parents to actively engage with their child's teacher/principal.

It is important to note that we are not able to completely rule out the possibility that there are unobservable differences in students that are related to their mothers' socioeconomic background and which influence whether teachers and school administrators grant students an exemption from the policy. We control for exemption eligibility using a wide array of student characteristics, but it is still possible that the socioeconomic differences in exemption receipt might be driven by unobserved differences in reading skills (or cognitive abilities) between socioeconomic groups. We alleviate this concern by focusing on the students who scored right around the retention cutoff, examining the difference in retention probability for students of different backgrounds who are just impacted by the policy subtracting out any differences between those same groups of students who are just above the promotion cutoff. Differences by maternal education level are apparent but very small for children above the promotion cutoff, though these children would be subject to any inherent socioeconomic differences in schools' or families' desire to retain the student. Furthermore, when examining differences in retention probability during the 2 years before the policy was enacted, we also find much smaller differences. It therefore appears that the allowance for exemptions into Florida's test-based promotion policy has resulted in differential policy implementation by SES, allowing parents with greater knowledge, agency, and resources the ability to circumvent the policy in greater numbers and exacerbating any differences in retention that are present in the absence of the policy.

Given that the test-based promotion policy was introduced under the assumption that students performing below the cutoff would benefit from being retained, it is unclear whether the greater

number of more educated parents circumventing the policy is actually helpful or harmful for their children. Recent research on the academic effects of the early grade retention policy in Florida reveal significant short-term benefits compared to same-age peers that fade out over time (Schwerdt et al., 2015). These results suggest that, from an academic standpoint, children of lower SES who are being retained in higher numbers are not reaping long-term benefits academically from their retention in spite of the additional services that they receive. They are, however, losing future earnings as a result of the increased time they spend in school. Furthermore, there is evidence that grade retention increases the likelihood of disciplinary incidents and suspensions and that these negative effects are concentrated among black and economically disadvantaged students (Ozek, 2015). This suggests that Florida's test-based promotion policy may in fact be harming, not helping, students from low-SES families).

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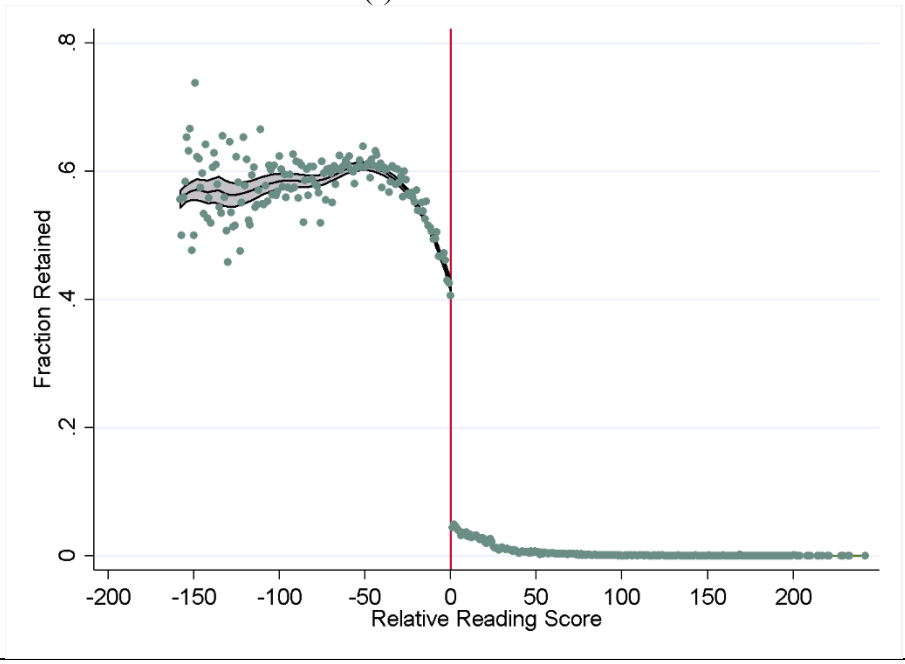
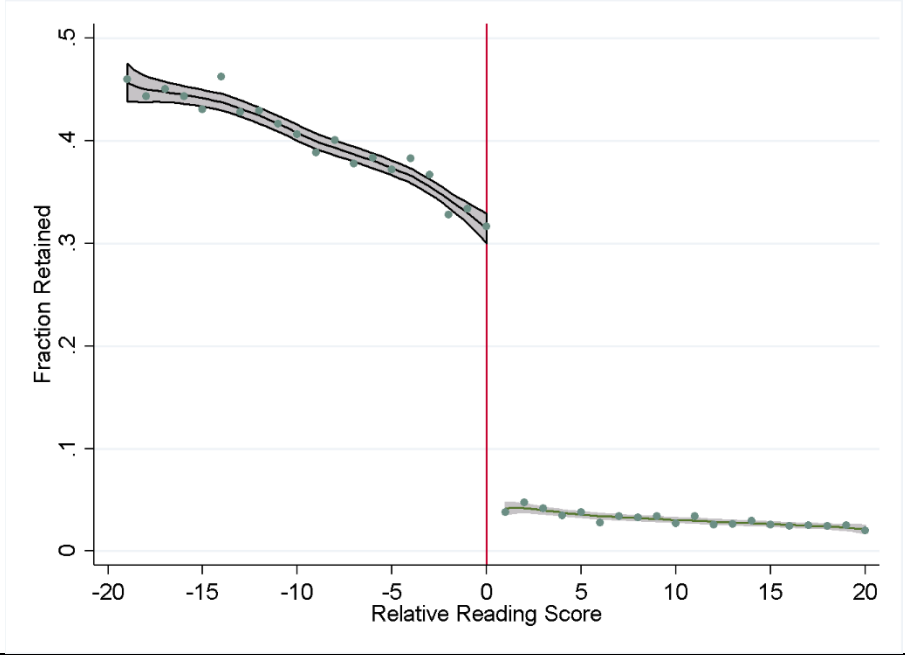
Figures

Figure 1. The Relationship between Third-Grade Reading Scores and Grade Retention – After Policy

(I) All Scores

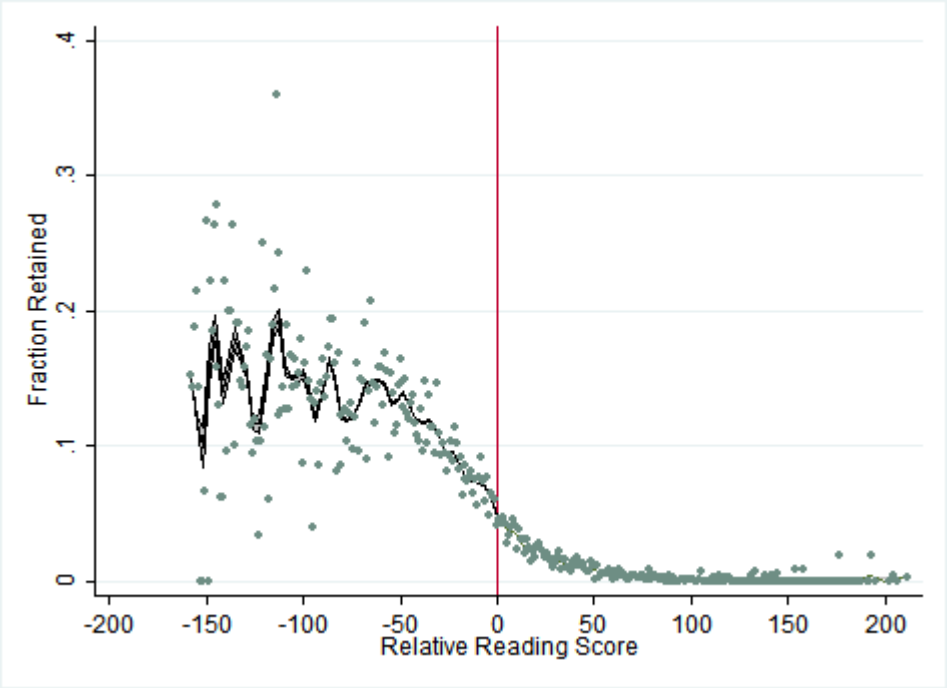


(II) Within 20 Points Around the Cutoff



Notes: Based on 2002-2007 cohorts. Solid lines represent predicted values from local linear regression, estimated separately for the two sides of the cutoff using a bandwidth of 20 points (bandwidth of 5 points in the lower panel) and the triangle Kernel function, and the shaded area represents 95% confidence interval.

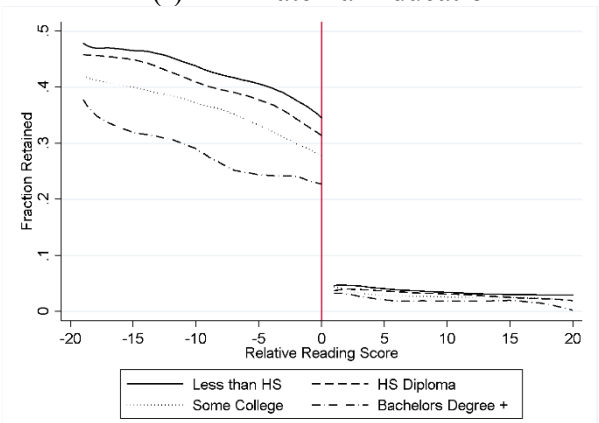
Figure 2. The Relationship between Third-Grade Reading Scores and Grade Retention – Before Policy



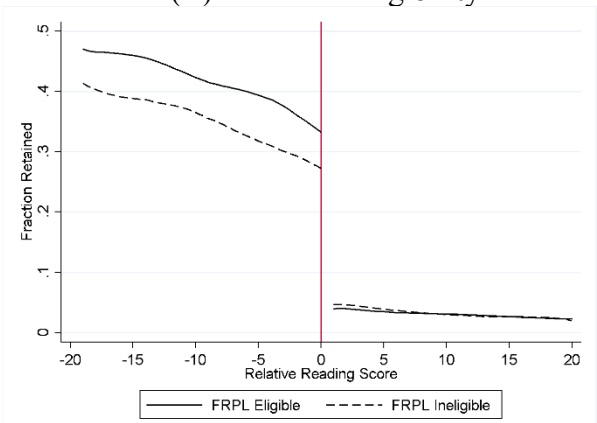
Notes: Based on 2000-2001 cohorts. Solid lines represent predicted values from local linear regression, estimated separately for the two sides of the cutoff using a bandwidth of 20 points and the triangle Kernel function, and the shaded area represents 95% confidence interval.

Figure 3. The Relationship between Third-Grade Reading Scores and Grade Retention around the Cutoff by Socioeconomic Status – After Policy

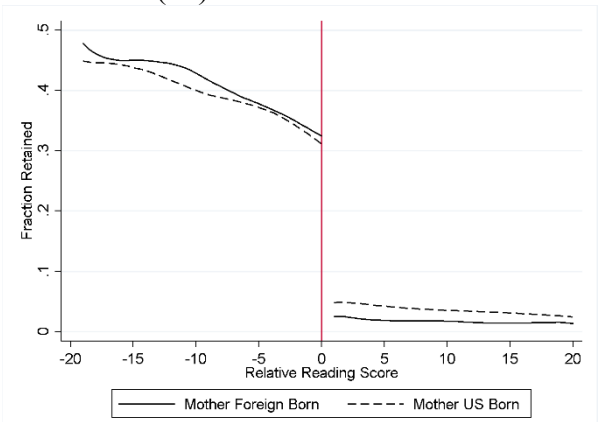
(I) Maternal Education



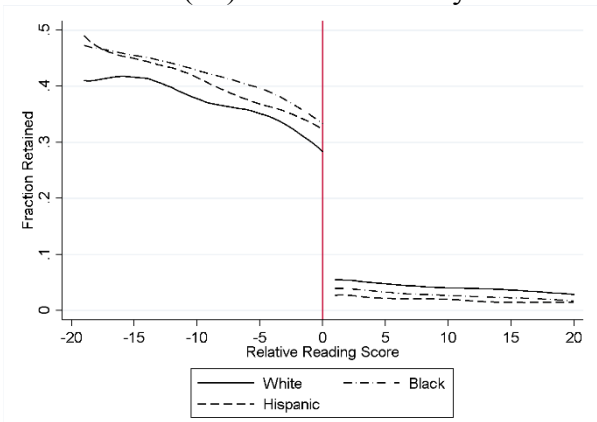
(II) FRPL Eligibility



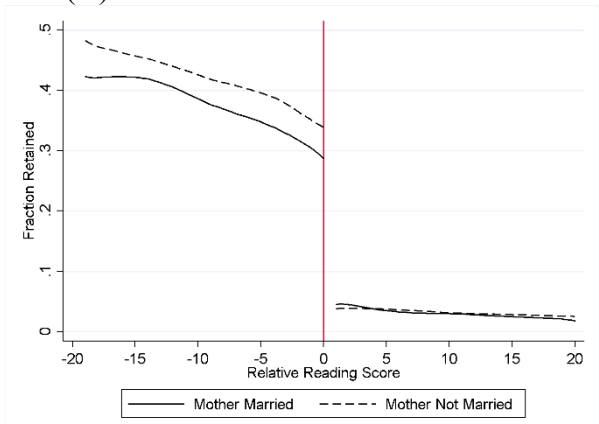
(III) Mother Birth Place



(IV) Race/Ethnicity



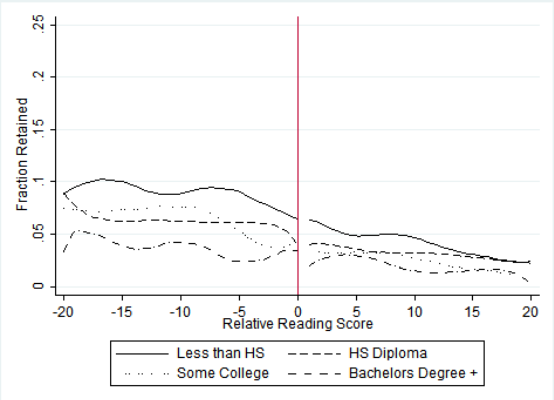
(V) Mother Marital Status



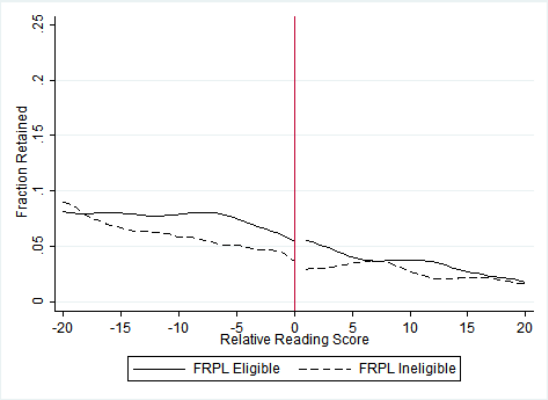
Notes: Based on 2002-2007 cohorts. Lines represent predicted values from local linear regression, estimated separately for the two sides of the cutoff using a bandwidth of 5 points and the triangle Kernel function.

Figure 4. The Relationship between Third-Grade Reading Scores and Grade Retention around the Cutoff by Socioeconomic Status – Before Policy

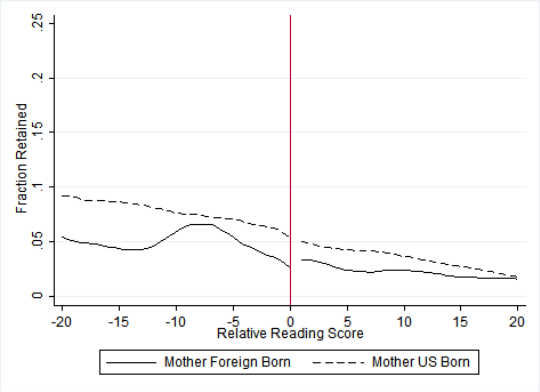
(I) Maternal Education



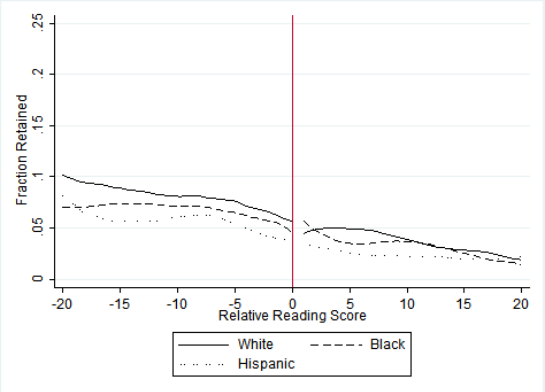
(II) FRPL Eligibility



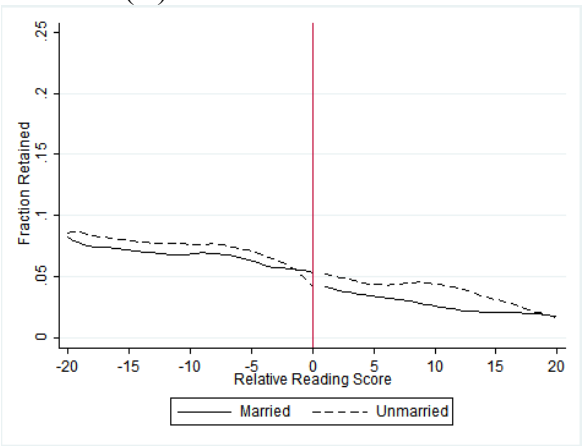
(III) Mother Birth Place



(IV) Race/Ethnicity



(V) Mother Marital Status



Notes: Based on 2000-2001 cohorts. Lines represent predicted values from local linear regression, estimated separately for the two sides of the cutoff using a bandwidth of 5 points and the triangle Kernel function.

Tables

Table 1. Summary Statistics by Cohort-Year

	Before Policy			After Policy				
	2000	2001	2002	2003	2004	2005	2006	2007
% Below	23.72	23.80	21.17	18.59	16.90	11.73	16.21	13.79
% Retained	3.38	3.36	15.04	11.56	9.87	6.75	7.89	7.33
% of Below Retained	10.39	11.16	67.13	58.27	54.77	51.83	45.24	48.64
% Above Retained	1.20	0.92	1.05	0.90	0.74	0.76	0.67	0.73
% of Below Received an								
LEP exemption	NA	NA	1.61	0.94	0.92	1.31	0.83	0.81
Special education exemption	NA	NA	8.54	15.03	17.55	22.12	19.09	20.50
Alternative test exemption	NA	NA	7.01	9.01	9.37	6.93	11.91	12.77
Teacher portfolio exemption	NA	NA	3.50	8.20	10.00	8.87	14.57	12.90
Twice retained exemption	NA	NA	0.57	1.20	1.36	1.53	1.78	1.76
N	59,849	107,248	117,695	113,558	114,867	119,366	121,623	125,122

Table 2. Summary Statistics by Socioeconomic Status: Before Policy vs. After

	Before Policy				After Policy			
	% Below	% Retained	% of Below Retained	% of Above Retained	% Below	% Retained	% of Below Retained	% of Above Retained
Less than HS	38.65	6.23	12.98	1.98	28.84	15.13	49.30	1.28
HS Diploma	24.56	3.35	10.37	1.07	15.13	8.97	47.47	0.76
Some College	16.05	1.91	8.37	0.68	10.40	4.93	43.45	0.46
Bachelors +	7.72	0.74	6.11	0.29	4.53	1.92	38.36	0.18
FRPL eligible	35.15	5.14	11.68	1.59	24.78	12.88	48.97	0.99
FRPL ineligible	12.95	1.68	8.84	0.62	7.86	3.66	41.53	0.43
Mother U.S. born	23.03	3.50	11.50	1.11	16.23	8.10	45.85	0.78
Mother foreign born	26.44	2.88	8.95	0.69	17.71	9.40	51.26	0.39
Mother married	17.61	2.35	9.75	0.77	11.58	5.60	44.89	0.45
Mother not married	35.18	5.25	11.95	1.61	24.75	12.84	49.12	0.90
White	14.80	2.45	11.03	0.96	9.94	4.67	41.66	0.58
Black	40.59	5.70	11.91	1.45	29.23	15.24	49.93	0.91
Hispanic	27.10	2.87	8.44	0.80	19.40	10.07	50.34	0.66

Table 3. Descriptive Statistics

	All	Below cutoff: Retained	Below cutoff: Promoted
Maternal education less than high school	0.236	0.428	0.394
	(0.425)	(0.495)	(0.489)
Maternal education high school	0.382	0.406	0.403
	(0.486)	(0.491)	(0.490)
Maternal education some college	0.230	0.132	0.154
	(0.421)	(0.339)	(0.361)
Maternal education Bachelor's degree or more	0.153	0.0338	0.0487
	(0.360)	(0.181)	(0.215)
Limited English proficient	0.0439	0.115	0.0985
	(0.205)	(0.320)	(0.298)
Special education student	0.155	0.305	0.485
	(0.362)	(0.460)	(0.500)
FRPL eligible	0.516	0.799	0.746
	(0.500)	(0.401)	(0.435)
Mother foreign born	0.244	0.283	0.241
	(0.430)	(0.450)	(0.428)
Mother married	0.617	0.408	0.450
	(0.486)	(0.492)	(0.498)
Mother's age at birth	27.087	25.337	25.486
	(6.222)	(6.154)	(6.118)
Black	0.249	0.463	0.416
	(0.433)	(0.499)	(0.493)
White	0.508	0.267	0.336
	(0.500)	(0.443)	(0.472)
Hispanic	0.191	0.238	0.211
	(0.393)	(0.426)	(0.408)
Other race/ethnicity	0.052	0.032	0.037
	(0.221)	(0.176)	(0.188)
Male	0.504	0.579	0.586
	(0.500)	(0.494)	(0.492)
Relative age (in months)	-0.101	0.292	4.001
	(5.677)	(6.043)	(4.798)
3rd grade FCAT reading scale score	311.411	212.378	219.041
	(61.02)	(39.91)	(39.75)
3rd grade FCAT math scale score	323.422	234.043	252.142
	(66.45)	(57.69)	(60.60)
3rd grade SAT10 reading percentile rank	59.04	17.73	22.27
	(27.49)	(10.80)	(15.21)
N	712,231	55,864	62,333

Note: Standard deviations are in parentheses.

Table 4. Association between Student Background Characteristics and the Likelihood of Being Retained in the Face of Failing to Meet Promotion Cutoff

	(I)	(II)
Maternal education high school	-0.034***	-0.024***
	(0.003)	(0.003)
Maternal education some college	-0.076***	-0.056***
	(0.005)	(0.005)
Maternal education Bachelor's degree or more	-0.122***	-0.086***
	(0.008)	(0.008)
FRPL eligible	0.047***	0.025***
	(0.004)	(0.004)
Mother foreign born	0.022***	0.028***
	(0.005)	(0.005)
English not native	-0.018***	-0.010***
	(0.003)	(0.003)
Mother married	0.001***	0.002***
	(0.0003)	(0.0003)
Mother's age at birth	0.020***	-0.012***
	(0.004)	(0.004)
Black	0.020***	0.010*
	(0.006)	(0.005)
Hispanic	-0.020***	-0.041***
	(0.006)	(0.006)
Limited English proficient	-0.120***	-0.196***
	(0.004)	(0.004)
Special education student	-0.017***	-0.018***
	(0.0002)	(0.0002)
Relative age (in months)	0.036***	0.028***
	(0.003)	(0.003)
Male		-0.029***
		(0.002)
3rd grade FCAT math scale score		-0.007***
		(0.0001)
3rd grade SAT10 reading percentile rank		-0.002***
		(0.0001)
3rd grade SAT10 math percentile rank		-0.024***
		(0.003)
N	117,148	114,457

Notes: Robust standard errors, clustered at the relative reading score level, are given in parentheses. Estimates obtained from OLS regressions on all students who scored below the promotion cutoff between for 2002-2007 cohorts. The following indicate significance: (*** p<0.01, ** p<0.05, * p<0.1).

Table 5. Effect of Scoring Below the Promotion Cutoff on Retention in Third Grade

	(I)	(II)	(III)	(IV)	(V)
Below	0.291***	0.264***	0.530***	0.517***	0.526***
	(0.006)	(0.014)	(0.018)	(0.029)	(0.033)
Maternal edu. HS x Below		-0.016**	-0.018**	-0.018*	-0.023**
		(0.007)	(0.009)	(0.010)	(0.011)
Maternal edu. some college x Below		-0.039***	-0.044***	-0.044***	-0.044***
		(0.007)	(0.006)	(0.014)	(0.015)
Maternal edu. Bachelor's + x Below		-0.091***	-0.072***	-0.073***	-0.081***
		(0.019)	(0.015)	(0.020)	(0.024)
Mother foreign x Below		0.035***	0.038***	0.036***	0.033**
		(0.010)	(0.008)	(0.012)	(0.014)
Mother married x Below		-0.022	-0.009	-0.011	-0.013
		(0.014)	(0.011)	(0.010)	(0.012)
Mother's age at birth x Below		-0.001	-0.0003	-0.0001	-0.0001
		(0.001)	(0.0010)	(0.001)	(0.001)
Black x Below		0.029**	-0.007	-0.008	-0.006
		(0.011)	(0.009)	(0.011)	(0.012)
Hispanic x Below		0.010	-0.010	-0.009	-0.004
		(0.010)	(0.010)	(0.014)	(0.016)
FRPL eligible x Below		0.037***	0.031***	0.032***	0.027**
		(0.011)	(0.009)	(0.011)	(0.012)
LEP x Below			-0.013	-0.020	-0.017
			(0.012)	(0.016)	(0.019)
Special education x Below			-0.095***	-0.093***	-0.094***
			(0.008)	(0.011)	(0.012)
SAT10 reading > 50th perc. x Below			-0.125***	-0.132***	-0.147***
			(0.012)	(0.015)	(0.018)
Standardized FCAT math x Below			-0.017**	-0.020**	-0.016*
			(0.007)	(0.008)	(0.010)
SAT10 reading percentile x Below			-0.005***	-0.005***	-0.005***
			(0.0003)	(0.0004)	(0.001)
SAT10 math percentile x Below			-0.002***	-0.001***	-0.001***
			(0.0002)	(0.0002)	(0.0003)
Relative age x Below			-0.007***	-0.007***	-0.006***
			(0.001)	(0.001)	(0.001)
School FE	No	No	No	Yes	No
Teacher FE	No	No	No	No	Yes
N	107,874	107,860	105,896	105,896	105,896

Notes: Robust standard errors, clustered at the relative reading score level, are given in parentheses. Discontinuity estimates are obtained parametrically using a degree of 1 and within 20 points of the promotion cutoff, using 2002-2007 cohorts. The coefficients on the interaction terms represent the difference in retention discontinuity at the cutoff by the listed student attribute. All regressions include year fixed-effects and gender. The following indicate significance: (*** p<0.01, ** p<0.05, * p<0.1).

Table 6. Effect of Scoring below the Promotion Cutoff on Retention in Third Grade: Before vs After Policy

	Before	After
Below	0.000	0.517***
	(0.019)	(0.029)
Maternal edu. HS x Below	0.006	-0.018*
	(0.013)	(0.010)
Maternal edu. some college x Below	-0.017	-0.044***
	(0.015)	(0.014)
Maternal edu. Bachelor's + x Below	-0.020	-0.073***
	(0.021)	(0.020)
Mother foreign x Below	0.012	0.036***
	(0.013)	(0.012)
Mother married x Below	0.009	-0.011
	(0.012)	(0.010)
Mother's age at birth x Below	0.001	-0.0001
	(0.001)	(0.001)
Black x Below	0.005	-0.008
	(0.014)	(0.011)
Hispanic x Below	-0.019	-0.009
	(0.016)	(0.014)
FRPL eligible x Below	0.006	0.032***
	(0.013)	(0.011)
N	32,722	106,758

Notes: Robust standard errors, clustered at the relative reading score level, are given in parentheses. Discontinuity estimates are obtained parametrically using a degree of 1, within 20 points of the promotion cutoff, and including all interacted controls, gender, and school and year fixed effects found in Table 5 Column 4. The coefficients on the interaction terms represent the difference in retention discontinuity at the cutoff by the listed student attribute, before and after the policy respectively. The following indicate significance: (*** p<0.01, ** p<0.05, * p<0.1).

Table 7. Effect of Scoring Below the Promotion Cutoff on Receiving Exemption in Third Grade

	(I)	(II)	(III)	(IV)	(V)
Below	0.469***	0.466***	0.227***	0.240***	0.240***
	(0.006)	(0.026)	(0.018)	(0.028)	(0.030)
Maternal edu. HS x Below		0.008	0.014	0.014	0.010
		(0.007)	(0.009)	(0.010)	(0.011)
Maternal edu. some college x Below		0.044***	0.051***	0.048***	0.048***
		(0.010)	(0.011)	(0.014)	(0.014)
Maternal edu. Bachelor's + x Below		0.073***	0.067***	0.066***	0.043*
		(0.012)	(0.015)	(0.021)	(0.024)
Mother foreign x Below		-0.041***	-0.043***	-0.045***	-0.039***
		(0.010)	(0.008)	(0.012)	(0.013)
Mother married x Below		0.004	-0.007	-0.004	-0.003
		(0.008)	(0.007)	(0.010)	(0.011)
Mother's age at birth x Below		0.001	0.001	0.0002	0.0003
		(0.001)	(0.001)	(0.001)	(0.001)
Black x Below		-0.067***	-0.027**	-0.025**	-0.024**
		(0.011)	(0.010)	(0.011)	(0.012)
Hispanic x Below		0.001	0.019	0.020	0.019
		(0.012)	(0.015)	(0.014)	(0.016)
FRPL eligible x Below		0.017	0.023**	0.019*	0.022*
		(0.012)	(0.010)	(0.011)	(0.012)
LEP x Below			0.025	0.031*	0.022
			(0.019)	(0.016)	(0.019)
Special education x Below			0.105***	0.108***	0.111***
			(0.012)	(0.011)	(0.013)
SAT10 reading > 50th perc. x Below			0.114***	0.118***	0.122***
			(0.010)	(0.018)	(0.020)
Standardized FCAT math x Below			0.031***	0.034***	0.0341***
			(0.006)	(0.008)	(0.008)
SAT10 reading percentile x Below			0.005***	0.005***	0.005***
			(0.0002)	(0.0004)	(0.001)
SAT10 math percentile x Below			0.002***	0.002***	0.001***
			(0.0002)	(0.0002)	(0.0003)
Relative age x Below			0.009***	0.008***	0.007***
			(0.001)	(0.001)	(0.001)
School FE	No	No	No	Yes	No
Teacher FE	No	No	No	No	Yes
N	107,874	107,860	105,896	105,896	105,896

Notes: Robust standard errors, clustered at the relative reading score level, are given in parentheses. Discontinuity estimates are obtained parametrically using a degree of 1 and within 20 points of the promotion cutoff, using 2002-2007 cohorts. The coefficients on the interaction terms represent the difference in the discontinuity in exemption receipt at the cutoff by the listed student attribute. All regressions include year fixed-effects and gender. The following indicate significance: (*** p<0.01, ** p<0.05, * p<0.1).

Table 8. Effect of Scoring below the Promotion Cutoff on the Type of Exemption Received in Third Grade, by Maternal Education

	Maternal Education Level		
	HS Diploma x Below	Some college x Below	Bachelors + X Below
Received an exemption	0.014	0.048***	0.066***
	(0.010)	(0.014)	(0.021)
LEP exemption	0.003	0.003	0.007*
	(0.002)	(0.002)	(0.004)
Special education exemption	-0.002	-0.006	-0.008
	(0.005)	(0.007)	(0.010)
Alternative test exemption	0.016**	0.037***	0.025
	(0.007)	(0.012)	(0.017)
Teacher portfolio exemption	0.001	0.016	0.044***
	(0.007)	(0.010)	(0.017)
Twice retained exemption	-0.004*	-0.002	-0.003
	(0.002)	(0.003)	(0.004)
N	105,896	105,896	105,896

Notes: Robust standard errors, clustered at the relative reading score level are given in parentheses. Discontinuity estimates are obtained parametrically using a degree of 1, within 20 points of the promotion cutoff, and including all interacted controls, gender, and school and year fixed effects found in Table 5 Column 4. Each entry represents the difference in the estimated discontinuity for the given outcome at the cutoff between the maternal education level provided in the column and the baseline category (students who have mothers with less than a HS degree). The following indicate significance: (*** p<0.01, ** p<0.05, * p<0.1).

Table 9. Subgroup Effects of Scoring below the Promotion Cutoff on Receiving an Exemption in Third Grade: Student Characteristics

	White	Black	Hispanic	FRPL Eligible	FRPL Ineligible
Below	0.228***	0.226***	0.233***	0.234***	0.282***
	(0.052)	(0.047)	(0.060)	(0.032)	(0.056)
Maternal edu. HS x Below	-0.007	0.031**	-0.023	0.015	0.008
	(0.020)	(0.015)	(0.021)	(0.011)	(0.025)
Maternal edu. some college x Below	0.043*	0.045**	0.036	0.039**	0.058**
	(0.025)	(0.022)	(0.030)	(0.017)	(0.027)
Maternal edu. Bachelor's + x Below	0.055	0.060	0.058	0.064*	0.066**
	(0.036)	(0.044)	(0.044)	(0.035)	(0.033)
Mother foreign x Below	0.012	-0.057***	-0.050**	-0.052***	-0.034
	(0.032)	(0.019)	(0.020)	(0.014)	(0.023)
Mother married x Below	0.001	-0.017	0.005	-0.0001	-0.006
	(0.018)	(0.017)	(0.019)	(0.011)	(0.020)
Mother's age at birth x Below	0.001	0.00002	-0.001	-0.0004	0.002
	(0.001)	(0.001)	(0.002)	(0.0009)	(0.002)
Black x Below				-0.009	-0.054**
				(0.013)	(0.023)
Hispanic x Below				0.041**	-0.023
				(0.017)	(0.026)
FRPL eligible x Below	-0.006	0.020	0.064***		
	(0.017)	(0.021)	(0.023)		
N	35,740	40,629	23,261	72,928	31,041

Notes: Robust standard errors, clustered at relative reading score level, are given in parentheses. Discontinuity estimates are obtained parametrically using a degree of 1, within 20 points of the promotion cutoff, and including all interacted controls found in Table 5 Column 3, year fixed-effects and gender. The coefficients on the interaction terms represent the difference in the discontinuity in exemption receipt at the cutoff by the listed student attribute, estimated separately for each student attribute listed in the columns. The following indicate significance: (*** p<0.01, ** p<0.05, * p<0.1).

Table 10. Subgroup Effects of Scoring below the Promotion Cutoff on Receiving an Exemption in Third Grade: 3rd Grade Teacher Characteristics

	Same Race/Ethnicity	Different Race/Ethnicity	Early Career	Late Career
Below	0.257***	0.210***	0.333***	0.211***
	(0.043)	(0.041)	(0.049)	(0.053)
Maternal edu. HS x Below	0.012	0.019	0.019	0.027
	(0.015)	(0.014)	(0.016)	(0.018)
Maternal edu. some college x Below	0.053***	0.041**	0.048**	0.051**
	(0.020)	(0.018)	(0.023)	(0.024)
Maternal edu. Bachelor's + x Below	0.101***	0.029	0.085**	0.012
	(0.030)	(0.031)	(0.038)	(0.038)
Mother foreign x Below	-0.014	-0.059***	-0.055***	-0.034
	(0.020)	(0.015)	(0.019)	(0.021)
Mother married x Below	0.0003	-0.007	0.018	-0.008
	(0.015)	(0.014)	(0.017)	(0.018)
Mother's age at birth x Below	-0.0004	0.0008	-0.002	0.002
	(0.001)	(0.001)	(0.001)	(0.001)
Black x Below	-0.022	-0.025	-0.048**	-0.015
	(0.0171)	(0.018)	(0.019)	(0.019)
Hispanic x Below	-0.050**	0.046**	-0.002	0.020
	(0.024)	(0.020)	(0.023)	(0.025)
FRPL eligible x Below	0.016	0.025	0.017	0.020
	(0.015)	(0.016)	(0.018)	(0.019)
N	49,429	54,540	36,473	33,535

Notes: Robust standard errors, clustered at relative reading score level, are given in parentheses. Discontinuity estimates are obtained parametrically using a degree of 1, within 20 points of the promotion cutoff, and including all interacted controls found in Table 5 Column 3, year fixed-effects and gender. The coefficients on the interaction terms represent the difference in the discontinuity in exemption receipt at the cutoff by the listed student attribute, estimated separately for each teacher attribute listed in the columns. The following indicate significance: (*** p<0.01, ** p<0.05, * p<0.1).

Table 11. Subgroup Effects of Scoring below the Promotion Cutoff on Receiving an Exemption in Third Grade: School Characteristics

	High Poverty	Low Poverty	High Minority	Low Minority	High Parental Education	Low Parental Education
Below	0.232***	0.178**	0.216***	0.193***	0.226***	0.206***
	(0.059)	(0.076)	(0.057)	(0.068)	(0.076)	(0.052)
Maternal edu. HS x Below	0.009	0.063*	0.017	0.047*	0.030	0.024
	(0.016)	(0.033)	(0.016)	(0.026)	(0.033)	(0.016)
Maternal edu. some college x Below	0.056**	0.079**	0.051**	0.108***	0.066*	0.086***
	(0.027)	(0.037)	(0.024)	(0.033)	(0.036)	(0.027)
Maternal edu. Bachelor's + x Below	0.089	0.106**	0.127***	0.087*	0.105**	0.168***
	(0.059)	(0.046)	(0.045)	(0.048)	(0.044)	(0.057)
Mother foreign x Below	-0.074***	-0.042	-0.045**	-0.004	-0.052*	-0.042**
	(0.020)	(0.029)	(0.018)	(0.042)	(0.028)	(0.021)
Mother married x Below	-0.016	0.004	-0.011	-0.014	-0.017	0.006
	(0.018)	(0.027)	(0.017)	(0.025)	(0.027)	(0.017)
Mother's age at birth x Below	0.0003	0.003	-0.001	0.001	0.002	0.001
	(0.001)	(0.002)	(0.001)	(0.002)	(0.002)	(0.001)
Black x Below	-0.023	-0.069**	-0.025	-0.070**	-0.081***	-0.038*
	(0.028)	(0.031)	(0.033)	(0.032)	(0.030)	(0.022)
Hispanic x Below	0.019	0.002	-0.022	0.093**	-0.034	0.040
	(0.032)	(0.034)	(0.034)	(0.046)	(0.031)	(0.026)
FRPL eligible x Below	0.058*	0.037	0.050**	-0.028	0.027	0.028
	(0.031)	(0.026)	(0.024)	(0.022)	(0.024)	(0.026)
N	29,607	17,588	18,329	31,927	18,099	31,019

Notes: Robust standard errors, clustered at relative reading score level, are given in parentheses. Discontinuity estimates are obtained parametrically using a degree of 1, within 20 points of the promotion cutoff, and including all interacted controls found in Table 5 Column 3, year fixed-effects and gender. The coefficients on the interaction terms represent the difference in the discontinuity in exemption receipt at the cutoff by the listed student attribute, estimated separately for each school attribute listed in the columns. The following indicate significance: (*** p<0.01, ** p<0.05, * p<0.1).

Table A1. Effect of Scoring Below the Promotion Cutoff on Retention in Third Grade - By Cohort Year

	2002	2003	2004	2005	2006	2007
Below	0.603***	0.551***	0.644***	0.605***	0.464***	0.388***
	(0.070)	(0.083)	(0.076)	(0.087	(0.063)	(0.071)
Maternal edu. HS x Below	0.019	-0.070***	-0.031	-0.007	-0.013	-0.004
	(0.023)	(0.026)	(0.027)	(0.029)	(0.022)	(0.025)
Maternal edu. some college x Below	-0.023	-0.006	-0.092***	-0.027	-0.012	-0.050
	(0.031)	(0.035)	(0.035)	(0.038)	(0.031)	(0.035)
Maternal edu. Bachelor's + x Below	0.010	-0.117**	-0.043	-0.075	-0.026	-0.079
	(0.047)	(0.051)	(0.052)	(0.065)	(0.042)	(0.049)
Mother foreign x Below	0.053*	0.025	0.087***	-0.011	0.015	0.013
	(0.027)	(0.030)	(0.030)	(0.035)	(0.026)	(0.028)
Mother married x Below	-0.004	0.029	-0.017	-0.068**	-0.008	-0.029
	(0.023)	(0.024)	(0.025)	(0.029)	(0.023)	(0.024)
Mother's age at birth x Below	-0.0004	-0.002	-0.002	0.002	-0.00003	0.003
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Black x Below	-0.018	-0.051*	0.032	0.033	0.016	-0.053**
	(0.025)	(0.029)	(0.028)	(0.032)	(0.026)	(0.026)
Hispanic x Below	-0.002	-0.006	-0.005	0.102***	-0.004	-0.065**
	(0.033)	(0.037)	(0.033)	(0.039)	(0.029)	(0.032)
FRPL eligible x Below	0.107***	0.053*	-0.0010	-0.010	0.034	-0.003
	(0.025)	(0.029)	(0.029)	(0.033)	(0.024)	(0.027)
N	21,620	16,637	17,441	14,331	18,520	17,347

Notes: Robust standard errors, clustered at the relative reading score level, are given in parentheses. Discontinuity estimates are obtained parametrically using the given polynomial degrees and bandwidths around the promotion cutoff, including all interacted controls found in Table 5 Column 3, year fixed-effects and gender. The coefficients on the interaction terms represent the difference in the retention discontinuity at the cutoff, estimated separately for each school year. The following indicate significance: (*** p<0.01, ** p<0.05, * p<0.1).

Table A2. Effect of Scoring Below the Promotion Cutoff on Retention in Third Grade by Functional Form and Bandwidth

		Linear		
Score range	50	20	10	5
Below	0.530***	0.530***	0.517***	0.494***
	(0.014)	(0.018)	(0.024)	(0.033)
Maternal edu. HS x Below	-0.021***	-0.018**	-0.016	-0.018
	(0.006)	(0.009)	(0.011)	(0.013)
Maternal edu. some college x Below	-0.051***	-0.044***	-0.050***	-0.053***
	(0.006)	(0.006)	(0.007)	(0.006)
Maternal edu. Bachelor's + x Below	-0.010***	-0.072***	-0.047**	-0.062**
	(0.013)	(0.015)	(0.020)	(0.022)
Mother foreign x Below	0.021***	0.038***	0.029***	0.032***
	(0.007)	(0.008)	(0.010)	(0.010)
Mother married x Below	-0.009	-0.009	-0.014	-0.019
	(0.006)	(0.011)	(0.016)	(0.027)
Mother's age at birth x Below	-0.0002	-0.0003	-0.0016	-0.001
	(0.001)	(0.001)	(0.001)	(0.002)
Black x Below	-0.012*	-0.007	-0.008	0.005
	(0.007)	(0.009)	(0.011)	(0.014)
Hispanic x Below	0.002	-0.010	0.006	0.016
	(0.007)	(0.010)	(0.010)	(0.014)
FRPL eligible x Below	0.024***	0.031***	0.043***	0.028**
	(0.007)	(0.009)	(0.0128)	(0.011)
		Quadratic		
Below	0.514***	0.529***	0.516***	0.461***
	(0.017)	(0.024)	(0.032)	(0.020)
Maternal edu. HS x Below	-0.014*	-0.012	-0.008	-0.011
	(0.008)	(0.011)	(0.012)	(0.014)
Maternal edu. some college x Below	-0.037***	-0.044***	-0.047***	-0.064***
	(0.007)	(0.009)	(0.008)	(0.010)
Maternal edu. Bachelor's + x Below	-0.070***	-0.035	-0.054**	-0.067*
	(0.016)	(0.022)	(0.021)	(0.030)
Mother foreign x Below	0.032***	0.028***	0.033**	0.008
	(0.008)	(0.010)	(0.012)	(0.010)
Mother married x Below	-0.007	-0.021	-0.027	-0.026*
	(0.010)	(0.017)	(0.023)	(0.013)
Mother's age at birth x Below	-0.0001	-0.001	-0.001	0.001
	(0.001)	(0.001)	(0.002)	(0.001)
Black x Below	-0.003	-0.007	-0.001	-0.010
	(0.009)	(0.011)	(0.016)	(0.012)
Hispanic x Below	-0.011	0.008	0.017	0.018***
	(0.010)	(0.012)	(0.017)	(0.005)
FRPL eligible x Below	0.033***	0.040***	0.021	0.021*
	(0.009)	(0.012)	(0.012)	(0.011)
		Cubic		
Below	0.518***	0.519***	0.481***	0.464***
	(0.020)	(0.026)	(0.017)	(0.020)
Maternal edu. HS x Below	-0.009	-0.013	-0.023	0.006
	(0.010)	(0.013)	(0.016)	(0.033)
Maternal edu. some college x Below	-0.042***	-0.056***	-0.069***	-0.028
	(0.008)	(0.010)	(0.011)	(0.025)
Maternal edu. Bachelor's + x Below	-0.042**	-0.067***	-0.089***	-0.091

(Table A2 continued)				
	(0.020)	(0.021)	(0.029)	(0.056)
Mother foreign x Below	0.040***	0.025**	0.008	-0.033***
	(0.009)	(0.011)	(0.009)	(0.009)
Mother married x Below	-0.013	-0.015	-0.031	-0.003
	(0.014)	(0.025)	(0.025)	(0.006)
Mother's age at birth x Below	-0.001	-0.001	0.001	0.005*
	(0.001)	(0.001)	(0.001)	(0.002)
Black x Below	-0.006	-0.0053	-0.009	-0.052***
	(0.011)	(0.013)	(0.012)	(0.011)
Hispanic x Below	-0.007	0.009	0.019*	0.033***
	(0.011)	(0.012)	(0.011)	(0.004)
FRPL eligible x Below	0.033***	0.036***	0.020*	0.065***
	(0.011)	(0.011)	(0.010)	(0.008)
N	279,091	105,882	52,385	26,218

Notes: Robust standard errors, clustered at the relative reading score level, are given in parentheses. Discontinuity estimates are obtained parametrically using the given polynomial degrees and bandwidths around the promotion cutoff, including all interacted controls found in Table 5 Column 3, year fixed-effects and gender. The following indicate significance: (*** p<0.01, ** p<0.05, * p<0.1).