

THE FACTS BEHIND THE FCAT

by

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A Thesis Submitted to the Faculty of

The Wilkes Honors College

in Partial Fulfillment of the Requirements for the Degree of

Bachelor of Arts in Liberal Arts and Sciences

with a Concentration in Economics

Wilkes Honors College of

Florida Atlantic University

Jupiter, Florida

May 3, 2010

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This thesis was prepared under the direction of the candidate's thesis advisor, Keith E. Jakee, and has been approved by the members of her/his supervisory committee. It was submitted to the faculty of The Honors College and was accepted in partial fulfillment of the requirements for the degree of Bachelor of Arts in Liberal Arts and Sciences.

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ABSTRACT

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Concentration: Economics
Date: May 3, 2010

The *No Child Left Behind Act of 2001* makes schools accountable for the performance of their students, and measures that goal through standardized testing. Florida's standardized test is the Florida Comprehensive Assessment Test (FCAT). This paper investigates how the incentive structure of the FCAT accountability system has resulted in costly unintended consequences, such as the disruption of local home prices, teaching towards the test, manipulation of the test pools, and an increase in the number of school dropouts. The State of Florida officially estimates that the cost to administer the FCAT is \$19.44 per student. My claim is that the Florida Department of Education's estimate is profoundly understated because it does not take into account an array of internal and external costs associated with the test. By including these costs of the FCAT, I show that the FCAT does indeed cost more than \$19.44 per student.

CONTENTS

I. Introduction.....	1
II. History of NCLB Act and its Negative Effect on FCAT.....	4
III. The Cost of Failing the FCAT.....	9
a. Budgeting Cost of Not Passing the FCAT.....	9
i. Cost of Retention in the Third Grade.....	9
ii. Cost of Retesting Students Until They Pass Grade 10 FCAT.....	10
b. Future Cost Associated with Failing Grade 10 Reading or Mathematics.....	11
IV. Manipulating the Test Pool	14
a. Reclassifying Students into Disability Categories to Avoid FCAT.....	14
b. Higher Suspension Rates During FCAT Improve Scores.....	19
c. Higher Dropout Rates.....	20
V. Teaching to the Test and Narrowing the Curriculum.....	22
VI. Teacher, and Student Cheating on FCAT.....	26
a. Incentive for Teacher Cheating.....	26
b. Method and Consequences.....	27
c. Incentive for Student Cheating.....	28
VII. Effects on the Housing Market.....	30
VIII. Summary of Cost.....	31
a. The Administrative Cost of FCAT According to the FDOE.....	31
b. Calculating the True State Cost of the FCAT.....	33
c. Individual Cost of the FCAT.....	35
d. Individual Non-Monetary Cost.....	36
IX. Conclusion	38

Section I: Introduction

On January 8, 2002, President Bush signed into law the reauthorization of the *Elementary and Secondary Education Act*, also known as the *No Child Left Behind Act of 2001* (NCLB). The NCLB Act scrutinizes all schools in the United States based on the performance of their students, and it requires that all schools meet specific achievement levels in reading and mathematics (Kim and Sunderman, 2005: 1). There are three elements of school accountability systems: testing students, public reporting of school performance, and rewards or sanctions based on testing results (Kane and Staiger, 2002: 1). In effect, the NCLB legislation portends to hold schools accountable for student education.

With respect to rewards and sanctions, the NCLB has linked the outcome of students' scores from standardized testing to the amount of federal aid each state receives. Because students' scores are linked to financial aid, schools have financial incentives to increase their students' performances (Gruber, 2007: 285). The intention of the NCLB Act was to ensure that schools would be accountable for their students' educational outcomes. Schools that perform well on standardized tests receive additional funds from the state while weak performing schools receive a reduced amount of funding. However, such a formula is not as obvious a solution to school performance as it might seem: schools that receive the lowest scores are likely to be in most need of additional funds in order to improve their scores. Moreover, many schools are tempted to label students as disabled, which is often used as a means of keeping particular students from taking the test, thereby improving a school's overall scores. Although this system was

intended to create a positive incentive structure for schools, it has, in fact, created a system that undermines the initial intent of holding all students to equal standards.

In accordance with the NCLB, the state of Florida administers its version of standardized testing, the Florida Comprehensive Assessment Test (FCAT). In addition to the rules of the NCLB Act, Florida also has what it calls an “A+ accountability program” that schools must execute. The A+ Plan is more stringent than NCLB because, in addition to education standards, sanctions, and rewards, it also publishes school report cards on five levels of school performance, ranging from “A” to “F”. The amount of funding each school receives is determined by its performance rating (Peterson and West, 2005: 2). All schools are awarded \$85.00 per pupil if the school can improve its standing by one letter grade, and “A” rated schools receive this amount for retaining their standing (Peterson and West, 2005: 2). The A+ accountability program is designed to offer financial incentives to all Florida schools and to encourage students and teachers to attain higher standards.

The A+ financial rewards are designed to provide beneficial incentives for schools; however, it has led to many unintended consequences and, in some cases, a negative incentive structure in the school system. Some effects include: a decrease in life-time earnings if a student fails to receive a standard high school diploma, an increase in the number of drop outs, manipulation of test pools, teaching towards the test, cheating, and disruption of local home prices. In subsequent sections, this thesis discusses each of these points in greater detail.

The Florida Department of Education states that the FCAT costs \$19.44 per student per test (FDOE, Undated a). This figure includes the costs of developing test

questions, production and printing of tests, scoring, and so on (FDOE, Undated a).

However, because of the incentive structure under Florida's A+ accountability system, schools have the incentive, as unseemly as it is, to try to manipulate their scores in order to receive higher rewards. This thesis claims that the Florida Department of Education's \$19.44 per test is understated because it does not take into account the costly unintended consequences associated with administering the FCAT. I will be using existing research on standardized tests and apply this research to Florida's FCAT in order to calculate the cost of testing. This thesis is, therefore, a summary of the comprehensive costs that are associated with accountability programs and provides a more accurate estimation of the true cost with administering the FCAT.

Section II: History of NCLB Act and its Negative Effect on FCAT

The *Elementary and Secondary Education Act* (ESEA) of 1965 sparked a new era in educational standards because it was the first reform to require states to monitor and assess the educational progress of their students. During the mid-1980's many states voluntarily adopted accountability policies to serve as an external measure of their students' performance (Hanushek and Raymond, 2003: 1). Education reform further evolved due to the allocation made in the 2000 campaign for presidency. George Bush claimed that overly bureaucratic systems were to blame for the United States' educational troubles and that reform was needed to eradicate these educational shortcomings (Gruber, 2007: 285). Upon election, Bush promised to hold schools accountable for the educational outcomes of their students.

On January 8, 2002, President Bush signed into law the reauthorization of the Elementary and Secondary Education Act, also known as the NCLB to ensure that each state meets these new standards, and schools now are required to administer standardized tests to each student (Figlio and Getzler, 2002: 1). This law is based on the ambitious goal that all students in the United States will be proficient in reading and math by 2014. President Bush argued that the United States' Education System was not providing adequate education to its students and claimed that the NCLB would accomplish lasting change via accountability:

[A]ccountability is a crucial part of educational excellence and educational reform. And it's very important that all states take seriously what we insist upon; and that is, in return for money, we expect you to do what's right, by each single child that lives in your state (George Bush quoted in Henry, 2004: 1120).

By administering large-scale assessments to measure the standards of students' progress, President Bush hoped to ensure that teachers and students would be accountable to high levels of academic achievement. This assessment is done through the adequate yearly progress (AYP). The AYP is a measurement used by states to ensure that all students are reaching a proficient level on reading and mathematics tests by the 2013–2014 school year.

Furthermore, President Bush linked the outcome of students' scores from standardized testing to the amount of federal aid each state received, which gave schools financial incentives to increase students' performance (Gruber, 2007: 285). Thus, to be eligible to receive federal funds under the NCLB Act, a state has to adopt content standards in three subjects: reading, mathematics, and science. While previous legislation had also encouraged such standards, the NCLB Act now requires that states adopt educational standards as a condition for them to receive federal funds. Under the Title I portion of the NCLB Act, schools are eligible to receive funds if they exceed their AYP or significantly close the achievement gap among numerically significant subgroups determined by standardizing testing.

Even before the NCLB was passed, Florida had adopted an accountability system under Governor Jeb Bush in March 1999 (Figlio and Getzler, 2002: 2). In that year, Florida enacted the A+ accountability program, also known as the Florida School Recognition Program. In accordance with NCLB, the A+ Plan is designed to measure a student's proficiency in mathematics, reading, and writing, which is defined as scoring at Level 3 on the FCAT. The A+ Plan has five levels of school performance, ranging from "A" to "F". For a school to receive an "A" or "B", 95% of eligible students must be

tested and, of those, 50% or more have to be attaining a Level 3 on the FCAT reading and math, and two-thirds of the students have to get a Level 3 in writing (Peterson and West, 2005: Appendix). Schools receive a “C” when 60% of the students attained Level 2 in reading and math and 50% of the students achieved that level in writing (Peterson and West, 2005: Appendix). “D”s’ are given to schools that missed the requirement in one or two of the subjects, and “F” is assigned to those schools that did not reach the minimum standards in any subject (Peterson and West, 2005: Appendix). The results from the FCAT are the foundation for the school grading system under the A+ accountability program and are a determinant for the amount of financial aid a school receives.

Before the NCLB Act of 2001, the FCAT was only administered in grades 4, 8, 10 in reading and grades 5, 8, and 10 in math (Johnson, 2005: 3). In spring 2001, new legislation was passed to alter Florida’s A+ Plan, in accordance with NCLB, to test students in math, reading and writing in all grades, 3 through 10 (Peterson and West, 2005: Appendix). In addition, as of 2003, FCAT Science is administered in grades 5, 8 and 10 (Johnson, 2005: 3). The A+ Plan FCAT reading exam assesses students’ ability to “construct meaning from informational text and from literature” and the math portion of the “exam analyzes students’ mathematical abilities in six areas, including number sense, concepts and operations, measurement, geometry and spatial sense, algebraic thinking, and data analysis and probability” (Evers *et al.*, 2002: 141).

Under the previous grading system, before 2001, schools were able to count on their highest performing students to make up for the scores of lower performing students. However, the new grading system focuses on individual student performance, and

therefore is meant to act as an incentive for schools to improve the achievement of individual students, not just the highest performers.

For example, the Florida's A+ Plan rewards schools \$75 per pupil if the school can improve its standing by one letter grade, and "A" schools also receive this amount simply for retaining their standing (Peterson and West, 2005: 2). However, in reality, many schools do not receive satisfactory grades and, in accordance with the A+ Plan, the state penalizes schools in the form of reduced funding.

Florida schools that received an "F" have both the stigma of being among the two percent of all schools in Florida given a failing grade as well as the threat that a repeated "F" would give students at the school the opportunity to use a voucher to go elsewhere and schools that received a "D" were also stigmatized as being among the ten percent worst performing schools in the state (Peterson and West, 2005: 6).

Under Florida law, third graders who score at Level 1 in reading on the FCAT must be retained and will not be promoted to fourth grade (FLOD, 2009: 1). If a student scores a Level 1 they are considered not to be reading at an acceptable level and by retaining students who have substantial reading deficiencies, these students are allowed more time to catch up in reading. According to the Florida Department of Education, FCAT standards will have a positive effect on the state because they will reduce the need for remedial education in middle in high school and will help Florida develop a highly-skilled workforce (FLODa., 2009: 2).

In 2003, Florida made it mandatory that students pass the Grade 10 reading and writing portion of the FCAT in order to receive a standard high school diploma from a public school (FDOEb., 2009: 1). If a student fails to pass the Grade 10 FCAT, they will receive a Certificate of Completion, which is not equivalent to a standard high school diploma (FDOEb., 2009: 1). The FCAT is considered to be a "high stakes" test because

students scores have such important consequences, including high school graduation, promotion to the next grade, and financial rewards for schools.

For schools, administering the FCAT has many “costs”, both internal and external, which will be discussed in the forthcoming sections. Internal costs increase when students are retained and have to take the test multiple times. External costs, on the other had, account for decreases in lifetime earning when low FCAT scores deprive students of their diplomas. Additionally, both students and teachers sometimes turn to manipulating the system because there is much riding on students’ standardized test scores. This study will therefore demonstrate how these costs, combined with emotional costs, and would inflate current FCAT estimations of \$19.44 per student per test.

Section III: The Cost of Failing the FCAT

In 2003, the State of Florida enacted the K–20 Education Code. Chapter 1008 of this code states that a student’s promotion to the next grade level depends upon their proficiency in reading, writing, science, and mathematics associated with FCAT scores (Florida Statutes, 2004). This section will discuss the economic costs associated with failing the FCAT. The following sections discuss the implicit and explicit costs of failing to pass the FCAT. Section (a) discusses how students in the third grade must earn an FCAT reading score of Level 2 or higher (on a scale of 1 – 5) in order to be promoted to the fourth grade. Section (b) gives a break down of the costs associated with taking the Grade 10 FCAT. Section (c) discusses the effects on life time earning and expected tax revenue loss resulting from the inability to earn a high school diploma.

Budget Cost of Failing the FCAT

i. Cost of Retention in the Third Grade

The National Center for Education Statistics estimates that average per-pupil expenditure in the United States is \$7,524 per year (Glennie, 2005b: 2). By determining how many students were retained in the third grade due to insufficient scores on the FCAT, it is possible to calculate how costly it is to retain third grade students based on their FCAT reading scores. The Florida Department of Education reported that, in 2009, 17% or 34,873 of Florida’s third graders were retained for scoring below a Level 2 on the FCAT (FDOE, 2009a). These figures suggest that it cost Florida’s taxpayers approximately \$262.4 million to retain third graders who did not pass the FCAT, see Table 1.

Table 1: Cost of Retention in 3rd Grade for 2009

	Calculations	Cost
Per year cost of retaining each student	Average annual expenditure per pupil ¹	\$7,524
Total expense of 3 rd grade retention	(number of retained students) ² x (cost of school) ¹ = (34,873 ² x \$7,524 ¹)	\$262,384,452

¹ Glennie, 2005: 2

² FODE, 2009b

There has been considerable research devoted to understanding the effects of grade retention on young children. Jimerson (1999), Smith (2004), and Glennie (2005) all discuss effects, such as emotional distress, behavior problems, and substance abuse later in life. Furthermore, findings show “that students retained during elementary school are between 20% to 50% more likely to drop out of high school than non-retained students” (Jimerson, 2002: 5). Therefore, students who are retained in the third grade due to their FCAT score have a diminished probability of receiving a high school diploma. Without a standard high school diploma, these students can expect to have decreased lifetime earnings compared to students who do graduate (Glennie, 2005: 3).

ii. *Cost of Retesting Students Until They Pass Grade 10 FCAT*

Under Florida law, high school seniors must be able to pass both the reading and mathematics sections of the Grade 10 FCAT in order to graduate from high school with a standard high school diploma. The alternative is to receive a Certificate of Completion, which is not equivalent to a standard high school diploma (FDOE, 2009b: 1). Students may have up to six opportunities to pass the Grade 10 FCAT (FDOE, 2009b: 1).

Table 2: Cost of Taking the FCAT in the 12th Grade¹

	Methodology	Cost
Per year cost of retaining each student	Average annual expenditure per pupil ¹	\$7,524
Re-testing seniors in the 12th grade six times in 2009	(number of students taking the FCAT in the 12 th grade) ² x (cost of test administration) ³ (31,465 ² x \$19.44 ³)	\$3,670,078

¹ Glennie, 2005: 2

² FODE, 2009d

³ FODE, 2009a

According to the Florida Department of Education, in 2009 there were 22,925 students who did not pass the reading section of the Grade 10 FCAT and 8,540 students who did not pass the mathematics section by their senior year of high school. Consequently, 31,465 Florida students did not receive a standard high school diploma as a direct result of the FCAT. These figures are based on 12th grade students in 2009 who took the Grade 10 FCAT test six times. Given that each test costs \$19.44 to administer, this re-testing seniors costs approximately \$3,670,078 in 2009 alone. See Table 2, row 2, for calculations.

Future Costs Associated with Failing Grade 10 Reading or Mathematics

The Grade 10 FCAT is the last test that students must take in order to obtain a standard high school diploma. As noted, if students do not pass the Grade 10 reading or mathematics portion of the FCAT by their sixth attempt, they will receive a Certificate of Completion. In addition, students have until the 12th grade to pass the FCAT portion of

¹ The cost calculated used average annual expenditure per pupil for 2009.

their graduation requirements. Not receiving a standard diploma can have profound effects on an individual's life time earnings. In 2009, 22,925 seniors took the FCAT reading and 18,340 (80%) failed to pass. Of the 8,540 seniors who took the FCAT mathematics, 6,320 (74%) failed to pass (FDOE, 2009c). In total, 24,660 students in Florida failed to pass the Grade 10 reading or mathematics portion of the FCAT and thus received a Certificate of Completion instead of a standard high school diploma. The labor market consequences for not earning a high school diploma are on the one hand private due to the impact on the individual directly and on the other hand public of the impact on the society as a whole (Rouse, 2005: 1). One consequence of students not receiving a high school diploma is that their lower lifetime earnings means they will be less likely to contribute to society; the government will also receive lower tax revenues from them.

Can we calculate this earning loss? Rouse (2005) calculated that each individual who does not receive a standard diploma will earn on average approximately \$260,000 less than an individual with a high school diploma and can be expected to contribute about \$60,000 less in lifetime federal and state income taxes (Rouse, 2005: 24).² Thus, 24,660 students are expected to suffer a combined lifetime earning loss of \$6.4 billion and expected loss of \$1.5 billion in federal and state income taxes (AFEE, 2009: 1). See Table 3 for calculations.

² To estimate life time earning loss and state loss on federal income taxes Rouse uses the Social Security Trustee's intermediate forecast regarding productivity growth over the next 75 years. The Social Security Trustee assumes a discount rate of 3.5% and productivity growth of 1.5% for the next 75 years. Rouse also presents the lifetime earnings differences in discounted present value terms (rather than in nominal dollars) in order to account for the fact that a dollar earned today is worth more than a dollar earned in 50 years.

Table 3: Economic Well-Being

	Methodology ³	Cost
Individual lifetime earning loss for not receiving a standard high school diploma	Lifetime expected earning loss of not receiving a standard high school diploma ⁴	\$260,000
Combined expected <i>lifetime</i> earning loss of not receiving a standard high school diploma	(Number of students who did not receive a diploma in 2009) ² x (Lifetime expected earn loss of not receiving a standard high school diploma) ⁴ = (24,660 ² x \$260,000 ⁴)	\$6,411,600,000
Government tax revenues loss for an individual	Expected loss in federal and state income taxes for an individual ⁴	\$60,000
Combined expected government tax revenues loss	(Number of students who did not receive a Certificate of Completion in 2009) ² x (Expected loss in federal and state income taxes) ⁴ = (24,660 ² x \$60,000 ⁴)	\$1,479,600,000

¹ Glennie, 2005: 2

² FODE, 2009d

³ FODE, 2009a

⁴ Rouse, 2005: 24

³ The cost calculated used average annual expenditure per pupil for 2009.

Section IV: Manipulating the Test Pool

This section describes the financial outcomes caused by Florida's A+ accountability program. Part (a) discusses how schools have reclassified students into disabled categories in order to exempt them from the FCAT testing pool and the economic costs of these decisions. Part (b) describes how schools in Florida suspend lower performing students for longer periods of time during FCAT testing periods in order to manipulate the test pool. Part (c) discusses how more students are likely to drop out of school because of accountability systems and the consequences of these decisions on the individual and society.

Reclassifying Students into Disability Categories to Avoid FCAT

Florida's A+ accountability system has given schools an incentive to manipulate the test pool. Schools do this by taking the poorest-performing students out of the testing pool and classifying them as "disabled". In doing so, they can improve their state-assigned grade and receive financial rewards (Figlio and Getzler, 2002: 2). Therefore, the FCAT's incentive structure has led some students to be placed in classes that might not reflect their actual potential.

The NCLB Act and the *Individuals with Disabilities Education Act* (IDEA) of 2004 requires that students with disabilities participate in a statewide testing program unless the student's individual educational plan (IEP) specifies a different plan.⁴ Based

⁴ An IEP is for a student that is classified as having delayed skills or other disabilities. The IEP team is to design a special individualized education program the student. The goal of the student's individual educational plan is to help students succeed in school.

on the procedures under the Florida Administrative Code Rule 6A-1.0943, the decision to exclude a student with disabilities from state and district testing is made by the IEP team (Beech, 2005: 8). According to the National Dissemination Center for Children with Disabilities, the IEP team consists of one regular education teacher of the child, one special education teacher of the child, a special representative of a public agency (who is qualified to provide instruction on how to meet the child's need) an individual who can interpret the instructional implications of evaluation results, and the parents of the potentially disabled student. An obvious conflict of interest can arise when two of the IEP members report directly to school-level authorities.

In fact, IEP members have considerable flexibility when it comes to labeling students as disabled. As an example of this flexibility, an IEP team may decide to exclude a student from participating in the FCAT because they feel that the test might put a child under too much stress or pressure. Because the student is under stress, the test results might not provide an accurate picture of the child's progress (Beech, 2005: 9). This flexibility in classifying students as learning disabled in schools results, at the margin, in additional students suffering the label "disabled."

Cullen (2003) estimated the elasticity of student disability rates with respect to fiscal incentives. Cullen's results provide evidence that schools' responses to financial incentives are important in determining the ultimate size of special education programs (Cullen, 2003: 1559). She shows that a 10% increase in the supplemental revenue generated by the number of disabled students "leads to approximately a 2% increase in the fraction of students classified as disabled" (Cullen, 2003: 1559). Therefore, in Texas from 1992 to 1997, the changes in the state's financial incentives towards disability

students can explain nearly 40% of the increase in disability rates and provides evidence regarding how a state will respond to the introduction of financial incentives by labeling students as disabled.

Figlio and Getzler (2002) examined how schools in Florida have manipulated the system through reshaping the test pool in response to Florida's accountability system. They were concerned whether the initiation of the FCAT affected Florida public schools' decisions on special education assignments (Figlio and Getzler, 2002: 5). Using student-level fixed effects models, they found that the introduction of the FCAT testing program caused an increase in the likelihood that many low-performing students and students from low socioeconomic backgrounds would be reclassified into disability categories and be exempted from the accountability system (Figlio and Getzler, 2002: 5). Before the FCAT, students had a 3.3% chance of being classified as disabled. However, with the introduction of the FCAT, the probability that a student would be identified as having a test-excludable disability increased to 8.9% (Figlio and Getzler, 2002: 9). Thus, there has been a 5.6 percentage point increase in the likelihood that a student will be classified as disabled since the initiation of the FCAT. These increases represent a nearly three fold increase in the probability of a student being classified as disabled. This finding is significant economically and statistically, and provides strong evidence of one of the hidden costs of the FCAT.

If there is a 5.6 percentage point increase in the number of students more likely to be classified as disabled because of the FCAT, how much more does the Florida Department of Education spend on educating these newly "disabled" students? A national study by the American Institutes for Research (AIR) on special education sheds some

light on these costs. The report divides students with disabilities into two groups within each school type: a *high-expenditure* group and an *average-expenditure* group (Chambers, 4: 2004). I only consider those students in the *average-expenditure* group, which are students with moderate disabilities. It would seem unlikely that a school would reclassify poor test takers into disability programs reserved for students with severe handicaps represented by the *high-expenditure* group.

The AIR study defines the *average-expenditure* group with disabilities as students whose total educational expenditures fall into the second and the third quartiles of the schools' expenditure distribution (Chambers, 2004: 4). Once a child is categorized as disabled, the school has to provide the student with special disability classes. These students cost, on average, \$9,460 in elementary and \$10,221 in secondary schools (Chambers, 4: 2004). In 2004, the traditional student costs \$6,556 to educate (Chambers, 4: 2004). In elementary school, the cost difference is \$2,904 per year per student, and in secondary school it is \$3,665 per year. Even though the school could improve its test pool by labeling students as disabled, there is a true resource cost to teaching students who are not entitled to a more expensive education.

If there is a 5.6 percentage point increase in the number of students classified as disabled, what does it cost the state of Florida to provide special needs education? As of 2009, 1,005,914 students were enrolled in elementary school (Dubose, 2009). Using Figlio and Getzler's estimate that under FCAT there will be a 5.6 percentage point increase and the elementary students enrolled in 1,005,914, I estimate that 56,331 students ($1,005,914 \times 5.6\%$) are expected to be categorized as disabled because of the FCAT alone. Thus, at an additional cost of \$2,904 for each of these students, I calculate

Table 4: Economic Well-Being⁵

	Methodology	Cost
Average student cost to educate per year	Average student cost to educate per year ¹	\$6,556
<i>Average-expenditure</i> per pupil for “disabled” group in elementary school	Average per pupil expenditure for <i>average-expenditure</i> group in elementary school ¹	\$9,460
<i>Average-expenditure</i> per pupil for “disabled” group in secondary school	Average per pupil expenditure for <i>average-expenditure</i> group in secondary school ¹	\$10,221
Cost to provide 5.6% of Florida’s elementary school children with disability education	(Number of students that are disabled in elementary school) x (Marginal cost of education provision) ¹ = (56,331 x \$2,904 ¹)	\$164 million
Cost to provide 5.6% of Florida’s secondary school children with disability education	(Number of students that are disabled in secondary school) x (Marginal cost of education provision) ¹ = (77,373 x \$3,665 ¹)	\$284 million
Total Cost of disability education for 5.6% of Florida’s population in 2009	(Cost to provide disability education to 5.6% of elementary school children) + (Cost to provide disability education to 5.6% of secondary school children) = (\$163,585,224 + \$283,572,045)	\$447 million

¹ Chambers, 4: 2004

that it approximately \$164 million (56,331 x \$2,904) to teach these newly labeled students as a result of the FCAT in 2009 alone. Similarly, in 2009 there were 1,381,666 students in secondary education and, of these, 77,373 (1,381,666 x 5.6%) can be expected to be categorized as disabled due to the FCAT. The additional cost of these students is approximately \$284 million. The calculations for this section are in Table 4.

⁵ The cost calculated used average annual expenditure per pupil for 2009.

For the state to provide education to these newly-defined disabled students, the combined increase in cost would be approximately \$447 million. Clearly, the efficiency and even appropriateness of these expenditures on special education for students is highly suspect. These students may well be better off in less costly traditional classrooms. Schools could potentially spend those funds more productively if there was not the incentive to alter special education assignments to boost test scores (Figlio, 2002: 12). However, the school might find that the benefits of exempting disabled students from the test pool might outweigh the cost of labeling students as disabled.⁶

It could be argued that if a student is exempt or held to a “lower” standard, the school might have little incentive to focus time and attention on these “disabled” students (Jennings, 2009: 154). The lack of focus on these students results because their scores no longer contribute to the amount of funding schools could receive and are thus no longer important to the incentives confronting school administrators. Therefore, these students are unlikely to reach proficiency levels in school due to the potential lack of attention on their educational needs. The NCLB Act claims that each child will receive an adequate education; however, the consequences that arise from allowing students to be exempted from the testing pool undermine the Act’s original intent.

Higher Suspension Rates During FCAT Improve Scores

Figlio (2003a) investigated whether the initiation of the FCAT has led to more low performing students being suspended or expelled before testing days. His findings confirm the suspicion that schools tend to assign stricter punishments to low-performing

⁶ In other words, for future researchers it would be interesting to examine the specific incentives for individual schools when it comes to labeling students as disabled. What are the specific costs and benefits associated with this action?

students than to high-performing ones (Figlio, 2003a: 3). Because of Florida's high stakes testing program, many schools use discipline as a tool to try to eliminate poor test takers from testing sessions.

On average, the students who are expected to score in the lowest proficiency group in reading and mathematics on the FCAT are suspended an average of 2.35 days (Figlio, 2003a: 6). Of these, 23% receive suspensions of one week or longer close to the FCAT testing period (Figlio, 2003a: 6). A student who is predicted to score above the lowest proficiency group that commits the same offence is generally suspended for only 1.91 days, with 18% receiving one-week or longer suspensions (Figlio, 2003a: 6). Thus, Figlio provides evidence that students who are predicted to be poor test takers are suspended longer during the testing window, and that schools may be deliberately attempting to reshape the testing pool in response to high-stakes testing.

Higher Dropout Rates

The NCLB Act holds schools accountable for students' test scores but does not hold them accountable for the number of students who drop out of high school. Since the enactment of the NCLB, schools have greater incentives to discourage weak students from staying enrolled. If the weakest students were nudged out of the test pool or even allowed to drop out, then the test scores at the schools or districts can be expected to increase. If students do not finish high school, their chances for an economically productive life are seriously compromised.

Warren *et al.* found that state-mandated high school exit examinations, such as the FCAT, are associated with lower rates of high school completion (2006: 146). According

to their research, high school completion rates are about 2.2% lower in states with high-stakes school exit examinations (Warren *et al.*, 2006: 142). Although there have been estimates on the national dropout rate due to high stakes testing, there has been no research on the exact dropout rate due to FCAT. If we use national figures and apply them to Florida, the state can expect to have, on average, 2.2% of its students drop out of high school due to the FCAT examinations.

With these students dropping out of high school, the state no longer has to provide funds for education. But what are the hidden costs associated of a high dropout rate? The long-term effects of not receiving a high school diploma include a decrease in lifetime earnings. The lower earnings of these students also translate into lower tax revenue. As calculated in the “Costs of Failing the FCAT” section, above, a high school dropout can expect to earn approximately \$260,000 less over a lifetime than someone with a high school diploma, and he or she will contribute \$60,000 less in lifetime federal and state income taxes (Rouse, 3003: 24). Dropping out of high school does therefore affect both the student and society.

Section V: Teaching to the Test and Narrowing the Curriculum

Since the late 1980s both supporters and critics of high stakes testing have observed substantial changes to school curricula due to standardized testing (Stecher, 2003: 91). The intention of state testing programs is to motivate teachers and students to achieve optimal performance levels, but the high-stakes nature of standardized testing can have unintentional consequences. Critics argue that high-stakes testing causes teachers to narrow their curriculum in order to make time to prepare for standardized tests.

Researchers caution that having high-stakes testing, such as FCAT, “has limited the range of education experiences to which students are exposed and minimize the skills that teachers bring to their craft” (Abrams et al., 2003: 20). This section will investigate the impact that the FCAT has had on Florida’s teachers’ curricular and instructional practices.

In 2003, a two-year-long national study revealed that teaching test-taking skills to students is among the least effective ways to improve test scores (National Board on Educational Testing and Public Policy, 2003: 1). Furthermore, this group found that high-stake states were much more likely to spend time on instructing in areas that were tested while spending less time instructing in non-tested areas, such as fine arts, physical education, and foreign languages (National Board on Educational Testing and Public Policy, 2003: 4). Teachers were asked how often school-level and student-level results on the high-stakes test affected their teaching. Over 70% of teachers responded that testing has negatively affected their instructional practice.

The criticism surrounding testing raises the question of which subjects teachers are forced to cut. In March of 2006, *The New York Times* published a major educational story titled “Schools Cut Back Subjects to Push Reading and Math,” which claimed,

thousands of schools across the nation are responding to the reading and math requirements laid out in No Child Left Behind [...] by reducing class time spent on other subjects and, for some low-proficiency students, eliminating it” (Jerald, 2006: 1).

This article highlighted one “cost” associated with teaching to the test. The Federal Schools and Staffing Survey, conducted from 1990 to 2004, asked teachers the amount of time they were spending per week on reading and mathematics versus social studies and science (Jerald, 2006: 2). This survey found that the time students in first through fourth grades spent on reading and mathematics increased by 96 minutes per week, while social studies and science lost 48 minutes per week (Jerald, 2006: 2). Furthermore, a 2003 survey found that middle and high school teachers were more likely to increase the amount of time they spent on social studies and science instruction (Jerald, 2006: 3). At first glance one could be misled into believing that these results were good news for the United States educational system because teachers are devoting more time to the instruction of reading and mathematics in elementary school. However, what is really occurring is that elementary school teachers are deferring subjects such as social studies, sciences, and art until the secondary grades in order to focus only on subject that students are held accountable for, such as math, reading, and writing (Jerald, 2006: 2).

The economic and educational cost of emphasizing only certain subjects could be devastating not only for Florida’s students but the United States as a whole. “By denying students the opportunity to build vocabulary and background knowledge, this strategy curtails reading comprehension and increases the achievement gap” (Jerald, 2006: 2).

Originally, it was thought that if a student had adequate comprehension skills in reading, a student would be able to understand text accurately. However, according to Hirsch, cognitive psychologists have “found that there’s another step in between fluent decoding and comprehension in which readers call on background knowledge about a topic to understand what the text is saying and what it is not saying” (Hirsch, 2006: 24). If teachers are deferring subjects such as social studies, sciences and art until secondary schooling, then students may no longer have adequate background knowledge to comprehend the text on standardized tests. Overall, this lack of opportunity can have profoundly negative consequences as students move into secondary grades, and the actual cost might not be seen for years to come.

For example, a 2004 study of Florida’s schools showed “substantial evidence for the construct validity of the FCAT test as a measure of reading comprehension in which the proportion of items that assesses ‘higher order thinking skills’ increases substantially from 3rd through 10th grade” (Schatschneider *et al.*, 2004: 6). This study stressed that students are failing the FCAT, not because the test is becoming more difficult from lower to higher grades, but because of their inability to read text accurately and fluently (Schatschneider *et al.*, 2004: 7). Therefore, it should be noted that students are more likely to perform poorly on standardized reading tests in upper grades because tests place more emphasis on comprehension and less emphasis on simple decoding as in elementary school tests (Jerald, 2006: 3).

Critics of high-stakes testing have cause to believe that higher scores achieved from teaching to the test might not reflect richer learning. For example, teachers in Texas were teaching a single writing format called the five paragraph persuasive essay, “where

each paragraph had to be exactly five sentences: a topic sentence, three supporting sentences and a concluding sentence much like the introductory sentence” (Nichols, 2005: 95). The five paragraph essay is also the basis for FCAT writing. Although this standardized scoring increases the reliability of accurately testing large-scale assessments, it standardizes the writing that is to be scored and only emphasizes simplistic writing styles (Nichols, 2005: 95). Critics caution that standardized writing might not necessarily be good writing because the five paragraph persuasive essay does not allow for students’ individual expression to surface (Nichols, 2005: 96). Thus, the rubric scoring in Texas did not measure students’ writing achievements, but how accurately the students were able to comply with the rubric (Nichols, 2005: 96). The results found in Texas can likely be applied to any high-stakes state, like Florida.

The point is that there may be dynamic effects associated with standardized testing. When standardized tests were first introduced, students may well have had the background knowledge to score highly. Recently, however, time has been taken away from other subjects to teach specifically to the test. New students entering the system no longer are receiving background knowledge from non-tested areas that were commonplace with earlier students. There is quite possibly, then, a dynamic deterioration of scores in tested areas, such of FCAT reading and writing.

Section VI: Teacher and Students Cheating on FCAT

The fact that FCAT scores determine both students' future success and school funding increases the already high pressure to score well. Critics of high-stakes testing argue that the link between financial incentives and student performance on standardized tests encourages teachers and students to cheat (Jacob, 2002: 8). The following sections discuss how teachers and students try to inflate test scores on the FCAT. Section (a) elaborates on the incentives behind teacher cheating. Section (b) explores the methods and consequences teachers engage in, and Section (c) investigates the incentives behind student cheating.

Incentives for Teacher Cheating

NCLB states that by the 2013–2014 school year, all public school students have to achieve federal proficiency levels for reading, writing, and math. If schools fail to make AYP requirements they will face financial sanctions and school faculty or administrators could be removed from their posts (Gollan, 2010: 1). For Florida teachers and administrators the stakes are extremely high for students to do well on FCAT because their standardized test scores are used to evaluate public school performances.

Based upon the AYP, each school that receives an “A,” or improves at least one performance grade from the previous year, is eligible to earn \$75 per student in school recognition funds (FDOE, 2007: 1). Financial incentives tie school funding to students' achievement and place the burden on teachers to ensure that their students perform at or above proficiency levels.

In addition to school funding, teachers in Florida are also eligible for merit pay increases based on gains in their students' test scores (Buddin, 2007: 1). The rationale behind giving teachers bonuses based on their students' FCAT scores is that teachers will respond to financial incentives like any other individual. In 2006, Florida's legislature allotted \$147.5 million for Florida's new Special Teachers Rewarded (STAR) Program to give teachers incentive to insure that students do well on the FCAT (Buddin, 2007: 12). Under the STAR reward program, the top 5% of performing instructional personnel and school administrators can be rewarded up to 10% of their salary as performance pay (FDOE, 2007: 1). The goal of STAR is to compensate teachers when their students achieve specific accountability scores, thereby using pay to leverage improvements in teacher quality (Buddin, 2007: 47). By tying financial rewards to successful outcomes, teachers now have specific monetary incentive to improve student's scores.

Method and Consequences

Increasing the incentives for high test scores has led many teachers to engage in a range of illicit activities. Teachers can respond to incentives by correcting student answers on multiple choice sections, informing students of correct answers, gaining access to copies of an exam illegally prior to the test date, and/or teaching students using knowledge that pertains to precise questions (Jacob, 2002: 844).

Teachers have apparently gone to such lengths to ensure their students receive high test scores on standardized tests. Scandals of cheating have been reported in California (May, 2000), Massachusetts (Marcus, 2000), New York (Loughran and Comiskey, 1999), and Texas (Kolker, 1999). A study of Chicago public schools found

that teacher or administrator cheating on accountability testing averaged a minimum of 4% to 5% of individual elementary school classrooms annually (Jacob and Levitt, 2003: 846). Smith (2005) states that there are 73,050 elementary school teachers in the Florida school system. Therefore, by applying Chicago's estimate that 5% of elementary school teachers will cheat on standardized testing, this study estimates that Florida could expect that out of its 73,050 elementary school teachers, on average 2,922 (5% x 73,050) teachers engage in cheating on the FCAT.

In Florida, hundreds of allegations have been made against teachers cheating on FCAT. For instance, in Tampa, claims have been made that a teacher gave clues to answers, put marks next to incorrect answers, and/or pointed out incorrect answers to students, which gave students a chance to fix their responses (King, 2002; Ave, 2004; Porter, 2003; Gedalius, 2004; Nichols and Berliner, 2005). Between 2003–2004, Broward County had eight accusations of teachers aiding students on the FCAT (Nichols and Berliner, 2005: 44). In one instance, nineteen students stated that a teacher guided them to the right answers and allowed them to make changes if they did not have the right answer for the FCAT (Nichols and Berliner, 2005: 46). The consequences of teacher cheating does not affect only the teacher, because in many cheating cases, students' test scores are considered invalid, putting many students in jeopardy of being retained, suspended, and being unable to receive their high school diploma.

Incentive for Student Cheating

Florida's A+ accountability program is among the most stringent in the nation. Recall that, under Florida's A+ accountability program, students are required to perform at a

level 2 or higher in 3rd grade reading in order to be promoted to the 4th grade, and 10th grade students have to pass both the 10th Grade reading and mathematical section of the FCAT to receive a standard high school diploma (Greene *et al.*, 2003: 2). Students fear that a poor FCAT score might cause them to be retained or threaten their chances of receiving a standard high school diploma. The pressure to perform up to standard has therefore led many students to cheat on the FCAT. For instance, in Broward County over 100 students were under investigation for possibly cheating on the FCAT (Malernee, 2004). The state uses computer programs that search for signs of cheating. The 100 students' test scores had risen so much that they were flagged as suspicious and their scores were held back for further review (Malernee, 2004). These students are now in danger of not receiving their diplomas.

VII. FCAT's Effect on the Housing Market

In the past decade, Florida's test scores have come to signal the quality of schools. Under Florida's A+ program, schools and districts are held accountable by using FCAT results to grade schools from "A" to "F" on school report cards that are very widely publicized and scrutinized. One consequence of assigning a grading scale to school systems is an effect on prices of the homes in Florida. Figlio and Lucas (2000) found that the grade assigned to schools in Florida affects the attractiveness of homes to potential and current residents (1). Figlio and Lucas results showed that the

distinction between a grade of "A" and a grade of "B" is valued in the housing market at over \$10,000, about an eight percent difference, holding constant other measures of school quality, neighborhood and property attributes, and similar-sized effects (even larger, in percentage terms) are observed surrounding the "B" "C" distinction (Figlio and Lucas, 2000: 5).

Based on these scores, families are making important decisions about where to live. Real estate agents use school test scores to rate neighborhood quality and this affects property values (Haladyna, 1991:2). As the Tiebout Model suggests, some families will vote with their feet and relocate to a superior school zone if they do not like the grade that their children's school receives (Gruber, 2007: 262).

Section VIII: Summary of Costs

The previously Sections III–VII discussed the methodology and the assumptions behind the costs that are associated with FCAT’s externalities. This section combines these costs and gives a more accurate representation of the true cost of administering the FCAT.

Furthermore, this section calculates the expected lifetime cost of FCAT according to the Florida Department of Education and the true cost of FCAT to an individual over their lifetime. In addition, this section also discusses the non-monetary costs of the FCAT.

The Administrative Cost of FCAT According to the FDOE

Table 5 shows the FCAT administration testing cost during a student’s education at \$19.44 per test according to the Florida Department of Education. Column 1 shows to which grades the FCAT is administered, Column 2 states the test given in that grade, and Column 3 calculates the cost to administer the FCAT at \$19.44 per test. For example, the third grade students must take both the reading and mathematics FCAT subject tests. Therefore, in the third grade the combined testing cost is \$38.88. Thus, adding up Column 3, the combined testing cost for all grades is approximately \$466.

According to this Table 5, the total cost of FCAT over a students’ lifetime should only be \$466. However, I find this estimate to be inaccurate and grossly understated because it does not take into account the externalities that were previously discussed. The rest of this section is devoted to calculating a more accurate estimate of the cost of the FCAT.

Table 5: FCAT administration testing cost during a student’s education at \$19.44 per test

Grade	Test Subject	Cost of all tests in that grade
Third	Mathematics and Reading	$(2 \times \$19.44^1) = \38.88
Fourth	Mathematics, Reading, and Writing	$(3 \times \$19.44) = \58.32
Fifth	Mathematics, Reading, and Science	$(3 \times \$19.44) = \58.32
Six	Mathematics and Reading	$(2 \times \$19.44) = \38.88
Seventh	Mathematics and Reading	$(2 \times \$19.44) = \38.88
Eight	Mathematics, Reading, Writing, and Science	$(4 \times \$19.44) = \77.76
Ninth	Mathematics and Reading	$(2 \times \$19.44) = \38.88
Tenth	Mathematics, Reading, and Writing	$(3 \times \$19.44) = \58.32
Eleventh	Mathematics, Reading, and Science	$(3 \times \$19.44) = \58.32
Total Cost:		\$466.56

¹ FDOE, Undated a

Calculating the True State Cost of the FCAT

Table 6 is an estimation of the state cost of the FCAT according to this article. Row 2 states the cost of a student's FCAT testing from grades third through tenth, which was previously calculated in Table 5. I estimate that in 2009 alone it cost the state of Florida \$262.4 million to retain 34,873 third grades at a cost of \$7,524 per student for failing the reading portion of FCAT. For calculations, see Row 3. Furthermore, students retained in elementary school are 20% to 50% more likely to drop out of high school, which costs the state Florida \$60,000 per student in decreased tax revenues over a lifetime. Therefore, I calculate that between 6,975 and 17,436 students will not earn a high school diploma and will cost the state between \$418.5 million to \$1.046 billion in decreased tax revenues. Calculations are shown in Row 3. In 2009, 31,465 seniors had not passed the Grade 10 reading or mathematics section of the FCAT. Given that each test costs \$19.44 to administer and seniors are given six chances to pass the FCAT math and reading sections, re-testing seniors costs approximately \$3.7 million. See Row 4 for calculations. Educating 5.6% of Florida's elementary school children will cost \$164 million and \$284 million for secondary

Whereas the Florida Department of Education states that it only costs \$466 to administer the FCAT, I find that the total combined state cost for administering the FCAT ranges from approximately \$1.1 billion to \$1.8 billion over a student's lifetime. Furthermore, I find the cost per student of the FCAT to be approximately \$74,675.

Table 6: Estimation of the State's True Cost of FCAT

	Number of Students	Cost Per Student	Total Cost
A student's FCAT testing cost from grades 3rd-10th		\$446 ¹	
Retention of 3rd grade in 2009	34,873 ²	\$7,524 ³	(34,873 x \$7,524) = \$262.4 million ⁹
Students being retained in elementary school are more likely to drop out of high school	(34,873 ² x .20 ⁴) = 6,975 to (34,873 ² x .50 ⁴) = 17,436	\$60,000 ⁵	(6,975 x \$60,000) = \$418.5 million to (17,436 x \$60,000) = \$1.046 billion
Re-testing seniors in the 12th grade six times in 2009	31,465 ⁶	\$116.64	(31,465 x \$116.64) = \$3,670,078 ¹⁰
Educating a 5.6 % point increase in the number of elementary students classified as disabled	56,331 ⁸	\$2,904 ⁷	(56,331 x \$2,904) = \$164 million ¹¹
Educating a 5.6 % point increase in the number of secondary students classified as disabled	77,373 ⁸	\$3,665 ⁷	\$284 million ¹¹
Total:	Ranges from: 207,017 to 217,478	\$74,675	Ranges from: \$1,132,570,078 to \$1,760,230,078

¹ Table 5: Estimation of a student's FCAT testing cost during their education

² FODE, 2009b

³ Glennie, 2005b: 2

⁴ Jimerson, 2002: 5

⁵ Rouse, 2005: 24

⁶ FODE, 2009d

⁷ Chambers, 4: 2004

⁸ Section 5: Reclassifying Students into Disability Categories to Avoid FCAT Testing

⁹ Table 1: Cost of Retention in the 3rd Grade

¹⁰ Table 2: Cost of Taking the FCAT in the 12th Grade

¹¹ Table 4: Economic Well-Being

Table 7: Individual Cost of the FCAT

	Number of Students	Cost Per Student	Total Cost
Students retained in elementary school are less likely to earn a high school diploma	(34,873 ¹ x .20 ²) = 6,975 to (34,873 ¹ x .50 ²) = 17,436	\$260,000 ³	(6,975 x \$260,000) = \$1.8 billion to (17,436 x \$260,000) = \$4.5 billion
Value in housing market between “A” and “B” on school report cards		\$10,000 ⁴ (cost per household)	

¹ FODE, 2009b

² Jimerson, 2002: 5

³ Rouse, 2005: 24

⁴ Figlio, 2002: 5

Individual Cost of the FCAT

Table 7 calculates the individual cost from the FCAT. If a student is retained in elementary school, they are between 20% to 50% more likely to drop out of high school. Not earning a high school diploma costs the individual \$260,000 in lifetime earnings. Therefore, since between 6,975 and 17,436 students will not earn a high school diploma, then the combined individual cost is between approximately \$1.8 billion to \$4.5 in 2009 alone. Calculations are shown in Row 1.

Furthermore, in the housing market, a distinction of an “A” or “B” on school report cards is valued at \$10,000. Thus, there will be a higher demand for housing that is located in a school district with an “A” rating. This demand translates into higher prices, which are shown in Row 2. Future research needs to be devoted to figuring out the actual total cost on Florida households based on grade assignments.

Individual Non-Monetary Cost

Table 8 presents the individual non-monetary costs that are associated with the FCAT.

One externality that arises from the FCAT is that, on average, students who are expected to score in the lowest proficiency group in reading and mathematics are suspended 2.35 days and 23% are suspended for one week or longer close to the FCAT testing period. In addition, there is the emotional distress that comes along with standardized testing for both teachers and students. The FCAT places an inordinate amount of pressure on teachers to raise their students' test scores in order to receive funding. Many low-achieving students become disheartened and less motivated because of their low test scores, which leads to less of a desire to learn (Haladyna, 2002: 160).

Teachers are also affected by the low morale of their students and have less of a desire to teach (Haladyna, 2002: 160).

Furthermore, standardized testing has been linked with behavior problems and substance abuse later in life, see Rows 4 and 5. Another externality that has resulted because of the FCAT is the decreased areas of knowledge. Teachers are forced to only spend times on subjects of tested areas. Therefore, traditional subjects such as history and art are being thrown by the way side, see Row 6.

Table 8: Individual Non-Monetary Cost

Higher suspension rate for low proficiency¹

Longer suspension rates for low proficiency¹

Emotional distress²

Behavior problems³

Substance abuse later in life⁴

Decreased areas of knowledge⁵

Learning Deficit⁶

¹ Figlio, 2003a: 6

² Jimerson 1999,

³ Smith, 2004

⁴ Glennie, 2005b

⁵ Jerald, 2006: 2

⁶ Section V. Teaching to the Test and Narrowing the Curriculum

Section IX: Conclusion

Although Florida's high-stakes testing has enabled a numeric value to be attached to every school district and allowed for schools to track the educational gains of their students, it has come at a high price. As findings from this article show, the FCAT has not only changed the function of schools, but has become the focal point for schooling. The Florida school system is worried about making the grade rather than the quality of their students' knowledge.

This article focused on the true costs that are associated with administering the FCAT. According to the Florida Department of Education, the FCAT costs only \$19.44 per test per student. The analysis presented in this paper provides a more accurate estimation of the true cost of FCAT, which was done by adding up the administrative costs as well as the negative externalities associated with standardized testing. I find that the expected cost of the FCAT over a student's lifetime is not \$466 dollars, but is actually between \$1.1 billion to \$1.8 billion. This finding is so dramatic the state of Florida should do its own cost benefit analysis, specifically looking at the opportunity costs of the FCAT. The money currently poured into FCAT testing would be better spent improving disadvantaged schools, and teaching knowledge rather than excessive time try to assess it.

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