

# Final Exam Exemption Data Analysis

Prepared for Northwest Independent School District

May 2013



In the following report, Hanover Research analyzes data on the effect of the final exam exemption policy enacted by Northwest Independent School District in the 2012 school year. Hanover examines students' semester grades, absences, disciplinary incidents, exemption eligibility, and exam exemption choices by various independent variables, including academic and demographic variables.

# TABLE of Contents

<b>Executive Summary and Key Findings .....</b>	<b>4</b>
Introduction .....	4
Methodology Notes .....	4
Key Findings .....	5
Semester Grade Analysis .....	5
Attendance Analysis .....	6
Discipline Analysis.....	7
Exemption Eligibility Analysis .....	7
<b>Section I: Variable Distribution .....</b>	<b>9</b>
Dependent Variables .....	9
Independent Variables.....	12
Academics .....	12
Demographics .....	14
<b>Section II: Semester Grade Analysis .....</b>	<b>15</b>
Overall.....	15
Math Courses .....	16
English Courses .....	21
Course Level.....	26
Grade Level .....	27
Demographic Variables.....	30
<b>Section III: Attendance Analysis.....</b>	<b>31</b>
Overall.....	31
Math Courses .....	32
English Courses .....	34
Course Level.....	36
Grade Level .....	37
Demographic Variables.....	38
<b>Section IV: Discipline Analysis .....</b>	<b>39</b>
Overall.....	39
Grade Level .....	40
Demographic Variables.....	41

**Section V: Exemption Eligibility Analysis ..... 42**

    Overall.....43

    Math Courses.....44

    English Courses .....46

    Course Level.....48

    Grade Level .....49

    Demographic Variables.....50

    Exam Exemption Choice .....51

        Math Courses.....52

        English Courses .....53

        Course Level.....54

        Grade Level .....54

        Demographic Variables.....55

**Section VI: Further Analysis ..... 56**

# EXECUTIVE SUMMARY AND KEY FINDINGS

## INTRODUCTION

In this report, Hanover Research analyzes data on the effect of the final exam exemption policy enacted by Northwest Independent School District (ISD) in the 2012 school year. Hanover uses data supplied by Northwest ISD to examine students' semester grades, absences, disciplinary incidents, exemption eligibility, and exam exemption choices by various independent variables. This includes academic variables such as course, course level, and grade level, as well as demographic variables including gender, ethnicity, Limited English Proficient (LEP) status, English as a Second Language (ESL) status, homeless status, special education status, Free/Reduced Lunch (FRL) status, and gifted status. The data come from the 2011 and 2012 school years, as well as fall of the 2013 school year.

## METHODOLOGY NOTES

In this analysis, Hanover uses t-tests to test for significant differences between populations for numeric dependent variables, including semester grades, number of absences, and number of disciplinary incidents. T-tests take into account the mean, standard deviation, and number of observations for each group included in the test. Please note that for some populations, the number of observations is too small for a difference between two populations to be considered statistically significant. For categorical dependent variables such as eligibility for exemption and exemption choice, we use chi-squared tests to determine if there are significant differences between the variables. Chi-squared tests examine whether the column and row variables are independent of one another, meaning there is no significant relationship between them.<sup>1</sup>

For demographic variables with missing values, we made assumptions regarding the treatment of these missing values. We assumed that observations missing values for LEP, homeless status, and special education meant that those students were non-LEP, not homeless, and not special education students. For gifted status and FRL, observations missing data for these variables were included in their own "missing" category, since it was not clear how students with missing data should be categorized. For example, the categories for gifted status are now "no," "yes," and "missing."

This analysis excludes students with course mark types "EX" or "SM," as it was unclear what mark type those codes represent and they only account for 0.64 percent of the total number of observations. In addition, since we are only considering high school students when we examine the effect of the exemption policy, we exclude 102 observations for students who were marked as being in grade 8. The remaining dataset includes students in grades 9-12 enrolled in Algebra I, Algebra II, Geometry, English I, English II, or English III, at various course levels.

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<sup>1</sup> Statistical significance is indicated at  $p \leq 0.1$  for t-tests and chi-squared tests.

## KEY FINDINGS

### SEMESTER GRADE ANALYSIS

- **While there is no significant difference in semester grades before and after the policy on average, there are significant differences by academic year.** Average semester grades were significantly lower after the policy was implemented in courses that are on-level for the grade. However, there are no significant differences in Pre-AP or AP semester grades on average. There are also no significant differences in semester grades for students in grades 9, 10, or 11, while semester scores for grade 12 students are significantly higher. Significant differences in semester grades also appear for female, LEP, ESL, special education, and gifted students.
- As shown in Figures A.1 and A.2 below, **some courses show significant increases in semester scores after the policy was implemented, while other courses show significant decreases.** For math scores, there were significant increases in two courses, and significant decreases in two courses. For English courses, there was only a significant increase in one course, and there were significant decreases in four courses.

**Figure A.1: Changes in Math Course Semester Scores**

CHANGE AFTER POLICY	COURSE
Courses where scores significantly increased	<ul style="list-style-type: none"> <li>▪ Algebra II</li> <li>▪ Geometry – Pre-AP</li> </ul>
Courses where scores significantly decreased	<ul style="list-style-type: none"> <li>▪ Algebra I – Pre-AP</li> <li>▪ Algebra II – Pre-AP</li> </ul>
Courses where scores did not change significantly	<ul style="list-style-type: none"> <li>▪ Algebra I</li> <li>▪ Geometry</li> </ul>

\*There were no “after” groups for special education Algebra I or special education Geometry.

**Figure A.2: Changes in English Course Semester Scores**

CHANGE AFTER POLICY	COURSE
Courses where scores significantly increased	<ul style="list-style-type: none"> <li>▪ English I – ESOL</li> </ul>
Courses where scores significantly decreased	<ul style="list-style-type: none"> <li>▪ English I</li> <li>▪ English II</li> <li>▪ English III</li> <li>▪ English III – Pre-AP</li> </ul>
Courses where scores did not change significantly	<ul style="list-style-type: none"> <li>▪ English I Pre-AP</li> <li>▪ English II – ESOL</li> <li>▪ English III – Pre-AP</li> <li>▪ English III AP</li> </ul>

*ATTENDANCE ANALYSIS*

- **The average number of absences decreased significantly after the exam exemption policy was implemented, and significant decreases are also evident from 2010-2011 to 2011-2012.** There was a significant increase in absences from 2011-2012 to 2012-2013, though this may be partially due to the inclusion of medical- and funeral-related absences in the exemption policy.
- There were significant decreases in the number of absences before and after the policy was implemented for Pre-AP and AP courses, as well as in grades 10, 11, and 12. Significant differences also appear for female, male, white, non-LEP, non-ESL, ELS, not homeless, and not special education students, as well as for all FRL statuses.
- As shown in Figures A.3 and A.4 below, **some courses show significant decreases in the number of absences after the policy was implemented.** For math courses, there were significant decreases in absences in three courses, and no significant increases. For English courses, there were significant decreases in absences in four courses, and a significant increase in only one course.

**Figure A.3: Changes in Number of Absences in Math Courses**

CHANGE AFTER POLICY	COURSE
Courses where absences significantly increased	-
Courses where absences significantly decreased	<ul style="list-style-type: none"> <li>▪ Algebra II</li> <li>▪ Algebra II – Pre-AP</li> <li>▪ Geometry – Pre-AP</li> </ul>
Courses where absences did not change significantly	<ul style="list-style-type: none"> <li>▪ Algebra I</li> <li>▪ Algebra I – Pre-AP</li> <li>▪ Geometry</li> </ul>

\*There were no “after” groups for special education Algebra I or special education Geometry.

**Figure A.4: Changes in Number of Absences in English Courses**

CHANGE AFTER POLICY	COURSE
Courses where absences significantly increased	<ul style="list-style-type: none"> <li>▪ English III</li> </ul>
Courses where absences significantly decreased	<ul style="list-style-type: none"> <li>▪ English I – Pre-AP</li> <li>▪ English II – ESOL</li> <li>▪ English II – Pre-AP</li> <li>▪ English III – AP</li> </ul>
Courses where absences did not change significantly	<ul style="list-style-type: none"> <li>▪ English I</li> <li>▪ English I – ESOL</li> <li>▪ English II</li> <li>▪ English III – Pre-AP</li> </ul>

*DISCIPLINE ANALYSIS*

- **The average number of disciplinary incidents appears to have increased after the policy was implemented. However, this increase is not significant,** and there is also no significant change in disciplinary incidents by year. The data generally indicate that the discipline requirement does not prevent many students from qualifying for the exam exemption.
- Significant differences in disciplinary incidents are only evident for grade 10 students and First Year Monitor – ESL students. No other variables appear to show significant increases or decreases in disciplinary incidents after the policy was implemented.

*EXEMPTION ELIGIBILITY ANALYSIS*

- Hanover’s analysis reveals that **the exam exemption eligibility rate was significantly higher after the policy was implemented.** This indicates that the policy may be improving grades and behavior, since a higher percentage of students are becoming eligible for the exemption. Eligibility rates also vary significantly by year. The eligibility rate rose from 2011 to 2012, but dropped between 2012 and 2013. However, this drop may partially be due to the inclusion of medical- and funeral-related absences in the exemption policy.
- Eligibility rates appear to vary significantly by course level, grade level, and for numerous demographic variables, including female, male, non-LEP, not homeless, special education, not special education, free FRL status, and not economically disadvantaged FRL status, as well as American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, and white students.
- As displayed in Figures A.5 and A.6, **some courses show significant increases in the eligibility rate after the policy was implemented, and no courses show significant decreases.** For math courses, there were significant increases in the eligibility rate in five courses. For English courses, there were also significant increases in the eligibility rate in five courses.

**Figure A.5: Changes in Eligibility in Math Courses**

CHANGE AFTER POLICY	COURSE
Courses where eligibility significantly increased	<ul style="list-style-type: none"> <li>▪ Algebra I</li> <li>▪ Algebra II</li> <li>▪ Algebra II – Pre-AP</li> <li>▪ Geometry</li> <li>▪ Geometry – Pre-AP</li> </ul>
Courses where eligibility significantly decreased	-
Courses where eligibility did not change significantly	<ul style="list-style-type: none"> <li>▪ Algebra I – Pre-AP</li> </ul>

\*There were no “after” groups for special education Algebra I or special education Geometry.

**Figure A.6: Changes in Eligibility in English Courses**

CHANGE AFTER POLICY	COURSE
Courses where eligibility significantly increased	<ul style="list-style-type: none"> <li>▪ English I – Pre-AP</li> <li>▪ English II</li> <li>▪ English II – ESOL</li> <li>▪ English II – Pre-AP</li> <li>▪ English III – AP</li> </ul>
Courses where eligibility significantly decreased	-
Courses where eligibility did not change significantly	<ul style="list-style-type: none"> <li>▪ English I</li> <li>▪ English I – ESOL</li> <li>▪ English III</li> <li>▪ English III – Pre-AP</li> </ul>

- Students with higher marking period averages were significantly more likely to choose to be exempt from the semester exam.<sup>2</sup> For example, only 37 percent of students with a marking period average of 70 chose an exam exemption, while 63 percent of students with a marking period grade of 90 chose an exam exemption. This indicates that students with lower marking period averages in a particular class period may be attempting to improve their semester grade by taking the final exam.
- **Students’ exam exemption choices appear to vary by course.** In math courses, Algebra II students were the most likely to choose the exemption, and Geometry – Pre-AP students were the least likely. In English courses, English III – AP students were the most likely to choose the exemption, while English III students were the least likely.
- **Student exam exemption choices also vary significantly by course level and grade level.** Specifically, students in higher course levels are more likely to choose exemptions than students in lower course levels, and students in higher grade levels are more likely to choose exemptions than students in lower grade levels.
- **For some demographic variables, there are significant variations in students’ exam exemption choice.** These significant differences appear across gender, ethnicity, LEP status, ESL status, FRL status, and gifted status.

<sup>2</sup> T-test, significant at  $p \leq 0.001$ .



## SECTION I: VARIABLE DISTRIBUTION

In this section, we display the general distributions of each dependent and independent variable by semester. The semesters included in this dataset span from the fall of the 2010-2011 school year to the fall of the 2012-2013 school year. First, we examine the dependent variables, including semester grades, number of absences, number of disciplinary incidents, eligibility for exam exemption, and exam exemption choice. Then, we show the distribution for each independent variable, including course, course level, grade level, gender, ethnicity, Limited English Proficient (LEP) status, English as a Second Language (ESL) status, homeless status, special education status, Free/Reduced Lunch (FRL) status, and gifted status.

### DEPENDENT VARIABLES

In general, semester grade distribution follows a similar pattern across semesters. In each semester, the lowest grade range of 0 to 69 has the lowest percentage of students, while a plurality of students have semester grades between 80 and 89.

**Figure 1.1: Grade Distribution by Semester**

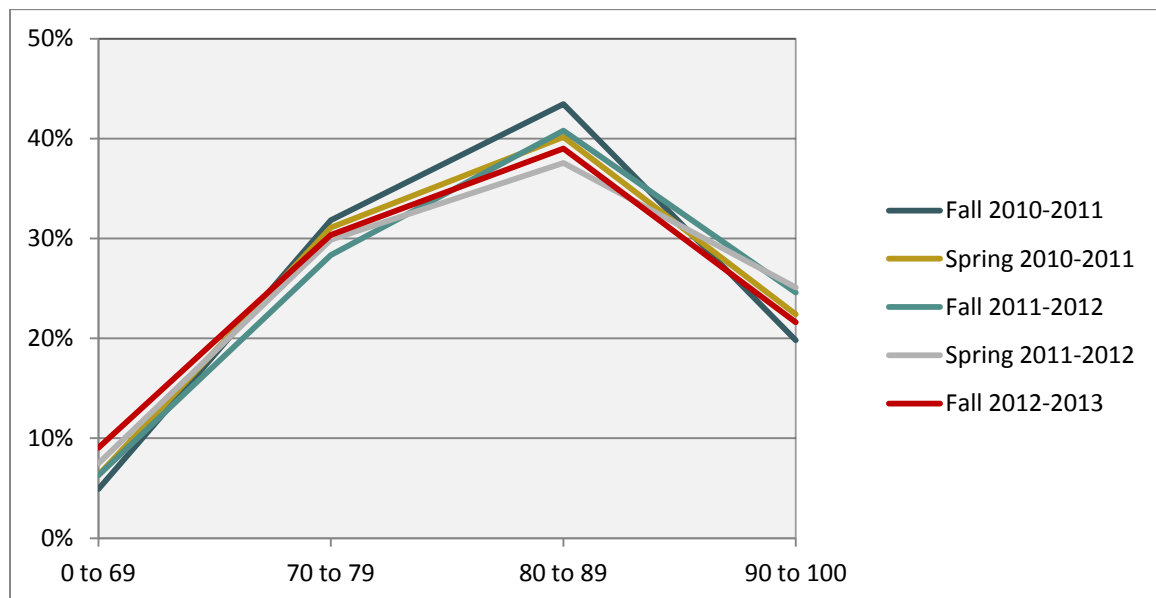
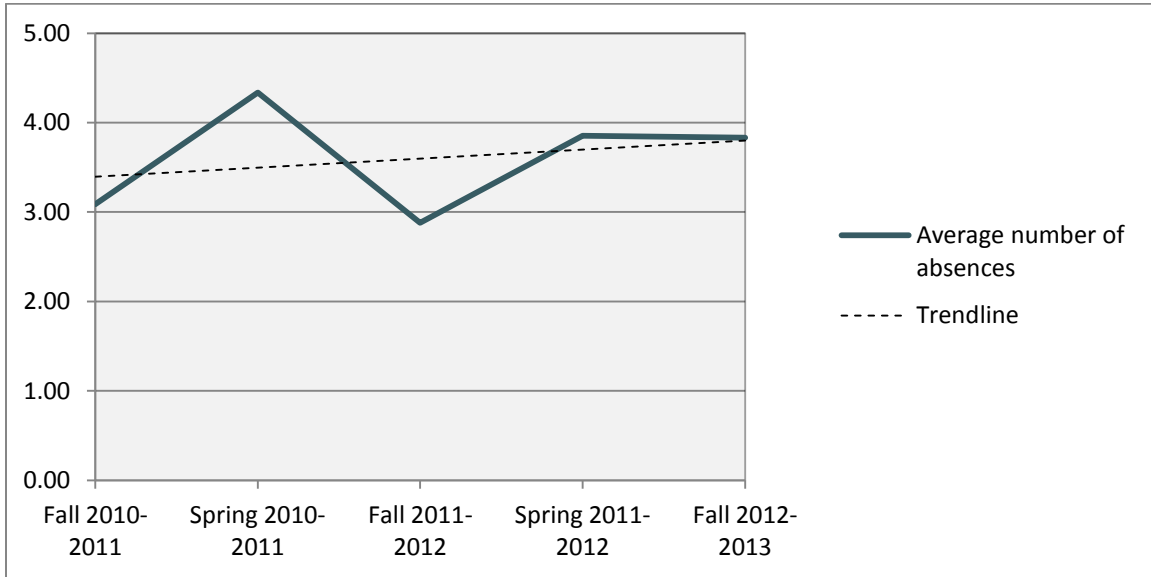


Figure 1.2 shows the number of absences by semester. Absences are defined as all codes included in the absence data, with the exception of OSS and DEP, since those codes are used in the discipline analysis. The codes for medical- and funeral-related absences were not included in the 2010-2011 or 2011-2012 school years since they did not count against the student for exemption eligibility. The trendline in the figure below indicates that absences have generally increased over the semesters, though they appear to be higher in spring semesters than in fall semesters. However, the nearly flat line between the spring of 2011-

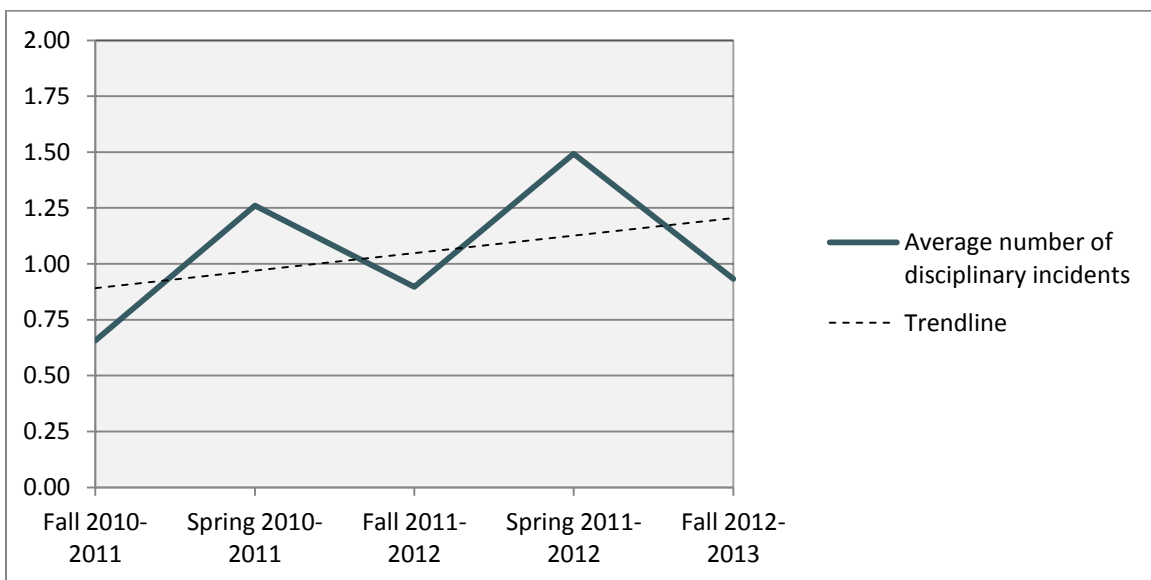
2012 and the fall of 2012-2013 may be due to the inclusion of medical- and funeral-related absences in the exemption qualifications in the 2013 school year.

**Figure 1.2: Average Number of Absences by Semester**



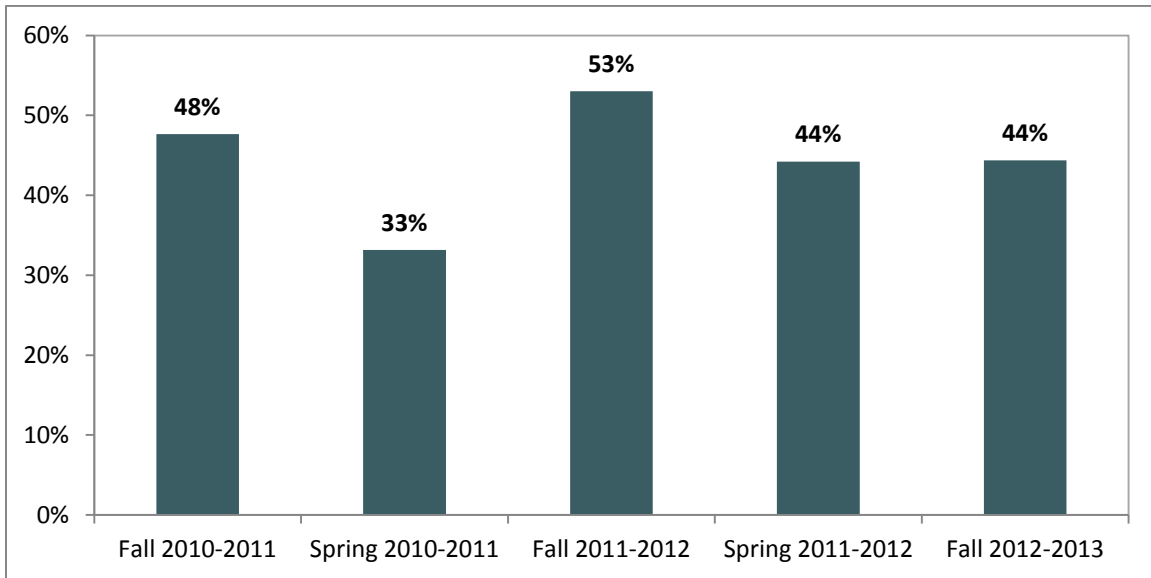
Disciplinary incidents include disciplinary alternative education programs (DEP) and out of school suspensions (OSS). Similar to the pattern seen in the number of absences over the past five semesters, the number of disciplinary incidents appears to be higher in spring semesters than in fall semesters. Also similar to the pattern seen in the number of absences, the number of disciplinary incidents appears to be increasing over time, as indicated by the positive slope of the trendline in the figure below.

**Figure 1.3: Average Number of Discipline Incidents by Semester**



There does not appear to be a clear pattern in the percentage of students who are eligible for the exam exemption by semester, as shown in the figure below. However, similar to the trend in absences and disciplinary incidents, there appear to be higher percentages of eligible students in fall semesters than in spring semesters. Further, in relation to the average number of absences, the percentage of eligible students in the fall of 2012-2013 may be slightly lower than in previous fall semesters because of the inclusion of medical- and funeral-related absences in the eligibility requirements.

**Figure 1.4: Percentage of Students Eligible for Exam Exemption**



**INDEPENDENT VARIABLES**

The following subsections show the distribution of independent variables by semester for both academic and demographic variables.

*ACADEMICS*

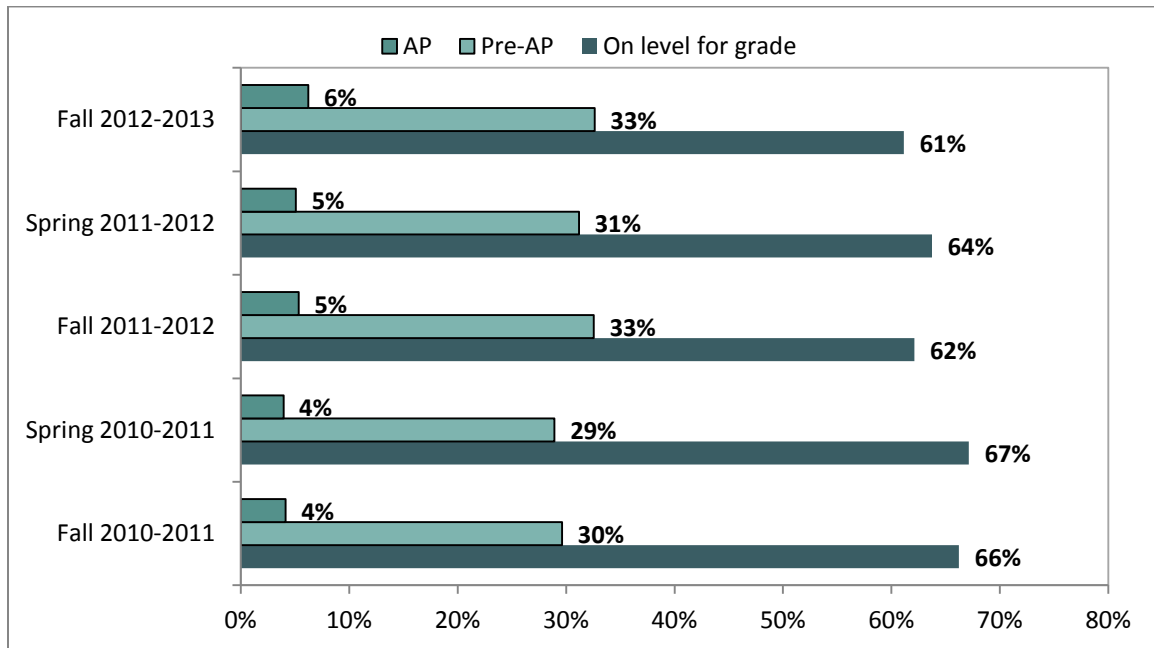
Figure 1.6 on the following page shows that the courses with the highest percentage of observations in the data are Algebra I, Algebra II, Geometry, English I, English II, and English III. These are all regular level courses, and not special education or ESOL courses.

**Figure 1.6: Course Distribution by Semester**

COURSE NAME	FALL 2010-2011	SPRING 2010-2011	FALL 2011-2012	SPRING 2011-2012	FALL 2012-2013
<b>MATH COURSES</b>					
Algebra I	12.3%	12.5%	10.7%	11.0%	9.4%
Algebra I - Pre/AP	1.2%	1.3%	1.0%	1.0%	1.7%
Algebra I - Special E	0.3%	0.3%	0.0%	0.0%	0.0%
Algebra II	9.5%	9.4%	9.7%	9.5%	10.5%
Algebra II - Pre/AP	5.9%	5.7%	5.9%	5.6%	7.7%
Geometry	11.8%	12.4%	12.7%	12.7%	10.5%
Geometry - Pre/AP	6.6%	6.2%	8.1%	7.7%	7.5%
Geometry - Special Ed	0.2%	0.2%	0.0%	0.0%	0.0%
<b>ENGLISH COURSES</b>					
English I	9.6%	9.7%	9.6%	10.3%	9.9%
English I - ESOL	0.1%	0.1%	0.1%	0.1%	0.2%
English I - Pre/AP	9.0%	8.8%	8.9%	8.6%	7.9%
English II	10.6%	10.7%	9.4%	9.8%	10.7%
English II - ESOL	0.2%	0.2%	0.1%	0.1%	0.1%
English II - Pre/AP	6.7%	6.6%	8.2%	7.9%	7.4%
English III	11.7%	11.7%	9.9%	10.1%	9.8%
English III - AP	4.1%	3.9%	5.3%	5.1%	6.2%
English III - Pre/AP	0.3%	0.3%	0.4%	0.4%	0.5%
<b>Total</b>	<b>5,671</b>	<b>5,839</b>	<b>6,064</b>	<b>6,317</b>	<b>6,949</b>

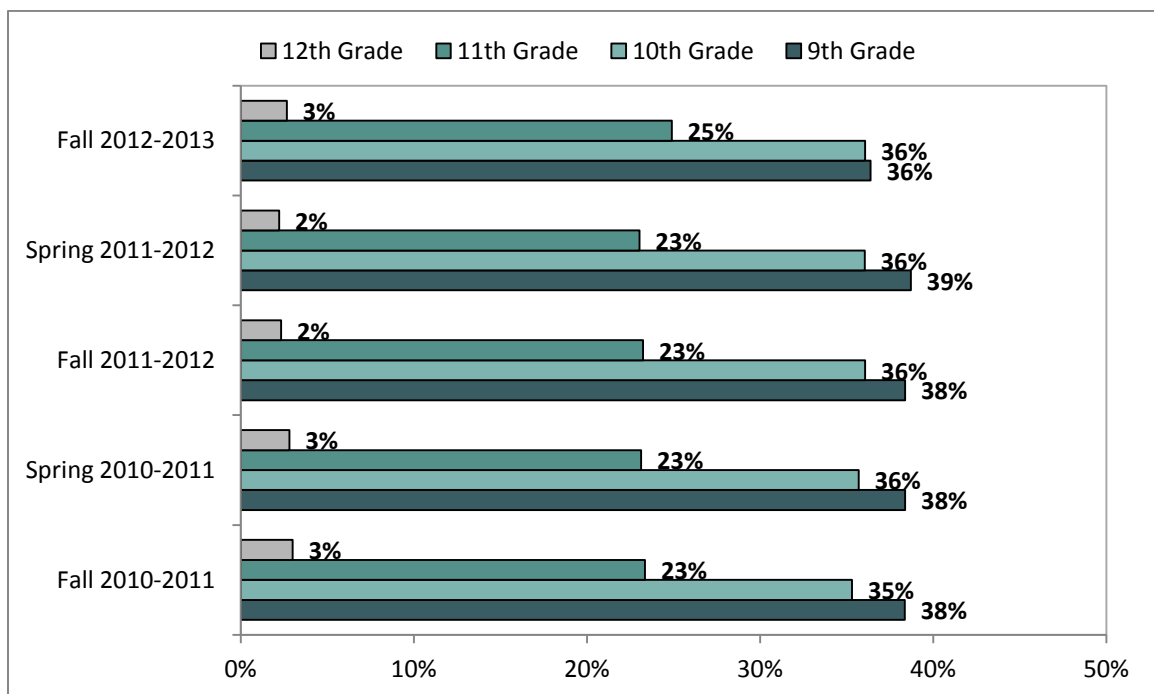
Similar to the trend seen above in course name, most of the observations in this dataset come from courses that are on level for the grade, and not AP or Pre-AP courses. The distribution of observations by course level and semester are shown in Figure 1.7 on the following page.

**Figure 1.7: Course Level by Semester**



As shown in the figure below, a plurality of observations included in the dataset come from grade 9 students, closely followed by grade 10 students. Only around one-quarter of the observations come from grade 11 students in each semester, and only 2 to 3 percent of the data come from grade 12 students in any semester.

**Figure 1.8: Grade Level by Semester**



*DEMOGRAPHICS*

Figure 1.9 below shows the distribution of observations for each demographic variable by semester. For example, in fall 2011-2012, just over half of the observations (50.4 percent) come from male students. Most of the observations appear to come from white students who are not LEP, not ESL, not homeless, not in special education, and not economically disadvantaged. A large majority of students also appear to be missing data regarding their gifted status.

**Figure 1.9: Demographic Variable Distribution by Semester**

	FALL 2010-2011	SPRING 2010-2011	FALL 2011-2012	SPRING 2011-2012	FALL 2012-2013
<b>GENDER</b>					
Female	49.7%	49.9%	49.6%	49.2%	48.3%
Male	50.3%	50.1%	50.4%	50.8%	51.7%
<b>ETHNICITY</b>					
American Indian or Alaska Native	1.9%	2.1%	2.6%	2.6%	2.9%
Asian	3.3%	3.3%	3.3%	3.3%	3.4%
Black or African American	8.2%	8.2%	7.3%	7.4%	7.4%
Native Hawaiian/Other Pacific Islander	0.3%	0.3%	0.3%	0.3%	0.2%
White	86.3%	86.1%	86.6%	86.3%	86.0%
<b>LEP STATUS</b>					
Yes	0.3%	0.3%	0.8%	1.0%	1.9%
First Year Monitor	0.2%	0.2%	0.3%	0.3%	0.3%
Second Year Monitor	0.3%	0.3%	0.5%	0.5%	0.6%
Non-LEP	99.2%	99.2%	98.4%	98.2%	97.2%
<b>ESL STATUS</b>					
Non-ESL	98.0%	98.1%	98.5%	98.4%	99.0%
ESL	2.0%	1.9%	1.5%	1.6%	1.0%
<b>HOMELESS STATUS</b>					
Homeless	0.00%	0.03%	0.03%	0.03%	0.19%
Not homeless	100.00%	99.97%	99.97%	99.97%	99.81%
<b>SPECIAL EDUCATION</b>					
Special education	13.1%	12.8%	13.9%	14.2%	13.5%
Not special education	86.9%	87.2%	86.1%	85.8%	86.5%
<b>FREE/REDUCED LUNCH STATUS</b>					
Free	9.0%	9.1%	13.6%	14.3%	15.7%
Reduced	3.3%	3.3%	5.4%	5.6%	6.1%
Not economically disadvantaged	53.9%	53.7%	78.4%	77.8%	78.2%
Missing	33.8%	34.0%	2.6%	2.3%	0.0%
<b>GIFTED STATUS</b>					
Gifted	6.4%	6.3%	9.0%	8.6%	8.2%
Not gifted	2.3%	2.3%	0.6%	0.6%	0.3%
Missing	91.3%	91.5%	90.5%	90.8%	91.5%
<b>Total</b>	<b>5,671</b>	<b>5,839</b>	<b>6,064</b>	<b>6,317</b>	<b>6,949</b>

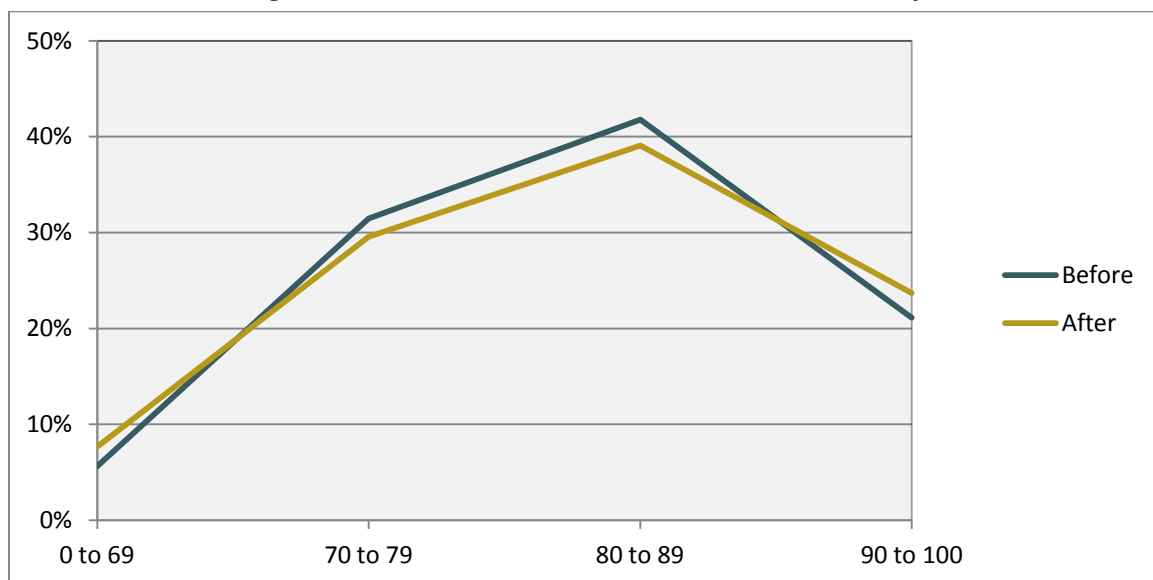
## SECTION II: SEMESTER GRADE ANALYSIS

In this section, we examine students' semester grades by each independent variable before and after the final exam exemption policy was enacted. Semester grade is the final grade for each class period in each semester. The final exam exemption policy began in the 2011-2012 academic year, so all observations in the 2010-2011 academic year are considered as having occurred before the exam exemption policy, and all observations from 2011-2012 and 2012-2013 are considered as having occurred after the policy.

### OVERALL

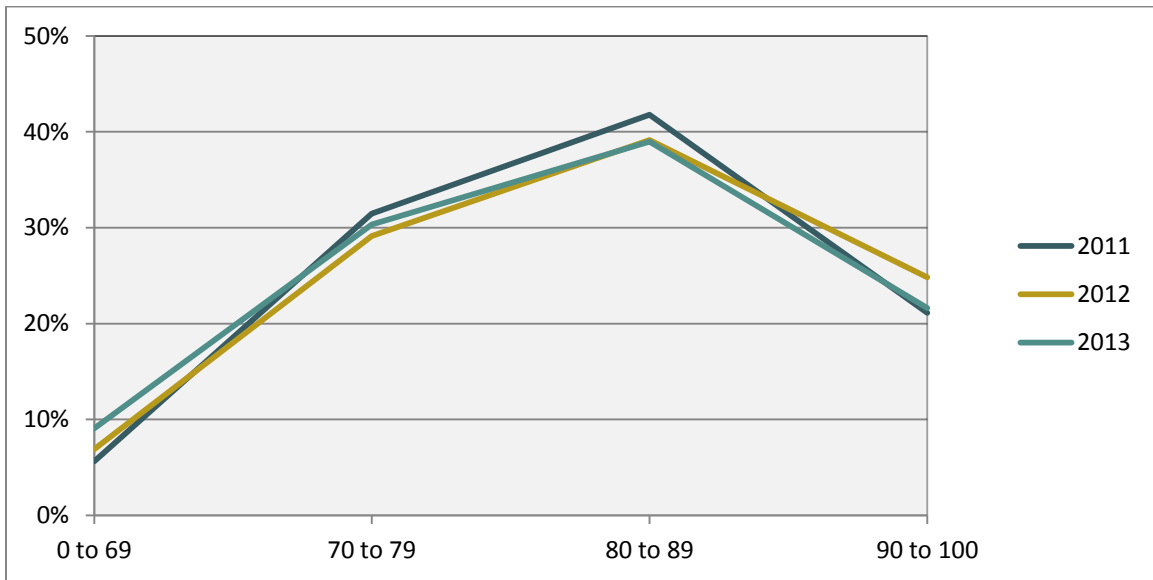
Data indicate that there is no significant difference in semester grade distribution before and after the policy. Average semester grades are slightly higher after the implementation of the policy, but not significantly, as shown in the figure below.

**Figure 2.1: Grade Distribution Before and After Policy**



While there is no significant difference in semester grades before and after the policy on average, there are significant differences by academic year. Average semester grades are significantly higher in 2012 than in 2011, significantly lower in 2013 than in 2012, and significantly lower in 2013 than in 2011. This is depicted in Figure 2.2 on the following page.

**Figure 2.2: Grade Distribution across Academic Years**



**MATH COURSES**

Figure 2.3 lists the changes in semester scores for each math course after the exemption policy was implemented. Only two courses saw significant increases in semester grades, and two courses show significant decreases. The distributions for semester grades in math courses are displayed in the figures that follow.

**Figure 2.3: Changes in Math Course Semester Scores**

CHANGE AFTER POLICY	COURSE
Courses where scores significantly increased	<ul style="list-style-type: none"> <li>▪ Algebra II</li> <li>▪ Geometry – Pre-AP</li> </ul>
Courses where scores significantly decreased	<ul style="list-style-type: none"> <li>▪ Algebra I – Pre-AP</li> <li>▪ Algebra II – Pre-AP</li> </ul>
Courses where scores did not change significantly	<ul style="list-style-type: none"> <li>▪ Algebra I</li> <li>▪ Geometry</li> </ul>

\*There were no “after” groups for special education Algebra I or special education Geometry.



Figure 2.4: Semester Grade Distribution, Algebra I

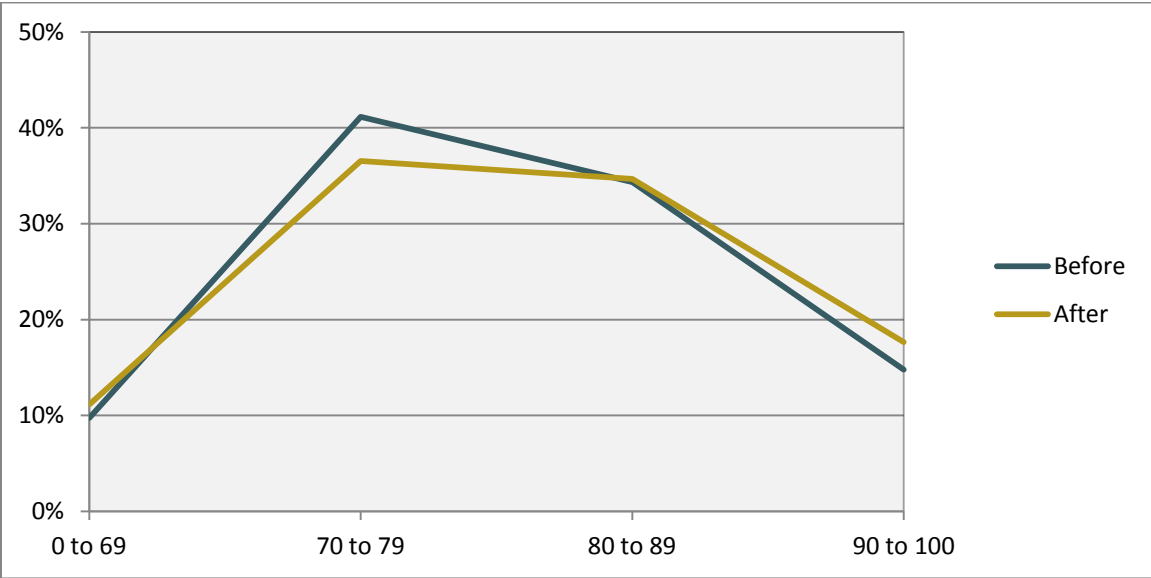


Figure 2.5: Semester Grade Distribution, Algebra I – Pre-AP

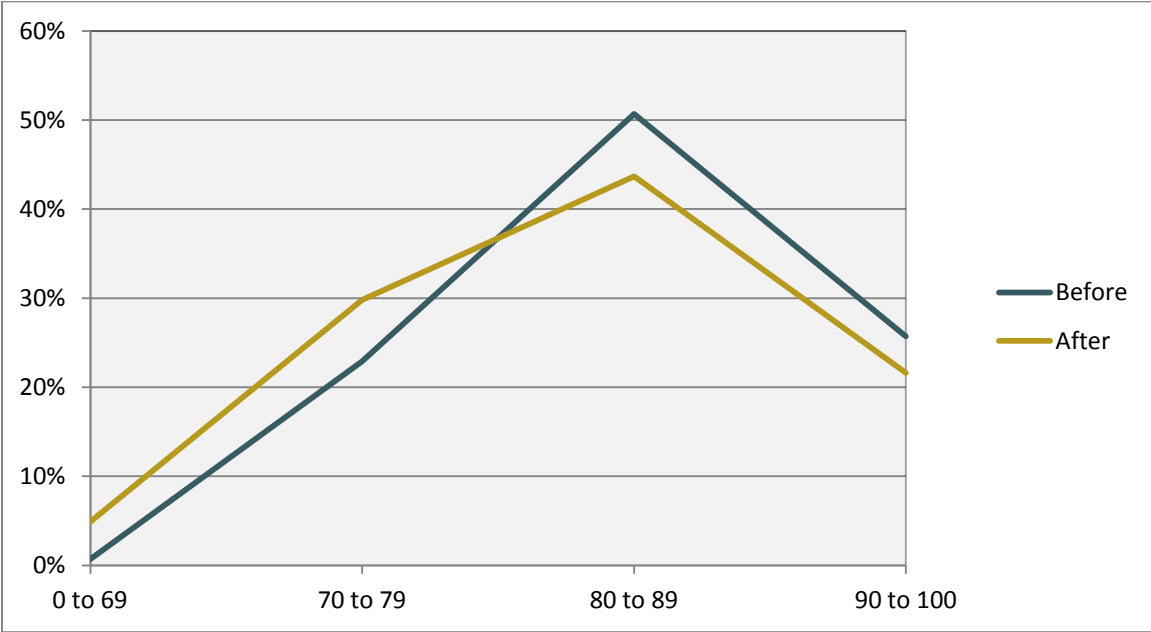
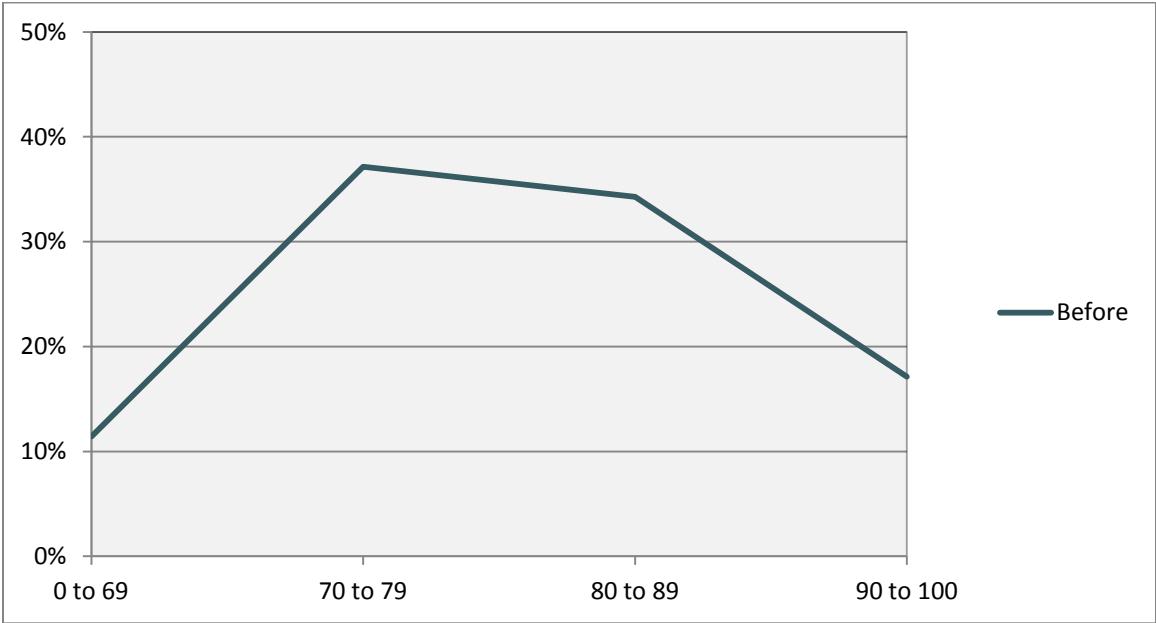
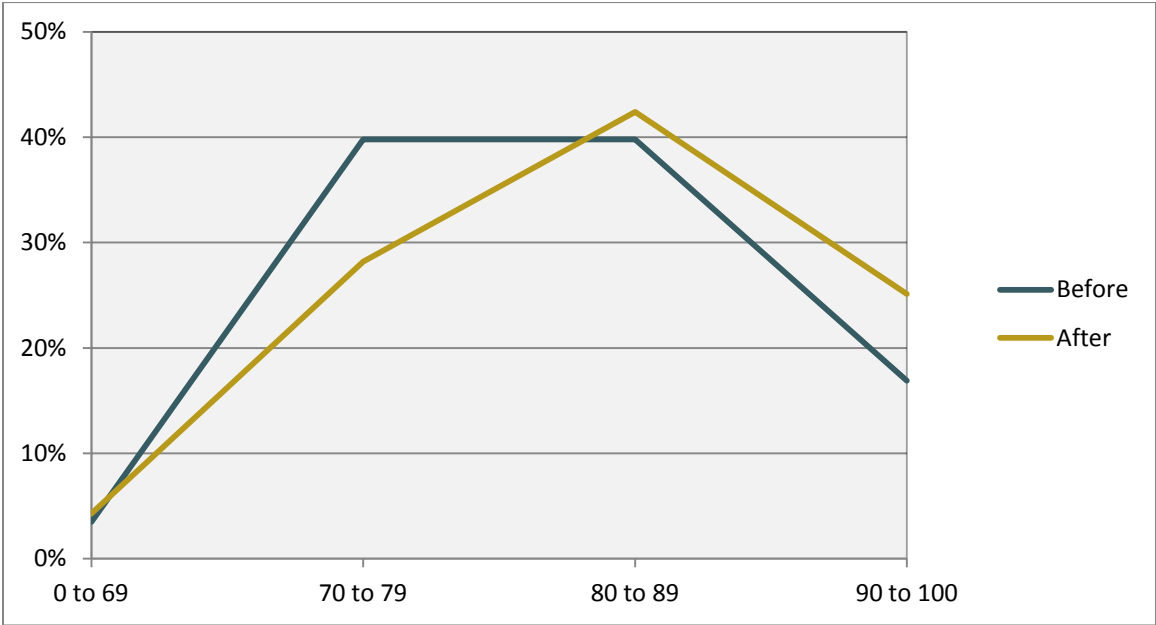


Figure 2.6: Semester Grade Distribution, Algebra I – Special Education

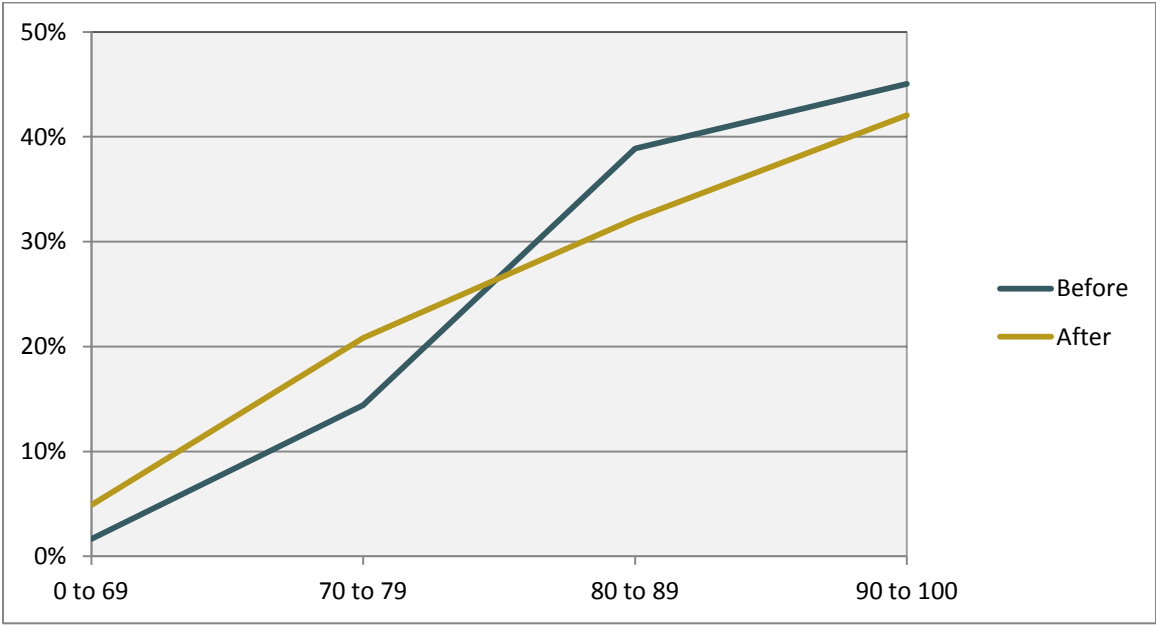


\*There is no "after" group for comparison.

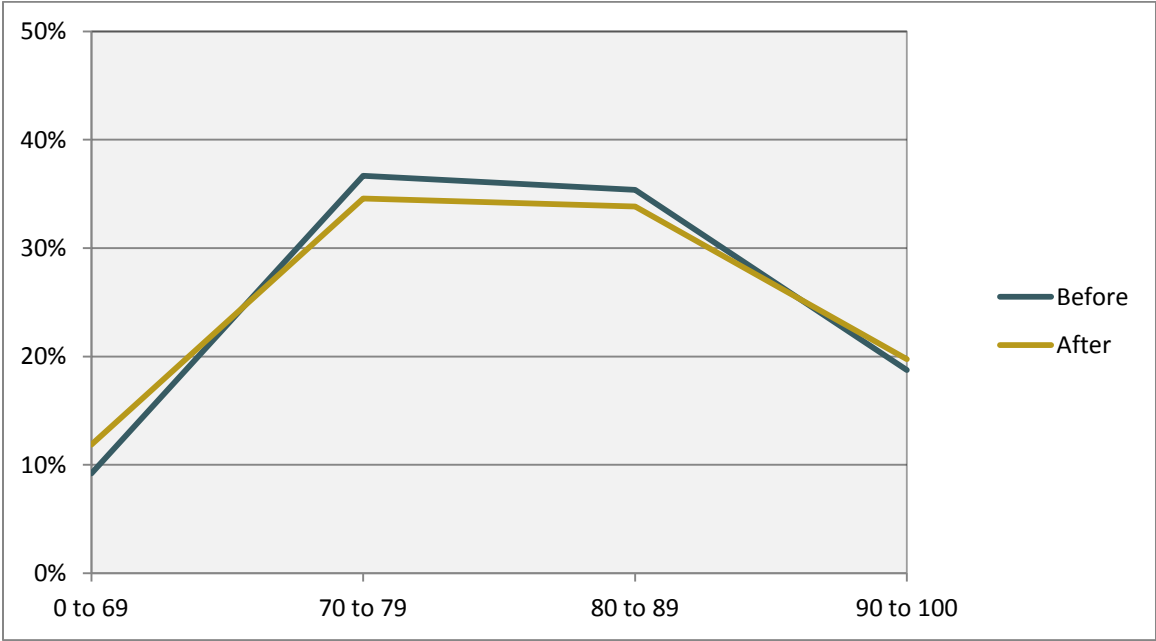
Figure 2.7: Semester Grade Distribution, Algebra II



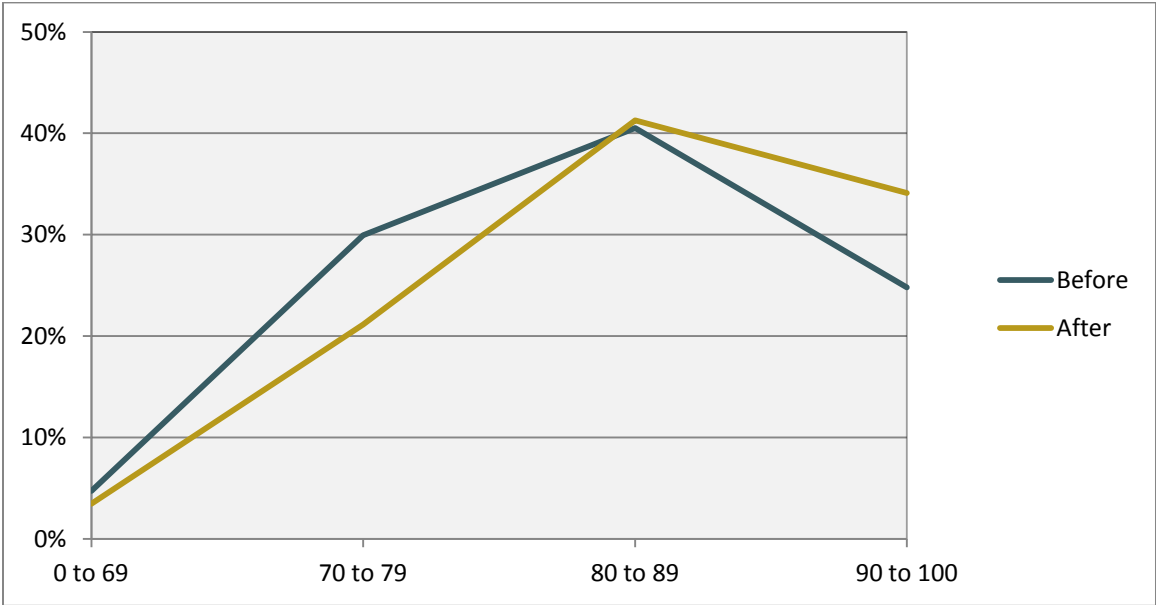
**Figure 2.8: Semester Grade Distribution, Algebra II – Pre-AP**



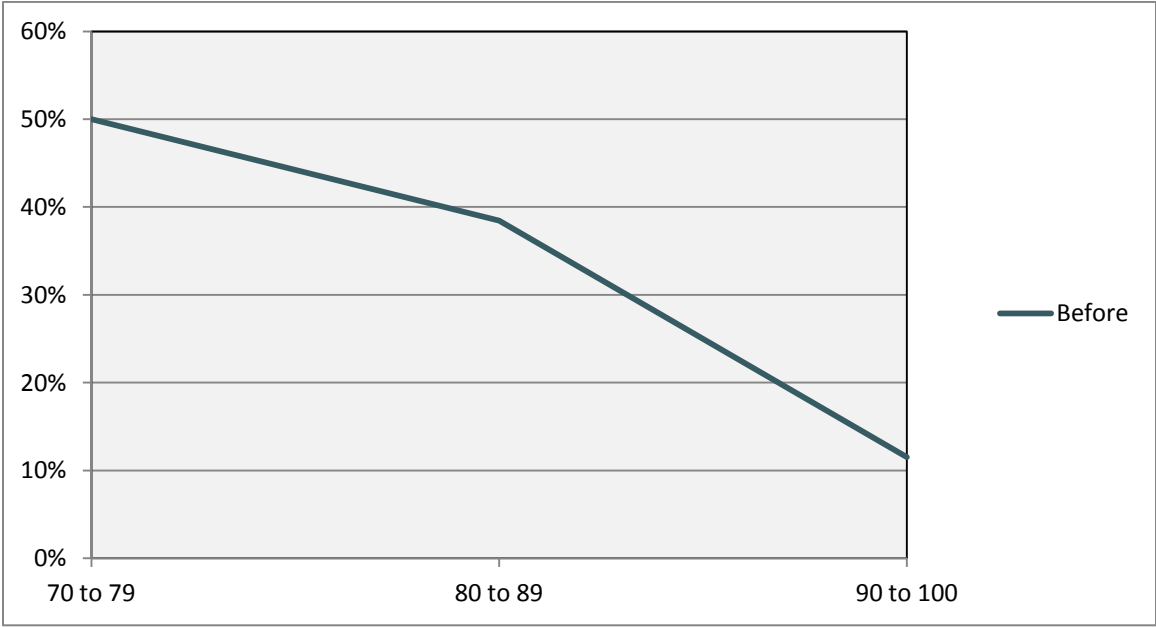
**Figure 2.9: Semester Grade Distribution, Geometry**



**Figure 2.10: Semester Grade Distribution, Geometry – Pre-AP**



**Figure 2.11: Semester Grade Distribution, Geometry – Special Education**



\*There is no "after" group for comparison.

## ENGLISH COURSES

Figure 2.12 lists the changes in semester grades for each English course after the exemption policy was implemented. Only one course shows a significant increase in semester grades, and four courses show significant decreases. The distributions for semester grades in English courses are displayed in the figures that follow.

**Figure 2.12: Changes in English Course Semester Scores**

CHANGE AFTER POLICY	COURSE
Courses where scores significantly increased	<ul style="list-style-type: none"> <li>▪ English I – ESOL</li> </ul>
Courses where scores significantly decreased	<ul style="list-style-type: none"> <li>▪ English I</li> <li>▪ English II</li> <li>▪ English III</li> <li>▪ English III – Pre-AP</li> </ul>
Courses where scores did not change significantly	<ul style="list-style-type: none"> <li>▪ English I Pre-AP</li> <li>▪ English II – ESOL</li> <li>▪ English III – Pre-AP</li> <li>▪ English III AP</li> </ul>

**Figure 2.13: Semester Grade Distribution, English I**

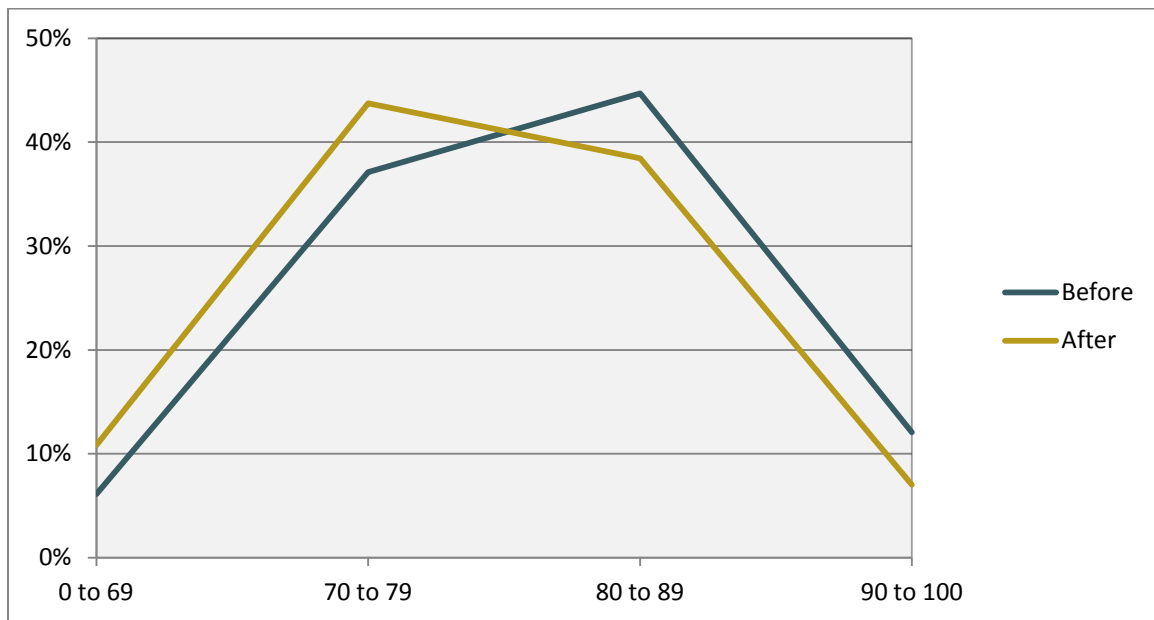


Figure 2.14: Semester Grade Distribution, English I - ESOL

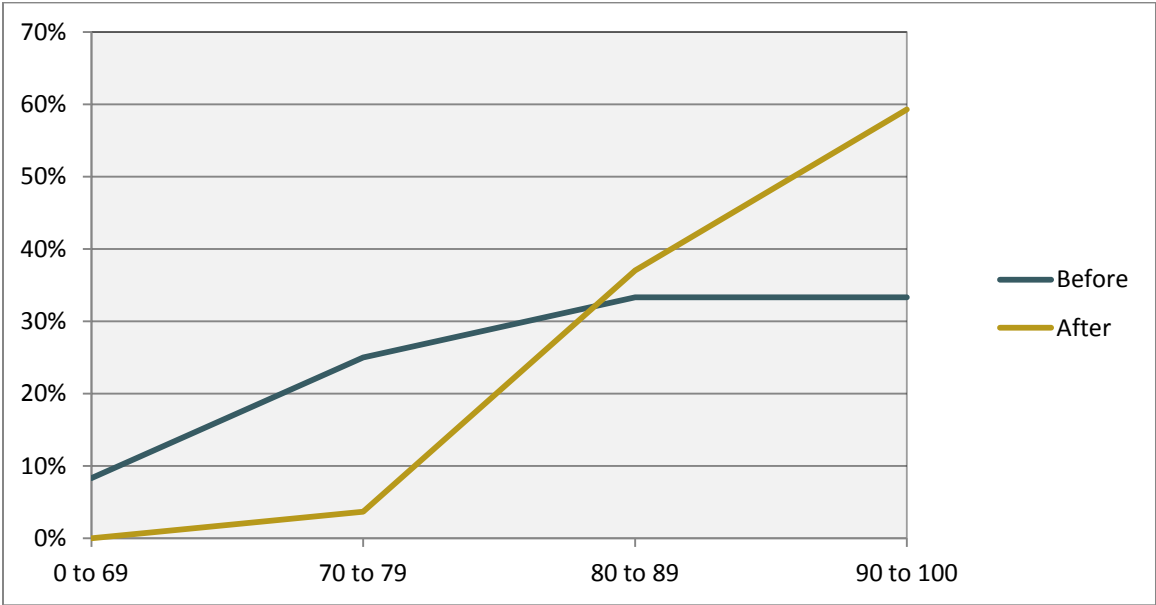


Figure 2.15: Semester Grade Distribution, English I – Pre-AP

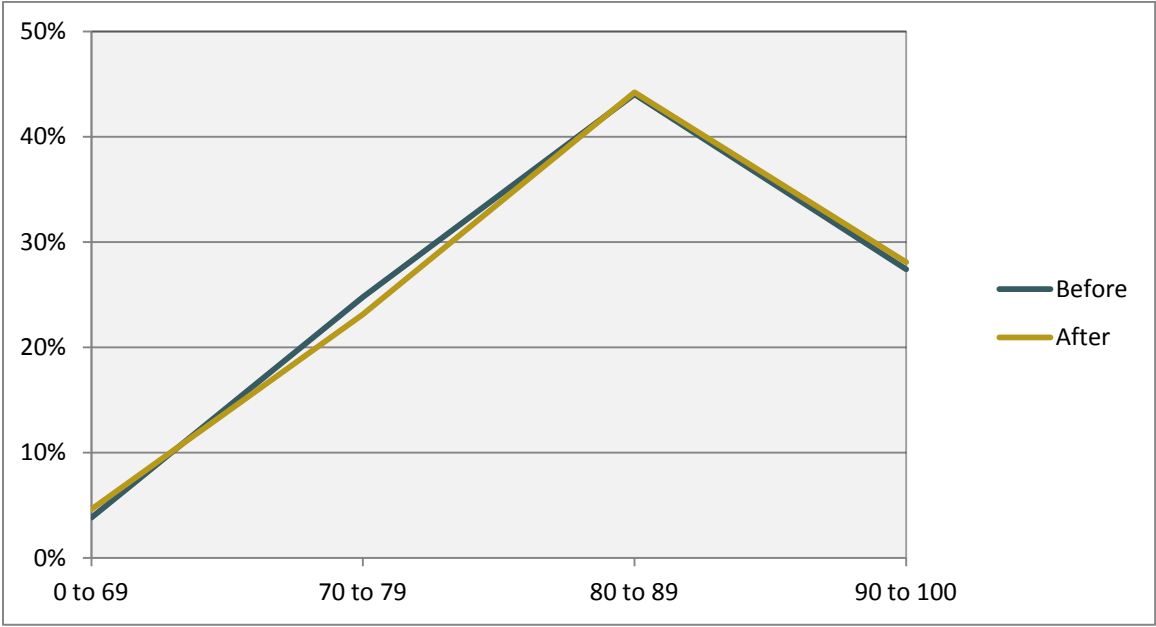


Figure 2.16: Semester Grade Distribution, English II

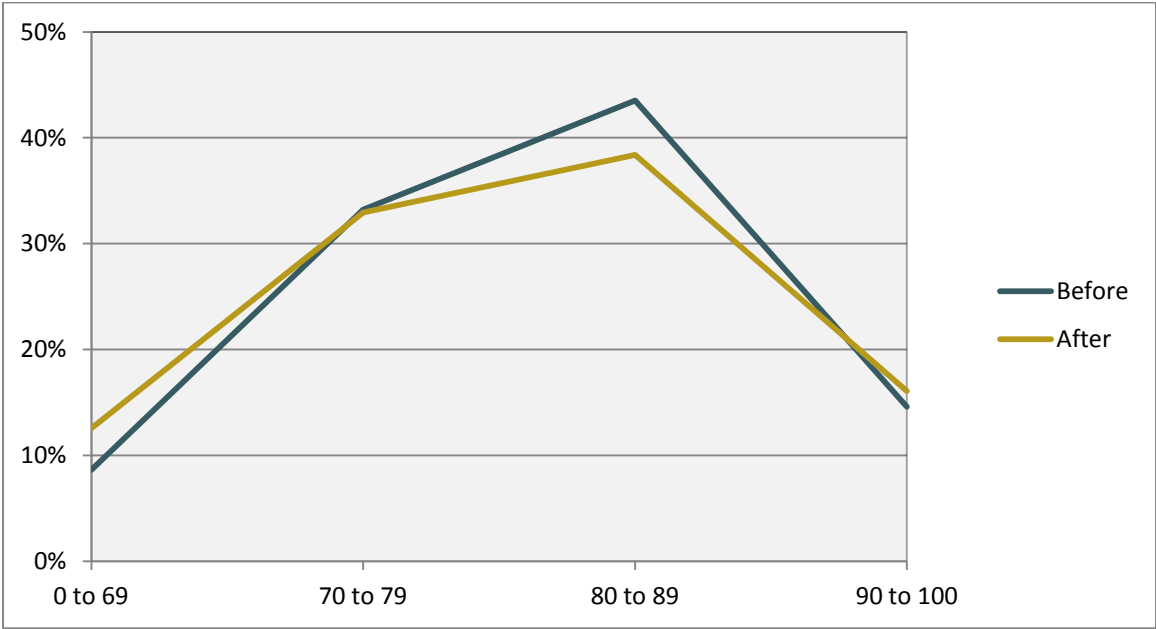


Figure 2.17: Semester Grade Distribution, English II - ESOL

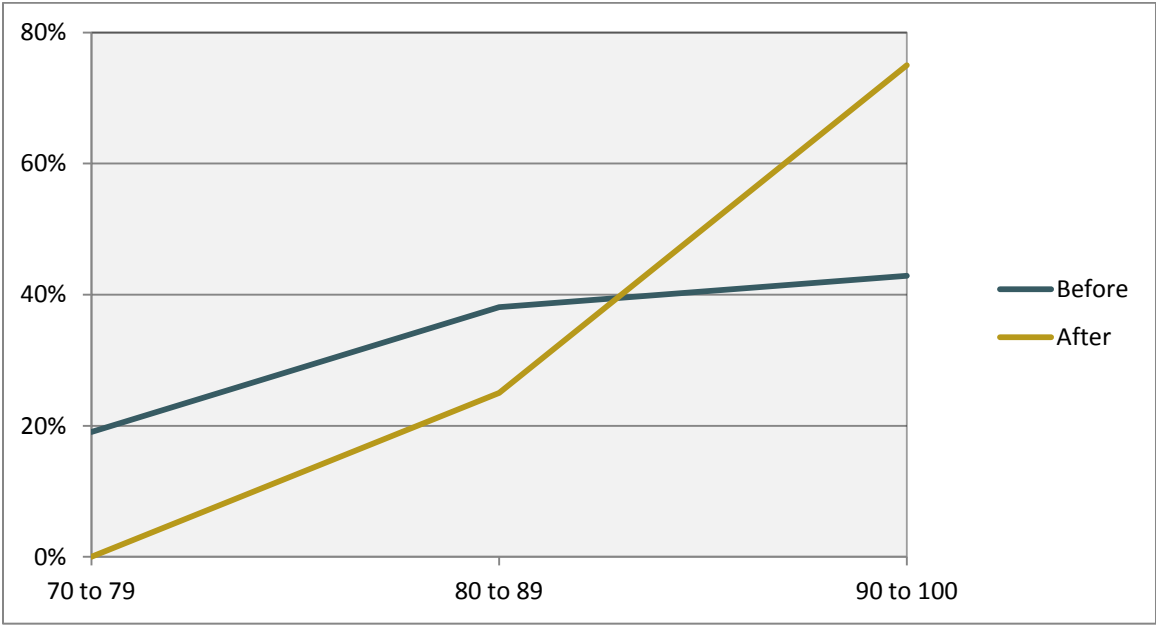


Figure 2.18: Semester Grade Distribution, English II – Pre-AP

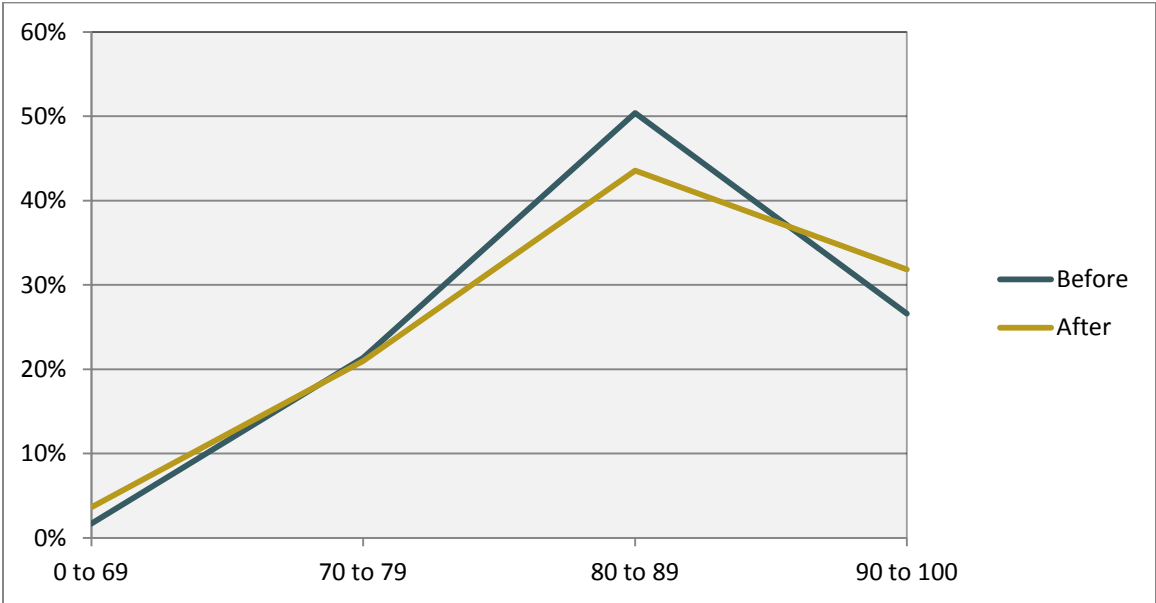


Figure 2.19: Semester Grade Distribution, English III

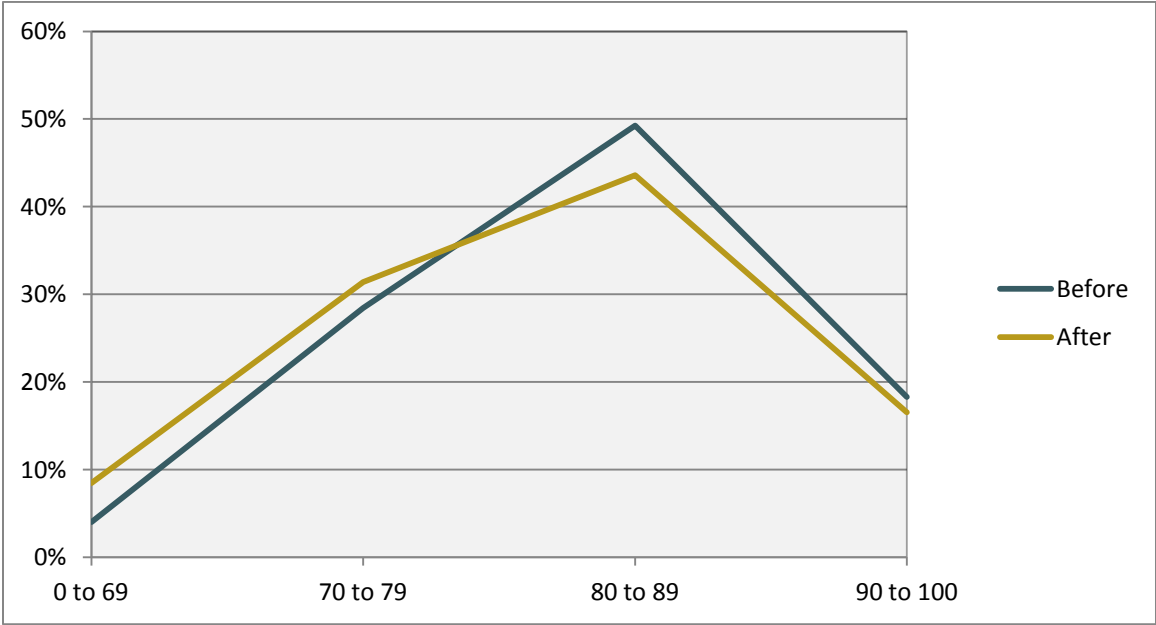




Figure 2.20: Semester Grade Distribution, English III – Pre-AP

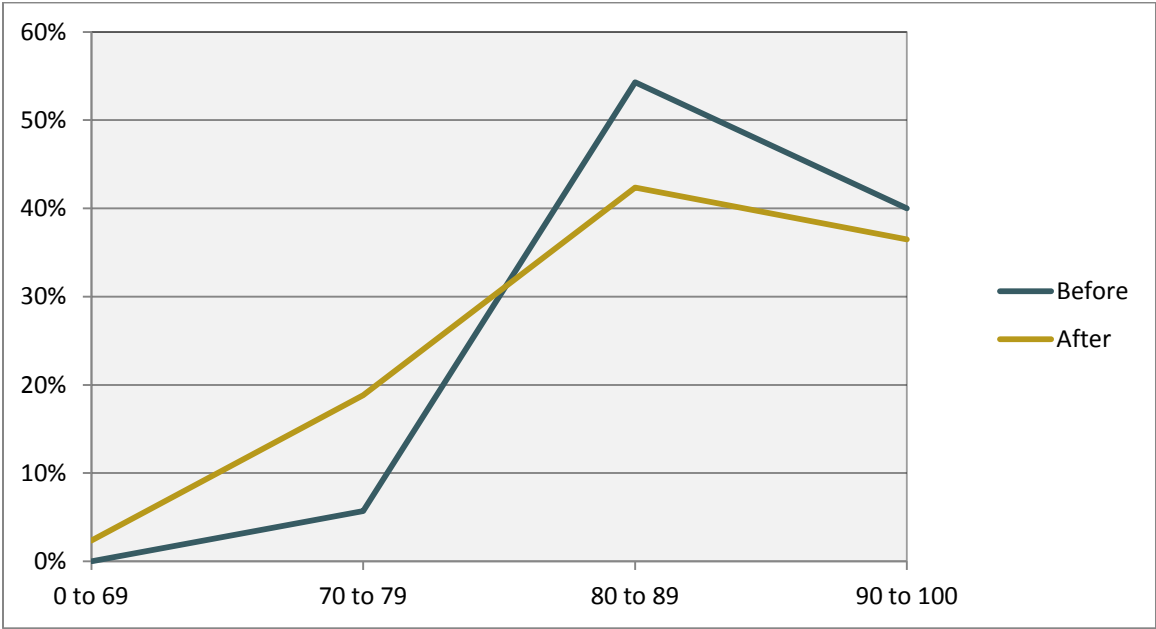
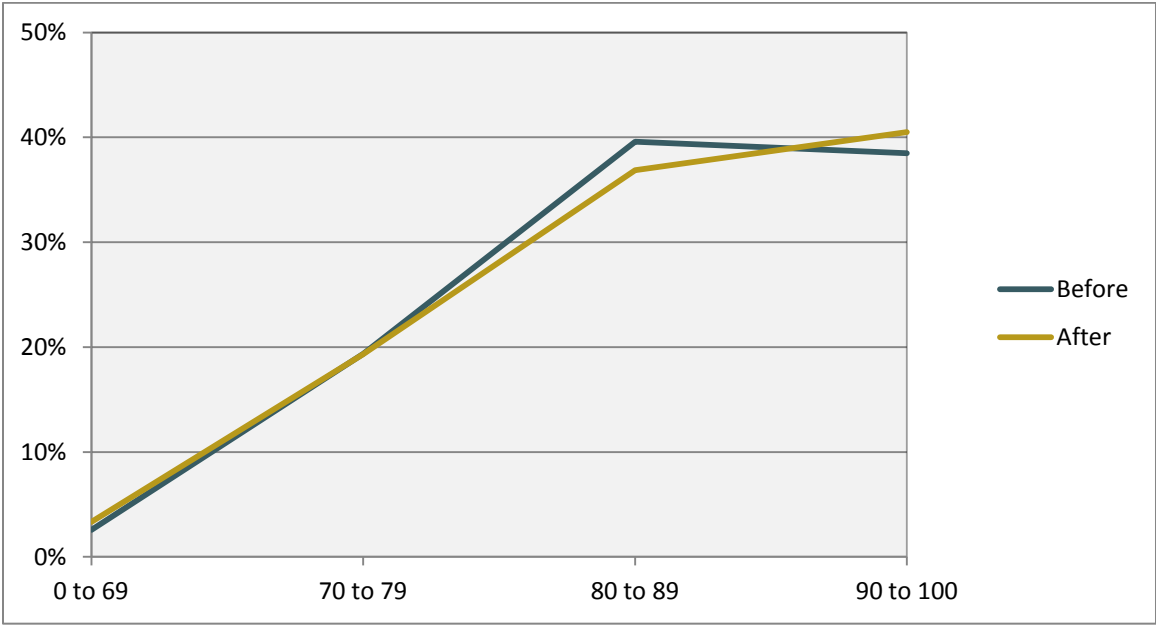


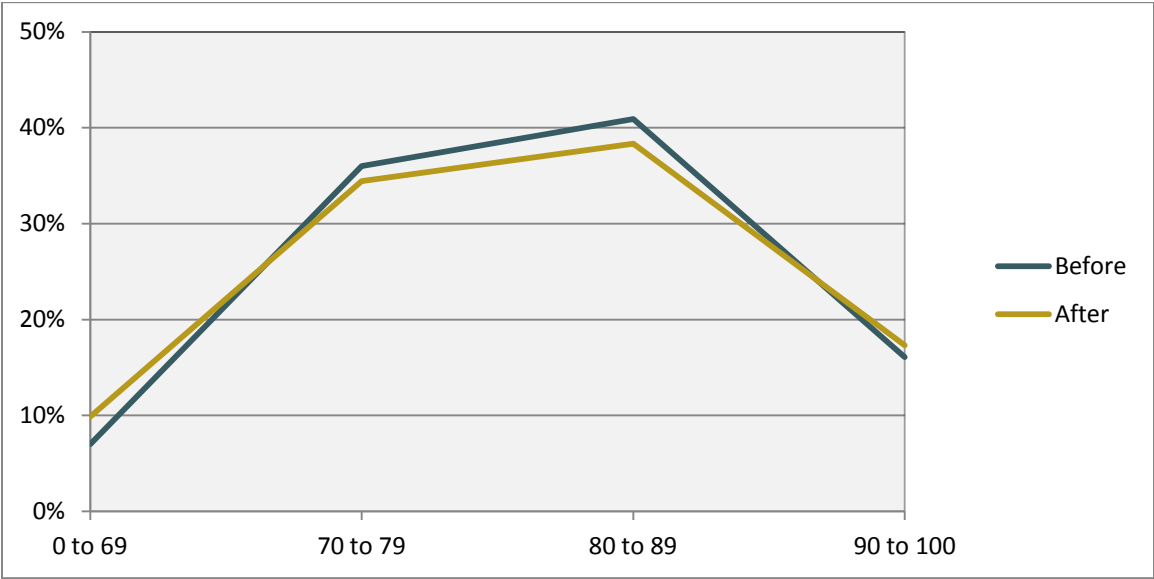
Figure 2.21: Semester Grade Distribution, English III - AP



**COURSE LEVEL**

The following figures show semester grade distributions for each course level. Average semester grades are significantly lower after the implementation of the policy in courses that are on-level for the grade. However, there are no significant differences in Pre-AP or AP semester grades on average.

**Figure 2.22: Semester Grade Distribution, On Level for Grade**



**Figure 2.23: Semester Grade Distribution, Pre-AP**

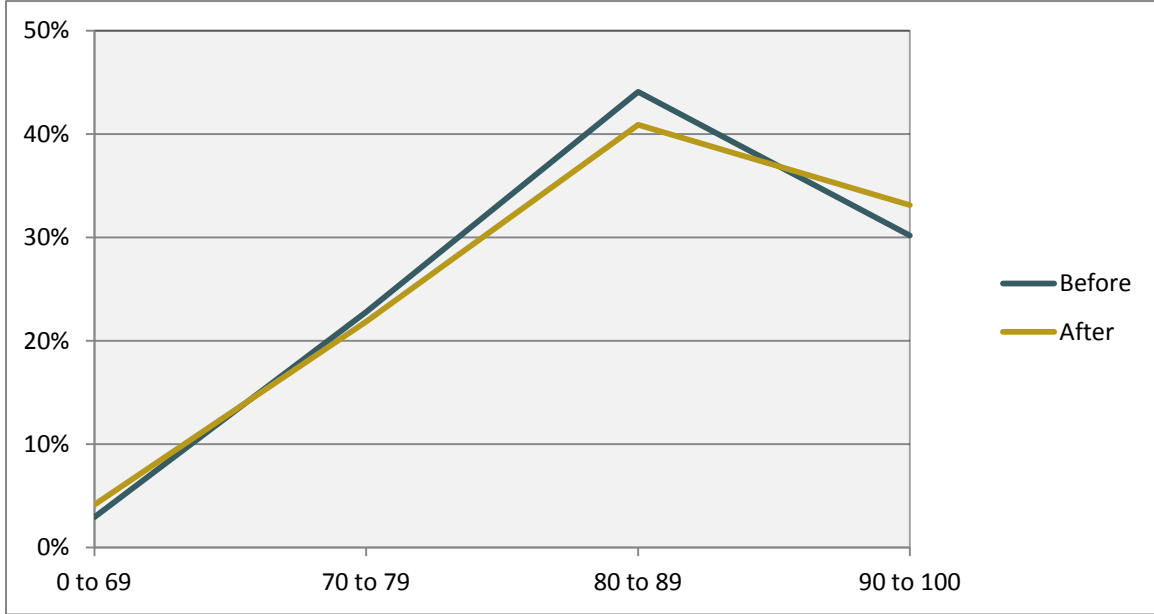
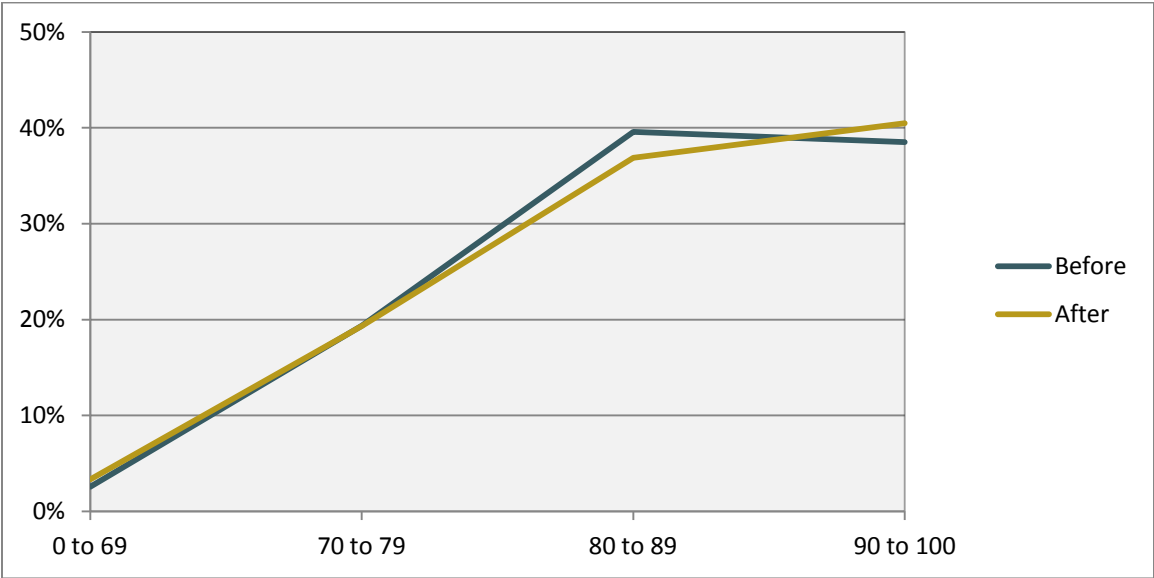


Figure 2.24: Semester Grade Distribution, AP



**GRADE LEVEL**

The following figures show semester grade distributions for each grade level. There are no significant differences in semester grades for students in grades 9, 10, or 11. However, semester grades for grade 12 students are significantly higher.

Figure 2.25: Semester Grade Distribution, Grade 9 Students

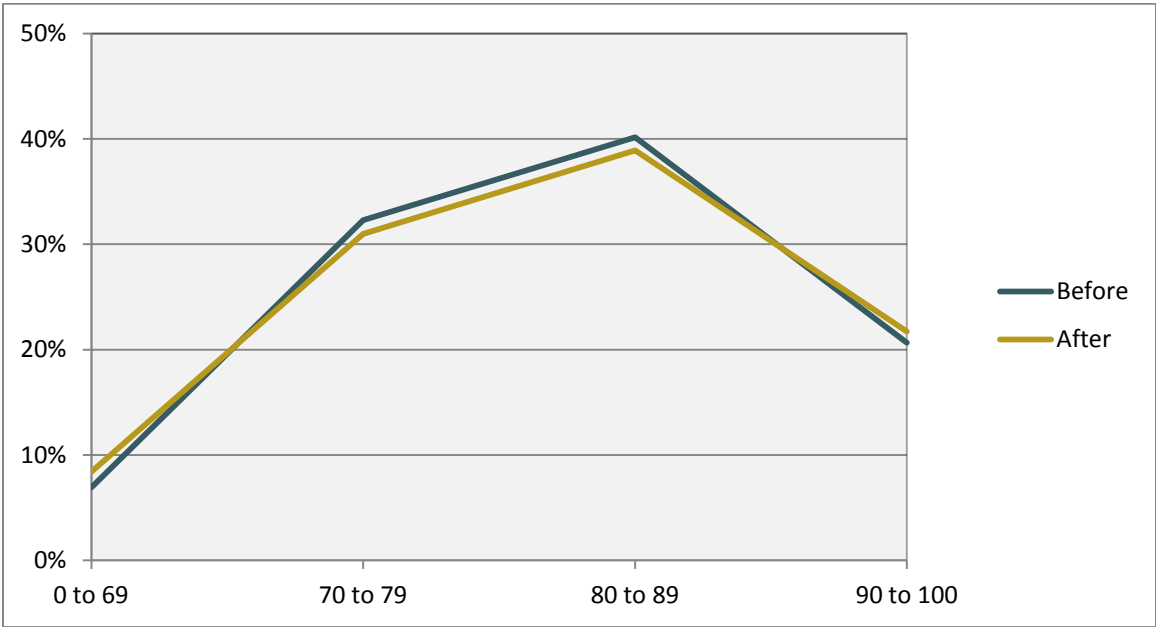


Figure 2.26: Semester Grade Distribution, Grade 10 Students

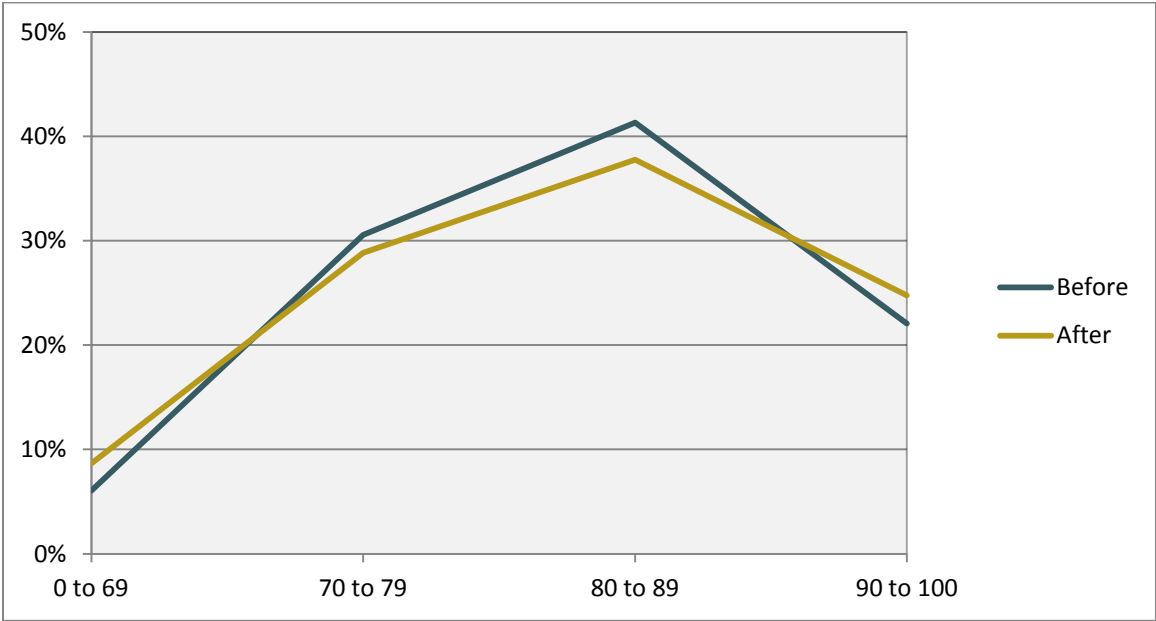


Figure 2.27: Semester Grade Distribution, Grade 11 Students

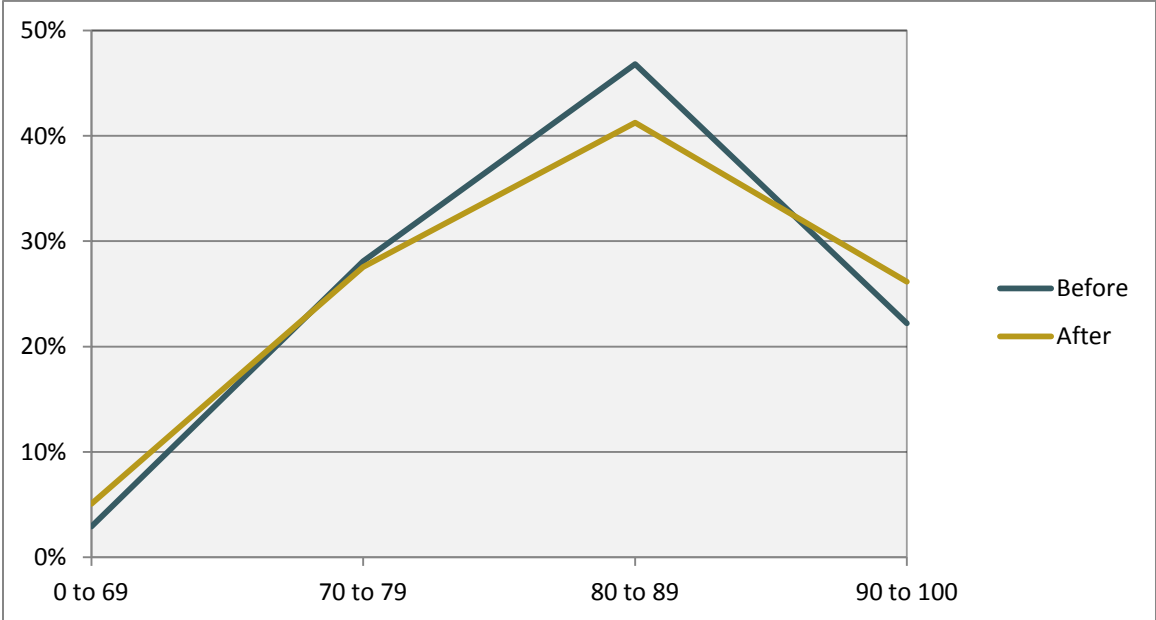
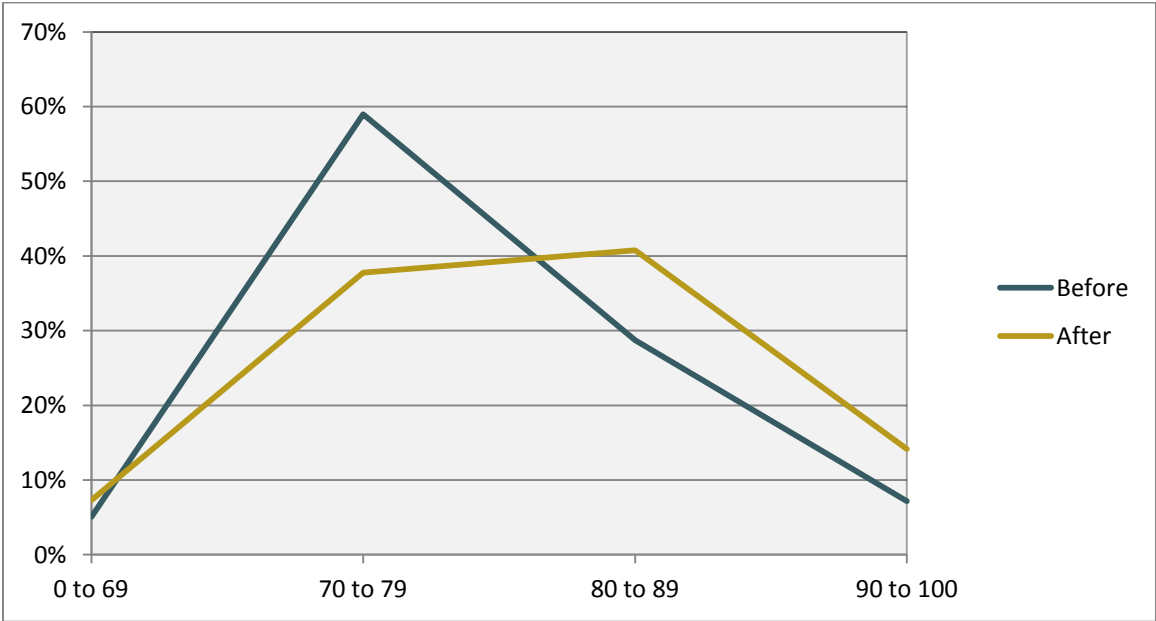


Figure 2.28: Semester Grade Distribution, Grade 12 Students



## DEMOGRAPHIC VARIABLES

The following figure shows average semester grades for each demographic variable before and after the exemption policy was implemented. It also displays the number of observations included in each average, the difference in the average after the policy, and whether that difference is statistically significant. Significant differences in semester grade appear for female, LEP, ESL, special education, and gifted students. Significant differences also appear for students who are coded as not gifted, and those who have missing FRL data.

**Figure 2.29: Average Semester Grades by Demographic Variable**

	AVERAGE BEFORE	NUMBER OF STUDENTS		AVERAGE AFTER	NUMBER OF STUDENTS		DIFFERENCE IN AVERAGE	SIGNIFICANT
<b>GENDER</b>								
Female	82.89	5,728		83.24	9,472		0.35	Yes
Male	79.73	5,782		79.49	9,858		-0.24	No
<b>ETHNICITY</b>								
American Indian or Alaska Native	79.81	227		80.51	524		0.70	No
Asian	86.00	378		85.25	644		-0.75	No
Black or African American	79.21	948		79.33	1,425		0.11	No
Native Hawaiian/Other Pacific Islander	79.06	31		78.58	55		-0.48	No
White	81.36	9,926		81.38	16,682		0.01	No
<b>LEP STATUS</b>								
LEP	81.97	36		76.04	248		-5.93	Yes
First Year Monitor	73.90	20		75.64	58		1.74	No
Second Year Monitor	77.92	37		76.28	103		-1.64	No
Non-LEP	81.32	11,417		81.44	18,921		0.11	No
<b>ESL STATUS</b>								
Non-ESL	81.38	11,286		81.41	19,072		0.04	No
ESL	77.62	224		74.80	258		-2.82	Yes
<b>HOMELESS STATUS</b>								
Homeless	74.50	2		74.59	17		0.09	No
Not homeless	81.30	11,508		81.33	19,313		0.03	No
<b>SPECIAL EDUCATION</b>								
Special education	77.03	1,492		77.92	2,673		0.89	Yes
Not special education	81.94	10,018		81.87	16,657		-0.07	No
<b>FREE/REDUCED LUNCH STATUS</b>								
Free	77.52	1,039		77.30	2,816		-0.22	No
Reduced	79.28	380		78.78	1,106		-0.50	No
Not economically disadvantaged	82.41	6,194		82.30	15,108		-0.11	No
Missing	80.75	3,897		79.48	300		-1.27	Yes
<b>GIFTED STATUS</b>								
Gifted	88.71	729		87.69	1,659		-1.02	Yes
Not gifted	86.67	263		82.23	92		-4.44	Yes
Missing	80.65	10,518		80.72	17,579		0.06	No

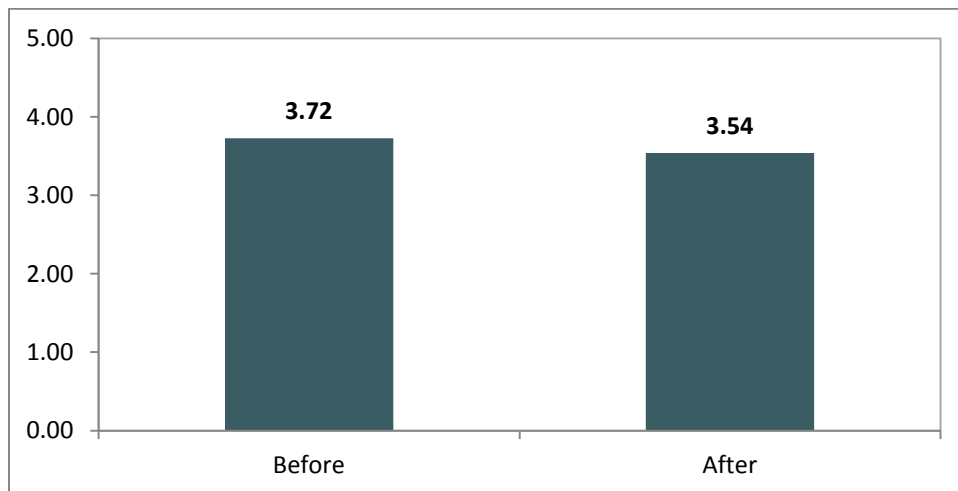
## SECTION III: ATTENDANCE ANALYSIS

To analyze the effect of the exam exemption policy implementation on absences during class periods that affect student eligibility for exemption, we first examined the number of absences that count toward the exemption policy, per student, per period, per semester. Absences include all codes in attendance data, with the exception of OSS and DEP, since those codes are used in the discipline analysis. Medical- and funeral-related absences were not counted as absences in 2011 or 2012, as they did not count toward the exemption policy until 2013. We then calculated the average number of absences for each independent variable before and after the policy was implemented. The results are presented here. Again, all observations in the 2010-2011 academic year are considered as having occurred before the exam exemption policy, and all observations from 2011-2012 and 2012-2013 are considered as having occurred after the policy.

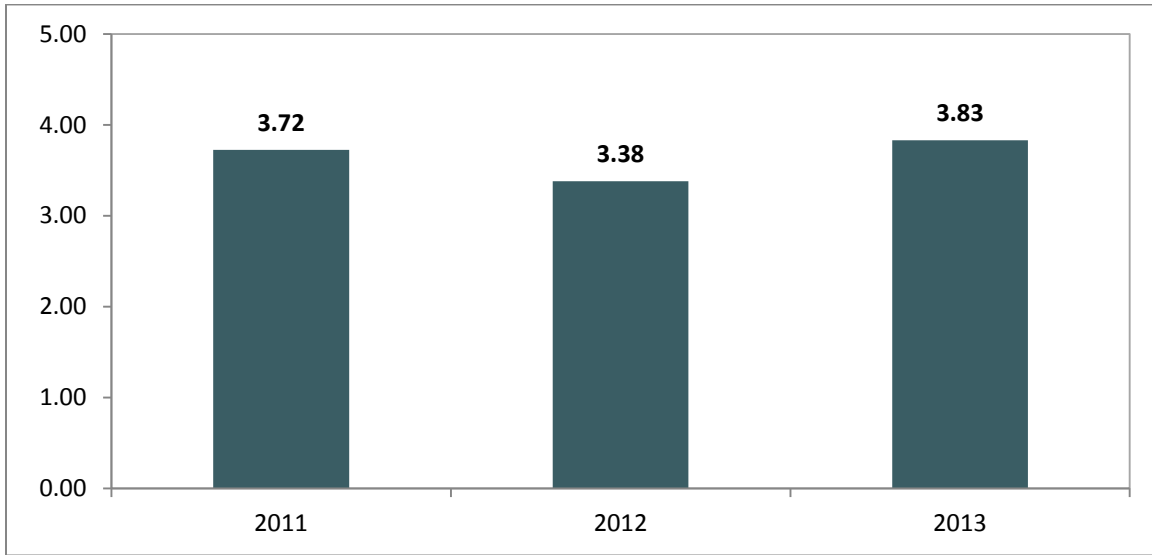
### OVERALL

Figure 3.1 below demonstrates that the average number of absences decreased significantly after the policy was implemented. Figure 3.2 on the following page then indicates that the average number of absences also decreased significantly from 2010 to 2011, but increased significantly in the fall semester of 2012. Since this section examines at absences that affect students' exemption eligibility, this increase may be due to the inclusion of medical- and funeral-related absences in the eligibility criteria.

**Figure 3.1: Average Number of Absences Before and After Policy**



**Figure 3.2: Average Number of Absences by Year**



**MATH COURSES**

Figure 3.3 lists the changes in average number of absences for each math course after the exemption policy was implemented. None of the courses show significant increases in absences, and three courses show significant decreases. The distributions for average absences in math courses are then displayed in Figure 3.4 on the following page.

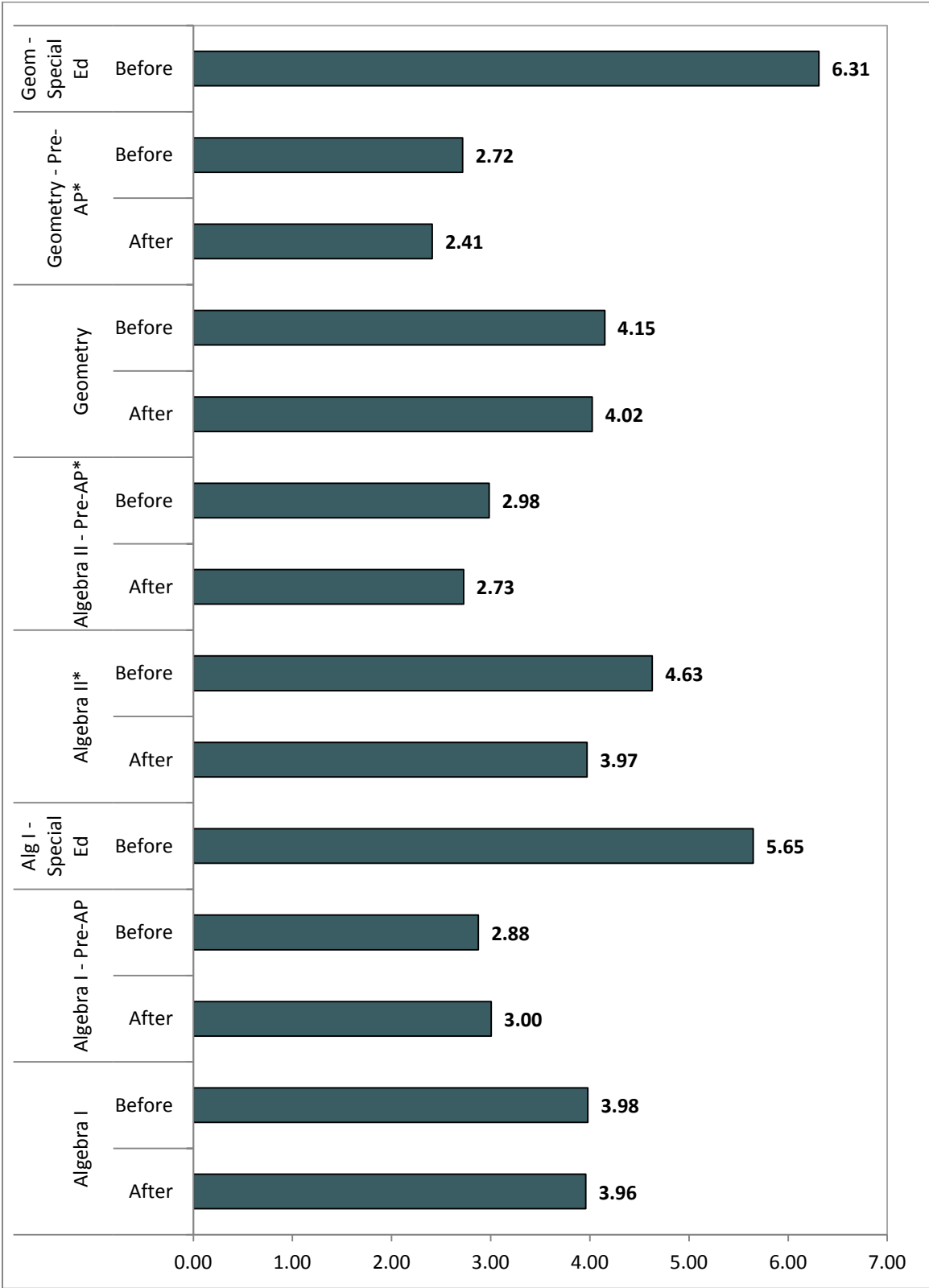
**Figure 3.3: Changes in Number of Absences in Math Courses**

CHANGE AFTER POLICY	COURSE
Courses where absences significantly increased	-
Courses where absences significantly decreased	<ul style="list-style-type: none"> <li>▪ Algebra II</li> <li>▪ Algebra II – Pre-AP</li> <li>▪ Geometry – Pre-AP</li> </ul>
Courses where absences did not change significantly	<ul style="list-style-type: none"> <li>▪ Algebra I</li> <li>▪ Algebra I – Pre-AP</li> <li>▪ Geometry</li> </ul>

\*There were no “after” groups for special education Algebra I or special education Geometry.



Figure 3.4: Average Number of Absences in Math Courses



\*Significant difference before and after the policy.

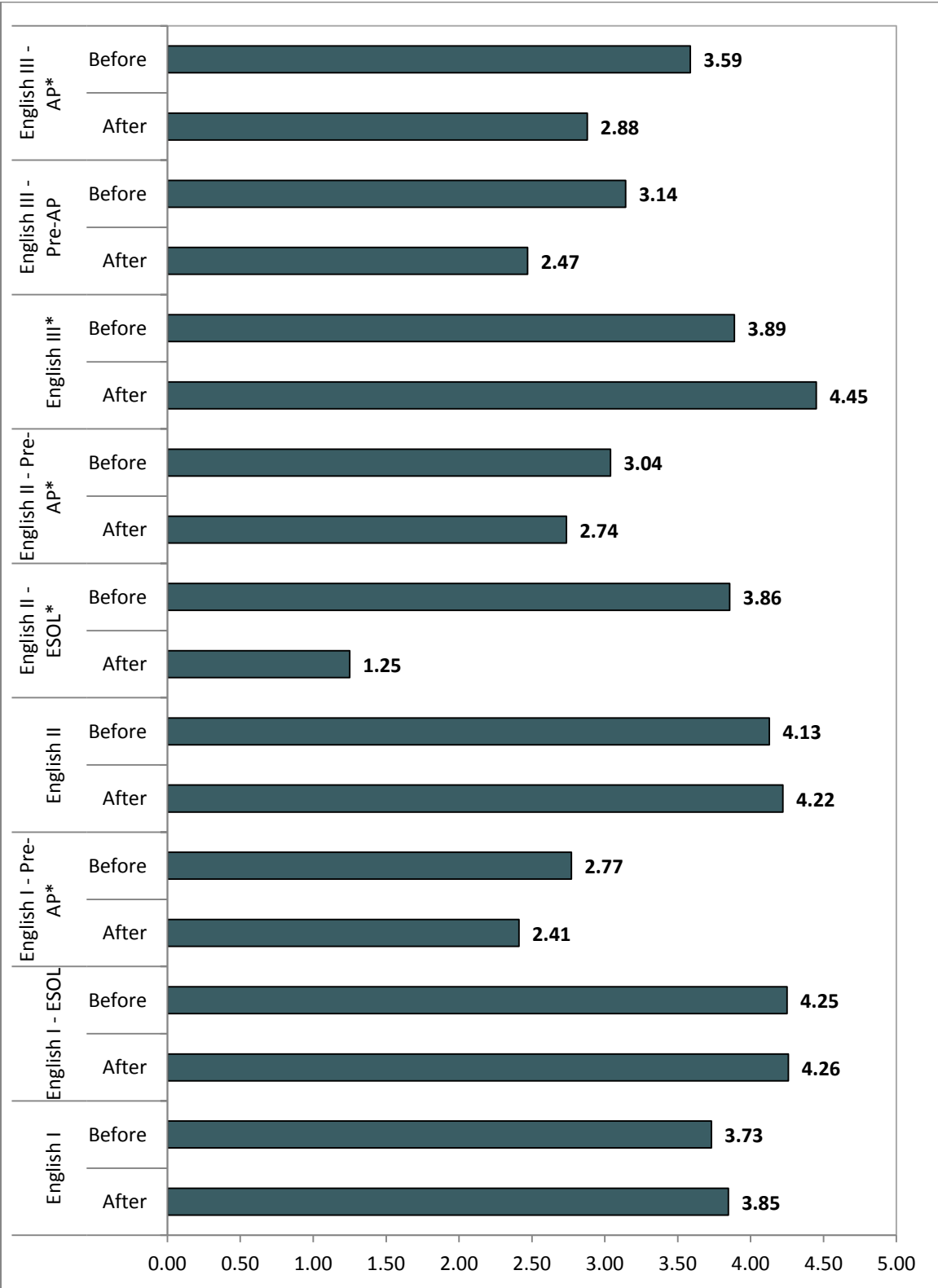
## ENGLISH COURSES

Figure 3.4 lists the changes in the average number of absences for each English course after the exemption policy was implemented. Only one course shows significant increases in absences, and four courses show significant decreases. The distributions for average absences in English courses are displayed in Figure 3.6 on the following page.

**Figure 3.5: Changes in Number of Absences in English Courses**

CHANGE AFTER POLICY	COURSE
Courses where absences significantly increased	<ul style="list-style-type: none"> <li>▪ English III</li> </ul>
Courses where absences significantly decreased	<ul style="list-style-type: none"> <li>▪ English I – Pre-AP</li> <li>▪ English II – ESOL</li> <li>▪ English II – Pre-AP</li> <li>▪ English III – AP</li> </ul>
Courses where absences did not change significantly	<ul style="list-style-type: none"> <li>▪ English I</li> <li>▪ English I – ESOL</li> <li>▪ English II</li> <li>▪ English III – Pre-AP</li> </ul>

Figure 3.6: Average Number of Absences in English Course

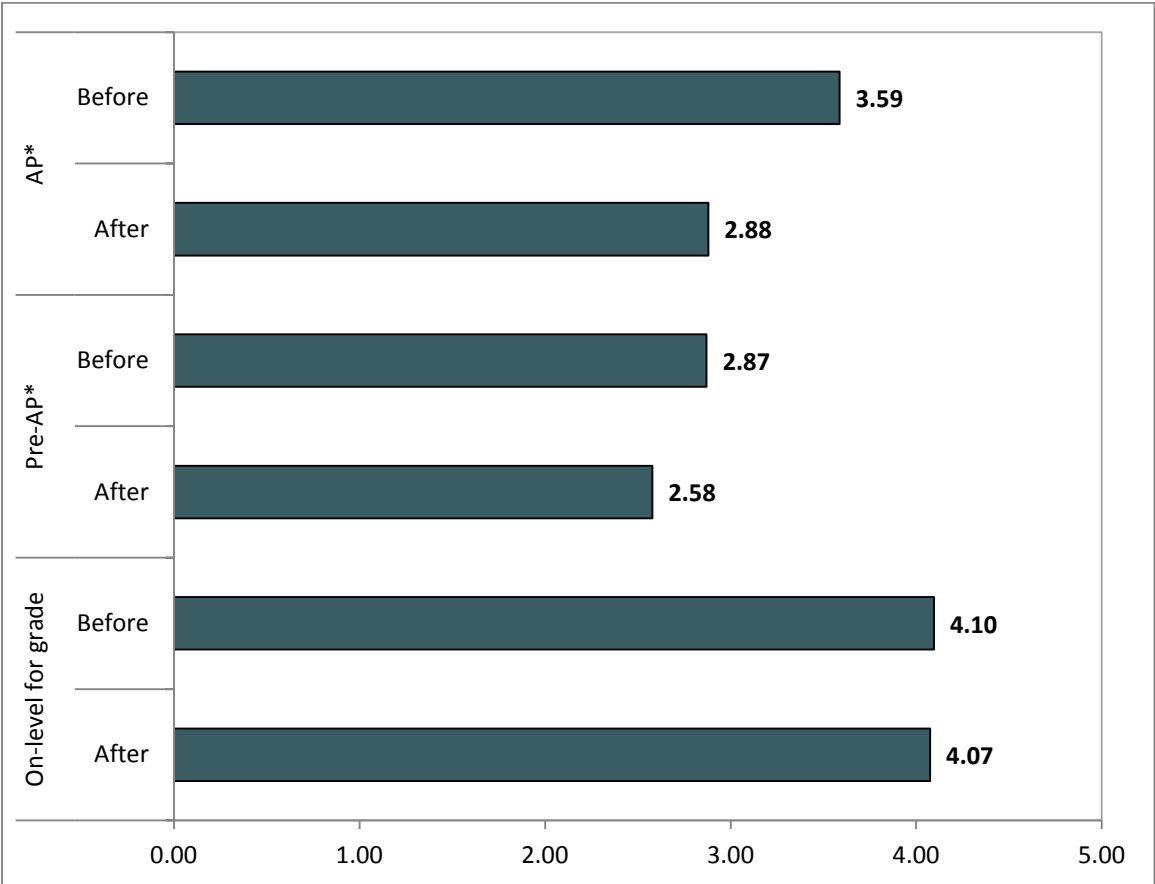


\*Significant difference before and after the policy.

**COURSE LEVEL**

The average number of absences also varies by course level, as shown in the figure below. Specifically, there was a significant decrease in the average number of absences for Pre-AP and AP courses, but not for courses that are on-level for students' grade.

**Figure 3.7: Average Number of Absences by Course Level**

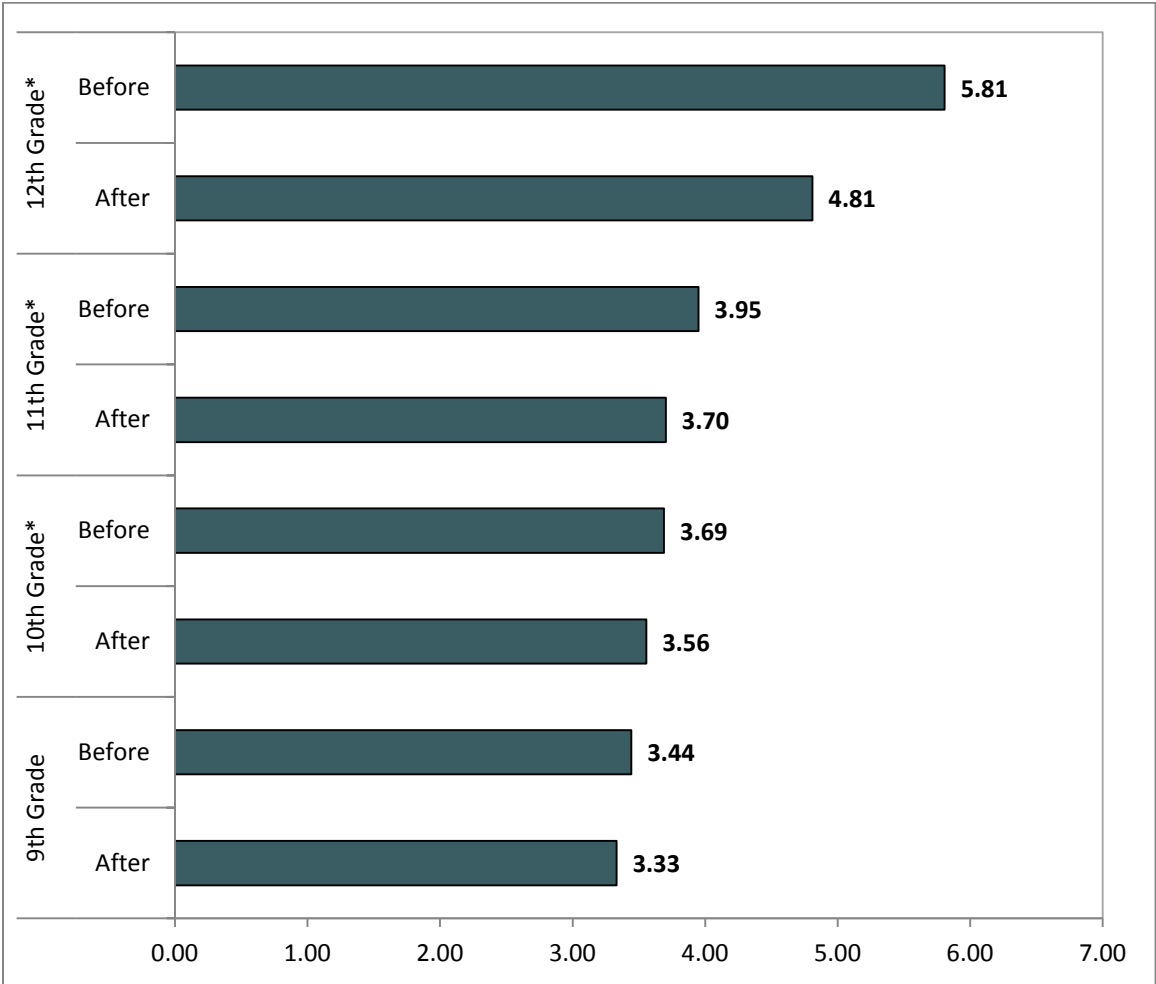


\*Significant difference before and after the policy.

**GRADE LEVEL**

Figure 3.8 below demonstrates that the average number of absences varies by grade level. There were significant decreases in absences for students in grades 10, 11, and 12, but not in grade 9.

**Figure 3.8: Average Number of Absences by Grade Level**



\*Significant difference before and after the policy.

**DEMOGRAPHIC VARIABLES**

The following figure shows the average number of absences by demographic variable before and after the implementation of the policy, the difference in these averages, and whether this difference is significant. It also shows the number of observations included in each average. For example, the average number of absences before the policy for females was 3.80 (n=5,844). Significant differences appear for female, male, white, non-LEP, non-ESL, not homeless, not special education, all FRL statuses, and students coded as not gifted.

**Figure 3.9: Average Number of Absences by Demographic Variable**

	AVERAGE BEFORE	NO. OF STUDENTS	AVERAGE AFTER	NO. OF STUDENTS	DIFFERENCE IN AVERAGE	SIGNIFICANT
<b>GENDER</b>						
Female	3.80	5,844	3.64	9,687	-0.17	Yes
Male	3.64	5,907	3.45	10,125	-0.20	Yes
<b>ETHNICITY</b>						
American Indian or Alaska Native	3.79	230	3.45	526	-0.34	No
Asian	2.45	382	2.20	656	-0.25	No
Black or African American	3.09	987	3.29	1,476	0.20	No
Native Hawaiian/Other Pacific Islander	3.77	31	3.98	55	0.21	No
White	3.83	10,121	3.61	17,099	-0.22	Yes
<b>LEP STATUS</b>						
LEP	2.94	36	3.92	249	0.97	No
First Year Monitor	2.80	20	3.24	58	0.44	No
Second Year Monitor	4.19	37	3.98	106	-0.21	No
Non-LEP	3.73	11,658	3.53	19,399	-0.19	Yes
<b>ESL STATUS</b>						
Non-ESL	3.70	11,526	3.53	19,537	-0.17	Yes
ESL	5.11	225	4.19	275	-0.92	No
<b>HOMELESS STATUS</b>						
Homeless	0.50	2	5.06	17	4.56	No
Not homeless	3.72	11,749	3.54	19,795	-0.19	Yes
<b>SPECIAL EDUCATION</b>						
Special education	4.46	1,523	4.26	2,757	-0.20	No
Not special education	3.61	10,228	3.42	17,055	-0.19	Yes
<b>FREE/REDUCED LUNCH STATUS</b>						
Free	4.18	1,052	4.58	2,955	0.40	Yes
Reduced	3.20	388	3.88	1,157	0.68	Yes
Not economically disadvantaged	3.16	6,228	3.28	15,382	0.12	Yes
Missing	4.52	4,083	5.07	318	0.55	Yes
<b>GIFTED STATUS</b>						
Gifted	2.55	729	2.73	1,675	0.18	No
Not gifted	3.51	277	4.52	97	1.01	Yes
Missing	3.81	10,745	3.61	18,040	-0.20	No

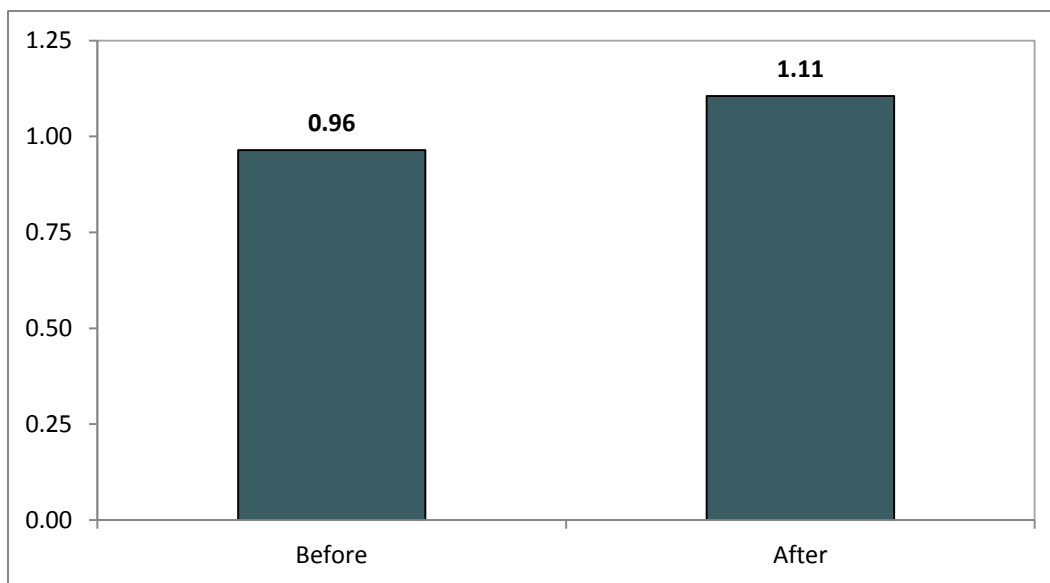
## SECTION IV: DISCIPLINE ANALYSIS

To analyze the effect of the exam exemption policy on disciplinary incidents that affect student eligibility for exemption, we counted the number of disciplinary incidents including a disciplinary alternative education program (DEP) or an out of school suspension (OSS), per student, per semester. Since this is a semester-level calculation, course name and course level are not included in the independent variables analyzed in this section. We calculated the average number of disciplinary incidents for each remaining independent variable before and after the policy was implemented, and the results are presented here. Please note that all observations in the 2011 academic year are considered as having occurred before the exam exemption policy was implemented, and all observations from 2012 and 2013 are considered as having occurred after the policy.

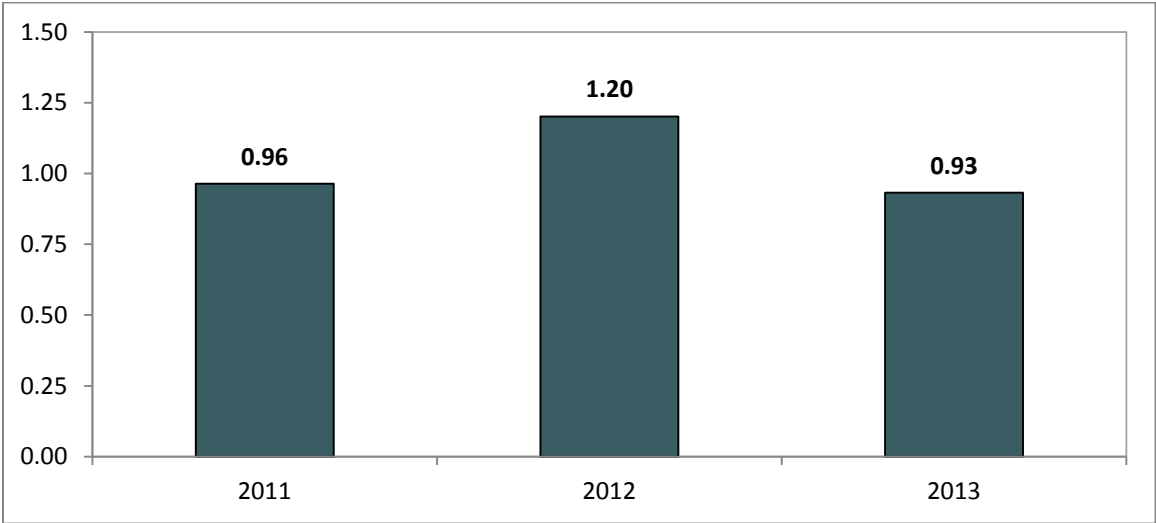
### OVERALL

Figure 4.1 demonstrates that the average number of disciplinary incidents increased after the implementation of the policy, but not significantly. Further, Figure 4.2 on the following page shows that while disciplinary incidents vary by year, this variation is not significant.

**Figure 4.1: Average Number of Disciplinary Incidents Before and After Policy**



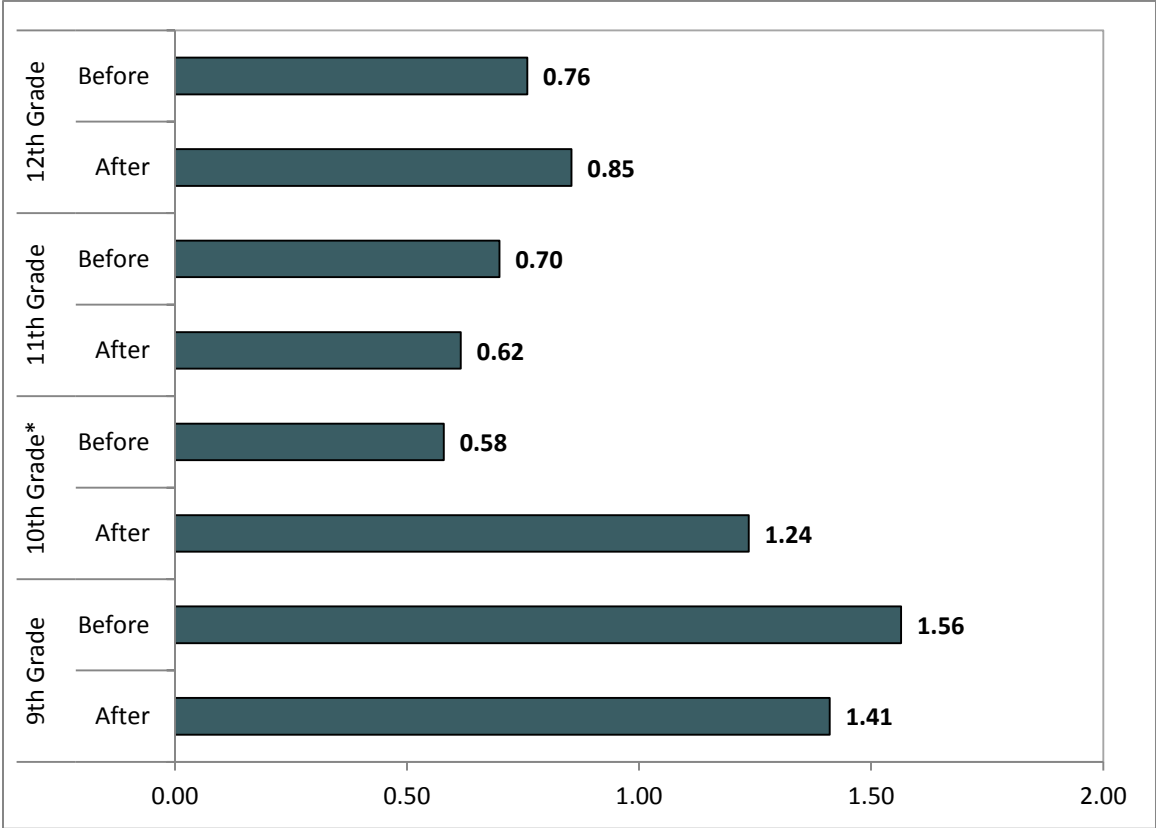
**Figure 4.2: Average Number of Disciplinary Incidents by Year**



**GRADE LEVEL**

While the average number of disciplinary incidents appears to vary by grade level in Figure 4.3 below, this variation is only significant for 10<sup>th</sup> grade students.

**Figure 4.3: Average Number of Disciplinary Incidents, by Grade Level**



\*Significant difference before and after.



## DEMOGRAPHIC VARIABLES

The following figure displays the average number of disciplinary incidents by demographic variable before and after the implementation of the policy, the difference in these averages, and whether this difference is significant. It also demonstrates the number of observations included in each average. Significant differences in disciplinary incidents only appear for First Year Monitor – ESL students; no other demographic variable appears to have had a significant difference in disciplinary incidents after the policy was enacted.

**Figure 4.4: Average Number of Disciplinary Incidents, by Demographic Variable**

	AVERAGE BEFORE	NO. OF STUDENTS	AVERAGE AFTER	NO. OF STUDENTS	DIFFERENCE IN AVERAGE	SIGNIFICANT
<b>GENDER</b>						
Female	0.49	3,220	0.64	5,272	0.15	No
Male	1.43	3,231	1.55	5,475	0.12	No
<b>ETHNICITY</b>						
American Indian or Alaska Native	0.82	123	2.02	278	1.20	No
Asian	0.30	206	0.80	365	0.50	No
Black or African American	2.01	557	1.84	823	-0.17	No
Native Hawaiian/Other Pacific Islander	1.41	17	2.28	29	0.86	No
White	0.89	5,548	1.02	9,252	0.14	No
<b>LEP STATUS</b>						
LEP	1.35	17	5.42	125	4.07	No
First Year Monitor	15.70	10	0.50	30	-15.20	Yes
Second Year Monitor	0.10	20	0.50	60	0.40	No
Non-LEP	0.94	6,404	1.06	10,532	0.12	No
<b>ESL STATUS</b>						
Non-ESL	0.92	6,322	1.07	10,600	0.15	No
ESL	3.22	129	3.97	147	0.76	No
<b>HOMELESS STATUS</b>						
Homeless	0.00	1	0.44	9	0.44	N/A*
Not homeless	0.96	6,450	1.11	10,738	0.14	No
<b>SPECIAL EDUCATION</b>						
Special education	1.69	880	1.56	1,516	-0.13	No
Not special education	0.85	5,571	1.03	9,231	0.18	No
<b>FREE/REDUCED LUNCH STATUS</b>						
Free	1.93	527	1.93	1,564	0.01	No
Reduced	1.16	195	0.87	607	-0.29	No
Not economically disadvantaged	0.77	3,133	0.95	8,275	0.18	No
Missing	0.99	2,596	1.55	301	0.56	No
<b>GIFTED STATUS</b>						
Gifted	0.11	368	0.28	969	0.18	No
Not gifted	0.46	194	0.05	61	-0.41	No
Missing	1.03	5,889	1.19	9,717	0.16	No

\*Not enough observations to determine statistical significance

## SECTION V: EXEMPTION ELIGIBILITY ANALYSIS

In this section, we examine trends in student exam exemption eligibility, and as well as students who chose to take the exemption across several independent variables. To determine eligibility for an exam exemption, we *averaged across a student's three marking period grades for a semester*, calculated their number of absences for a particular class period, and calculated the number of disciplinary incidents for a semester, including a disciplinary alternative education program (DEP) or an out of school suspension (OSS).<sup>3</sup> The figure below demonstrates the specific criteria used to determine eligibility for each grade range. Eligibility in the 2011 school year is hypothetical, since the current exam exemption policy was not available in that year. To reiterate, all observations in the 2010-2011 academic year are considered as having occurred before the exam exemption policy, and all observations from 2011-2012 and 2012-2013 are considered as having occurred after the policy.

**Figure 5.1: Exemption Eligibility Criteria**

COURSE AVERAGE	ABSENCES PER SEMESTER (BY CLASS PERIOD)	DISCIPLINARY INCIDENTS PER SEMESTER
90-100	No more than 3	None
80-89	No more than 2	None
70-79	No more than 1	None

We are interested in the changes in eligibility over time and across independent variables. If more students are becoming eligible for the exemption, this indicates that the policy may be having a positive effect in improving grades and student attendance and behavior.

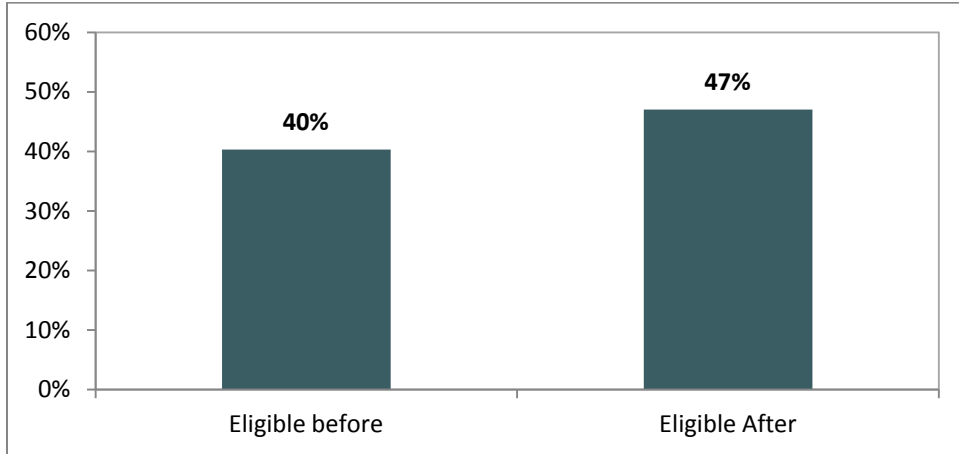
In the previous sections, we used t-tests to determine statistical significance between two specific populations. In this section, we use a chi-squared test to determine whether exemption eligibility rates vary significantly across the different levels of the variable being examined. In this report, the test is most often used to test whether exemption eligibility before the implementation of the exemption policy was significantly different from exemption eligibility after the implementation of the policy within some subgroup of students. It is also used to test whether eligibility rates varied across other variables, such as student demographics.

<sup>3</sup> The student's average marking period grade by semester is rounded to the nearest whole number.

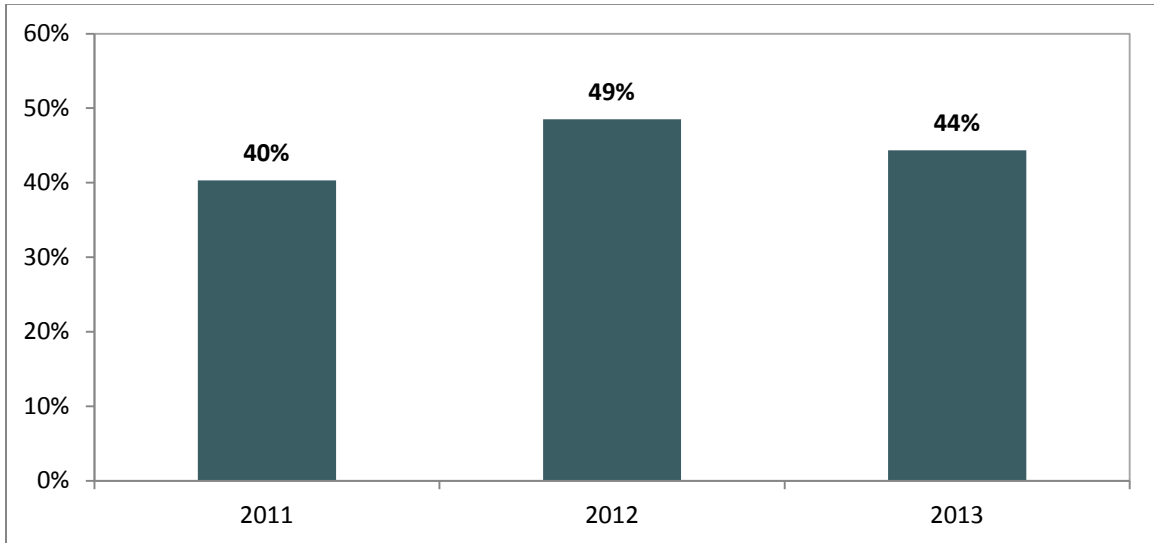
**OVERALL**

Figure 5.2 below displays that the eligibility rate after the exemption policy was implemented is higher than the eligibility rate before the policy, while Figure 5.3 demonstrates that eligibility rates varied significantly by year. The percentage of eligible students is lower in 2013 than in 2012, though this may partially be due to the inclusion of medical- and funeral-related absences in the eligibility criteria.

**Figure 5.2: Percent of Eligible Students Before and After Policy**

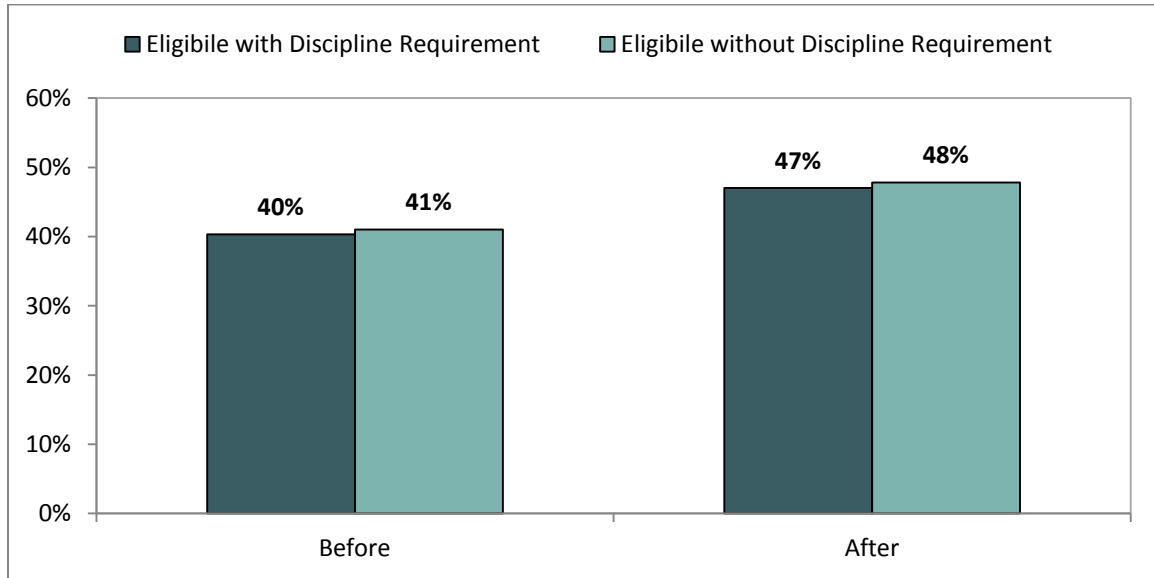


**Figure 5.3: Percent of Eligible Students by Year**



In general, the data indicate that the discipline requirement does not prevent many students from qualifying for the exam exemption. In fact, only an additional 1 percent of students would have been eligible without the discipline requirement before or after the exemption policy.

**Figure 5.4: Percent of Students Eligible With and Without Discipline Requirement**



**MATH COURSES**

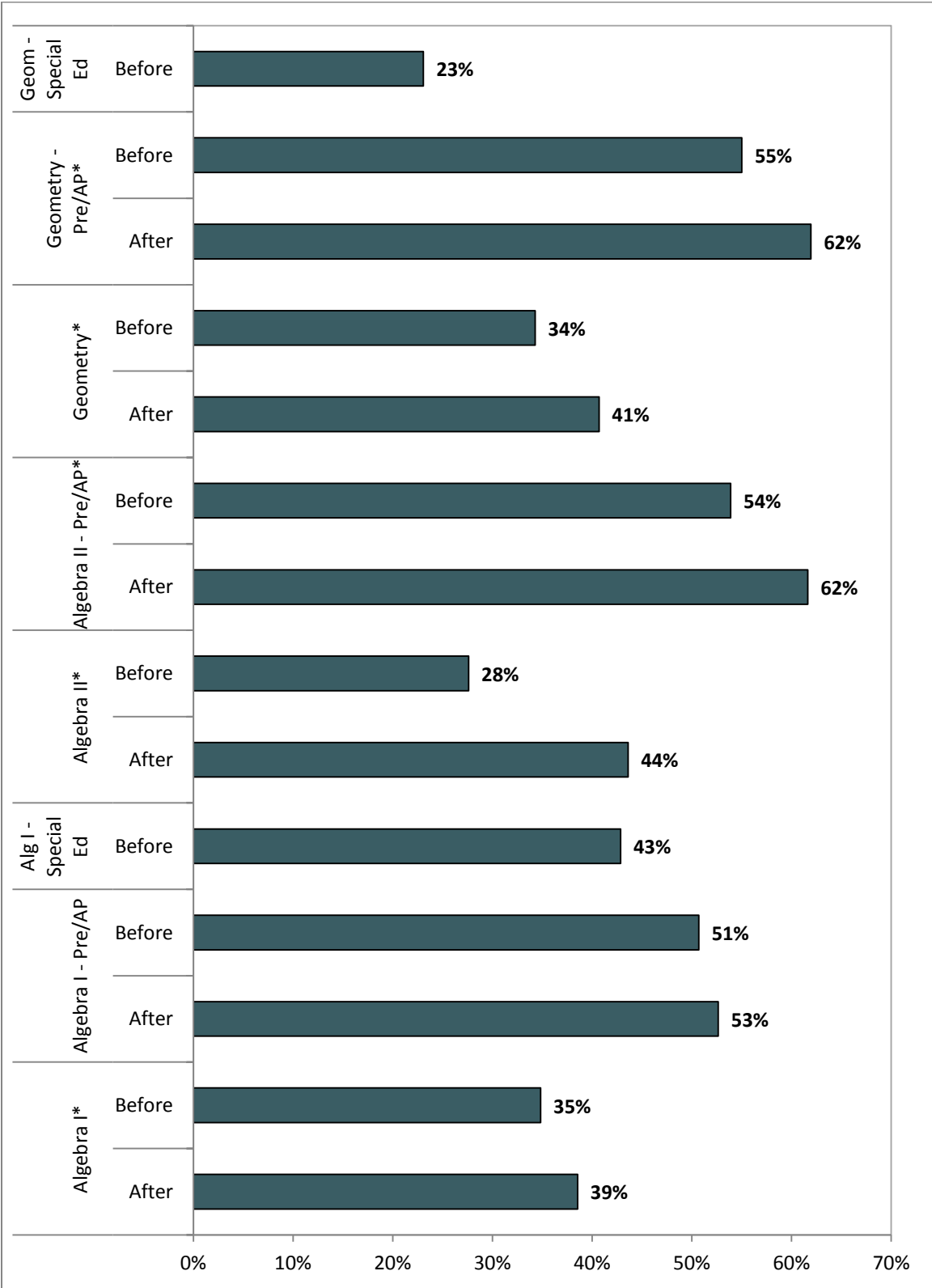
Our analysis reveals that there is a relationship between eligibility and the implementation of the policy by math course. Figure 5.5 below demonstrates that eligibility rates did not decrease significantly in any of the courses, and they significantly increased in five of the courses. Actual eligibility rates for each course before and after the policy are displayed in Figure 5.6 below.

**Figure 5.5: Changes in Eligibility in Math Courses**

CHANGE AFTER POLICY	COURSE
Courses where eligibility significantly increased	<ul style="list-style-type: none"> <li>▪ Algebra I</li> <li>▪ Algebra II</li> <li>▪ Algebra II – Pre-AP</li> <li>▪ Geometry</li> <li>▪ Geometry – Pre-AP</li> </ul>
Courses where eligibility significantly decreased	-
Courses where eligibility did not change significantly	<ul style="list-style-type: none"> <li>▪ Algebra I – Pre-AP</li> </ul>

\*There were no “after” groups for special education Algebra I or special education Geometry.

Figure 5.6: Percent of Students Eligible for Exemption, Math Courses



\*Significant difference before and after the implementation of the policy.

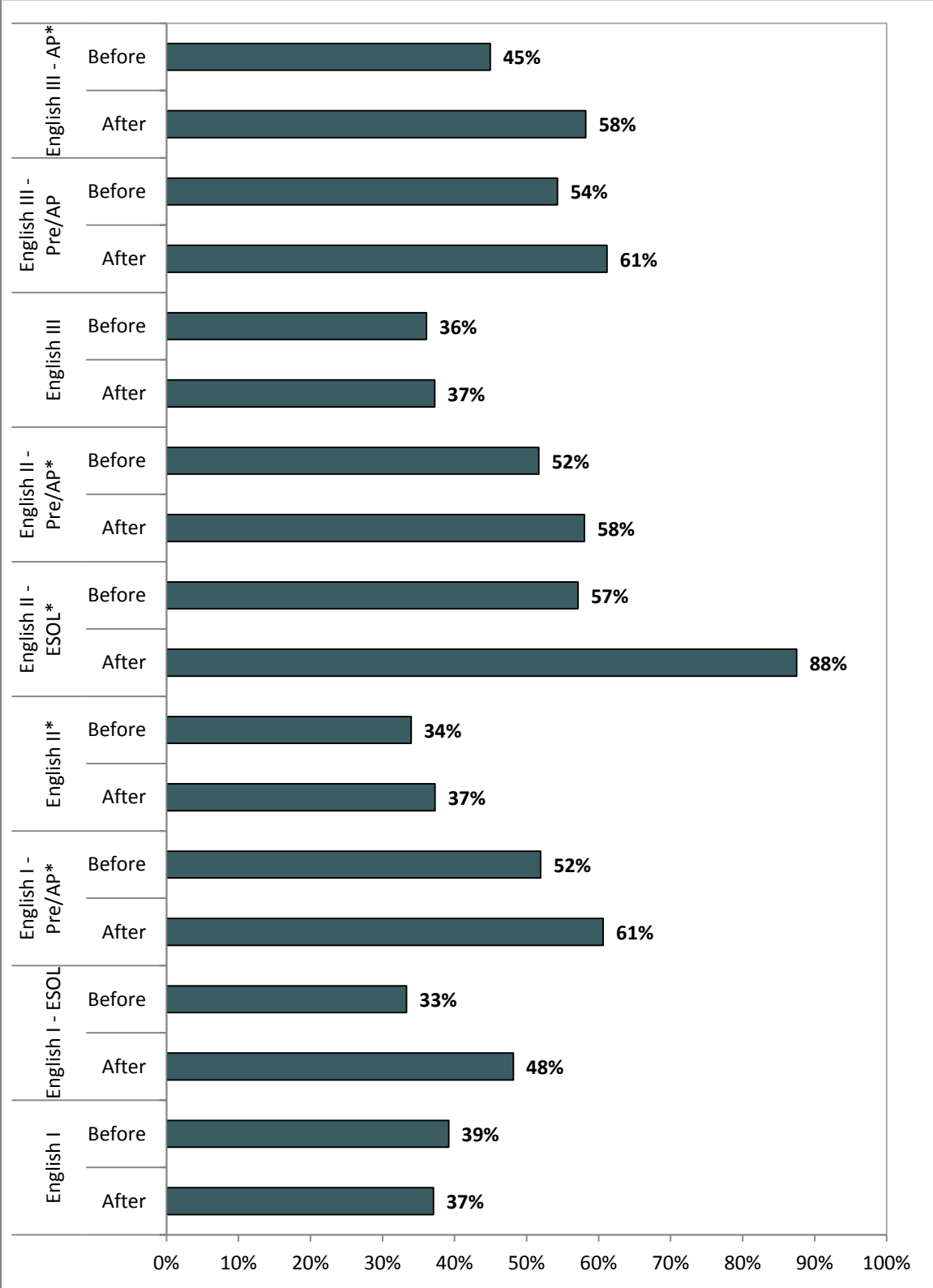
## ENGLISH COURSES

There also appears to be a relationship between eligibility and the implementation of the exam exemption policy by English course. Figure 5.7 below demonstrates that eligibility rates did not decrease significantly in any of the courses, and they significantly increased in five of the courses. Actual eligibility rates for each course before and after the policy are displayed in Figure 5.8 on the following page.

**Figure 5.7: Changes in Eligibility in English Courses**

CHANGE AFTER POLICY	COURSE
Courses where eligibility significantly increased	<ul style="list-style-type: none"> <li>▪ English I – Pre-AP</li> <li>▪ English II</li> <li>▪ English II – ESOL</li> <li>▪ English II – Pre-AP</li> <li>▪ English III – AP</li> </ul>
Courses where eligibility significantly decreased	-
Courses where eligibility did not change significantly	<ul style="list-style-type: none"> <li>▪ English I</li> <li>▪ English I – ESOL</li> <li>▪ English III</li> <li>▪ English III – Pre-AP</li> </ul>

Figure 5.8: Percent of Students Eligible for Exemption, English Courses

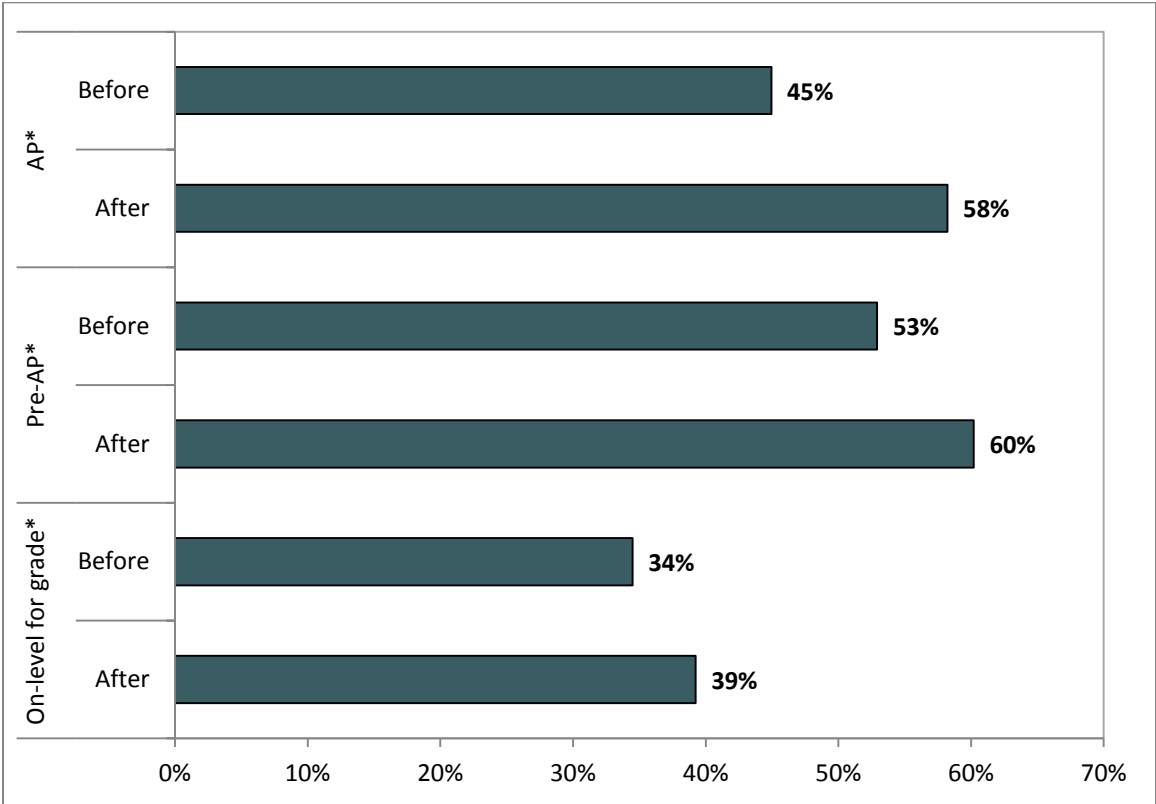


\*Significant difference before and after the policy.

### COURSE LEVEL

Eligibility rates also appear to vary by course level, as indicated by Figure 5.9 below. Specifically, there were significant increases in eligibility across all three course levels.

**Figure 5.9: Percent of Students Eligible for Exemption, by Course Level**



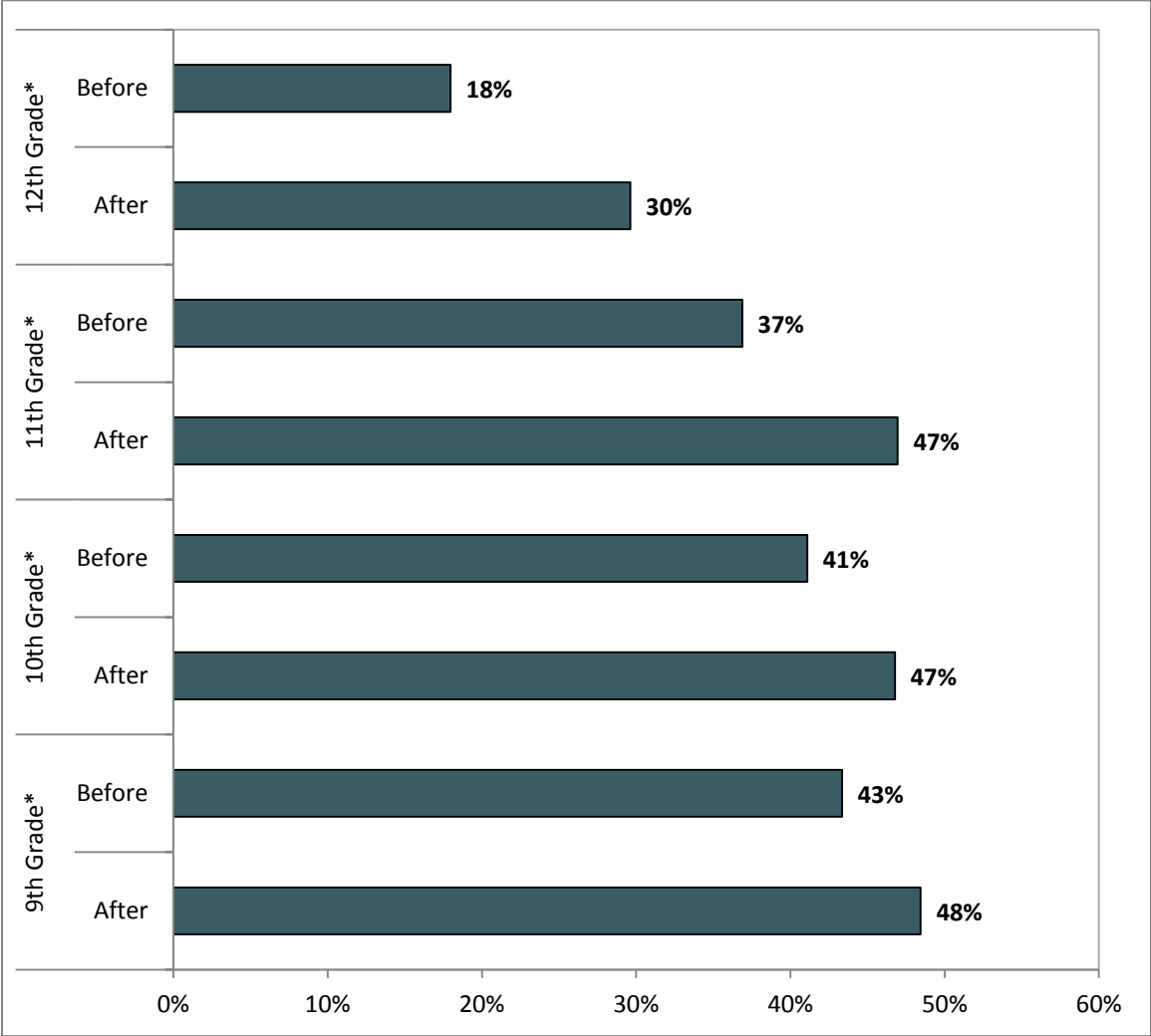
\*Significant difference before and after the policy.



**GRADE LEVEL**

Additionally, Figure 5.10 below demonstrates that eligibility rates appear to vary by grade level, with significant increases in eligibility in all four grade levels.

**Figure 5.10: Percent of Students Eligible for Exemption, by Grade Level**



\*Significant difference before and after the policy.

**DEMOGRAPHIC VARIABLES**

The following figure displays the percentage of eligible students by demographic variable before and after the policy, the difference in the percentages, and whether the change in the eligibility rate is significant. Significant differences appear for many student demographic variables, including female, male, non-LEP, not homeless, special education, not special education, free FRL status, not economically disadvantaged FRL status, missing FRL status, and students with missing gifted status, as well as American Indian or Alaska Native, Native Hawaiian or other Pacific Islander, and white students.

**Figure 5.11: Percent of Students Eligible for Exemption, by Demographic Variable**

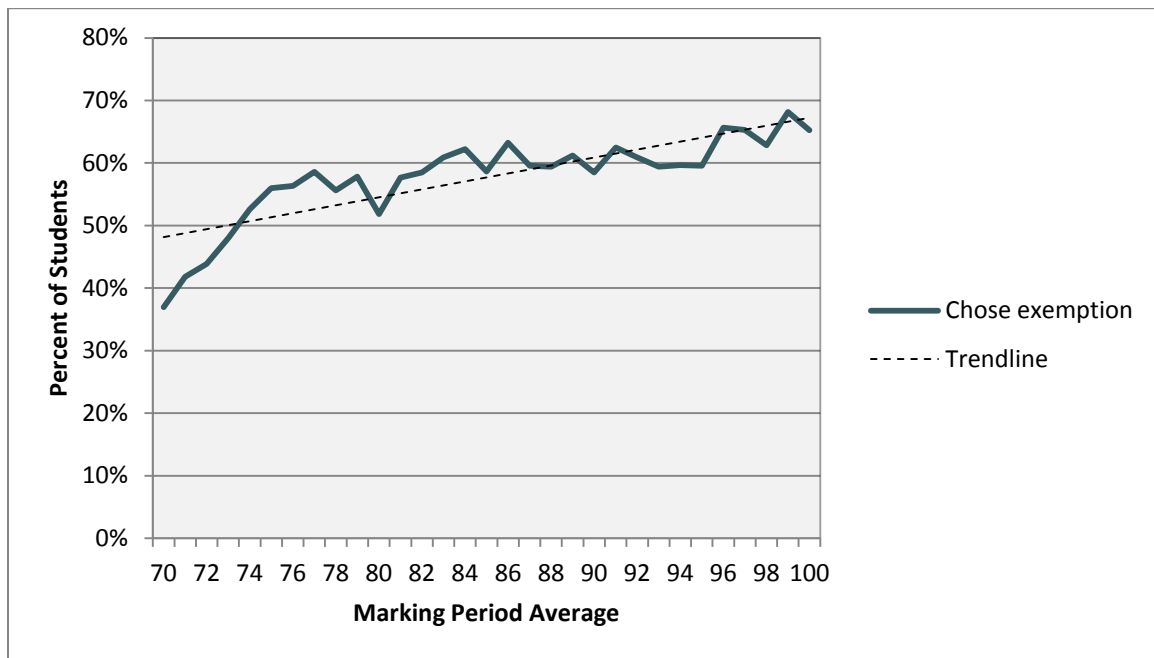
	% ELIGIBLE BEFORE	NO. OF STUDENTS	% ELIGIBLE AFTER	NO. OF STUDENTS	DIFFERENCE IN %	SIGNIFICANT
<b>GENDER</b>						
Female	41%	2,332	49%	4,645	8.3%	Yes
Male	40%	2,307	45%	4,446	5.2%	Yes
<b>ETHNICITY</b>						
American Indian or Alaska Native	37%	85	45%	235	7.4%	Yes
Asian	64%	241	67%	429	2.9%	No
Black or African American	46%	432	47%	668	1.3%	No
Native Hawaiian/Other Pacific Islander	16%	5	44%	24	27.5%	Yes
White	39%	3,876	46%	7,735	7.3%	Yes
<b>LEP STATUS</b>						
LEP	50%	18	40%	99	-10.1%	No
First Year Monitor	20%	4	36%	21	16.2%	No
Second Year Monitor	38%	14	33%	34	-4.8%	No
Non-LEP	40%	4,603	47%	8,937	6.9%	Yes
<b>ESL STATUS</b>						
Non-ESL	40%	4,561	47%	9,005	6.8%	No
ESL	35%	78	33%	86	-1.5%	No
<b>HOMELESS STATUS</b>						
Homeless	50%	1	12%	2	-38.2%	No
Not homeless	40%	4,638	47%	9,089	6.8%	Yes
<b>SPECIAL EDUCATION</b>						
Special education	32%	471	37%	983	5.2%	Yes
Not special education	42%	4,168	49%	8,108	7.4%	Yes
<b>FREE/REDUCED LUNCH STATUS</b>						
Free	31%	318	35%	974	4.0%	Yes
Reduced	43%	162	38%	425	-4.2%	No
Not economically disadvantaged	46%	2,876	50%	7,611	3.9%	Yes
Missing	33%	1,283	27%	81	-5.9%	Yes
<b>GIFTED STATUS</b>						
Gifted	64%	466	62%	1,036	-1.5%	No
Not gifted	40%	106	43%	40	3.2%	No
Missing	39%	4,067	46%	8,015	6.9%	Yes

### EXAM EXEMPTION CHOICE

This subsection only examines *students who were eligible for the exam exemption*, and compares those who chose to be exempt from a final exam to those who choose to take the final exam. Exempt students are indicated by having an “EX” as the code for the semester final exam.<sup>4</sup> All other eligible students are assumed to have not chosen the exemption.

The figure below reveals that students with higher marking period averages were significantly more likely to choose to be exempt from the semester exam.<sup>5</sup> For example, only 37 percent of students with a marking period average of 70 chose an exam exemption, while 63 percent of students with a marking period grade of 90 chose an exam exemption. This indicates that students with lower marking period averages in a particular class period may be attempting to improve their semester grade by taking the final exam.

**Figure 5.12: Percentage of Students who Chose Exemption, by Marking Period Average**



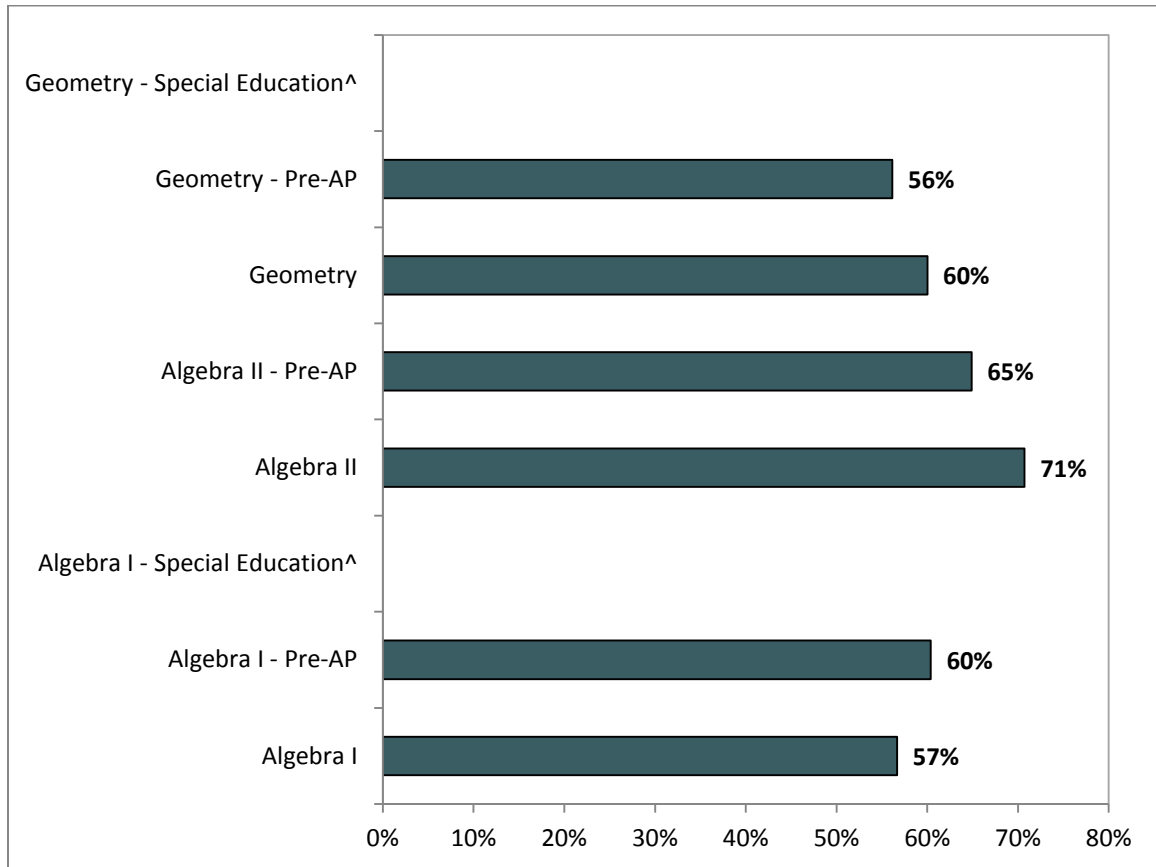
<sup>4</sup> Some students who should not have qualified for an exemption based on the data available to Hanover were marked as “EX” in the dataset for semester exams. For example, student 100002 had a marking period grade average of 64.3 for Algebra I in the 2012 M6 marking period. However, this student was marked as “EX” for the exam for that course in that year.

<sup>5</sup> T-test, significant at  $p \leq 0.001$ .

**MATH COURSES**

Students' exemption choices vary significantly by math course. Algebra II students were the most likely to choose the exemption, while Geometry – Pre-AP students were the least likely. These percentages are displayed in Figure 5.13 below.

**Figure 5.13: Percent of Eligible Students who Chose Exemption, Math Courses**

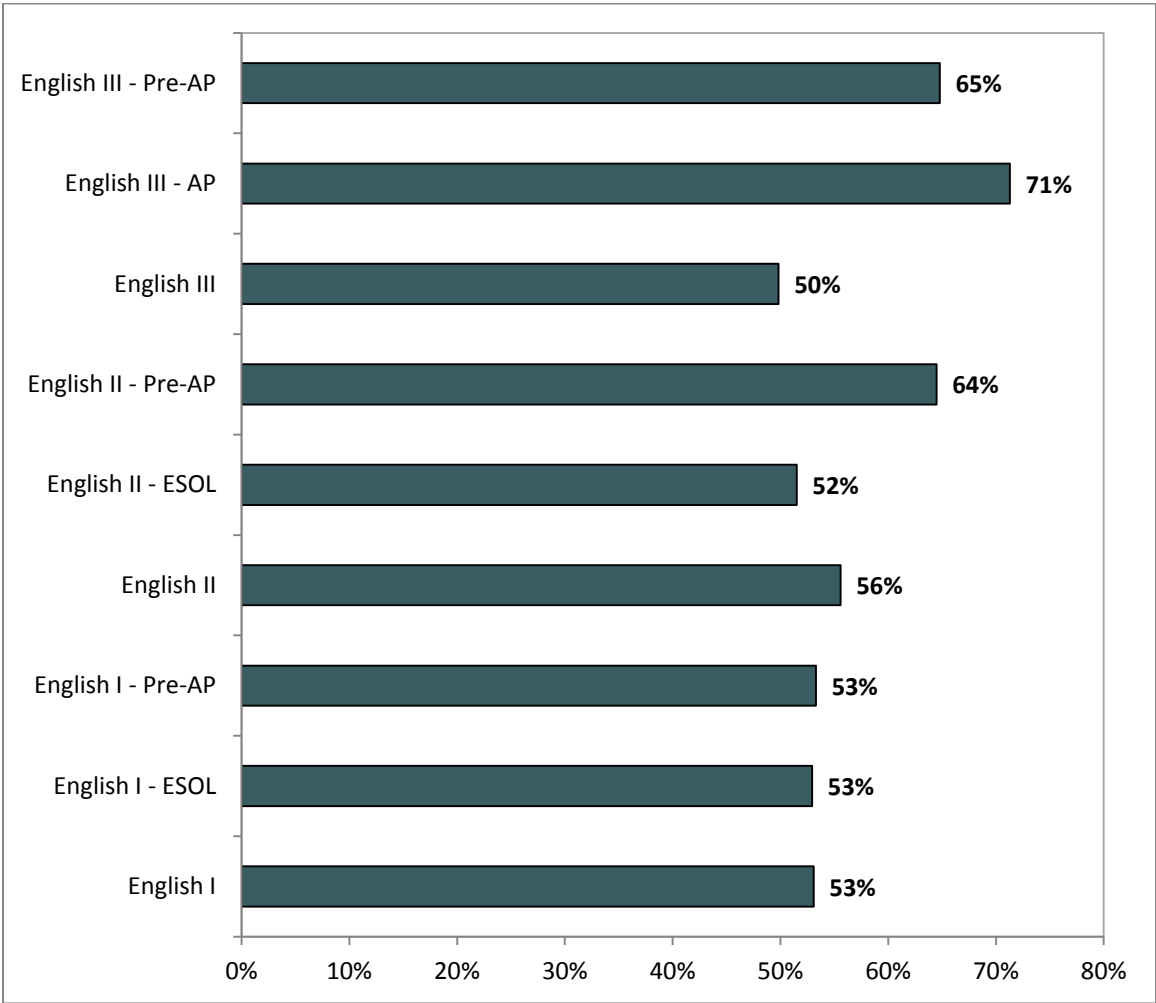


^No special education students included in dataset after exemption policy.

*ENGLISH COURSES*

Students' exemption choices also vary significantly by English course. English III – AP students were the most likely to choose the exemption, while English III students were the least likely. This is depicted in Figure 5.14 below.

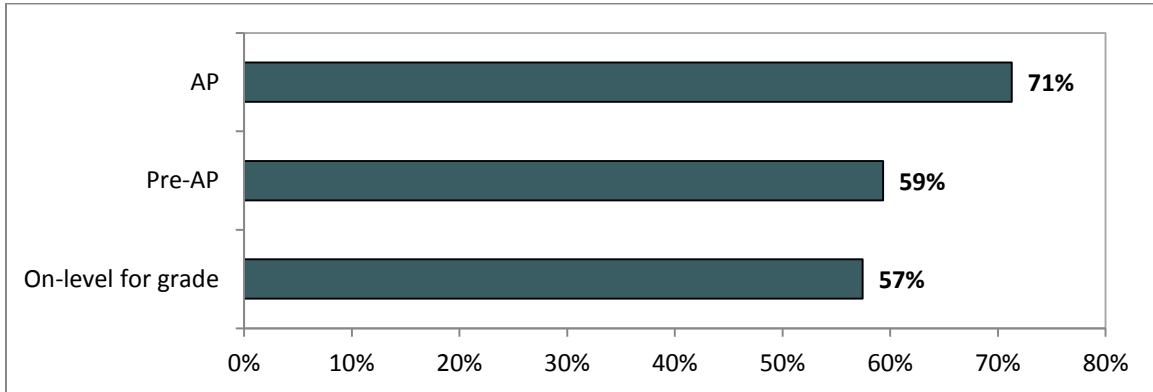
**Figure 5.14: Percent of Eligible Students who Chose Exemption, English Courses**



**COURSE LEVEL**

Student exemption choices also vary significantly by course level, with students in higher course levels being more likely to choose exemptions than students in lower course levels. The distribution of eligibility rates by course level is shown in the figure below.

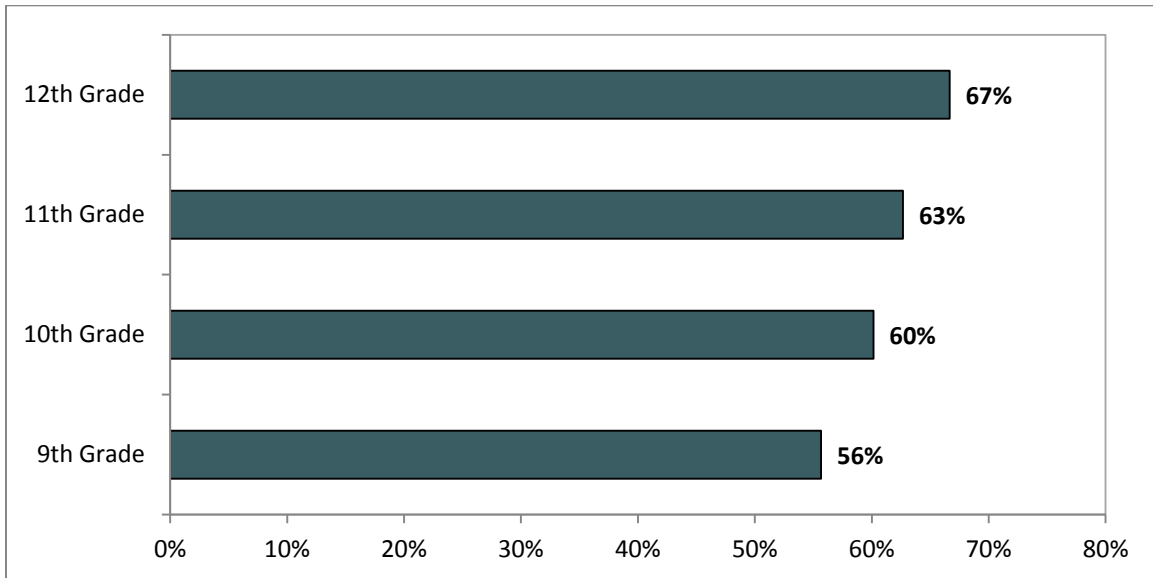
**Figure 5.15: Percent of Eligible Students who chose Exemption, by Course Level**



**GRADE LEVEL**

Student exemption choices vary significantly by grade level as well. Specifically, students in higher grade levels are more likely to choose exemptions than students in lower grade levels, as shown in the figure below.

**Figure 5.16: Percent of Eligible Students who Chose Exemption, by Grade Level**



*DEMOGRAPHIC VARIABLES*

For some demographic variables, there are significant variations in students’ exemption choice. These significant differences appear across gender, ethnicity, LEP status, ESL status, FRL status, and gifted status, as demonstrated in the figure below.

**Figure 5.17: Percent of Eligible Students who Chose Exemption, by Demographic Variable**

	% ELIGIBLE - CHOSE EXEMPTION	NUMBER OF STUDENTS	SIGNIFICANT RELATIONSHIP BETWEEN VARIABLE AND CHOOSING EXEMPTION
<b>GENDER</b>			
Female	60%	4,183	Yes
Male	58%	3,924	
<b>ETHNICITY</b>			
American Indian or Alaska Native	64%	205	Yes
Asian	57%	382	
Black or African American	54%	597	
Native Hawaiian/Other Pacific Islander	76%	22	
White	59%	6,901	
<b>LEP STATUS</b>			
Yes	74%	86	Yes
First Year Monitor	76%	19	
Second Year Monitor	60%	29	
Non-LEP	59%	7,973	
<b>ESL STATUS</b>			
Non-ESL	59%	8,035	Yes
ESL	44%	72	
<b>HOMELESS STATUS</b>			
Homeless	67%	2	No
Not homeless	59%	8,105	
<b>SPECIAL EDUCATION</b>			
Special education	59%	7,269	No
Not special education	58%	838	
<b>FREE/REDUCED LUNCH STATUS</b>			
Free	66%	848	Yes
Reduced	63%	370	
Not economically disadvantaged	64%	6,756	
Missing	10%	133	
<b>GIFTED STATUS</b>			
Gifted	60%	895	Yes
Not gifted	34%	50	
Missing	59%	7,162	

## SECTION VI: FURTHER ANALYSIS

While the current study presents a preliminary examination of the effect of the exemption policy, a more in-depth analysis may be needed to better estimate the relative impact of the independent variables on the dependent variables, including semester grade, absences, discipline, exemption eligibility, and exemption choices. We propose running two regression models for each dependent variable. The first regression model would estimate the effect of the exemption policy, math courses, and demographic variables on each dependent variable. The second regression model would estimate the effect of the exemption policy, English courses, and demographic variables on each dependent variable. For each model, we suggest only including demographic variables with larger sample sizes in each category. For example, since there are so few homeless, ESL, and LEP students, we suggest excluding those variables from the analysis.

We also suggest adding interactions between the before/after exemption variable and each course name variable. This would allow the effect of each course on the dependent variable to vary across time. If possible, we would like to also include interactions between the before/after exemption variable and each demographic variable to allow the effect of each of these variables to vary across time. However, in the event that this results in insignificant results or too few observations, the demographic interactions can be dropped from the analysis.



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