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The Predictive Influence of Family and Community Demographic Variables on Grade 7 Student Achievement in Language Arts and Mathematics

Adam Wolfe
adam.wolfe@student.shu.edu

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Adam Wolfe

Dissertation Committee

Dr. Christopher Tienken, Ed.D., Mentor
Dr. Luke Stedrak, Ed.D
Dr. Gerard Babo, Ed.D.

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APPROVAL FOR SUCCESSFUL DEFENSE

Adam R. Wolfe, has successfully defended and made the required modifications to the text of the doctoral dissertation for the **Ed.D.** during this **Spring Semester 2016**.

DISSERTATION COMMITTEE
(please sign and date beside your name)

Mentor:
Dr. Christopher Tienken Christopher Tienken 2-24-16

Committee Member:
Dr. Gerard Babo [signature] 2/24/16

Committee Member:
Dr. Luke Stedrak Luke J. Stedrak 2/25/16

The mentor and any other committee members who wish to review revisions will sign and date this document only when revisions have been completed. Please return this form to the Office of Graduate Studies, where it will be placed in the candidate's file and submit a copy with your final dissertation to be bound as page number two.

Abstract

The Predictive Influence of Family and Community Demographic Variables on Grade 7 Student Achievement in Language Arts and Mathematics

This correlational, explanatory, longitudinal study sought to determine the combination of community and family-level demographic variables found in the 2010 U.S. Census data that most accurately predicted a New Jersey school district's percentage of students scoring proficient or above on the 2010, 2011, and 2012 NJ ASK 7 in Language Arts and Mathematics. Analysis included simultaneous multiple linear regression and hierarchical linear regression. The population for this study included 100% of New Jersey school districts containing at least 25 valid NJ ASK scores in Language Arts and Mathematics for the years 2010-2012 and complete 2010 census data for the communities each district serves. Charter school districts, technical schools, regional school districts, and school districts not containing seventh grade students were excluded from the study. The results of this study revealed that using the (a) percentage of all people under poverty, (b) percentage of community members with a bachelor's degree, and (c) percentage of families with an income of $200,000 or more, which account for an individual's community and family social capital, the percentage of students scoring Proficient or above, at the district level, were accurately predicted within the standard error of the estimate for 72.3% to 76.8% of the total districts' Language Arts portion and 71.0% to 74.3% of the total districts' Mathematics portions for the 2010-2012 NJ ASK 7. This study is unique in that the same three community and family-level demographic variables combined to predict assessment results over a three-year period. Moreover, the results from this study contribute to the existing research and demonstrate multiple measures should be used to make high-stakes decisions in education.

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I would like to express sincere appreciation to Dr. Tienken. Thank you, Dr. Tienken for your support, guidance, and mentorship throughout my journey at Seton Hall University. I learned a tremendous amount in your curriculum courses, and you really challenged my own viewpoints of teaching and learning. Additionally, I really appreciate the opportunity to have conducted research under your direction and was able to achieve one of my goals and publish my first article thanks to your help and encouragement. Finally, this dissertation would not have been possible without your consistent efforts to keep me on track and your valuable feedback. Your passion for education and research and commitment to teaching and learning will continue to inspire me throughout my journey as an educational leader. Thank you!

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Dedication

I dedicate this dissertation to my friends and family, who have encouraged and supported me throughout the process. To my mother and father, Jerry and Glenè Wolfe, thank you for instilling in me the value of education and hard work. You have always been supportive throughout my entire educational journey and helped me to remain focused, reassuring me there was light at the end of the tunnel. You both kept me motivated and driven to complete this dissertation, and I thank you.

To my amazing wife, Aspen, I thank you for everything. Your support, compassion, and love humbles me; and I am so blessed to have you in my life. I admire the work you do as an OB/GYN and you truly were a big inspiration for completing this dissertation and degree. We welcomed our first child Londyn into the world on September 19, 2014, and I am forever blessed and grateful. Your selflessness is astonishing and the love you share with our family is contagious. Thank you for being an exceptional wife, mother, and my rock. I love you.

To my beautiful daughter, Londyn, I am so blessed to have you in my life. Words cannot express the joy you bring me on a daily basis and every day I am reminded to cherish each moment as you continue to grow so quickly. I dedicate this dissertation to you and hope you realize that with hard work and perseverance, anything is possible. As you continue to grow and develop, I pray the Lord watches over you and that you will become a strong woman who never settles for mediocrity, dreams big, loves endlessly, and forgives both yourself and others.

To all my other family members, friends, classmates, and professors, thank you for your support and timely words of encouragement that enabled me to fulfill this lifelong dream. Thank you to my former students of the Passaic City School District who motivated and inspired me to complete this dissertation. While I might have been your teacher, I too learned so much from each and every one of you and the grit you all displayed was truly contagious. Thank you!

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CHAPTER I

INTRODUCTION

The controversial report known as *A Nation at Risk* (National Commission on Excellence in Education, 1983) revealed the education system in America was at great risk and students were falling behind other countries academically. This report led to the development of several policies and K-12 education programs, such as No Child Left Behind [NCLB PL 107-110], and Race to the Top (RTTT). NCLB and RTTT specifically use a standards based reform effort to improve instructional practices and student learning on standardized tests. NCLB legislation has emphasized the development of curriculum standards and standardized tests that are then used to hold schools accountable based on their test scores (Hursh, 2005).

NCLB and other reform efforts increase school personnel liability for educating students and ensuring youth graduate from high school well prepared to enter college or the workplace. School district personnel such as teachers, school administrators, and district leaders are under pressure to raise academic achievement and meet adequate yearly progress (AYP) in order to remain in compliance with federal mandates. School administrators at the district and school levels have responded by focusing on increasing student test scores and proficiency levels on state mandated exams.

In New Jersey and throughout the country, the stakes associated with standardized assessments are continuing to increase. With the recent adoption of the Common Core State Standards, school districts throughout the country will be participating in a nationwide high stakes standardized testing program known as the Partnership for Assessment of Readiness of College and Careers (PARCC) or the Smarter Balanced Assessment Consortium (SBAC) test. The results of these assessments will be used to measure district, school, administrator, and teacher effectiveness, as well as student performance. Furthermore, the results are likely to be used by policymakers and bureaucrats to compare districts, schools and students and to continue making high-stakes decisions that impact all stakeholders.

For decades scholars have questioned the efficacy of holding schools and students accountable for their achievement levels and acknowledge that not all schools, teachers, and students are given the same educational and demographic opportunities and resources (Wilkins, 1999). Educational opportunities include various components such as quality of instruction, curriculum/materials, teacher qualifications, etc., which relate directly to the educational process and have been shown to impact student achievement (Wilkins, 1999). Demographic opportunities are characterized by the individuals that create the community in which a local school is located. Wilkins (1999) contends individuals with similar backgrounds tend to live in comparable locations and the resources available for students are similar to the resources available for residents in the community. Consequently, demographic opportunities can significantly influence educational opportunities (Wilkins, 1999).

Students in upper and middle class communities have access to resources and networks to which lower class students do not have access. Therefore, children living in wealthy communities are likely to experience increased achievement levels compared to students in poorer communities (Wilkins, 1999). The results of previous studies support the notion that demographic opportunities influence educational opportunities, as researchers have demonstrated it is possible to predict the percentage of students scoring Proficient or above in Language Arts and Mathematics, at the district level, on state standardized assessments using demographic variables found in the U.S. Census data (Jones, 2008; Maylone, 2002; Sackey, 2014; Tienken, Tramaglini, & Lynch, 2013; Turnamian, 2012; Turnamian & Tienken, 2013).

Statement of the Problem

When significant decisions are made based on test performance impacting an individual's education, career, or life opportunities, the test is considered high stakes (AERA, APA, NCME, 1999). Examples of high-stakes decisions include, but are not limited to, inferences about teacher and/or administrator effectiveness, teacher and/or administrator tenure, employment, student retention and promotion, academic tracking, and eligibility to graduate from high school. All 50 states currently have high-stakes testing policies used to measure student achievement and use the results to make important decisions in education (Tienken & Rodriguez, 2010).

A broad body of research has consistently demonstrated socioeconomic status is the most influential variable on student achievement (Coleman et al., 1966; Duncan, Morris, & Rodrigues, 2011; Gamoran & Long, 2006; Jencks et al., 1972; Miller, Votruba-Drzal, & Setodji, 2013; Morrissey, Hutchison, & Winsler, 2013; Reardon, 2013; Sirin, 2005; Tienken, 2011). Education scholars acknowledge high-stakes assessments contain threats to validity and reliability, which ultimately limits the technical quality of the exam, and the usefulness of high-stakes test results to make important decisions in education (AERA, APA, NCME, 1999; Amrein & Berliner, 2002a; Messick, 1989,1995; Popham, 2001; Tienken, 2011). The extant literature has provided mixed results at best, and rigorous empirical studies demonstrating high-stakes tests significantly impact student learning are lacking (Amrein & Berliner, 2002a; 2002b; Carnoy & Loeb, 2002; Braun, 2004; Hanushek & Raymond, 2003; 2004; Nichols, Glass, & Berliner; Rosenshine, 2003).

The existing research has demonstrated that, at the district level, it is possible to predict the percentage of students who will score Proficient or above on high-stakes standardized tests in Language Arts and Mathematics using family and community demographic variables found in the U.S. Census data (Jones, 2008; Maylone, 2002; Sackey, 2014; Tienken, Tramaglini, & Lynch, 2013; Turnamian 2012; Turnamian & Tienken, 2013). Therefore, a problem exists when policymakers and education bureaucrats use high-stakes test results to make inferences about the quality of a school district without controlling for out-of-school variables. Furthermore, if the percentage of students scoring Proficient or above on high-stakes tests can be predicted statistically using family and community demographic variables, it is problematic to make important decisions impacting students, teachers, and school leaders based solely on the results of high-stakes standardized assessments.

The previous studies utilizing algorithms to predict the number of students proficient or above in Language Arts and Mathematics on high-stakes assessments using U.S. Census data were cross-sectional designs analyzing one year of data at a time. The previous research is extremely limited, and these studies have not examined the predictability of the percentage of students who scored Proficient or above on high-stakes standardized tests over time using various cohorts of students. Scarce empirical literature exists examining the predictive influence of family and community demographic variables found in the U.S. Census data on high-stakes test achievement over the course of multiples years in a single grade level.

Policymakers and education officials cannot assume the results of high-stakes assessments accurately portray the quality and success of school districts without considering the predictive power of family and community demographic variables found in the U.S. Census data. A need exists in New Jersey for longitudinal, empirical, quantitative analysis to determine the predictive influence of family and community demographic variables found in the U.S. Census data on student performance, at the district level, in Language Arts and Mathematics in Grade 7 during the years 2010, 2011, and 2012.

Purpose of the Study

The purpose of this longitudinal study was to determine which combination of community and family-level demographic variables best predicted a New Jersey school district's percentage of students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 in Language Arts and Mathematics. By focusing on family and community demographic variables found in the U.S. Census data that significantly impact student achievement, this study sought to produce research-based evidence to inform public school educators and policymakers regarding important educational decisions and reform initiatives. If it is possible to predict the number of Grade 7 students scoring Proficient or above, at the district level, on the NJ ASK Language Arts and Mathematics assessments during the years 2010, 2011, and 2012 as the extant literature suggests, then the primary utilization of high-stakes test results to make important decisions about student and educator effectiveness must be called into question. Education bureaucrats, policymakers, district and school level leaders must consider a holistic approach to evaluating student and teacher effectiveness if the number of students, at the district level, scoring Proficient or above on the NJ ASK 7 can be predicted using family and community demographic variables found in the 2010 U.S. Census data.

Variables

In this study various independent community and family-level demographic variables found in the extant literature to influence student achievement on standardized assessments and included in the U.S. Census data were examined. The independent variables coalesced into two main categories including community social capital and family social capital. The variables found in the 2010 U.S. Census data that merged to form a district's community social capital included the following: (a) employment status, (b) percentage of households with income of

$25,000 or less, (c) percentage of households with income of $35,000 or less, (d) percentage of households with income of $200,000 or more (e) percentage of all female households living in poverty, (f) percentage of all people under poverty, (g) percentage of community members with less than a high school diploma (h) percentage of community members with a high school diploma, (i) percentage of community members with some college, (j) percentage of community members with a bachelor's degree, and (k) the percentage of community members with an advanced degree. The variables, which coalesced into a district's family social capital included the following: (a) percentage of families with income of $25,000 or less, (b) percentage of families with income of $35,000 or less, (c) percentage of families with income of $200,000 or more, (d) percentage of families living in poverty for the year, (e) percentage of lone-parent households (male), (f) percentage of lone-parent households (female), and (g) the percentage of lone-parent households (total). The dependent variables in this study were the 2010, 2011, and 2012 Grade 7 New Jersey Assessment of Skills and Knowledge percentage of students scoring Proficient or above, at the district level, in Language Arts and Mathematics.

Research Questions

Using data estimates from the 2010 United States Census, as well as district level achievement data from the New Jersey Department of Education, I attempted through multiple regression, to determine the predictive influence of family and community demographic variables found in the U.S. Census data on Grade 7 NJ ASK student performance in Language Arts and Mathematics during the years 2010, 2011, and 2012. This study was guided by the following research questions:

Research Question 1: How accurately can community and family-level demographic variables, found in the 2010 U.S. Census data, predict the percentage of students scoring

Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Language Arts?

Research Question 2: How accurately can community and family-level demographic variables, found in the 2010 U.S. Census data, predict the percentage of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Mathematics?

Research Question 3: Which combination of independent variables establishes the strongest predictive power for the percentage of a school district's students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 Language Arts test?

Research Question 4: Which combination of independent variables establishes the strongest predictive power for the percentage of a school district's students scoring Proficient or above on 2010, 2011, and 2012 NJ ASK 7 Mathematics test?

Null Hypotheses

Null Hypothesis 1: Community and family-level demographic variables have no statistically significant predictive influence on the percentage of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Language Arts.

Null Hypothesis 2: Community and family-level demographic variables have no statistically significant predictive influence on the percentage of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Mathematics.

Null Hypothesis 3: There is no statistically significant combination of independent variables that establish the strongest predictive power for the percentage of a school district's students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 Language Arts test results.

Null Hypothesis 4: There is no statistically significant combination of independent variables that establish the strongest predictive power for the percentage of a school district's students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 Mathematics test results.

Significance of the Study

A plethora of classical and current research has demonstrated socioeconomic status significantly impacts student achievement as measured by high stakes assessments (Coleman et al., 1966; Duncan, Morris, & Rodrigues, 2011; Gamoran & Long, 2006; Jencks et al., 1972; Miller, Votruba-Drzal, & Setodji, 2013; Morrissey, Hutchison, & Winsler, 2013; Reardon, 2013; Sirin, 2005; Tienken, 2011). More recently, studies have demonstrated it is possible to predict the percentage of students scoring Proficient or above on high-stakes standardized tests in Language Arts and Mathematics using family and community demographic variables found in the U.S. Census data (Jones, 2008; Maylone, 2002; Sackey, 2014; Tienken, Tramaglini, & Lynch, 2013; Turnamian 2012; Turnamian & Tienken, 2013). However, minimal empirical evidence exists regarding the predictive influence of family and community demographic variables found in the U.S. Census data on district level achievement, specifically on the Grade 7 NJ ASK in Language Arts and Mathematics.

Previous studies examining the predictive influence of family and community demographic variables on district level achievement have typically analyzed only one school year at a time. No longitudinal study similar to this has been undertaken in New Jersey examining Grade 7 test results. Therefore, a predictive model of district level achievement in Grade 7 could provide insight for future educational reform policies and initiatives at the state, district, and school level. Family and community demographic variables found in the U.S.

Census data may be more predictive of district level student achievement than school level variables, which may potentially inform future policy recommendations in education.

Limitations

This longitudinal, quantitative analysis was designed to determine the predictive influence of family and community demographic variables found in the 2010 U.S. Census data on NJ ASK student performance, at the district level, in Language Arts and Mathematics in Grade 7 during the years 2010, 2011, and 2012. The study relied on district report card achievement data obtained from the New Jersey Department of Education as well as U.S. Census data obtained from the United States Census Bureau website. This research study cannot control for, or determine, any reporting errors within the available data. Additionally the research study attempted to demonstrate the predictive influence of the independent variables on the dependent variables, and therefore cause and effect cannot be determined.

Delimitations

The study was limited to New Jersey public school districts containing at least 25 students in Grade 7 during the 2010, 2011, and 2012 school years. Since this research focused on seventh grade students in New Jersey public school districts, the results cannot be generalized to other grade levels or school districts in states other than New Jersey. Charter school districts and private school districts operate differently than public school districts and, consequently, were not included in this research investigation. As a result, inferences and conclusions about charter schools and private districts based on the results of this study are invalid.

This study focuses on district level results; therefore, generalizations cannot be made at the school or student level. The results of this research do not provide any insight on student potential or how students score on the NJ ASK 7. Additionally, the results cannot be used to analyze administrator, teacher, or school performance.

The study examined the relationship between community demographic variables and aggregate district level NJ ASK high-stakes test results for a period of three years (2010-2012). Although this study examines three years worth of aggregate test data, further research is needed to determine if the predictive equations are reliable over time. The study used U.S. Census data from the 2010 estimates, and it is possible that large demographic changes could have occurred between 2010 and 2012, impacting the results.

Definition of Terms

Adequate Yearly Progress (AYP): NCLB established the goal that 100% of students will achieve proficiency on state mandated exams in Language Arts and Mathematics by the year 2014 in each grade level. AYP targets are established for districts prior to 2014 in order to monitor progress towards achieving 100% proficiency. Districts that fail to make AYP are held accountable and various actions are implemented based on performance levels.

Advanced Proficient: On the New Jersey Assessment of Skills and Knowledge, an Advanced Proficient score is any score ranging from 250-300.

District Factor Group (DFG): DFG's were first developed in 1975 and allow student performance on high-stakes exams to be compared across school districts with similar demographic variables. The state of New Jersey uses district factor groups to essentially rank school districts based on socioeconomic status. Schools are given a ranking, ranging from "A" to "J" based on socioeconomic factors. District factor group "A" districts are those school districts with the lowest socioeconomic status, whereas district factor group "J" districts are those school districts with the highest socioeconomic status.

Free or Reduced-price Lunch: Free or reduced-price lunch is a proxy used to measure the relative SES of an individual.

High-Stakes Test/Assessment: When significant decisions are made based on test performance impacting an individual's education, career, or life opportunities, the test is high stakes (AERA, APA, NCME, 1999). Furthermore, Tienken and Rodriguez propose that three conditions must be present for a test to be high stakes. These three conditions include tying significant consequences to the test results, utilizing results to measure school district quality, and evaluating the quality and effectiveness of teachers based on the high-stakes test results (Tienken & Rodriguez, 2010).

New Jersey Assessment of Skills and Knowledge (NJ ASK): A high-stakes assessment implemented in the state of New Jersey for students in Grades 3-8 to (a) measure academic progress in Language Arts and Mathematics, and to (b) determine if school districts are meeting AYP targets. The test is given in the spring, and the science portion is given to students in grades 4 and 8 each year.

No Child Left Behind (NCLB): NCLB is an education reform initiative signed into law on January 8, 2002, by President George W. Bush. NCLB requires states focus on improving academic achievement levels for all students and requires schools to test students and measure their progress. NCLB further mandates 100% proficiency on state mandated exams by the year 2014.

Partially Proficient: On the New Jersey Assessment of Skills and Knowledge, a Partially Proficient score is any score less than a 200.

Production Function Theory: In the field of economics, production function theory deals with the impact various inputs have on an output. For the purpose of this research, production function theory was applied to the impact the independent variables have on the dependent variables.

Proficient: On the New Jersey Assessment of Skills and Knowledge, a Proficient score is any score ranging from 200-249.

Proficient or Above: On the New Jersey Assessment of Skills and Knowledge, a score that is Proficient or above ranges from 200-300, which includes both Proficient and Advanced Proficient scores.

SES: Socioeconomic status. SES generally refers to the income level of an individual student and his/her family.

Chapter Summary

The stakes in education are intensifying and the results on state mandated exams are being utilized to make important decisions in education at the federal, state, district and school level. Various researchers have demonstrated it is possible to accurately predict student performance on state mandated exams, at the district level, using community demographic variables over the period of one year, indicating a need to analyze this influence over a three-year period of time.

As stakes continue to increase and the results of state mandated exams are exclusively used to make important decisions in education, understanding the impact of family and community demographic variables on standardized test scores is critical for informing future policymakers and educational leaders. If it is possible to predict the results of state mandated test scores over a three-year period of time using only family and community demographic variables, leaders in education must question the value of exclusively utilizing test scores to make important decisions that impact district and school leaders, teachers, and students. A need for multiple measures to evaluate academic performance and make important decisions in education is paramount if district test scores can be predicted solely using out-of-school variables.

The theoretical framework of this study is guided by production function theory. Production function theory was first established in the field of economics and deals with the impact various inputs have on outputs. For the purpose of this study and research in social science, the inputs were the independent variables and the outputs were the dependent variables. Similar to the limited studies examining the predictive influence of community demographic variables found in the U.S. Census data on student achievement, the inputs of the current research study were the community demographic variables found in the 2010 U.S. Census data and the outputs were 2010, 2011, and 2012 NJ ASK 7 Language Arts and Mathematics district test results.

The subsequent chapters of this dissertation are arranged as follows:

Chapter II provides a review of the pertinent literature associated with high-stakes testing, student learning, and factors that influence achievement. The review of the literature reviews the historical development of high-stakes testing, technical characteristics of high-stakes tests, socioeconomic status and achievement, the influences of testing on student learning, family and community demographic variables found to influence achievement, and the theoretical framework which integrates production function theory and social capital.

Chapter III details the research methodology used to conduct this study. Correlation coefficients and scatter plots were first examined to help determine which independent variables are most influencing NJ ASK 7 test results in Language Arts and Mathematics. Multiple regression was then utilized to help determine the strongest predictor variables, which were then further analyzed using hierarchical regression models to ultimately determine the best combination of family and community demographic variables that most accurately predicted NJ ASK 7 2010, 2011, and 2012 district-level results.

Chapter IV contains an analysis of the data that were obtained during this research study. The data are explained in narrative form and include pertinent charts and graphs.

Chapter V outlines the conclusions that can be drawn based on the results of the data. Furthermore, recommendations for policy, practice, and future research are discussed.

CHAPTER II

REVIEW OF THE LITERATURE

The purpose of this literature review was to examine the efficacy of using the results from high-stakes testing as a tool to make important decisions about teachers and students. When significant decisions are made based on test performance impacting an individual's education, career, or life opportunities, the test is high stakes (AERA, APA, NCME, 1999). The Chinese government and Han Dynasty were some of the first known civilizations utilizing high-stakes assessments to make significant decisions about individuals. High-stakes tests have become a controversial centerpiece in today's education system. Prominent pieces of legislation and education reform policies such as Title I of The Elementary and Secondary Education Act, No Child Left Behind Act, and the Race to the Top assessment program have placed a priority on the utilization of high-stakes assessments to ultimately improve teaching and student learning.

Policymakers and researchers continue to debate the importance of high-stakes testing. Proponents assert attaching high stakes to assessments is paramount to reforming education. Supporters proclaim high-stakes assessments provide teachers with a clear picture of the appropriate content to teach and establish expectations of what is important for students to learn. Furthermore, advocates claim high-stakes assessments increase teacher and student motivation to perform at higher levels while lower achieving students are motivated to improve academically (Amrein & Berliner, 2002a).

Opponents of high-stakes testing recognize using one single measurement to assess competence violates the professional *Standards for Educational and Psychological Testing*, which recognize the importance of considering multiple measures to make important decisions about students (AERA, APA, NCME, 1999). Furthermore, critics question the validity and reliability of high-stakes assessments to make important educational decisions and argue high-stakes tests are significantly influenced by other factors such as socioeconomic status. Until empirically sound evidence is provided demonstrating high-stakes assessments improve student achievement and reduce the overall achievement gap, policymakers and education researchers will continue to debate the merit of high-stakes testing to make important decisions about teachers and students.

Overview of Existing Literature

Thomas Jefferson was a prominent educational philosopher and claimed the purpose of education was ". . . to develop an intelligent citizenry and to provide educational opportunities that guarantee each individual the chance for optimal development" (Tanner & Tanner, 2007). However, as time passed and civilization evolved, the methods for achieving the two goals changed significantly. Historically, many civilizations utilized high-stakes assessments to measure an individual's aptitude. Today's reform landscape predominantly relies on the results of high stakes tests to make significant decisions in education. However, are high-stakes tests an effective tool for measuring student performance and making critical decisions impacting millions of teachers and students?

All 50 states currently have high-stakes testing policies used to measure student achievement and make educational decisions (Tienken & Rodriguez, 2010). Considering the tests are being used to make important decisions affecting the future of innocent youth, the technical quality of high-stakes assessments must be a top priority. Validity and reliability are essential components of standardized test development and inherent in every high-stakes assessment are threats to validity and reliability (AERA, APA, NCME, 1999; Messick, 1995). As a result, high-stakes assessments are designed with a specific purpose supported by quality evidence; therefore, test results must be carefully interpreted based only on the intended use of the exam. Scholars have also demonstrated scores contain errors and student results on high-stakes exams can fluctuate from one day to another (AERA, APA, NCME, 1999; Popham, 2001; Tienken, 2011). Current education reform efforts continue to publicize test results and education policymakers and researchers continue to make broad generalizations based on district and school scores. However, the technical characteristics of high-stakes assessments are rarely considered around the policymaking table.

A broad body of research has demonstrated socioeconomic status has been the most influential variable on student achievement. The seminal study The *Equality of Educational Opportunity*, also known as the Coleman Report, is the largest public education study ever conducted and revealed socioeconomic status most highly correlates with student achievement (Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, & York, 1966). Furthermore, the report revealed school and teacher characteristics have little impact on student performance (Coleman et al., 1966). Other researchers in education have attempted to reanalyze and debunk the findings of the Coleman Report. However, researchers have continuously endorsed the results of the Coleman Report (Jencks et al., 1972; Gamoran & Long, 2006, White, 1982).

In addition to reanalyzing the Coleman Report, Sirin (2005) conducted a large meta-analysis and observed a medium to strong correlation between socioeconomic status and student achievement. Sirin (2005) concluded financial resources significantly influence student achievement. Various educational researchers have conducted similar studies to determine the relationship between socioeconomic status and student achievement. Education researchers have utilized various proxies indicating the relative socioeconomic status of students. Their research has continuously revealed income is a strong predictor of student achievement (Duncan, Morris,

& Rodrigues, 2011; Miller, Votruba-Drzal, & Setodji, 2013; Morrissey, Hutchison, & Winsler, 2013; Reardon, 2013; Tienken, 2015).

Results from existing literature suggest two contradictory conclusions regarding the influence of high-stakes testing on student achievement. One group of researchers found no statistically significant evidence to support the notion high-stakes testing is an effective mechanism for increasing overall student achievement (Amrein & Berliner, 2002a, 2002b, 2002c; Nicholas, Glass, & Berliner, 2006). Furthermore, opponents of high-stakes tests acknowledge reform efforts have unintended consequences such as curriculum narrowing, which results in an overall de-emphasis of elective courses in order to prioritize learning in tested subjects (AERA, APA, NCME, 1999; Berliner, 2011; McMurrer, 2008). Standardizing curriculums and utilizing high-stakes assessments to make important education decisions also contradicts seminal evidence from the Cardinal Principles of Secondary Education and the Eight-Year Study (Aikin, 1942; Commission on Reorganization of Secondary Education, 1918). The other groups of researchers have concluded high-stakes assessments are an effective reform effort for improving student achievement (Braun, 2004; Carnoy & Loeb, 2002; Hanushek & Raymond, 2003, 2004; Rosenshine, 2003). Proponents proclaim high-stakes testing policies increase rigor and do more to improve student achievement than would otherwise occur without such policies.

Although limited in quantity, results from the existing literature have demonstrated it is possible to predict, quite accurately, the percentage of students scoring Proficient or above on high-stakes state mandated standardized assessments, at the district level, using community and family-level demographic variables (Jones, 2008; Maylone, 2002; Sackey, 2014; Tienken, Tramaglini, & Lynch, 2013; Turnamian, 2012; Turnamian & Tienken, 2013). Various combinations of community and family-level demographic variables have also been found to account for large variances in district-level test results. As leaders at the school, district, state and federal level continue to make important decisions based on the results of high-stakes assessment results, the efficacy of such decisions must be questioned and at the very least the predictive influence of community and family-level demographic variables must be considered.

Focus of Current Literature Review

In today's education climate, the number of students passing the state standardized assessment is primarily being used to measure school personnel effectiveness (Paulson & Marchant, 2009). As standardized assessments are utilized to measure school effectiveness, schools and districts are now grouped according to performance on high-stakes tests across the country. High-stakes standardized assessments attempt to increase student, teacher, and school/district level leadership accountability. With increased accountability to raise student achievement as measured by standardized assessments, the efficacy of high-stakes testing to make decisions about students and teachers must be examined.

My purpose of this review of the literature was to examine empirical and non-empirical studies, seminal literature, and landmark research to provide insight on the efficacy of high-stakes testing to make important decisions about teachers and students. Furthermore, the intent of this review is to inform education policymakers, leaders, and researchers about the present evidence regarding the usefulness of high-stakes testing for making decisions about students and teachers. The review of the literature is comprised of the proceeding sections: Historical Development of High-Stakes Testing, Technical Characteristics of High-Stakes Tests, Socioeconomic Status and Achievement, The Influences of High-Stakes Testing on Student

Learning, and the Predictive Influence of Demographic Variables on Standardized Test Achievement.

Significance of Existing Literature

High-stakes tests have been utilized for hundreds of years to make important decisions about an individual's aptitude and are at the center of current education reform efforts. If education policymakers and bureaucrats continue to pronounce high-stakes testing as a cure all for increasing student achievement and ultimately closing the achievement gap between socially advantaged and disadvantaged students, the need exists to examine the literature to determine the efficacy of using high-stakes assessments results to make important decisions about students and teachers. As the extant literature demonstrates, high-stakes assessments contain threats to validity and reliability.

Furthermore, socioeconomic status remains the strongest predictor of academic achievement with statistically significant effect sizes. Conversely, the influence of high-stakes tests to improve student achievement has yielded mixed results at best with relatively low effect sizes and often non-significant results. Studies have demonstrated high-stakes test results can be predicted using community and family-level demographic variables as well. Consequently, the extant literature demonstrates the efficacy of using high-stakes assessments to make decisions may seriously be in question. Policymakers and education officials must be aware of this research in order to make evidence-based decisions benefiting students and teachers.

Literature Search Procedures

The literature reviewed for this chapter was accessed via online databases including: EBSCO host, ERIC, ProQuest, JSTOR, Academic Search Premier, and Google Scholar. Online and print editions of peer-reviewed educational journals, dissertations, books, reports, and government websites and documents were used for this review. The bibliographies from various scholarly and peer reviewed journal articles were also used to provide additional valid resources and/or data concerning the historical development of high-stakes testing, technical characteristics of high-stakes assessments, socioeconomic status and achievement, as well as the influences of high-stakes testing on student learning.

Some of the keywords used to locate literature for this research included the following: high-stakes testing, standardization, student achievement, socioeconomic status, achievement testing, accountability, standardized testing, internal error, technical error, structured inequity, and demographic factors and achievement. The scholarly framework developed by Boote and Beile (2005) was used to analyze the research studies and guide this literature review.

Limitations of the Literature Review

The review of literature is limited to the historical development of high-stakes testing, technical characteristics of high-stakes assessments, socioeconomic status and student achievement, the influence of high-stakes tests on student achievement and the predictive influence of demographic variables on standardized test achievement. High-stakes testing policies are at the forefront of education reform. The researcher acknowledges no single review can uncover all the literature on this topic and therefore limited the review to the aforementioned components. The findings of each empirical study can be applied only to students containing the same characteristics as students used in the actual research design.

Inclusion and Exclusion Criteria for the Literature Review

Empirical and non-empirical studies were both included in this literature review. Peer reviewed articles, dissertations, current studies, books, scholarly works, government reports, legislation, and seminal/landmark studies were included in this review.

Studies that met the following criteria were included in this review:

- Peer-reviewed articles and dissertations
- Experimental, quasi-experimental, meta-analysis, and/or non-experimental studies
- Reported at least statistical significance of findings
- Scholarly books
- Seminal works and/or landmark studies
- Government reports and/or legislation
- Published within the last 30 years unless considered a seminal work or follow up study of a seminal work

Research involving public school students in grades K-12 were included in this literature review. Studies involving charter school populations were excluded because the focus of this review is the public school system.

Methodological Issues with Existing Literature

When reviewing the literature, several methodological issues were observed. Overall, a lack of empirical studies exists examining the technical characteristics of high-stakes tests and the corresponding threats to validity and reliability. Although statistically significant results were obtained, many of the experimental studies on socioeconomic status and high-stakes testing and student achievement contained relatively small or no effect sizes. Furthermore, conflicting interpretations of similar data often led researchers to have mixed conclusions regarding the influence of high-stakes assessments on student achievement. Conflicting conclusions were most evident in the research examining the impact of high-stakes testing policies on NAEP scores. Finally, a limited quantity of research is available examining the predictive influence of community and family-level demographic variables on high-stakes standardized test achievement.

Historical Development of High-stakes Testing

The history of high-stakes testing can be traced to the Chinese government and the Han Dynasty (Zhao, 2014). During this period of time, the government used civil service oral examinations to successfully recruit and select individuals worthy of serving in a position of power and influence. Men were required to pass an oral examination prior to being assigned a position in the Chinese government (Madaus, Higgins, & Russell, 2009). However, the oral examinations became an extremely tedious process and Chinese officials felt they lacked standardization; consequently, a paper-based Chinese civil service exam was developed and implemented to screen potential candidates (Madaus et al., 2009). Approximately 2% of the potential civil service employees passed the exam, which measured candidates' reasoning abilities, and by the early 20th century the exam was considered a failure because ". . . its influence on memory of the Confucian classics produced civil servants who mastered the classics but were unable to respond to practical issues of Western technology and modernization" (Madaus et al., 2009, p. 112).

Other ancient civilizations continued to use similar standardized test measurements to select individuals to serve in their systems of government. The Qumran community administered a sequence of exams in order to measure an individual's readiness after studying for a period of time and to allow them into their community (Madaus et al., 2009). Ironically, the Qumran examinations were very similar to the high-stakes tests currently being employed to measure the overall preparedness of students. According to Madaus et al. (2009):

> First, as there is today, there was a perceived need to screen applicants and eventually certify them or not. Second, like the tests mandated by No Child Left Behind, the final two Qumran exams were measures of attainment following instruction. Third, like all tests, the Qumran Community's exams derived their power from social organizations that mandated them. Fourth, the community determined what constituted a "correct" answer. (p. 113)

Standardized assessments continued to gain popularity and became a commonplace as civilizations proceeded to develop. As time passed, civilizations sought to quantify test scores measuring an individual's aptitude, placing a greater influence on quantitative objective measures rather than qualitative, oral assessments.

As time passed and the population grew, standardized assessments gained popularity in commercial industries, which sought to utilize high-stakes exams to hire individuals who could be productive citizens (Madaus et al., 2009). The link between the commercial industry and education resulted in educational accountability similar to present day accountability measures, resulting in comprehensive written assessments. Oral examinations declined in popularity as time passed, placing more and more emphasis on written high-stakes assessments. The transition began to influence American schools and by the mid 19^{th} century high-stakes testing in America emerged (Madaus et al., 2009).

In 1837 Horace Mann became the first state board of education secretary and is largely responsible for reforming the common school envisioned by Thomas Jefferson. In the late 1700s Thomas Jefferson was a prominent philosopher of education most concerned with developing intelligent individuals by providing them with ". . . educational opportunities that guarantee each individual the chance for optimal development" (Tanner & Tanner, 2007, p. 4). Jefferson was very concerned with public education and envisioned a common-school system in which individuals could advance intellectually to obtain his or her goals (Tanner & Tanner, 2007). As the American education system continued to evolve, Horace Mann significantly influenced major advancements in the development and reforming of the system, including the introduction of high-stakes assessments.

Horace Mann's work helped provide structure for American schools and professionalized teaching (Jones, Jones, & Hargrove, 2003). As secretary of the board of education for Boston Public Schools, Horace Mann faced the challenge of testing the rapidly growing student population in an attempt to rank and compare public school students (Madaus et al., 2009). In order to overcome this obstacle, Horace Mann convinced the Boston Public School Committee to administer a common exam in order to ". . . provide information about the quality of teaching and learning in urban schools, monitor the quality of instruction, and compare schools and teachers within each school" (Gallagher, 2003, p. 85). The results of this assessment demonstrated not all students were achieving at the same level, and further testing was utilized to determine which individuals were prepared to move to the next academic level (Gallagher, 2003).

As a result of Horace Mann's work, high-stakes testing gained much attention throughout the American educational system. According to Madaus et al. (2009), "Mann's adoption of the written exam was the first clear example in the United States of using examination results for bureaucratic, policy, and political purposes" (p. 118). School systems throughout the United States quickly adopted high-stakes written assessments to measure student preparedness and achievement levels (Gallagher, 2003). The United States began an unparalleled attempt to educate the masses, and standardized assessments became the predominant measure of educational equity regardless of influences not related to school (Jones et al., 2003).

As the threat of World War I was imminent, the United States Army was faced with the challenge of identifying potential officers among large pools of potential candidates (Gallagher, 2003). The Army quickly consulted with the American Psychological Association to develop an aptitude test to screen candidates in order to place them into prominent leadership positions. In 1917 Arthur Otis, Robert Yerkes, and a few select others accepted this responsibility and developed a standardized assessment known as the Army Alpha and Beta Test to measure the mental abilities of approximately two million soldiers by 1919 (Gallagher, 2003). The Beta form of the exam was utilized to test illiterate recruits who were often foreign-speaking, whereas the Alpha form was given to literate recruits (Turnamian, 2012). Soldiers were then placed into their respective positions based on their performance on the Army Alpha and Beta Tests. Battlefield positions were assigned to soldiers with lower performing scores and high achieving soldiers were assigned officer training and higher-ranking positions (Solley, 2007). The success of the U.S. Army Alpha and Beta Tests were a catalyst for nationwide standardized testing in American schools.

Educators at the K-12 and collegiate level sought to capitalize on the results of the U.S. Army's standardized testing movement. Educators of all levels attempted to adopt similar instructional methods to classify and group students in order to ". . . predict, diagnose, and explain learning differences" (Gallagher, 2003, p. 88). In the 1920s standardized testing continued to develop, and by 1930 over 200 million copies of the Stanford Achievement Test and Stanford-Binet Intelligence Test had been sold (Madaus et al., 2009). Furthermore, by 1929 more than five million standardized assessments were given each year and the results of these assessments were used, similar to today's high-stakes test, to separate children based on test scores (Gallagher, 2003). High-stakes testing in schools continued to evolve throughout the 20th century.

By the end of World War II, the public education system had grown dramatically. Enrollment in American high schools had increased by over 50% (Jones et al., 2003). Furthermore, increasing numbers of schools were utilizing high-stakes assessments to measure student growth and performance. The next significant event in education which impacted the development of high-stakes testing occurred in 1965 with the passage of The Elementary and Secondary Education Act.

In 1965, President Lyndon Johnson issued The Elementary and Secondary Education Act to fight the war on poverty by developing a model focusing on improving the academic achievement of socially disadvantaged children (Solley, 2007). Funds were awarded to school districts serving children from low-income families to enhance their learning (Solley, 2007). More specifically, Title I of The Elementary and Secondary Education Act designates funds through local and state education agencies to schools with a high percentage of poor children to help bolster achievement so that poor students are able to meet academic achievement standards (Deke, Dragoset, Bogen, & Gill, 2012). Schools eligible for Title I funding must have at least 40% low-income students, and the program is designed to assist socially disadvantaged students in order to achieve proficiency on state standardized assessments (Deke et al., 2012).

The Elementary and Secondary Education Act has continuously been reauthorized every five years and aims to close the perceived achievement gap, as schools are required to develop programs allowing each child to achieve an excellent education. Schools are being held more accountable for raising achievement levels of poorer students, as measured by standardized assessments, as this Act requires schools to evaluate and report on the effectiveness of their programs (Solley, 2007). The Elementary and Secondary Education Act was a major development in education and high-stakes testing by specifically targeting populations of students and holding schools accountable for improving achievement levels on standardized assessments.

Terrel Bell, Secretary of Education under President Reagan's administration, formed The National Commission on Excellence in Education to evaluate the educational system in America. In 1983, The Commission published the controversial report known as *A Nation at Risk*, which revealed the education system in America was inadequately preparing students compared to their academic counterparts in other countries. The Commission members stated, "The educational foundations of our society are presently being eroded by a rising tide of mediocrity that threatens our very future as a nation and a people" (p. 6). Furthermore, according to the report nearly 23 million adults were illiterate in reading, writing, and comprehension (National Commission on Excellence in Education, 1983). The highly publicized report containing much rhetoric gained national attention and, despite much validity and reliability controversy, solidified high-stakes testing as a mechanism to evaluate student, teacher, school, and district performance.

A Nation at Risk (National Commission on Excellence in Education, 1983) resulted in public panic and outcries throughout the field of education, demanding educators of all levels develop and implement more rigorous standards. Expectations needed to be raised according to this report which ". . . made recommendations in the areas of content, standards, expectations, time, teaching, leadership, and fiscal support." (Solley, 2007, p. 3). However, the media failed to mention many scholars challenged the statistics, validity, and overall significance of the report (Gallagher, 2003). Despite the controversy of this highly publicized document, *A Nation at Risk* is a prominent piece in education with a significant influence on the development of high-stakes testing. Within six years of its publication, 47 states had created and implemented policies expanding their statewide testing programs (Gallagher, 2003).

Following *A Nation at Risk*, in 1994 President Clinton and his administration continued implementing policy centered on the implementation and evaluation of high-stakes testing to measure student achievement with the establishment of the Goals 2000: Educate America Act (P.L. 103-227). This legislation was important for providing states the necessary resources to ensure all students achieved their full potential and provided a framework for evaluating student performance (Solley, 2007). Under Title I of Goals 2000, eight goals were created. According to Stedman, Apling, and Riddle (1993):

> The Goals, to be achieved by the year 2000, call for improvements in readiness to begin school; high school graduation rates, students' mastery of the curriculum, math and science achievement compared to that of other nations; adult literacy skills; and elimination of drug abuse and violence in the schools. (p. 7)

The act also led to the National Education Standards and Improvement Council (NESIC) and called for voluntary testing in Grades 4, 8, and 12 to measure student mastery of academic content standards (Stedman et al., 1993). The Goals 2000: Educate America Act helped clarify what was expected of educators and students on standardized assessments; and at this point in time, more than 35 states developed and mandated high-stakes testing graduation requirements (Gallagher, 2003). High-stakes tests were administered in core content areas, and the results were reported to important school stakeholders and the departments of education (Gallagher, 2003). However, by the year 2000 the eight goals proposed had not been achieved.

In 2001, President Bush gained bipartisan support for the reauthorization of the 1965 Elementary and Secondary Education Act and signed into law the No Child Left Behind Act. No Child Left Behind mandated the development of curriculum standards and standardized tests nationwide as a way to establish high standards and measurable achievement goals, which are used to hold schools accountable for adequately educating children (Hursh, 2005). The No Child Left Behind Act established a goal that 100% of students will achieve proficiency in Language Arts and Mathematics by 2014 as measured by state standardized assessments. No Child Left Behind was directed to help close the achievement gap between advantaged and disadvantaged students and placed a significant emphasis on standardized achievement tests by requiring states to administer math and reading assessments for all students (Tanner & Tanner, 2007). No Child Left Behind was paramount in mandating high-stakes assessments. School and district leaders acknowledge the importance of standardized assessments and use high-stakes test results to make decisions, which ultimately impact the educational opportunities and outcomes of students (Tienken, 2008).

Following the No Child Left Behind Act, President Obama signed into law the American Recovery and Reinvestment Act in 2009. Standardized assessments to measure student achievement towards content standards and enhancing student learning and teacher practices were further enhanced with the implementation of this Act. Under the American Recovery and Reinvestment Act, the Race to the Top (RTTP) assessment program was created, and according to the U.S. Department of Education:

> The Race to the Top Assessment Program provides funding to consortia of States to develop assessments that are valid, support and inform instruction, provide accurate information about what students know and can do, and measure student achievement

> against standards designed to ensure that all students gain the knowledge and skills needed to succeed in college and the workplace. (p. 1)

Preparing students to be career and college ready is one of the major focuses in K-12 education. As a result, high-stakes testing and assessment programs continue to be a major part of education reform agendas.

Synthesis

Results from high-stakes standardized assessments have been used for many centuries to make important decisions about individuals. The development of such assessments can be traced to the Chinese government and Han Dynasty. Several major events in the United States have resulted in the standardization movement and cemented high-stakes testing as a prominent tool to measure student achievement and ultimately make important decisions about teachers and students. Despite a lack of sound empirical evidence, *A Nation at Risk* was a major tipping point in the implementation of high-stakes assessments nationwide. This report received much media attention and created an unnecessary panic throughout the country by making claims that Americans were illiterate and essentially the public school system was failing. The No Child Left Behind Act further solidified the implementation of high-stakes assessments nationwide by mandating all students attain proficiency in Language Arts and Mathematics by the year 2014. Several other educational developments and policies have been implemented after No Child Left Behind and continue to place a priority on high-stakes assessments as a measurement of student progress.

Test-makers continue to develop standardized assessments allowing student's scores to be compared to a norm group in order to make comparisons among students and essentially rank-order tested students (Solley, 2007). With the recent adoption of the Common Core State

Standards, high-stakes assessment programs continue to play a major role in education. Bureaucrats are hopeful these assessments will help improve teaching and learning, ultimately allowing students in the United States to remain competitive in the 21st century global marketplace. Furthermore, education policy makers continue to use the results of high-stakes standardized assessments to inform educational policymaking impact teachers and students (Tienken, 2008).

Technical Characteristics of High-stakes Tests

High-stakes tests have become a predominant instrument for measuring individual student achievement as well as the quality of educational programs at the school and district level. The *stakes* of testing policies and programs are dependent on the importance of the results. When test results are used to make significant decisions about students, teachers, administrators, and schools, the stakes are high. The *Standards for Educational and Psychological Testing* (1999) was produced through a long-standing collaboration of three associations: the American Educational Research Association (AERA), the American Psychological Association (APA) and the National Council on Measurement in Education (NCME). The purpose of the *Standards for Educational and Psychological Testing* was to establish norms for evaluating tests, testing practices, and the consequences of test use (AERA, APA, NCME, 1999).

According to the authors of the *Standards for Educational and Psychological Testing* (1999):

> At the individual level, when significant educational paths or choices of an individual are directly affected by test performance, such as whether a student is promoted or retained at a grade level, graduated, or admitted or placed into a desired program, the test use is said to have high-stakes . . . . Testing programs for institutions can have high-stakes when

> aggregate performance of a sample or of the entire population of test takers is used to infer the quality of service provided, and decisions are made about institutional status, rewards, or sanctions based on test results. (p. 139)

Tienken and Rodriguez (2010) report all 50 states currently have high-stakes testing policies and assessments to measure student achievement and ultimately use the results to make important decisions. Furthermore in almost every state, the results of school and district high-stakes test results are consistently being published in local newspapers (Amrein & Berliner, 2002b). Publishing test scores enables the system to be continuously monitored by the public. As a result, releasing test scores can increase pressure on districts, schools, administrators, teachers, and students to raise performance (AERA, APA, NCME, 1999).

Because of the implementation of No Child Left Behind, district and school leaders recognize the importance of standardized assessments and admit to using high-stakes test results to make important decisions about students ultimately impacting their educational and life opportunities (Tienken, 2008). Moreover, as school and district performance becomes public and pressure to raise student achievement levels increases, judgments about school/program quality, teachers, leaders, and policy decisions might be affected even though high-stakes tests were not intended or designed for this purpose (AERA, APA, NCME, 1999). As the stakes associated with a test increase, supporting test-based inferences with strong evidence of technical test quality becomes more and more important (AERA, APA, NCME, 1999). More specifically, when important educational decisions depend greatly on high-stakes test performance, the standards for technical quality must be higher than the standards for technical quality of lower-stakes tests (AERA, APA, NCME, 1999). If high-stakes assessment results are going to be used to make important decisions, strong efforts must be made to improve the technical quality of high-stakes tests in order to improve the validity and reliability of the assessment (AERA, APA, NCME, 1999). Unfortunately, minimal conversations among bureaucrats and few publications have been presented to the public concerning the validity and reliability of high-stakes tests as a decision making tool.

Validity is the most important component of standardized test development. According to the authors of the *Standards for Educational and Psychological Testing* (1999), "Validity refers to the degree to which evidence and theory support the interpretations of test scores entailed by proposed uses of tests" (p. 9). Essentially, evidence must be gathered to provide a scientifically sound validity argument to support the proposed interpretations and actions on the basis of standardized test scores (Messick, 1989). If results are to be used or interpreted in more than one way, each proposed interpretation must be endorsed by precise evidence (AERA, APA, NCME, 1999). Therefore, every high-stakes assessment serves a specific purpose and the results can only be precisely interpreted for the intent of the construct, which must be endorsed by scientific evidence. Validity is not an actual value or component of a test; instead, it is the actual meaning given to a particular test score (Messick, 1995). Validity does not apply exclusively to standardized assessments. Instead, validity applies to all assessments in which interpretations of test scores are proposed.

Construct validity is based on the integration of any evidence impacting the interpretation or meaning of test scores including content- and criterion-related evidence (Messick, 1995). Two major threats to construct validity exist. The first threat is construct underrepresentation and occurs when a test is too narrow and fails to include essential components of the construct (AERA, APA, NCME, 1999). Construct underrepresentation results in a narrowed meaning of high-stakes test results because the test ". . . does not adequately sample some types of content, engage some psychological processes, or elicit some ways of responding that are encompassed by the intended construct" (AERA, APA, NCME, 1999, p. 10).

The second threat to construct validity is construct irrelevant variance, which occurs when test scores are affected by processes unrelated to the actual construct of the exam (AERA, APA, NCME, 1999). Construct irrelevant variance can include various influences to test scores not part of the construct such as emotional reactions to test questions or prior knowledge, test preparation, and familiarity with test passages or subject matter (AERA, APA, NCME, 1999). Both threats to construct validity occur with all assessments. Therefore, according to Messick (1995), "A primary concern is the extent to which the same assessment might underrepresent the focal construct while simultaneously contaminating the scores with construct irrelevant variance" (pp. 9-10). High-stakes assessments tend to leave out components some believe should be measured and include components some believe should not be measured (AERA, APA, NCME, 1999). As a result, the actual meaning and interpretation of standardized test results must be carefully developed based only on the intended use of the exam.

Besides validity concerns, reliability of test results must also be considered when using high-stakes tests to make important decisions about students and teachers. Reliability refers to the consistency of test results if they were repeated on the same group of students (AERA, APA, NCME, 1999). Students' performance on standardized assessments can change from day to day even when testing conditions are strictly controlled. Standardized test score differences can occur from one testing occasion to another, and this variation results in changes to an examinee's scores (AERA, APA, NCME, 1999). As a result of the variation in an examinee's test scores, the average score of a group and an individual's actual score will always contain an amount of measurement error (AERA, APA, NCME, 1999). Measurement error is essentially the difference between an examinee's hypothetical true score and their actual observed score. Measurement error reduces the usefulness of high-stakes assessments and limits the extent to which test results can be generalized to populations of students (AERA, APA, NCME, 1999). Consequently, measurement error restricts interpretations of high-stakes tests and reduces the overall usefulness to make important educational decisions.

In addition to lack of empirical literature concerning high-stakes test validity, reliability, and measurement error, Tienken (2011) found a concerning technical characteristic linked with construct validity called conditional standard error of measurement (CSEM). Similar to measurement error, CSEM indicates a student's standardized test result may not be reflective of his or her actual or true score (Tienken, 2011). In other words, on high-stakes assessments students' test results can differ by say + or – some number of points, which means several students may be classified as "failing," "partially proficient," or withheld from graduation when scoring near the cut-off point for proficiency. More precisely, according to Tienken (2011):

> The individual student-level results from every large-scale state standardized test have a margin of error. The CSEM describes how large the margin of error is at the various proficiency cut-points and how much the reported test results might differ from a student's true score . . . if a student receives a reported scale score of 546 and there are + or – 12 scale-score points of CSEM at the proficiency cut-point, then the true score could be located somewhere within the range of 534 – 558, and the student could be expected to score within that range if he or she took that test again. If the state's proficiency cut-score is 547, then the student is rated not proficient based on his or her reported score if the Sate Education Agency personnel (SEA) do not account for CSEM . . . even though the student scored within the error band, only one point away

from proficiency. (pp. 258-259)

Failure to consider CSEM can have several adverse consequences on students when states do not factor CSEM into their score reporting, as a student may have in fact passed a high-stakes exam within the error band only to be labeled Partially Proficient by the state.

Tienken (2011) estimates 166,305 students were mislabeled as less than Proficient in Language Arts, and 164,982 were mislabeled as less than Proficient in Mathematics on their high-stakes state mandated assessment in one academic year. The results demonstrate the negative consequences of CSEM. The magnitude of such consequences and mislabeling students is further amplified when labeling schools and districts according to student performance on a high-stakes standardized assessment. Within a school and/or district hundreds of students may potentially be mislabeled as a result of CSEM, which can cause the school and/or district to be mislabeled and potentially receive unnecessary sanctions. CSEM evidence suggests utilizing high-stakes tests to make important educational decisions about students and teachers is an inaccurate and inequitable approach for educational reform. Popham (2001) further supports Tienken (2011) and acknowledges students can come up with significantly different high-stakes test scores from one day to another. Popham (2001) contends high-stakes test are not as accurate at measuring student achievement levels as the public might think. High-stakes testing therefore appears to be doing more harm than good because of the misuses and interpretations of test results (Messick, 1995; Popham, 2001; Tienken, 2011).

Despite all of the flaws associated with standardized tests, educational policymakers and school personnel continue to use high-stakes assessments to make decisions about teachers and students. A greater emphasis on high-stakes tests as a decision making tool exists because of the implementation of No Child Left Behind (Tanner & Tanner, 2007). Experts, such as Kortez

(2008), acknowledge high-stakes tests are useful for providing school leaders and officials with an overall picture of the academic progress of the student body and specific groups of students. Furthermore, school leaders can utilize test scores to recognize trends and patterns in order to help make instructional decisions (Kortez, 2008). However, because high-stakes tests contain threats to validity and reliability (AERA, APA, NCME, 1999; Messick, 1995; Tienken, 2011), Kortez (2008) contends errors are not a reason to completely forgo high-stakes testing. Instead, Kortez (2008) recommends high stakes test results be carefully interpreted and other factors indicating a child's academic abilities be included when making significant decision about teachers and students.

High-stakes standardized assessments have become a national phenomenon, and the National Research Council cautions as follows: (as cited in Amrein & Berliner, 2002a):

> An assessment should provide representative coverage of the content and processes of the domains being tested, so that the score is a valid measure of the student's knowledge of the broader (domain), not just the particular sample of items on the test. (p. 15)

As a result, the score a student earns on a high-stakes assessment must be an indicator of the transfer of knowledge; otherwise, the test is not valid (Amrein & Berliner, 2002a). Amrein and Berliner (2002a) further contend the following:

1. Tests almost always are made up of fewer items than the number actually needed to thoroughly assess the entire domain that is of interest.
2. Testing time, as interminable as it may seem to the students, is rarely enough to adequately sample all that is to be learned from a domain.

3. Teachers may narrow what is taught in the domain so that the scores on the tests will be higher, though by doing this, the scores are then invalid because they no longer reflect what the student knows of the entire domain. (p. 15)

It is very challenging for high-stakes assessments to accurately represent the true content knowledge and abilities of a student. Threats to validity and reliability reduce the overall usefulness and confidence in high-stakes test results to make important decisions about teachers and students. Therefore, generalizations based on the results can adversely affect hundreds of thousands of students (AERA, APA, NCME, 1999; Tienken, 2011)

Synthesis

With the mandate of No Child Left Behind, high-stakes testing has been implemented in every state, and stringent testing policies have been unfairly thrust upon millions of children nationwide. Furthermore, with the implementation of Race to the Top, the reauthorization of the Elementary and Secondary Education Act, and Common Core State Standards, school leaders, teachers, and students are under increased pressure to raise achievement as measured by high-stakes assessments (Tienken, 2011). Policymakers and education bureaucrats continue to maintain the perception high-stakes assessments are an effective strategy for improving student achievement and diminishing the achievement gap between economically disadvantaged students and their more affluent peers.

What fails to get published and reported to the media is the inherent error and threats to validity in high-stakes assessments. Validity is the most important component in the construction of high-stakes assessments (AERA, APA, NCME, 1999; Messick, 1995). Unfortunately, construct underrepresentation can occur, causing a high-stakes test to be too narrow by failing to encompass adequate portions of the content initially intended by the construct (AERA, APA, NCME, 1999; Messick, 1995). Additionally, construct irrelevant variance also threatens the validity of high-stakes assessments, as student test scores are negatively impacted by uncontrollable processes unrelated to the construct of the assessment (AERA, APA, NCME, 1999). In addition to validity threats, high-stakes assessments have reliability concerns, and therefore student performance can fluctuate day to day as a result of measurement error or what Tienken (2011) terms conditional standard error of measurement (CSEM). Unfortunately, CSEM can cause students' high-stakes test results to significantly differ from day to day, resulting in students being misclassified as underperforming or Partially Proficient simply based on the results of one exam, given on one day.

Considering the innate threats to validity and reliability, are the results of high-stakes tests given on one day to millions of students enough to truly evaluate the effectiveness of educational programs and policies? According to the authors of the *Standards for Educational and Psychological Testing* (1999), "The higher the stakes associated with a given test use, the more important it is that test-based inferences are supported with strong evidence of technical quality" (p. 139). Although it is not possible to completely eliminate threats of validity and reliability, accurately interpreting the results requires sound scientific evidence and understanding the exact intention(s) of the exam. Large generalizations cannot be assumed based on these assessments; and contrary to what is displayed in the media, high-stakes assessments are not a "one-size-fits-all" method for raising student achievement levels and making important decisions about teachers and students. Instead, when the stakes are high, collateral information and alternative forms of evidence must be considered in conjunction with high-stakes test scores to make important decisions about teachers and students (AERA, APA, NCME, 1999; Kortez, 2008).

Policymakers, education bureaucrats, and school officials continuing to use the results of high-stakes assessments to make important decisions in education are doing a disservice to the children and communities they serve. Instead, officials must consider existing scientific evidence and can only use the results of high-stakes assessments to make interpretations for exactly what was intended by the construct of the test. Interpretations not supported by evidence, outside of the construct, are invalid and inaccurate. Moreover, when labeling districts, students, and schools based on the results of high-stakes assessment results, education officials should consider adding the standard error of measurement to the students score. Adding CSEM to students' scores can reduce the overall mislabeling of students and the potential negative consequences that may occur when a student is considered "not proficient," such as being withheld from graduation, which can have deleterious consequences on an individual's earning and life opportunities (Tienken, 2011). Until a more comprehensive approach with multiple measures is taken to truly evaluate student, teacher, school and district performance, proficiency alone on a standardized assessment does not have the merit to make conclusions about academic performance due to innate technical flaws in the assessment.

Socioeconomic Status and Achievement

Family socioeconomic status has been a researched variable known to impact student outcome. In 1966 Coleman and his colleagues were commissioned by the U.S. Department of Education under President Lyndon B. Johnson's administration to provide insight into the academic disparities between poor and minority students and their wealthier counterparts due to a lack of financial resources (Coleman, Campbell, Hobson, McPartland, Mood, Weinfeld, & York, 1966). The seminal study The *Equality of Educational Opportunity*, also known as the Coleman Report, was issued in response to Section 402 of the Civil Rights Act of 1964. The

Coleman Report is the largest public educational study ever conducted and included over 640,000 children in Grades 1, 3, 6, 9, and 12, as well as over 60,000 educators in approximately 4,000 schools with various socioeconomic backgrounds (Coleman et al., 1966). As part of the research investigation, students took various aptitude and achievement tests and educators responded to questionnaires concerning their background and training in education. Coleman et al. (1966) attempted to address four major topics in education with this report as follows:

1. The extent to which racial and ethnic groups are segregated from one another in the public schools
2. Whether the schools offer equal educational opportunities in terms of a number of other criteria, which are regarded as good indicators of educational quality
3. How much the students learn as measured by their performance on standardized achievement tests
4. To discern possible relationships between student achievement, on the one hand, and the kinds of schools they attend on the other. (pp. iii, iv)

The Coleman Report revealed several major findings in public education. Coleman et al. (1966) revealed no specific school characteristic had a major positive impact on student achievement and socioeconomic status is the strongest predictor of student achievement. The report further revealed student test scores primarily correlate with socioeconomic status rather than teacher and school variables (Coleman et al., 1966). Social class had a positive impact on student performance, meaning students from middle and upper-class families outperformed students from socially disadvantaged backgrounds (Towers, 1992). Coleman et al. (1966) revealed the following:

Taking all of these results together one implication stands above all: That schools bring

> little influence to bear on a child's achievement that is independent of his background and general social context; and that this very lack of an independent effect means that the inequalities imposed on children by their home, neighborhood, and peer environment are carried along to become the inequalities with which they confront adult life at the end of school. (p. 325)

Coleman et al. (1966) demonstrates that schools remained segregated, and teacher and school variables had minimal effects on student outcome as measured by high-stakes achievement tests. More specifically, the Coleman Report (1966) revealed schools account for approximately 10% of the variances in student achievement, whereas 90% of the variance in achievement was accounted for by student background characteristics.

In a reanalysis of the data from the Coleman Report, Jencks and his colleagues (1972) published *Inequality: A Reassessment of the Effects of Family and Schooling in America*. The results of the Coleman Report were maintained and socioeconomic status was most influential on student outcome (Jencks et al., 1972). Similar to the Coleman Report, Jencks et al. (1972) found school variables have little impact on student performance differences between wealthier and poorer children. Jencks et al. (1972) concluded schools (1) have little influence on reducing the gap between rich and poor students, (2) have little influence on reducing the gap between more and less able students, (3) student achievement is primarily dependent on a students social background, and (4) little evidence exists indicating education reform efforts can improve the influence school has on student achievement. Consequently, until disparities in student socioeconomic status are addressed, educational inequalities will continue to exist (Jencks et al., 1972).

As of 2006, *The Equality of Educational Opportunity* had been cited in academic journal articles over 2,700 times, far more than any other educational study (Gamoran & Long, 2006). Gamoran and Long (2006) attempted to reanalyze the study in 2006 in order to gain a vantage point 40 years later. The purpose of their research was to (a) examine the main findings of the Coleman Report to see if they still hold after subsequent research, (b) determine if the research findings hold true internationally, (c) discuss the implication of the Coleman Report and other Coleman studies in terms of school choice and vouchers, and (d) to discuss changes in equality of educational opportunity (Gamoran & Long, 2006).

Coleman et al. (1966) revealed in the 1960s schools were highly segregated with schools being predominantly White or predominantly Black and/or minority. As a result of this report in 1966, schools have had significant changes in racial segregation with maximum desegregation occurring in the 1980s and partial resegregation occurring in the 1990s (Gamoran & Long, 2006). Currently, Black students are about half as likely to be segregated in all-Black schools compared to the 1960s, but the ratio of Blacks enrolled in minority schools is nearly the same, indicating schools have once again become more segregated in the 21st century (Clotfelter, 2006; Gamoran & Long, 2006; Orfield, 2001).

Although Coleman et al. (1966) indicated Black students scored one standard deviation below Whites in academic achievement, the gap in achievement has narrowed over the past 40 years (Gamoran & Long, 2006). Data from the National Assessment of Educational Progress (NAEP) indicates the gap between Black and White student's reading achievement fell to about 0.69 standard deviations in 1996 (Gamoran & Long, 2006). Furthermore Jencks and Phillips (1998) found the gap between Black and White students' mathematics scores declined to 0.89 standard deviations. However, achievement gaps between Black and White students have continued to fluctuate, indicating desegregation has not been a prominent source for eliminating achievement differences (Gamoran & Long, 2006).

One of the most controversial findings of the Coleman Report (1966) is that schools remained segregated and teacher and school variables had minimal effects on student outcome. Furthermore, the Coleman Report revealed socioeconomic/family status was the predominant influence of achievement on standardized assessments. According to Gamoran and Long (2006), these findings still hold up "remarkably well, and in some way distressingly so" (p. 19). Student achievement differences still significantly exist within schools; and according to Gamoran and Long (2006), "This variation is still tied to students' social and economic backgrounds" (p. 19). Following the Coleman Report (1966), several researchers have conducted their own analysis to determine if their findings would similarly indicate socioeconomic status is highly correlated to academic achievement.

Sirin (2005) conducted a large meta-analysis to discern the relationship between socioeconomic status and academic achievement. The study included journal articles published between 1990 and 2000 with an overall sample size of 101,157 students from 6,871 schools in 128 school districts (Sirin, 2005). Sirin (2005) attempted to determine if the correlation between socioeconomic status and achievement had changed after the Coleman Report and White's (1982) meta-analysis. The meta-analysis conducted by Sirin (2005) differed from other studies such as the Coleman Report and White's (1982) meta-analysis:

> It was designed to examine how the SES-achievement relation is moderated by (a) *methodological characteristics*, such as the types of SES measure, the source of SES data, and the unit of analysis; and (b) *student characteristics*, such as grade level, minority status and school location. (p. 421)

Unlike White (1982) and Coleman et al. (1966), Sirin (2005) demonstrated the degree of the relationship between socioeconomic status and academic achievement is dependent on several factors. Sirin (2005) states, “Methodological characteristics, such as the type of SES measure, and student characteristics, such as students’ grade, minority status, and school location, moderated the magnitude of the relationship between SES and academic achievement” (p. 438). The study conducted by Sirin (2005) further differed from Coleman et al. (1966) and White (1982) because it demonstrated the relationship between socioeconomic status and student achievement significantly increases as students progress in their academic careers, with the exception of high school. Furthermore, the strength of the relationship between socioeconomic status and student achievement was slightly lower in Sirin’s (2005) study, correlation coefficient of 0.299, compared to White’s (1982) study, correlation coefficient 0.343.

Similar to previous studies, Sirin (2005) found a medium to strong correlation between socioeconomic status and achievement. The average effect size difference in achievement between economically disadvantaged students and their wealthy counterparts was 0.28. Of all the factors analyzed in this study, “. . . family SES at the student level is one of the strongest correlates of academic performance. At the school level, the correlations were even stronger” (p. 438). The effect size at the group level was determined to be 0.60. In this study, family socioeconomic status was determined to improve student performance as a result of increased resources at home and access to better schools and classroom environments compared to children from economically disadvantaged homes (Sirin, 2005). Furthermore, community resources, or lack thereof, significantly influence academic achievement (Sirin, 2005).

One potential limitation of Sirin (2005) is that the meta-analysis only contained research spanning between 1990 and 2000. The data did not include other studies, perhaps more recent, which could strengthen or weaken the current findings. Additionally, the research was limited to only published articles, and it is impossible to include every existing relevant research study. As a result, the researchers cannot confirm every pertinent research study between 1990 and 2000 were included in their meta-analysis. The results of this study can only be applied to students in the United States because no international studies were included in the meta-analysis. Therefore, global generalizations about the influence of socioeconomic status on student achievement cannot be made based on this research.

Many other researchers have examined the relationship between socioeconomic status and student achievement. Tienken's (2011) national study on the conditional standard error of measurement in high school state standardized tests that revealed the subgroup of economically disadvantaged students never achieved a higher mean score than the non-economically disadvantaged subgroup on the Language Arts and Mathematics portions of those high-stakes tests.

According to Tienken (2011):

> The effect size differences in mean achievement between the students in the economically disadvantaged subgroup and their non-economically disadvantaged peers ranged from 0.39 to 1.05 in Language Arts and 0.36 to 1.02 in Mathematics. The effect size was 0.50 or higher favoring the non-economically disadvantaged in language arts and mathematics. (p. 265)

An effect size of 0.50 favoring the non-economically disadvantaged subgroup is equivalent to scoring at the 67^{th} percentile on a high-stakes assessment compared to students scoring at the 50^{th} percentile. The achievement differences between economically disadvantaged and economically advantaged students ranged from 12 to 36 percentile points on state-mandated high school tests of Language Arts and Mathematics (Tienken, 2011).

Morrissey, Hutchison, and Winsler (2013) examined various relationships between family income, school attendance, and academic achievement for students in Grades K-4 using cohort longitudinal data from the Miami School Readiness Project (MSRP). The sample included 35,419 children attending 259 public schools. Free or reduced-price lunch was a proxy used to measure family income in the study. Students receiving a free or reduced-price lunch earned poorer grades compared to their academic counterparts paying full price for meals (Morrissey et al., 2013). More specifically, students receiving a free lunch or reduced-price lunch scored 18.3% and 6.2% lower, respectively, compared to students not receiving a free or reduced-price lunch. Effect sizes were relatively small in this study and score decreases ranged from 0.04 to 0.18 of a standard deviation in scores (Morrissey et al., 2013). Additionally, third and fourth grade students receiving a free or reduced-price lunch were associated with lower state standardized test scores (Morrissey et al., 2013). Student grades continued to lower and standardized assessment scores slightly widened in this study based on the amount of time spent in a free or reduced-price lunch household (Morrissey et al., 2013). According to the authors, living in a low-income household had a ". . . cumulative, negative effect on student grades" (Morrissey et al., 2013).

One potential limitation to this study is that free or reduced-price lunch was used as a proxy for low-income households. Relying on free or reduced-price lunch as an indicator of a student's socioeconomic status has weaknesses. The researchers cannot confirm if every student in the study returned the appropriate lunch forms used to designate free or reduced-price lunch. Noteworthy differences exist between being eligible for a free lunch compared to a reduced-price lunch. The income differences have a varying influence on student achievement (Tienken, 2012). Furthermore, data from the National Assessment of Education Progress for Grades 4 and

8 Math and Language Arts results revealed students eligible for a free lunch scored statistically significantly ($p < 0.05$) lower than students not eligible for a free lunch (as cited in Tienken, 2012). However, no statistically significant difference was observed in scores for students eligible for a reduced-price lunch compared to students not eligible for a reduced-price lunch (as cited in Tienken, 2012).

Morrissey et al.'s study would be strengthened by analyzing the academic achievement of this cohort of students throughout their K-12 and college careers to determine if decreases in achievement continue. The study is limited to only Grades K-4 and cannot account for students who have changes in family income over time. Finally, the study is limited in terms of its sample. The original Miami School Readiness Project was designed to evaluate the academic performance of children from economically disadvantaged backgrounds. Consequently, many of the students not eligible for free or reduced-price lunch were likely just above the poverty line (Morrissey et al., 2013). This limitation likely accounts for the small effect sizes observed in the study.

The previous research on income and student achievement suggests family income levels are one of the most important factors influencing a child's academic career, highlighting academic disparities are prevalent early on in a child's education as a result of low income. In contrast, Humlum (2011) found no statistically significant results indicating income levels influence achievement levels most early on in a child's academic career, using data from the Danish part of the Programme for International Student Assessment (PISA) 2000. The results of Humlum's (2011) study indicate the timing of family income is not associated with long-term educational outcomes as measured by the PISA. A stronger correlation between a child's family income and test scores was found later in a child's academic career, ages 12-15 (Humlum, 2011).

This research finding indicates income did not play a significant role in student achievement before the age of 12.

One limitation of this study was that it was conducted with only Danish students. A likely explanation for the differing result from previously reported American studies is that Denmark has relatively low-income inequality (Humlum, 2011). Additionally, Denmark also experiences low wage dispersion and high quality publicly provided daycare systems (Humlum, 2011). In Denmark, several policies exist to reduce income inequality, and Denmark provides publicly subsidized high quality day care programs for children (Humlum, 2011).

Using nationally representative data from the Early Childhood Longitudinal Study (ECLS) Miller, Votruba-Drzal, and Setodji (2013) examined the relationship between family income and achievement levels in various suburban and rural communities of varying income levels. The sample size of the study was limited to 6,600 children who remained in the Early Childhood Longitudinal Study. The results of the study indicate income was positively associated with academic skills, especially for students in low-income households (Miller et al., 2013). For the entire sample, children living in households under the $25,000 threshold, a $10,000 increase in income was associated with a 0.15 – 0.17 standard deviation increase in academic skills (Miller et al., 2013). For children living in households above the $25,000 threshold, a $10,000 increase in income was associated with a 0.03 standard deviation increase in academic skills (Miller et al., 2013).

Additionally, the research of Miller et al. (2013) revealed income disparities are intensified in areas with higher concentrations of individuals living in poverty. In urban areas, the relationship between income and achievement was strongest for children living in households at the low end of the income distribution (Miller et al., 2013). In rural areas, income mattered similarly for children regardless of household income (Miller et al., 2013). Effect sizes fluctuated based on urbanicity as well.

In large urban cities, a $10,000 increase in income was associated with a statistically significant ($p < 0.05$) 2.33 point increase (0.16 standard deviation) in reading scores and a statistically significant ($p < 0.05$) 1.49 point increase (0.15 standard deviation) in math scores for children in households with earnings less than $32,500 per year (Miller et al., 2013). In large urban families earning more than $32,500 per year, a small but significant ($p < 0.05$) association between income and academic skills was observed with 0.03 standard deviation increases in reading and math scores (Miller et al., 2013).

In small urban areas, the associations between income and academic skills were much smaller. Increases in income for families making less than $65,000 a year were associated with a 1.26 increase in reading scores (0.09 standard deviation) and a 0.75 point increase in math scores (0.07 standard deviation). The results were statistically significant ($p < 0.05$). No association between income and math achievement and a very small negative association between income and reading achievement were observed in small urban areas with increases in income for families making more than $65,000 a year (Miller et al., 2013).

In the suburbs, a $10,000 increase in income for households making under $65,000 per year were associated with a statistically significant 0.96 point increase in reading (0.07 standard deviation) and a 0.74 point increase in math (0.07 standard deviation (Miller et al., 2013). The relationship between income and achievement was much smaller in suburban householders making more than $65,000 per year (0.02 standard deviation). In rural areas, the association between income and achievement was small for all families regardless of income. A $10,000 increase in income was associated with a 0.75 point increase in reading (0.05 standard deviation) and a 0.51 point increase in math (0.05 standard deviation). All of the findings were statistically significant ($p < 0.05$).

Increased income levels positively impact overall academic achievement and student academic skills. However, the results of the study suggest the relationship between household income and academic achievement differs based on urbanicity. Although the researchers controlled for some covariates, other unmeasured characteristics of the children or parents could also influence the relationship between income and achievement. Large differences in income were observed across urbanicities, and therefore the various thresholds used to compare groups was potentially not as precise as it could be, which may limit overall effect sizes.

Duncan, Morris, and Rodrigues (2011) analyzed data collected using a set of 7 welfare and antipoverty experiments conducted in the 1990s. The experiments were conducted and provided various welfare packages to increase the self-sufficiency of low-income parents (Duncan et al., 2011). The studies provided 18,677 child observations from 10,238 children living in 9,113 single-parent households. The results of their study indicated changes in preschool children's parents' income have a statistically significant impact on achievement levels. More specifically, Duncan et al. (2011) revealed a $1,000 increase in family income sustained between two to five years statistically significantly ($p < 0.05$) improves a child's achievement level 0.05 – 0.06 the standard deviation on the Bracken Basic Concept Scale. The reported effect size is relatively small and is likely due to the minimal financial increase in family income ($1,000). Other research studies with larger increases in family income have produced more meaningful effect sizes. According to Krueger and Whitmore, 2001 (as cited in Duncan et al., 2011):

Treatment effect sizes on IQ were 1.0 standard deviations at 3 years and 0.75 at age 5 for

> the Abecedarian Project and 0.60 for the Perry Preschool Project. But at $40,000 and $15,000, respectively, these large effect sizes came at a great cost. For $7,500, the Tennessee class size experiment showed that smaller K-3 class sizes increased achievement by about 0.2 standard deviations, which was estimated to increase benefits more than cost. (p. 1275)

Due to the minimal effect size, the results of this study should be considered tentative at best. Longitudinal data demonstrating a positive relationship between income level and student academic achievement are needed to support the assertions and determine if $1,000 increases in family income have a more direct proportional increase in student achievement levels over time. Furthermore, research is needed to monitor the progress of students with increased income levels throughout their academic journey to determine if they experience increased academic success and life opportunities.

Reardon (2013) examined the relationship between family income and academic achievement in the United States over the last 50 years in an analysis of 12 nationally representative samples including information on family income and standardized tests scores in math or reading. The analysis demonstrated that over the past 50 years the achievement gap is widening. More specifically, according to Reardon (2013):

> Among children born in the 1950s, 1960s, and early 1970s, the reading achievement gap between those from high-income families (at the 90th percentile of the income distribution) and those from low-income families (at the 10th percentile) was about 0.9 of a standard deviation . . . among those born 20-25 years later, the gap in standardized test scores was roughly 1.25 standard deviations—40% larger than the gap several decades earlier. (p. 11)

The academic disparity between students of various socioeconomic status backgrounds has also resulted in an increase in the number of wealthier students completing college whereas the number of socially disadvantaged students completing college has remained relatively stable (Bailey & Dynarski, 2011; Reardon, 2013). This research indicates not only the profound effects socioeconomic status has on standardized test achievement but also that the deviation in standardized test scores as a result of social status may have lasting impacts on life opportunities.

Synthesis

The aforementioned studies reveal socioeconomic status is the single strongest predictor of student achievement. Coleman et al. (1966) revealed schools account for approximately 10% percent of the variances in student achievement, whereas 90% of the variance in achievement was accounted for by student background characteristics. Jencks et al. (1972) reanalyzed the data and confirmed school variables have little impact on student performance differences between wealthier and poorer children, and therefore educational inequities will continue to exist until disparities in students' socioeconomic status are addressed. As researchers debate which teacher and school variables impact student achievement most, the extensive extant literature continues to support the original findings of the Coleman Report.

Current educational reform efforts place a priority on standardized curriculums and high-stakes testing and assessment programs to make decisions in education. Bureaucrats and key educational stakeholders highlight the achievement disparities between affluent and poor children as measured by state and national assessments. Standardized assessments continue to be developed, allowing students scores to be compared to a norm group or to predetermine achievement levels against mandated criteria in order to make comparisons among students and essentially rank-order tested students (Solley, 2007). However, is focusing reform efforts on standardized curricula and high-stakes assessments the answer for closing the existing achievement gap between students from poorer and wealthier backgrounds? Are poor children doomed to fail in the current system?

After reviewing the extant literature, it is clear using high-stakes assessments to make decisions about teachers and students in an effort to close the achievement gap is an irresponsible education reform practice. Previous and current research has repeatedly demonstrated socioeconomic status is the strongest predictor of student achievement. Perhaps policymakers and key stakeholders truly concerned with narrowing the achievement gap should focus reform efforts on the social injustices between students living in different social environments. Research is further needed to determine which socioeconomic factors at the student, school, and community level are most influential on student outcome. School leaders and policymakers must then utilize current and future research to make important decisions about teachers and students rather than continue to rely on high-stakes assessment results, which, as the reviewed literature demonstrates, are highly correlated to socioeconomic status.

The Influences of High-stakes Testing on Student Learning

Various education researchers have examined whether the implementation of high-stakes testing programs have influenced student outcomes in an attempt to close the achievement gap. The implementation of No Child Left Behind in 2002 established high-stakes testing accountability systems varying from state to state. Prior to 2002, some states already had begun implementing high-stakes testing programs (Marchant, Paulson, & Shunk, 2006). In order to compare students' achievement in states with established high-stakes testing programs to states without, Amrein and Berliner (2002a, 2002b) examined longitudinal data from the National Assessment of Educational Progress (NAEP) containing data for all 50 states.

Amrein and Berliner (2002a) examined 18 states considered to have the most severe consequences, meaning the "highest stakes,'" in an attempt to determine if high-stakes testing programs enhanced student learning. The researchers did not use individual state tests because according to Amrein and Berliner (2002a), "Such scores are easily manipulated through test-preparation programs, narrow curricula focus, exclusion of certain students, and so forth" (pp. 1-2). Instead, the researchers examined the transfer of knowledge as measured by the ACT, SAT, NAEP, and AP standardized tests, which overlap the state assessments (Amrein & Berliner, 2002a).

Amrein and Berliner (2002a) revealed when comparing the 18 states to the rest of the nation, ". . . negative ACT effects were displayed two times more often than positive effects after high-stakes high school graduation exams were implemented" (p. 30). Overall, 12 states (67%) experienced negative ACT effects, and six states displayed overall positive effects (Amrein & Berliner, 2002a). The SAT produced similar findings when compared to the rest of the nation. According to Amrein and Berliner (2002a), "Negative SAT effects were posted 1.3 times more often than positive effects after high school graduation exams were implemented" (p. 35). Overall, 10 states (56%) displayed negative effects and eight states displayed positive effects (Amrein & Berliner, 2002a). However, the decreases were slightly related to changes in SAT participation rates; therefore, the researchers concluded no reliable evidence exists indicating high-stakes exams improved SAT performance. One potential limitation to the results is that students taking the ACT or SAT are typically college bound. High-stakes testing policies have been designed and implemented to improve achievement levels of students academically behind who are not necessarily college bound. As a result, the sample does not accurately represent all students from each state. Furthermore, depending on the state and students, the majority of them may prefer to take one exam to the other, which could again result in a sample not completely representative of the population.

To gain a better understanding of the effects of high-stakes testing policies in the 18 states, Amrein and Berliner (2002a) examined the mathematics and reading NAEP data after high-stakes tests were implemented. Amrein and Berliner (2002a) revealed high-stakes testing policies did not significantly improve Grade 4 or 8 NAEP math and reading test scores. A few states demonstrated small gains in math achievement after implementing high-stakes assessments. However, the evidence presented no compelling indication high-stakes testing improved achievement levels because states could exclude certain groups of students such as special needs or limited English proficient. Significant correlations coefficients were found between exclusion rates and scores on the NAEP, indicating the exclusion of students enables states to show gains in test scores.

Data from advanced placement test scores resulted in similar findings. High-stakes exams had no significant correlation to achievement on AP exams. Furthermore, according to Amrein and Berliner (2002a), "Gains and losses in the percentage of students passing AP exams were negatively correlated (r = -0.30) with the rate in which students participated in the AP program" (p. 55). The results of this study indicate as fewer students are enrolled in AP programs, a higher percentage of students pass the AP exam and vice versa. As a result, excluding students once again resulted in artificial test scores.

Amrein and Berliner (2002b) conducted a subsequent study to determine if the implementation of high-stakes testing increases academic achievement. According to Amrein and Berliner (2002b), this study utilized NAEP data and expanded to include 27 states with ". . . the highest stakes written into their Grades 1-8 testing policies" (p. 1). Furthermore, the researchers examined if the introduction of high-stakes high school exit exams improved academic achievement (Amrein & Berliner, 2002b). The parameters of this study remained consistent with Amrein and Berliner (2002a), as both studies academic achievement indicators included data from the NAEP, ACT, SAT, and AP programs, which overlap the same curriculum domains as high-stakes tests (Amrein & Berliner, 2002a, 2002b).

The longitudinal data once again revealed changes in NAEP scores before and after the implementation of high-stakes testing policies resulted in inadequate and inconclusive evidence that high-stakes testing improved achievement (Amrein & Berliner, 2002b). Furthermore, the researchers concluded, "Scores seemed to go up and down in a random pattern, after high-stakes tests are introduced, indicating no consistent state effects as a function of high-stakes testing policies" (p. 57). Amrein and Berliner (2002b) reported academic achievement decreased after the implementation of high school graduation exams. More specifically, as compared to the nation, after high school graduation exams were implemented, 67% of the states posted decreases in ACT and SAT performance and 57% of the states posted decreases in AP performance (Amrein & Berliner, 2002b).

Rosenshine (2003) claimed that Amrein and Berliner (2002a; 2002b) failed to create a comparison group in their analysis and therefore reanalyzed the NAEP data. However included in Rosenshine's (2003) research is, ". . . a comparison of the NAEP gains in the high-stakes states against the NAEP gains in states that did not have statewide accountability procedures" (p. 2). The average NAEP increases were much higher than the observed increases in comparison states in this study (Rosenshine, 2003). More specifically, according to Rosenshine (2003), "In 8th grade mathematics and in 4th grade reading the mean increase for the clear high-stakes states was double the increase for the states without consequences" (p. 2). The effect sizes for the comparison groups were 0.35 for Grade 4 math, 0.79 for Grade 8 math, and 0.61 for Grade 4 reading (Rosenshine, 2003). Contrary to Amrein and Berliner (2002a, 2002b), Rosenshine (2003) reported overall gains on the NAEP in high-stakes testing states.

In their studies using NAEP data, Amrein and Berliner (2002a, 2002b) acknowledge states could exclude certain groups of students in order to show gains and the researchers did not control for individual student characteristics. Rosenshine (2003) also did not control for individual student characteristics, such as socioeconomic status, which has been found to statistically significantly impact student performance as measured by standardized assessments (Bailey & Dynarski, 2011; Coleman et al., 1966; Gamoran & Long, 2006; Jencks et al., 1972; Morrissey et al., 2013; Reardon, 2013; Sirin 2005; Tienken, 2012; Towers 1992).

Rosenshine was not the only researcher to take issue with Amrein and Berliner's (2002a, 2002b) analysis and conclusions. Carnoy and Loeb (2002) attempted to correct for the limitations of previous research in their study of NAEP data. Carnoy and Loeb (2002) developed a measurement of the strength of each state's accountability system based on the use of high-stakes testing to sanction and reward schools. The researchers then analyzed whether the strength of each state's accountability system was related to student gains on the NAEP mathematics test in 1996-2000. Additionally, unlike previous researchers, Carnoy and Loeb (2002) controlled for student characteristics noted to be confounded with achievement, including ethnicity and inclusion/exclusion from testing.

Carnoy and Loeb (2002) observed significantly greater achievement gains on the eighth grade NAEP mathematics tests for students in high-accountability states compared to students in low or no high-stakes accountability measures for improving learning. The results from Carnoy and Loeb (2002) are as follows:

Table 1

Accountability Index and Achievement Levels

	White Gain		Black Gain		Hispanic Gain	
Accountability Index Coefficient	0.773	1.23	0.861	1.21	0.787	1.92
t-statistic	2.14	2.39	3.41	6.10	1.50	2.71

Carnoy and Loeb (2002) observed a significant relationship ($p < 0.05$) between achievement levels and level of accountability for all races. The researchers suggest as high-stakes testing accountability increases, student outcomes do as well. However, effect sizes were not reported; therefore, these broad generalizations lack statistical merit. Furthermore, based on the rather small *t*-statistics reported, one might infer an overall small effect.

A few weaknesses are present in this current research, reducing the overall significance of their findings. Although the researchers controlled for student ethnicity and inclusion/exclusion from testing, the researchers failed to control for family income, which is known to significantly correlate with student achievement (Bailey & Dynarski, 2011; Coleman et al., 1966; Gamoran & Long, 2006; Jencks et al., 1972; Morrissey et al., 2013; Reardon, 2013; Sirin 2005; Tienken, 2012; Towers, 1992). Furthermore, Carnoy and Loeb (2002) only researched changes in mathematics NAEP scores. The NAEP exam includes other academic content areas. Therefore, the results of their study can only be applied to mathematics but must be done with caution considering effect sizes are not reported. The researchers cannot make overarching conclusions that high-stakes accountability testing results in overall improvements in academic outcomes.

Similar to Carnoy and Loeb (2002), Hanushek and Raymond (2003, 2004) found a positive relationship between high-stakes testing and student achievement on the NAEP test.

The researchers contend high-stakes accountability systems resulted in an overall greater increase in student outcome when compared to students without high-stakes accountability systems (Hanushek & Raymond, 2003, 2004). Hanushek and Raymond (2003, 2004) further contend that attaching consequences to student performance influences student achievement on the NAEP test compared to simply reporting the results each year. However, actual effect sizes were not reported in their research, reducing the overall utility of their research and conclusions.

Other researchers conducted similar analyses of NAEP data to determine the relationship between high-stakes testing accountability and student achievement. Braun (2004) observed gains in achievement in high-stakes testing states when comparing students from the same grade level. However, his results also demonstrated, when comparing a cohort of fourth graders to eighth graders four years later, low-stakes testing was more influential on student outcomes (Braun, 2004).

Nichols, Glass, and Berliner (2006) examined the relationship between high-stakes testing pressure and student achievement in 25 states. The researchers established a high-stakes accountability rating for each state and then conducted a series of correlations and regression analyses to determine if increased high-stakes accountability improves student outcomes as measured by the NAEP test (Nichols et al., 2006). Stated in the research study was no relationship between early high-stakes pressure on students and later increased (cohort) achievement for math at the fourth and eighth grade level on the NAEP test (Nichols et al., 2006). Additionally, Nichols et al.'s (2006) research revealed no relationship between high-stakes testing pressure and reading achievement on the NAEP test.

Narrowing the Curriculum

In addition to mixed results regarding the value of high-stakes assessments for improving student learning, researchers continue to agree high-stakes testing results in narrowed curriculums, which place an emphasis on the tested subjects such as math, language arts, and reading and an overall de-emphasis on elective courses such as social studies, art, and science (AERA, APA, NCME, 1999; Berliner, 2011). Former Supreme Court Justice Sandra Day O'Conner acknowledges this curriculum problem and stated (as cited in Berliner, 2011):

> One unintended effect of the No Child Left Behind Act . . . is that is has effectively squeezed out civics education because there is no testing for that anymore and no funding for that. At least half of the states no longer make the teaching of civics and government a requirement for high school graduation. This leaves a huge gap and we can't forget that the primary purpose of public schools in America has always been to help produce citizens who have the knowledge and skills and the values to sustain our republic as a nation, our democratic form of government. (p. 290)

The Center for Education Policy conducted an analysis on the amount of instructional time given for various content areas as part of an ongoing study of the impact of the No Child Left Behind Act. Following the implementation of No Child Left Behind, McMurrer (2008) reports in elementary schools instructional time has increased 47% in language arts and 37% in mathematics. Furthermore, instructional time in social studies, science, physical education, recess, art, and music has decreased 32%, 33%, 35%, 28%, and 35%, respectively (McMurrer, 2008). Overall, 44% of all districts nationwide have increased instructional time in Language Arts and/or Mathematics while simultaneously decreasing instructional time in social studies, science, physical education, recess, and art (McMurrer, 2008). Because of the implementation of No Child Left Behind, large shifts have occurred in the allocation of instructional time towards tested subjects at the expense of non-tested subjects.

Tienken and Zhao (2013) contend high-stakes testing results in curriculum narrowing to what is most likely to be testing. The authors further claim this effect is more severe in schools with economically disadvantaged students because these individuals tend to score lower on state standardized assessments (Tienken & Zhao, 2013). According to Tienken and Zhao (2013):

> For example, five years after the implementation of NCLB, over 60 percent of school districts reported that they had increased instructional time for Math and English Language Arts, while 44 percent reported that they had reduced time for other subjects or activities such as social studies, science, art and music, physical education, lunch, and/or recess. Only two years after the implementation of NCLB three-quarters of school principals surveyed reported increases in instructional time for math and ELA, one-quarter reported decreases in time for the arts, and one-third anticipated future decreases. . . . More impoverished urban districts (76 percent) increased time for math and ELA and decreased time for other subjects than did suburban districts (69%). (p. 114)

Standardized assessments resulting in narrow curriculums reduce some of the social and emotional opportunities public schools offer. According to Tienken and Zhao (2013), narrowing curriculums in economically disadvantaged schools detracts from one of the equalizing functions of public schools by not providing the experiences and opportunities that economically disadvantaged families and communities cannot. As a result, the life opportunities from both the academic and social aspect comprehensive curriculums offer are limited as a result of curriculum narrowing.

Standardizing education and implementing high-stakes assessments fails to consider the foundational evidence from the seminal Cardinal Principles of Education. The Cardinal Principles of Education acknowledge the need to differentiate curricula to meet the needs of the diverse learners in society (Commission on Reorganization of Secondary Education, 1918). The Cardinal Principles of Education further demonstrated not all students learn at the same pace and students do not necessarily achieve the same level of mastery (Commission on Reorganization of Secondary Education, 1918). Using one high-stakes assessment to measure student achievement on one specific day violates evidence from the foundational Cardinal Principles. As a result, curriculums must be differentiated to meet the needs of each individual student rather than homogenized into one standardized curriculum and assessment (Commission on Reorganization of Secondary Education, 1918; Tienken & Orlich, 2013). Furthermore, the work of various researchers has demonstrated no single best curricula and assessment exists to support all students; therefore, curriculum developments must be locally controlled, including customized curricula and assessments (Aikin, 1942; Commission on Reorganization of Secondary Education, 1918; Tanner & Tanner, 2007; Tienken & Orlich, 2013; Zhao, 2010; 2012).

Between 1930 and 1942, the Progressive Education Association encouraged educators to place less focus on stringent college entrance requirements and conducted the landmark Eight-Year Study. In the classical Eight-Year Study, 30 unique systems of education were utilized with locally developed assessments; and these schools were compared to schools using traditional curricula and assessments (Aikin, 1942). The Eight-Year Study demonstrated students who were able to access multiple, divergent curricula paths through high school performed better on standardized tests in high school and their academics and socio-civic measures in college than students who attended schools with standardized programs. The findings demonstrate not all students learn at the same pace and students do not all achieve the same level of mastery at the same time.

Standardized curricula and high-stakes assessments contradict Thorndike's key research findings. Thorndike's educational studies revealed no one subject, such as math or language arts, results in increased mental development (Thornidke, 1924). Furthermore, Thorndike (1924) concluded individuals with the most prior knowledge and experience gained the most academically and learning was not dependent on mental discipline. Proponents of standardized curricula and high-stakes assessments oppose the classic research findings as well as John Dewey's classic educational theories. Dewey proposed educators consider a holistic approach to educating children, bringing meaning to each learner so each can contribute to society (Dewey, 1938).

The continued use of high-stakes testing contradicts Wayne Au's (2007) research on standardization and high-stakes testing. Au found high-stakes testing enables government agencies to control what happens in classrooms and actually removes the decision-making power from local authorities (Au, 2007). Au also acknowledges standardization and high-stakes testing inhibits diversity and discourages the promotion of democracy within schools. Standardized testing narrows curriculums in that teachers essentially teach to the test (Au, 2007). Furthermore, learning becomes a top-down process, eliminating local control and democracy. Existing research demonstrates high-stakes standardized achievement assessments can adversely impact diversity and democratic principles within schools (Aikin, 1942; Baines, 2011; Commission on Reorganization of Secondary Education, 1918; Thorndike, 1924; Tienken, 2013).

Synthesis

Education policymakers and bureaucrats continue to assert the importance of high-stakes testing for raising student achievement and closing the achievement gap. However, the extant literature has provided mixed results at best, and rigorous empirical studies demonstrating high-stakes tests significantly impact student learning are difficult to find. Proponents of high-stakes testing contend high-stakes assessments provide a clear picture for what teachers should teach and students should learn (Amrein & Berliner, 2002a). Additionally, proponents claim high-stakes assessments increase student and teacher accountability, and therefore both will be motivated to work harder and raise achievement levels as measured by standardized assessments (Amrein & Berliner, 2002a). Although the claims sound appealing and can be used to garner public support for high-stakes testing policies, the reality is they lack merit due to inconclusive qualitative and/or quantitative empirical evidence.

As pressure continues to grow on educators to raise student achievement on high-stakes assessments, a rational response is to increase instructional time in tested areas and arrange curricula reform efforts on tested items. The Center for Education Policy has demonstrated school districts across the country have already increased instructional time in tested areas at the expense of elective coursework (McMurrer, 2008). Considering the democratic principles on which the United States was founded, educators must question whether the reallocation of instructional time to focus on tested subjects is an appropriate and fair response. The reality is that for decades various researchers, educational philosophers, and landmark literature/studies have provided evidence students achieve at higher levels when exposed to locally developed curricula and assessments designed to meets the needs of each individual student.

Policymakers and education bureaucrats will continue to debate the importance of high-stakes assessments. These individuals owe it to the public to consider empirical evidence when enacting policies affecting millions of children. The extant literature provides no empirically sound evidence indicating high-stakes assessments will improve student learning. Providing students with a comprehensive and well-rounded education seems to be a more logical approach for educating citizens who will compete in a diverse global market. Schools must provide students with the critical thinking skills needed to achieve at high levels rather than teach to the test and ultimately limit students' potential. District and school leaders must be aware of the empirical evidence as well in order to make informed decisions regarding curriculum, assessments, master schedules, and so forth. Empirically sound research and longitudinal studies are needed to identify factors that will ultimately increase student achievement and close the achievement gap. The uncertainty of high-stakes testing to improve student learning suggests this is a failed reform initiative and using the results of high-stakes assessments to make important educational decisions about teachers and students is irresponsible.

Predictive Influence of Demographic Variables on Standardized Test Achievement

A few empirical studies have been conducted analyzing the predictive influence of community demographic variables found in the U.S. Census data on standardized test achievement. Maylone (2002) analyzed the impact of seven independent SES variables on high school district MEAP scores in Michigan. The seven demographic variables in this study include the following: (a) percent of district students eligible for free or reduced-price lunch, (b) state equalized homestead valuation (SEV) per state aid member, (c) percent of district children poor, ages 5-17, (d) percent of district lone-parent households, (e) mean district household income, (f) median district household income, and (g) percent of district households with annual income under $30,000 (Maylone, 2002). Maylone (2002) used statistical analysis to determine the independent variables with statistically significant correlation coefficients in relation to aggregate district high school MEAP scores. Combinations of independent variables most predictive of district level MEAP scores were then generated using multiple regression analysis.

Maylone (2002) recorded a sample size of 100% (*n* = 519); and similar to previous research (Coleman et al., 1966; Duncan, Morris, & Rodrigues, 2011; Gamoran & Long, 2006; Jencks et al., 1972; Miller, Votruba-Drzal, & Setodji, 2013; Morrissey, Hutchison, & Winsler, 2013; Reardon, 2013; Sirin, 2005; Tienken, 2011), the strongest variable that correlated with district level MEAP scores was the number of students eligible for free and reduced-price lunch (r = -0.701, p<0.05). The results demonstrate that as the number of students eligible for free or reduced-price lunch increases, high school district level MEAP scores decrease.

Maylone (2002) found the combination of SES district factors producing the predictive equation with the most power (0.749) of a district's composite high school MEAP score included (a) percent of district students eligible for free or reduced-price lunch, (b) percent of district lone-parent households, and (c) mean district annual household income. The three variables Maylone (2002) identified to account for the most variance in district level MEAP scores resulted in an R^2 value of 0.561. Therefore, 56.1% of the variance in district MEAP test results can be attributed to (a) percent of district students eligible for free or reduced-price lunch, (b) percent of district lone-parent households, and (c) mean district annual household income (Maylone, 2002). Using these three same variables, Maylone (2002) accurately predicted the percentage of students scoring Proficient or above on the MEAP test in 74% of the school districts in the state.

Maylone (2002) concludes poverty matters in education and accounts for much of the variance in standardized test scores. However, one limitation of this study is that it examined only one year of district level MEAP test score data. Longitudinal data are needed to further support Maylone's research findings and conclusions. Additionally, this study examined the predictive influence of only the independent variables on high school MEAP scores. Further research is needed analyzing the predictive nature of SES district variables on student achievement in multiple grade levels.

Building on the work of Maylone (2002), Turnamian (2012) attempted to identify the combination of community demographic variables accounting for the most variance in the number of students scoring Proficient or above on the 2009 NJ ASK 3 in Language Arts and Mathematics at the district level. The target population for Turnamian's non-experimental, correlational study was all New Jersey school districts with a minimum of 25 students enrolled in Grade 3 and having both 2009 NJ ASK 3 and U.S. Census data readily available. Regional, charter, and private school districts were removed from the population of districts available. The population of the study was 438 school districts, and Turnamian (2002) achieved a sample size of 438, which equates to 100% of the population.

Similar to Maylone (2002), the combination of community demographic variables most predictive of NJ ASK 3 Language Arts test results, at the district level, included (a) percentage of lone-parent households, (b) percentage with a bachelor's degree, and (c) percentage of economically disadvantaged students (Turnamian, 2012). The three independent variables combined to predict 52% of the New Jersey school districts NJ ASK 3 Language Arts results in 2009 within the standard margin of error, 10.53 points of the actual test scores (Turnamian, 2012). Furthermore, 54.9% of the variance in NJ ASK 3 Language Arts results can be attributed to the combination of the three independent variables (R^2=.549, p <0.05). The threat of multicollinearity was not likely, as the VIF was below the threshold of 5 and the tolerance level exceeded 1-R^2.

The combination of community demographic variables most predictive of NJ ASK 3 Mathematics test results, at the district level, included (a) percentage of lone-parent households,

(b) percentage with a bachelor's degree, and (c) percentage of economically disadvantaged students (Turnamian, 2012). The three independent variables combined to predict 60% of the New Jersey school districts NJ ASK 3 Mathematics results in 2009 within the standard margin of error, 10.07 points of the actual test scores (Turnamian, 2012). Furthermore, 41% of the variance in NJ ASK 3 Mathematics results can be attributed to the combination of the three independent variables (R^2=.406, p <0.05). The threat of multicollinearity was not likely as the VIF was below the threshold of 2 and the tolerance level exceeded 1-R^2.

One potential limitation of this study is that only one year of test results data were analyzed. Further research is needed examining the predictive influence of the independent variables (a) lone-parent households, (b) percentage with a bachelor's degree, and (c) percentage of economically disadvantaged students over multiple years to determine if the predictability findings are further supported. Only district level NJ ASK 3 results were examined, and therefore the results of the study cannot be generalized to district results in other grade levels or other state standardized assessments.

Sackey (2014) examined the combination of 15 out-of-school community and family-level demographic variables that best predict and account for the most variance in a Connecticut school district's percentages of students scoring Proficient or above on the 2010 Connecticut Mastery Test (CMT) for the third through eighth grade in Mathematics and English Language Arts. Using non-experimental quantitative analysis, Sackey (2014) excluded regional, private, and charter school districts. Furthermore, high schools were excluded from the investigation, and only public school districts with a minimum of 25 students in third through eighth grade were included. As a result, the population of the study was 139 elementary school (K-5) districts and 114 middle school (6-8) districts (Sackey, 2014). The sample used in the research included 100% of the population that met the criteria established for the research study (Sackey, 2014).

Various independent variables combined to predict the number of students scoring Proficient or above on the 2010 Connecticut Mastery Test in English Language Arts and Mathematics in Grades 3 through 8. At the elementary school district level, the most variance in student performance community and family-level demographic variables accounted for was 79% of the 2010 CMT 5 ELA district level test results (R^2=0.79, p<0.05). The independent variables accounting for this variance were (a) percentage of the population 25 and older without a high school diploma, (b) percentage of people in the population living below the poverty level with children under 18, (c) percentage of the population that is married with children under 18, and (c) percentage of people in the population 25 or older with an advanced degree.

The least amount of variance at the elementary school district level accounted for by community and family-level demographic variables was 67% of the 2010 CMT 3 Math and CMT 4 ELA district level test results (R^2=0.67, p<0.05). The independent variables accounting for the variance in CMT 3 Math scores include (a) percentage of the population 25 and older without a high school diploma, (b) percentage of people making $35,000 or less with children under 18, and (c) percentage of people in the population 25 or older with a bachelor of arts degree. The independent variables accounting for the variance in CMT 4 ELA results include (a) percentage of people making $35,000 or less with children under 18, and (b) percentage of people with children in the population 25 or older with an advanced degree.

At the middle school level, the most variance in student performance community and family-level demographic variables accounted for was 78% of the CMT 8 Math district level results (R^2=0.78, p<0.05). The community and family-level demographic variables accounting for this variance were (a) percentage of the population 25 and older without a high school diploma, (b) percentage of people in the population living below the poverty level with children under 18, (c) percentage of the population that is married with children under 18, and (d) percentage of the population with a male head of household without a female. The least amount of variance in student performance community and family-level demographic variables accounted for at the middle school level was 68% of the CMT 6 Math district level results (R^2=0.68, p<0.05). The community and family-level demographic variables accounting for this variance were (a) percentage of the population 25 and older without a high school diploma, (b) percentage of people in the population living below the poverty level with children under 18, and (c) percentage of the population that is married with children under 18.

The table below displays the predictability of district level CMT results based on a combination of community and family-level demographic variables according to Sackey (2014):

Table 2

Predictability of District Level CMT Results Based on Community and Family-Level Demographic Variables

Grade Level and Subject	Percentage of District Level CMT Results Accurately Predicted with the Standard Margin of Error	Standard Margin of Error
3rd Grade Math	72%	+ or – 8.5
3rd Grade ELA	70%	+ or – 8.2
4th Grade Math	68%	+ or – 9.9
4th Grade ELA	76%	+ or – 8.8
5th Grade Math	74%	+ or –7.4
5th Grade ELA	76%	+ or – 7.3
6th Grade Math	70%	+ or – 9
6th Grade ELA	75%	+ or – 7
7th Grade Math	74%	+ or – 8.6
7th Grade ELA	71%	+ or – 6.5
8th Grade Math	70%	+ or –8
8th Grade ELA	75%	+ or – 7

In the elementary school districts, the appropriate combination of community and family-level demographic variables were able to predict as much as 76% and as little as 68% of the students scoring Proficient or above on the CMT state mandated assessment. In the middle school districts, community and family-level demographic variables combined to predict as much as 75% and as little as 70% of the students scoring Proficient or above on the CMT state mandated assessment.

The results of Sackey (2014) are consistent with the research of Maylone (2002) and Turnamian (2012) and demonstrate community and family-level demographic variables can be used to predict state mandated test results at the district level. However, Sackey (2014) addressed one limitation of Maylone (2002) and Turnamian (2012) by including more than one grade level in the study. Although multiple grade levels were included, the results of the study can only be applied to public elementary and middle school districts in the state of Connecticut. The results cannot be generalized to other states or Grades 9-12. Further research is needed examining the predictive influence of community and family-level demographic variables on secondary test results. Additionally, Maylone (2002), Turnamian (2012) and Sackey (2014) used cross sectional designs looking at only one year of data at a time. Research is needed to determine the predictive accuracy of community and family-level community demographic variables over a period of multiple years.

Tienken (2015, 2016) examined the predictive accuracy of community and family-level demographic variables on the 2010, 2011, and 2012 NJ ASK 5 Language Arts and Mathematics district level assessment results. This longitudinal study included 12 independent community and family-level demographic variables from the 2009 U.S. Census data estimates (Tienken, 2015). The total sample and population of the study was 399 school districts for the 2010 sample and 398 school districts for the 2011 and 2012 samples. The study was guided by and expanded on the work of Maylone (2002), Turnamian (2012), and Sackey (2014) by analyzing three years worth of data rather than using a cross-sectional design.

The strongest statistically significant models ($p < 0.05$) were able to accurately predict between 64% and 80% of the number of students scoring Proficient or above, at the district level, on the Language Arts and Mathematics sections of the 2010, 2011, and 2012 NJ ASK state mandated assessment (Tienken, 2016). Additionally, the strongest statistically significant models ($p < 0.05$) accounted for 47% to 65% of the variance in the percentage of students scoring Proficient or above on the state mandated assessments.

In the 2010 model, the percentage of families below the poverty level, percentage of lone-parent households, and percentage of households earning at least \$200,000 combined to predict 78% of district level Mathematics results ($R^2 = 0.643$). The percentage of advanced degrees, percentage of families below poverty level, and the percentage of households earning at least \$200,000 combined to predict 64% of district level Language Arts results ($R^2 = 0.511$). In the 2011 model, the percentage of families below the poverty level, percentage of lone-parent households, and percentage of households with some college combined to predict 76% of district level Mathematics scores ($R^2 = 0.467$). For the 2011 Language Arts sample, the percentage of families below the poverty level, percentage of lone-parent households, percentage of households with no high school diploma, and the percentage of households earning greater than or equal to \$200,000 combined to predict 76% of district level results ($R^2 = 0.645$). In the 2012 sample, the percentage of families below the poverty level and the percentage of household with some college combined to predict 79% of district level Mathematics results ($R^2 = 0.516$). For Language Arts, the percentage of lone-parent households and the percentage of households earning at least $200,000 combined to predict 80% of district level Language Arts results (R^2 = 0.571). All reported results were within the reported standard margin of error ranging from 7.27 percentage points to 10.55 percentage points and were statistically significant ($p < 0.05$).

The results of the study suggest it is possible to accurately predict the number of students scoring Proficient or above on the NJ ASK 5, at the district level, using community and family-level demographic variables. This study added to the existing body of research (Maylone, 2002; Turnamian, 2012; Sackey, 2014) and demonstrates the predictive nature of community and family-level demographics on student achievement over time. However, this study examined only Grade 5 NJ ASK results. Further research is needed to determine if the predictive nature of community and family-level demographic variables on standardized test achievement holds true in other grade levels.

Synthesis

High-stakes testing remains at the forefront of education reform initiatives and policymakers continue to support policies centered on the implementation of high-stakes tests and the utilization of results to make important decisions regarding students, teachers, and school and district-level administrators. The limited extant literature has demonstrated it is possible to predict quite accurately the number of students scoring Proficient or above on state mandated standardized assessments, at the district level, in Language Arts and Mathematics using community and family-level demographic variables (Maylone, 2002; Sackey, 2014; Tienken, 2015; 2016; Turnamian, 2012).

Although a minimal quantity of research exists, if it is possible to predict the number of students scoring Proficient or above on high-stakes assessments using community and family-level demographic variables, the efficacy of using the results to making important decisions in education must be questioned. The continued use of high-stakes test results to essentially label schools and districts based on the results of high-stakes assessments must be questioned; and at the very least, policymakers and leaders in education must question the common conception that high-stakes standardized test results alone provide essential information regarding school, district, and educator effectiveness.

Practical and Research Significance

Today's K-12 education climate is filled with policymakers and bureaucrats placing a premium on high-stakes assessments. Based on the current school reform landscape, it is clear high-stakes testing is one avenue educational reformers are urging on education with the goal of improving academic achievement for all students and closing the achievement gap plaguing students from various social backgrounds in America. Policymakers and educational bureaucrats have filled the media with much rhetoric that American school systems are underperforming compared to systems around the world. Consequently, these individuals have thrust high-stakes testing policies upon educators and children and use the results of high-stakes assessments to make important decisions about teachers and students. However, the extant literature in this review clearly questions the utility of using high-stakes tests to make important decisions about teachers and students.

A plethora of current and classical research and literature has demonstrated using high-stakes tests results to make important decisions about teachers and students lacks empirical evidence and therefore is a reform initiative destined to fail. The existing literature has revealed high-stakes tests contain inherent errors threatening the overall validity and reliability of the results. The consequences of the threats are further magnified when using the results to make important decisions about teachers and students. Researchers have further concluded socioeconomic status is still the most influential variable on high-stakes tests results, while more recently researchers have identified various combinations of community and family-level demographic variables can be combined to predict achievement on high-stakes assessments at the district level. Are poor children doomed to fail? Do high-stakes tests and their results even matter considering the results are so highly correlated with income? Scholars examining the influence of high-stakes tests as a mechanism for improving achievement have obtained inconclusive results and contradictory findings. Furthermore, landmark studies have shown locally controlled curriculums and assessments are most effective for educating students.

The time has come for federal, state, and local leaders to make evidence-based decisions in education. Policymakers and education officials must utilize peer reviewed, empirically driven research to construct and enact policies, which will ultimately impact millions of educators and students. District and school leaders must also be aware of the current research and literature on high-stakes tests. If high-stakes tests remain at the forefront of education reform efforts, local level leaders must develop and implement policies to protect teachers and students by limiting the use of the results to make important decisions in education. School leaders must implement policies requiring a holistic approach for evaluating student performance. Multiple measures such as student portfolios, teacher recommendations, self/peer evaluations, and the results of locally developed assessments are essential for making critical decisions about students. Leaders must also strongly consider adding the CSEM to students' tests, considering students scores can fluctuate from one day to another. As a result, leaders must enact policies giving students the benefit of the doubt when making such critical decisions impacting children's career and life opportunities. Furthermore, school leaders should develop and implement programs providing economically disadvantaged students with opportunities to enhance their learning. Before-school, after-school, and Saturday school opportunities should be made available for students and should provide them with differentiated lessons and activities meeting their individual needs.

Using high-stakes tests to make important decisions about teachers and students is educational malpractice based on the inherent threats to validity and reliability, influence of socioeconomic status on achievement, and contradictory evidence high-stakes tests significantly influence student outcome. High-stakes assessments cost hundreds of millions of dollars each year and countless work hours (Amrein & Berliner, 2002a). Not only are the economic impacts on school districts significant, children continue to suffer under reform efforts lacking scientific evidence. The extant literature demonstrates the efficacy of high-stakes tests to make important decisions about teachers and students lacks merit; and considering the major budget cuts and financial restrictions school districts are facing, it is time to use scientific evidence to develop and implement meaningful reform policies in education.

Theoretical Framework

The influence of high-stakes testing as a mechanism for adequately measuring student achievement and school/district quality has resulted in two contradictory findings. One group of scholars has determined no statistically significant empirical evidence high-stakes testing increases overall student achievement and is an accurate measure of student, teacher, school, and district performance (Amrein & Berliner, 2002a, 2002b, 2002c; Nicholas, Glass, & Berliner, 2006). On the other hand, another group of scholars assert high-stakes testing policies to measure accountability increase rigor and are an effective instrument for improving student achievement (Braun, 2004; Carnoy & Loeb, 2002; Hanushek & Raymond, 2003, 2004; Rosenshine, 2003). In addition to contradictory findings examining the utility of high-stakes assessments for improving student learning and measuring school and district quality, several research designs fail to control for various out-of-school variables or fail to report effect sizes reducing the overall value of the research.

The results of high-stakes assessments continue to be a predominant tool for measuring student performance and making critical decisions in education throughout the 50 states (Tienken & Rodriguez, 2010). Although high-stakes assessments are constructed with a specific purpose and must be empirically validated, scholars have demonstrated high-stakes tests contain inherent errors and student scores can fluctuate from one day to the next (AERA, APA, NCME, 1999; Popham, 2001; Tienken, 2011). Additionally, a broad body of research has demonstrated out-of-school variables, such as socioeconomic status, are most influential on student achievement as measured by standardized test scores (Coleman et al., 1966; Duncan, Morris, & Rodrigues, 2011; Gamoran & Long, 2006; Jencks et al., 1972; Miller, Votruba-Drzal, & Setodji, 2013; Morrissey, Hutchison, & Winsler, 2013; Reardon, 2013; Tienken, 2011; White, 1982). Schools and corresponding districts cannot control out-of-school variables that are known to influence student achievement.

For years, the proxy free or reduced-price lunch has been utilized to measure the relative school or district-level socioeconomic status. However, using free or reduced-price lunch as the sole indicator of school or district socioeconomic status contains weaknesses (Harwell & LaBeau, 2010). Recent studies have demonstrated community and family-level characteristics in which a student lives are essential for academic success and can be used to accurately predict academic achievement on state mandated standardized assessments.

Maylone (2002) was able to predict the percentage of students scoring Proficient or above on the high school MEAP test in 74% of the school districts using three community and family-level characteristics, including (a) percent of district students eligible for free or reduced-price lunch, (b) percent of district lone-parent households, and (c) mean district annual household income. Turnamian (2012) was able to accurately predict the number of students scoring roficient or above on the 2009 NJ ASK 3 Language Arts test in 52% of New Jersey school districts. The community and family-level demographic variables included (a) percentage of lone-parent households, (b) percentage with a bachelor's degree, and (c) percentage of economically disadvantaged students. Furthermore, using the community and family-level demographic variables (a) percentage of lone-parent households, (b) percentage with a bachelor's degree, and (c) percentage of economically disadvantaged students, Turnamian (2012) was able to predict 60% of the New Jersey school district NJ ASK 3 Mathematics results in 2009. Sackey (2014) expanded on these studies and analyzed multiple grade levels over a one-year period. Sackey (2014) was able to predict the number of students scoring Proficient or above on the CMT standardized assessment in anywhere from 68% to 76% of the school districts in Grades 3 through 8. Tienken (2016) demonstrated the predictive nature of community and family-level demographic variables over a three-year period. The strongest statistically significant models ($p < 0.05$) were able to accurately predict between 64% and 80% of the number of students scoring Proficient or above, at the district level, on the Language Arts and Mathematics sections of the 2010, 2011, and 2012 NJ ASK state mandated assessment (Tienken, 2016). This research demonstrates the impact various community and family-level demographic variables (inputs) have on standardized assessments (outputs), providing a production function framework.

Production Function Theory

In the field of economics, production function theory deals with the impact various inputs have on an output. Monk (1989) described production function theory as the maximum possible outcome based on a combination of inputs. In education, production function theory can be applied in situations wherein the maximum possible outcome is the highest possible assessment score that can be generated by a combination of school inputs (Todd & Wolpin, 2003). Furthermore, Todd and Wolpin (2003) acknowledge, "The production function analogy provides a conceptual framework that guides the choice of variables and enables a coherent interpretation of their effects" (p. 3).

For the purpose of this research, the inputs included the community and family-level demographic variables of the school district provided in the 2010 U.S. Census data and the outputs were the 2010, 2011, and 2012 NJ ASK 7 Language Arts and Mathematics district level assessment results. Production function theory was utilized to guide this research study and help determine the combination of independent variables (lone-parent household male, lone-parent household female, parents' education status, etc.) that account for the most variance and can be utilized to most accurately predict 2010, 2011, and 2012 NJ ASK 7 Language Arts and Mathematics results at the district level.

Social Capital

The community in which a student lives and the corresponding demographic variables are an important influence on academic achievement. This study not only utilized the framework of production function theory but also connected the community and family-level demographic variables to the concepts of social capital. Coleman (1988) described social capital as follows:

> Social capital is defined by its function. It is not a single entity but a variety of different entities, with two elements in common: they all consist of some aspect of social structures, and they facilitate certain actions of actors—whether persons or corporate

actors—within the structure. Like other forms of capital, social capital is productive, making possible the achievement of certain ends that in its absence would not be possible. Unlike other forms of capital, social capital inheres in the structure of relations between actors and among actors.

Social capital is developed through the informal and formal interactions that exist within a community (Coleman, 1988). According to Putnam (2001), various resources such as community groups, recreation programs, church groups, parent organizations, and other similar resources all contribute to the social capital of a community (as cited in Tienken & Mullen, 2015).

As students grow up in wealthier communities, they are more likely to have increased access to various resources compared to poor children. Wealthier communities exhibit an increase in human and social capital, which can influence student achievement as measured by traditional standardized tests (Tienken, 2015). As increases in social networks are established, students from wealthier communities have access to various experiences throughout their life that poor students simply do not. As a result, according to Tanner and Tanner (2007) wealthier students are able to build a stronger background of knowledge and can bring this knowledge and their experiences to school and apply them to enhance their own individual learning (as cited in Tienken & Mullen, 2015). The life experiences created by increases in social capital allows wealthier students to engage in more authentic classroom experiences and a deeper understanding of content, which can result in enhanced achievement on standardized assessments.

I propose, based on the theoretical construct, variables found in the U.S. Census data ultimately represent the human and social capital of a community and serve as the various inputs in this study. Synthesizing this notion with production function theory, the community and family-level demographic variables which constitute the human and social capital of a community can be utilized to predict the percentage of students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 Language Arts and Mathematics Assessment at the district level.

Chapter Summary

Education reform efforts continue to focus on high-stakes testing policies designed to increase accountability in education. Policymakers and education bureaucrats at the policymaking table continue to pronounce high-stakes testing as a cure-all for closing the achievement gap between economically disadvantaged students and their wealthier colleagues. Although in recent years high-stakes accountability reform efforts have gained much national attention, the review of the extant literature demonstrates high-stakes testing has existed for hundreds of years. Throughout the development of civilizations, high-stakes tests have been utilized to measure an individual’s aptitude and began influencing American schools in the 1800s.

The earliest implementation of high-stakes testing in American public schools occurred in 1837 as Horace Mann convinced the Boston Public School Committee to administer a common exam to monitor the quality of instruction and compare public school students (Gallagher, 2003). High-stakes testing gained popularity throughout the United States, and several major events cemented high-stakes testing as the dominant tool for measuring student achievement, measuring educator effectiveness, and ultimately making important decisions in education. The controversial report known as, *A Nation at Risk*, lacked empirical support but created the false impression the American public school system was failing. The No Child Left

Behind Act further solidified the high-stakes testing movement throughout the United States and these assessment programs continue to play a major role in education with the recent adoption of the Common Core State Standards and PARCC testing.

School and district leaders continue to support high-stakes standardized assessments and continue to use the results to make important decisions impacting the educational opportunities of students (Tienken, 2008). Although high-stakes assessments and the results are perceived to improve student achievement and are used to make critical decisions about students and educators, the existing literature demonstrates high-stakes assessments contain inherent threats to validity and reliability (AERA, APA, NCME, 1999; Messick, 1995). In addition to these threats, Tienken (2011) acknowledges high-stakes standardized assessments contain a conditional standard error of measurement, which causes high-stakes assessment results to significantly fluctuate from one day to the next. Consequently, based on one given high-stakes assessment, a student can be misclassified as “underperforming” or “partially performing.” Therefore, exclusively utilizing the results of high-stakes standardized assessments to make high-stakes decisions impacting students and educators is irresponsible; multiple measures are needed to truly evaluate academic performance.

The review of the literature demonstrates socioeconomic status is a heavily researched variable known to impact student achievement. The Coleman Report revealed socioeconomic status is the strongest predictor of student achievement and that school and teacher characteristics only account for approximately 10% of the variance in student achievement (Coleman et al., 1966). While several researchers tried to debunk the findings of the Coleman Report, the results were upheld and several subsequent studies have demonstrated socioeconomic status is the strongest predictor of student achievement (Coleman et al., 1966; Duncan, Morris, &

Rodrigues, 2011; Gamoran & Long, 2006; Jencks et al., 1972; Miller, Votruba-Drzal, & Setodji, 2013; Morrissey, Hutchison, & Winsler, 2013; Reardon, 2013; Sirin, 2005; Tienken, 2011).

Education policymakers and bureaucrats continue to develop education reform efforts around high-stakes testing in order to improve student achievement and ultimately close the achievement gap between wealthy and poor communities. However, the review of the literature provided mixed results, indicating high-stakes assessments are not a cure-all for improving student achievement. Proponents claim high-stakes tests increase educator accountability and have been an effective tool for improving student achievement (Braun, 2004, Hanushek & Raymond, 2003, 2004; Rosenshine, 2003). Opponents conclude high-stakes testing has simply not effectively improved student achievement and such reform efforts have done little to close the achievement gap (Amrein & Berliner, 2002a, 2002b, 2002c). The extant literature not only demonstrated contradictory findings, but overall there is a lack of high quality empirical studies examining the influence of high-stakes standardized assessments on student achievement.

In addition to contradictory research findings and an overall lack of sound empirical studies, education reform efforts centered on high-stakes assessments narrow the curricula and violate the classical literature in curriculum reform. Various researchers have found high-stakes testing narrows curriculums, placing a de-emphasis on elective courses and an overall influence on tested subjects such as math and language arts (AERA, APA, NCME, 1999; Berliner, 2011; McMurrer, 2008; Tienken & Zhao, 2013). However, classical and current research have demonstrated no single best curricula exists to support public school students, and therefore curriculum developments must be locally controlled (Aikin, 1942; Commission on Reorganization of Secondary Education, 1918; Tanner & Tanner, 2007; Tienken & Orlich, 2013; Zhao, 2010; 2012b). Furthermore, the landmark Eight-Year Study demonstrated students who were able to access multiple, divergent curricula paths through high school, performed better on standardized tests in high school and in their academic and socio-civic measures in college than students who attended schools with standardized programs.

Besides narrowing curriculum, a few researchers have demonstrated the results of high-stakes assessments can be predicted using community and family-level demographic variables. Maylone (2002) was able to predict the number of students scoring Proficient or above on the MEAP test in 74% of the school districts in the state of Michigan using three community and family-level demographic variables. These variables included (a) percent of district students eligible for free and reduced-price lunch, (b) percent of district lone-parent households, and (c) mean district annual household income. Similar to Maylone (2002), Turnamian (2012) was able to use a combination of community and family-level demographic variables to predict 52% and 60% of New Jersey school districts NJ ASK 3 Language Arts and Mathematics test results, respectively. Sackey (2014) was able to use various combinations of community and family-level demographic variables to predict as much as 76% and as little as 68% of the students scoring Proficient or above on the CMT state mandated elementary school assessment. Furthermore, in the middle school districts, Sackey (2014) was able to predict as much as 75% and as little as 70% of the students scoring Proficient or above on the CMT state mandated assessment. These results demonstrate the predictability of standardized test scores using family and community demographic variables. Furthermore, this literature questions the utility of relying predominantly on the results of high-stakes assessments to make important decisions in education.

Given the "stakes" associated with standardized reform agendas, policymakers and education bureaucrats must make test-based inferences that are supported with strong empirical evidence (AERA, APA, NCME, 1999). The extant literature indicates a need for utilizing multiple measures to make important decisions about students and educators. Additionally, the existing research has demonstrated combinations of community and family-level demographic variables may combine to predict the results of high-stakes standardized assessments. Community and family-level demographic variables found in the U.S. Census data provide insight to a community's human and social capital. These variables serve as inputs for the production function theory and may ultimately combine to predict the percentage of students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 Language Arts and Mathematics assessment at the district level.

CHAPTER III

METHODOLOGY

The purpose for this study was to determine which combination of community and family-level demographic variables best predicted a New Jersey school district's percentage of students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 in Language Arts and Mathematics. The focus of this study was intentionally limited to out-of-school variables and their influence on district level NJ ASK 7 Language Arts and Mathematics scores. Results from previous studies suggested that out-of-school variables accounted for a significant amount of variance in district level test results; and specific combinations of out-of-school variables could predict, quite accurately, the percentage of students scoring Proficient or above on state mandated standardized assessments (Maylone, 2002; Sackey, 2014; Tienken, 2016; Turnamian, 2012). I sought to add to the existing body of research demonstrating the influence and predictive nature of out-of school variables on student achievement at the district level.

If out-of-school community and family-level demographic variables account for significant variance in district level standardized assessment results and combine to accurately predict district level test results as the existing empirical literature suggests, then the utilization of district-level test results to measure district, school, and educator effectiveness may be in question. For example, many states' school performance reports rely on the percentage of students attaining proficiency or some other arbitrary score on a state test as part of their rating and/or monitoring systems. If test results can be predicted without accounting for school factors, then what are those performance reports and monitoring systems really measuring? How useful are the performance ratings to making inferences about school and district quality? Furthermore, the utilization of test results to make high-stakes decisions such as inferences about teacher and/or administrator effectiveness, teacher and/or administrator tenure, employment, student retention and promotion, academic tracking, and eligibility to graduate from high school becomes questionable.

Research Design

I used a non-experimental, correlational, explanatory, longitudinal design with quantitative methods. Quantitative research examines the relationship among variables so numerical data can be analyzed using various statistical methods (Creswell, 2009). In the field of social sciences, it is difficult to examine research problems experimentally. According to Johnson (2001):

> Nonexperimental quantitative research is an important area of research for educators because there are so many important but nonmanipulable independent variables needing further study in the field of education . . . educational researchers are often faced with the situation in which neither a randomized experiment nor a quasi-experiment is feasible . . . In short, nonexperimental research is frequently an important and appropriate mode of research in education. (p. 3)

Therefore, a correlational design was used in this study, and the results do not suggest causality among variables.

In a correlational design, researchers examine the relationship among variables. In this study, I examined the relationship among the various 18 independent community and family-level predictor variables associated with social and human capital included in the 2010 United States Census data and 2010, 2011, and 2012 NJ ASK 7 district level test results. Guided by the extant literature and building upon aspects of Maylone (2002), Sackey (2014), Tienken (2016), and Turnamian (2012), the 18 predictor variables coalesced into three main categories, including household income, lone-parent households within a community, and community education levels. The dependent variables were the 2010, 2011, and 2012 NJ ASK 7 percentage of students scoring Proficient or above, at the district level, in Language Arts and Mathematics.

According to Gay, Mills, & Airasian (2002), as cited in Sackey (2014), "This study did not look for cause and effect, but rather it looked for the variables that were highly correlated, provided the most accurate predictions, and showed the most variance" (p. 59). This study attempted to identify the best combination of predictor variables that correlate and most accurately predict the number of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 NJ ASK 7 in Language Arts and Mathematics. According to Hanushek:

> More than one variable can be used to make predictions. If several predictor variables correlate well with a criterion, then a prediction based on a combination of those variables will be more accurate than a prediction based on any one of them. (p. 203)

Two forms of multiple regressions were utilized to analyze results for each subject area each year. Simultaneous multiple regression (SMR) and then hierarchical linear regression (HLR) models were used to determine the extent to which the 18 community and family-level demographic variables were statistically significant predictors of the number of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Language Arts and Mathematics. The community and family-level demographic variables are the predictors and were identified in the literature to influence standardized test achievement. These 18 out-of-school independent variables, along with the 2010, 2011, and 2012 NJ ASK 7 Language Arts and Mathematics test scores, provided the structure for the theoretical framework of this study. The strength of these variables' relationship to a school district's NJ ASK 7 achievement and the combination of variables that would most accurately predict a school district's NJ ASK 7 achievement was unknown prior to this study.

Building upon the extant literature and the work of Maylone (2002), Sackey (2014), Tienken (2016), and Tienken & Turnamian (2013), this study examined the following 18 community and family-level demographic independent variables, which coalesced into two categories:

1. Community Social Capital
   - Employment status within the community
   - Percentage of households with income of $25,000 or less
   - Percentage of households with income of $35,000 or less
   - Percentage of households with income of $200,000 or more
   - Percentage of lone-parent female households living in poverty
   - Percentage of all people under poverty
   - Percentage of community members with less than a high school diploma
   - Percentage of community members with a high school diploma
   - Percentage of community members with some college
   - Percentage of community members with a bachelor's degree
   - Percentage of community members with an advanced degree
2. Family Social Capital
   - Percentage of families with income of $25,000 or less
   - Percentage of families with income of $35,000 or less
   - Percentage of families with income of $200,000 or more
   - Percentage of families living in poverty for the year

- Percentage of lone-parent households, male
- Percentage of lone-parent households, female
- Percentage of lone-parent households, total

The dependent variables in this study were the 2010, 2011, and 2012 Grade 7 New Jersey Assessment of Skills and Knowledge percentage of students scoring Proficient or above, at the district level, in Language Arts and Mathematics. For this study, I used data from the United States Census Bureau's American FactFinder website and the New Jersey Department of Education website which includes School Report Cards and a summary of NJ ASK 7 assessment results.

Figure 1 below shows the relationship between a district's community social capital and student achievement as measured by the number of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 NJ ASK 7 in Language Arts and Mathematics. A district's community social capital was represented by employment status, percentage of households with income of $25,000 or less, percentage of households with income of $35,000 or less, percentage of households with income of $200,000 or more, percentage of all female households living in poverty, percentage of all people under poverty percentage of community members with less than a high school diploma, percentage of community members with a high school diploma, percentage of community members with some college, percentage of community members with a bachelor's degree and the percentage of community members with an advanced degree.

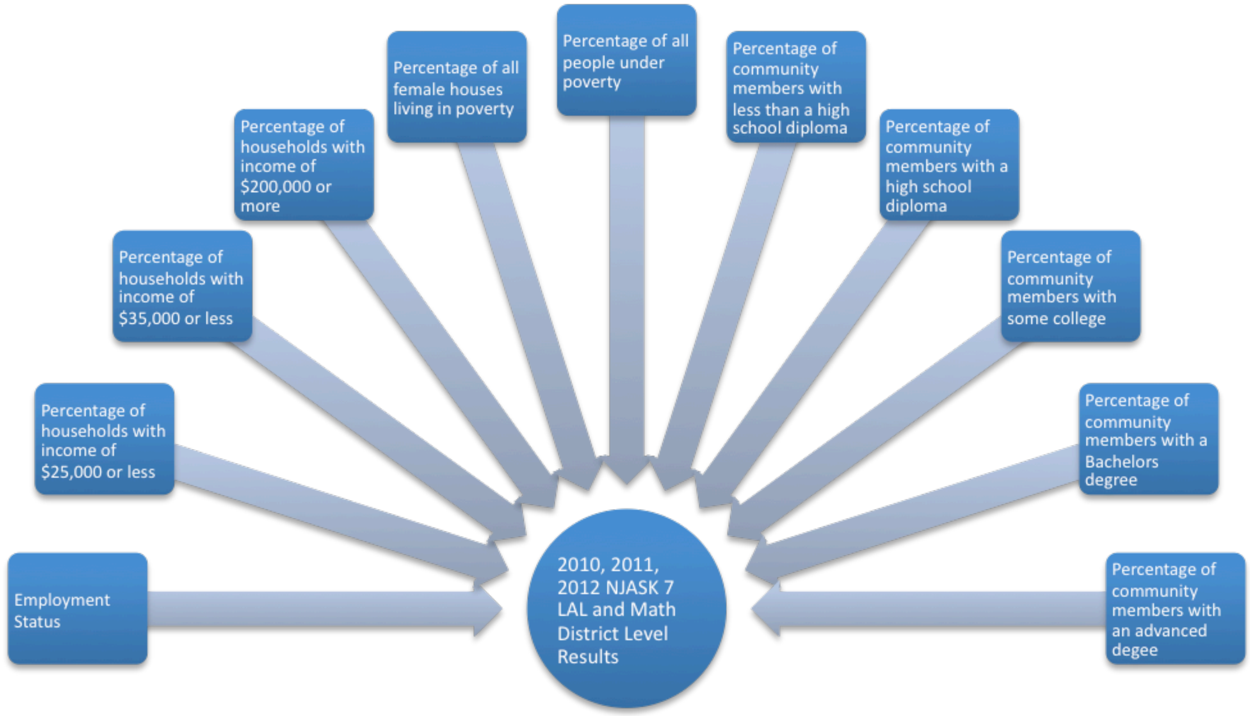

Figure 1. Community social capital construct.

Figure 2 below shows the relationship between a district's family human capital and student achievement as measured by the number of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 NJ ASK 7 in Language Arts and Mathematics. A district's family human capital was represented by percentage of families with income of $25,000 or less, percentage of families with income of $35,000 or less, percentage of families with income of $200,000 or more, percentage of families living in poverty for the year, percentage of lone-parent households (male), percentage of lone-parent households (female), and the percentage of lone-parent households (total).

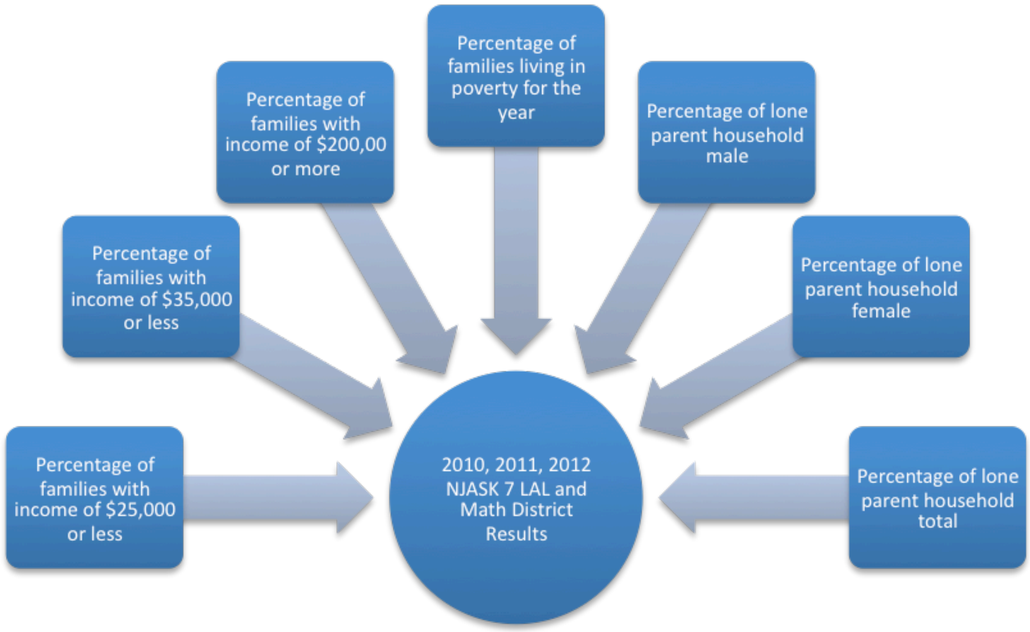

Figure 2. Family human capital construct.

Research Questions

The study was guided by the following research questions:

1. How accurately can community and family-level demographic variables, found in the 2010 U.S. Census data, predict the percentage of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Language Arts?
2. How accurately can community and family-level demographic variables, found in the 2010 U.S. Census data, predict the percentage of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Mathematics?
3. Which combination of independent variables establishes the strongest predictive power for the percentage of a school district's students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 Language Arts test?

4. Which combination of independent variables establishes the strongest predictive power for the percentage of a school district's students scoring Proficient or above on 2010, 2011, and 2012 NJ ASK 7 Mathematics test?

Null Hypotheses

1. Community and family-level demographic variables have no statistically significant predictive influence on the percentage of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Language Arts.
2. Community and family-level demographic variables have no statistically significant predictive influence on the percentage of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Mathematics.
3. There is no statistically significant combination of independent variables that establish the strongest predictive power for the percentage of a school district's students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 Language Arts test results.
4. There is no statistically significant combination of independent variables that establish the strongest predictive power for the percentage of a school district's students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 Mathematics test results.

Sample/Population

New Jersey has 572 school districts primarily serving the students residing in the community in which the district is located (Tienken, 2016). Building on the work of Maylone (2002), Sackey (2014), Tienken (2016), and Tienken & Turnamian (2013), I was able to utilize community census data as a proxy for the human and social capital of the community and families in which the school district serves. The population available for this study was 100% of New Jersey school districts containing (a) a minimum of 25 valid NJ ASK scores in Language Arts and Mathematics for the years 2010 through 2012, (b) school districts that served only their communities and not regions, (c) school districts that were not charter schools, and (d) complete census data for the communities served.

The dissertation study did not include charter school districts, technical schools, or regional school districts serving students from various communities whose populations are artificially contrived through selection and/or the students represent multiple communities. Additionally, school districts not containing seventh grade classes were excluded from this study. Only school districts serving Grade 7 students from their hometown were included in this study. The study was limited to this population in order to achieve the following:

> . . . decrease the chances of contaminated data that can occur from including students from multiple communities in a sample from one school district. It is impossible to parse out the multiple community and family level demographic factors for a school district that serves students from multiple communities when one uses only publically available data. Researchers need to have student-level data in order to do that type of analysis or to perform a study like this one at the individual school level. Those data do not exist in the U.S. Census database and would have to be collected from each of the over 500 individual schools in New Jersey. (Tienken 2016, p. 170)

A district unit of analysis was conducted for this study. The available population meeting the requirements for this study was 365 school districts for the 2010 Language Arts sample and 366 school districts for the 2010 Mathematics sample. The difference between the eligible school districts in the 2010 Language Arts and Mathematics samples was that one school district, North Wildwood City, had 25 valid Mathematics results but only 24 valid Language Arts results. Therefore, one less district was included in the 2010 Language Arts sample. A total of 370 school districts for the 2011 Language Arts and Mathematics samples met the requirements and were included in this study. A total of 367 school districts for the 2012 Language Arts and Mathematics samples met the requirements and were included in this study.

Not all 572 school districts were included in this study; some failed to meet the established criteria because they were charter school districts, regional school districts, technical schools, or did not have at least 25 valid NJ ASK 7 Language Arts and Mathematics results. Although district achievement data were available, U.S. Census data were unavailable for the following 21 school districts which were consequently removed from the study: Belvidere, Berlin Township, Bloomfield Township, Burlington Township, Caldwell-West Caldwell, Chester Township, Clark Public Schools, Clifton, Clinton Township, Deerfield Township, Hanover Township, Holland Township, Hope Township., Morris School District, New Milford, Pine Hill Public School District, Piscataway Board of Education, School District of the Chathams, South Orange-Maplewood, West Windsor-Plainsboro, and Winslow Township School District. All schools in the sample that were used for this analysis met the sampling criteria. The available population for the study was 365 and 366 schools districts for the 2010 Language Arts and Mathematics tests, respectively, 370 school districts for 2011, and 367 districts for 2012. The sample size was 365 and 366 schools districts for the 2010 Language Arts and Mathematics tests, respectively, 370 school districts for 2011, and 367 districts for 2012. The sample size for the study was 100% of the population.

In order to ensure the appropriate sample size power, I conducted an a priori calculation. To establish a minimum acceptable sample size, I used the work of Green (1991), as cited in the work of Field (2009), who states the following:

> . . . if you want to test the model overall, then he (Green) recommends a minimum sample size of 50 + 8*k*, where *k* is the number of predictors. So, with five predictors, you'd need a sample size of 50 + 40 = 90. If you want to test the individual predictors then he suggests a minimum sample size of 104 + *k,* so again taking the example of 5 predictors you'd need a sample size of 104 + 5 = 109. (p. 222)

Up to 18 predictors were included in a model. Therefore, at a minimum *n* = 50 + 8(18), or a total of 194 school districts, were needed to ensure the appropriate sample size power. The sample sizes were all well above the minimum requirements and provided enough power to identify an effect size of at least 0.50 at the 95% confidence interval. Therefore, the results can be generalized to public school districts throughout the state of New Jersey.

Data Collection

Data for the dependent variables, 2010, 2011, and 2012 Grade 7 NJ ASK Language Arts and Mathematics scores, at the district level, were collected from the annual publications of the New Jersey School Report Card Assessment Archives. The New Jersey Department of Education reports three possible proficiency percentages for both Language Arts and Mathematics results including: Advanced Proficient, Proficient, and Partially Proficient. On the New Jersey Assessment of Skills and Knowledge (NJ ASK), an Advanced Proficient rating is any score ranging between 250-300, a Proficient rating is any score ranging between 200-249, and a Partially Proficient rating is any score less than 200. This study analyzed the number of students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK in Language Arts and

Mathematics at the district level. Therefore, for the purpose of this study, Advanced Proficient and Proficient scores were combined to indicate one passing rate. The data were downloaded directly from the New Jersey School Report Card Assessment Archives and were exported onto an Excel spreadsheet, where it could be manipulated and analyzed. Since I analyzed three years worth of data, each year and content area had a separate spreadsheet along with the independent variables.

Data for the independent variables—employment status, percentage of households with income of $25,000 or less, percentage of households with income of $35,000 or less, percentage of households with income of $200,000 or more, percentage of families with income of $25,000 or less, percentage of families with income of $35,000 or less, percentage of families with income of $200,000 or more, percentage of families living in poverty for the year, percentage of all female households living in poverty, percentage of all people under poverty, percentage of lone-parent households (male), percentage of lone-parent households (female), percentage of lone-parent households (total), percentage of community members with less than a high school diploma, percentage of community members with a high school diploma, percentage of community members with some college, percentage of community members with a bachelor's degree, and percentage of community members with an advanced degree—were obtained from the American Community Survey section of the United States Census Bureau website. The 2010 U.S. Census data estimates were utilized and the data were downloaded into an Excel spreadsheet, where they could be manipulated and analyzed along with the dependent variables.

Instrumentation

The intent of this study was to determine the predictive influence of family and community demographic variables found in the 2010 U.S. Census data on Grade 7 NJ ASK student performance in Language Arts and Mathematics during the years 2010, 2011, and 2012. The major assessment administered to students across the state of New Jersey within the time frame was the New Jersey Assessment of Skills and Knowledge (NJ ASK).

The purpose of the NJ ASK was to assess student progress towards achieving New Jersey's Core Curriculum Content Standards (NJDOE, 2010, 2011, 2012). Additionally, the testing instrument (NJ ASK) fulfills testing requirements established by the 2001 No Child Left Behind Act and enables school districts to monitor progress towards achieving the 2014 goal of 100 percent student proficiency (NJDOE, 2010, 2011, 2012). The tests were developed by New Jersey's Office of State Assessments (OSA) and were given in the spring of each school year (NJDOE, 2010, 2011, 2012).

Reliability

When making important decisions about teachers and students, the reliability of the testing instrument must be considered. Student's performance on standardized assessments can change from one day to the next and the reliability of the assessment indicates the consistency of test results if they were repeated on the same group of students (AERA, APA, NCME, 1999). Under federal law, the New Jersey Department of Education is to ensure testing instruments used to measure student achievement for school accountability provide reliable results (NJDOE, 2010, 2011, 2012).

Threats to reliability result in examinee test score variations, and therefore the average score of a group and an individual's actual score will always contain an amount of measurement error (AERA, APA, NCME, 1999). Measurement error can essentially be calculated by finding the difference between an examinee's hypothetical true score and their actual observed score. The overall usefulness of high-stakes assessment results and the extent to which the results can be generalized to other populations of students is limited as a result of measurement error (AERA, APA, NCME, 1999).

Similar to measurement error, Tienken (2011) found a technical characteristic which threatens the reliability of standardized assessments called conditional standard error of measurement (CSEM). Similar to measurement error, CSEM indicates students' scores may fluctuate from one day to the next, which means several students may be misclassified as Advanced Proficient, Proficient, or Partially Proficient. Failure to consider measurement error and CSEM can have negative consequences on students when states do not factor these sources of error into their score reporting. Tienken (2011) estimates 166,305 students were mislabeled as less than Proficient in Language Arts, and 164,982 were mislabeled as less than Proficient in Mathematics on their high-stakes state mandated assessment in one academic year as a result of CSEM.

The New Jersey Department of Education utilizes the results of the NJ ASK to evaluate student and school performance (NJDOE, 2010, 2011, 2012). In order to measure the reliability of each unique NJ ASK, the New Jersey Department of Education uses a statistical technique known as Cronbach's alpha. A reliability coefficient is calculated to determine the reliability of the internal consistency of the measurement (Reinard, 2006). According to Reinard (2006):

> Reliability coefficients should be as close to 1 as possible. However, interpretations often are based on guidelines such as the following:
>
> 0.90 and above: highly reliable
>
> 0.80 – 0.89: good reliability
>
> 0.70 – 0.79: fair reliability
>
> 0.60 – 0.69: marginal reliability

Under 0.60: unacceptable reliability. (p. 121)

Table 3 below displays the 2010, 2011, and 2012 NJ ASK 7 Language Arts and Mathematics coefficient alphas and SEM's that were reported by the New Jersey Department of Education in the 2010, 2011, and 2012 Technical Reports for Grades 3-8.

Table 3

2010, 2011, and 2012 Language Arts and Mathematics NJ ASK 7 Cronbach's Alpha and SEM

Year	**Subject**	**Cronbach's Alpha**	**SEM**
2010	Language Arts	0.88	3.51
2010	Mathematics	0.92	3.19
2011	Language Arts	0.88	3.52
2011	Mathematics	0.92	3.20
2012	Language Arts	0.90	3.40
2012	Mathematics	0.92	3.14

(NJDOE, 2010, 2011, 2012)

The coefficients of alpha for the 2010 and 2011 Language Arts were reported within the good reliability rating, and all other coefficients of alpha for both Language Arts and Mathematics were within the high reliability rating. These percentages represent the coefficients of alpha and SEM for the entire subject content of the assessment. This study used full-scale test scores, at the district level, and therefore full test reliability was confirmed for the 2010, 2011, and 2012 NJ ASK 7 Language Arts and Mathematics results.

Validity

Validity is an essential component of standardized test development. According to the authors of the *Standards for Educational and Psychological Testing* (1999), "Validity refers to the degree to which evidence and theory support the interpretations of test scores entailed by proposed uses of tests" (p. 9). Every high-stakes assessment serves a specific purpose and the results can only be precisely interpreted for the intent of the construct, which must be endorsed by scientific evidence (AERA, APA, NCME, 1999; Messick, 1995). The New Jersey Department of Education confirms test validity by issuing technical reports for each standardized assessment given. The New Jersey Department of Education aligns the assessments with the Core Curriculum Content Standards (CCCS), which were originally adopted in 1996 (NJDOE, 2010, 2011, 2012). In the 2010, 2011, and 2012 Technical Reports the NJDOE reports, ". . . many parts of this technical report provide appropriate evidence for validity . . . valid performance standards-based interpretations and uses of scores are generally supported" (p. 148).

Construct validity is based on the integration of any evidence impacting the interpretation or meaning of test scores including content and criterion related evidence (Messick, 1995). Construct underrepresentation occurs when a test is too narrow and fails to include essential components of the construct (AERA, APA, NCME, 1999). To address the overall adequacy of construct representation, the NJDOE takes several steps. According to the 2010, 2011, and 2012 Grades 3-8 Technical Reports:

> Adequate representation of the content domains defined in the CCCS is assured through use of a test blueprint and a responsible test construction process. New Jersey performance standards, as well as the CCCS, are taken into consideration in the writing of multiple-choice and constructed-response items and constructed-response rubric development. Each test must align with and proportionally represent the sub-domains of the test blueprint . . . NJ test specifications were followed in the development of test items; alignment of items with the CCCS . . . the review of items by NJ content experts, teachers, and Sensitivity committee . . . the target blueprint representation in terms of

> number of items and score points for each sub-domain was adequately met. (p. 149)

According to New Jersey Department of Education officials, Measurement Incorporated (MI) created the testing materials, graded the test questions, and was responsible for distributing materials to school districts (NJDOE, 2010, 2011, 2012). To further ensure validity, NJDOE (2010, 2011, 2012) officials report:

> MI followed statistical and content specifications to make sure that the 2010, 2011, and 2012 NJ ASK assessments are valid . . . the primary statistical targets used for the NJ ASK test assembly were the *p*-value estimates also called proportion correct or item difficulty, the point bi-serial correlation which is a measure of how well the items discriminate among test takers and is related to the overall reliability of the test, and proportion correct value which is an indication of test difficulty. Similarly, the minimum target value for a proportion-correct was set at 0.25 and maximum was set at 0.95. In addition, content experts made sure that the items selected for the 2010, 2011, and 2012 NJ ASK tests were free from poor model fit and differential item functioning when they were first field tested. (p. 150)

Ultimately, according to the *Standards for Educational and Psychological Testing* (1999), high-stakes assessments contain inherent threats to reliability and validity. Due to validity and reliability flaws, the actual meaning and interpretation of standardized test results must be carefully developed based only on the intended use of the construct (AERA, APA, NCME, 1999). New Jersey Department of Education bureaucrats promote performance level results at the student, school, district, and state levels; and education bureaucrats and policymakers continue to make high-stakes decisions based on the performance results. According to Tienken and Rodriguez (2010), all 50 states participate in high-stakes assessment programs and use the results to make important decisions in education. Considering the internal flaws of each exam, leaders in education must question the efficacy of making high-stakes decisions based on the results of one standardized assessment given once a year. Education officials must use caution when using and interpreting test results as a result of the internal flaws associated with high-stakes tests (AERA, APA, NCME, 1999; Messick, 1995; Popham, 2001; Tienken, 2011).

Methods

Data Collection

The data for this dissertation were obtained primarily from two sources: the New Jersey Department of Education website and the U.S. Census Bureau American FactFinder website. Building on the extant literature and work of Maylone (2002), Sackey (2014), Tienken & Mullen (2015), and Turnamian (2012), the 18 independent variables coalesced into two main constructs.

The community social capital construct included employment status, percentage of households with income of $25,000 or less, percentage of households with income of $35,000 or less, percentage of households with income of $200,000 or more, percentage of all female households living in poverty, percentage of all people under poverty, percentage of community members with less than a high school diploma, percentage of community members with a high school diploma, percentage of community members with some college, percentage of community members with a bachelor’s degree, and percentage of community members with an advanced degree. The family human capital construct included percentage of families with income of $25,000 or less, percentage of families with income of $35,000 or less, percentage of families with income of $200,000 or more, percentage of families living in poverty for the year, percentage of lone-parent households (male), percentage of lone-parent households (female), and the percentage of lone-parent households (total).

The dependent variables in the study included the following:

- Percentage of students scoring Proficient or above, at the district level, on the 2010 NJ ASK 7 in Language Arts
- Percentage of students scoring Proficient or above, at the district level, on the 2010 NJ ASK 7 in Mathematics
- Percentage of students scoring Proficient or above, at the district level, on the 2011 NJ ASK 7 in Language Arts
- Percentage of students scoring Proficient or above, at the district level, on the 2011 NJ ASK 7 in Mathematics
- Percentage of students scoring Proficient or above, at the district level, on the 2012 NJ ASK 7 in Language Arts
- Percentage of students scoring Proficient or above, at the district level, on the 2012 NJ ASK 7 in Mathematics

All data obtained for the study were readily available public information located on the Internet. Permission to access the data was not needed, as all information is available for the public. The data were collected and exported to Excel spreadsheets to allow for easy use and manipulation in order to complete the dissertation study.

Alignment of the Data

Data were collected from two different online databases. As a result, careful attention was given to the alignment of the data when combining the two data sets. Several steps were needed to properly align the data. The 2010 NJ ASK 7 data were opened and downloaded into an Excel spreadsheet and sorted alphabetically by district name. Since the study focused on district level NJ ASK 7 results, all school level data were deleted. All charter school districts and regional districts were deleted from the spreadsheet, creating a database consisting of only district level achievement data. Two new spreadsheets were made with the data, one for Language Arts and one for Mathematics. All districts with less than 25 valid NJ ASK 7 Language Arts or Mathematics results were removed from their respective spreadsheet. The process was repeated for the 2011 and 2012 NJ ASK 7 results.

In order to properly align the achievement and U.S. Census data, the U.S. Census data were sorted alphabetically to align with the district achievement data. Each row number was verified one by one on both the 2010 NJ ASK 7 achievement spreadsheet and the U.S. Census spreadsheet. If complete U.S. Census data were unavailable for a school district, the district was removed. Once all data sets were verified, the data were merged into one Excel spreadsheet for Language Arts and Mathematics and the district names were once again verified to match in order to ensure proper alignment of the independent and dependent variables. The process was then repeated for the 2011 and 2012 NJ ASK 7 results. In total, 6 Excel spreadsheets were created and included the following:

- 2010 NJ ASK 7 Language Arts achievement and Census data
- 2010 NJ ASK 7 Mathematics achievement and Census data
- 2011 NJ ASK 7 Language Arts achievement and Census data
- 2011 NJ ASK 7 Mathematics achievement and Census data
- 2012 NJ ASK 7 Language Arts achievement and Census data
- 2012 NJ ASK 7 Mathematics achievement and Census data

Data Analysis

After all the data were properly merged into Excel spreadsheets, each spreadsheet was uploaded into SPSS (Statistical Package for the Social Sciences) for statistical analysis. For each subject area in the 2010, 2011, and 2012 models, I conducted several analyses. First I inspected the dependent variables to ensure they met the assumption of normality. I conducted a test of skewness to ensure the data met the assumption of normality. I created scatterplots to visually inspect the dependent variables. I also ensured that the all the variables met the assumption of independence.

Next, I created a correlation matrix to initially determine the strength and direction of the relationship between each independent and dependent variable. Scatter plots were also generated in order to further refine the model and to determine, ". . . if any irregularities might disqualify a dependent variable as an indicator of the relationship with the independent variable" (Turnamian, 2012, p. 124). The correlation matrix also allowed me to look for independent variables that were strongly correlated as a way to anticipate future multicollinearity.

After examining the correlational coefficients and scatter plots, similar to Tienken (2016), all independent variables were loaded into an initial simultaneous multiple regression model followed by a series of hierarchical linear regression models that used the strongest predictor variables that were identified in the initial regression analysis to inform the construction of the hierarchical regression models. The threat of multicollinearity on the predictive variables was considered when constructing each model. This study relied on the standard regression predictive algorithm used by Maylone (2002); therefore, if two variables were highly related, there was a chance for multicollinearity issues. A VIF (Variance Inflation Factor) analysis was used to check and rule out the threat of multicollinearity.

VIF larger than 10 indicates a potential problem with multicollinearity, and generally VIF larger than 4.000 poses potential threats to interpretation (Kutner et al., 2004; Rovai et al., 2014). First, I used the correlation matrix to identify possible issues of multicollinearity prior to creating the regression models. Then, when VIF greater than 4.000 appeared in predictor variables in the models, I used the matrix to help make decisions about the variables to include and exclude in more refined models. Being mindful of Bowerman & O'Connell's (1990) warning of VIF substantially larger than 1.000 causing bias in the regression, I worked each model of best fit until they demonstrated VIF scores for predictor variables of less than 4.000. Overall, 18 out of 18 predictor variables within the six models of best fit demonstrated VIF of less than 3.200 and 12 out of 18 demonstrated VIF of less than 2.50. All the final predictive models included variables that exhibited VIF of 3.200 or less and in most cases less than 2.500.

In order to determine which independent variables accounted for the most variance in NJ ASK 7 Language Arts and Mathematics test scores, I examined the statistical outputs and identified statistically significant adjusted R^2 values. The adjusted R^2 is a statistical analysis to assess how good the regression equation is at predicting the values of y. The adjusted R^2 indicates the proportion of variance in the dependent variable explained by the independent variables in the model. The larger the value of the adjusted R^2, the better the model is, meaning the model explains more variance in the outcome variable. Each model also reported a standardized coefficient of beta. The coefficient of beta is used to identify the strength and direction between the predictor (independent) and outcome (dependent) variables. More specifically, beta is the change in the y (dependent or outcome variable) that is brought about by a one-unit change in the x (independent or predictor variable).

The results from the hierarchical linear regression models were used to generate the most accurate predictions of the percentages of students scoring Proficient or above on the 2010, 2011 and 2012 NJ ASK 7 in each subject area. Similar to Tienken (2016), each of the final models included two or three community and family-level demographic variables relating to social capital that were used to create the predictive algorithms. In order to determine the best model that most accurately predicted the percentage of students scoring Proficient or above, at the district level, in each subject area for each year, the following was identified based on the work of Maylone (2002):

1. The unstandardized betas for the strongest statistically significant independent (predictor) variables identified in the hierarchical models
2. The community and family-level percentages of those variables
3. The constant value for each of the best models

The predicted percentage of students scoring Proficient or above on the NJ ASK 7 in each subject area, for each school district in the sample for each year was calculated by entering the three values into the algorithm based initially on the one used by Maylone (2002):

$$A_i (X_i) + A_{ii} (X_{ii}) + A_{iii} (X_{iii}) \ldots + \text{Constant} = Y$$

A_i = individual school district predictor value

X_i = unstandardized beta for predictor

Y = predicted percentage of students scoring Proficient or above

The formal representation of the final regression equation for each model of best fit was $y_1 = b_0 + (b_1 X_i) + (b_2 X_{ii}) + (b_3 X_{iii}) + e$ with *b* representing the unstandardized beta for the predictor variable, *X* representing the percentage of the variable in the community, and e representing the error for each model (Field, 2013). The standard error of the estimate was used to make final determinations about the accuracy of each prediction. If the prediction was within the margin of error for the model, it was deemed accurate.

After calculating the predicted percentage of students scoring Proficient or above, at the district level, in Language Arts and Mathematics on the 2010, 2011, and 2012 NJ ASK 7, the predicted percentage for each district was subtracted from the actual reported percentage. After the differences were obtained in each district for each subject area and year, "Differences within the standard error for each predictive model were considered to be accurate within the 95% confidence interval, whereas differences larger than the standard error of the model were considered not accurate" (Tienken, 2016, p. 174). A final calculation was made to determine the percentage of school districts that were accurately predicted for each model (2010 Language Arts, 2010 Mathematics, 2011 Language Arts, 2011 Mathematics, 2012 Language Arts, 2012 Mathematics).

Chapter Summary

I used a non-experimental correlational, explanatory, longitudinal design with quantitative methods. The purpose of the study was to determine which combination of community and family-level demographic variables best predicted a New Jersey school district's percentage of students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 in Language Arts and Mathematics. Researchers have shown out-of-school variables account for significant variance in district level test results; and specific combinations of out-of-school variables can be combined to predict, quite accurately, the number of students scoring Proficient or above on state mandated standardized assessments (Maylone, 2002; Sackey, 2014; Tienken, 2015; Tienken & Turnamian, 2013). This study sought to add to the existing research; and if it is possible to accurately predict district level achievement results based on community and family-level demographic variables, the exclusive utilization of district level test results to make high-stakes decisions in education must be questioned.

Simultaneous multiple regression (SMR) and hierarchical linear regression (HLR) was used to determine the extent to which the 18 community and family-level demographic variables were statistically significant predictors of the number of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Language Arts and Mathematics. The community and family-level demographic variables were obtained from the United States Census Bureau's American FactFinder. The district level achievement data were obtained from the New Jersey Department of Education School Report Cards and summaries of NJ ASK 7 assessment results. The study built on aspects of Maylone (2002), Sackey (2014), Tienken (2015), and Tienken & Turnamian (2013) to identify the combination of community and family-level demographic variables most predictive of student achievement at the district level.

The total population available was 100% of New Jersey school districts containing (a) a minimum of 25 valid NJ ASK scores in Language Arts and Mathematics, (b) valid 2010, 2011, and 2012 NJ ASK 7 results for the Language Arts and Mathematics sections, and (c) complete census data for the communities served. Charter school districts, technical schools, regional school districts, and districts not containing seventh grade classes were excluded from this study. The sample size for this study was 100% of the population and the table below summarizes the *n* value for each content area and year:

Table 4

Summary of Sample Sizes by Content Area and Year

NJ ASK 7 Year	Language Arts Sample Size (n)	Mathematics Sample Size (n)
2010	365	366
2011	370	370
2012	367	367

The data were carefully aligned from the two data sources using Excel. Once aligned, the data were imported into SPSS and several statistical analyses were conducted including correlational analyses, scatter plots, simultaneous multiple regressions and hierarchical linear regressions. Only statistically significant findings at the 0.05 level were considered. A VIF (Variance Inflation Factor) analysis was used to rule out the threat of multicollinearity. I examined the adjusted R^2 values and coefficients of beta to determine the most significant predictors of student achievement for each content area and year. The results from the hierarchical linear regression models were used to generate the most accurate predictions of the percentages of students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 in each subject area.

Using the work of Maylone (2002), a predicted percentage of students scoring Proficient or above on the NJ ASK 7 in each subject area was generated using the following formula where A_i represents the individual school district predictor value, X_i represents the unstandardized beta for each predictor, and Y represents the predicted percentage of students scoring Proficient or above.

$$A_i (X_i) + A_{ii} (X_{ii}) + A_{iii} (X_{iii}) \ldots + \text{Constant} = Y$$

The predicted percentages were compared to the actual reported percentages of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 NJ ASK 7 in each content area. The differences that fell within the standard error were considered accurate at the 95% confidence interval, and a final calculation was made to determine the percentage of school districts that were accurately predicted by each model.

CHAPTER IV

ANALYSIS OF DATA

Findings

The purpose of this study was to determine which combination of community and family-level demographic variables best predicted a New Jersey school district's percentage of students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 in Language Arts and Mathematics. This study intentionally limited its focus to out-of-school variables and their influence on NJ ASK 7 Language Arts and Mathematics scores at the district level. I sought to add to the existing literature demonstrating the predictive influence of out-of-school variables on district level student achievement. If out-of-school variables are found to accurately predict NJ ASK 7 district test scores, the utility of using test scores to make critical decisions in education may be in question.

Research Questions

This study was guided by the following four research questions:

1. How accurately can community and family-level demographic variables, found in the 2010 U.S. Census data, predict the percentage of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Language Arts?
2. How accurately can community and family-level demographic variables, found in the 2010 U.S. Census data, predict the percentage of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Mathematics?
3. Which combination of independent variables establishes the strongest predictive power for the percentage of a school district's students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 Language Arts test?

4. Which combination of independent variables establishes the strongest predictive power for the percentage of a school district's students scoring Proficient or above on 2010, 2011, and 2012 NJ ASK 7 Mathematics test?

Summary of Findings

For the purpose of this study the 2010, 2011, and 2012 NJ ASK 7 percentage of students scoring Proficient or above, at the district level, in Language Arts and Mathematics were the dependent variables. Eighteen independent variables coalesced into two main categories, including community social capital and family social capital. The variables found in the 2010 U.S. Census data that merged to form a district's community social capital included:

1. Employment status
2. Percentage of households with income of $25,000 or less
3. Percentage of households with income of $35,000 or less
4. Percentage of households with income of $200,000 or more
5. Percentage of all female lone-parent households living in poverty
6. Percentage of all people under poverty
7. Percentage of community members with less than a high school diploma
8. Percentage of community members with a high school diploma
9. Percentage of community members with some college
10. Percentage of community members with a bachelor's degree
11. Percentage of community members with an advanced degree.

The variables which coalesced into a district's family social capital included the following:

1. Percentage of families with income of $25,000 or less
2. Percentage of families with income of $35,000 or less

3. Percentage of families with income of $200,000 or more
4. Percentage of families living in poverty for the year
5. Percentage of lone-parent households (male)
6. Percentage of lone-parent households (female)
7. Percentage of lone-parent households (total)

Procedure

The following procedure was used to identify the best combination of statistically significant independent variables, establishing the strongest predictive power for the percentage of school district's students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 in Language Arts and Mathematics. Descriptive statistics were run for all 18 independent variables. Pearson correlation coefficients were obtained and helped identify the strength and direction of the relationship between the independent and dependent variables. A series of simultaneous multiple regressions were then run, including all 18 independent variables followed by a series of hierarchical linear regressions. As hierarchical linear regressions were run, statistically insignificant variables and/or high multicollinearity variables were removed throughout the process. New regressions were run as variables were removed, and the intent of the process was to identify the combination of independent variables accounting for the most variance (largest *R* square). This process created the model of best fit used to predict the number of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 NJ ASK 7 Language Arts and Mathematics test. The threat of multicollinearity on the predictive variables was considered throughout the process in constructing the models. For the purpose of this study the results from the hierarchical models of best fit that provided the most accurate predictions of the percentage of students scoring Proficient or above, at the district level, on each subject test area each year are reported.

2010 NJ ASK 7 Language Arts

The mean percentage of students scoring Proficient or above in Language Arts on the 2010 NJ ASK 7 was 72.29 with a standard deviation of 15.72. Table 5 below provides the descriptive statistics for the 2010 Language Arts sample.

Table 5

2010 Language Arts NJ ASK 7 Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
P + AP ELA	365	28.30	97.50	72.2855	15.72204
Employ Status	365	36.6	98.2	72.768	9.5660
% House <25K	365	1.8	51.6	14.547	8.0650
% House <35K	365	2.6	61.9	21.815	10.6174
% House >200K	365	.0	45.4	10.288	10.1525
% Family <25K	365	.50	42.40	8.6972	7.39750
% Family <35K	365	1.6	58.5	14.425	10.2374
%Family >200K	365	.0	93.0	12.782	12.4692
All Fams Pov 12 mnths	365	.0	47.5	7.952	8.1856
Femal House Pov	365	.0	100.0	21.324	16.7995
All People under Pov	364	.6	38.4	7.242	6.0960
Lone-Parent Male	365	.0	9.7	1.776	1.4203
Lone-Parent Female	365	.3	24.5	5.787	3.5805
Lone-Parent Household (total)	365	1.1	27.9	7.548	4.3936
Less than 9th grade	365	.0	23.4	4.329	3.9270
No HS	365	.4	38.3	10.498	7.0671
Some College	365	2.4	29.9	16.949	3.8762
BA	365	4.3	48.9	22.697	8.8987
g	365	.9	44.0	13.436	8.7110

I then calculated descriptive statistics for the number of students scoring Proficient or above, at the district level, on the 2010 NJ ASK 7 in Language Arts in order to check for skewness and ensure the data met the assumption of normality. Table 6 displays the descriptive statistics and Figure 3 provides a histogram of the data. The skewness was -.690, well within the +-1.00 ratio, and therefore the data met the assumption of normality and can be used in regression analysis.

Table 6

2010 Language Arts NJ ASK 7 Descriptives

Descriptives

			Statistic	Std. Error
P + AP ELA	Mean		72.2855	.82293
	95% Confidence Interval for Mean	Lower Bound	70.6672	
		Upper Bound	73.9038	
	5% Trimmed Mean		73.0761	
	Median		74.7000	
	Variance		247.182	
	Std. Deviation		15.72204	
	Minimum		28.30	
	Maximum		97.50	
	Range		69.20	
	Interquartile Range		21.00	
	Skewness		-.690	.128
	Kurtosis		-.206	.255

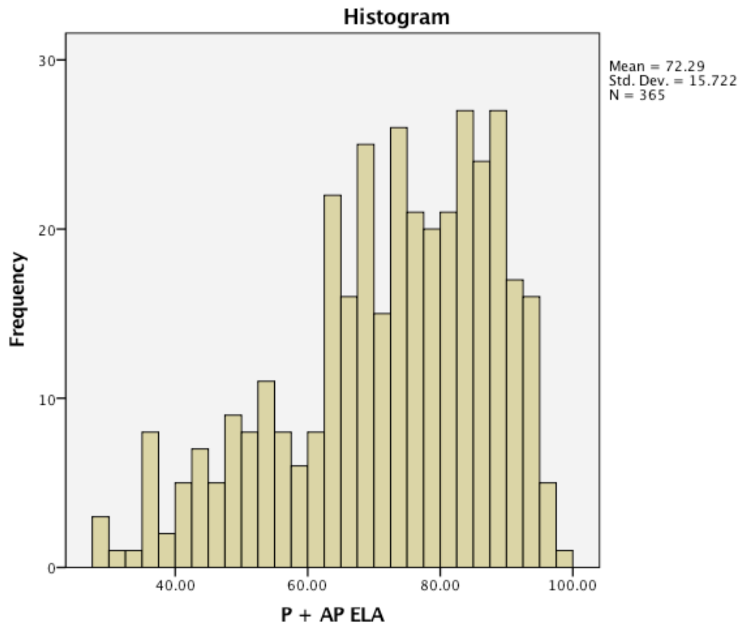

Figure 3. 2010 NJ ASK 7 Language Arts histogram of the number of students scoring Proficient or above at the district level.

In order to determine the strength, direction, and significance between each independent variable and the number of students scoring Proficient or above, at the district level, on the 2010 NJ ASK 7 Language Arts test, Pearson correlation coefficients were calculated using SPSS. The correlation matrix also allowed me to begin examining potential independent variables that were strongly correlated in order to anticipate multicollinearity prior to creating the regression models.

After examining the correlational coefficients, all independent variables were loaded into an initial simultaneous multiple regression model. Tables 7 and 8 provide the Model Summary and ANOVA Table, respectively, for the initial regression. The initial regression was statistically significant with an *R* square value of .720 and a standard error of the estimate of 8.54. Therefore, the initial model accounted for 72% of the variance observed.

Table 7

2010 Language Arts NJ ASK 7 Model Summary

Model Summary

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.849[a]	.720	.706	8.53957

a. Predictors: (Constant), g, Femal House Pov, Lone- Parent Male, Employ Status, Lone-Parent Female, Some College, Less than 9th grade , % House <25K, %Family >200K, BA, All Fams Pov 12 mnths, % House >200K, % Family <35K, No HS, All People under Pov, % Family <25K, % House <35K, Lone-Parent household (total)

Table 8

2010 Language Arts NJ ASK 7 ANOVA Table

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	64789.304	18	3599.406	49.358	.000[b]
	Residual	25158.879	345	72.924		
	Total	89948.183	363			

a. Dependent Variable: P + AP ELA

b. Predictors: (Constant), g, Femal House Pov, Lone-Parent Male, Employ Status, Lone-Parent Female, Some College, Less than 9th grade , % House <25K, %Family >200K, BA, All Fams Pov 12 mnths, % House >200K, % Family <35K, No HS, All People under Pov, % Family <25K, % House <35K, Lone-Parent household (total)

I used the initial coefficients table (Table 9) in conjunction with the correlation matrix to begin eliminating independent variables. Initial models were created using independent variables that strongly correlated with the number of students scoring Proficient or above, at the district level, on the 2010 NJ ASK in Language Arts. As variables were eliminated, regression analysis continued until the combination of independent variables accounting for the most variance was determined.

Table 9

2010 Language Arts NJ ASK 7 Initial Regression Model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	*t*	Sig.	Tolerance	VIF
1	(Constant)	71.554	8.483		8.435	.000		
	Employ Status	.009	.061	.005	.145	.885	.586	1.706
	% House <25K	-.200	.344	-.103	-.582	.561	.026	38.448
	% House <35K	.279	.278	.188	1.002	.317	.023	43.529
	% House >200K	.147	.152	.095	.966	.335	.084	11.929
	% Family <25K	-.177	.384	-.083	-.461	.645	.025	40.176
	% Family <35K	-.314	.288	-.204	-1.091	.276	.023	43.262
	%Family >200K	.080	.100	.064	.804	.422	.129	7.770
	All Fams Pov 12 mnths	.258	.250	.134	1.032	.303	.048	20.933

Femal House Pov	.053	.040	.056	1.329	.185	.453	2.208
All People under Pov	-.957	.338	-.370	-2.830	.005	.047	21.133
Lone-Parent Male	.226	1.469	.020	.154	.878	.046	21.719
Lone-Parent Female	-.306	1.520	-.070	-.201	.841	.007	147.803
Lone-Parent household (total)	-.010	1.499	-.003	-.006	.995	.005	216.465
Less than 9th grade	.095	.326	.024	.292	.770	.122	8.192
No HS	-.205	.269	-.092	-.764	.445	.056	17.993
Some College	-.197	.188	-.048	-1.050	.295	.381	2.623
BA	.473	.134	.268	3.536	.000	.141	7.070
g	-.003	.147	-.002	-.021	.983	.122	8.187

a. Dependent Variable: P + AP ELA

Hierarchical Regression Model

The model of best fit included variables related to community social and family human capital. The percentage of all people under poverty, the percentage of community members with a bachelor's degree, and the percentage of families with an income of $200,000 or more were the three independent variables that combined to account for the most variance in the number of students scoring Proficient or above, at the district level, on the 2010 NJ ASK 7 Language Arts test. The *R* square value for this model was .707 with a standard error of 8.55. The model is statistically significant at the .005 level as p = .000. Therefore, 70.7% of the variance in the number of students scoring proficient or above, at the district level, on the Language Arts portion of the 2010 NJ ASK 7 can be explained by the model.

Table 10

2010 Language Arts NJ ASK 7 Hierarchical Regression Analysis Model Summary

Model Summary

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.747[a]	.558	.557	10.48186
2	.835[b]	.697	.696	8.68265
3	.841[c]	.707	.705	8.54999

a. Predictors: (Constant), All People under Pov

b. Predictors: (Constant), All People under Pov, BA

c. Predictors: (Constant), All People under Pov, BA, %Family >200K

Table 11

2010 Language Arts NJ ASK 7 Hierarchical Regression Results

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	50175.438	1	50175.438	456.682	.000[b]
	Residual	39772.745	362	109.869		
	Total	89948.183	363			
2	Regression	62732.964	2	31366.482	416.065	.000[c]
	Residual	27215.219	361	75.388		
	Total	89948.183	363			
3	Regression	63631.320	3	21210.440	290.147	.000[d]
	Residual	26316.862	360	73.102		
	Total	89948.183	363			

a. Dependent Variable: P + AP ELA

b. Predictors: (Constant), All People under Pov

c. Predictors: (Constant), All People under Pov, BA

d. Predictors: (Constant), All People under Pov, BA, %Family >200K

The coefficients table (Table 12) demonstrates how each of the three-predictor variables within the model influences the dependent variable. In Model 3 the predictor, percentage of all people under poverty, reported a beta of -1.203. The beta was statistically significant at the .005 level (p = .000), and the reported VIF was 1.566. The negative beta indicates that as the percentage of all people under poverty within a community increases, the percentage of students scoring Proficient or above, at the district level, on the 2010 Language Arts NJ ASK 7 decreases. The predictor, percentage of community members with a bachelor's degree, reported a beta of .612. The beta is statistically significant at the .005 level (p = .000) and the reported VIF was 3.044. The positive beta indicates that as the percentage of community members with a bachelor's degree increases, the percentage of students scoring Proficient or above, at the district level, on the 2010 Language Arts NJ ASK 7 increases. The predictor, percentage of families with income of $200,000 or more, reported a beta of .199. The beta is statistically significant at the .005 level (p = .001) and the reported VIF was 2.480. The positive beta indicates that as the percentage of families with an income of $200,000 or more increases, the percentage of students scoring Proficient or above, at the district level, on the 2010 Language Arts NJ ASK 7 increases. Since all of the reported VIF's were less than 3.044, there is no major threat of multicollinearity in this model (Kutner et al., 2004; Rovai et al., 2014).

Table 12

2010 Language Arts NJ ASK 7 Coefficients Table

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	*t*	Sig.	Tolerance	VIF
1	(Constant)	86.238	.854		101.004	.000		
	All People under Pov	-1.929	.090	-.747	-21.370	.000	1.000	1.000
2	(Constant)	62.215	1.991		31.245	.000		
	All People under Pov	-1.203	.094	-.466	-12.855	.000	.639	1.566
	BA	.826	.064	.468	12.906	.000	.639	1.566
3	(Constant)	64.546	2.071		31.174	.000		
	All People under Pov	-1.202	.092	-.466	-13.051	.000	.639	1.566
	BA	.612	.088	.346	6.959	.000	.329	3.044
	%Family >200K	.199	.057	.157	3.506	.001	.403	2.480

a. Dependent Variable: P + AP ELA

Predictive Power for Dependent Variable: 2010 NJ ASK 7 Language Arts

I used the unstandardized betas, community and family-level percentages of those variables, and the constant from the statistically significant variables in the hierarchical model of best fit in order to determine the predictive power. The predicted percentage of students scoring Proficient or above, at the district level, on the 2010 NJ ASK 7 Language Arts test was found using the standard regression algorithm used by Maylone (2002):

$$A_i (X_i) + A_{ii} (X_{ii}) + A_{iii} (X_{iii}) \ldots + \text{Constant} = Y$$

A_i = individual school district predictor value

X_i = unstandardized beta for predictor

Y = predicted percentage of students scoring proficient or above

The standard error of the estimate was used to make final determinations about the accuracy of each prediction. The predicted percentage was subtracted from the actual reported percentage of students scoring Proficient or above, at the district level, in Language Arts on the 2010 NJ ASK 7. If the prediction was within the margin of error for the model, it was deemed accurate. A final calculation was made to determine the percentage of school districts that were predicted accurately.

Example: 2010 NJ ASK 7 Language Arts, Holmdel Township

For the Holmdel Township school district, the demographic values for the three best predictors in the model were as follows:

A_i = % of all people under poverty = 3.8

A_{ii} = % of community members with a bachelor's degree = 30.1

A_{iii} = % of families with income of $200,000 or more = 39.9

I entered these values into the predictive algorithm along with the unstandardized betas and constant: 3.8(-1.202) + 30.1(.612) + 39.9(.199) + 64.546 = 86.3397.

The result, 86.3397, represents the percentage of students in the Holmdel Township school district I predicted to score Proficient or above on the 2010 New Jersey state mandated Language Arts test. The actual percentage of Grade 7 students in the district who scored proficient or above on the test was 87.1%. The standard error of measurement for the model was 8.55. The difference between the actual percentage and predicted percentage was 87.1 – 86.3397

= .7603 percentage points. The difference was well within the margin of error for the model and considered accurate.

Overall, I accurately predicted the percentage of students scoring Proficient or above within the standard error of the estimate, for 264 out of 365 districts in the sample, or 72.3% of the total districts, for the Language Arts portion of the 2010 NJ ASK 7 (standard error of the estimate = 8.55, constant = 64.546, See Appendix A).

2010 NJ ASK 7 Mathematics

The mean percentage of students scoring Proficient or above on the 2010 NJ ASK 7 Mathematics test was 67.04 with a standard deviation of 16.36. Table 13 below provides the descriptive statistics for the 2010 Mathematics sample.

Table 13

2010 Mathematics NJ ASK 7 Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
P + AP Math	366	21.5	96.0	67.037	16.3617
Employ Status	366	36.6	98.2	72.807	9.5810
% House <25K	366	1.8	51.6	14.565	8.0612
% House <35K	366	2.6	61.9	21.842	10.6154
% House >200K	366	.0	45.4	10.269	10.1451
% Family <25K	366	.5	42.4	8.716	7.3959
% Family <35K	366	1.6	58.5	14.431	10.2240
%Family >200K	366	.0	93.0	12.759	12.4596
All Fams Pov 12 mnths	366	.0	47.5	7.988	8.2045

Femal House Pov	366	.0	100.0	21.506	17.1347
All People under Pov	365	.6	38.4	7.258	6.0958
Lone-Parent Male	366	.0	9.7	1.779	1.4200
Lone-Parent Female	366	.3	24.5	5.779	3.5793
Lone-Parent household (total)	366	1.1	27.9	7.543	4.3885
Less than 9th grade	366	.0	23.4	4.323	3.9234
No HS	366	.4	38.3	10.499	7.0574
Some College	366	2.4	29.9	16.970	3.8904
BA	366	4.3	48.9	22.668	8.9041
g	366	.9	44.0	13.414	8.7087
Valid *N* (listwise)	365				

I then calculated descriptive statistics for the number of students scoring Proficient or above, at the district level, on the 2010 NJ ASK 7 in Mathematics in order to check for skewness and ensure the data met the assumption of normality. Table 14 displays the descriptive statistics and Figure 4 provides a histogram of the data. The skewness was -.587, which was well within the +-1.00 ratio. Therefore, the data met the assumption of normality and can be used in regression analysis.

Table 14

2010 Mathematics NJ ASK 7 Descriptives

Descriptives

			Statistic	Std. Error
P + AP Math	Mean		67.037	.8552
	95% Confidence Interval for Mean	Lower Bound	65.355	
		Upper Bound	68.718	
	5% Trimmed Mean		67.773	
	Median		69.200	
	Variance		267.705	
	Std. Deviation		16.3617	
	Minimum		21.5	
	Maximum		96.0	
	Range		74.5	
	Interquartile Range		24.4	
	Skewness		-.587	.128
	Kurtosis		-.315	.254

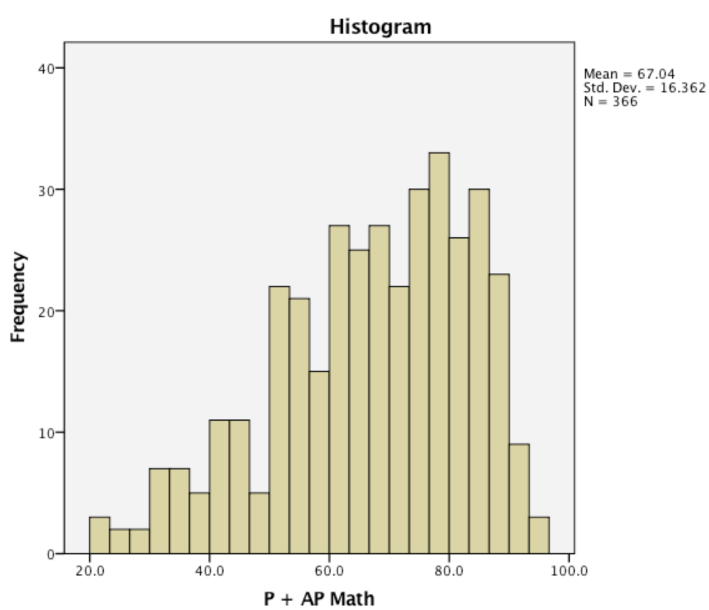

Figure 4. 2010 NJ ASK 7 Mathematics histogram of the number of students scoring Proficient or above at the district level.

In order to determine the strength, direction, and significance between each independent variable and the number of students scoring Proficient or above, at the district level, on the 2010 NJ ASK 7 Mathematics test, Pearson correlation coefficients were calculated using SPSS. The correlation matrix also allowed me to begin examining potential independent variables that were strongly correlated in order to anticipate multicollinearity prior to creating the regression models.

After examining the correlational coefficients, all independent variables were loaded into an initial simultaneous multiple regression model. Tables 15 and 16 provide the Model Summary and ANOVA Table, respectively, for the initial regression. The initial regression was statistically significant with an R square value of .644 and a standard error of the estimate of 10.0278. Therefore, the initial model accounted for 64.4 of the variance observed.

Table 15

2010 Mathematics NJ ASK 7 Model Summary

Model Summary

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.802[a]	.644	.625	10.0278

a. Predictors: (Constant), g, Femal House Pov, Lone-Parent Male, Employ Status, Lone-Parent Female, Some College, Less than 9th grade , % House <25K, %Family >200K, BA, All Fams Pov 12 mnths, % House >200K, % Family <35K, No HS, All People under Pov, % Family <25K, % House <35K, Lone-Parent household (total)

Table 16

2010 Mathematics

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	62894.883	18	3494.160	34.748	.000[b]
	Residual	34792.603	346	100.557		
	Total	97687.487	364			

a. Dependent Variable: P + AP Math

b. Predictors: (Constant), g, Femal House Pov, Lone-Parent Male, Employ Status, Lone-Parent Female, Some College, Less than 9th grade , % House <25K, %Family >200K, BA, All Fams Pov 12 mnths, % House >200K, % Family <35K, No HS, All People under Pov, % Family <25K, % House <35K, Lone-Parent household (total)

I used the initial coefficients table (Table 17) in conjunction with the correlation matrix to begin eliminating independent variables. Initial models were created using independent variables that strongly correlated with the number of students scoring Proficient or above, at the district level, on the 2010 NJ ASK in Mathematics. As variables were eliminated, regression analysis continued until the combination of independent variables accounting for the most variance was determined.

Table 17

2010 Mathematics NJ ASK 7 Initial Regression Model

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.
		B	Std. Error	Beta		
1	(Constant)	67.825	9.923		6.835	.000
	Employ Status	-.012	.071	-.007	-.165	.869
	% House <25K	-.562	.397	-.277	-1.414	.158

% House <35K	.568	.320	.368	1.773	.077
% House >200K	.309	.178	.192	1.736	.083
% Family <25K	-.057	.444	-.026	-.128	.898
% Family <35K	-.430	.329	-.269	-1.308	.192
%Family >200K	-.054	.117	-.041	-.462	.645
All Fams Pov 12 mnths	.354	.293	.178	1.209	.228
Femal House Pov	.057	.046	.060	1.247	.213
All People under Pov	-.925	.397	-.344	-2.330	.020
Lone-Parent Male	1.997	1.724	.173	1.159	.247
Lone-Parent Female	1.170	1.781	.256	.657	.512
Lone-Parent household (total)	-1.481	1.758	-.397	-.843	.400
Less than 9th grade	.275	.383	.066	.719	.473
No HS	-.401	.316	-.173	-1.272	.204
Some College	-.193	.220	-.046	-.877	.381
BA	.357	.157	.194	2.271	.024
g	.132	.173	.070	.764	.445

a. Dependent Variable: P + AP Math

Hierarchical Regression Model

The model of best fit included variables related to community social capital and family human capital. The percentage of all people under poverty, the percentage of community members with a bachelor's degree, and the percentage of families with an income of $200,000 or more were the three independent variables that combined to account for the most variance in the number of students scoring Proficient or above, at the district level, on the 2010 NJ ASK 7 Mathematics test. The *R* square value for this model was .619 with a standard error of 10.16. The model is statistically significant at the .005 level as $p = .000$. Therefore, 61.9% of the variance in the number of students scoring Proficient or above, at the district level, on the Mathematics portion of the 2010 NJ ASK 7 can be explained by the model.

Table 18

2010 Mathematics NJ ASK 7 Hierarchical Regression Analysis Model Summary

Model Summary

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.685[a]	.469	.468	11.9532
2	.779[b]	.607	.605	10.2923
3	.787[c]	.619	.616	10.1581

a. Predictors: (Constant), All People under Pov

b. Predictors: (Constant), All People under Pov, BA

c. Predictors: (Constant), All People under Pov, BA, %Family >200K

Table 19

2010 Mathematics NJ ASK 7 Hierarchical Regression Results

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	45822.635	1	45822.635	320.711	.000[b]
	Residual	51864.852	363	142.878		
	Total	97687.487	364			
2	Regression	59340.373	2	29670.186	280.089	.000[c]
	Residual	38347.114	362	105.931		
	Total	97687.487	364			
3	Regression	60436.675	3	20145.558	195.232	.000[d]

Residual	37250.811	361	103.188		
Total	97687.487	364			

a. Dependent Variable: P + AP Math

b. Predictors: (Constant), All People under Pov

c. Predictors: (Constant), All People under Pov, BA

d. Predictors: (Constant), All People under Pov, BA, %Family >200K

The coefficients table (Table 20) demonstrates how each of the three-predictor variables within the model influences the dependent variable. In Model 3 the predictor, percentage of all people under poverty, reported a beta of -1.086. The beta was statistically significant at the .005 level (p = .000) and the reported VIF was 1.570. The negative beta indicates that as the percentage of all people under poverty within a community increases, the percentage of students scoring Proficient or above, at the district level, on the 2010 Mathematics NJ ASK 7 decreases. The predictor, percentage of community members with a bachelor's degree, reported a beta of .620. The beta is statistically significant at the .005 level (p = .000) and the reported VIF was 3.050. The positive beta indicates that as the percentage of community members with a bachelor's degree increases, the percentage of students scoring Proficient or above, at the district level, on the 2010 Mathematics NJ ASK 7 increases. The predictor, percentage of families with income of $200,000 or more, reported a beta of .219. The beta is statistically significant at the .005 level (p = .001) and the reported VIF was 2.482. The positive beta indicates that as the percentage of families with an income of $200,000 or more increases, the percentage of students scoring Proficient or above, at the district level, on the 2010 Mathematics NJ ASK 7 increases. Since all of the reported VIF's were 3.050 or less, there is no major threat of multicollinearity in this model (Kutner et al., 2004; Rovai et al., 2014).

Table 20

2010 Mathematics NJ ASK 7 Coefficients Table

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	*t*	Sig.	Tolerance	VIF
1	(Constant)	80.383	.974		82.559	.000		
	All People under Pov	-1.841	.103	-.685	-17.908	.000	1.000	1.000
2	(Constant)	55.475	2.359		23.517	.000		
	All People under Pov	-1.086	.111	-.404	-9.794	.000	.637	1.570
	BA	.857	.076	.466	11.296	.000	.637	1.570
3	(Constant)	58.044	2.458		23.614	.000		
	All People under Pov	-1.086	.109	-.404	-9.921	.000	.637	1.570
	BA	.620	.104	.337	5.940	.000	.328	3.050
	%Family >200K	.219	.067	.167	3.259	.001	.403	2.482

a. Dependent Variable: P + AP Math

Predictive Power for Dependent Variable: 2010 NJ ASK 7 Mathematics

I used the unstandardized betas, community and family-level percentages of those variables, and the constant from the statistically significant variables in the hierarchical model of best fit in order to determine the predictive power. The predicted percentage of students scoring Proficient or above, at the district level, on the 2010 NJ ASK 7 Mathematics test was found using the standard regression algorithm used by Maylone (2002):

$$A_i (X_i) + A_{ii} (X_{ii}) + A_{iii} (X_{iii}) \ldots + \text{Constant} = Y$$

A_i = individual school district predictor value

X_i = unstandardized beta for predictor

Y = predicted percentage of students scoring proficient or above

The standard error of the estimate was used to make final determinations about the accuracy of each prediction. The predicted percentage was subtracted from the actual reported percentage of students scoring Proficient or above, at the district level, in Mathematics on the 2010 NJ ASK 7. If the prediction was within the margin of error for the model, it was deemed accurate. A final calculation was made to determine the percentage of school districts that were predicted accurately.

Example: 2010 NJ ASK 7 Mathematics, Keyport

For the Keyport school district, the demographic values for the three best predictors in the model were as follows:

A_i = % of all people under poverty = 8.5

A_{ii} = % of community members with a bachelor's degree = 15.4

A_{iii} = % of families with income of $200,000 or more = 3.1

I entered these values into the predictive algorithm along with the unstandardized betas and constant: 8.5(-1.086) + 15.4(.620) + 3.1(.219) + 58.044 = 59.0399.

The result, 59.0399, represents the percentage of students in the Keyport school district I predicted to score Proficient or above on the 2010 New Jersey state mandated Mathematics test. The actual percentage of Grade 7 students in the district who scored Proficient or above on the test was 59.0%. The standard error of measurement for the model was 10.1581. The difference between the actual percentage and predicted percentage was 59.0 – 59.0399 = -.0399 percentage points. The difference was well within the margin of error for the model and considered accurate.

Overall, I accurately predicted the percentage of students scoring Proficient or above within the standard error of the estimate for 260 out of 366 districts in the sample, or 71.0% of the total districts, for Mathematics portion of the 2010 NJ ASK 7 (standard error of the estimate = 10.1581, constant = 58.044, See Appendix B).

2011 NJ ASK 7 Language Arts

The mean percentage of students scoring Proficient or above in Language Arts on the 2011 NJ ASK 7 was 66.98 with a standard deviation of 17.57. Table 21 below provides the descriptive statistics for the 2011 Language Arts sample.

Table 21

2011 Language Arts NJ ASK 7 Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Employ Status	370	36.6	98.2	72.832	9.9293
P + AP ELA	370	18.8	94.9	66.977	17.5696
% House <25K	370	1.8	51.6	14.479	7.9684
% House <35K	370	2.6	61.9	21.784	10.5300
% House >200K	370	.0	45.4	10.389	10.2623
% Family <25K	370	.5	42.4	8.659	7.2732
% Family <35K	370	1.6	58.5	14.389	10.1120
%Family >200K	370	.0	93.0	12.900	12.5673
All Fams Pov 12 mnths	370	.0	47.5	7.971	8.0807

Femal House Pov	370	.0	100.0	21.565	17.1846
All People under Pov	369	.6	38.4	7.223	5.9875
Lone-Parent Male	370	.0	9.7	1.787	1.4320
Lone-Parent Female	370	.3	24.5	5.772	3.6266
Lone-Parent household (total)	370	1.1	27.9	7.544	4.4233
Less than 9th grade	370	.0	23.4	4.251	3.8591
No HS	370	.4	37.7	10.370	6.9112
Some College	370	2.4	29.9	16.993	3.9165
BA	370	4.3	48.9	22.736	8.8994
g	370	.9	44.0	13.517	8.8119
Predicted ELA	370	3.5	97.5	67.035	14.5848
Valid *N* (listwise)	369				

I then calculated descriptive statistics for the number of students scoring Proficient or above, at the district level, on the 2011 NJ ASK 7 in Language Arts in order to check for skewness and ensure the data met the assumption of normality. Table 22 displays the descriptive statistics and Figure 4 provides a histogram of the data. The skewness was -.669, well within the +-1.00 ratio, and therefore the data met the assumption of normality and can be used in regression analysis.

Table 22

2011 Language Arts NJ ASK 7 Descriptives

Descriptives

			Statistic	Std. Error
P + AP ELA	Mean		66.977	.9134
	95% Confidence Interval for Mean	Lower Bound	65.181	
		Upper Bound	68.773	
	5% Trimmed Mean		67.835	
	Median		69.500	
	Variance		308.690	
	Std. Deviation		17.5696	
	Minimum		18.8	
	Maximum		94.9	
	Range		76.1	
	Interquartile Range		25.3	
	Skewness		-.669	.127
	Kurtosis		-.278	.253

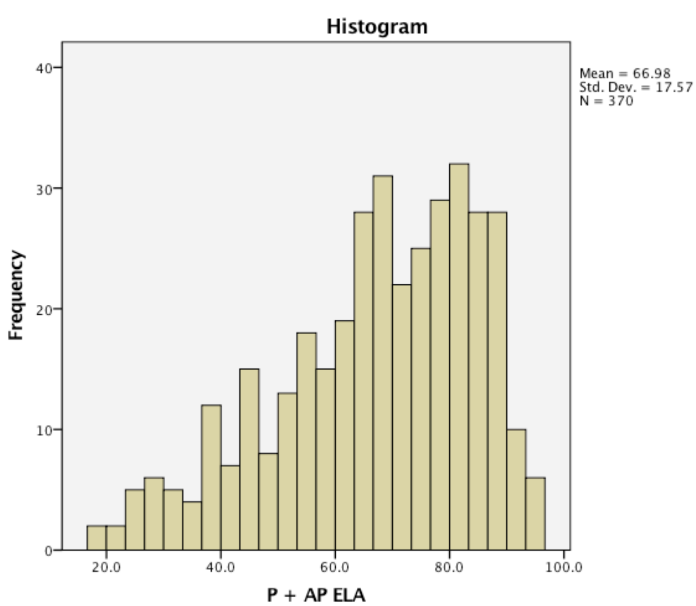

Figure 5. 2011 NJ ASK 7 Language Arts histogram of the number of students scoring Proficient or above at the district level.

In order to determine the strength, direction, and significance between each independent variable and the number of students scoring Proficient or above, at the district level, on the 2011 NJ ASK 7 Language Arts test, Pearson correlation coefficients were calculated using SPSS. The correlation matrix also allowed me to begin examining potential independent variables that were strongly correlated in order to anticipate multicollinearity prior to creating the regression models.

After examining the correlational coefficients, all independent variables were loaded into an initial simultaneous multiple regression model. Tables 23 and 24 provide the Model Summary and ANOVA Table, respectively, for the initial regression. The initial regression was statistically significant with an *R* square value of .709 and a standard error of the estimate of 9.7336. Therefore, the initial model accounted for 70.9% of the variance observed.

Table 23

2011 Language Arts NJ ASK 7 Model Summary

Model Summary

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.842[a]	.709	.694	9.7336

a. Predictors: (Constant), g, Femal House Pov, Lone-Parent Male, Employ Status, Lone-Parent Female, Some College, Less than 9th grade , % House <25K, %Family >200K, BA, All Fams Pov 12 mnths, % House >200K, % Family <35K, No HS, All People under Pov, % Family <25K, % House <35K, Lone-Parent household (total)

Table 24

2011 Language Arts NJ ASK 7 ANOVA Table

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	80704.449	18	4483.580	47.323	.000[b]
	Residual	33160.252	350	94.744		
	Total	113864.700	368			

a. Dependent Variable: P + AP ELA

b. Predictors: (Constant), g, Femal House Pov, Lone-Parent Male, Employ Status, Lone-Parent Female, Some College, Less than 9th grade , % House <25K, %Family >200K, BA, All Fams Pov 12 mnths, % House >200K, % Family <35K, No HS, All People under Pov, % Family <25K, % House <35K, Lone-Parent household (total)

I used the initial coefficients table (Table 25) in conjunction with the correlation matrix to begin eliminating independent variables. Initial models were created using independent variables that strongly correlated with the number of students scoring Proficient or above, at the district level, on the 2011 NJ ASK in Language Arts. As variables were eliminated, regression analysis continued until the combination of independent variables accounting for the most variance was determined.

Table 25

2011 Language Arts NJ ASK 7 Initial Regression Model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	85.362	9.405		9.077	.000		
	Employ Status	-.061	.067	-.034	-.908	.364	.582	1.719
	% House <25K	-.027	.376	-.012	-.071	.943	.029	34.943
	% House <35K	.200	.301	.120	.665	.507	.026	39.028
	% House >200K	.159	.171	.093	.931	.352	.083	11.978
	% Family <25K	-.476	.413	-.197	-1.151	.250	.028	35.198
	% Family <35K	-.067	.304	-.039	-.222	.825	.027	36.838
	%Family >200K	.054	.114	.039	.473	.637	.125	7.972
	All Fams Pov 12 mnths	.063	.281	.029	.226	.821	.050	20.018
	Femal House Pov	.075	.044	.073	1.686	.093	.444	2.252
	All People under Pov	-.573	.385	-.195	-1.490	.137	.048	20.635
	Lone-Parent Male	1.680	1.673	.137	1.004	.316	.045	22.354

Lone-Parent Female	.975	1.728	.201	.564	.573	.007	152.894
Lone-Parent household (total)	-1.827	1.706	-.460	-1.071	.285	.005	221.839
Less than 9th grade	.138	.368	.030	.377	.707	.128	7.836
No HS	-.701	.308	-.276	-2.276	.023	.057	17.652
Some College	-.349	.212	-.077	-1.649	.100	.377	2.655
BA	.150	.151	.076	.997	.319	.143	6.987
g	.089	.163	.045	.544	.587	.124	8.062

a. Dependent Variable: P + AP ELA

Hierarchical Regression Model

The model of best fit included variables related to community social capitaland family human capital. The percentage of all people under poverty, the percentage of community members with a bachelor's degree, and the percentage of families with an income of $200,000 or more were the three independent variables that combined to account for the most variance in the number of students scoring Proficient or above, at the district level, on the 2011 NJ ASK 7 Language Arts test. The *R* square value for this model was .663 with a standard error of 10.2598. The model is statistically significant at the .005 level as $p = .000$. Therefore, 66.3% of the variance in the number of students scoring Proficient or above, at the district level, on the Language Arts portion of the 2011 NJ ASK 7 can be explained by the model.

Table 26

2011 Language Arts NJ ASK 7 Hierarchical Regression Analysis Model Summary

Model Summary

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.731[a]	.534	.533	12.0191
2	.806[b]	.649	.648	10.4433
3	.814[c]	.663	.660	10.2598

a. Predictors: (Constant), All People under Pov

b. Predictors: (Constant), All People under Pov, BA

c. Predictors: (Constant), All People under Pov, BA, %Family >200K

Table 27

2011 Language Arts NJ ASK 7 Hierarchical Regression Results

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	60847.899	1	60847.899	421.209	.000[b]
	Residual	53016.802	367	144.460		
	Total	113864.700	368			
2	Regression	73947.922	2	36973.961	339.017	.000[c]
	Residual	39916.779	366	109.062		
	Total	113864.700	368			
3	Regression	75443.664	3	25147.888	238.905	.000[d]
	Residual	38421.036	365	105.263		
	Total	113864.700	368			

a. Dependent Variable: P + AP ELA

b. Predictors: (Constant), All People under Pov

c. Predictors: (Constant), All People under Pov, BA

d. Predictors: (Constant), All People under Pov, BA, %Family >200K

The coefficients table (Table 28) demonstrates how each of the three-predictor variables within the model influences the dependent variable. In Model 3 the predictor, percentage of all people under poverty, reported a beta of -1.398. The beta was statistically significant at the .005 level (*p* = .000) and the reported VIF was 1.565. The negative beta indicates that as the percentage of all people under poverty within a community increases, the percentage of students scoring Proficient or above, at the district level, on the 2011 Language Arts NJ ASK 7 decreases. The predictor, percentage of community members with a bachelor's degree, reported a beta of .561. The beta is statistically significant at the .005 level (*p* = .000) and the reported VIF was 3.057. The positive beta indicates that as the percentage of community members with a bachelor's degree increases, the percentage of students scoring Proficient or above, at the district level, on the 2011 Language Arts NJ ASK 7 increases. The predictor, percentage of families with income of $200,000 or more, reported a beta of .253. The beta is statistically significant at the .005 level (*p* = .000) and the reported VIF was 2.494. The positive beta indicates that as the percentage of families with an income of $200,000 or more increases, the percentage of students scoring Proficient or above, at the district level, on the 2011 Language Arts NJ ASK 7 increases. Since all of the reported VIF's were less than 3.057, there is no major threat of multicollinearity in this model (Kutner et al., 2004; Rovai et al., 2014).

Table 28

2011 Language Arts NJ ASK 7 Coefficients Table

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	*t*	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	82.507	.981		84.088	.000		
	All People under Pov	-2.148	.105	-.731	-20.523	.000	1.000	1.000
2	(Constant)	58.039	2.390		24.287	.000		
	All People under Pov	-1.399	.114	-.476	-12.300	.000	.639	1.565
	BA	.838	.076	.424	10.960	.000	.639	1.565
3	(Constant)	61.054	2.480		24.616	.000		
	All People under Pov	-1.398	.112	-.476	-12.516	.000	.639	1.565
	BA	.561	.105	.284	5.347	.000	.327	3.057
	%Family >200K	.253	.067	.181	3.770	.000	.401	2.494

a. Dependent Variable: P + AP ELA

Predictive Power for Dependent Variable: 2011 NJ ASK 7 Language Arts

I used the unstandardized betas, community and family-level percentages of those variables, and the constant from the statistically significant variables in the hierarchical model of best fit in order to determine the predictive power. The predicted percentage of students scoring Proficient or above, at the district level, on the 2011 NJ ASK 7 Language Arts test was found using the standard regression algorithm used by Maylone (2002):

$$A_i (X_i) + A_{ii} (X_{ii}) + A_{iii} (X_{iii}) \ldots + \text{Constant} = Y$$

A_i = individual school district predictor value

X_i = unstandardized beta for predictor

Y = predicted percentage of students scoring proficient or above

The standard error of the estimate was used to make final determinations about the accuracy of each prediction. The predicted percentage was subtracted from the actual reported percentage of students scoring Proficient or above, at the district level, in Language Arts on the 2011 NJ ASK 7. If the prediction was within the margin of error for the model, it was deemed accurate. A final calculation was made to determine the percentage of school districts that were predicted accurately.

Example: 2011 NJ ASK 7 Language Arts, Lakehurst Boro

For the Lakehurst Boro school district, the demographic values for the three best predictors in the model were as follows:

A_i = % of all people under poverty = 10.8

A_{ii} = % of community members with a bachelor's degree = 9.6

A_{iii} = % of families with income of $200,000 or more = 3.5

I entered these values into the predictive algorithm along with the unstandardized betas and constant: 10.8(-1.398) + 9.6(.561) + 3.5(.253) + 61.054 = 52.2267.

The result, 52.2267, represents the percentage of students in the Lakehurst Boro school district I predicted to score Proficient or above on the 2011 New Jersey state mandated Language Arts test. The actual percentage of Grade 7 students in the district who scored Proficient or above on the test was 52.30%. The standard error of measurement for the model was 10.2598. The difference between the actual percentage and predicted percentage was 52.30 – 52.2267 =

.0733 percentage points. The difference was well within the margin of error for the model and considered accurate.

Overall, I accurately predicted the percentage of students scoring Proficient or above within the standard error of the estimate for 284 out of 370 districts in the sample, or 76.8% of the total districts, for Language Arts portion of the 2011 NJ ASK 7 (standard error of the estimate = 10.2598, constant = 61.054, See Appendix C).

2011 NJ ASK 7 Mathematics

The mean percentage of students scoring Proficient or above on the 2011 NJ ASK 7 Mathematics test was 68.572 with a standard deviation of 16.1083. Table 29 below provides the descriptive statistics for the 2011 Mathematics Sample.

Table 29

2011 Mathematics NJ ASK 7 Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Employ Status	370	36.6	98.2	72.832	9.9293
P + AP Math	370	20.0	95.2	68.572	16.1083
% House <25K	370	1.8	51.6	14.479	7.9684
% House <35K	370	2.6	61.9	21.784	10.5300
% House >200K	370	.0	45.4	10.389	10.2623
% Family <25K	370	.5	42.4	8.659	7.2732
% Family <35K	370	1.6	58.5	14.389	10.1120
%Family >200K	370	.0	93.0	12.900	12.5673
All Fams Pov 12 mnths	370	.0	47.5	7.971	8.0807

Femal House Pov	370	.0	100.0	21.565	17.1846
All People under Pov	369	.6	38.4	7.223	5.9875
Lone-Parent Male	370	.0	9.7	1.787	1.4320
Lone-Parent Female	370	.3	24.5	5.772	3.6266
Lone-Parent household (total)	370	1.1	27.9	7.544	4.4233
Less than 9th grade	370	.0	23.4	4.251	3.8591
No HS	370	.4	37.7	10.370	6.9112
Some College	370	2.4	29.9	16.993	3.9165
BA	370	4.3	48.9	22.736	8.8994
G	370	.9	44.0	13.517	8.8119
Valid N (listwise)	369				

I then calculated descriptive statistics for the number of students scoring Proficient or above, at the district level, on the 2011 NJ ASK 7 in Mathematics in order to check for skewness and ensure the data met the assumption of normality. Table 30 displays the descriptive statistics and Figure 5 provides a histogram of the data. The skewness was -.697, which was well within the +-1.00 ratio. Therefore, the data met the assumption of normality and can be used in regression analysis.

Table 30

2011 Mathematics NJ ASK 7 Descriptives

Descriptives

			Statistic	Std. Error
P + AP Math	Mean		68.572	.8374
	95% Confidence Interval for Mean	Lower Bound	66.926	
		Upper Bound	70.219	
	5% Trimmed Mean		69.356	
	Median		71.900	
	Variance		259.478	
	Std. Deviation		16.1083	
	Minimum		20.0	
	Maximum		95.2	
	Range		75.2	
	Interquartile Range		22.0	
	Skewness		-.697	.127
	Kurtosis		-.062	.253

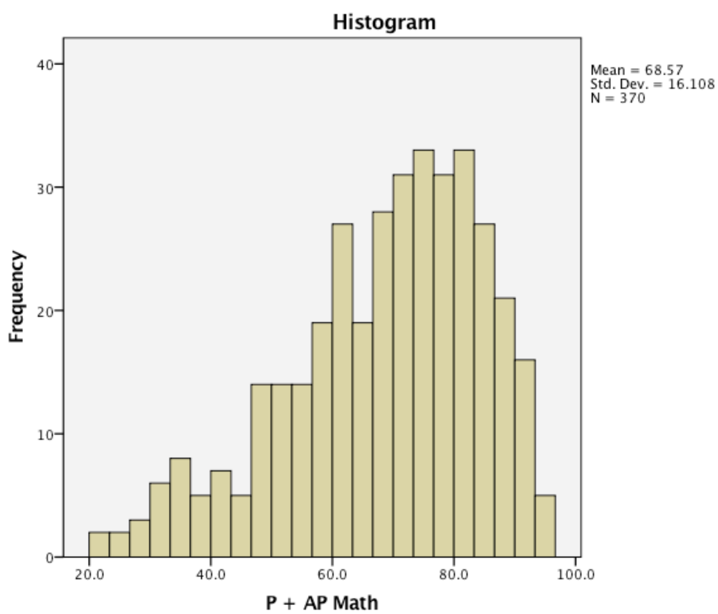

Figure 6. 2011 NJ ASK 7 Mathematics histogram of the number of students scoring Proficient or above at the district level.

In order to determine the strength, direction, and significance between each independent variable and the number of students scoring Proficient or above, at the district level, on the 2011 NJ ASK 7 Mathematics test, Pearson correlation coefficients were calculated using SPSS. The correlation matrix also allowed me to begin examining potential independent variables that were strongly correlated in order to anticipate multicollinearity prior to creating the regression models.

After examining the correlational coefficients, all independent variables were loaded into an initial simultaneous multiple regression model. Tables 31 and 32 provide the Model Summary and ANOVA Table, respectively, for the initial regression. The initial regression was statistically significant with an R square value of .650 and a standard error of the estimate of 9.7787. Therefore, the initial model accounted for 65.0% of the variance observed.

Table 31

2011 Mathematics NJ ASK 7 Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.806[a]	.650	.632	9.7787

a. Predictors: (Constant), G, Femal House Pov, Lone-Parent Male, Employ Status, Lone-Parent Female, Some College, Less than 9th grade , % House <25K, %Family >200K, BA, All Fams Pov 12 mnths, % House >200K, % Family <35K, No HS, All People under Pov, % Family <25K, % House <35K, Lone-Parent household (total)

Table 32

2011 Mathematics

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	62191.190	18	3455.066	36.132	.000[b]
	Residual	33468.148	350	95.623		
	Total	95659.338	368			

a. Dependent Variable: P + AP Math

b. Predictors: (Constant), G, Femal House Pov, Lone-Parent Male, Employ Status, Lone-Parent Female, Some College, Less than 9th grade , % House <25K, %Family >200K, BA, All Fams Pov 12 mnths, % House >200K, % Family <35K, No HS, All People under Pov, % Family <25K, % House <35K, Lone-Parent household (total)

I used the initial coefficients table (Table 33) in conjunction with the correlation matrix to begin eliminating independent variables. Initial models were created using independent variables that strongly correlated with the number of students scoring Proficient or above, at the district level, on the 2011 NJ ASK in Mathematics. As variables were eliminated, regression analysis continued until the combination of independent variables accounting for the most variance was determined.

Table 33

2011 Mathematics NJ ASK 7 Initial Regression Model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	*t*	Sig.
1	(Constant)	71.688	9.448		7.588	.000
	Employ Status	-.019	.067	-.011	-.276	.783
	% House <25K	-.011	.378	-.006	-.030	.976

% House <35K	.276	.302	.181	.914	.361
% House >200K	.251	.172	.160	1.462	.145
% Family <25K	-.651	.415	-.294	-1.568	.118
% Family <35K	-.049	.306	-.031	-.161	.872
%Family >200K	-.042	.114	-.033	-.370	.712
All Fams Pov 12 mnths	-.274	.282	-.137	-.970	.333
Femal House Pov	.108	.045	.115	2.414	.016
All People under Pov	-.159	.387	-.059	-.410	.682
Lone-Parent Male	3.858	1.681	.343	2.295	.022
Lone-Parent Female	3.120	1.736	.703	1.797	.073
Lone-Parent household (total)	-3.876	1.714	-1.065	-2.261	.024
Less than 9th grade	.315	.369	.076	.854	.394
No HS	-.396	.310	-.170	-1.281	.201
Some College	-.212	.213	-.051	-1.000	.318
BA	.257	.151	.142	1.699	.090
G	.190	.164	.104	1.158	.248

a. Dependent Variable: P + AP Math

Hierarchical Regression Model

The model of best fit included variables related to community social capital and family human capital. The percentage of all people under poverty, the percentage of community members with a bachelor's degree, and the percentage of families with an income of $200,000 or more were the three independent variables that combined to account for the most variance in the number of students scoring Proficient or above, at the district level, on the 2011 NJ ASK 7 Mathematics test. The *R* square value for this model was .599 with a standard error of 10.2481. The model is statistically significant at the .005 level as $p = .000$. Therefore, 59.9% of the variance in the number of students scoring Proficient or above, at the district level, on the Mathematics portion of the 2011 NJ ASK 7 can be explained by the model.

Table 34

2011 Mathematics NJ ASK 7 Hierarchical Regression Analysis Model Summary

Model Summary

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.684[a]	.468	.466	11.7779
2	.768[b]	.589	.587	10.3592
3	.774[c]	.599	.596	10.2481

a. Predictors: (Constant), All People under Pov

b. Predictors: (Constant), All People under Pov, BA

c. Predictors: (Constant), All People under Pov, BA, %Family >200K

Table 35

2011 Mathematics NJ ASK 7 Hierarchical Regression Results

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	44749.264	1	44749.264	322.588	.000[b]
	Residual	50910.075	367	138.720		
	Total	95659.338	368			
2	Regression	56382.476	2	28191.238	262.699	.000[c]
	Residual	39276.862	366	107.314		
	Total	95659.338	368			
3	Regression	57325.737	3	19108.579	181.946	.000[d]

Residual	38333.602	365	105.024		
Total	95659.338	368			

a. Dependent Variable: P + AP Math

b. Predictors: (Constant), All People under Pov

c. Predictors: (Constant), All People under Pov, BA

d. Predictors: (Constant), All People under Pov, BA, %Family >200K

The coefficients table (Table 36) demonstrates how each of the three-predictor variables within the model influences the dependent variable. In Model 3 the predictor, percentage of all people under poverty, reported a beta of -1.136. The beta was statistically significant at the .005 level (*p* = .000) and the reported VIF was 1.565. The negative beta indicates that as the percentage of all people under poverty within a community increases, the percentage of students scoring Proficient or above, at the district level, on the 2011 Mathematics NJ ASK 7 decreases. The predictor, percentage of community members with a bachelor's degree, reported a beta of .570. The beta is statistically significant at the .005 level (*p* = .000) and the reported VIF was 3.057. The positive beta indicates that as the percentage of community members with a bachelor's degree increases, the percentage of students scoring proficient or above, at the district level, on the 2011 Mathematics NJ ASK 7 increases. The predictor, percentage of families with income of $200,000 or more, reported a beta of .201. The beta is statistically significant at the .005 level (p = .003) and the reported VIF was 2.494. The positive beta indicates that as the percentage of families with an income of $200,000 or more increases, the percentage of students scoring Proficient or above, at the district level, on the 2010 Mathematics NJ ASK 7 increases. Since all of the reported VIF's were less than 3.057, there is no major threat of multicollinearity in this model (Kutner et al., 2004; Rovai et al., 2014).

Table 36

2011 Mathematics NJ ASK 7 Coefficients Table

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	*t*	Sig.	Tolerance	VIF
1	(Constant)	81.900	.961		85.180	.000		
	All People under Pov	-1.842	.103	-.684	-17.961	.000	1.000	1.000
2	(Constant)	58.843	2.370		24.823	.000		
	All People under Pov	-1.136	.113	-.422	-10.071	.000	.639	1.565
	BA	.789	.076	.436	10.412	.000	.639	1.565
3	(Constant)	61.238	2.477		24.718	.000		
	All People under Pov	-1.136	.112	-.422	-10.177	.000	.639	1.565
	BA	.570	.105	.315	5.435	.000	.327	3.057
	%Family >200K	.201	.067	.157	2.997	.003	.401	2.494

a. Dependent Variable: P + AP Math

Predictive Power for Dependent Variable: 2011 NJ ASK 7 Mathematics

I used the unstandardized betas, community and family-level percentages of those variables, and the constant from the statistically significant variables in the hierarchical model of best fit in order to determine the predictive power. The predicted percentage of students scoring Proficient or above, at the district level, on the 2011 NJ ASK 7 Mathematics test was found using the standard regression algorithm used by Maylone (2002):

$$A_i (X_i) + A_{ii} (X_{ii}) + A_{iii} (X_{iii}) \ldots + \text{Constant} = Y$$

A_i = individual school district predictor value

X_i = unstandardized beta for predictor

Y = predicted percentage of students scoring proficient or above

The standard error of the estimate was used to make final determinations about the accuracy of each prediction. The predicted percentage was subtracted from the actual reported percentage of students scoring Proficient or above, at the district level, in Mathematics on the 2011 NJ ASK 7. If the prediction was within the margin of error for the model, it was deemed accurate. A final calculation was made to determine the percentage of school districts that were predicted accurately.

Example: 2011 NJ ASK 7 Mathematics, Alexandria Township

For the Alexandria Township school district, the demographic values for the three best predictors in the model were as follows:

A_i = % of all people under poverty = 2.7

A_{ii} = % of community members with a Bachelors degree = 29

A_{iii} = % of families with income of $200,000 or more = 22

I entered these values into the predictive algorithm along with the unstandardized betas and constant: 2.7(-1.136) + 29(.570) + 22(.201) + 61.238 = 79.1228.

The result, 79.1228, represents the percentage of students in the Alexandria Township school district I predicted to score Proficient or above on the 2011 New Jersey state mandated Mathematics test. The actual percentage of Grade 7 students in the district who scored Proficient or above on the test was 79.5%. The standard error of measurement for the model was 10.2481. The difference between the actual percentage and predicted percentage was 79.5 – 79.1228 =

.3772 percentage points. The difference was well within the margin of error for the model and considered accurate.

Overall, I accurately predicted the percentage of students scoring Proficient or above within the standard error of the estimate for 270 out of 370 districts in the sample, or 73.0% of the total districts, for the Mathematics portion of the 2011 NJ ASK 7 (standard error of the estimate = 10.2481, constant = 61.238, See Appendix D).

2012 NJ ASK 7 Language Arts

The mean percentage of students scoring Proficient or above in Language Arts on the 2012 NJ ASK 7 was 72.589 with a standard deviation of 17.6324. Table 37 below provides the descriptive statistics for the 2012 Language Arts sample.

Table 37

2012 Language Arts NJ ASK 7 Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Employ Status	367	36.6	95.5	72.589	9.7824
P + AP ELA	367	15.0	96.6	64.543	17.6324
% House <25K	367	1.8	51.6	14.517	8.0665
% House <35K	367	2.6	61.9	21.781	10.6476
% House >200K	367	.0	45.4	10.417	10.3013
% Family <25K	367	.5	42.4	8.688	7.3857
% Family <35K	367	1.6	58.5	14.423	10.2553
%Family >200K	367	.0	93.0	12.909	12.6249
All Fams Pov 12 mnths	367	.0	47.5	8.009	8.1970

Female House Pov	367	.0	100.0	21.613	17.0658
All People under Pov	366	.6	38.4	7.231	6.0904
Lone-Parent Male	367	.0	9.7	1.774	1.4219
Lone-Parent Female	367	.3	24.5	5.769	3.5811
Lone-Parent household (total)	367	1.1	27.9	7.528	4.3959
Less than 9th grade	367	.0	23.4	4.284	3.9244
No HS	367	.4	38.3	10.484	7.1434
Some College	367	2.4	29.9	16.930	3.8997
BA	367	4.3	48.9	22.666	8.9551
g	367	.9	44.0	13.540	8.8457
Valid *N* (listwise)	366				

I then calculated descriptive statistics for the number of students scoring Proficient or above, at the district level, on the 2012 NJ ASK 7 in Language Arts in order to check for skewness and ensure the data met the assumption of normality. Table 38 displays the descriptive statistics and Figure 5 provides a histogram of the data. The skewness was -.523, well within the +-1.00 ratio, and therefore the data met the assumption of normality and can be used in regression analysis.

Table 38

2012 Language Arts NJ ASK 7 Descriptives

Descriptives

			Statistic	Std. Error
P + AP ELA	Mean		64.543	.9204
	95% Confidence Interval for Mean	Lower Bound	62.733	
		Upper Bound	66.352	
	5% Trimmed Mean		65.248	
	Median		66.700	
	Variance		310.902	
	Std. Deviation		17.6324	
	Minimum		15.0	
	Maximum		96.6	
	Range		81.6	
	Interquartile Range		25.5	
	Skewness		-.523	.127
	Kurtosis		-.365	.254

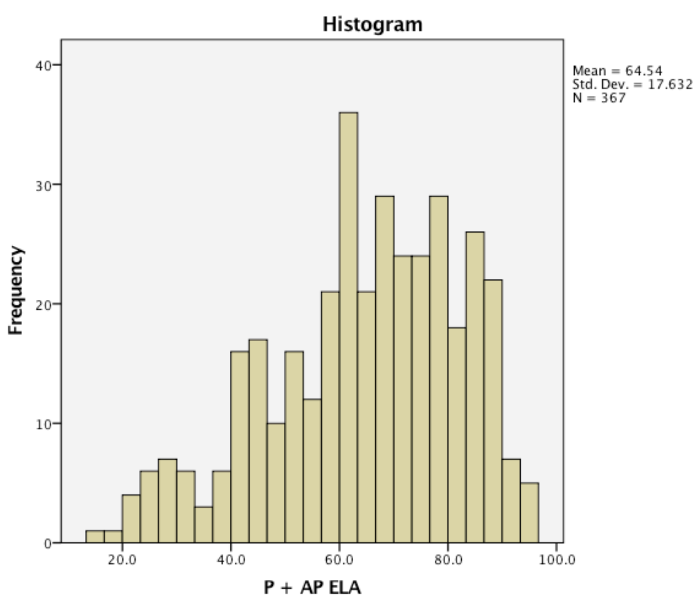

Figure 7. 2012 NJ ASK 7 Language Arts histogram of the number of students scoring Proficient or above at the district level.

In order to determine the strength, direction, and significance between each independent variable and the number of students scoring Proficient or above, at the district level, on the 2012 NJ ASK 7 Language Arts test, Pearson correlation coefficients were calculated using SPSS. The correlation matrix also allowed me to begin examining potential independent variables that were strongly correlated in order to anticipate multicollinearity prior to creating the regression models.

After examining the correlational coefficients, all independent variables were loaded into an initial simultaneous multiple regression model. Tables 39 and 40 provide the Model Summary and ANOVA Table, respectively, for the initial regression. The initial regression was statistically significant with an *R* square value of .735 and a standard error of the estimate of 9.3180. Therefore, the initial model accounted for 73.5% of the variance observed.

Table 39

2012 Language Arts NJ ASK 7 Model Summary

Model Summary

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.857[a]	.735	.721	9.3180

a. Predictors: (Constant), g, Femal House Pov, Lone-Parent Male, Employ Status, Lone-Parent Female, Some College, Less than 9th grade , % House <25K, %Family >200K, BA, All Fams Pov 12 mnths, % House >200K, % Family <35K, No HS, All People under Pov, % Family <25K, % House <35K, Lone-Parent household (total)

Table 40

2012 Language Arts NJ ASK 7 ANOVA Table

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	83643.089	18	4646.838	53.520	.000[b]
	Residual	30128.039	347	86.824		
	Total	113771.128	365			

a. Dependent Variable: P + AP ELA

b. Predictors: (Constant), g, Femal House Pov, Lone-Parent Male, Employ Status, Lone-Parent Female, Some College, Less than 9th grade , % House <25K, %Family >200K, BA, All Fams Pov 12 mnths, % House >200K, % Family <35K, No HS, All People under Pov, % Family <25K, % House <35K, Lone-Parent household (total)

I used the initial coefficients table (Table 41) in conjunction with the correlation matrix to begin eliminating independent variables. Initial models were created using independent variables that strongly correlated with the number of students scoring Proficient or above, at the district level, on the 2012 NJ ASK in Language Arts. As variables were eliminated, regression analysis continued until the combination of independent variables accounting for the most variance was determined.

Table 41

2012 Language Arts NJ ASK 7 Initial Regression Model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	*t*	Sig.
1	(Constant)	70.856	9.311		7.610	.000
	Employ Status	.022	.066	.012	.334	.739
	% House <25K	-.390	.379	-.178	-1.029	.304

% House <35K	.540	.311	.326	1.737	.083
% House >200K	.202	.165	.118	1.230	.220
% Family <25K	-.466	.413	-.195	-1.128	.260
% Family <35K	-.405	.308	-.236	-1.318	.188
%Family >200K	.143	.109	.102	1.312	.190
All Fams Pov 12 mnths	.210	.278	.098	.755	.451
Femal House Pov	.019	.043	.019	.451	.652
All People under Pov	-.309	.379	-.107	-.816	.415
Lone-Parent Male	1.063	1.602	.086	.664	.507
Lone-Parent Female	.345	1.654	.070	.208	.835
Lone-Parent household (total)	-1.028	1.631	-.256	-.630	.529
Less than 9th grade	.557	.336	.124	1.656	.099
No HS	-.758	.280	-.307	-2.707	.007
Some College	-.303	.205	-.067	-1.478	.140
BA	.325	.146	.165	2.222	.027
g	-.054	.158	-.027	-.346	.730

a. Dependent Variable: P + AP ELA

Hierarchical Regression Model

The model of best fit included variables related to community social capital and family human capital. The percentage of all people under poverty, the percentage of community members with a bachelor’s degree, and the percentage of families with an income of $200,000 or more were the three independent variables that combined to account for the most variance in the number of students scoring Proficient or above, at the district level, on the 2012 NJ ASK 7 Language Arts test. The *R* square value for this model was .704 with a standard error of 9.6370. The model is statistically significant at the .005 level as $p = .000$. Therefore, 70.4% of the variance in the number of students scoring Proficient or above, at the district level, on the Language Arts portion of the 2012 NJ ASK 7 can be explained by the model.

Table 42

2012 Language Arts NJ ASK 7 Hierarchical Regression Analysis Model Summary

Model Summary

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.738[a]	.544	.543	11.9349
2	.829[b]	.688	.686	9.8886
3	.839[c]	.704	.702	9.6370

a. Predictors: (Constant), All People under Pov

b. Predictors: (Constant), All People under Pov, BA

c. Predictors: (Constant), All People under Pov, BA, %Family >200K

Table 43

2012 Language Arts NJ ASK 7 Hierarchical Regression Results

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	61922.652	1	61922.652	434.725	.000[b]
	Residual	51848.476	364	142.441		
	Total	113771.128	365			
2	Regression	78275.158	2	39137.579	400.241	.000[c]
	Residual	35495.970	363	97.785		

	Total	113771.128	365			
3	Regression	80151.358	3	26717.119	287.676	.000[d]
	Residual	33619.770	362	92.872		
	Total	113771.128	365			

a. Dependent Variable: P + AP ELA

b. Predictors: (Constant), All People under Pov

c. Predictors: (Constant), All People under Pov, BA

d. Predictors: (Constant), All People under Pov, BA, %Family >200K

The coefficients table (Table 44) demonstrates how each of the three-predictor variables within the model influences the dependent variable. In Model 3 the predictor, percentage of all people under poverty, reported a beta of -1.309. The beta was statistically significant at the .005 level (p = .000) and the reported VIF was 1.584. The negative beta indicates that as the percentage of all people under poverty within a community increases, the percentage of students scoring Proficient or above, at the district level, on the 2012 Language Arts NJ ASK 7 decreases. The predictor, percentage of community members with a bachelor's degree, reported a beta of .623. The beta is statistically significant at the .005 level (p = .000) and the reported VIF was 3.146. The positive beta indicates that as the percentage of community members with a bachelor's degree increases, the percentage of students scoring Proficient or above, at the district level, on the 2012 Language Arts NJ ASK 7 increases. The predictor, percentage of families with income of $200,000 or more, reported a beta of .285. The beta is statistically significant at the .005 level (p = .000) and the reported VIF was 2.525. The positive beta indicates that as the percentage of families with an income of $200,000 or more increases, the percentage of students scoring Proficient or above, at the district level, on the 2012 Language Arts NJ ASK 7 increases. Since all of the reported VIF's were less than 3.146, there is no major threat of multicollinearity in this model (Kutner et al., 2004; Rovai et al., 2014).

Table 44

2012 Language Arts NJ ASK 7 Coefficients Table

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	*t*	Sig.	Tolerance	VIF
1	(Constant)	80.018	.969		82.565	.000		
	All People under Pov	-2.139	.103	-.738	-20.850	.000	1.000	1.000
2	(Constant)	52.644	2.264		23.252	.000		
	All People under Pov	-1.299	.107	-.448	-12.152	.000	.632	1.583
	BA	.939	.073	.477	12.932	.000	.632	1.583
3	(Constant)	56.193	2.343		23.978	.000		
	All People under Pov	-1.309	.104	-.451	-12.556	.000	.631	1.584
	BA	.623	.100	.316	6.246	.000	.318	3.146
	%Family >200K	.285	.063	.204	4.495	.000	.396	2.525

a. Dependent Variable: P + AP ELA

Predictive Power for Dependent Variable: 2012 NJ ASK 7 Language Arts

I used the unstandardized betas, community and family-level percentages of those variables, and the constant from the statistically significant variables in the hierarchical model of best fit in order to determine the predictive power. The predicted percentage of students scoring Proficient or above, at the district level, on the 2012 NJ ASK 7 Language Arts test was found using the standard regression algorithm used by Maylone (2002):

$$A_i (X_i) + A_{ii} (X_{ii}) + A_{iii} (X_{iii}) \ldots + \text{Constant} = Y$$

A_i = individual school district predictor value

X_i = unstandardized beta for predictor

Y = predicted percentage of students scoring proficient or above

The standard error of the estimate was used to make final determinations about the accuracy of each prediction. The predicted percentage was subtracted from the actual reported percentage of students scoring Proficient or above, at the district level, in Language Arts on the 2012 NJ ASK 7. If the prediction was within the margin of error for the model, it was deemed accurate. A final calculation was made to determine the percentage of school districts that were predicted accurately.

Example: 2012 NJ ASK 7 Language Arts, Tewksbury Township

For the Tewksbury Township school district, the demographic values for the three best predictors in the model were as follows:

A_i = % of all people under poverty = 1.5

A_{ii} = % of community members with a bachelor's degree = 33.0

A_{iii} = % of families with income of $200,000 or more = 44.9

I entered these values into the predictive algorithm along with the unstandardized betas and constant: 1.5(-1.309) + 33.0(.623) + 44.9(.285) + 56.193 = 87.585.

The result, 87.585, represents the percentage of students in the Tewksbury Township school district I predicted to score Proficient or above on the 2012 New Jersey state mandated Language Arts test. The actual percentage of Grade 7 students in the district who scored Proficient or above on the test was 87.6%. The standard error of measure for the model was 9.6370. The difference between the actual percentage and predicted percentage was 87.6 –

87.585 = .015 percentage points. The difference was well within the margin of error for the model and considered accurate.

Overall, I accurately predicted the percentage of students scoring Proficient or above within the standard error of the estimate for 276 out of 367 districts in the sample, or 75.2% of the total districts, for Language Arts portion of the 2012 NJ ASK 7 (standard error of the estimate = 9.6370, constant = 56.193, See Appendix E).

2012 NJ ASK 7 Mathematics

The mean percentage of students scoring Proficient or above on the 2012 NJ ASK 7 Mathematics test was 66.293 with a standard deviation of 16.3132. Table 45 below provides the descriptive statistics for the 2012 Mathematics Sample.

Table 45

2012 Mathematics NJ ASK 7 Descriptive Statistics

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Employ Status	367	36.6	95.5	72.589	9.7824
P + AP Math	367	19.7	100.0	66.293	16.3132
% House <25K	367	1.8	51.6	14.517	8.0665
% House <35K	367	2.6	61.9	21.781	10.6476
% House >200K	367	.0	45.4	10.417	10.3013
% Family <25K	367	.5	42.4	8.688	7.3857
% Family <35K	367	1.6	58.5	14.423	10.2553
%Family >200K	367	.0	93.0	12.909	12.6249
All Fams Pov 12 mnths	367	.0	47.5	8.009	8.1970

Femal House Pov	367	.0	100.0	21.613	17.0658
All People under Pov	366	.6	38.4	7.231	6.0904
Lone-Parent Male	367	.0	9.7	1.774	1.4219
Lone-Parent Female	367	.3	24.5	5.769	3.5811
Lone-Parent household (total)	367	1.1	27.9	7.528	4.3959
Less than 9th grade	367	.0	23.4	4.284	3.9244
No HS	367	.4	38.3	10.484	7.1434
Some College	367	2.4	29.9	16.930	3.8997
BA	367	4.3	48.9	22.666	8.9551
G	367	.9	44.0	13.540	8.8457
Valid *N* (listwise)	366				

I then calculated descriptive statistics for the number of students scoring Proficient or above, at the district level, on the 2012 NJ ASK 7 in Mathematics in order to check for skewness and ensure the data met the assumption of normality. Table 46 displays the descriptive statistics and Figure 6 provides a histogram of the data. The skewness was -.546, which was well within the +-1.00 ratio. Therefore, the data met the assumption of normality and can be used in regression analysis.

Table 46

2012 Mathematics NJ ASK 7 Descriptives

Descriptives

			Statistic	Std. Error
P + AP Math	Mean		66.293	.8515
	95% Confidence Interval for Mean	Lower Bound	64.618	
		Upper Bound	67.967	
	5% Trimmed Mean		66.931	
	Median		69.300	
	Variance		266.120	
	Std. Deviation		16.3132	
	Minimum		19.7	
	Maximum		100.0	
	Range		80.3	
	Interquartile Range		21.3	
	Skewness		-.546	.127
	Kurtosis		-.248	.254

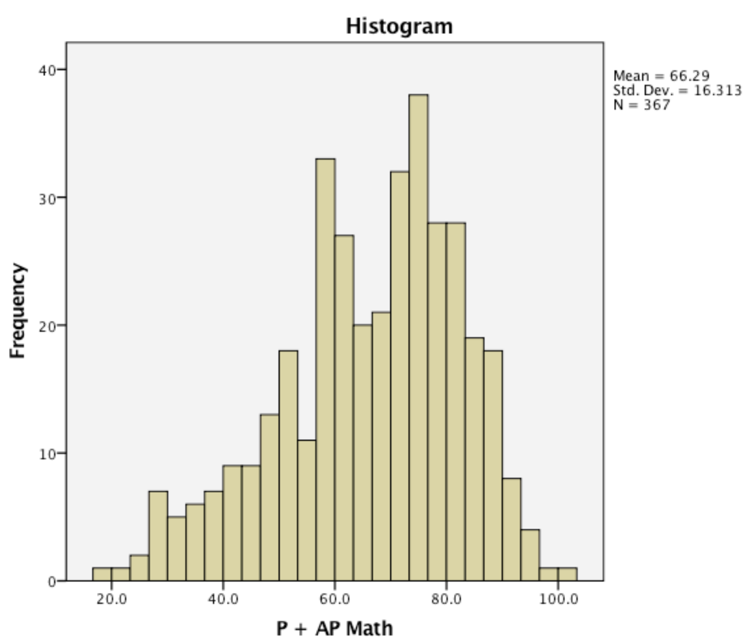

Figure 8. 2012 NJ ASK 7 Mathematics histogram of the number of students scoring proficient or above at the district level.

In order to determine the strength, direction, and significance between each independent variable and the number of students scoring Proficient or above, at the district level, on the 2012 NJ ASK 7 Mathematics test, Pearson correlation coefficients were calculated using SPSS. The correlation matrix also allowed me to begin examining potential independent variables that were strongly correlated in order to anticipate multicollinearity prior to creating the regression models.

After examining the correlational coefficients, all independent variables were loaded into an initial simultaneous multiple regression model. Tables 47 and 48 provide the Model Summary and ANOVA Table, respectively, for the initial regression. The initial regression was statistically significant with an *R* square value of .666 and a standard error of the estimate of 9.6757. Therefore, the initial model accounted for 66.6% of the variance observed.

Table 47

2012 Mathematics NJ ASK 7 Model Summary

Model Summary

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.816[a]	.666	.649	9.6757

a. Predictors: (Constant), G, Femal House Pov, Lone-Parent Male, Employ Status, Lone-Parent Female, Some College, Less than 9th grade , % House <25K, %Family >200K, BA, All Fams Pov 12 mnths, % House >200K, % Family <35K, No HS, All People under Pov, % Family <25K, % House <35K, Lone-Parent household (total)

Table 48

2012 Mathematics

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	64913.849	18	3606.325	38.521	.000[b]
	Residual	32485.981	347	93.620		
	Total	97399.830	365			

a. Dependent Variable: P + AP Math

b. Predictors: (Constant), G, Femal House Pov, Lone-Parent Male, Employ Status, Lone-Parent Female, Some College, Less than 9th grade , % House <25K, %Family >200K, BA, All Fams Pov 12 mnths, % House >200K, % Family <35K, No HS, All People under Pov, % Family <25K, % House <35K, Lone-Parent household (total)

I used the initial coefficients table (Table 49) in conjunction with the correlation matrix to begin eliminating independent variables. Initial models were created using independent variables that strongly correlated with the number of students scoring Proficient or above, at the district level, on the 2012 NJ ASK in Mathematics. As variables were eliminated, regression analysis continued until the combination of independent variables accounting for the most variance was determined.

Table 49

2012 Mathematics NJ ASK 7 Initial Regression Model

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	*t*	Sig.
1	(Constant)	66.890	9.669		6.918	.000
	Employ Status	-.020	.068	-.012	-.299	.765
	% House <25K	-.740	.393	-.366	-1.883	.061

% House <35K	.852	.323	.556	2.638	.009
% House >200K	.466	.171	.294	2.727	.007
% Family <25K	.208	.429	.094	.485	.628
% Family <35K	-.519	.319	-.326	-1.626	.105
%Family >200K	-.037	.113	-.029	-.330	.742
All Fams Pov 12 mnths	.086	.289	.043	.298	.766
Femal House Pov	.045	.045	.047	1.014	.312
All People under Pov	-.869	.394	-.324	-2.207	.028
Lone-Parent Male	-.246	1.664	-.021	-.148	.883
Lone-Parent Female	-.809	1.718	-.178	-.471	.638
Lone-Parent household (total)	.399	1.694	.107	.236	.814
Less than 9th grade	.915	.349	.220	2.619	.009
No HS	-.770	.291	-.337	-2.651	.008
Some College	-.046	.213	-.011	-.215	.830
BA	.259	.152	.142	1.707	.089
G	.012	.164	.007	.073	.941

a. Dependent Variable: P + AP Math

Hierarchical Regression Model

The model of best fit included variables related to community social capital and family human capital. The percentage of all people under poverty, the percentage of community members with a bachelor’s degree, and the percentage of families with an income of $200,000 or more were the three independent variables that combined to account for the most variance in the number of students scoring Proficient or above, at the district level, on the 2012 NJ ASK 7 Mathematics test. The *R* square value for this model was .638 with a standard error of 9.8686. The model is statistically significant at the .005 level as *p* = .000. Therefore, 63.8% of the variance in the number of students scoring Proficient or above, at the district level, on the Mathematics portion of the 2012 NJ ASK 7 can be explained by the model.

Table 50

2012 Mathematics NJ ASK 7 Hierarchical Regression Analysis Model Summary

Model Summary

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.701[a]	.491	.489	11.6719
2	.789[b]	.623	.621	10.0629
3	.799[c]	.638	.635	9.8686

a. Predictors: (Constant), All People under Pov

b. Predictors: (Constant), All People under Pov, BA

c. Predictors: (Constant), All People under Pov, BA, %Family >200K

Table 51

2012 Mathematics NJ ASK 7 Hierarchical Regression Results

ANOVA[a]

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	47810.739	1	47810.739	350.946	.000[b]
	Residual	49589.091	364	136.234		
	Total	97399.830	365			
2	Regression	60641.513	2	30320.756	299.427	.000[c]
	Residual	36758.317	363	101.263		
	Total	97399.830	365			
3	Regression	62145.097	3	20715.032	212.705	.000[d]

Residual	35254.733	362	97.389		
Total	97399.830	365			

a. Dependent Variable: P + AP Math

b. Predictors: (Constant), All People under Pov

c. Predictors: (Constant), All People under Pov, BA

d. Predictors: (Constant), All People under Pov, BA, %Family >200K

The coefficients table (Table 52) demonstrates how each of the three-predictor variables within the model influences the dependent variable. In Model 3 the predictor, percentage of all people under poverty, reported a beta of -1.144. The beta was statistically significant at the .005 level (*p* = .000) and the reported VIF was 1.584. The negative beta indicates that as the percentage of all people under poverty within a community increases, the percentage of students scoring Proficient or above, at the district level, on the 2012 Mathematics NJ ASK 7 decreases. The predictor, percentage of community members with a bachelor's degree, reported a beta of .549. The beta is statistically significant at the .005 level (*p* = .000) and the reported VIF was 3.146. The positive beta indicates that as the percentage of community members with a bachelor's degree increases, the percentage of students scoring Proficient or above, at the district level, on the 2012 Mathematics NJ ASK 7 increases. The predictor, percentage of families with income of $200,000 or more, reported a beta of .255. The beta is statistically significant at the .005 level (*p* = .000) and the reported VIF was 2.525. The positive beta indicates that as the percentage of families with an income of $200,000 or more increases, the percentage of students scoring Proficient or above, at the district level, on the 2012 Mathematics NJ ASK 7 increases. Since all of the reported VIF's were less than 3.146, there is no major threat of multicollinearity in this model (Kutner et al., 2004; Rovai et al., 2014).

Table 52

2012 Mathematics NJ ASK 7 Coefficients Table

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
		B	Std. Error	Beta	*t*	Sig.	Tolerance	VIF
1	(Constant)	79.881	.948		84.280	.000		
	All People under Pov	-1.879	.100	-.701	-18.734	.000	1.000	1.000
2	(Constant)	55.632	2.304		24.146	.000		
	All People under Pov	-1.136	.109	-.423	-10.439	.000	.632	1.583
	BA	.832	.074	.457	11.256	.000	.632	1.583
3	(Constant)	58.809	2.400		24.506	.000		
	All People under Pov	-1.144	.107	-.427	-10.720	.000	.631	1.584
	BA	.549	.102	.301	5.373	.000	.318	3.146
	%Family >200K	.255	.065	.197	3.929	.000	.396	2.525

a. Dependent Variable: P + AP Math

Predictive Power for Dependent Variable: 2012 NJ ASK 7 Mathematics

I used the unstandardized betas, community and family-level percentages of those variables, and the constant from the statistically significant variables in the hierarchical model of best fit in order to determine the predictive power. The predicted percentage of students scoring Proficient or above, at the district level, on the 2011 NJ ASK 7 Mathematics test was found using the standard regression algorithm used by Maylone (2002):

$$A_i (X_i) + A_{ii} (X_{ii}) + A_{iii} (X_{iii}) \ldots + \text{Constant} = Y$$

A_i = individual school district predictor value

X_i = unstandardized beta for predictor

Y = predicted percentage of students scoring Proficient or above

The standard error of the estimate was used to make final determinations about the accuracy of each prediction. The predicted percentage was subtracted from the actual reported percentage of students scoring Proficient or above, at the district level, in Mathematics on the 2012 NJ ASK 7. If the prediction was within the margin of error for the model, it was deemed accurate. A final calculation was made to determine the percentage of school districts that were predicted accurately.

Example: 2012 NJ ASK 7 Mathematics, Palisades Park

For the Palisades Park school district, the demographic values for the three best predictors in the model were as follows:

A_i = % of all people under poverty = 12.5

A_{ii} = % of community members with a bachelor's degree = 30

A_{iii} = % of families with income of $200,000 or more = 5

I entered these values into the predictive algorithm along with the unstandardized betas and constant: 12.5(-1.144) + 30(.549) + 5(.255) + 58.809 = 62.254.

The result, 62.254, represents the percentage of students in the Alexandria Township school district I predicted to score Proficient or above on the 2012 New Jersey state mandated Mathematics test. The actual percentage of Grade 7 students in the district who scored Proficient or above on the test was 61.9%. The standard error of measure for the model was 9.8686. The difference between the actual percentage and predicted percentage was 61.9 – 62.254 = -.0354 percentage points. The difference was well within the margin of error for the model and considered accurate.

Overall, I accurately predicted the percentage of students scoring proficient or above within the standard error of the estimate for 273 out of 367 districts in the sample, or 74.3% of the total districts, for the Mathematics portion of the 2012 NJ ASK 7 (standard error of the estimate = 9.8686, constant = 58.809, see Appendix F).

Research Questions

I attempted through multiple regression to determine the predictive influence of family and community demographic variables found in the U.S. Census data on Grade 7 NJ ASK student performance in Language Arts and Mathematics during the years 2010, 2011, and 2012. This study was guided by four research questions.

Research Question 1: How accurately can community and family-level demographic variables, found in the 2010 U.S. Census data, predict the percentage of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Language Arts?

Null Hypothesis 1: Community and family-level demographic variables have no statistically significant predictive influence on the percentage of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Language Arts.

The null hypothesis is rejected. Using the same three statistically significant community and family-level demographic variables, I was able to predict within the standard error of the estimate between 72.3% and 76.8% of the total districts within the sample Language Arts portion of the 2010-2012 NJ ASK 7.

Research Question 2: How accurately can community and family-level demographic variables, found in the 2010 U.S. Census data, predict the percentage of students scoring proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Mathematics?

Null Hypothesis 2: Community and family-level demographic variables have no statistically significant predictive influence on the percentage of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Mathematics.

The null hypothesis is rejected. Using the same three statistically significant community and family-level demographic variables, I was able to predict within the standard error of the estimate between 71.0% and 74.3% of the total districts within the sample Mathematics portion of the 2010-2012 NJ ASK 7.

Research Question 3: Which combination of independent variables establishes the strongest predictive power for the percentage of a school district's students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 Language Arts test?

Null Hypothesis 3: There is no statistically significant combination of independent variables that establish the strongest predictive power for the percentage of a school district's students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 Language Arts test results.

The null hypothesis is rejected. Using the same three statistically significant community and family-level demographic variables, including the (a) percentage of all people under poverty, (b) percentage of all community members with a bachelor's degree, and (c) percentage of families with an income of $200,000 or more, I was able to predict within the standard error of the estimate between 72.3% and 76.8% of the total districts within the sample Language Arts portion of the 2010-2012 NJ ASK 7.

Research Question 4: Which combination of independent variables establishes the strongest predictive power for the percentage of a school district's students scoring Proficient or above on 2010, 2011, and 2012 NJ ASK 7 Mathematics test?

Null Hypothesis 4: There is no statistically significant combination of independent variables that establish the strongest predictive power for the percentage of a school district's students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 Mathematics test results.

The null hypothesis is rejected. Using the same three statistically significant community and family-level demographic variables, including the (a) percentage of all people under poverty, (b) percentage of all community members with a Bachelors degree, and (c) percentage of families with an income of $200,000 or more, I was able to predict within the standard error of the estimate between 71.0% and 74.3% of the total districts within the sample Mathematics portion of the 2010-2012 NJ ASK 7.

Summary of Results

The mean percentage of students scoring Proficient or above, at the district level, on the 2010 through 2012 NJ ASK Language Arts tests ranged from a low of 66.98 to a high of 72.59. The standard deviations for the percentage of students scoring Proficient or above, at the district level, on the 2010 through 2010 NJ ASK Language Arts tests ranged from 15.72 to 17.63. The mean percentage of students scoring Proficient or above, at the district level, on the 2010 through 2012 NJ ASK Mathematics tests ranged from a low of 66.29 to a high of 68.57. The standard deviations for the percentage of students scoring Proficient or above, at the district level, on the 2010 through 2010 NJ ASK Mathematics tests ranged from 16.11 to 16.36 (See Table 53).

Table 53

Mean and Standard Deviations of Student in the Sample Scoring Proficient or Above at the District Level

		Grade 7 ELA	Grade 7 Math
2010	Mean	72.29	67.04
	Standard Deviation	15.72	16.36
	n	365	366
2011	Mean	66.98	68.57
	Standard Deviation	17.57	16.11
	n	370	370
2012	Mean	72.59	66.29
	Standard Deviation	17.63	16.31
	n	367	367

The model of best fit included variables related to community social capital and family human capital for each dependent variable. The percentage of all people under poverty, the percentage of community members with a bachelor's degree, and the percentage of families with an income of $200,000 or more were the three independent variables that combined to account for the most variance in the number of students scoring Proficient or above, at the district level, on the 2010 through 2012 NJ ASK 7 in Language Arts and Mathematics. The *R*-squared values ranged from .599 to .707, and therefore the variance accounted for ranged from 59.9% to 70.7%. The standard error of the estimate ranged from 8.55 to 10.25 (See Table 54).

Table 54

R-Square Values for Each Model and the Standard Error of the Estimate

		Grade 7 ELA	Grade 7 Math
2010	*R*-squared	.707	.619
	Standard Error	8.55	10.16
	Variance Accounted For	70.7%	61.9%
2011	*R*-squared	.663	.599

	Standard Error	10.22	10.25
	Variance Accounted For	66.3%	59.9%
2012	*R*-squared	.704	.638
	Standard Error	9.64	9.87
	Variance Accounted For	70.4%	63.8%

I used the unstandardized betas and constants from the hierarchical regression models of best fit as part my predictive algorithms for the 2010-2012 NJ ASK 7 Language Arts and Mathematics models. The threat of multicollinearity was ruled out, as all VIF's were under 3.200 and the majority were under 2.500 (Kutner et al., 2004; Rovai et al., 2014).

Table 55

Unstandardized Betas, Constants, and VIF's for Each Predictive Model

	Predictor Variable	Unstandardized Beta	Constant	VIF
2010 ELA	% of all people under poverty	-1.203*	64.546	1.566
	% of community members with a bachelor's degree	.612*		3.044
	% of families with an income of $200,000 or more	.199*		2.480
2010 Math	% of all people under poverty	-1.086*	58.044	1.570
	% of community members with a bachelor's degree	.620*		3.050
	% of families with an income of $200,000 or more	.219*		2.482
2011 ELA	% of all people under poverty	-1.398*	61.054	1.565
	% of community members with a bachelor's degree	.561*		3.057
	% of families with an income of $200,000 or more	.253*		2.494
2011 Math	% of all people under poverty	-1.136*	61.238	1.565
	% of community members with a bachelor's degree	.570*		3.057
	% of families with an income of $200,000 or more	.201*		2.494
2012 ELA	% of all people under poverty	-1.309*	56.193	1.584
	% of community members with a bachelor's degree	.623*		3.146
	% of families with an income of $200,000 or more	.285*		2.525
2012 Math	% of all people under poverty	-1.144*	58.809	1.584
	% of community members with a bachelor's degree	.549*		3.146
	% of families with an income of $200,000 or more	.255*		2.525

I accurately predicted, within the standard error of the estimate, the percentage of students scoring Proficient or above, at the district level, on the 2010 through 2012 NJ ASK 7 in

Language Arts and Mathematics for 71.0% to 76.8% of the school districts in my samples (See Tables 56 and 57)

Table 56

Percentage of School Districts Whose Results Were Predicted Accurately

	Grade 7 ELA	Grade 7 Math
2010	72.3	71.0
2011	76.8	73.0
2012	75.2	74.3

Table 57

Standard Error of the Estimate

	Grade 7 ELA	Grade 7 Math
2010	±8.55	±10.16
2011	±10.26	±10.25
2012	±9.64	±9.87

Essentially, if I have access to the U.S. Census data for the (a) percentage of all people under poverty, (b) percentage of community members with a bachelor's degree, and (c) percentage of families with an income of $200,000 or more, the probability is high that I can predict the percentage of students, at the district level, who will score Proficient or above on the 2010 through 2012 NJ ASK 7 in Language Arts and Mathematics.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this longitudinal study was to determine which combination of community and family-level demographic variables best predicted a New Jersey school district's percentage of students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 in Language Arts and Mathematics. This study focused on family and community demographic variables in the extant literature found in the U.S. Census data within the family and community social constructs that significantly impact student achievement. I sought to apply simultaneous hierarchical multiple regression analysis to produce research-based evidence and inform public school educators and policymakers of the danger of making important educational decisions and implementing reform initiatives regarding student and educator effectiveness based solely on standardized test results.

The following four overarching research questions guided this study:

Research Question 1: How accurately can community and family-level demographic variables found in the 2010 U.S. Census data predict the percentage of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Language Arts?

Research Question 2: How accurately can community and family-level demographic variables, found in the 2010 U.S. Census data predict the percentage of students scoring Proficient or above, at the district level, on the 2010, 2011, and 2012 Grade 7 NJ ASK in Mathematics?

Research Question 3: Which combination of independent variables establishes the strongest predictive power for the percentage of a school district's students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 Language Arts test?

Research Question 4: Which combination of independent variables establishes the strongest predictive power for the percentage of a school district's students scoring Proficient or above on 2010, 2011, and 2012 NJ ASK 7 Mathematics test?

The results of this study support the existing literature and previous research demonstrating out-of-school family and community demographic variables significantly impact how students perform on state standardized assessments and can be used to predict, quite accurately, the number of students scoring Proficient or above, at the district level, on mandated state standardized assessments (Maylone, 2002; Sackey, 2014; Tienken, 2015, 2016; Turnamian, 2012; Turnamian & Tienken, 2013). More specifically, the results of this study demonstrated the (a) percentage of all people under poverty, (b) percentage of community members with a bachelor's degree, and (c) percentage of families with an income of $200,000 explain 70.7%, 66.3%, and 70.4% of the variance in a school district's 2010, 2011, and 2012 NJ ASK 7 Language Arts scores and 61.9%, 59.9%, and 63.8% of the variance in a school district's 2010, 2011, and 2012 NJ ASK 7 Mathematics scores, respectively. Moreover these three community and family demographic variables combined to predict 72.3%, 76.8%, and 75.2% of the 2010, 2011, and 2012 school districts' Language Arts test results and 71.0%, 73.0%, and 74.3% of the 2010, 2011, and 2012 school districts' Mathematics test results, respectively.

While previous studies have demonstrated out-of-school family and community demographic variables can be used to predict test results, this study is unique in that the same three-predictor variables, including (a) percentage of all people under poverty, (b) percentage of community members with a bachelor’s degree, and (c) percentage of families with an income of $200,000, combined to accurately predict district test results over a three-year period. Additionally, the three-predictor variables accounted for the most variance in test scores in the 2010, 2011, and 2012 Language Arts and Mathematics test results. This longitudinal study is also unique because it was conducted at the middle school level, Grade 7, and adds to the existing limited body of cross-sectional studies that have been conducted in other various grade levels.

The percentage of all people under poverty, percentage of community members with a bachelor’s degree, and percentage of families with an income of $200,000 or more served as the three inputs that most accurately predicted the outputs, 2010-2012 Language Arts and Mathematics district level test results. These three community and family-level demographic variables which constitute the human and social capital of a community were utilized to predict the percentage of students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 Language Arts and Mathematics Assessments at the district level.

Increases in human and social capital occur in wealthier communities as students have increased access to various resources through their life experiences. Increases in human and social capital influence student achievement as measured by standardized tests (Tienken, 2015). This further supports a plethora of research that has demonstrated socioeconomic status, also a measure of human and social capital, is the strongest predictor of student achievement (Coleman et al., 1966; Duncan, Morris, & Rodrigues, 2011; Gamoran & Long, 2006; Jencks et al., 1972; Miller, Votruba-Drzal, & Setodji, 2013; Morrissey, Hutchison, & Winsler, 2013; Reardon, 2013; Sirin, 2005; Tienken, 2011). Furthermore, the Coleman Report revealed school and teacher characteristics only account for approximately 10% of the variance in student achievement (Coleman et al., 1966).

The percentage of all people under poverty, percentage of community members with a bachelor's degree, and percentage of families with an income of $200,000 or more constitute an individual's social capital and supports the structural theory of poverty. These three social capital variables demonstrate that as populations are composed of more vulnerable circumstances, poverty increases (Brady, 2006). Vulnerable circumstances, as applied to this research, are the predictor variables, which include the percentage of all people under poverty, percentage of community members with a bachelor's degree, and percentage of families with an income of $200,000 or more. This structure of poverty prevents poor individuals from increasing their human and family social capital and the structure becomes cyclic, in which the rich get richer and the poor get poorer. Consequently, poor students continue to perform lower on standardized assessments compared to their wealthier counterparts, and the predictive nature of standardized test scores continues to be heavily influenced by human and family social capital demographic variables.

The memberships theory of poverty contends that an individual's socioeconomic projections are heavily influenced by the groups within the community with which he or she associates throughout his or her life (Durlauf, 2000). The memberships theory of poverty directly connects to the theoretical construct of this research study and can be applied to school districts. According to Putnam (2001), various resources such as community groups, recreation programs, church groups, parent organizations and other similar resources all contribute to the social capital of a community (as cited in Tienken & Mullen, 2015). Ultimately, the percentage of all people under poverty, percentage of community members with a bachelor's degree, and percentage of families with an income of $200,000 contribute to the social capital of a community and influence an individual's socioeconomic projections. These variables combined to predict, quite accurately, the 2010, 2011, and 2012 NJ ASK 7 Language Arts and Mathematics district level test results.

Students who grow up in wealthy communities are more likely to have access to various resources compared to children in poor communities, which further demonstrates the structural theory of poverty and memberships theory of poverty. The increase in human and social capital heavily influences standardized test scores, as wealthy students gain experiences in their social networks that poor students do not. Wealthy students are then able to develop stronger background knowledge and apply this knowledge to enhance their own individual learning (Tanner & Tanner, 2007).

Considering that the extant literature demonstrating socioeconomic status is the most influential variable on student achievement, considering production function theory, the structural theory of poverty, and the memberships theory of poverty, and considering that achievement on standardized test scores can be predicted utilizing family-level demographic variables constituting the human and social capital of a community, using such results exclusively to make critical decisions in education must be questioned. In this study I was able to demonstrate that test results can be predicted using family and community demographic variables in the majority of both affluent and underprivileged school districts. Therefore, we must question the value of using test results to measure effective teaching and school quality.

Important decisions in education continue to be made using high-stakes test results throughout the country (Tienken, 2008; Tienken & Rodriguez 2010). Based on the predictability of such results, leaders in education must consider a more holistic approach to evaluating teacher effectiveness and school quality. Standardized assessment results alone are not an accurate measure of district, school, and student performance. District, school, and teacher quality can be better analyzed using multiple factors such as graduation rates, the results of locally developed assessments, problem- and project-based assessments, and student portfolios. Federally mandated assessments then become only one factor for evaluating effective teaching and quality school districts, and those results are coupled with other factors to more accurately evaluate district, school, teacher, and student performance.

Recommendations for Policy

Policymakers and education bureaucrats continue to design and implement education reform efforts focusing on increasing accountability in education through high-stakes testing policies. However, the results of this study as well as other studies (Maylone, 2002; Sackey, 2014; Tienken, 2015, 2016; Turnamian, 2012; Turnamian & Tienken, 2013) predicted, with accuracy, the percentage of students scoring Proficient or above on various state standardized assessments. There appears to be a serious disconnect between educational researchers and policymakers. The time has come for policymakers and education bureaucrats to develop and implement research based policies that are proven to successfully increase student achievement.

Policymakers must create a balance between the implementation of high-stakes assessments and locally developed curricula and assessments. The Cardinal Principles of Education acknowledged that not all students learn at the same pace and students do not necessarily achieve the same level of mastery, creating a need to differentiate curricula and assessments (Commission on Reorganization of Secondary Education, 1918). Furthermore, the Eight-Year Study demonstrated students who were able to access multiple, divergent curricula paths through high school performed better on standardized tests in high school and their academic and socio-civic measures in college than students who attended schools with standardized programs (Aikin, 1942). More recently, the Nebraska STARS program has created an accountability system in which each district is able to locally develop assessments in reading, math, and science (Teahon, 2012). Such policies restore local control and focus on implementing quality teaching strategies and innovative curricula designed to meet the needs of 21st century learners (Teahon, 2012).

Given the "stakes" associated with standardized reform agendas, policymakers and education bureaucrats must make test-based inferences that are supported with strong empirical evidence (AERA, APA, NCME, 1999). This study has demonstrated community and family-level demographic variables accurately predict the results of NJ ASK 7 achievement. The extant literature indicates a need for utilizing multiple measures to make important decisions about students and educators. The results of high-stakes assessments should not be used by policymakers and education bureaucrats to punish school districts and educators. Instead, the results should be used as one of several data points used to evaluate educator effectiveness and make critical "high-stakes" decisions. According to Tienken and Mullen (2015), "The results from commercially prepared tests would be used to inform, not punish: Just another data-point to triangulate the cognitive development of children" (p. 165).

If high-stakes tests are going to be used to make critical decisions in education, the technical quality of the assessments must be closely monitored and the results should only be interpreted based on the original construct and intent of the exam (AERA, APA, NCME, 1999). Policymakers must make a concerted effort to ensure the technical quality of high-stakes tests in order to increase the validity and reliability of the assessment (AERA, APA, NCME, 1999).

Policymakers should report the results as designed by the construct of the exam and must limit any interpretations outside of the construct.

Policymakers should address and report all aspects of the assessment, including validity and reliability concerns, to the public before misinterpretations of the data are made and districts/schools are mislabeled. Considering that Tienken (2011) found a technical characteristic linked with construct validity called conditional standard error of measurement (CSEM), which indicates a student's standardized test result may not be reflective of their actual or true score, policymakers must take into consideration that a student's test results can differ by + or – some number of points, which means several students may be inaccurately classified as "failing," "partially proficient," or withheld from graduation when scoring near the cut-off point for proficiency. Policymakers must consider CSEM when reporting scores and either completely add the margin of error to the student's score or at the bare minimum, report student scores as a range which factors in the conditional standard error of measurement rather than inaccurately labeling students based on a single standardized assessment result.

Recommendations for Practice

All 50 states currently have high-stakes testing policies, and school and district leaders continue to use the results to make important decisions impacting the educational opportunities of students (Tienken, 2008; Tienken & Rodriguez 2010). The results of this study and other similar research demonstrating the predictability of standardized test results demonstrates the overutilization and exclusive reliance on such exams to make critical decision about students is unfair and a negligent administrator practice. Based on this research middle school administrators should cease such practices and at the very least develop a holistic approach, which includes multiple measures, to make important decisions in education regarding the students they serve. After all, this simply supports the *Standards for Educational and Psychological Testing* (1999), which recognizes the importance of considering multiple measures to make important decisions about students and cautions against the utilization of test results to make broad generalizations about student progress and achievement (AEAR, APA, NCME, 1999).

Mandated testing policies are a given reality in today's schools. The results of this study have demonstrated high-stakes assessments results can be predicted based on community and family-level demographic variables outside of school administrators' control. Furthermore, the results of current literature and landmark studies have demonstrated locally developed curricula and assessments are most effective for improving student learning. Administrators must therefore focus on the factors they can control, such as curricula reform efforts, to increase student achievement and make important decisions in education. District and school leaders must develop and implement policies focused on customizing curricula and assessments, which integrate the Common Core and meet the needs of their diverse student populations.

School leaders are federally mandated to implement the Common Core State Standards. However, administrators must focus on protecting teachers and students by ensuring customized curricula and assessments are developed and implemented, enabling each student to reach his or her full potential. At the local level, district and school leaders can enact policies ensuring students gain a well-balanced, diversified education that incorporates core and elective content/courses. Principals can then limit the use of standardized test results to make important decisions in education while incorporating multiple measures such as student portfolios, teacher recommendations, self/peer evaluations, and the results of locally developed assessments to make high-stakes decisions.

Finally, school administrators must remain at the forefront of educational research and make decisions that are empirically validated. As stakes in education continue to grow, administrators owe it to the staff, students, and community to implement policies limiting the use of standardized test to make critical decisions. Administrators must become actively involved in their communities and school boards and focus on developing an accountability system engrained in research and shown to truly have a positive impact on student achievement and success.

Recommendations for Future Research

Although this study examined the combination of community and family-level demographic variables that best predicted a New Jersey school district's percentage of students scoring Proficient or above on the 2010, 2011, and 2012 NJ ASK 7 in Language Arts and Mathematics, the study cannot provide all the answers related to community and family-level demographic variables and student achievement. In order to enhance the literature, improve decision-making in education, and ultimately maximize student success, it is imperative future studies are conducted such as those listed below.

- Conduct a similar study in New Jersey middle schools to determine which combination of community and family-level demographic variables, if any, best predict high-stakes assessment NJ ASK 7 results at the school level
- Conduct a similar study in New Jersey middle schools to determine which combination of community and family-level demographic variables, if any, best predict high-stakes assessment NJ ASK 7 results at the individual student level
- Conduct a similar study in other states and at the national level to determine which combination of community and family-level demographic variables found in the U.S.

Census data, if any, combine to best predict district, school, and individual student Grade 7 high-stakes assessment results and compare findings

- Conduct a similar study in other grade levels to determine which, if any, community and family-level demographic variables found in the U.S. Census data combine to best predict district, school, and individual student NJ ASK high-stakes assessment results and compare findings
- Conduct a similar study in other states and at the national level to determine which combination of community and family-level demographic variables found in the U.S. Census data, if any, combine to best predict district, school, and individual student grade high-stakes assessment results at various grade levels and compare findings
- Design a study examining the predictive influence of community and family-level demographic variables while incorporating school-level variables that have been shown to statistically significantly influence student achievement on high-stakes assessments
- Conduct a similar study in New Jersey, other states, and at the national level to determine which combination of community and family-level demographic variables found in the U.S. Census data, if any, combine to best predict district, school, and individual student PARCC assessment results
- Recreate this study in other subject areas such as science

Chapter Summary and Conclusions

This study examined 18 community and family-level demographic variables related to an individual's community and family social capital. Out of the 18 variables, I was able to accurately predict assessment results using the same three community and family-level demographic variables. Using the percentage of all people under poverty, percentage of community members with a bachelor's degree, and percentage of families with an income of $200,000 or more, which accounts for an individual's community and family social capital, I accurately predicted the percentage of students scoring Proficient or above within the standard error of the estimate for 72.3% to 76.8% of the total district Language Arts portion and 71.0% to 74.3% of the total district Mathematics portion for the 2010-2012 NJ ASK 7. Despite my research and similar findings (Maylone, 2002; Turnamian, 2012; Sackey, 2014; Tienken 2016), high-stakes assessment policies continue to drive reform efforts in education.

My study has demonstrated high-stakes reform efforts may not be the most appropriate and accurate measure of student, teacher, educator, and administrator effectiveness. Considering the influence and predictive nature of out-of-school community and family-level demographic variables on high-stakes district test results, using standardized assessments to evaluate teachers and schools is questionable. In today's education climate, success is based on high-stakes assessment results. However, this research study has demonstrated the exact same three out-of-school community and family-level demographic variables found in the U.S. Census Data—percentage of all people under poverty, percentage of community members with a bachelor's degree, and percentage of families with an income of $200,000 or more—can be combined to accurately predict the percentage of students, at the district level, who will score Proficient or above on the 2010 through 2012 NJ ASK 7 in Language Arts and Mathematics.

Individuals around the policymaking table, as well as district and school leaders, must be aware of this research and implement school-based reform efforts deemphasizing standardized test scores. At a minimum, accountability policies must be research-based and have strong empirical evidence. Curricula control and decision-making must be restored to the local level.

Administrators should enact local policies that integrate a more holistic approach for evaluating students, teachers, schools, and districts. Finally, in order to be prepared for the 21st century marketplace, we must provide students with a well-balanced curriculum emphasizing both the core content areas and elective classes.

References

Aikin, W.M. (1942). *The story of the eight-year study*. New York, NY: Harper.

American Educational Research Association (AERA), American Psychological Association (APA), & National Council on Measurement in Education (NCME). (1999). *The standards for educational and psychological testing.* Washington, DC: American Psychological Association.

Amrein, A. L., & Berliner, D. C. (2002a). High-stakes testing, uncertainty, and student learning. *Education Policy Analysis Archives, 10*(18). Retrieved from http://epaa.asu.edu/ojs/article/view/297/423

Amrein, A. L., & Berliner, D. C. (2002b). *The impact of high-stakes tests on student academic performance: An analysis of NAEP results in states with high-stakes tests and ACT, SAT, and AP test results in states with high school graduation exams.* Retrieved from Education Policy Studies Laboratory, Education Policy Research Unit: http://epsl.asu.edu/epru/documents/EPSL-0211-126-EPRU.pdf

Amrein, A. L., & Berliner, D. C. (2002c). *An analysis of some unintended and negative consequences of high-stakes testing.* Retrieved from Education Policy Studies Laboratory, Education Policy Research Unit: http://nepc.colorado.edu/files/EPSL-0211-125-EPRU.pdf

Au, W. (2007). High-stakes testing and curricular control: A qualitative metasynthesis. *Educational Researcher 36*(5), 258-267.

Bailey, M. J., & Dynarski, S. M. (2011). Gains and gaps: A historical perspective on inequality in college entry and completion. In G. Duncan & R. Murnane (Eds.), *Whither opportunity? Rising inequality, schools, and children's life chances* (pp. 117–132). New York, NY: Russell Sage Foundation.

Baines, L. (2011). *Stalinizing American education*. New York, NY: Teachers College Press. Retrieved from www.tcrecord.org, ID Number 16545

Berliner, D. C. (2011). Rational responses to high stakes testing: The case of curriculum narrowing and the harm that follows. *Cambridge Journal Of Education*, *41*(3), 287-302. doi:10.1080/0305764X.2011.607151

Boote, D. N., & Beile, P. (2005). Scholars before researchers: On the centrality of the dissertation literature review in research preparation. *Educational Researcher*, *34*(6), 3-15.

Bowerman, B. L., & O'Connell, R. T. (1990). *Linear statistical models: An applied approach* (2nd ed.). Belmont, CA: Duxbury.

Brady, D. (2006). Structural theory and relative poverty in rich Western democracies, 1969-2000. *Research In Social Stratification And Mobility*, *24*(2),153-175. doi:10.1016/j.rssm.2005.02.004

Braun, H. (2004). Reconsidering the impact of high-stakes testing. *Education Policy Analysis Archives*, *12*(1).

Carnoy, M., & Loeb, S. (2002). Does external accountability affect student outcomes? A cross-state analysis. *Educational Evaluation and Policy Analysis, 24*(4), 305–331.

Clotfelter, C. T. (2006). *After Brown: The rise and retreat of school desegregation/Charles T. Clotfelter*. Princeton, NJ: Princeton University Press.

Coleman, J. S., Campbell, E .Q., Hobson, C. J., McPartland, J., Mood, A. M., Weinfield, F. D., & York, R. L. (1966). *Equality of educational opportunity.* Washington, DC: U.S. Government Printing Office.

Commission on the Reorganization of Secondary Education. (1918). *Cardinal Principles of*

Secondary Education. Washington, DC: U.S. Bureau of Education, Bulletin No. 35.

Dewey, J. (1938). *Experience and education*. New York, NY: Macmillan.

Duncan, G. J., Morris, P. A., & Rodrigues, C. (2011). Does money really matter? Estimating impacts of family income on young children's achievement with data from random-assignment experiments. *Developmental Psychology*, *47*(5), 1263-1279. doi:10.1037/a0023875

Durlauf, S. N. (2000). *The memberships theory of poverty: The role of group affiliations in determining socioeconomic outcomes.* Madison, WI: University of Wisconsin-Madison, Institute for Research on Poverty (Discussion Papers 1221-01).

Field, A. (2013). *Discovering statistics using IBM SPSS statistics.* Los Angeles, CA: Sage.

Gallagher, C. J. (2003). Reconciling a tradition of testing with a new learning paradigm. *Educational Psychology Review*, *15*(1), 83-99.

Gamoran, A., & Long, D. A. (2006). *Equality of educational opportunity: A 40-year retrospective* (WCER Working Paper No. 2006-9). Madison, WI: University of Wisconsin-Madison, Wisconsin Center for Educational Research. Retrieved from http://www.wcer.wisc.edu/publications/workingpapers/working_paper_no_2006_09.pdf

Goals 2000: Educate America Act (P.L. No. 103–227).

Hanushek, E. A. (1986). The economics of schooling: Production and efficiency in public schools. *Journal of Economic Literature, 24*, 1141.

Hanushek, E. A., & Raymond, M. E. (2003). High-stakes research: The campaign against accountability has brought forth a tide of negative anecdotes and deeply flawed research. Solid analysis reveals a brighter picture (Feature). *Education Next*, *3*(3), 48.

Hanushek, E. A., & Raymond, M. E. (2004). The effect of school accountability systems on the level and distribution of student achievement. *Journal of the European Economic Association*, *2*(2/3), 406-415.

Harwell, M. R., & LeBeau, B. (2010). Student eligibility for a free lunch as an SES measure in educational research. *Educational Researcher, 39*, 120-131.

Humlum, M. (2011). Timing of family income, borrowing constraints, and child achievement. *Journal Of Population Economics*, *24*(3), 979-1004. doi:10.1007/s00148-010-0309-9

Hursh, D. (2005). The growth of high–stakes testing in the USA: Accountability, markets and the decline in educational equality. *British Educational Research Journal*, *31*, 605-622. Retrieved from http://dx.doi.org/10.1080/01411920500240767

Jencks, C., & Phillips, M. (1998). *The black-white test score gap*. Washington, DC: The Brookings Institution Press.

Jencks, C., Smith, M., Acland, H., Bane, M. S., Cohen, D., &Gintis, H. et al. (1972). *Inequality: A reassessment of the effect of family and schooling in America.* New York, NY: Basic Books.

Johnson, B. (2001). Toward a new classification of nonexperimental quantitative research. *Education Researcher*, *30*(2), 3-13.

Jones, B., Jones, M., & Hargrove, T. (2003). *The unintended consequences of high stakes testing*. Lanham, MD: Rowman and Littlefield Publishers.

Koretz, D. M. (2008). *Measuring up: What educational testing really tells us.* Cambridge, MA: Harvard University Press.

Kutner, M. H., Nachtsheim, C. J., & Neter, J. (2004). *Applied linear regression models* (4th ed.). New York, NY: McGraw-Hill/Irwin.

Madaus, G. F., Higgins, J., & Russell, M. K. (2009). *The paradoxes of high stakes testing: How they affect students, their parents, teachers, principals, schools, and society*. Charlotte, NC: Information Age Publishing.

Maylone, N. (2002). *The relationship of socioeconomic factors and district scores on the Michigan educational assessment program tests: An analysis* (Unpublished doctoral dissertation). Eastern Michigan University, Ypsilanti, MI.

McMurrer, J. (2008). *Instructional time in elementary school subjects. A closer look at changes for specific subjects.* Washington, DC: Center on Education Policy. Retrieved from http://www.cep-dc.org/displayDocument.cfm?DocumentID=309

Messick, S. (1989). Validity. In R. L. Linn (Ed.), *Educational measurement* (3rd ed., pp.13-103). New York, NY: American Council on Education/Macmillan Publishing.

Messick, S. (1995). Validity of psychological assessment: Validation of inferences from persons' responses and performances as scientific inquiry into score meaning. *American Psychologist, 50*(9), 741-749.

Miller, P., Votruba-Drzal, E., & Setodji, C. (2013). Family income and early achievement across the urban–rural continuum. *Developmental Psychology*, *49*(8), 1452-1465. doi:10.1037/a0030244

Monk, D. H. (1989). The education production function: Its evolving role in policy analysis. *Education Evaluation and Policy Analysis*, *11*(1), 31-45.

Morrissey, T. W., Hutchison, L., & Winsler, A. (2013). Family income, school attendance, and academic achievement in elementary school. *Developmental Psychology*, *50*(3). doi:10.1037/a0033848

Deke, J., Dragoset, L., Bogen, K. B., & Gill, B. P. (2012). *Impacts of Title I supplemental educational services on student achievement*. Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

National Commission on Excellence in Education. (1983). *A Nation at Risk.* Washington, DC: U.S. Department of Education.

New Jersey Department of Education. (2010). *New Jersey assessment of skills and knowledge 2010 technical report grades 3-8.* Retrieved from http://www.state.nj.us/education/assessment/es/njask_tech_report10.pdf

New Jersey Department of Education. (2011). *New Jersey assessment of skills and knowledge 2011 technical report grades 3-8.* Retrieved from http://www.state.nj.us/education/assessment/es/njask_tech_report11.pdf

New Jersey Department of Education (2012). *New Jersey assessment of skills and knowledge 2012 technical report grades 8.* Retrieved from http://www.state.nj.us/education/assessment/es/njask_tech_report12.pdf

Nichols, S. L., Glass, G. V., & Berliner, D. C. (2006). High-stakes testing and student achievement: Does accountability pressure increase student learning?. *Education Policy Analysis Archives*, *14*(1), 1-172.

Orfield, G. (2001). *Schools more separate: Consequences of a decade of resegregation.* Cambridge, MA: Harvard Civil Rights Project.

Paulson, S. E., & Marchant, G. J. (2009). Background variables, levels of aggregation, and standardized test scores. *Education Policy Analysis Archives*, *17*(22).

Popham, W. (2001). *The truth about testing: An educator's call to action.* Alexandria, VA: Association for Supervision and Curriculum Development.

Reardon, S. F. (2013). The widening income achievement gap. *Educational Leadership*, *70*(8), 10-16.

Reinard, J. C. (2006). *Communication research statistics.* Thousand Oaks, CA: Sage

Rosenshine, B. (2003). High-stakes testing: Another analysis. *Education Policy Analysis Archives*, *11*(24).

Rovai, A.P., Baker, J. D., & Ponton, M .K. (2014). *Social science research design and statistics: A practitioner's guide to research methods and IBM SPSS analysis*. Chesapeake, VA: Watertree Press.

Sackey, A. J. (2014). *The influence of community demographics on student achievement on the Connecticut mastery test in mathematics and English language arts in grade 3 through 8* (Doctoral dissertation). Seton Hall University Dissertations and Theses (ETDs). Paper 2010.

Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research, 75*(3), 417-453.

Solley, B. A. (2007). On standardized testing: An ACEI position paper. *Childhood Education, 84*(1), 31-37. Retrieved from http://search.proquest.com/docview/210391023?accounttid =13793

Stedman, J. B., Apling, R. N., & Riddle, W. C. (1993). *Goals 2000: Educate America Act overview and analysis*. Washington, DC: Library of Congress.

Tanner, D., & Tanner, L. (2007). *Curriculum development: Theory into practice*. New York, NY: Allyn & Bacon

Teahon, M. (2012, January 1). *Perceptions of Nebraska administrators regarding the transition from STARS to NeSA and its perceived influence on the implementation of a balanced assessment system. ProQuest LLC.*

Thorndike, E.L. (1924). Mental discipline in high school studies. *Journal of Educational*

Psychology,15(1), 1-22.

Tienken. C. H. (2008). A descriptive study of the technical characteristics of the results from New Jersey's assessments of skills and knowledge in grades 3, 4, and 8. *New Jersey Journal of Supervision and Curriculum Development*, *52*, 46-61.

Tienken, C. H. (2011). *Structured inequity: The intersection of socio-economic status and the standard error of measurement of state mandated high school test results*. Lancaster, PA: NCPEA Yearbook.

Tienken, C. H. (2012). The influence of poverty on achievement. *Kappa Delta Pi Record*, *48*(3), 105. doi:10.1080/00228958.2012.707499

Tienken, C. H. (2013). Neoliberalism, Social Darwinism, and consumerism masquerading as school reform. *Interchange: A Quarterly Review Of Education*, *43*(4), 295-316.

Tienken, C. H. (2014). State test results are predictable. *Kappa Delta Pi Record*, *50*(4), 154-156.

Tienken, C. H. (2016). Standardized test results can be predicted, so stop using them to drive education policymaking. In C. Tienken & C. Mullen (Eds.), *Education policy perils: Tackling the tough issues* (pp. 157-185). Philadelphia, PA: Taylor Francis Routledge.

Tienken, C. H., & Mullen, C. A. (Eds.). (2015). *Education policy perils: Tackling the tough issues.* Philadelphia, PA: Taylor Francis Routledge.

Tienken, C. H., & Orlich, D. C. (2013). The school reform landscape: Fraud, myth, and lies. New York, NY: Rowman & Littlefield Education.

Tienken, C. H., & Rodriguez, O. (2010). The error of state mandated high school exams. *Academic Exchange Quarterly, 14*(2), 50-55.

Tienken, C. H. & Zhao, Y. (2013). How common standards and standardized testing widen the opportunity gap. In P. Carter & K. Welner (Eds.), *Closing the opportunity gap: What*

America must do to give every student a chance (pp.111-122). New York, NY: Oxford University Press.

Todd, P. E., & Wolpin, K. I. (2003). On the specification and estimation of the production function for cognitive achievement. *The Economic Journal*, *113*, 3-33.

Towers, J. M. (1992). Twenty-five years after the Coleman Report: What should we have learned? *Clearing House*, *65*(3), 138.

Turnamian, P. J. (2012). *The value of NJ school district demographic data in explaining school district NJ ASK grade 3 language arts and mathematics scores* (Doctoral Dissertation). Seton Hall University Dissertations and Theses (ETDs). Paper 1778.

Turnamian, P.G., & Tienken, C. H. (2013). *Use of community wealth demographics to predict* statewide test results in grade 3. Lancaster, PA: NCPEA Yearbook.

White, K. (1982). The relation between socioeconomic status and academic achievement. *Psychological Bulletin, 91,* 461–481.

Wilkins, J. L. M. (1999). Demographic opportunities and school achievement. *Journal of Research in Education*, *9*(1), 12-19.

U.S. Department of Education. (2014). *Race to the top assessment program*. Retrieved from http://www2.ed.gov/programs/racetothetop-assessment/index.html

Zhao, Y. (2010). Mass localism: How might the race to the top money be better spent. Retrieved from zhaolearning.com/2014/03/01mass-localism-how-might-the-race-to-the-top-money-be-better-spent/

Zhao, Y. (2012). Mass localism for improving America's education. *Kappa Delta Pi Record*, *48*(1), 17-22.

Zhao, Y. (2014). *Who's afraid of the big bad dragon? Why China has the best (and worst) education system in the world*. Hoboken, NJ: Wiley.

Appendix A

2010 NJ ASK 7 Language Arts

District Name	% Proficient or Above	%Family >200K	% All People Under Pov	% BA	Predicted % Proficient or Above	Difference
ABSECON CITY	77.4	4.3	10. 1	17.9	64.2163	13.1837
ALEXANDRIA TWP	76.9	22	2.7	29	83.4266	-6.5266
ALLAMUCHY TWP	80	20.3	3.7	34.1	85.0075	-5.0075
ALLENDALE BORO	92	37.6	1.4	38.2	93.724	-1.724
ALLOWAY TWP	64.6	3.6	4.7	16.6	69.7722	-5.1722
ASBURY PARK	19.9	3.3	31.5	12.5	34.9897	-15.0897
ATLANTIC CITY	43.2	2.5	29.3	11	36.5569	6.6431
AUDUBON	75	4.2	6.6	19.2	69.199	5.801
BARNEGAT TWP	68.9	3.8	6.4	15.1	66.8506	2.0494
BARRINGTON BORO	74	1.7	3.9	17	70.6005	3.3995
BAYONNE	68.1	5.8	14.3	17.7	59.344	8.756
BEDMINSTER TWP	93.7	23.2	2.5	31.5	85.4358	8.2642
BELLEVILLE	68.9	4.4	7.2	20.7	69.4356	-0.5356
BELLMAWR BORO	67.8	1.9	9.3	9	59.2535	8.5465
BELMAR BORO	50.8	7.3	11.6	21	64.9075	-14.1075
BERGENFIELD	71.7	11.9	6.2	28	76.5977	-4.8977
BERKELEY HEIGHTS	92.5	32.9	1.5	34.2	90.2205	2.2795
BERLIN BORO	79.5	4.4	6.3	19.6	69.8442	9.6558
BERNARDS TOWNSHIP	95	41.6	3.1	34.6	90.2734	4.7266
BETHLEHEM TWP	87.2	25.9	1.4	28.3	85.3369	1.8631
BLOOMINGDALE BORO	67.6	4.9	7.5	17	66.9101	0.6899
BOGOTA	62.1	4.4	7	17.4	67.6564	-5.5564
BOONTON TOWN	74.7	9.9	2.9	31.6	82.3695	-7.6695
BOONTON TWP	81.5	22.6	3.8	26	80.3878	1.1122
BOUND BROOK BOROUGH	44.1	4	5.6	13.9	67.1176	-23.0176
BRADLEY BEACH BORO	65.6	8.5	14.9	31.6	67.6669	-2.0669
BRANCHBURG TWP	81.5	23.3	1.4	30.1	85.9211	-4.4211
BRICK TOWNSHIP	74.1	6.1	5.1	17.7	70.4621	3.6379
BRIDGETON	44.9	1.3	28.8	5.3	33.4307	11.4693
BRIELLE BORO	88.8	22.3	4.9	38.6	86.7171	2.0829
BRIGANTINE CITY	64.5	8.3	8.4	17.8	66.9945	-2.4945
BROOKLAWN BORO	56.5	0	4.1	13.2	67.6962	-11.1962
BURLINGTON CITY	49.5	9.6	5.3	21.9	73.4886	-23.9886

BUTLER	65.1	5.9	1.8	25.2	78.9789	-13.8789
BYRAM TWP	81.5	17	1.2	27.4	83.2554	-1.7554
CAMDEN CITY	19.4	0.2	38.4	5.8	21.9786	-2.5786
CARLSTADT BORO	65.2	8.5	6	21.9	72.4283	-7.2283
CARTERET	62.2	4.7	12.7	15.6	59.7631	2.4369
CEDAR GROVE TOWNSHIP	88	26.1	1.5	31.5	87.2149	0.7851
CHERRY HILL TOWNSHIP	81.7	13.8	3.9	27.8	79.618	2.082
CINNAMINSON TOWNSHIP	83.6	10.7	4.2	23.4	75.9477	7.6523
CLAYTON	51.5	1.6	12.6	10.6	56.2064	-4.7064
CLEMENTON BORO	75.8	2	15.5	14.2	55.0034	20.7966
CLIFFSIDE PARK	72.6	10	11.8	27.3	69.06	3.54
CLINTON TOWN	84.6	6.6	8.6	21.1	68.4354	16.1646
CLOSTER BORO	94.5	24.9	2.8	37.2	88.9019	5.5981
COLLINGSWOOD BOROUGH	70.9	6.7	11.3	26.8	68.6983	2.2017
COLTS NECK TWP	92.7	38.9	2.9	34.8	90.0989	2.6011
COMMERCIAL TWP	45.9	1.4	20.3	6.1	44.1572	1.7428
CRANBURY TWP	94.6	33.7	2.1	33.6	89.2913	5.3087
CRANFORD TOWNSHIP	82.8	22.6	3.4	29.6	83.0718	-0.2718
CRESSKILL	88.3	29.2	4.8	34.8	85.8848	2.4152
DELANCO TWP	59.5	2.5	2.4	19.4	74.0315	-14.5315
DELAWARE TWP	77.7	23.3	0.7	29.1	86.1505	-8.4505
DELRAN TOWNSHIP	69.3	7.9	4	23.2	75.5085	-6.2085
DEMAREST BORO	92.1	28.2	2.2	35.8	89.423	2.677
DENNIS TWP	75.4	0.8	6.6	14.4	65.5848	9.8152
DENVILLE TWP	84.8	23.1	1.8	32	86.5633	-1.7633
DEPTFORD TOWNSHIP	70.5	5.2	8.7	15.2	64.4258	6.0742
DOVER TOWN	62.5	1.2	9.7	10.9	59.7962	2.7038
DUMONT	82.5	8.7	3.6	27.2	78.5965	3.9035
DUNELLEN	77.9	6.2	9.4	19.9	66.6598	11.2402
EAST AMWELL TWP	86	15.8	4.2	22.4	76.3506	9.6494
EAST BRUNSWICK TOWNSHIP	81.2	17.3	3.3	31	82.9941	-1.7941
EAST HANOVER TWP	86.6	18	4.5	25.3	78.2026	8.3974
EAST NEWARK BORO	63.4	3.4	17.6	14.1	52.6966	10.7034
EAST ORANGE	35.3	1.1	19.4	12.8	49.2797	-13.9797
EAST RUTHERFORD BORO	68	4.2	7.2	24.2	71.5378	-3.5378
EASTAMPTON TWP	77.9	7.5	2.4	28.3	80.4733	-2.5733
EATONTOWN BORO	79.1	10.9	8.3	20.8	69.4681	9.6319
EDGEWATER PARK TWP	59.7	2.2	9.7	12.9	61.2192	-1.5192
EDISON TOWNSHIP	82.2	12.6	6.7	28.4	76.3808	5.8192
EGG HARBOR CITY	52.9	0.7	19.2	8.6	46.8701	6.0299
EGG HARBOR TOWNSHIP	61.4	5.2	7.1	18.1	68.1238	-6.7238

ELIZABETH	53.6	2	17.7	8.5	48.8706	4.7294
ELMWOOD PARK	61.5	7.2	5.2	17.3	70.316	-8.816
EMERSON	82.8	10.9	1.4	30.4	83.6371	-0.8371
ENGLEWOOD CITY	48	15.4	10.9	25.6	70.176	-22.176
ENGLEWOOD CLIFFS BORO	94.5	35.5	8.5	40.3	86.0571	8.4429
ESTELL MANOR CITY	74.1	2.2	4.9	14.2	67.7844	6.3156
EVESHAM TWP	74.8	11.1	3	28.8	80.7745	-5.9745
EWING TWP. PUBLIC SCHOOLS	69	7.6	10.1	21.6	67.1374	1.8626
FAIR HAVEN BORO	89.7	29.4	3.2	39.5	90.7242	-1.0242
FAIR LAWN	82.5	14	4	30	80.884	1.616
FAIRFIELD TWP	29.8	3.1	11.9	6.5	54.8371	-25.0371
FAIRVIEW BORO	62.1	4.8	15.1	15.5	56.837	5.263
FLORENCE TOWNSHIP	64.1	6.1	2.7	19	74.1425	-10.0425
FLORHAM PARK BORO	88.6	24.8	3.7	31.3	84.1894	4.4106
FOLSOM BORO	69.7	2.8	5.9	11.5	65.0494	4.6506
FORT LEE	84.2	14.7	8.8	33.3	77.2733	6.9267
FRANKFORD TWP	72.6	7.1	4.8	22.8	74.1429	-1.5429
FRANKLIN BORO	64.6	3.7	7	14.3	65.6199	-1.0199
FRANKLIN LAKES BORO	93.9	41.4	1.5	38.9	94.7884	-0.8884
FRANKLIN TOWNSHIP	60.3	6.9	5.5	13.3	67.4477	-7.1477
FRANKLIN TWP	87	15.6	1.7	30.7	84.3954	2.6046
FREEHOLD BORO	44.2	1.8	17.4	13.6	52.3126	-8.1126
FREEHOLD TWP	84	15.8	3.8	25.8	78.9122	5.0878
GALLOWAY TWP	65.1	4.3	6	19.5	70.1237	-5.0237
GARFIELD	54.8	3.9	10.7	15.1	61.7019	-6.9019
GARWOOD BORO	79	4	2.1	21.9	76.2206	2.7794
GLASSBORO	49.4	3.1	16.7	19.3	56.9011	-7.5011
GLEN RIDGE	86.3	41.9	2.7	40	94.1187	-7.8187
GLEN ROCK	91.1	39.4	2.2	34.8	91.0398	0.0602
GLOUCESTER CITY	55.2	1.6	13.2	8.6	54.2612	0.9388
GLOUCESTER TWP	65.5	5	5.7	16.4	68.7264	-3.2264
GREEN BROOK TWP	92.3	18.9	1.4	31.3	85.7799	6.5201
GREEN TWP	83.4	23.3	3.2	30.8	84.1859	-0.7859
GREENWICH TWP	86.7	9.7	11.5	15.6	62.2005	24.4995
GREENWICH TWP	63.9	5.3	9.8	15	63.0011	0.8989
GUTTENBERG TOWN	55.5	7.3	13.6	23.5	64.0335	-8.5335
HACKENSACK	53.2	5.4	13	21.7	63.275	-10.075
HACKETTSTOWN	83	5	7.1	19.2	68.7572	14.2428
HADDON HEIGHTS	81.4	14.1	1.5	33.3	85.9285	-4.5285
HADDON TOWNSHIP	66.6	6.5	6.4	25.3	73.6303	-7.0303
HADDONFIELD BOROUGH	88.5	30.3	4.1	37.6	88.6587	-0.1587

HAINESPORT TWP	79.5	11.5	3.5	19.4	74.5003	4.9997
HALEDON BORO	69.7	2.8	6.6	19.1	68.8592	0.8408
HAMBURG BORO	80.7	4.2	9.8	20.2	65.9646	14.7354
HAMILTON TOWNSHIP	64.3	1.9	9.9	16.8	63.3059	0.9941
HAMILTON TWP	64.2	6	5.9	18.9	70.215	-6.015
HAMMONTON TOWN	68.6	5.8	10.7	18.5	64.1608	4.4392
HARDYSTON TWP	83.8	7.3	6	16.8	69.0683	14.7317
HARMONY TWP	84.6	6	1.3	15.9	73.9082	10.6918
HARRINGTON PARK BORO	94.5	21.9	1.8	37.8	89.8741	4.6259
HARRISON	62.7	2.2	14.9	15.9	56.8048	5.8952
HASBROUCK HEIGHTS	70.7	16.5	4.7	24.4	77.1129	-6.4129
HAWORTH BORO	82	29.5	2.3	38.9	91.4587	-9.4587
HAWTHORNE	67.6	8.9	6.3	24.2	73.5549	-5.9549
HAZLET TOWNSHIP	72	10.3	3.4	15.7	72.1173	-0.1173
HIGH BRIDGE BORO	85	7.6	1.3	24.4	79.4286	5.5714
HIGHLAND PARK	74.2	13.3	10.8	25.2	69.6335	4.5665
HILLSBOROUGH TOWNSHIP	86.4	18	2.2	29.4	83.4764	2.9236
HILLSDALE BORO	85.4	21	3.9	32.8	84.1108	1.2892
HILLSIDE TOWNSHIP	46.5	5.3	13.6	16.9	59.5963	-13.0963
HO HO KUS BORO	94.3	37.5	1.5	40.5	94.9915	-0.6915
HOBOKEN	62.7	31.8	10	45	86.3942	-23.6942
HOLMDEL TOWNSHIP	87.1	39.9	3.8	30.1	86.3397	0.7603
HOPATCONG BOROUGH	64.8	6.8	4.6	19.1	72.0592	-7.2592
HOPEWELL TWP	63.5	37.3	1.4	30.2	88.7683	-25.2683
HOWELL TWP	73.6	11.1	5	22.9	74.7597	-1.1597
IRVINGTON TOWNSHIP	36	1.4	18.5	10.1	48.7688	-12.7688
JACKSON TWSP.	76	8.2	3.9	19.8	73.6076	2.3924
JAMESBURG BORO	62.7	3.6	6.9	15.4	66.3934	-3.6934
JEFFERSON TWP. SCHOOL DIS	76.7	8.6	2.8	27.9	79.9666	-3.2666
JERSEY CITY	51.8	7.5	16.4	25.4	61.8705	-10.0705
KEANSBURG BOROUGH	40.2	0.3	15.1	8.2	51.4739	-11.2739
KEARNY	71.7	3.1	11.5	13.4	59.5407	12.1593
KENILWORTH	66.4	6.3	4.6	15.8	69.9401	-3.5401
KEYPORT	65.4	3.1	8.5	15.4	64.3707	1.0293
KINGWOOD TWP	89.2	8.3	3.7	22.4	75.4591	13.7409
KINNELON BOROUGH	93.2	33	2.5	37.6	91.1192	2.0808
LACEY TOWNSHIP	72.5	6.8	5.2	16.8	69.9304	2.5696
LAFAYETTE TWP	83.3	93	4	15.9	87.9758	-4.6758
LAKEHURST BORO	54.6	3.5	10.8	9.6	58.1361	-3.5361
LAKEWOOD TOWNSHIP	30.7	3.2	27.3	14.3	41.1198	-10.4198
LAWNSIDE BORO	39.3	5	9.1	15	63.7828	-24.4828

LAWRENCE TOWNSHIP	74.8	15.6	5.8	26.4	76.8356	-2.0356
LAWRENCE TWP	67.3	4.9	4.7	9.5	65.6857	1.6143
LEBANON TWP	92.8	30.9	5.4	27.8	81.2179	11.5821
LEONIA	71.2	16.2	8.2	32.9	78.0482	-6.8482
LINCOLN PARK BORO	88.5	5.1	3.6	25.4	76.7785	11.7215
LINDEN	48.7	4.2	7.7	11.8	63.348	-14.648
LINDENWOLD	46.2	0.9	12.9	14.2	57.9097	-11.7097
LINWOOD CITY	97.3	19.1	4	26.6	79.8181	17.4819
LITTLE FALLS TWP	86	8.2	5.5	24.7	74.6832	11.3168
LITTLE FERRY BORO	73.4	6.7	6	22.2	72.2537	1.1463
LITTLE SILVER BORO	90.4	37.6	2.9	41	93.6346	-3.2346
LIVINGSTON TOWNSHIP	92.2	34	1.7	36.7	91.729	0.471
LODI	69.8	2.1	11.4	15.2	60.5635	9.2365
LOGAN TWP	86.9	7.5	3.8	19	73.0989	13.8011
LONG BRANCH	53.8	8	14.4	16	58.6212	-4.8212
LONG HILL TWP	89	28.8	3.2	31.8	85.8924	3.1076
LOPATCONG TWP	89.8	6.3	4.2	17.7	71.5837	18.2163
LOWER ALLOWAYS CREEK	59.2	1	3.1	10	67.1388	-7.9388
LUMBERTON TWP	80.7	13.9	6.7	21.3	72.2943	8.4057
LYNDHURST TOWNSHIP	74.6	7.4	4.4	19.2	72.4802	2.1198
MADISON	85.3	27.1	4.4	31.9	84.1729	1.1271
MAGNOLIA BORO	68.2	2.3	4.5	13.6	67.9179	0.2821
MAHWAH TOWNSHIP	88.8	23	2.8	32.1	85.4026	3.3974
MANASQUAN	90.1	18	3.6	31.3	82.9564	7.1436
MANCHESTER TOWNSHIP	58.7	1.3	7.8	10.3	61.7327	-3.0327
MANVILLE BOROUGH	67	2.6	5.6	10.8	64.9418	2.0582
MAPLE SHADE TOWNSHIP	56.4	1.5	8	16.8	65.5101	-9.1101
MARGATE CITY	82.8	13.7	10.2	25.4	70.5567	12.2433
MARLBORO TWP	88.1	29.9	1.4	32.1	88.4585	-0.3585
MAURICE RIVER TWP	73.3	0.4	11.2	9.1	56.7324	16.5676
MAYWOOD BORO	79.3	5.6	5.6	26.6	75.2084	4.0916
MEDFORD LAKES BORO	87.2	17.7	5.7	33.6	81.7801	5.4199
MEDFORD TWP	91.6	20.4	2.6	33.5	85.9824	5.6176
MENDHAM BORO	92.2	37.2	2.9	33.7	89.0874	3.1126
MENDHAM TWP	97.5	49.4	4.6	35.4	90.5122	6.9878
MERCHANTVILLE BORO	69.5	7.9	13	22.8	64.4457	5.0543
METUCHEN	81.6	21.8	3.2	31.8	84.4994	-2.8994
MIDDLE TOWNSHIP	69.9	2.9	8.5	15	64.0861	5.8139
MIDDLESEX BOROUGH	72.8	8.6	1.5	20.3	76.878	-4.078
MIDDLETOWN TOWNSHIP	80.6	17.4	3.1	25	79.5824	1.0176
MIDLAND PARK BOROUGH	74.7	13.2	2.7	31.4	83.1442	-8.4442

MILLBURN TOWNSHIP	94.7	51.6	2.6	35.2	93.2316	1.4684
MILLSTONE TWP	89.5	29.9	1.1	28.1	86.3711	3.1289
MILLTOWN BORO	77.4	5.4	4.5	19.3	72.0232	5.3768
MILLVILLE	44.5	2.3	18.9	9.9	48.3447	-3.8447
MONMOUTH BEACH BORO	93.6	32.2	3.1	38.5	90.7896	2.8104
MONROE TOWNSHIP (GLOUCESTER)	68.1	5.6	7.2	16.4	67.0428	1.0572
MONROE TOWNSHIP (MIDDLESEX)	74.4	13.8	3.3	22.9	77.3404	-2.9404
MONTCLAIR	82.3	29.1	6.7	32.5	82.1735	0.1265
MONTGOMERY TWP.	88.6	38.7	2.1	35	91.1431	-2.5431
MONTVALE BORO	88.2	31.6	4.2	34.3	86.7776	1.4224
MONTVILLE TOWNSHIP	92	28.9	3.8	34	86.5375	5.4625
MOONACHIE BORO	57.5	7.8	4.9	16.5	70.3064	-12.8064
MOORESTOWN TOWNSHIP	82.9	34.6	2.9	28.3	85.2652	-2.3652
MORRIS PLAINS BORO	90.2	31.1	2.4	30.3	86.3937	3.8063
MOUNT ARLINGTON BORO	62.5	8.6	3.5	24.4	76.9832	-14.4832
MOUNT EPHRAIM BORO	50	4.3	7.7	9	61.6543	-11.6543
MOUNT HOLLY TWP	47.8	2	9.5	15.9	63.2558	-15.4558
MOUNT LAUREL TWP	79.7	13.8	3.6	31.1	81.9982	-2.2982
MOUNTAIN LAKES	95.7	46.7	1	48.9	102.5641	-6.8641
MOUNTAINSIDE BORO	92.6	32	4.2	30.6	84.5928	8.0072
MT. OLIVE TOWNSHIP	86.9	10.5	5.9	30.2	78.0261	8.8739
MULLICA TWP	73.4	3.5	9.6	11.3	60.6189	12.7811
NEPTUNE CITY	78	1.5	4.6	14.4	68.1281	9.8719
NEPTUNE TOWNSHIP	49.1	6.4	10.2	18.3	64.7588	-15.6588
NETCONG BORO	65.7	2	10.8	10.2	58.2048	7.4952
NEW BRUNSWICK	34.6	2.5	27.9	12.5	39.1577	-4.5577
NEW PROVIDENCE	90	34.4	4.8	35.9	87.5928	2.4072
NEWARK	40.8	1.4	26.1	9	38.9604	1.8396
NEWTON	71.1	3.5	14	13.7	56.7989	14.3011
NORTH ARLINGTON	84.8	6.9	6.5	21.2	71.0805	13.7195
NORTH BERGEN	66	3.8	11.6	15.8	61.0286	4.9714
NORTH BRUNSWICK TOWNSHIP	72.7	7.6	6.2	27.3	75.3136	-2.6136
NORTH HALEDON BORO	77.3	15.5	2	27.8	82.2401	-4.9401
NORTH PLAINFIELD BOROUGH	48.2	4.6	8.3	16.1	65.338	-17.138
NORTHFIELD CITY	86.3	3.5	5	20.7	71.9009	14.3991
NORTHVALE BORO	80	13.4	6	22.8	73.9542	6.0458
NORWOOD BORO	88.5	13.1	2.8	36.8	86.3089	2.1911
NUTLEY	82.4	11.6	4.2	25.7	77.5344	4.8656
OAKLAND BORO	88.4	15.8	2.8	31.9	83.8474	4.5526
OAKLYN BORO	54.3	4.3	5	15.6	68.9389	-14.6389

OCEAN CITY	74.5	9.4	7.4	24.5	72.5158	1.9842
OCEAN TOWNSHIP	74.6	13.3	5.6	27.2	77.1079	-2.5079
OCEANPORT BORO	82.9	19.2	7.4	25.1	74.8332	8.0668
OGDENSBURG BORO	52	5.9	5	18.5	71.0321	-19.0321
OLD BRIDGE TOWNSHIP	77.7	9.8	3.9	23.6	76.2516	1.4484
OLD TAPPAN BORO	87.5	34.3	1.6	32.1	89.0937	-1.5937
ORANGE TOWNSHIP, CITY OF	46.4	1.8	19.2	13.4	50.0266	-3.6266
OXFORD TWP	75	0.5	4.5	14.9	68.3553	6.6447
PALISADES PARK	64.6	5	12.5	30	68.876	-4.276
PALMYRA BOROUGH	51.6	2.4	8.8	19.9	66.6248	-15.0248
PARAMUS	87.2	16.5	3.6	29.2	81.3727	5.8273
PARK RIDGE	78.5	21.7	2.2	34	87.0279	-8.5279
PARSIPPANY-TROY HILLS TWP	80.4	13.4	3.5	29.6	81.1208	-0.7208
PASSAIC CITY	36.3	1.7	29.2	9.8	35.7835	0.5165
PATERSON	36.2	1.2	27.1	7.7	36.923	-0.723
PAULSBORO	28.9	0.6	25.3	6.8	38.4164	-9.5164
PEMBERTON TOWNSHIP	48.8	2.1	9.8	9.6	59.0595	-10.2595
PENNSAUKEN TOWNSHIP	55.4	3	9.2	13.5	62.3466	-6.9466
PENNSVILLE TOWNSHIP	66.2	3.3	10.8	13.5	60.4831	5.7169
PEQUANNOCK TOWNSHIP	83.8	14.3	2.6	30.4	82.8713	0.9287
PERTH AMBOY	38.5	2.3	19.9	11.2	47.9383	-9.4383
PHILLIPSBURG	54.3	2.2	19.5	8.6	46.808	7.492
PITMAN	66.6	5.4	5.4	21.3	72.1654	-5.5654
PITTSGROVE TOWNSHIP	71.8	4.7	5.2	15.5	68.7169	3.0831
PLAINFIELD	35.4	5.1	19	13.5	50.9849	-15.5849
PLEASANTVILLE	41.3	1.3	19	7.4	46.4955	-5.1955
PLUMSTED TOWNSHIP	76.9	5.7	4.5	12.9	68.1661	8.7339
POHATCONG TWP	83.8	5.1	4.5	20.6	72.7591	11.0409
POINT PLEASANT BEACH	86.6	8.9	11	27.3	69.8027	16.7973
POINT PLEASANT BOROUGH	76	8.9	3.9	22.8	75.5829	0.4171
POMPTON LAKES	78.8	7	3.5	29.3	79.6636	-0.8636
PROSPECT PARK BORO	71.6	4.3	7.8	9.4	61.7789	9.8211
QUINTON TWP	53.2	2.5	6.6	8.1	62.0675	-8.8675
RAHWAY	57.7	2.2	10.9	15.2	61.1844	-3.4844
RAMSEY	87.2	27.4	3.4	37	88.5558	-1.3558
RANDOLPH TOWNSHIP	89.1	33.4	3.1	35.3	89.07	0.03
READINGTON TWP	86.2	24.9	3.7	28.3	82.3733	3.8267
RED BANK BORO	52.8	10.1	16.2	23.3	61.3431	-8.5431
RIDGEFIELD	82.5	7.6	5.4	24.1	74.3168	8.1832
RIDGEFIELD PARK	75.2	7.1	4.7	24.2	75.1199	0.0801
RIDGEWOOD VILLAGE	90.5	43	3.6	40.4	93.5006	-3.0006

RINGWOOD BORO	77.8	15.1	3.3	28	80.7203	-2.9203
RIVER VALE TWP	85.2	28.5	3.3	37.2	89.0173	-3.8173
RIVERDALE BORO	73.3	7.1	2.6	22.8	76.7873	-3.4873
RIVERSIDE TOWNSHIP	48.4	2.1	8.8	10.1	60.5675	-12.1675
ROCHELLE PARK TWP	77.8	3.1	3.7	21.1	73.6287	4.1713
ROCKAWAY BORO	74.3	12.7	6.8	15.8	68.5693	5.7307
ROCKAWAY TWP	81.3	16.1	1.5	30.1	84.3681	-3.0681
ROSELLE BOROUGH	43.5	5.2	9.5	14.4	62.9746	-19.4746
ROSELLE PARK	77.7	5.1	6.1	18.1	69.3059	8.3941
ROXBURY TOWNSHIP	81.9	12.2	4.9	28.3	78.4036	3.4964
RUMSON BORO	95.1	41.1	4.9	36.3	89.0507	6.0493
RUNNEMEDE BORO	75.3	1.4	9	11.1	60.7998	14.5002
RUTHERFORD	81.4	13	5.6	29.4	78.3946	3.0054
SADDLE BROOK TOWNSHIP	69.8	5.3	7.1	21.5	70.2245	-0.4245
SALEM CITY	45.9	2.5	31.4	4.3	29.9323	15.9677
SAYREVILLE	62.7	5.8	5.1	20.3	71.9936	-9.2936
SECAUCUS	71.6	13	7.3	23.2	72.5568	-0.9568
SHAMONG TWP	81.4	13.2	3	24.8	78.7444	2.6556
SHREWSBURY BORO	90.9	29.2	0.6	35.1	91.1168	-0.2168
SOMERDALE BORO	70.3	1.8	5.9	13.1	65.8296	4.4704
SOMERS POINT CITY	68.5	2.3	12.2	14.7	59.3357	9.1643
SOMERSET HILLS	90	18	2.2	29.4	83.4764	6.5236
SOMERVILLE BOROUGH	69.9	5	5.4	24.3	73.9218	-4.0218
SOUTH AMBOY	55.6	7.3	8.5	14.9	64.9005	-9.3005
SOUTH BOUND BROOK	65.9	3.7	4.1	22	73.8181	-7.9181
SOUTH BRUNSWICK TOWNSHIP	86	18.1	2.4	32.4	85.0919	0.9081
SOUTH HACKENSACK TWP	60	3.3	5.2	20.6	71.5595	-11.5595
SOUTH PLAINFIELD	75.8	6	3.6	18.9	72.9796	2.8204
SOUTH RIVER	64.8	5.5	8	14.8	65.0821	-0.2821
SOUTHAMPTON TWP	75	9.1	5.6	13.2	67.7041	7.2959
SPARTA TOWNSHIP	84.4	26	3.3	34.9	87.1122	-2.7122
SPOTSWOOD	67.7	6.7	3.8	13.1	69.3289	-1.6289
SPRING LAKE HEIGHTS BORO	87.5	14.2	6	34.2	81.0902	6.4098
SPRINGFIELD TWP	63.9	11.5	3.3	23.2	77.0663	-13.1663
STANHOPE BORO	64.7	7.6	5.5	21.4	72.5442	-7.8442
STRATFORD BORO	79.6	6.3	6.3	20	70.4671	9.1329
SUMMIT CITY	88.7	39.5	6.7	33.4	84.7939	3.9061
TABERNACLE TWP	84.5	9.9	1.9	21.3	77.2679	7.2321
TEANECK	64.8	18	7.2	30.6	78.2008	-13.4008
TENAFLY	88.5	37.9	4	33.1	87.5373	0.9627
TEWKSBURY TWP	89.8	44.9	1.5	33	91.8741	-2.0741

TINTON FALLS	75.6	9.6	3.7	26	77.921	-2.321
TOTOWA BORO	69.2	6.9	6.3	16.2	68.2609	0.9391
TOWNSHIP OF ROBBINSVILLE	88	23.5	3.6	31.5	84.1733	3.8267
TRENTON	28.3	2	26.5	7.1	37.4362	-9.1362
UNION BEACH	71.2	3	4.9	9.1	64.8224	6.3776
UNION CITY	55	1.6	21.1	11.3	46.4178	8.5822
UNION TOWNSHIP	60.5	27.7	4.2	25.7	80.7383	-20.2383
UNION TWP	94.4	6.3	5	19.4	71.6625	22.7375
UPPER DEERFIELD TWP	41.6	2	25.6	11.4	41.1496	0.4504
UPPER PITTSGROVE TWP	69.6	5.7	6.5	12.2	65.3337	4.2663
UPPER SADDLE RIVER BORO	92.4	48.6	3	37.9	93.8062	-1.4062
UPPER TWP	83.4	5.6	4.5	25	75.5514	7.8486
VENTNOR CITY	68.4	8.7	11.3	15	61.8747	6.5253
VERNON TOWNSHIP	75.5	6.4	4.5	18.1	71.4878	4.0122
VERONA	85.4	24.7	3	32.2	85.5617	-0.1617
VINELAND CITY	50.8	5	13.1	11.4	56.7716	-5.9716
VOORHEES TWP	84.4	16.7	6.3	29	78.0447	6.3553
WALDWICK	74.4	16.4	1.6	28.1	83.0836	-8.6836
WALL TOWNSHIP	76	17.5	5.5	27.3	78.1251	-2.1251
WALLINGTON	78.6	1.2	9.6	18.6	64.6288	13.9712
WANAQUE BORO	76.7	6.4	2.7	20	74.8142	1.8858
WARREN TWP	89.1	39.3	1.4	34.1	91.5531	-2.4531
WASHINGTON TOWNSHIP	77.9	22.7	1.7	30.5	85.6859	-7.7859
WASHINGTON TWP	89.1	0	5.8	17.9	68.5292	20.5708
WATCHUNG BORO	96.8	38.9	2.8	28.1	86.1187	10.6813
WAYNE TOWNSHIP	84.5	19.5	3.6	29.5	82.1533	2.3467
WEEHAWKEN TOWNSHIP	72.8	10.4	12.5	32.8	71.6642	1.1358
WEST DEPTFORD TOWNSHIP	71.4	6.1	5.3	19	71.0173	0.3827
WEST LONG BRANCH BORO	88.6	17.6	7.2	24.6	74.4492	14.1508
WEST MILFORD TOWNSHIP	71.9	8	3.5	21.2	74.9054	-3.0054
WEST NEW YORK	54.6	5	19	16.9	53.0458	1.5542
WEST ORANGE	67.3	16.9	6.1	26.8	76.9785	-9.6785
WESTAMPTON	69.2	8.2	4.3	25	76.3092	-7.1092
WESTFIELD	85.9	37.6	2.8	36.3	90.8784	-4.9784
WHARTON BORO	63.7	4.2	6.7	15.8	66.998	-3.298
WHITE TWP	75.4	10.2	4.5	13.9	69.6736	5.7264
WILDWOOD CITY	36.3	4.6	25.1	14.6	44.2264	-7.9264
WILDWOOD CREST BORO	83.3	8.9	11.2	23.9	67.4815	15.8185
WILLINGBORO	41.2	3.1	8.4	17.4	65.7149	-24.5149
WOOD-RIDGE	78.4	3.8	3.7	25	76.1548	2.2452
WOODBRIDGE TOWNSHIP	72.7	6.3	5.2	21.4	72.6461	0.0539

WOODBURY	50.9	3.4	12.1	18.1	61.7556	-10.8556
WOODCLIFF LAKE BORO	92.7	35.8	1.8	34.2	90.437	2.263
Woodland Park	56.6	4.2	6.5	20.1	69.87	-13.27
WOODLYNNE BORO	43.6	2	16.2	7	49.7556	-6.1556
WYCKOFF TWP	90.4	43.8	1.7	40.6	96.066	-5.666

Appendix B

2010 NJ ASK 7 Mathematics

District Name	% Proficient or Above	%Family >200K	% All People Under Pov	% BA	Predicted % Proficient or Above	Difference
ABSECON CITY	72	4.3	10. 1	17.9	59.1151	12.8849
ALEXANDRIA TWP	73	22	2.7	29	77.9098	-4.9098
ALLAMUCHY TWP	84.4	20.3	3.7	34.1	79.6135	4.7865
ALLENDALE BORO	89.2	37.6	1.4	38.2	88.442	0.758
ALLOWAY TWP	58.3	3.6	4.7	16.6	64.0202	-5.7202
ASBURY PARK	22	3.3	31.5	12.5	32.3077	-10.3077
ATLANTIC CITY	42.1	2.5	29.3	11	33.5917	8.5083
AUDUBON	76.8	4.2	6.6	19.2	63.7002	13.0998
BARNEGAT TWP	69.9	3.8	6.4	15.1	61.2878	8.6122
BARRINGTON BORO	75.3	1.7	3.9	17	64.7209	10.5791
BAYONNE	63.2	5.8	14.3	17.7	54.7584	8.4416
BEDMINSTER TWP	87.3	23.2	2.5	31.5	79.9398	7.3602
BELLEVILLE	54.1	4.4	7.2	20.7	64.0224	-9.9224
BELLMAWR BORO	64.3	1.9	9.3	9	53.9403	10.3597
BELMAR BORO	69.2	7.3	11.6	21	60.0651	9.1349
BERGENFIELD	60.1	11.9	6.2	28	71.2769	-11.1769
BERKELEY HEIGHTS	88.1	32.9	1.5	34.2	84.8241	3.2759
BERLIN BORO	84	4.4	6.3	19.6	64.3178	19.6822
BERNARDS TOWNSHIP	90.1	41.6	3.1	34.6	85.2398	4.8602
BETHLEHEM TWP	81.4	25.9	1.4	28.3	79.7417	1.6583
BLOOMINGDALE BORO	64.7	4.9	7.5	17	61.5121	3.1879
BOGOTA	57.2	4.4	7	17.4	62.1936	-4.9936
BOONTON TOWN	63.2	9.9	2.9	31.6	76.6547	-13.4547
BOONTON TWP	75.9	22.6	3.8	26	74.9866	0.9134
BOUND BROOK BOROUGH	36.6	4	5.6	13.9	61.4564	-24.8564
BRADLEY BEACH BORO	75	8.5	14.9	31.6	63.3161	11.6839
BRANCHBURG TWP	76	23.3	1.4	30.1	80.2883	-4.2883
BRICK TOWNSHIP	66.1	6.1	5.1	17.7	64.8153	1.2847
BRIDGETON	50.5	1.3	28.8	5.3	30.3379	20.1621
BRIELLE BORO	84.2	22.3	4.9	38.6	81.5383	2.6617
BRIGANTINE CITY	61.4	8.3	8.4	17.8	61.7753	-0.3753
BROOKLAWN BORO	63	0	4.1	13.2	61.7754	1.2246
BURLINGTON CITY	43.8	9.6	5.3	21.9	67.9686	-24.1686

BUTLER	51.5	5.9	1.8	25.2	73.0053	-21.5053
BYRAM TWP	71.8	17	1.2	27.4	77.4518	-5.6518
CAMDEN CITY	13.9	0.2	38.4	5.8	19.9814	-6.0814
CARLSTADT BORO	67.1	8.5	6	21.9	66.9675	0.1325
CARTERET	60.9	4.7	12.7	15.6	54.9531	5.9469
CEDAR GROVE TOWNSHIP	82.6	26.1	1.5	31.5	81.6609	0.9391
CHERRY HILL TOWNSHIP	79.9	13.8	3.9	27.8	74.0668	5.8332
CINNAMINSON TOWNSHIP	67.2	10.7	4.2	23.4	70.3341	-3.1341
CLAYTON	52.8	1.6	12.6	10.6	51.2828	1.5172
CLEMENTON BORO	68.2	2	15.5	14.2	50.453	17.747
CLIFFSIDE PARK	67.7	10	11.8	27.3	64.3452	3.3548
CLINTON TOWN	81.6	6.6	8.6	21.1	63.2318	18.3682
CLOSTER BORO	87.7	24.9	2.8	37.2	83.5203	4.1797
COLLINGSWOOD BOROUGH	72.7	6.7	11.3	26.8	63.8555	8.8445
COLTS NECK TWP	89.4	38.9	2.9	34.8	84.9897	4.4103
COMMERCIAL TWP	50.8	1.4	20.3	6.1	40.0868	10.7132
CRANBURY TWP	96	33.7	2.1	33.6	83.9757	12.0243
CRANFORD TOWNSHIP	83.5	22.6	3.4	29.6	77.653	5.847
CRESSKILL	86.7	29.2	4.8	34.8	80.802	5.898
DELANCO TWP	46.9	2.5	2.4	19.4	68.0131	-21.1131
DELAWARE TWP	81.3	23.3	0.7	29.1	80.4285	0.8715
DELRAN TOWNSHIP	63.3	7.9	4	23.2	69.8141	-6.5141
DEMAREST BORO	87.8	28.2	2.2	35.8	84.0266	3.7734
DENNIS TWP	75.7	0.8	6.6	14.4	59.9796	15.7204
DENVILLE TWP	78.5	23.1	1.8	32	80.9881	-2.4881
DEPTFORD TOWNSHIP	70.7	5.2	8.7	15.2	59.1586	11.5414
DOVER TOWN	50.5	1.2	9.7	10.9	54.5306	-4.0306
DUMONT	79.1	8.7	3.6	27.2	72.9037	6.1963
DUNELLEN	59.6	6.2	9.4	19.9	61.5314	-1.9314
EAST AMWELL TWP	74	15.8	4.2	22.4	70.831	3.169
EAST BRUNSWICK TOWNSHIP	80.6	17.3	3.3	31	77.4689	3.1311
EAST HANOVER TWP	69.2	18	4.5	25.3	72.785	-3.585
EAST NEWARK BORO	53.4	3.4	17.6	14.1	48.417	4.983
EAST ORANGE	32.4	1.1	19.4	12.8	45.1525	-12.7525
EAST RUTHERFORD BORO	55.1	4.2	7.2	24.2	66.1486	-11.0486
EASTAMPTON TWP	74.8	7.5	2.4	28.3	74.6261	0.1739
EATONTOWN BORO	65.8	10.9	8.3	20.8	64.3133	1.4867
EDGEWATER PARK TWP	53.3	2.2	9.7	12.9	55.9896	-2.6896
EDISON TOWNSHIP	75.7	12.6	6.7	28.4	71.1352	4.5648
EGG HARBOR CITY	55.5	0.7	19.2	8.6	42.6781	12.8219
EGG HARBOR TOWNSHIP	61	5.2	7.1	18.1	62.6942	-1.6942

ELIZABETH	55.1	2	17.7	8.5	44.5298	10.5702
ELMWOOD PARK	59.8	7.2	5.2	17.3	64.6996	-4.8996
EMERSON	73.2	10.9	1.4	30.4	77.7587	-4.5587
ENGLEWOOD CITY	30.2	15.4	10.9	25.6	65.4512	-35.2512
ENGLEWOOD CLIFFS BORO	94.4	35.5	8.5	40.3	81.5735	12.8265
ESTELL MANOR CITY	37	2.2	4.9	14.2	62.0084	-25.0084
EVESHAM TWP	74	11.1	3	28.8	75.0729	-1.0729
EWING TWP. PUBLIC SCHOOLS	45.2	7.6	10.1	21.6	62.1318	-16.9318
FAIR HAVEN BORO	89.7	29.4	3.2	39.5	85.4974	4.2026
FAIR LAWN	78.6	14	4	30	75.366	3.234
FAIRFIELD TWP	21.5	3.1	11.9	6.5	49.8295	-28.3295
FAIRVIEW BORO	53.8	4.8	15.1	15.5	52.3066	1.4934
FLORENCE TOWNSHIP	51.8	6.1	2.7	19	68.2277	-16.4277
FLORHAM PARK BORO	82	24.8	3.7	31.3	78.863	3.137
FOLSOM BORO	53.5	2.8	5.9	11.5	59.3798	-5.8798
FORT LEE	80	14.7	8.8	33.3	72.3525	7.6475
FRANKFORD TWP	55.1	7.1	4.8	22.8	68.5221	-13.4221
FRANKLIN BORO	56.3	3.7	7	14.3	60.1183	-3.8183
FRANKLIN LAKES BORO	86	41.4	1.5	38.9	89.5996	-3.5996
FRANKLIN TOWNSHIP	60.2	6.9	5.5	13.3	61.8281	-1.6281
FRANKLIN TWP	84.8	15.6	1.7	30.7	78.6482	6.1518
FREEHOLD BORO	45.1	1.8	17.4	13.6	47.9738	-2.8738
FREEHOLD TWP	70.3	15.8	3.8	25.8	73.3734	-3.0734
GALLOWAY TWP	67.2	4.3	6	19.5	64.5597	2.6403
GARFIELD	57.6	3.9	10.7	15.1	56.6399	0.9601
GARWOOD BORO	69.8	4	2.1	21.9	70.2174	-0.4174
GLASSBORO	44.1	3.1	16.7	19.3	52.5527	-8.4527
GLEN RIDGE	83.3	41.9	2.7	40	89.0879	-5.7879
GLEN ROCK	81.9	39.4	2.2	34.8	85.8594	-3.9594
GLOUCESTER CITY	49.6	1.6	13.2	8.6	49.3912	0.2088
GLOUCESTER TWP	63.3	5	5.7	16.4	63.1168	0.1832
GREEN BROOK TWP	86.5	18.9	1.4	31.3	80.0687	6.4313
GREEN TWP	74	23.3	3.2	30.8	78.7675	-4.7675
GREENWICH TWP	76.2	9.7	11.5	15.6	57.3513	18.8487
GREENWICH TWP	72.2	5.3	9.8	15	57.8619	14.3381
GUTTENBERG TOWN	43.4	7.3	13.6	23.5	59.4431	-16.0431
HACKENSACK	43.2	5.4	13	21.7	58.5626	-15.3626
HACKETTSTOWN	79	5	7.1	19.2	63.3324	15.6676
HADDON HEIGHTS	79.1	14.1	1.5	33.3	80.1489	-1.0489
HADDON TOWNSHIP	65.1	6.5	6.4	25.3	68.2031	-3.1031
HADDONFIELD BOROUGH	87.9	30.3	4.1	37.6	83.5391	4.3609

HAINESPORT TWP	78.2	11.5	3.5	19.4	68.7895	9.4105
HALEDON BORO	53.4	2.8	6.6	19.1	63.3316	-9.9316
HAMBURG BORO	64.6	4.2	9.8	20.2	60.845	3.755
HAMILTON TOWNSHIP	49	1.9	9.9	16.8	58.1247	-9.1247
HAMILTON TWP	60.2	6	5.9	18.9	64.6686	-4.4686
HAMMONTON TOWN	57.5	5.8	10.7	18.5	59.164	-1.664
HARDYSTON TWP	80.1	7.3	6	16.8	63.5427	16.5573
HARMONY TWP	66.7	6	1.3	15.9	67.8042	-1.1042
HARRINGTON PARK BORO	88.8	21.9	1.8	37.8	84.3213	4.4787
HARRISON	54	2.2	14.9	15.9	52.2024	1.7976
HASBROUCK HEIGHTS	66.7	16.5	4.7	24.4	71.6813	-4.9813
HAWORTH BORO	85.2	29.5	2.3	38.9	86.1247	-0.9247
HAWTHORNE	59.1	8.9	6.3	24.2	68.1553	-9.0553
HAZLET TOWNSHIP	60.7	10.3	3.4	15.7	66.3413	-5.6413
HIGH BRIDGE BORO	77.5	7.6	1.3	24.4	73.4246	4.0754
HIGHLAND PARK	60.6	13.3	10.8	25.2	64.8519	-4.2519
HILLSBOROUGH TOWNSHIP	82	18	2.2	29.4	77.8248	4.1752
HILLSDALE BORO	73.6	21	3.9	32.8	78.7436	-5.1436
HILLSIDE TOWNSHIP	46.2	5.3	13.6	16.9	54.9131	-8.7131
HO HO KUS BORO	85.9	37.5	1.5	40.5	89.7375	-3.8375
HOBOKEN	59	31.8	10	45	82.0482	-23.0482
HOLMDEL TOWNSHIP	85.1	39.9	3.8	30.1	81.3173	3.7827
HOPATCONG BOROUGH	45.8	6.8	4.6	19.1	66.3796	-20.5796
HOPEWELL TWP	74.4	37.3	1.4	30.2	83.4163	-9.0163
HOWELL TWP	71.5	11.1	5	22.9	69.2429	2.2571
IRVINGTON TOWNSHIP	33.8	1.4	18.5	10.1	44.5216	-10.7216
JACKSON TWSP.	74.9	8.2	3.9	19.8	67.8804	7.0196
JAMESBURG BORO	58.3	3.6	6.9	15.4	60.887	-2.587
JEFFERSON TWP. SCHOOL DIS	73.4	8.6	2.8	27.9	74.1846	-0.7846
JERSEY CITY	40.4	7.5	16.4	25.4	57.6241	-17.2241
KEANSBURG BOROUGH	30.4	0.3	15.1	8.2	46.7951	-16.3951
KEARNY	61.1	3.1	11.5	13.4	54.5419	6.5581
KENILWORTH	72.2	6.3	4.6	15.8	64.2241	7.9759
KEYPORT	59	3.1	8.5	15.4	59.0399	-0.0399
KINGWOOD TWP	82.6	8.3	3.7	22.4	69.7315	12.8685
KINNELON BOROUGH	89	33	2.5	37.6	85.868	3.132
LACEY TOWNSHIP	52.6	6.8	5.2	16.8	64.302	-11.702
LAFAYETTE TWP	65.8	93	4	15.9	83.925	-18.125
LAKEHURST BORO	50	3.5	10.8	9.6	53.0337	-3.0337
LAKEWOOD TOWNSHIP	29.4	3.2	27.3	14.3	37.963	-8.563
LAWNSIDE BORO	53.5	5	9.1	15	58.5564	-5.0564

LAWRENCE TOWNSHIP	63.9	15.6	5.8	26.4	71.5296	-7.6296
LAWRENCE TWP	50.9	4.9	4.7	9.5	59.9029	-9.0029
LEBANON TWP	79.5	30.9	5.4	27.8	76.1827	3.3173
LEONIA	72.2	16.2	8.2	32.9	73.0846	-0.8846
LINCOLN PARK BORO	91.7	5.1	3.6	25.4	70.9993	20.7007
LINDEN	41.8	4.2	7.7	11.8	57.9176	-16.1176
LINDENWOLD	46.2	0.9	12.9	14.2	53.0357	-6.8357
LINWOOD CITY	88.2	19.1	4	26.6	74.3749	13.8251
LITTLE FALLS TWP	75.7	8.2	5.5	24.7	69.1808	6.5192
LITTLE FERRY BORO	60.7	6.7	6	22.2	66.7593	-6.0593
LITTLE SILVER BORO	90.3	37.6	2.9	41	88.549	1.751
LIVINGSTON TOWNSHIP	84.4	34	1.7	36.7	86.3978	-1.9978
LODI	70.5	2.1	11.4	15.2	55.5475	14.9525
LOGAN TWP	78.8	7.5	3.8	19	67.3397	11.4603
LONG BRANCH	51.2	8	14.4	16	54.0776	-2.8776
LONG HILL TWP	86.4	28.8	3.2	31.8	80.592	5.808
LOPATCONG TWP	82.4	6.3	4.2	17.7	65.8365	16.5635
LOWER ALLOWAYS CREEK	59.2	1	3.1	10	61.0964	-1.8964
LUMBERTON TWP	82.6	13.9	6.7	21.3	67.0179	15.5821
LYNDHURST TOWNSHIP	60.3	7.4	4.4	19.2	66.7902	-6.4902
MADISON	79.5	27.1	4.4	31.9	78.9785	0.5215
MAGNOLIA BORO	84.1	2.3	4.5	13.6	62.0927	22.0073
MAHWAH TOWNSHIP	85.5	23	2.8	32.1	79.9422	5.5578
MANASQUAN	78.8	18	3.6	31.3	77.4824	1.3176
MANCHESTER TOWNSHIP	72.5	1.3	7.8	10.3	56.2439	16.2561
MANVILLE BOROUGH	45.7	2.6	5.6	10.8	59.2278	-13.5278
MAPLE SHADE TOWNSHIP	64.7	1.5	8	16.8	60.1005	4.5995
MARGATE CITY	75.9	13.7	10.2	25.4	65.7151	10.1849
MARLBORO TWP	83	29.9	1.4	32.1	82.9737	0.0263
MAURICE RIVER TWP	62.2	0.4	11.2	9.1	51.6104	10.5896
MAYWOOD BORO	61.3	5.6	5.6	26.6	69.6808	-8.3808
MEDFORD LAKES BORO	72.9	17.7	5.7	33.6	76.5621	-3.6621
MEDFORD TWP	86.5	20.4	2.6	33.5	80.458	6.042
MENDHAM BORO	93.3	37.2	2.9	33.7	83.9354	9.3646
MENDHAM TWP	86	49.4	4.6	35.4	85.815	0.185
MERCHANTVILLE BORO	55.6	7.9	13	22.8	59.7921	-4.1921
METUCHEN	70.9	21.8	3.2	31.8	79.059	-8.159
MIDDLE TOWNSHIP	71.6	2.9	8.5	15	58.7481	12.8519
MIDDLESEX BOROUGH	71.4	8.6	1.5	20.3	70.8844	0.5156
MIDDLETOWN TOWNSHIP	71.5	17.4	3.1	25	73.988	-2.488
MIDLAND PARK BOROUGH	65	13.2	2.7	31.4	77.4706	-12.4706

MILLBURN TOWNSHIP	89.7	51.6	2.6	35.2	88.3448	1.3552
MILLSTONE TWP	85.8	29.9	1.1	28.1	80.8195	4.9805
MILLTOWN BORO	74.6	5.4	4.5	19.3	66.3056	8.2944
MILLVILLE	40.9	2.3	18.9	9.9	44.1603	-3.2603
MONMOUTH BEACH BORO	83.8	32.2	3.1	38.5	85.5992	-1.7992
MONROE TOWNSHIP (GLOUCESTER)	64.3	5.6	7.2	16.4	61.6192	2.6808
MONROE TOWNSHIP (MIDDLESEX)	65.2	13.8	3.3	22.9	71.6804	-6.4804
MONTCLAIR	74.7	29.1	6.7	32.5	77.2907	-2.5907
MONTGOMERY TWP.	85.9	38.7	2.1	35	85.9387	-0.0387
MONTVALE BORO	80.7	31.6	4.2	34.3	81.6692	-0.9692
MONTVILLE TOWNSHIP	82.9	28.9	3.8	34	81.3263	1.5737
MOONACHIE BORO	42.4	7.8	4.9	16.5	64.6608	-22.2608
MOORESTOWN TOWNSHIP	83.2	34.6	2.9	28.3	80.018	3.182
MORRIS PLAINS BORO	82.3	31.1	2.4	30.3	81.0345	1.2655
MOUNT ARLINGTON BORO	60.5	8.6	3.5	24.4	71.2544	-10.7544
MOUNT EPHRAIM BORO	44.1	4.3	7.7	9	56.2035	-12.1035
MOUNT HOLLY TWP	64.7	2	9.5	15.9	58.023	6.677
MOUNT LAUREL TWP	83.4	13.8	3.6	31.1	76.4386	6.9614
MOUNTAIN LAKES	92.2	46.7	1	48.9	97.5033	-5.3033
MOUNTAINSIDE BORO	86.4	32	4.2	30.6	79.4628	6.9372
MT. OLIVE TOWNSHIP	74.6	10.5	5.9	30.2	72.6601	1.9399
MULLICA TWP	76.7	3.5	9.6	11.3	55.3909	21.3091
NEPTUNE CITY	54	1.5	4.6	14.4	62.3049	-8.3049
NEPTUNE TOWNSHIP	40.9	6.4	10.2	18.3	59.7144	-18.8144
NETCONG BORO	77.4	2	10.8	10.2	53.0772	24.3228
NEW BRUNSWICK	27.8	2.5	27.9	12.5	36.0421	-8.2421
NEW PROVIDENCE	90.6	34.4	4.8	35.9	82.6228	7.9772
NEWARK	33.9	1.4	26.1	9	35.586	-1.686
NEWTON	43.3	3.5	14	13.7	52.1005	-8.8005
NORTH ARLINGTON	66.6	6.9	6.5	21.2	65.6401	0.9599
NORTH BERGEN	60.3	3.8	11.6	15.8	56.0746	4.2254
NORTH BRUNSWICK TOWNSHIP	69.2	7.6	6.2	27.3	69.9012	-0.7012
NORTH HALEDON BORO	76	15.5	2	27.8	76.5025	-0.5025
NORTH PLAINFIELD BOROUGH	41.9	4.6	8.3	16.1	60.0196	-18.1196
NORTH WILDWOOD CITY	64	4.5	13.3	12	52.0257	11.9743
NORTHFIELD CITY	87.1	3.5	5	20.7	66.2145	20.8855
NORTHVALE BORO	74.6	13.4	6	22.8	68.5986	6.0014
NORWOOD BORO	84.6	13.1	2.8	36.8	80.6881	3.9119
NUTLEY	74.5	11.6	4.2	25.7	71.9572	2.5428
OAKLAND BORO	83.5	15.8	2.8	31.9	78.2414	5.2586

OAKLYN BORO	51.4	4.3	5	15.6	63.2277	-11.8277
OCEAN CITY	66	9.4	7.4	24.5	67.2562	-1.2562
OCEAN TOWNSHIP	62.6	13.3	5.6	27.2	71.7391	-9.1391
OCEANPORT BORO	87.6	19.2	7.4	25.1	69.7744	17.8256
OGDENSBURG BORO	68	5.9	5	18.5	65.3761	2.6239
OLD BRIDGE TOWNSHIP	67.2	9.8	3.9	23.6	70.5868	-3.3868
OLD TAPPAN BORO	87.5	34.3	1.6	32.1	83.7201	3.7799
ORANGE TOWNSHIP, CITY OF	33.6	1.8	19.2	13.4	45.895	-12.295
OXFORD TWP	53.2	0.5	4.5	14.9	62.5045	-9.3045
PALISADES PARK	65	5	12.5	30	64.164	0.836
PALMYRA BOROUGH	56	2.4	8.8	19.9	61.3508	-5.3508
PARAMUS	75.6	16.5	3.6	29.2	75.8519	-0.2519
PARK RIDGE	76.8	21.7	2.2	34	81.4871	-4.6871
PARSIPPANY-TROY HILLS TWP	78.9	13.4	3.5	29.6	75.5296	3.3704
PASSAIC CITY	34.9	1.7	29.2	9.8	32.7811	2.1189
PATERSON	31.8	1.2	27.1	7.7	33.6502	-1.8502
PAULSBORO	32.5	0.6	25.3	6.8	34.9156	-2.4156
PEMBERTON TOWNSHIP	47.2	2.1	9.8	9.6	53.8131	-6.6131
PENNSAUKEN TOWNSHIP	55	3	9.2	13.5	57.0798	-2.0798
PENNSVILLE TOWNSHIP	69.2	3.3	10.8	13.5	55.4079	13.7921
PEQUANNOCK TOWNSHIP	77.8	14.3	2.6	30.4	77.2001	0.5999
PERTH AMBOY	38.7	2.3	19.9	11.2	43.8803	-5.1803
PHILLIPSBURG	45.7	2.2	19.5	8.6	42.6808	3.0192
PITMAN	66.7	5.4	5.4	21.3	66.5682	0.1318
PITTSGROVE TOWNSHIP	55	4.7	5.2	15.5	63.0361	-8.0361
PLAINFIELD	34.8	5.1	19	13.5	46.8969	-12.0969
PLEASANTVILLE	39.8	1.3	19	7.4	42.2827	-2.4827
PLUMSTED TOWNSHIP	75.2	5.7	4.5	12.9	62.4033	12.7967
POHATCONG TWP	67.6	5.1	4.5	20.6	67.0459	0.5541
POINT PLEASANT BEACH	90.4	8.9	11	27.3	64.9731	25.4269
POINT PLEASANT BOROUGH	78.4	8.9	3.9	22.8	69.8937	8.5063
POMPTON LAKES	51.2	7	3.5	29.3	73.942	-22.742
PROSPECT PARK BORO	69.5	4.3	7.8	9.4	56.3429	13.1571
QUINTON TWP	68.8	2.5	6.6	8.1	56.4459	12.3541
RAHWAY	52.3	2.2	10.9	15.2	56.1124	-3.8124
RAMSEY	77.8	27.4	3.4	37	83.2922	-5.4922
RANDOLPH TOWNSHIP	86	33.4	3.1	35.3	83.878	2.122
READINGTON TWP	81.2	24.9	3.7	28.3	77.0249	4.1751
RED BANK BORO	52.7	10.1	16.2	23.3	57.1087	-4.4087
RIDGEFIELD	78.7	7.6	5.4	24.1	68.786	9.914
RIDGEFIELD PARK	70	7.1	4.7	24.2	69.4987	0.5013

RIDGEWOOD VILLAGE	86.6	43	3.6	40.4	88.5994	-1.9994
RINGWOOD BORO	66.7	15.1	3.3	28	75.1271	-8.4271
RIVER VALE TWP	82.7	28.5	3.3	37.2	83.7657	-1.0657
RIVERDALE BORO	56.6	7.1	2.6	22.8	70.9113	-14.3113
RIVERSIDE TOWNSHIP	42	2.1	8.8	10.1	55.2091	-13.2091
ROCHELLE PARK TWP	57.2	3.1	3.7	21.1	67.7867	-10.5867
ROCKAWAY BORO	75.8	12.7	6.8	15.8	63.2365	12.5635
ROCKAWAY TWP	78.2	16.1	1.5	30.1	78.6029	-0.4029
ROSELLE BOROUGH	33.9	5.2	9.5	14.4	57.7938	-23.8938
ROSELLE PARK	72.6	5.1	6.1	18.1	63.7583	8.8417
ROXBURY TOWNSHIP	78.5	12.2	4.9	28.3	72.9404	5.5596
RUMSON BORO	92.2	41.1	4.9	36.3	84.2295	7.9705
RUNNEMEDE BORO	86.1	1.4	9	11.1	55.4586	30.6414
RUTHERFORD	67.3	13	5.6	29.4	73.0374	-5.7374
SADDLE BROOK TOWNSHIP	55.4	5.3	7.1	21.5	64.8241	-9.4241
SALEM CITY	25.8	2.5	31.4	4.3	27.1571	-1.3571
SAYREVILLE	63.6	5.8	5.1	20.3	66.3616	-2.7616
SECAUCUS	64.6	13	7.3	23.2	67.3472	-2.7472
SHAMONG TWP	78.5	13.2	3	24.8	73.0528	5.4472
SHREWSBURY BORO	87.3	29.2	0.6	35.1	85.5492	1.7508
SOMERDALE BORO	52.5	1.8	5.9	13.1	60.1528	-7.6528
SOMERS POINT CITY	64.8	2.3	12.2	14.7	54.4125	10.3875
SOMERSET HILLS	89.3	18	2.2	29.4	77.8248	11.4752
SOMERVILLE BOROUGH	66.3	5	5.4	24.3	68.3406	-2.0406
SOUTH AMBOY	47.9	7.3	8.5	14.9	59.6497	-11.7497
SOUTH BOUND BROOK	65.9	3.7	4.1	22	68.0417	-2.1417
SOUTH BRUNSWICK TOWNSHIP	80.1	18.1	2.4	32.4	79.4895	0.6105
SOUTH HACKENSACK TWP	50	3.3	5.2	20.6	65.8915	-15.8915
SOUTH PLAINFIELD	68.4	6	3.6	18.9	67.1664	1.2336
SOUTH RIVER	62.7	5.5	8	14.8	59.7365	2.9635
SOUTHAMPTON TWP	64	9.1	5.6	13.2	62.1393	1.8607
SPARTA TOWNSHIP	77.3	26	3.3	34.9	81.7922	-4.4922
SPOTSWOOD	88.7	6.7	3.8	13.1	63.5065	25.1935
SPRING LAKE HEIGHTS BORO	82.5	14.2	6	34.2	75.8418	6.6582
SPRINGFIELD TWP	66.7	11.5	3.3	23.2	71.3627	-4.6627
STANHOPE BORO	52.9	7.6	5.5	21.4	67.0034	-14.1034
STRATFORD BORO	77.1	6.3	6.3	20	64.9819	12.1181
SUMMIT CITY	80.3	39.5	6.7	33.4	80.1263	0.1737
TABERNACLE TWP	77.8	9.9	1.9	21.3	71.3547	6.4453
TEANECK	61.6	18	7.2	30.6	73.1388	-11.5388
TENAFLY	87.1	37.9	4	33.1	82.5221	4.5779

TEWKSBURY TWP	86.7	44.9	1.5	33	86.7081	-0.0081
TINTON FALLS	75	9.6	3.7	26	72.2482	2.7518
TOTOWA BORO	61.7	6.9	6.3	16.2	62.7573	-1.0573
TOWNSHIP OF ROBBINSVILLE	79.4	23.5	3.6	31.5	78.8109	0.5891
TRENTON	24.6	2	26.5	7.1	34.105	-9.505
UNION BEACH	57.5	3	4.9	9.1	59.0216	-1.5216
UNION CITY	63.7	1.6	21.1	11.3	42.4858	21.2142
UNION TOWNSHIP	50	27.7	4.2	25.7	75.4831	-25.4831
UNION TWP	80.6	6.3	5	19.4	66.0217	14.5783
UPPER DEERFIELD TWP	39.6	2	25.6	11.4	37.7484	1.8516
UPPER PITTSGROVE TWP	55.3	5.7	6.5	12.2	59.7973	-4.4973
UPPER SADDLE RIVER BORO	89.5	48.6	3	37.9	88.9274	0.5726
UPPER TWP	83.9	5.6	4.5	25	69.8834	14.0166
VENTNOR CITY	58.1	8.7	11.3	15	56.9775	1.1225
VERNON TOWNSHIP	62.7	6.4	4.5	18.1	65.7806	-3.0806
VERONA	77.1	24.7	3	32.2	80.1593	-3.0593
VINELAND CITY	50.1	5	13.1	11.4	51.9804	-1.8804
VOORHEES TWP	81	16.7	6.3	29	72.8395	8.1605
WALDWICK	79.9	16.4	1.6	28.1	77.32	2.58
WALL TOWNSHIP	72.1	17.5	5.5	27.3	72.8295	-0.7295
WALLINGTON	60.5	1.2	9.6	18.6	59.4132	1.0868
WANAQUE BORO	78.4	6.4	2.7	20	68.9134	9.4866
WARREN TWP	78.1	39.3	1.4	34.1	86.2723	-8.1723
WASHINGTON TOWNSHIP	69.8	22.7	1.7	30.5	80.0791	-10.2791
WASHINGTON TWP	84.5	0	5.8	17.9	62.8432	21.6568
WATCHUNG BORO	93.4	38.9	2.8	28.1	80.9443	12.4557
WAYNE TOWNSHIP	76.5	19.5	3.6	29.5	76.6949	-0.1949
WEEHAWKEN TOWNSHIP	67.4	10.4	12.5	32.8	67.0826	0.3174
WEST DEPTFORD TOWNSHIP	66.2	6.1	5.3	19	65.4041	0.7959
WEST LONG BRANCH BORO	84.3	17.6	7.2	24.6	69.3312	14.9688
WEST MILFORD TOWNSHIP	63.2	8	3.5	21.2	69.139	-5.939
WEST NEW YORK	59.6	5	19	16.9	48.983	10.617
WEST ORANGE	50.5	16.9	6.1	26.8	71.7365	-21.2365
WESTAMPTON	69.1	8.2	4.3	25	70.67	-1.57
WESTFIELD	87.5	37.6	2.8	36.3	85.7436	1.7564
WHARTON BORO	70.2	4.2	6.7	15.8	61.4836	8.7164
WHITE TWP	73.8	10.2	4.5	13.9	64.0088	9.7912
WILDWOOD CITY	40.7	4.6	25.1	14.6	40.8448	-0.1448
WILDWOOD CREST BORO	77.8	8.9	11.2	23.9	62.6479	15.1521
WILLINGBORO	32.8	3.1	8.4	17.4	60.3885	-27.5885
WOOD-RIDGE	68.1	3.8	3.7	25	70.358	-2.258

WOODBRIDGE TOWNSHIP	75.9	6.3	5.2	21.4	67.0445	8.8555
WOODBURY	36.7	3.4	12.1	18.1	56.87	-20.17
WOODCLIFF LAKE BORO	92.7	35.8	1.8	34.2	85.1334	7.5666
Woodland Park	55.8	4.2	6.5	20.1	64.3668	-8.5668
WOODLYNNE BORO	23	2	16.2	7	45.2288	-22.2288
WYCKOFF TWP	84.3	43.8	1.7	40.6	90.962	-6.662

Appendix C

2011 NJ ASK 7 Language Arts

District Name	% Proficient or Above	%Famil y >200K	% All People Under Pov	% BA	Predicted % Proficient or Above	Difference
ABSECON CITY	60.5	4.3	10. 1	17.9	58.064	2.436
ALEXANDRIA TWP	69.9	22	2.7	29	79.1144	-9.2144
ALLAMUCHY TWP	66.7	20.3	3.7	34.1	80.1474	-13.4474
ALLENDALE BORO	85.9	37.6	1.4	38.2	90.0398	-4.1398
ALLOWAY TWP	71.7	3.6	4.7	16.6	64.7068	6.9932
ALPHA BORO	68.5	1.4	5.6	13.9	61.3773	7.1227
ASBURY PARK	18.8	3.3	31.5	12.5	24.8644	-6.0644
ATLANTIC CITY	39.4	2.5	29.3	11	26.8961	12.5039
AUDUBON	63.5	4.2	6.6	19.2	63.661	-0.161
BARNEGAT TWP	64.8	3.8	6.4	15.1	61.5393	3.2607
BARRINGTON BORO	67.2	1.7	3.9	17	65.5689	1.6311
BAYONNE	64.5	5.8	14.3	17.7	52.4597	12.0403
BEDMINSTER TWP	87.5	23.2	2.5	31. 5	81.1001	6.3999
BELLEVILLE	57.4	4.4	7.2	20.7	63.7143	-6.3143
BELLMAWR BORO	54.5	1.9	9.3	9	53.5823	0.9177
BELMAR BORO	63	7.3	11.6	21	58.4651	4.5349
BERGENFIELD	61	11.9	6.2	28	71.1051	-10.1051
BERKELEY HEIGHTS	86.2	32.9	1.5	34.2	86.4669	-0.2669
BERLIN BORO	64.5	4.4	6.3	19.6	64.3554	0.1446
BERNARDS TOWNSHIP	89.6	41.6	3.1	34.6	86.6556	2.9444
BETHLEHEM TWP	83.8	25.9	1.4	28.3	81.5258	2.2742
BEVERLY CITY	24	4	17.9	11.2	43.325	-19.325
BLOOMINGDALE BORO	79.6	4.9	7.5	17	61.3457	18.2543
BOGOTA	47.9	4.4	7	17.4	62.1426	-14.2426
BOONTON TOWN	67.5	9.9	2.9	31.6	77.2321	-9.7321
BOONTON TWP	83.7	22.6	3.8	26	76.0454	7.6546
BOUND BROOK BOROUGH	40.3	4	5.6	13.9	62.0351	-21.7351
BRADLEY BEACH BORO	64	8.5	14.9	31.6	60.1019	3.8981
BRANCHBURG TWP	85.7	23.3	1.4	30.1	81.8778	3.8222
BRICK TOWNSHIP	68.2	6.1	5.1	17.7	65.3972	2.8028
BRIELLE BORO	76.4	22.3	4.9	38.6	81.5003	-5.1003
BRIGANTINE CITY	52.5	8.3	8.4	17.8	61.3965	-8.8965

BROOKLAWN BORO	55	0	4.1	13.2	62.7274	-7.7274
BURLINGTON CITY	28.4	9.6	5.3	21.9	68.3593	-39.9593
BUTLER	72.1	5.9	1.8	25.2	74.1675	-2.0675
BYRAM TWP	76.9	17	1.2	27.4	79.0488	-2.1488
CAMDEN CITY	11.3	0.2	38.4	5.8	10.6752	0.6248
CARLSTADT BORO	59.6	8.5	6	21.9	67.1024	-7.5024
CARTERET	46.4	4.7	12.7	15.6	53.2401	-6.8401
CEDAR GROVE TOWNSHIP	80	26.1	1.5	31.5	83.2318	-3.2318
CHERRY HILL TOWNSHIP	75	13.8	3.9	27.8	74.689	0.311
CINNAMINSON TOWNSHIP	82	10.7	4.2	23.4	71.0169	10.9831
CLAYTON	53.5	1.6	12.6	10.6	49.7906	3.7094
CLEMENTON BORO	71.9	2	15.5	14.2	47.8572	24.0428
CLIFFSIDE PARK	55.4	10	11.8	27.3	62.4029	-7.0029
CLINTON TOWN	83.6	6.6	8.6	21.1	62.5381	21.0619
CLOSTER BORO	83.2	24.9	2.8	37.2	84.3085	-1.1085
COLLINGSWOOD BOROUGH	69.3	6.7	11.3	26.8	61.9865	7.3135
COLTS NECK TWP	85.5	38.9	2.9	34.8	86.3643	-0.8643
COMMERCIAL TWP	49.2	1.4	20.3	6.1	36.4509	12.7491
CRANBURY TWP	94.9	33.7	2.1	33.6	85.4939	9.4061
CRANFORD TOWNSHIP	81.6	22.6	3.4	29.6	78.6242	2.9758
CRESSKILL	80.7	29.2	4.8	34.8	81.254	-0.554
DELANCO TWP	46	2.5	2.4	19.4	69.2147	-23.2147
DELAWARE TWP	77.3	23.3	0.7	29.1	82.2954	-4.9954
DELRAN TOWNSHIP	67.1	7.9	4	23.2	70.4759	-3.3759
DEMAREST BORO	92.3	28.2	2.2	35.8	85.1968	7.1032
DENNIS TWP	75.7	0.8	6.6	14.4	60.108	15.592
DENVILLE TWP	78.4	23.1	1.8	32	82.3339	-3.9339
DEPTFORD TOWNSHIP	62	5.2	8.7	15.2	58.7342	3.2658
DOVER TOWN	50.7	1.2	9.7	10.9	53.9119	-3.2119
DUMONT	74.5	8.7	3.6	27.2	73.4815	1.0185
DUNELLEN	65.7	6.2	9.4	19.9	60.6453	5.0547
EAST AMWELL TWP	94.1	15.8	4.2	22.4	71.7462	22.3538
EAST BRUNSWICK TOWNSHIP	80.1	17.3	3.3	31	78.2085	1.8915
EAST HANOVER TWP	81	18	4.5	25.3	73.5103	7.4897
EAST NEWARK BORO	28	3.4	17.6	14.1	45.2195	-17.2195
EAST ORANGE	30.3	1.1	19.4	12.8	41.3919	-11.0919
EAST RUTHERFORD BORO	60.7	4.2	7.2	24.2	65.6272	-4.9272
EASTAMPTON TWP	65.9	7.5	2.4	28.3	75.4726	-9.5726
EATONTOWN BORO	70.7	10.9	8.3	20.8	63.8771	6.8229
EDGEWATER PARK TWP	45.1	2.2	9.7	12.9	55.2869	-10.1869
EDISON TOWNSHIP	78.4	12.6	6.7	28.4	70.8076	7.5924

EGG HARBOR CITY	39.4	0.7	19.2	8.6	39.2141	0.1859
EGG HARBOR TOWNSHIP	58.2	5.2	7.1	18.1	62.5979	-4.3979
ELIZABETH	44	2	17.7	8.5	41.5839	2.4161
ELMWOOD PARK	54.3	7.2	5.2	17.3	65.3113	-11.0113
EMERSON	69.5	10.9	1.4	30.4	78.9089	-9.4089
ENGLEWOOD CITY	37.3	15.4	10.9	25.6	64.0736	-26.7736
ENGLEWOOD CLIFFS BORO	94.6	35.5	8.5	40.3	80.7608	13.8392
ESTELL MANOR CITY	88.5	2.2	4.9	14.2	62.7266	25.7734
EVESHAM TWP	63.2	11.1	3	28.8	75.8251	-12.6251
EWING TWP. PUBLIC SCHOOLS	55.8	7.6	10.1	21.6	60.9746	-5.1746
FAIR HAVEN BORO	85.8	29.4	3.2	39.5	86.1781	-0.3781
FAIR LAWN	78	14	4	30	75.834	2.166
FAIRFIELD TWP	37.5	3.1	11.9	6.5	48.8486	-11.3486
FAIRVIEW BORO	51	4.8	15.1	15.5	49.8541	1.1459
FLORENCE TOWNSHIP	52.8	6.1	2.7	19	69.4817	-16.6817
FLORHAM PARK BORO	87.8	24.8	3.7	31.3	79.7151	8.0849
FOLSOM BORO	63.8	2.8	5.9	11.5	59.9657	3.8343
FORT LEE	71.5	14.7	8.8	33.3	71.152	0.348
FRANKFORD TWP	64.4	7.1	4.8	22.8	68.9307	-4.5307
FRANKLIN BORO	74.6	3.7	7	14.3	60.2264	14.3736
FRANKLIN LAKES BORO	85.8	41.4	1.5	38.9	91.2541	-5.4541
FRANKLIN TOWNSHIP	50.1	6.9	5.5	13.3	62.572	-12.472
FRANKLIN TWP	82.9	15.6	1.7	30.7	79.8469	3.0531
FREEHOLD BORO	43.7	1.8	17.4	13.6	44.8138	-1.1138
FREEHOLD TWP	82.8	15.8	3.8	25.8	74.2128	8.5872
GALLOWAY TWP	64.3	4.3	6	19.5	64.6934	-0.3934
GARFIELD	55.2	3.9	10.7	15.1	55.5532	-0.3532
GARWOOD BORO	68.1	4	2.1	21.9	71.4161	-3.3161
GLASSBORO	39.6	3.1	16.7	19.3	49.319	-9.719
GLEN RIDGE	86.3	41.9	2.7	40	90.3201	-4.0201
GLEN ROCK	83.2	39.4	2.2	34.8	87.4694	-4.2694
GLOUCESTER CITY	43.5	1.6	13.2	8.6	47.8298	-4.3298
GLOUCESTER TWP	61.7	5	5.7	16.4	63.5508	-1.8508
GREEN BROOK TWP	94.3	18.9	1.4	31.3	81.4378	12.8622
GREEN TWP	80	23.3	3.2	30.8	79.7541	0.2459
GREENWICH TWP	66.1	9.7	11.5	15.6	56.1827	9.9173
GREENWICH TWP	80	5.3	9.8	15	57.1095	22.8905
GUTTENBERG TOWN	43.4	7.3	13.6	23.5	57.0716	-13.6716
HACKENSACK	40.8	5.4	13	21.7	56.4199	-15.6199
HACKETTSTOWN	81.2	5	7.1	19.2	63.1644	18.0356
HADDON HEIGHTS	68.5	14.1	1.5	33.3	81.2056	-12.7056

HADDON TOWNSHIP	69.4	6.5	6.4	25.3	67.9446	1.4554
HADDONFIELD BOROUGH	82.5	30.3	4.1	37.6	84.0817	-1.5817
HAINESPORT TWP	66.6	11.5	3.5	19.4	69.9539	-3.3539
HALEDON BORO	51.6	2.8	6.6	19.1	63.2507	-11.6507
HAMBURG BORO	87.1	4.2	9.8	20.2	59.7484	27.3516
HAMILTON TOWNSHIP	55.9	1.9	9.9	16.8	57.1193	-1.2193
HAMILTON TWP	57.9	6	5.9	18.9	64.9267	-7.0267
HAMMONTON TOWN	60.5	5.8	10.7	18.5	57.9413	2.5587
HARDING TOWNSHIP	88.7	47.1	6.7	38.3	85.09	3.61
HARDYSTON TWP	76.4	7.3	6	16.8	63.9377	12.4623
HARMONY TWP	75.8	6	1.3	15.9	69.6745	6.1255
HARRINGTON PARK BORO	85.8	21.9	1.8	37.8	85.2841	0.5159
HARRISON	46.1	2.2	14.9	15.9	49.7003	-3.6003
HASBROUCK HEIGHTS	74.2	16.5	4.7	24.4	72.3463	1.8537
HAWORTH BORO	86.8	29.5	2.3	38.9	87.125	-0.325
HAWTHORNE	60	8.9	6.3	24.2	68.0745	-8.0745
HAZLET TOWNSHIP	67.6	10.3	3.4	15.7	67.7144	-0.1144
HIGH BRIDGE BORO	82.4	7.6	1.3	24.4	74.8478	7.5522
HIGHLAND PARK	75.2	13.3	10.8	25.2	63.4577	11.7423
HILLSBOROUGH TOWNSHIP	81.6	18	2.2	29.4	79.0258	2.5742
HILLSDALE BORO	81.3	21	3.9	32.8	79.3156	1.9844
HILLSIDE TOWNSHIP	43.4	5.3	13.6	16.9	52.863	-9.463
HO HO KUS BORO	86.1	37.5	1.5	40.5	91.165	-5.065
HOBOKEN	47	31.8	10	45	80.3644	-33.3644
HOLMDEL TOWNSHIP	87.6	39.9	3.8	30.1	82.7224	4.8776
HOPATCONG BOROUGH	64.9	6.8	4.6	19.1	67.0587	-2.1587
HOPEWELL TWP	40.3	37.3	1.4	30.2	85.4759	-45.1759
HOWELL TWP	67.7	11.1	5	22.9	69.7192	-2.0192
IRVINGTON TOWNSHIP	25	1.4	18.5	10.1	41.2113	-16.2113
JACKSON TWSP.	68.5	8.2	3.9	19.8	68.7842	-0.2842
JAMESBURG BORO	59.1	3.6	6.9	15.4	60.958	-1.858
JEFFERSON TWP. SCHOOL DIS	73.6	8.6	2.8	27.9	74.9673	-1.3673
JERSEY CITY	42.4	7.5	16.4	25.4	54.2737	-11.8737
KEANSBURG BOROUGH	39.6	0.3	15.1	8.2	44.6203	-5.0203
KEARNY	59.9	3.1	11.5	13.4	53.2787	6.6213
KENILWORTH	54.5	6.3	4.6	15.8	65.0809	-10.5809
KEYPORT	62.5	3.1	8.5	15.4	58.5947	3.9053
KINGWOOD TWP	76.9	8.3	3.7	22.4	70.5477	6.3523
KINNELON BOROUGH	87.9	33	2.5	37.6	87.0016	0.8984
LACEY TOWNSHIP	64.9	6.8	5.2	16.8	64.9296	-0.0296
LAFAYETTE TWP	80	93	4	15.9	87.9109	-7.9109

LAKEHURST BORO	52.3	3.5	10.8	9.6	52.2267	0.0733
LAKEWOOD TOWNSHIP	24.9	3.2	27.3	14.3	31.7205	-6.8205
LAWNSIDE BORO	33.3	5	9.1	15	58.0122	-24.7122
LAWRENCE TOWNSHIP	75.7	15.6	5.8	26.4	71.7028	3.9972
LAWRENCE TWP	59.1	4.9	4.7	9.5	61.0526	-1.9526
LEBANON TWP	94.9	30.9	5.4	27.8	76.9183	17.9817
LEONIA	73.8	16.2	8.2	32.9	72.1459	1.6541
LINCOLN PARK BORO	89	5.1	3.6	25.4	71.5609	17.4391
LINDEN	41.8	4.2	7.7	11.8	57.9718	-16.1718
LINDENWOLD	39.3	0.9	12.9	14.2	51.2137	-11.9137
LINWOOD CITY	89.2	19.1	4	26.6	75.2169	13.9831
LITTLE FALLS TWP	71.9	8.2	5.5	24.7	69.2963	2.6037
LITTLE FERRY BORO	67.7	6.7	6	22.2	66.8153	0.8847
LITTLE SILVER BORO	85.5	37.6	2.9	41	89.5136	-4.0136
LIVINGSTON TOWNSHIP	87.6	34	1.7	36.7	87.8681	-0.2681
LODI	55.5	2.1	11.4	15.2	54.1753	1.3247
LOGAN TWP	71.3	7.5	3.8	19	68.2981	3.0019
LONG BRANCH	45.4	8	14.4	16	51.9228	-6.5228
LONG HILL TWP	90.6	28.8	3.2	31.8	81.7066	8.8934
LOPATCONG TWP	78	6.3	4.2	17.7	66.706	11.294
LUMBERTON TWP	73.6	13.9	6.7	21.3	67.1534	6.4466
LYNDHURST TOWNSHIP	62.9	7.4	4.4	19.2	67.5462	-4.6462
MADISON	93.3	27.1	4.4	31.9	79.655	13.645
MAGNOLIA BORO	65.5	2.3	4.5	13.6	62.9745	2.5255
MAHWAH TOWNSHIP	76.2	23	2.8	32.1	80.9667	-4.7667
MANASQUAN	83.5	18	3.6	31.3	78.1345	5.3655
MANCHESTER TOWNSHIP	60.3	1.3	7.8	10.3	56.2568	4.0432
MANVILLE BOROUGH	58	2.6	5.6	10.8	59.9418	-1.9418
MAPLE SHADE TOWNSHIP	43.5	1.5	8	16.8	59.6743	-16.1743
MARGATE CITY	86.9	13.7	10.2	25.4	64.5099	22.3901
MARLBORO TWP	81.3	29.9	1.4	32.1	84.6696	-3.3696
MAURICE RIVER TWP	62.5	0.4	11.2	9.1	50.6027	11.8973
MAYWOOD BORO	76.4	5.6	5.6	26.6	69.5646	6.8354
MEDFORD LAKES BORO	83.9	17.7	5.7	33.6	76.4131	7.4869
MEDFORD TWP	80.6	20.4	2.6	33.5	81.3739	-0.7739
MENDHAM BORO	91.3	37.2	2.9	33.7	85.3171	5.9829
MENDHAM TWP	92.3	49.4	4.6	35.4	86.9808	5.3192
MERCHANTVILLE BORO	59.5	7.9	13	22.8	57.6695	1.8305
METUCHEN	79.8	21.8	3.2	31.8	79.9356	-0.1356
MIDDLE TOWNSHIP	59	2.9	8.5	15	58.3197	0.6803
MIDDLESEX BOROUGH	64.1	8.6	1.5	20.3	72.5211	-8.4211

MIDDLETOWN TOWNSHIP	76.7	17.4	3.1	25	75.1474	1.5526
MIDLAND PARK BOROUGH	80.4	13.2	2.7	31.4	78.2344	2.1656
MILLBURN TOWNSHIP	87.6	51.6	2.6	35.2	90.2212	-2.6212
MILLSTONE TWP	84	29.9	1.1	28.1	82.845	1.155
MILLTOWN BORO	72.1	5.4	4.5	19.3	66.9565	5.1435
MILLVILLE	41.4	2.3	18.9	9.9	40.7676	0.6324
MONMOUTH BEACH BORO	87.3	32.2	3.1	38.5	86.4653	0.8347
MONROE TOWNSHIP (GLOUCESTER)	63.3	5.6	7.2	16.4	61.6056	1.6944
MONROE TOWNSHIP (MIDDLESEX)	78.3	13.8	3.3	22.9	72.7789	5.5211
MONTCLAIR	77.8	29.1	6.7	32.5	77.2822	0.5178
MONTGOMERY TWP.	86.7	38.7	2.1	35	87.5443	-0.8443
MONTVALE BORO	82.6	31.6	4.2	34.3	82.4195	0.1805
MONTVILLE TOWNSHIP	89.9	28.9	3.8	34	82.1273	7.7727
MOONACHIE BORO	33.3	7.8	4.9	16.5	65.4337	-32.1337
MOORESTOWN TOWNSHIP	77.7	34.6	2.9	28.3	81.6299	-3.9299
MORRIS PLAINS BORO	84.8	31.1	2.4	30.3	82.5654	2.2346
MOUNT ARLINGTON BORO	74.4	8.6	3.5	24.4	72.0252	2.3748
MOUNT EPHRAIM BORO	54.2	4.3	7.7	9	56.4263	-2.2263
MOUNT HOLLY TWP	49	2	9.5	15.9	57.1989	-8.1989
MOUNT LAUREL TWP	77.2	13.8	3.6	31.1	76.9597	0.2403
MOUNTAIN LAKES	91.7	46.7	1	48.9	98.904	-7.204
MOUNTAINSIDE BORO	85.8	32	4.2	30.6	80.445	5.355
MT. OLIVE TOWNSHIP	77.7	10.5	5.9	30.2	72.4045	5.2955
MULLICA TWP	79.3	3.5	9.6	11.3	54.858	24.442
NEPTUNE CITY	56.1	1.5	4.6	14.4	63.0811	-6.9811
NEPTUNE TOWNSHIP	37.7	6.4	10.2	18.3	58.6799	-20.9799
NETCONG BORO	72	2	10.8	10.2	52.1838	19.8162
NEW BRUNSWICK	22.1	2.5	27.9	12.5	29.6948	-7.5948
NEW PROVIDENCE	87.6	34.4	4.8	35.9	83.1867	4.4133
NEWARK	33.6	1.4	26.1	9	29.9694	3.6306
NEWTON	64.7	3.5	14	13.7	50.0532	14.6468
NORTH ARLINGTON	75.2	6.9	6.5	21.2	65.6059	9.5941
NORTH BERGEN	55.3	3.8	11.6	15.8	54.6624	0.6376
NORTH BRUNSWICK TOWNSHIP	70	7.6	6.2	27.3	69.6245	0.3755
NORTH HALEDON BORO	66.7	15.5	2	27.8	77.7753	-11.0753
NORTH PLAINFIELD BOROUGH	38	4.6	8.3	16.1	59.6465	-21.6465
NORTH WILDWOOD CITY	77.4	4.5	13.3	12	50.3311	27.0689
NORTHFIELD CITY	68.6	3.5	5	20.7	66.5622	2.0378
NORTHVALE BORO	72.8	13.4	6	22.8	68.847	3.953

NORWOOD BORO	89.6	13.1	2.8	36.8	81.0987	8.5013
NUTLEY	79.9	11.6	4.2	25.7	72.5349	7.3651
OAKLAND BORO	82.7	15.8	2.8	31.9	79.0329	3.6671
OAKLYN BORO	67.3	4.3	5	15.6	63.9035	3.3965
OCEAN CITY	72.2	9.4	7.4	24.5	66.8315	5.3685
OCEAN TOWNSHIP	72.1	13.3	5.6	27.2	71.8493	0.2507
OCEANPORT BORO	69.3	19.2	7.4	25.1	69.6475	-0.3475
OGDENSBURG BORO	62.6	5.9	5	18.5	65.9352	-3.3352
OLD BRIDGE TOWNSHIP	71.1	9.8	3.9	23.6	71.3208	-0.2208
OLD TAPPAN BORO	86.7	34.3	1.6	32.1	85.5032	1.1968
OLDMANS TWP	79.3	1.7	5.7	9.7	58.9572	20.3428
ORANGE TOWNSHIP, CITY OF	35.2	1.8	19.2	13.4	42.1852	-6.9852
PALISADES PARK	61.2	5	12.5	30	61.674	-0.474
PALMYRA BOROUGH	44.3	2.4	8.8	19.9	60.5227	-16.2227
PARAMUS	81	16.5	3.6	29.2	76.5769	4.4231
PARK RIDGE	88.2	21.7	2.2	34	82.5425	5.6575
PARSIPPANY-TROY HILLS TWP	75.7	13.4	3.5	29.6	76.1568	-0.4568
PASSAIC CITY	28.7	1.7	29.2	9.8	26.1603	2.5397
PATERSON	30.7	1.2	27.1	7.7	27.7915	2.9085
PAULSBORO	27.8	0.6	25.3	6.8	29.6512	-1.8512
PEMBERTON TOWNSHIP	54.1	2.1	9.8	9.6	53.2705	0.8295
PENNSAUKEN TOWNSHIP	50	3	9.2	13.5	56.5249	-6.5249
PENNSVILLE TOWNSHIP	55.4	3.3	10.8	13.5	54.364	1.036
PEQUANNOCK TOWNSHIP	84.4	14.3	2.6	30.4	78.0915	6.3085
PERTH AMBOY	30.3	2.3	19.9	11.2	40.0989	-9.7989
PHILLIPSBURG	46.4	2.2	19.5	8.6	39.1742	7.2258
PITMAN	65.1	5.4	5.4	21.3	66.8203	-1.7203
PITTSGROVE TOWNSHIP	52.5	4.7	5.2	15.5	63.669	-11.169
PLAINFIELD	28.9	5.1	19	13.5	43.3558	-14.4558
PLEASANTVILLE	23.1	1.3	19	7.4	38.9723	-15.8723
PLUMSTED TOWNSHIP	74.8	5.7	4.5	12.9	63.442	11.358
POHATCONG TWP	64.5	5.1	4.5	20.6	67.6099	-3.1099
POINT PLEASANT BEACH	70	8.9	11	27.3	63.243	6.757
POINT PLEASANT BOROUGH	74	8.9	3.9	22.8	70.6443	3.3557
POMPTON LAKES	71.5	7	3.5	29.3	74.3693	-2.8693
PROSPECT PARK BORO	50.4	4.3	7.8	9.4	56.5109	-6.1109
QUINTON TWP	48.1	2.5	6.6	8.1	57.0038	-8.9038
RAHWAY	51.3	2.2	10.9	15.2	54.8996	-3.5996
RAMSEY	84	27.4	3.4	37	83.99	0.01
RANDOLPH TOWNSHIP	84	33.4	3.1	35.3	84.9737	-0.9737
READINGTON TWP	80.6	24.9	3.7	28.3	78.0574	2.5426

RED BANK BORO	38.6	10.1	16.2	23.3	54.033	-15.433
RIDGEFIELD	69.8	7.6	5.4	24.1	68.9477	0.8523
RIDGEFIELD PARK	73.1	7.1	4.7	24.2	69.8559	3.2441
RIDGEWOOD VILLAGE	89.9	43	3.6	40.4	89.5646	0.3354
RINGWOOD BORO	81.1	15.1	3.3	28	75.9689	5.1311
RIVER VALE TWP	82.1	28.5	3.3	37.2	84.5203	-2.4203
RIVERDALE BORO	76.3	7.1	2.6	22.8	72.0063	4.2937
RIVERSIDE TOWNSHIP	33.7	2.1	8.8	10.1	54.949	-21.249
RIVERTON	77	15	2.6	31.5	78.8857	-1.8857
ROCHELLE PARK TWP	77.2	3.1	3.7	21.1	68.5028	8.6972
ROCKAWAY BORO	67.6	12.7	6.8	15.8	63.6245	3.9755
ROCKAWAY TWP	82.3	16.1	1.5	30.1	79.9164	2.3836
ROSELLE BOROUGH	24.7	5.2	9.5	14.4	57.167	-32.467
ROSELLE PARK	67.7	5.1	6.1	18.1	63.9706	3.7294
ROXBURY TOWNSHIP	80.3	12.2	4.9	28.3	73.1667	7.1333
RUMSON BORO	94.3	41.1	4.9	36.3	84.9664	9.3336
RUNNEMEDE BORO	62.3	1.4	9	11.1	55.0533	7.2467
RUTHERFORD	76.6	13	5.6	29.4	73.0076	3.5924
SADDLE BROOK TOWNSHIP	58.7	5.3	7.1	21.5	64.5306	-5.8306
SALEM CITY	26.7	2.5	31.4	4.3	20.2016	6.4984
SAYREVILLE	59.7	5.8	5.1	20.3	66.7799	-7.0799
SECAUCUS	59.6	13	7.3	23.2	67.1528	-7.5528
SHAMONG TWP	77.9	13.2	3	24.8	74.1124	3.7876
SHREWSBURY BORO	80	29.2	0.6	35.1	87.2939	-7.2939
SOMERDALE BORO	48.3	1.8	5.9	13.1	60.6103	-12.3103
SOMERS POINT CITY	46.4	2.3	12.2	14.7	52.827	-6.427
SOMERSET HILLS	87.4	18	2.2	29.4	79.0258	8.3742
SOMERVILLE BOROUGH	58.1	5	5.4	24.3	68.4021	-10.3021
SOUTH AMBOY	50	7.3	8.5	14.9	59.3768	-9.3768
SOUTH BOUND BROOK	56.5	3.7	4.1	22	68.6003	-12.1003
SOUTH BRUNSWICK TOWNSHIP	82.9	18.1	2.4	32.4	80.4545	2.4455
SOUTH HACKENSACK TWP	65.5	3.3	5.2	20.6	66.1759	-0.6759
SOUTH PLAINFIELD	69.5	6	3.6	18.9	68.1421	1.3579
SOUTH RIVER	55.8	5.5	8	14.8	59.5643	-3.7643
SOUTHAMPTON TWP	83.5	9.1	5.6	13.2	62.9327	20.5673
SPARTA TOWNSHIP	77.6	26	3.3	34.9	82.5975	-4.9975
SPOTSWOOD	66.1	6.7	3.8	13.1	64.7858	1.3142
SPRING LAKE BORO	92.6	33.6	4.1	28.1	79.5871	13.0129
SPRING LAKE HEIGHTS BORO	86.9	14.2	6	34.2	75.4448	11.4552
SPRINGFIELD TWP	65.9	11.5	3.3	23.2	72.3653	-6.4653
STANHOPE BORO	73.2	7.6	5.5	21.4	67.2932	5.9068

STRATFORD BORO	72.1	6.3	6.3	20	65.0605	7.0395
SUMMIT CITY	86.2	39.5	6.7	33.4	80.4183	5.7817
TABERNACLE TWP	72	9.9	1.9	21.3	72.8518	-0.8518
TEANECK	63.4	18	7.2	30.6	72.709	-9.309
TENAFLY	86.8	37.9	4	33.1	83.6198	3.1802
TEWKSBURY TWP	90.8	44.9	1.5	33	88.8297	1.9703
TINTON FALLS	79.9	9.6	3.7	26	72.8962	7.0038
TOTOWA BORO	77.8	6.9	6.3	16.2	63.0805	14.7195
TOWNSHIP OF ROBBINSVILLE	82.3	23.5	3.6	31.5	79.6382	2.6618
TRENTON	19.7	2	26.5	7.1	28.4961	-8.7961
UNION BEACH	60.2	3	4.9	9.1	60.0679	0.1321
UNION CITY	48.7	1.6	21.1	11.3	38.3003	10.3997
UNION TOWNSHIP	57.2	27.7	4.2	25.7	76.6082	-19.4082
UNION TWP	84.7	6.3	5	19.4	66.5413	18.1587
UPPER DEERFIELD TWP	50.5	2	25.6	11.4	32.1666	18.3334
UPPER PITTSGROVE TWP	65.9	5.7	6.5	12.2	60.2533	5.6467
UPPER SADDLE RIVER BORO	90.3	48.6	3	37.9	90.4177	-0.1177
UPPER TWP	75	5.6	4.5	25	70.2048	4.7952
VENTNOR CITY	60.2	8.7	11.3	15	55.8727	4.3273
VERNON TOWNSHIP	66.7	6.4	4.5	18.1	66.5363	0.1637
VERONA	89.7	24.7	3	32.2	81.1733	8.5267
VINELAND CITY	48.9	5	13.1	11.4	50.4006	-1.5006
VOORHEES TWP	79.8	16.7	6.3	29	72.7407	7.0593
WALDWICK	69.7	16.4	1.6	28.1	78.7305	-9.0305
WALL TOWNSHIP	70.1	17.5	5.5	27.3	73.1078	-3.0078
WALLINGTON	64.7	1.2	9.6	18.6	58.3714	6.3286
WANAQUE BORO	66.3	6.4	2.7	20	70.1186	-3.8186
WARREN TWP	85.1	39.3	1.4	34.1	88.1698	-3.0698
WASHINGTON TOWNSHIP	74.2	22.7	1.7	30.5	81.531	-7.331
WASHINGTON TWP	84.9	0	5.8	17.9	62.9875	21.9125
WATCHUNG BORO	91.5	38.9	2.8	28.1	82.7454	8.7546
WAYNE TOWNSHIP	75.3	19.5	3.6	29.5	77.5042	-2.2042
WEEHAWKEN TOWNSHIP	70.4	10.4	12.5	32.8	64.611	5.789
WEST DEPTFORD TOWNSHIP	69.6	6.1	5.3	19	65.8469	3.7531
WEST LONG BRANCH BORO	68	17.6	7.2	24.6	69.2418	-1.2418
WEST MILFORD TOWNSHIP	67	8	3.5	21.2	70.0782	-3.0782
WEST NEW YORK	43.7	5	19	16.9	45.2379	-1.5379
WEST ORANGE	66.6	16.9	6.1	26.8	71.8367	-5.2367
WESTAMPTON	68.4	8.2	4.3	25	71.1422	-2.7422
WESTFIELD	87.1	37.6	2.8	36.3	87.0167	0.0833
WEYMOUTH TWP	79.3	3	9.7	13.6	55.882	23.418

WHARTON BORO	65.1	4.2	6.7	15.8	61.6138	3.4862
WHITE TWP	77.5	10.2	4.5	13.9	65.1415	12.3585
WILDWOOD CITY	42.9	4.6	25.1	14.6	35.3186	7.5814
WILDWOOD CREST BORO	88.9	8.9	11.2	23.9	61.056	27.844
WILLINGBORO	34.2	3.1	8.4	17.4	59.8565	-25.6565
WOOD-RIDGE	78.8	3.8	3.7	25	70.8678	7.9322
WOODBRIDGE TOWNSHIP	67.2	6.3	5.2	21.4	67.3837	-0.1837
WOODBURY	38	3.4	12.1	18.1	55.1525	-17.1525
WOODCLIFF LAKE BORO	83.9	35.8	1.8	34.2	86.7812	-2.8812
WOODLAND PARK	54.2	4.2	6.5	20.1	64.3057	-10.1057
WOODLYNNE BORO	38.6	2	16.2	7	42.8394	-4.2394
WYCKOFF TWP	86.2	43.8	1.7	40.6	92.5354	-6.3354

Appendix D

2011 NJ ASK 7 Mathematics

District Name	% Proficient or Above	%Family >200K	% All People Under Pov	% BA	Predicted % Proficient or Above	Difference
ABSECON CITY	59.2	4.3	10. 1	17.9	60.8317	-1.6317
ALEXANDRIA TWP	79.5	22	2.7	29	79.1228	0.3772
ALLAMUCHY TWP	73.8	20.3	3.7	34.1	80.5521	-6.7521
ALLENDALE BORO	95.1	37.6	1.4	38.2	88.9792	6.1208
ALLOWAY TWP	75.5	3.6	4.7	16.6	66.0844	9.4156
ALPHA BORO	68.4	1.4	5.6	13.9	63.0808	5.3192
ASBURY PARK	24.8	3.3	31.5	12.5	33.2423	-8.4423
ATLANTIC CITY	44.9	2.5	29.3	11	34.7257	10.1743
AUDUBON	75	4.2	6.6	19.2	65.5286	9.4714
BARNEGAT TWP	69.3	3.8	6.4	15.1	63.3384	5.9616
BARRINGTON BORO	78.7	1.7	3.9	17	66.8393	11.8607
BAYONNE	64.2	5.8	14.3	17.7	56.248	7.952
BEDMINSTER TWP	84.4	23.2	2.5	31.5	81.0162	3.3838
BELLEVILLE	52.6	4.4	7.2	20.7	65.7422	-13.1422
BELLMAWR BORO	59.2	1.9	9.3	9	56.1851	3.0149
BELMAR BORO	61.1	7.3	11.6	21	61.4977	-0.3977
BERGENFIELD	66	11.9	6.2	28	72.5467	-6.5467
BERKELEY HEIGHTS	83.5	32.9	1.5	34.2	85.6409	-2.1409
BERLIN BORO	78.9	4.4	6.3	19.6	66.1376	12.7624
BERNARDS TOWNSHIP	89	41.6	3.1	34.6	85.8	3.2
BETHLEHEM TWP	79.7	25.9	1.4	28.3	80.9845	-1.2845
BEVERLY CITY	20	4	17.9	11.2	48.0916	-28.0916
BLOOMINGDALE BORO	83.3	4.9	7.5	17	63.3929	19.9071
BOGOTA	52.1	4.4	7	17.4	64.0884	-11.9884
BOONTON TOWN	73	9.9	2.9	31.6	77.9455	-4.9455
BOONTON TWP	75.4	22.6	3.8	26	76.2838	-0.8838
BOUND BROOK BOROUGH	62.5	4	5.6	13.9	63.6034	-1.1034
BRADLEY BEACH BORO	80	8.5	14.9	31.6	64.0321	15.9679
BRANCHBURG TWP	81.9	23.3	1.4	30.1	81.4879	0.4121
BRICK TOWNSHIP	70.4	6.1	5.1	17.7	66.7595	3.6405
BRIELLE BORO	84.7	22.3	4.9	38.6	82.1559	2.5441
BRIGANTINE CITY	61.5	8.3	8.4	17.8	63.5099	-2.0099
BROOKLAWN BORO	55	0	4.1	13.2	64.1044	-9.1044
BURLINGTON CITY	27.6	9.6	5.3	21.9	69.6298	-42.0298

BUTLER	67.2	5.9	1.8	25.2	74.7431	-7.5431
BYRAM TWP	69.2	17	1.2	27.4	78.9098	-9.7098
CAMDEN CITY	11.4	0.2	38.4	5.8	20.9618	-9.5618
CARLSTADT BORO	62.3	8.5	6	21.9	68.6135	-6.3135
CARTERET	62.4	4.7	12.7	15.6	56.6475	5.7525
CEDAR GROVE TOWNSHIP	87	26.1	1.5	31.5	82.7351	4.2649
CHERRY HILL TOWNSHIP	77.2	13.8	3.9	27.8	75.4274	1.7726
CINNAMINSON TOWNSHIP	70.9	10.7	4.2	23.4	71.9555	-1.0555
CLAYTON	58.8	1.6	12.6	10.6	53.288	5.512
CLEMENTON BORO	84.3	2	15.5	14.2	52.126	32.174
CLIFFSIDE PARK	65.9	10	11.8	27.3	65.4042	0.4958
CLINTON TOWN	77.6	6.6	8.6	21.1	64.822	12.778
CLOSTER BORO	91.6	24.9	2.8	37.2	84.2661	7.3339
COLLINGSWOOD BOROUGH	68.3	6.7	11.3	26.8	65.0239	3.2761
COLTS NECK TWP	87.4	38.9	2.9	34.8	85.5985	1.8015
COMMERCIAL TWP	65.5	1.4	20.3	6.1	41.9356	23.5644
CRANBURY TWP	91	33.7	2.1	33.6	84.7781	6.2219
CRANFORD TOWNSHIP	86.9	22.6	3.4	29.6	78.7902	8.1098
CRESSKILL	87.1	29.2	4.8	34.8	81.4904	5.6096
DELANCO TWP	52	2.5	2.4	19.4	70.0721	-18.0721
DELAWARE TWP	69.8	23.3	0.7	29.1	81.7131	-11.9131
DELRAN TOWNSHIP	66.9	7.9	4	23.2	71.5059	-4.6059
DEMAREST BORO	89.2	28.2	2.2	35.8	84.813	4.387
DENNIS TWP	78.3	0.8	6.6	14.4	62.1092	16.1908
DENVILLE TWP	80.3	23.1	1.8	32	82.0763	-1.7763
DEPTFORD TOWNSHIP	73.2	5.2	8.7	15.2	61.064	12.136
DOVER TOWN	63.7	1.2	9.7	10.9	56.673	7.027
DUMONT	79.1	8.7	3.6	27.2	74.4011	4.6989
DUNELLEN	49.4	6.2	9.4	19.9	63.1488	-13.7488
EAST AMWELL TWP	92.2	15.8	4.2	22.4	72.4106	19.7894
EAST BRUNSWICK TOWNSHIP	82.7	17.3	3.3	31	78.6365	4.0635
EAST HANOVER TWP	78.1	18	4.5	25.3	74.165	3.935
EAST NEWARK BORO	52	3.4	17.6	14.1	49.9648	2.0352
EAST ORANGE	34.7	1.1	19.4	12.8	46.7167	-12.0167
EAST RUTHERFORD BORO	69.7	4.2	7.2	24.2	67.697	2.003
EASTAMPTON TWP	53.2	7.5	2.4	28.3	76.1501	-22.9501
EATONTOWN BORO	67.2	10.9	8.3	20.8	65.8561	1.3439
EDGEWATER PARK TWP	47	2.2	9.7	12.9	58.014	-11.014
EDISON TOWNSHIP	79.9	12.6	6.7	28.4	72.3474	7.5526
EGG HARBOR CITY	57.9	0.7	19.2	8.6	44.4695	13.4305
EGG HARBOR TOWNSHIP	61.1	5.2	7.1	18.1	64.5346	-3.4346

ELIZABETH	56.1	2	17.7	8.5	46.3778	9.7222
ELMWOOD PARK	51.6	7.2	5.2	17.3	66.639	-15.039
EMERSON	73.7	10.9	1.4	30.4	79.1665	-5.4665
ENGLEWOOD CITY	36.5	15.4	10.9	25.6	66.543	-30.043
ENGLEWOOD CLIFFS BORO	94.5	35.5	8.5	40.3	81.6885	12.8115
ESTELL MANOR CITY	73.1	2.2	4.9	14.2	64.2078	8.8922
EVESHAM TWP	68.8	11.1	3	28.8	76.4771	-7.6771
EWING TWP. PUBLIC SCHOOLS	42.2	7.6	10.1	21.6	63.604	-21.404
FAIR HAVEN BORO	87.5	29.4	3.2	39.5	86.0272	1.4728
FAIR LAWN	77.7	14	4	30	76.608	1.092
FAIRFIELD TWP	39	3.1	11.9	6.5	52.0477	-13.0477
FAIRVIEW BORO	60.6	4.8	15.1	15.5	53.8842	6.7158
FLORENCE TOWNSHIP	61.3	6.1	2.7	19	70.2269	-8.9269
FLORHAM PARK BORO	82.9	24.8	3.7	31.3	79.8606	3.0394
FOLSOM BORO	76.6	2.8	5.9	11.5	61.6534	14.9466
FORT LEE	79.9	14.7	8.8	33.3	73.1769	6.7231
FRANKFORD TWP	66.2	7.1	4.8	22.8	70.2083	-4.0083
FRANKLIN BORO	60	3.7	7	14.3	62.1807	-2.1807
FRANKLIN LAKES BORO	87	41.4	1.5	38.9	90.0284	-3.0284
FRANKLIN TOWNSHIP	55.9	6.9	5.5	13.3	63.9579	-8.0579
FRANKLIN TWP	82.8	15.6	1.7	30.7	79.9414	2.8586
FREEHOLD BORO	53.9	1.8	17.4	13.6	49.5854	4.3146
FREEHOLD TWP	72.5	15.8	3.8	25.8	74.803	-2.303
GALLOWAY TWP	65.2	4.3	6	19.5	66.4013	-1.2013
GARFIELD	55.8	3.9	10.7	15.1	58.4737	-2.6737
GARWOOD BORO	68.2	4	2.1	21.9	72.1394	-3.9394
GLASSBORO	40.2	3.1	16.7	19.3	53.8909	-13.6909
GLEN RIDGE	89	41.9	2.7	40	89.3927	-0.3927
GLEN ROCK	77.3	39.4	2.2	34.8	86.4942	-9.1942
GLOUCESTER CITY	48.6	1.6	13.2	8.6	51.4664	-2.8664
GLOUCESTER TWP	67.2	5	5.7	16.4	65.1158	2.0842
GREEN BROOK TWP	90.1	18.9	1.4	31.3	81.2875	8.8125
GREEN TWP	79.2	23.3	3.2	30.8	79.8421	-0.6421
GREENWICH TWP	70.7	9.7	11.5	15.6	59.0157	11.6843
GREENWICH TWP	73.7	5.3	9.8	15	59.7205	13.9795
GUTTENBERG TOWN	41.7	7.3	13.6	23.5	60.6507	-18.9507
HACKENSACK	58	5.4	13	21.7	59.9244	-1.9244
HACKETTSTOWN	82.8	5	7.1	19.2	65.1214	17.6786
HADDON HEIGHTS	82.2	14.1	1.5	33.3	81.3491	0.8509
HADDON TOWNSHIP	69.7	6.5	6.4	25.3	69.6951	0.0049
HADDONFIELD BOROUGH	83.6	30.3	4.1	37.6	84.1027	-0.5027

HAINESPORT TWP	58.7	11.5	3.5	19.4	70.6315	-11.9315
HALEDON BORO	50	2.8	6.6	19.1	65.1902	-15.1902
HAMBURG BORO	80.6	4.2	9.8	20.2	62.4634	18.1366
HAMILTON TOWNSHIP	49.5	1.9	9.9	16.8	59.9495	-10.4495
HAMILTON TWP	61.7	6	5.9	18.9	66.5146	-4.8146
HAMMONTON TOWN	62.8	5.8	10.7	18.5	60.7936	2.0064
HARDING TOWNSHIP	84.1	47.1	6.7	38.3	84.9249	-0.8249
HARDYSTON TWP	83.3	7.3	6	16.8	65.4653	17.8347
HARMONY TWP	72.4	6	1.3	15.9	70.0302	2.3698
HARRINGTON PARK BORO	85.7	21.9	1.8	37.8	85.1411	0.5589
HARRISON	54.2	2.2	14.9	15.9	53.8168	0.3832
HASBROUCK HEIGHTS	84.5	16.5	4.7	24.4	73.1233	11.3767
HAWORTH BORO	83.9	29.5	2.3	38.9	86.7277	-2.8277
HAWTHORNE	52.8	8.9	6.3	24.2	69.6641	-16.8641
HAZLET TOWNSHIP	64.1	10.3	3.4	15.7	68.3949	-4.2949
HIGH BRIDGE BORO	73.7	7.6	1.3	24.4	75.1968	-1.4968
HIGHLAND PARK	74.4	13.3	10.8	25.2	66.0065	8.3935
HILLSBOROUGH TOWNSHIP	81.3	18	2.2	29.4	79.1148	2.1852
HILLSDALE BORO	75.5	21	3.9	32.8	79.7246	-4.2246
HILLSIDE TOWNSHIP	49.5	5.3	13.6	16.9	56.4867	-6.9867
HO HO KUS BORO	92.4	37.5	1.5	40.5	90.1565	2.2435
HOBOKEN	56.3	31.8	10	45	81.9198	-25.6198
HOLMDEL TOWNSHIP	85.2	39.9	3.8	30.1	82.0981	3.1019
HOPATCONG BOROUGH	57.9	6.8	4.6	19.1	68.2662	-10.3662
HOPEWELL TWP	62.7	37.3	1.4	30.2	84.3589	-21.6589
HOWELL TWP	69.4	11.1	5	22.9	70.8421	-1.4421
IRVINGTON TOWNSHIP	24.6	1.4	18.5	10.1	46.2604	-21.6604
JACKSON TWSP.	74.9	8.2	3.9	19.8	69.7418	5.1582
JAMESBURG BORO	56.3	3.6	6.9	15.4	62.9012	-6.6012
JEFFERSON TWP. SCHOOL DIS	72.7	8.6	2.8	27.9	75.6888	-2.9888
JERSEY CITY	46.2	7.5	16.4	25.4	58.5931	-12.3931
KEANSBURG BOROUGH	42.9	0.3	15.1	8.2	48.8187	-5.9187
KEARNY	53.4	3.1	11.5	13.4	56.4351	-3.0351
KENILWORTH	63.9	6.3	4.6	15.8	66.2847	-2.3847
KEYPORT	59.7	3.1	8.5	15.4	60.9831	-1.2831
KINGWOOD TWP	80.8	8.3	3.7	22.4	71.4711	9.3289
KINNELON BOROUGH	83.7	33	2.5	37.6	86.463	-2.763
LACEY TOWNSHIP	49	6.8	5.2	16.8	66.2736	-17.2736
LAFAYETTE TWP	70	93	4	15.9	84.45	-14.45
LAKEHURST BORO	63.1	3.5	10.8	9.6	55.1447	7.9553
LAKEWOOD TOWNSHIP	33	3.2	27.3	14.3	39.0194	-6.0194

LAWNSIDE BORO	33.3	5	9.1	15	60.4554	-27.1554
LAWRENCE TOWNSHIP	69.9	15.6	5.8	26.4	72.8328	-2.9328
LAWRENCE TWP	55.1	4.9	4.7	9.5	62.2987	-7.1987
LEBANON TWP	87.7	30.9	5.4	27.8	77.1605	10.5395
LEONIA	75.4	16.2	8.2	32.9	73.932	1.468
LINCOLN PARK BORO	88	5.1	3.6	25.4	72.6515	15.3485
LINDEN	47.6	4.2	7.7	11.8	60.061	-12.461
LINDENWOLD	55.6	0.9	12.9	14.2	54.8585	0.7415
LINWOOD CITY	90.3	19.1	4	26.6	75.6951	14.6049
LITTLE FALLS TWP	71.9	8.2	5.5	24.7	70.7172	1.1828
LITTLE FERRY BORO	59.4	6.7	6	22.2	68.4227	-9.0227
LITTLE SILVER BORO	95.2	37.6	2.9	41	88.8712	6.3288
LIVINGSTON TOWNSHIP	83.3	34	1.7	36.7	87.0598	-3.7598
LODI	63.2	2.1	11.4	15.2	57.3737	5.8263
LOGAN TWP	65.2	7.5	3.8	19	69.2587	-4.0587
LONG BRANCH	48.4	8	14.4	16	55.6076	-7.2076
LONG HILL TWP	84.3	28.8	3.2	31.8	81.5176	2.7824
LOPATCONG TWP	78.2	6.3	4.2	17.7	67.8221	10.3779
LUMBERTON TWP	70.2	13.9	6.7	21.3	68.5617	1.6383
LYNDHURST TOWNSHIP	62.5	7.4	4.4	19.2	68.671	-6.171
MADISON	89.4	27.1	4.4	31.9	79.8697	9.5303
MAGNOLIA BORO	74.6	2.3	4.5	13.6	64.3403	10.2597
MAHWAH TOWNSHIP	85.3	23	2.8	32.1	80.9772	4.3228
MANASQUAN	84.6	18	3.6	31.3	78.6074	5.9926
MANCHESTER TOWNSHIP	72.5	1.3	7.8	10.3	58.5095	13.9905
MANVILLE BOROUGH	47.3	2.6	5.6	10.8	61.555	-14.255
MAPLE SHADE TOWNSHIP	59.3	1.5	8	16.8	62.0275	-2.7275
MARGATE CITY	82.6	13.7	10.2	25.4	66.8825	15.7175
MARLBORO TWP	81.8	29.9	1.4	32.1	83.9545	-2.1545
MAURICE RIVER TWP	75	0.4	11.2	9.1	53.7822	21.2178
MAYWOOD BORO	77.4	5.6	5.6	26.6	71.164	6.236
MEDFORD LAKES BORO	87.5	17.7	5.7	33.6	77.4725	10.0275
MEDFORD TWP	86.2	20.4	2.6	33.5	81.4798	4.7202
MENDHAM BORO	92.6	37.2	2.9	33.7	84.6298	7.9702
MENDHAM TWP	90.4	49.4	4.6	35.4	86.1198	4.2802
MERCHANTVILLE BORO	45.9	7.9	13	22.8	61.0539	-15.1539
METUCHEN	77.5	21.8	3.2	31.8	80.1106	-2.6106
MIDDLE TOWNSHIP	66.3	2.9	8.5	15	60.7149	5.5851
MIDDLESEX BOROUGH	74.4	8.6	1.5	20.3	72.8336	1.5664
MIDDLETOWN TOWNSHIP	76.5	17.4	3.1	25	75.4638	1.0362
MIDLAND PARK BOROUGH	69.3	13.2	2.7	31.4	78.722	-9.422

MILLBURN TOWNSHIP	92.1	51.6	2.6	35.2	88.72	3.38
MILLSTONE TWP	80.3	29.9	1.1	28.1	82.0153	-1.7153
MILLTOWN BORO	75.6	5.4	4.5	19.3	68.2124	7.3876
MILLVILLE	48.1	2.3	18.9	9.9	45.8729	2.2271
MONMOUTH BEACH BORO	80.8	32.2	3.1	38.5	86.1336	-5.3336
MONROE TOWNSHIP (GLOUCESTER)	70.2	5.6	7.2	16.4	63.5324	6.6676
MONROE TOWNSHIP (MIDDLESEX)	75.9	13.8	3.3	22.9	73.316	2.584
MONTCLAIR	71.7	29.1	6.7	32.5	78.0009	-6.3009
MONTGOMERY TWP.	87.5	38.7	2.1	35	86.5811	0.9189
MONTVALE BORO	85.8	31.6	4.2	34.3	82.3694	3.4306
MONTVILLE TOWNSHIP	84.8	28.9	3.8	34	82.1101	2.6899
MOONACHIE BORO	36.4	7.8	4.9	16.5	66.6444	-30.2444
MOORESTOWN TOWNSHIP	84.9	34.6	2.9	28.3	81.0292	3.8708
MORRIS PLAINS BORO	84.8	31.1	2.4	30.3	82.0337	2.7663
MOUNT ARLINGTON BORO	82.1	8.6	3.5	24.4	72.8986	9.2014
MOUNT EPHRAIM BORO	64.6	4.3	7.7	9	58.4851	6.1149
MOUNT HOLLY TWP	57.2	2	9.5	15.9	59.911	-2.711
MOUNT LAUREL TWP	84.2	13.8	3.6	31.1	77.6492	6.5508
MOUNTAIN LAKES	89.6	46.7	1	48.9	97.3617	-7.7617
MOUNTAINSIDE BORO	86.9	32	4.2	30.6	80.3408	6.5592
MT. OLIVE TOWNSHIP	80.3	10.5	5.9	30.2	73.8601	6.4399
MULLICA TWP	73.2	3.5	9.6	11.3	57.4769	15.7231
NEPTUNE CITY	68.3	1.5	4.6	14.4	64.5219	3.7781
NEPTUNE TOWNSHIP	36.8	6.4	10.2	18.3	61.3682	-24.5682
NETCONG BORO	65.4	2	10.8	10.2	55.1852	10.2148
NEW BRUNSWICK	29	2.5	27.9	12.5	37.1711	-8.1711
NEW PROVIDENCE	89.9	34.4	4.8	35.9	83.1626	6.7374
NEWARK	40.4	1.4	26.1	9	36.9998	3.4002
NEWTON	66.1	3.5	14	13.7	53.8465	12.2535
NORTH ARLINGTON	74	6.9	6.5	21.2	67.3249	6.6751
NORTH BERGEN	60.3	3.8	11.6	15.8	57.8302	2.4698
NORTH BRUNSWICK TOWNSHIP	71.3	7.6	6.2	27.3	71.2834	0.0166
NORTH HALEDON BORO	65.1	15.5	2	27.8	77.9275	-12.8275
NORTH PLAINFIELD BOROUGH	31.9	4.6	8.3	16.1	61.9108	-30.0108
NORTH WILDWOOD CITY	67.7	4.5	13.3	12	53.8737	13.8263
NORTHFIELD CITY	74.4	3.5	5	20.7	68.0605	6.3395
NORTHVALE BORO	69.1	13.4	6	22.8	70.1114	-1.0114
NORWOOD BORO	92.3	13.1	2.8	36.8	81.6663	10.6337
NUTLEY	78	11.6	4.2	25.7	73.4474	4.5526

OAKLAND BORO	72	15.8	2.8	31.9	79.416	-7.416
OAKLYN BORO	73.5	4.3	5	15.6	65.3143	8.1857
OCEAN CITY	76	9.4	7.4	24.5	68.686	7.314
OCEAN TOWNSHIP	66.7	13.3	5.6	27.2	73.0537	-6.3537
OCEANPORT BORO	72.3	19.2	7.4	25.1	70.9978	1.3022
OGDENSBURG BORO	71.9	5.9	5	18.5	67.2889	4.6111
OLD BRIDGE TOWNSHIP	69.9	9.8	3.9	23.6	72.2294	-2.3294
OLD TAPPAN BORO	92.9	34.3	1.6	32.1	84.6117	8.2883
OLDMANS TWP	89.6	1.7	5.7	9.7	60.6335	28.9665
ORANGE TOWNSHIP, CITY OF	40.5	1.8	19.2	13.4	47.4266	-6.9266
PALISADES PARK	65	5	12.5	30	65.143	-0.143
PALMYRA BOROUGH	50	2.4	8.8	19.9	63.0666	-13.0666
PARAMUS	78.4	16.5	3.6	29.2	77.1089	1.2911
PARK RIDGE	85.4	21.7	2.2	34	82.4805	2.9195
PARSIPPANY-TROY HILLS TWP	80.5	13.4	3.5	29.6	76.8274	3.6726
PASSAIC CITY	39.8	1.7	29.2	9.8	33.9945	5.8055
PATERSON	36.2	1.2	27.1	7.7	35.0826	1.1174
PAULSBORO	34.7	0.6	25.3	6.8	36.4938	-1.7938
PEMBERTON TOWNSHIP	51.5	2.1	9.8	9.6	55.9993	-4.4993
PENNSAUKEN TOWNSHIP	61	3	9.2	13.5	59.0848	1.9152
PENNSVILLE TOWNSHIP	56.8	3.3	10.8	13.5	57.3275	-0.5275
PEQUANNOCK TOWNSHIP	82.9	14.3	2.6	30.4	78.4867	4.4133
PERTH AMBOY	39.1	2.3	19.9	11.2	45.4779	-6.3779
PHILLIPSBURG	42.7	2.2	19.5	8.6	44.4302	-1.7302
PITMAN	73.2	5.4	5.4	21.3	68.33	4.87
PITTSGROVE TOWNSHIP	56.9	4.7	5.2	15.5	65.1105	-8.2105
PLAINFIELD	34	5.1	19	13.5	48.3741	-14.3741
PLEASANTVILLE	38.6	1.3	19	7.4	44.1333	-5.5333
PLUMSTED TOWNSHIP	76.1	5.7	4.5	12.9	64.6247	11.4753
POHATCONG TWP	51.2	5.1	4.5	20.6	68.8931	-17.6931
POINT PLEASANT BEACH	86	8.9	11	27.3	66.0919	19.9081
POINT PLEASANT BOROUGH	80.8	8.9	3.9	22.8	71.5925	9.2075
POMPTON LAKES	58.9	7	3.5	29.3	75.37	-16.47
PROSPECT PARK BORO	50.5	4.3	7.8	9.4	58.5995	-8.0995
QUINTON TWP	63	2.5	6.6	8.1	58.8599	4.1401
RAHWAY	53.6	2.2	10.9	15.2	57.9618	-4.3618
RAMSEY	79.3	27.4	3.4	37	83.973	-4.673
RANDOLPH TOWNSHIP	85.2	33.4	3.1	35.3	84.5508	0.6492
READINGTON TWP	81.4	24.9	3.7	28.3	78.1707	3.2293
RED BANK BORO	44	10.1	16.2	23.3	58.1459	-14.1459

RIDGEFIELD	71	7.6	5.4	24.1	70.3682	0.6318
RIDGEFIELD PARK	70.5	7.1	4.7	24.2	71.1199	-0.6199
RIDGEWOOD VILLAGE	90.3	43	3.6	40.4	88.8194	1.4806
RINGWOOD BORO	77	15.1	3.3	28	76.4843	0.5157
RIVER VALE TWP	81.5	28.5	3.3	37.2	84.4217	-2.9217
RIVERDALE BORO	60.5	7.1	2.6	22.8	72.7075	-12.2075
RIVERSIDE TOWNSHIP	31.1	2.1	8.8	10.1	57.4203	-26.3203
RIVERTON	74.4	15	2.6	31.5	79.2544	-4.8544
ROCHELLE PARK TWP	71.9	3.1	3.7	21.1	69.6849	2.2151
ROCKAWAY BORO	73.3	12.7	6.8	15.8	65.0719	8.2281
ROCKAWAY TWP	79.4	16.1	1.5	30.1	79.9271	-0.5271
ROSELLE BOROUGH	32.9	5.2	9.5	14.4	59.6992	-26.7992
ROSELLE PARK	74.1	5.1	6.1	18.1	65.6505	8.4495
ROXBURY TOWNSHIP	77.3	12.2	4.9	28.3	74.2548	3.0452
RUMSON BORO	87.6	41.1	4.9	36.3	84.6237	2.9763
RUNNEMEDE BORO	67	1.4	9	11.1	57.6224	9.3776
RUTHERFORD	72.8	13	5.6	29.4	74.2474	-1.4474
SADDLE BROOK TOWNSHIP	56.8	5.3	7.1	21.5	66.4927	-9.6927
SALEM CITY	16.5	2.5	31.4	4.3	28.5211	-12.0211
SAYREVILLE	62.8	5.8	5.1	20.3	68.1812	-5.3812
SECAUCUS	71.9	13	7.3	23.2	68.7822	3.1178
SHAMONG TWP	85.2	13.2	3	24.8	74.6192	10.5808
SHREWSBURY BORO	81.8	29.2	0.6	35.1	86.4326	-4.6326
SOMERDALE BORO	56.9	1.8	5.9	13.1	62.3644	-5.4644
SOMERS POINT CITY	50.4	2.3	12.2	14.7	56.2201	-5.8201
SOMERSET HILLS	91.6	18	2.2	29.4	79.1148	12.4852
SOMERVILLE BOROUGH	57.5	5	5.4	24.3	69.9596	-12.4596
SOUTH AMBOY	47	7.3	8.5	14.9	61.5423	-14.5423
SOUTH BOUND BROOK	58.7	3.7	4.1	22	69.8641	-11.1641
SOUTH BRUNSWICK TOWNSHIP	80.6	18.1	2.4	32.4	80.6177	-0.0177
SOUTH HACKENSACK TWP	62.1	3.3	5.2	20.6	67.7361	-5.6361
SOUTH PLAINFIELD	74.1	6	3.6	18.9	69.1274	4.9726
SOUTH RIVER	56.5	5.5	8	14.8	61.6915	-5.1915
SOUTHAMPTON TWP	74.7	9.1	5.6	13.2	64.2295	10.4705
SPARTA TOWNSHIP	76	26	3.3	34.9	82.6082	-6.6082
SPOTSWOOD	85.1	6.7	3.8	13.1	65.7349	19.3651
SPRING LAKE BORO	81.5	33.6	4.1	28.1	79.351	2.149
SPRING LAKE HEIGHTS BORO	94.8	14.2	6	34.2	76.7702	18.0298
SPRINGFIELD TWP	69.2	11.5	3.3	23.2	73.0247	-3.8247
STANHOPE BORO	60.7	7.6	5.5	21.4	68.7156	-8.0156

STRATFORD BORO	62.5	6.3	6.3	20	66.7475	-4.2475
SUMMIT CITY	82.7	39.5	6.7	33.4	80.6043	2.0957
TABERNACLE TWP	77.8	9.9	1.9	21.3	73.2105	4.5895
TEANECK	67.1	18	7.2	30.6	74.1188	-7.0188
TENAFLY	91.3	37.9	4	33.1	83.1789	8.1211
TEWKSBURY TWP	93.4	44.9	1.5	33	87.3689	6.0311
TINTON FALLS	78.2	9.6	3.7	26	73.7844	4.4156
TOTOWA BORO	63.4	6.9	6.3	16.2	64.7021	-1.3021
TOWNSHIP OF ROBBINSVILLE	82.7	23.5	3.6	31.5	79.8269	2.8731
TRENTON	21.6	2	26.5	7.1	35.583	-13.983
UNION BEACH	61.3	3	4.9	9.1	61.4616	-0.1616
UNION CITY	67.4	1.6	21.1	11.3	44.031	23.369
UNION TOWNSHIP	59	27.7	4.2	25.7	76.6835	-17.6835
UNION TWP	81.4	6.3	5	19.4	67.8823	13.5177
UPPER DEERFIELD TWP	48.2	2	25.6	11.4	39.0564	9.1436
UPPER PITTSGROVE TWP	46.8	5.7	6.5	12.2	61.9537	-15.1537
UPPER SADDLE RIVER BORO	90.4	48.6	3	37.9	89.2016	1.1984
UPPER TWP	80.9	5.6	4.5	25	71.5016	9.3984
VENTNOR CITY	51.9	8.7	11.3	15	58.6999	-6.7999
VERNON TOWNSHIP	65.3	6.4	4.5	18.1	67.7294	-2.4294
VERONA	72.1	24.7	3	32.2	81.1487	-9.0487
VINELAND CITY	55	5	13.1	11.4	53.8594	1.1406
VOORHEES TWP	78.5	16.7	6.3	29	73.9679	4.5321
WALDWICK	78.2	16.4	1.6	28.1	78.7338	-0.5338
WALL TOWNSHIP	75.4	17.5	5.5	27.3	74.0685	1.3315
WALLINGTON	69.8	1.2	9.6	18.6	61.1756	8.6244
WANAQUE BORO	75.8	6.4	2.7	20	70.8572	4.9428
WARREN TWP	86.5	39.3	1.4	34.1	86.9839	-0.4839
WASHINGTON TOWNSHIP	72	22.7	1.7	30.5	81.2545	-9.2545
WASHINGTON TWP	85.8	0	5.8	17.9	64.8522	20.9478
WATCHUNG BORO	92.8	38.9	2.8	28.1	81.8931	10.9069
WAYNE TOWNSHIP	76.2	19.5	3.6	29.5	77.8829	-1.6829
WEEHAWKEN TOWNSHIP	70.7	10.4	12.5	32.8	67.8244	2.8756
WEST DEPTFORD TOWNSHIP	68.2	6.1	5.3	19	67.2733	0.9267
WEST LONG BRANCH BORO	74.7	17.6	7.2	24.6	70.6184	4.0816
WEST MILFORD TOWNSHIP	64.6	8	3.5	21.2	70.954	-6.354
WEST NEW YORK	60.7	5	19	16.9	50.292	10.408
WEST ORANGE	61.2	16.9	6.1	26.8	72.9813	-11.7813
WESTAMPTON	78.2	8.2	4.3	25	72.2514	5.9486
WESTFIELD	87.9	37.6	2.8	36.3	86.3058	1.5942
WEYMOUTH TWP	75.8	3	9.7	13.6	58.5738	17.2262

WHARTON BORO	61	4.2	6.7	15.8	63.477	-2.477
WHITE TWP	82.5	10.2	4.5	13.9	66.0992	16.4008
WILDWOOD CITY	45.3	4.6	25.1	14.6	41.971	3.329
WILDWOOD CREST BORO	77.8	8.9	11.2	23.9	63.9267	13.8733
WILLINGBORO	36.3	3.1	8.4	17.4	62.2367	-25.9367
WOOD-RIDGE	72.5	3.8	3.7	25	72.0486	0.4514
WOODBRIDGE TOWNSHIP	77.7	6.3	5.2	21.4	68.7951	8.9049
WOODBURY	48.7	3.4	12.1	18.1	58.4928	-9.7928
WOODCLIFF LAKE BORO	79.6	35.8	1.8	34.2	85.883	-6.283
WOODLAND PARK	69.5	4.2	6.5	20.1	66.1552	3.3448
WOODLYNNE BORO	36.4	2	16.2	7	47.2268	-10.8268
WYCKOFF TWP	89.1	43.8	1.7	40.6	91.2526	-2.1526

Appendix E

2012 NJ ASK 7 Language Arts

District Name	% Proficient or Above	%Family >200K	% All People Under Pov	% BA	Predicted % Proficient or Above	Difference
ABSECON CITY	60.2	4.3	10. 1	17.9	55.3493	4.8507
ALEXANDRIA TWP	73.3	22	2.7	29	76.9957	-3.6957
ALLAMUCHY TWP	80.4	20.3	3.7	34.1	78.3795	2.0205
ALLENDALE BORO	84.8	37.6	1.4	38.2	88.875	-4.075
ALLOWAY TWP	78.1	3.6	4.7	16.6	61.4085	16.6915
ALPHA BORO	63.2	1.4	5.6	13.9	57.9213	5.2787
ASBURY PARK	15	3.3	31.5	12.5	23.6875	-8.6875
ATLANTIC CITY	37.8	2.5	29.3	11	25.4048	12.3952
AUDUBON	69.9	4.2	6.6	19.2	60.7122	9.1878
BARNEGAT TWP	60.6	3.8	6.4	15.1	58.3057	2.2943
BARRINGTON BORO	63.4	1.7	3.9	17	62.1634	1.2366
BAYONNE	55.4	5.8	14.3	17.7	50.1544	5.2456
BEDMINSTER TWP	76.4	23.2	2.5	31.5	79.157	-2.757
BELLEVILLE	52.4	4.4	7.2	20.7	60.9183	-8.5183
BELLMAWR BORO	46.2	1.9	9.3	9	50.1678	-3.9678
BELMAR BORO	52.4	7.3	11.6	21	56.1721	-3.7721
BERGENFIELD	68.3	11.9	6.2	28	68.9127	-0.6127
BERKELEY HEIGHTS	88.4	32.9	1.5	34.2	84.9126	3.4874
BERLIN BORO	69.1	4.4	6.3	19.6	61.4111	7.6889
BERNARDS TOWNSHIP	92.5	41.6	3.1	34.6	85.5469	6.9531
BETHLEHEM TWP	89.3	25.9	1.4	28.3	79.3728	9.9272
BLOOMINGDALE BORO	61	4.9	7.5	17	58.363	2.637
BOGOTA	48.4	4.4	7	17.4	59.1242	-10.7242
BOONTON TOWN	62.7	9.9	2.9	31.6	74.9052	-12.2052
BOONTON TWP	80.7	22.6	3.8	26	73.8578	6.8422
BOUND BROOK BOROUGH	31	4	5.6	13.9	58.6623	-27.6623
BRANCHBURG TWP	84.2	23.3	1.4	30.1	79.7532	4.4468
BRICK TOWNSHIP	67	6.1	5.1	17.7	62.2827	4.7173
BRIDGETON	22.3	1.3	28.8	5.3	22.1662	0.1338
BRIELLE BORO	77.9	22.3	4.9	38.6	80.1822	-2.2822
BRIGANTINE CITY	56.8	8.3	8.4	17.8	58.6523	-1.8523
BROOKLAWN BORO	53.1	0	4.1	13.2	59.0497	-5.9497
BURLINGTON CITY	25.6	9.6	5.3	21.9	65.635	-40.035
BUTLER	58.5	5.9	1.8	25.2	71.2179	-12.7179

BYRAM TWP	78.7	17	1.2	27.4	76.5374	2.1626
CAMDEN CITY	10.1	0.2	38.4	5.8	9.5978	0.5022
CARLSTADT BORO	50	8.5	6	21.9	64.4052	-14.4052
CARTERET	47.4	4.7	12.7	15.6	50.627	-3.227
CEDAR GROVE TOWNSHIP	71	26.1	1.5	31.5	81.2925	-10.2925
CHERRY HILL TOWNSHIP	74.5	13.8	3.9	27.8	72.3403	2.1597
CINNAMINSON TOWNSHIP	74.5	10.7	4.2	23.4	68.3229	6.1771
CLAYTON	43.6	1.6	12.6	10.6	46.7594	-3.1594
CLEMENTON BORO	56.9	2	15.5	14.2	45.3201	11.5799
CLIFFSIDE PARK	61.3	10	11.8	27.3	60.6047	0.6953
CLINTON TOWN	87.5	6.6	8.6	21.1	59.9619	27.5381
CLOSTER BORO	87.1	24.9	2.8	37.2	82.7999	4.3001
COLLINGSWOOD BOROUGH	65.2	6.7	11.3	26.8	60.0072	5.1928
COLTS NECK TWP	80.9	38.9	2.9	34.8	85.1638	-4.2638
COMMERCIAL TWP	39.8	1.4	20.3	6.1	33.8196	5.9804
CRANBURY TWP	81.9	33.7	2.1	33.6	83.9814	-2.0814
CRANFORD TOWNSHIP	73.8	22.6	3.4	29.6	76.6242	-2.8242
CRESSKILL	76.9	29.2	4.8	34.8	79.9122	-3.0122
DELANCO TWP	57.1	2.5	2.4	19.4	65.8501	-8.7501
DELAWARE TWP	76	23.3	0.7	29.1	80.0465	-4.0465
DELRAN TOWNSHIP	66.6	7.9	4	23.2	67.6621	-1.0621
DEMAREST BORO	94	28.2	2.2	35.8	83.6536	10.3464
DENNIS TWP	74.2	0.8	6.6	14.4	56.7528	17.4472
DENVILLE TWP	79.4	23.1	1.8	32	80.3563	-0.9563
DEPTFORD TOWNSHIP	68.2	5.2	8.7	15.2	55.7563	12.4437
DOVER TOWN	51.4	1.2	9.7	10.9	50.6284	0.7716
DOWNE TWP	40	2.2	13.9	8.9	44.1696	-4.1696
DUMONT	76.3	8.7	3.6	27.2	70.9057	5.3943
DUNELLEN	53.9	6.2	9.4	19.9	58.0531	-4.1531
EAST AMWELL TWP	76.9	15.8	4.2	22.4	69.1534	7.7466
EAST BRUNSWICK TOWNSHIP	77.5	17.3	3.3	31	76.1168	1.3832
EAST HANOVER TWP	77.4	18	4.5	25.3	71.1944	6.2056
EAST NEWARK BORO	52.9	3.4	17.6	14.1	42.9079	9.9921
EAST ORANGE	31.5	1.1	19.4	12.8	39.0863	-7.5863
EAST RUTHERFORD BORO	60.8	4.2	7.2	24.2	63.0418	-2.2418
EASTAMPTON TWP	58.8	7.5	2.4	28.3	72.8198	-14.0198
EATONTOWN BORO	68.9	10.9	8.3	20.8	61.3932	7.5068
EDGEWATER PARK TWP	45.9	2.2	9.7	12.9	52.1594	-6.2594
EDISON TOWNSHIP	73	12.6	6.7	28.4	68.7069	4.2931
EGG HARBOR CITY	57.1	0.7	19.2	8.6	36.6175	20.4825
EGG HARBOR TOWNSHIP	51.6	5.2	7.1	18.1	59.6574	-8.0574

ELIZABETH	41.5	2	17.7	8.5	38.8892	2.6108
ELMWOOD PARK	44.8	7.2	5.2	17.3	62.2161	-17.4161
EMERSON	72.8	10.9	1.4	30.4	76.4061	-3.6061
ENGLEWOOD CITY	44.7	15.4	10.9	25.6	62.2627	-17.5627
ENGLEWOOD CLIFFS BORO	93.9	35.5	8.5	40.3	80.2909	13.6091
ESTELL MANOR CITY	72.4	2.2	4.9	14.2	59.2525	13.1475
EVESHAM TWP	69	11.1	3	28.8	73.3719	-4.3719
EWING TWP. PUBLIC SCHOOLS	54.9	7.6	10.1	21.6	58.5949	-3.6949
FAIR HAVEN BORO	82.1	29.4	3.2	39.5	84.9917	-2.8917
FAIR LAWN	80.9	14	4	30	73.637	7.263
FAIRFIELD TWP	25.5	3.1	11.9	6.5	45.5489	-20.0489
FAIRVIEW BORO	60.2	4.8	15.1	15.5	47.4516	12.7484
FLORENCE TOWNSHIP	56.7	6.1	2.7	19	66.2342	-9.5342
FLORHAM PARK BORO	89.3	24.8	3.7	31.3	77.9176	11.3824
FOLSOM BORO	44.7	2.8	5.9	11.5	56.4324	-11.7324
FORT LEE	69.5	14.7	8.8	33.3	69.6092	-0.1092
FRANKFORD TWP	62.7	7.1	4.8	22.8	66.1377	-3.4377
FRANKLIN BORO	66	3.7	7	14.3	56.9934	9.0066
FRANKLIN LAKES BORO	86.8	41.4	1.5	38.9	90.2632	-3.4632
FRANKLIN TOWNSHIP	52.7	6.9	5.5	13.3	59.2459	-6.5459
FRANKLIN TWP	80	15.6	1.7	30.7	77.5398	2.4602
FREEHOLD BORO	41.5	1.8	17.4	13.6	42.4022	-0.9022
FREEHOLD TWP	78.3	15.8	3.8	25.8	71.7952	6.5048
GALLOWAY TWP	56.8	4.3	6	19.5	61.713	-4.913
GARFIELD	44.3	3.9	10.7	15.1	52.7055	-8.4055
GARWOOD BORO	64.7	4	2.1	21.9	68.2278	-3.5278
GIBBSBORO BORO	72.7	7.1	1.7	21.7	69.5103	3.1897
GLASSBORO	47.2	3.1	16.7	19.3	47.2401	-0.0401
GLEN RIDGE	82.5	41.9	2.7	40	89.5202	-7.0202
GLEN ROCK	84.7	39.4	2.2	34.8	86.2226	-1.5226
GLOUCESTER CITY	48.9	1.6	13.2	8.6	44.728	4.172
GLOUCESTER TWP	56.9	5	5.7	16.4	60.3739	-3.4739
GREEN BROOK TWP	85.6	18.9	1.4	31.3	79.2468	6.3532
GREEN TWP	75	23.3	3.2	30.8	77.8331	-2.8331
GREENWICH TWP	84	9.7	11.5	15.6	53.6228	30.3772
GREENWICH TWP	66.7	5.3	9.8	15	54.2203	12.4797
GUTTENBERG TOWN	34.3	7.3	13.6	23.5	55.1116	-20.8116
HACKENSACK	44.8	5.4	13	21.7	54.2341	-9.4341
HACKETTSTOWN	69	5	7.1	19.2	60.2857	8.7143
HADDON HEIGHTS	70.9	14.1	1.5	33.3	78.9939	-8.0939
HADDON TOWNSHIP	66.8	6.5	6.4	25.3	65.4298	1.3702

HADDONFIELD BOROUGH	88.2	30.3	4.1	37.6	82.8864	5.3136
HAINESPORT TWP	58.8	11.5	3.5	19.4	66.9752	-8.1752
HALEDON BORO	46.8	2.8	6.6	19.1	60.2509	-13.4509
HAMILTON TOWNSHIP	53.7	1.9	9.9	16.8	54.2418	-0.5418
HAMILTON TWP	56.7	6	5.9	18.9	61.9546	-5.2546
HAMMONTON TOWN	58.8	5.8	10.7	18.5	55.3652	3.4348
HARDING TOWNSHIP	82.2	47.1	6.7	38.3	84.7071	-2.5071
HARDYSTON TWP	57.1	7.3	6	16.8	60.8859	-3.7859
HARMONY TWP	88.4	6	1.3	15.9	66.107	22.293
HARRINGTON PARK BORO	84.1	21.9	1.8	37.8	83.6277	0.4723
HARRISON	43.2	2.2	14.9	15.9	47.2216	-4.0216
HASBROUCK HEIGHTS	71.2	16.5	4.7	24.4	69.9444	1.2556
HAWORTH BORO	84.3	29.5	2.3	38.9	85.8245	-1.5245
HAWTHORNE	60.7	8.9	6.3	24.2	65.5594	-4.8594
HAZLET TOWNSHIP	66.9	10.3	3.4	15.7	64.459	2.441
HIGH BRIDGE BORO	86.7	7.6	1.3	24.4	71.8585	14.8415
HIGHLAND PARK	74.1	13.3	10.8	25.2	61.5459	12.5541
HILLSBOROUGH TOWNSHIP	81.5	18	2.2	29.4	76.7594	4.7406
HILLSDALE BORO	86.7	21	3.9	32.8	77.5073	9.1927
HILLSIDE TOWNSHIP	42.6	5.3	13.6	16.9	50.4298	-7.8298
HO HO KUS BORO	83.8	37.5	1.5	40.5	90.1485	-6.3485
HOBOKEN	35	31.8	10	45	80.201	-45.201
HOLMDEL TOWNSHIP	79.2	39.9	3.8	30.1	81.3426	-2.1426
HOPATCONG BOROUGH	47.2	6.8	4.6	19.1	64.0089	-16.8089
HOPEWELL TWP	43	37.3	1.4	30.2	83.8055	-40.8055
HOWELL TWP	67	11.1	5	22.9	67.0782	-0.0782
IRVINGTON TOWNSHIP	24.2	1.4	18.5	10.1	38.6678	-14.4678
JACKSON TWSP.	63.7	8.2	3.9	19.8	65.7603	-2.0603
JAMESBURG BORO	53.2	3.6	6.9	15.4	57.7811	-4.5811
JEFFERSON TWP. SCHOOL DIS	68.7	8.6	2.8	27.9	72.3605	-3.6605
JERSEY CITY	42.1	7.5	16.4	25.4	52.6871	-10.5871
KEANSBURG BOROUGH	33.3	0.3	15.1	8.2	41.6212	-8.3212
KEARNY	55.6	3.1	11.5	13.4	50.3712	5.2288
KENILWORTH	59.5	6.3	4.6	15.8	61.8105	-2.3105
KEYPORT	62.8	3.1	8.5	15.4	55.5442	7.2558
KINGWOOD TWP	75	8.3	3.7	22.4	67.6704	7.3296
KINNELON BOROUGH	81.4	33	2.5	37.6	85.7503	-4.3503
LACEY TOWNSHIP	64.7	6.8	5.2	16.8	61.7906	2.9094
LAFAYETTE TWP	86.9	93	4	15.9	87.3677	-0.4677
LAKEHURST BORO	39.4	3.5	10.8	9.6	49.0341	-9.6341
LAKEWOOD TOWNSHIP	26.8	3.2	27.3	14.3	30.2782	-3.4782

LAWNSIDE BORO	21.4	5	9.1	15	55.0511	-33.6511
LAWRENCE TOWNSHIP	65.1	15.6	5.8	26.4	69.494	-4.394
LAWRENCE TWP	56.5	4.9	4.7	9.5	57.3557	-0.8557
LEBANON TWP	86.4	30.9	5.4	27.8	75.2503	11.1497
LEONIA	78.6	16.2	8.2	32.9	70.5729	8.0271
LINCOLN PARK BORO	77.6	5.1	3.6	25.4	68.7583	8.8417
LINDEN	39.3	4.2	7.7	11.8	54.6621	-15.3621
LINDENWOLD	40.6	0.9	12.9	14.2	48.41	-7.81
LINWOOD CITY	83.9	19.1	4	26.6	72.9723	10.9277
LITTLE FALLS TWP	66.3	8.2	5.5	24.7	66.7186	-0.4186
LITTLE FERRY BORO	78.3	6.7	6	22.2	64.0791	14.2209
LITTLE SILVER BORO	91.7	37.6	2.9	41	88.6559	3.0441
LIVINGSTON TOWNSHIP	86.2	34	1.7	36.7	86.5218	-0.3218
LODI	59.3	2.1	11.4	15.2	51.3385	7.9615
LOGAN TWP	72.3	7.5	3.8	19	65.1933	7.1067
LONG BRANCH	47.1	8	14.4	16	49.5914	-2.4914
LONG HILL TWP	85.6	28.8	3.2	31.8	80.0236	5.5764
LOPATCONG TWP	72.4	6.3	4.2	17.7	63.5178	8.8822
LOWER ALLOWAYS CREEK	42.9	1	3.1	10	58.6501	-15.7501
LUMBERTON TWP	74.3	13.9	6.7	21.3	64.6541	9.6459
LYNDHURST TOWNSHIP	61.1	7.4	4.4	19.2	64.504	-3.404
MADISON	84.9	27.1	4.4	31.9	78.0306	6.8694
MAGNOLIA BORO	68	2.3	4.5	13.6	59.4308	8.5692
MAHWAH TOWNSHIP	86.7	23	2.8	32.1	79.0811	7.6189
MANASQUAN	74.3	18	3.6	31.3	76.1105	-1.8105
MANCHESTER TOWNSHIP	52.7	1.3	7.8	10.3	52.7702	-0.0702
MANVILLE BOROUGH	61.3	2.6	5.6	10.8	56.332	4.968
MAPLE SHADE TOWNSHIP	42.5	1.5	8	16.8	56.6149	-14.1149
MARGATE CITY	79.6	13.7	10.2	25.4	62.5699	17.0301
MARLBORO TWP	81.5	29.9	1.4	32.1	82.8802	-1.3802
MAURICE RIVER TWP	52.4	0.4	11.2	9.1	47.3155	5.0845
MAYWOOD BORO	78.7	5.6	5.6	26.6	67.0304	11.6696
MEDFORD LAKES BORO	70.5	17.7	5.7	33.6	74.709	-4.209
MEDFORD TWP	78.6	20.4	2.6	33.5	79.4741	-0.8741
MENDHAM BORO	95.2	37.2	2.9	33.7	83.994	11.206
MENDHAM TWP	96.6	49.4	4.6	35.4	86.3048	10.2952
MERCHANTVILLE BORO	53.1	7.9	13	22.8	55.6319	-2.5319
METUCHEN	78.5	21.8	3.2	31.8	78.0286	0.4714
MIDDLE TOWNSHIP	61.2	2.9	8.5	15	55.238	5.962
MIDDLESEX BOROUGH	70.4	8.6	1.5	20.3	69.3274	1.0726
MIDDLETOWN TOWNSHIP	68.4	17.4	3.1	25	72.6691	-4.2691

MIDLAND PARK BOROUGH	75.5	13.2	2.7	31.4	75.9829	-0.4829
MILLBURN TOWNSHIP	90.6	51.6	2.6	35.2	89.4252	1.1748
MILLSTONE TWP	83.5	29.9	1.1	28.1	80.7809	2.7191
MILLTOWN BORO	76.9	5.4	4.5	19.3	63.8654	13.0346
MILLVILLE	40.2	2.3	18.9	9.9	38.2761	1.9239
MONMOUTH BEACH BORO	86.6	32.2	3.1	38.5	85.2976	1.3024
MONROE TOWNSHIP (GLOUCESTER)	55.7	5.6	7.2	16.4	58.5814	-2.8814
MONROE TOWNSHIP (MIDDLESEX)	80.5	13.8	3.3	22.9	70.073	10.427
MONTCLAIR	69.9	29.1	6.7	32.5	75.9637	-6.0637
MONTGOMERY TWP.	86.9	38.7	2.1	35	86.2786	0.6214
MONTVALE BORO	83	31.6	4.2	34.3	81.0701	1.9299
MONTVILLE TOWNSHIP	89.6	28.9	3.8	34	80.6373	8.9627
MOORESTOWN TOWNSHIP	72.2	34.6	2.9	28.3	79.8888	-7.6888
MORRIS PLAINS BORO	94.6	31.1	2.4	30.3	80.7918	13.8082
MOUNT ARLINGTON BORO	75.9	8.6	3.5	24.4	69.2637	6.6363
MOUNT EPHRAIM BORO	45.6	4.3	7.7	9	52.9462	-7.3462
MOUNT HOLLY TWP	41.3	2	9.5	15.9	54.2332	-12.9332
MOUNT LAUREL TWP	68.8	13.8	3.6	31.1	74.7889	-5.9889
MOUNTAIN LAKES	89.6	46.7	1	48.9	98.6582	-9.0582
MOUNTAINSIDE BORO	73.8	32	4.2	30.6	78.879	-5.079
MT. OLIVE TOWNSHIP	73.8	10.5	5.9	30.2	70.277	3.523
MULLICA TWP	66.3	3.5	9.6	11.3	51.664	14.636
NEPTUNE CITY	64.6	1.5	4.6	14.4	59.5703	5.0297
NEPTUNE TOWNSHIP	33.9	6.4	10.2	18.3	56.0661	-22.1661
NETCONG BORO	63.6	2	10.8	10.2	48.9804	14.6196
NEW BRUNSWICK	22.1	2.5	27.9	12.5	28.1719	-6.0719
NEW PROVIDENCE	86.4	34.4	4.8	35.9	82.0795	4.3205
NEWARK	29.6	1.4	26.1	9	28.0341	1.5659
NEWTON	61.7	3.5	14	13.7	47.3996	14.3004
NORTH ARLINGTON	63.3	6.9	6.5	21.2	62.8586	0.4414
NORTH BERGEN	52.9	3.8	11.6	15.8	51.935	0.965
NORTH BRUNSWICK TOWNSHIP	60	7.6	6.2	27.3	67.2511	-7.2511
NORTH HALEDON BORO	60.5	15.5	2	27.8	75.3119	-14.8119
NORTH PLAINFIELD BOROUGH	48.6	4.6	8.3	16.1	56.6696	-8.0696
NORTH WILDWOOD CITY	58.6	4.5	13.3	12	47.5418	11.0582
NORTHFIELD CITY	75.9	3.5	5	20.7	63.5416	12.3584
NORTHVALE BORO	76.6	13.4	6	22.8	66.3624	10.2376
NORWOOD BORO	78.3	13.1	2.8	36.8	79.1877	-0.8877
NUTLEY	68.6	11.6	4.2	25.7	70.0123	-1.4123

OAKLAND BORO	89.7	15.8	2.8	31.9	76.9045	12.7955
OAKLYN BORO	61.3	4.3	5	15.6	60.5923	0.7077
OCEAN CITY	67.5	9.4	7.4	24.5	64.4489	3.0511
OCEAN TOWNSHIP	72.8	13.3	5.6	27.2	69.5987	3.2013
OCEANPORT BORO	78.6	19.2	7.4	25.1	67.6157	10.9843
OGDENSBURG BORO	62.5	5.9	5	18.5	62.855	-0.355
OLD BRIDGE TOWNSHIP	68.7	9.8	3.9	23.6	68.5837	0.1163
OLD TAPPAN BORO	91.4	34.3	1.6	32.1	83.8724	7.5276
ORANGE TOWNSHIP, CITY OF	32.9	1.8	19.2	13.4	39.9214	-7.0214
OXFORD TWP	66.7	0.5	4.5	14.9	59.7277	6.9723
PALISADES PARK	60	5	12.5	30	59.9455	0.0545
PALMYRA BOROUGH	44	2.4	8.8	19.9	57.7555	-13.7555
PARAMUS	79.1	16.5	3.6	29.2	74.3747	4.7253
PARK RIDGE	72.3	21.7	2.2	34	80.6797	-8.3797
PARSIPPANY-TROY HILLS TWP	73.6	13.4	3.5	29.6	73.8713	-0.2713
PASSAIC CITY	26.8	1.7	29.2	9.8	24.5601	2.2399
PATERSON	31.1	1.2	27.1	7.7	25.8582	5.2418
PAULSBORO	29.3	0.6	25.3	6.8	27.4827	1.8173
PEMBERTON TOWNSHIP	45.3	2.1	9.8	9.6	49.9441	-4.6441
PENNSAUKEN TOWNSHIP	45.3	3	9.2	13.5	53.4157	-8.1157
PENNSVILLE TOWNSHIP	57.6	3.3	10.8	13.5	51.4068	6.1932
PEQUANNOCK TOWNSHIP	79.5	14.3	2.6	30.4	75.8043	3.6957
PERTH AMBOY	29.3	2.3	19.9	11.2	37.777	-8.477
PHILLIPSBURG	39	2.2	19.5	8.6	36.6523	2.3477
PITMAN	54.9	5.4	5.4	21.3	63.9333	-9.0333
PITTSGROVE TOWNSHIP	62.6	4.7	5.2	15.5	60.3822	2.2178
PLAINFIELD	28	5.1	19	13.5	41.186	-13.186
PLEASANTVILLE	26.3	1.3	19	7.4	36.3027	-10.0027
PLUMSTED TOWNSHIP	67.7	5.7	4.5	12.9	59.9637	7.7363
POHATCONG TWP	70	5.1	4.5	20.6	64.5898	5.4102
POINT PLEASANT BEACH	71.7	8.9	11	27.3	61.3384	10.3616
POINT PLEASANT BOROUGH	64.2	8.9	3.9	22.8	67.8288	-3.6288
POMPTON LAKES	71.4	7	3.5	29.3	71.8604	-0.4604
PROSPECT PARK BORO	40.4	4.3	7.8	9.4	53.0645	-12.6645
QUINTON TWP	53.8	2.5	6.6	8.1	53.3124	0.4876
RAHWAY	46.5	2.2	10.9	15.2	52.0215	-5.5215
RAMSEY	84.9	27.4	3.4	37	82.6024	2.2976
RANDOLPH TOWNSHIP	85	33.4	3.1	35.3	83.646	1.354
READINGTON TWP	86.8	24.9	3.7	28.3	76.0771	10.7229
RED BANK BORO	50	10.1	16.2	23.3	52.3816	-2.3816

RIDGEFIELD	75.2	7.6	5.4	24.1	66.3047	8.8953
RIDGEFIELD PARK	60.7	7.1	4.7	24.2	67.1408	-6.4408
RIDGEWOOD VILLAGE	88.7	43	3.6	40.4	88.9048	-0.2048
RINGWOOD BORO	75.3	15.1	3.3	28	73.6208	1.6792
RIVER VALE TWP	82.2	28.5	3.3	37.2	83.1714	-0.9714
RIVERDALE BORO	73.3	7.1	2.6	22.8	69.0175	4.2825
RIVERSIDE TOWNSHIP	37.5	2.1	8.8	10.1	51.5646	-14.0646
ROCHELLE PARK TWP	70.4	3.1	3.7	21.1	65.3785	5.0215
ROCKAWAY BORO	61	12.7	6.8	15.8	60.7547	0.2453
ROCKAWAY TWP	77.8	16.1	1.5	30.1	77.5703	0.2297
ROSELLE BOROUGH	41.2	5.2	9.5	14.4	54.2107	-13.0107
ROSELLE PARK	55.6	5.1	6.1	18.1	60.9379	-5.3379
ROXBURY TOWNSHIP	71.5	12.2	4.9	28.3	70.8868	0.6132
RUMSON BORO	91	41.1	4.9	36.3	84.1073	6.8927
RUNNEMEDE BORO	50.5	1.4	9	11.1	51.7263	-1.2263
RUTHERFORD	76	13	5.6	29.4	70.8838	5.1162
SADDLE BROOK TOWNSHIP	58.2	5.3	7.1	21.5	61.8041	-3.6041
SALEM CITY	26.6	2.5	31.4	4.3	18.4818	8.1182
SAYREVILLE	60.6	5.8	5.1	20.3	63.817	-3.217
SECAUCUS	67.7	13	7.3	23.2	64.7959	2.9041
SHAMONG TWP	77.9	13.2	3	24.8	71.4784	6.4216
SHREWSBURY BORO	89.4	29.2	0.6	35.1	85.5969	3.8031
SOMERDALE BORO	57.5	1.8	5.9	13.1	57.1442	0.3558
SOMERS POINT CITY	43.5	2.3	12.2	14.7	50.0368	-6.5368
SOMERSET HILLS	85.3	18	2.2	29.4	76.7594	8.5406
SOMERVILLE BOROUGH	60.6	5	5.4	24.3	65.6883	-5.0883
SOUTH AMBOY	43.8	7.3	8.5	14.9	56.4297	-12.6297
SOUTH BOUND BROOK	61.7	3.7	4.1	22	65.5866	-3.8866
SOUTH BRUNSWICK TOWNSHIP	79	18.1	2.4	32.4	78.3951	0.6049
SOUTH PLAINFIELD	63.4	6	3.6	18.9	64.9653	-1.5653
SOUTH RIVER	52	5.5	8	14.8	56.5089	-4.5089
SOUTHAMPTON TWP	70.2	9.1	5.6	13.2	59.6797	10.5203
SPARTA TOWNSHIP	68.7	26	3.3	34.9	81.026	-12.326
SPOTSWOOD	62.6	6.7	3.8	13.1	61.2896	1.3104
SPRING LAKE BORO	62.9	33.6	4.1	28.1	77.9084	-15.0084
SPRING LAKE HEIGHTS BORO	84.1	14.2	6	34.2	73.6926	10.4074
SPRINGFIELD TWP	60.2	11.5	3.3	23.2	69.6044	-9.4044
STANHOPE BORO	81.6	7.6	5.5	21.4	64.4917	17.1083
STRATFORD BORO	59.5	6.3	6.3	20	62.2018	-2.7018
SUMMIT CITY	85	39.5	6.7	33.4	79.4884	5.5116

TABERNACLE TWP	67.5	9.9	1.9	21.3	69.7973	-2.2973
TEANECK	60.2	18	7.2	30.6	70.962	-10.762
TENAFLY	85.6	37.9	4	33.1	82.3798	3.2202
TEWKSBURY TWP	87.6	44.9	1.5	33	87.585	0.015
TINTON FALLS	67.3	9.6	3.7	26	70.2837	-2.9837
TOTOWA BORO	68.5	6.9	6.3	16.2	60.0054	8.4946
TOWNSHIP OF ROBBINSVILLE	77.2	23.5	3.6	31.5	77.8026	-0.6026
TRENTON	18.6	2	26.5	7.1	26.4978	-7.8978
UNION BEACH	47.7	3	4.9	9.1	56.3032	-8.6032
UNION CITY	47.7	1.6	21.1	11.3	36.069	11.631
UNION TOWNSHIP	57.3	27.7	4.2	25.7	74.6008	-17.3008
UNION TWP	92.9	6.3	5	19.4	63.5297	29.3703
UPPER DEERFIELD TWP	42.8	2	25.6	11.4	30.3548	12.4452
UPPER PITTSGROVE TWP	65.2	5.7	6.5	12.2	56.9096	8.2904
UPPER SADDLE RIVER BORO	86	48.6	3	37.9	89.7287	-3.7287
UPPER TWP	79.6	5.6	4.5	25	67.4735	12.1265
VENTNOR CITY	64.5	8.7	11.3	15	53.2258	11.2742
VERNON TOWNSHIP	64.2	6.4	4.5	18.1	63.4028	0.7972
VERONA	81.1	24.7	3	32.2	79.3661	1.7339
VINELAND CITY	43.5	5	13.1	11.4	47.5723	-4.0723
VOORHEES TWP	79.4	16.7	6.3	29	70.7728	8.6272
WALDWICK	79.5	16.4	1.6	28.1	76.2789	3.2211
WALL TOWNSHIP	72.3	17.5	5.5	27.3	70.9889	1.3111
WALLINGTON	62.6	1.2	9.6	18.6	55.5564	7.0436
WANAQUE BORO	56.3	6.4	2.7	20	66.9427	-10.6427
WARREN TWP	83.6	39.3	1.4	34.1	86.8052	-3.2052
WASHINGTON TOWNSHIP	72.8	22.7	1.7	30.5	79.4387	-6.6387
WASHINGTON TWP	82	0	5.8	17.9	59.7525	22.2475
WATCHUNG BORO	87.7	38.9	2.8	28.1	81.1206	6.5794
WAYNE TOWNSHIP	73.8	19.5	3.6	29.5	75.4166	-1.6166
WEEHAWKEN TOWNSHIP	61.8	10.4	12.5	32.8	63.2289	-1.4289
WEST DEPTFORD TOWNSHIP	64	6.1	5.3	19	62.8308	1.1692
WEST LONG BRANCH BORO	60.5	17.6	7.2	24.6	67.11	-6.61
WEST MILFORD TOWNSHIP	64.3	8	3.5	21.2	67.0991	-2.7991
WEST NEW YORK	46.2	5	19	16.9	43.2757	2.9243
WEST ORANGE	61.5	16.9	6.1	26.8	69.721	-8.221
WESTAMPTON	65.5	8.2	4.3	25	68.4763	-2.9763
WESTFIELD	85.2	37.6	2.8	36.3	85.8587	-0.6587
WHARTON BORO	64.4	4.2	6.7	15.8	58.4631	5.9369
WHITE TWP	73.8	10.2	4.5	13.9	61.8692	11.9308

WILDWOOD CITY	25.5	4.6	25.1	14.6	33.7439	-8.2439
WILDWOOD CREST BORO	86.2	8.9	11.2	23.9	58.9584	27.2416
WILLINGBORO	32.2	3.1	8.4	17.4	56.9211	-24.7211
WOOD-RIDGE	68.6	3.8	3.7	25	68.0077	0.5923
WOODBRIDGE TOWNSHIP	62.9	6.3	5.2	21.4	64.5139	-1.6139
WOODBURY	43.3	3.4	12.1	18.1	52.5994	-9.2994
WOODCLIFF LAKE BORO	91.5	35.8	1.8	34.2	85.3464	6.1536
WOODLAND PARK	54.8	4.2	6.5	20.1	61.4038	-6.6038
WOODLYNNE BORO	26.7	2	16.2	7	39.9182	-13.2182
WYCKOFF TWP	86.7	43.8	1.7	40.6	91.7445	-5.0445

Appendix F

2012 NJ ASK 7 Mathematics

District Name	% Proficient or Above	%Family >200K	% All People Under Pov	% BA	Predicted % Proficient or Above	Difference
ABSECON CITY	66.3	4.3	10. 1	17.9	58.1782	8.1218
ALEXANDRIA TWP	76.1	22	2.7	29	77.2512	-1.1512
ALLAMUCHY TWP	78.4	20.3	3.7	34.1	78.4736	-0.0736
ALLENDALE BORO	91	37.6	1.4	38.2	87.7672	3.2328
ALLOWAY TWP	75.6	3.6	4.7	16.6	63.4636	12.1364
ALPHA BORO	55.3	1.4	5.6	13.9	60.3907	-5.0907
ASBURY PARK	16.8	3.3	31.5	12.5	30.477	-13.677
ATLANTIC CITY	43.5	2.5	29.3	11	31.9663	11.5337
AUDUBON	80.5	4.2	6.6	19.2	62.8704	17.6296
BARNEGAT TWP	70.5	3.8	6.4	15.1	60.7463	9.7537
BARRINGTON BORO	71.4	1.7	3.9	17	64.1139	7.2861
BAYONNE	52.7	5.8	14.3	17.7	53.6461	-0.9461
BEDMINSTER TWP	73.6	23.2	2.5	31.5	79.1585	-5.5585
BELLEVILLE	47.9	4.4	7.2	20.7	63.0585	-15.1585
BELLMAWR BORO	51	1.9	9.3	9	53.5953	-2.5953
BELMAR BORO	71	7.3	11.6	21	58.9291	12.0709
BERGENFIELD	72.5	11.9	6.2	28	70.1227	2.3773
BERKELEY HEIGHTS	86.1	32.9	1.5	34.2	84.2583	1.8417
BERLIN BORO	70.9	4.4	6.3	19.6	63.4842	7.4158
BERNARDS TOWNSHIP	90.9	41.6	3.1	34.6	84.866	6.034
BETHLEHEM TWP	89.4	25.9	1.4	28.3	79.3486	10.0514
BLOOMINGDALE BORO	62.4	4.9	7.5	17	60.8115	1.5885
BOGOTA	53.7	4.4	7	17.4	61.4756	-7.7756
BOONTON TOWN	62.7	9.9	2.9	31.6	75.3643	-12.6643
BOONTON TWP	75	22.6	3.8	26	74.4988	0.5012
BOUND BROOK BOROUGH	59	4	5.6	13.9	61.0537	-2.0537
BRANCHBURG TWP	80.8	23.3	1.4	30.1	79.6738	1.1262
BRICK TOWNSHIP	72.4	6.1	5.1	17.7	64.2474	8.1526
BRIDGETON	31.5	1.3	28.8	5.3	29.103	2.397
BRIELLE BORO	81.8	22.3	4.9	38.6	80.0813	1.7187
BRIGANTINE CITY	56.7	8.3	8.4	17.8	61.0881	-4.3881
BROOKLAWN BORO	40.6	0	4.1	13.2	61.3654	-20.7654
BURLINGTON CITY	28.4	9.6	5.3	21.9	67.2169	-38.8169
BUTLER	67.1	5.9	1.8	25.2	72.0891	-4.9891

BYRAM TWP	76.6	17	1.2	27.4	76.8138	-0.2138
CAMDEN CITY	11.4	0.2	38.4	5.8	18.1146	-6.7146
CARLSTADT BORO	67.7	8.5	6	21.9	66.1356	1.5644
CARTERET	58.7	4.7	12.7	15.6	54.0431	4.6569
CEDAR GROVE TOWNSHIP	56.8	26.1	1.5	31.5	81.042	-24.242
CHERRY HILL TOWNSHIP	77.3	13.8	3.9	27.8	73.1286	4.1714
CINNAMINSON TOWNSHIP	63	10.7	4.2	23.4	69.5793	-6.5793
CLAYTON	53.2	1.6	12.6	10.6	50.622	2.578
CLEMENTON BORO	56.9	2	15.5	14.2	49.3828	7.5172
CLIFFSIDE PARK	64.7	10	11.8	27.3	62.8475	1.8525
CLINTON TOWN	89.3	6.6	8.6	21.1	62.2375	27.0625
CLOSTER BORO	84.8	24.9	2.8	37.2	82.3781	2.4219
COLLINGSWOOD BOROUGH	62.2	6.7	11.3	26.8	62.3035	-0.1035
COLTS NECK TWP	82.2	38.9	2.9	34.8	84.5161	-2.3161
COMMERCIAL TWP	37	1.4	20.3	6.1	39.2917	-2.2917
CRANBURY TWP	91.7	33.7	2.1	33.6	83.4465	8.2535
CRANFORD TOWNSHIP	80.4	22.6	3.4	29.6	76.9328	3.4672
CRESSKILL	80.6	29.2	4.8	34.8	79.869	0.731
DELANCO TWP	51.5	2.5	2.4	19.4	67.3515	-15.8515
DELAWARE TWP	79.6	23.3	0.7	29.1	79.9256	-0.3256
DELRAN TOWNSHIP	69.9	7.9	4	23.2	68.9843	0.9157
DEMAREST BORO	94.2	28.2	2.2	35.8	83.1374	11.0626
DENNIS TWP	74.6	0.8	6.6	14.4	59.3682	15.2318
DENVILLE TWP	81.3	23.1	1.8	32	80.2083	1.0917
DEPTFORD TOWNSHIP	69.4	5.2	8.7	15.2	58.527	10.873
DOVER TOWN	63.5	1.2	9.7	10.9	54.0023	9.4977
DOWNE TWP	32	2.2	13.9	8.9	48.3545	-16.3545
DUMONT	81.1	8.7	3.6	27.2	71.8419	9.2581
DUNELLEN	41.8	6.2	9.4	19.9	60.5615	-18.7615
EAST AMWELL TWP	82.7	15.8	4.2	22.4	70.3308	12.3692
EAST BRUNSWICK TOWNSHIP	83.2	17.3	3.3	31	76.4643	6.7357
EAST HANOVER TWP	65	18	4.5	25.3	72.1407	-7.1407
EAST NEWARK BORO	61.7	3.4	17.6	14.1	47.2825	14.4175
EAST ORANGE	27.6	1.1	19.4	12.8	43.9231	-16.3231
EAST RUTHERFORD BORO	64.8	4.2	7.2	24.2	64.929	-0.129
EASTAMPTON TWP	52.6	7.5	2.4	28.3	73.5126	-20.9126
EATONTOWN BORO	59.3	10.9	8.3	20.8	63.5125	-4.2125
EDGEWATER PARK TWP	44.7	2.2	9.7	12.9	55.3553	-10.6553
EDISON TOWNSHIP	75.3	12.6	6.7	28.4	69.9488	5.3512
EGG HARBOR CITY	54.8	0.7	19.2	8.6	41.7441	13.0559
EGG HARBOR TOWNSHIP	56.9	5.2	7.1	18.1	61.9495	-5.0495

ELIZABETH	51.8	2	17.7	8.5	43.7367	8.0633
ELMWOOD PARK	42.1	7.2	5.2	17.3	64.1939	-22.0939
EMERSON	69.1	10.9	1.4	30.4	76.6765	-7.5765
ENGLEWOOD CITY	33.5	15.4	10.9	25.6	64.3208	-30.8208
ENGLEWOOD CLIFFS BORO	100	35.5	8.5	40.3	80.2622	19.7378
ESTELL MANOR CITY	58.6	2.2	4.9	14.2	61.5602	-2.9602
EVESHAM TWP	68.5	11.1	3	28.8	74.0187	-5.5187
EWING TWP. PUBLIC SCHOOLS	39.8	7.6	10.1	21.6	61.051	-21.251
FAIR HAVEN BORO	86.4	29.4	3.2	39.5	84.3307	2.0693
FAIR LAWN	76.6	14	4	30	74.273	2.327
FAIRFIELD TWP	25.5	3.1	11.9	6.5	49.5544	-24.0544
FAIRVIEW BORO	75	4.8	15.1	15.5	51.2681	23.7319
FLORENCE TOWNSHIP	55.3	6.1	2.7	19	67.7067	-12.4067
FLORHAM PARK BORO	89.3	24.8	3.7	31.3	78.0839	11.2161
FOLSOM BORO	51	2.8	5.9	11.5	59.0869	-8.0869
FORT LEE	75.3	14.7	8.8	33.3	70.772	4.528
FRANKFORD TWP	69.7	7.1	4.8	22.8	67.6455	2.0545
FRANKLIN BORO	62	3.7	7	14.3	59.5952	2.4048
FRANKLIN LAKES BORO	87.5	41.4	1.5	38.9	89.0061	-1.5061
FRANKLIN TOWNSHIP	60.4	6.9	5.5	13.3	61.5782	-1.1782
FRANKLIN TWP	86.7	15.6	1.7	30.7	77.6965	9.0035
FREEHOLD BORO	50	1.8	17.4	13.6	46.8288	3.1712
FREEHOLD TWP	72.2	15.8	3.8	25.8	72.655	-0.455
GALLOWAY TWP	60.6	4.3	6	19.5	63.747	-3.147
GARFIELD	56.9	3.9	10.7	15.1	55.8526	1.0474
GARWOOD BORO	55.9	4	2.1	21.9	69.4497	-13.5497
GIBBSBORO BORO	78.8	7.1	1.7	21.7	70.588	8.212
GLASSBORO	45.9	3.1	16.7	19.3	51.0904	-5.1904
GLEN RIDGE	84.7	41.9	2.7	40	88.3647	-3.6647
GLEN ROCK	88.1	39.4	2.2	34.8	85.4444	2.6556
GLOUCESTER CITY	53.5	1.6	13.2	8.6	48.8376	4.6624
GLOUCESTER TWP	68.2	5	5.7	16.4	62.5668	5.6332
GREEN BROOK TWP	81.4	18.9	1.4	31.3	79.2106	2.1894
GREEN TWP	78.3	23.3	3.2	30.8	77.9989	0.3011
GREENWICH TWP	65.5	9.7	11.5	15.6	56.6909	8.8091
GREENWICH TWP	75.4	5.3	9.8	15	57.1843	18.2157
GUTTENBERG TOWN	46.1	7.3	13.6	23.5	58.0136	-11.9136
HACKENSACK	51.7	5.4	13	21.7	57.2273	-5.5273
HACKETTSTOWN	71	5	7.1	19.2	62.5024	8.4976
HADDON HEIGHTS	77.2	14.1	1.5	33.3	78.9702	-1.7702
HADDON TOWNSHIP	75.3	6.5	6.4	25.3	67.0346	8.2654

HADDONFIELD BOROUGH	89.3	30.3	4.1	37.6	82.4875	6.8125
HAINESPORT TWP	65	11.5	3.5	19.4	68.3881	-3.3881
HALEDON BORO	50	2.8	6.6	19.1	62.4585	-12.4585
HAMILTON TOWNSHIP	49.6	1.9	9.9	16.8	57.1911	-7.5911
HAMILTON TWP	59.7	6	5.9	18.9	63.9655	-4.2655
HAMMONTON TOWN	59.8	5.8	10.7	18.5	58.2037	1.5963
HARDING TOWNSHIP	85.7	47.1	6.7	38.3	84.1814	1.5186
HARDYSTON TWP	67.6	7.3	6	16.8	63.0297	4.5703
HARMONY TWP	57.7	6	1.3	15.9	67.5809	-9.8809
HARRINGTON PARK BORO	81.8	21.9	1.8	37.8	83.0865	-1.2865
HARRISON	52.6	2.2	14.9	15.9	51.0535	1.5465
HASBROUCK HEIGHTS	74.7	16.5	4.7	24.4	71.0353	3.6647
HAWORTH BORO	80.4	29.5	2.3	38.9	85.0564	-4.6564
HAWTHORNE	59	8.9	6.3	24.2	67.1571	-8.1571
HAZLET TOWNSHIP	59	10.3	3.4	15.7	66.1652	-7.1652
HIGH BRIDGE BORO	73.3	7.6	1.3	24.4	72.6554	0.6446
HIGHLAND PARK	56.2	13.3	10.8	25.2	63.6801	-7.4801
HILLSBOROUGH TOWNSHIP	80.8	18	2.2	29.4	77.0228	3.7772
HILLSDALE BORO	78	21	3.9	32.8	77.7096	0.2904
HILLSIDE TOWNSHIP	52.3	5.3	13.6	16.9	53.8802	-1.5802
HO HO KUS BORO	88.3	37.5	1.5	40.5	88.89	-0.59
HOBOKEN	43	31.8	10	45	80.183	-37.183
HOLMDEL TOWNSHIP	84.4	39.9	3.8	30.1	81.1612	3.2388
HOPATCONG BOROUGH	44.9	6.8	4.6	19.1	65.7665	-20.8665
HOPEWELL TWP	61.5	37.3	1.4	30.2	83.2987	-21.7987
HOWELL TWP	76.2	11.1	5	22.9	68.4916	7.7084
IRVINGTON TOWNSHIP	29.8	1.4	18.5	10.1	43.5469	-13.7469
JACKSON TWSP.	64.7	8.2	3.9	19.8	67.3086	-2.6086
JAMESBURG BORO	61.3	3.6	6.9	15.4	60.288	1.012
JEFFERSON TWP. SCHOOL DIS	71.1	8.6	2.8	27.9	73.1159	-2.0159
JERSEY CITY	43.3	7.5	16.4	25.4	55.9045	-12.6045
KEANSBURG BOROUGH	27.7	0.3	15.1	8.2	46.1129	-18.4129
KEARNY	50.8	3.1	11.5	13.4	53.8001	-3.0001
KENILWORTH	58.6	6.3	4.6	15.8	63.8273	-5.2273
KEYPORT	59	3.1	8.5	15.4	58.3301	0.6699
KINGWOOD TWP	62.9	8.3	3.7	22.4	68.9903	-6.0903
KINNELON BOROUGH	83.6	33	2.5	37.6	85.0064	-1.4064
LACEY TOWNSHIP	54.5	6.8	5.2	16.8	63.8174	-9.3174
LAFAYETTE TWP	71.1	93	4	15.9	86.6771	-15.5771
LAKEHURST BORO	69.7	3.5	10.8	9.6	52.6167	17.0833
LAKEWOOD TOWNSHIP	29.5	3.2	27.3	14.3	36.2445	-6.7445

LAWNSIDE BORO	42.8	5	9.1	15	57.9086	-15.1086
LAWRENCE TOWNSHIP	59.3	15.6	5.8	26.4	70.6454	-11.3454
LAWRENCE TWP	73.9	4.9	4.7	9.5	59.8972	14.0028
LEBANON TWP	82.7	30.9	5.4	27.8	75.7731	6.9269
LEONIA	77.9	16.2	8.2	32.9	71.6213	6.2787
LINCOLN PARK BORO	77.6	5.1	3.6	25.4	69.9357	7.6643
LINDEN	48	4.2	7.7	11.8	57.5494	-9.5494
LINDENWOLD	41.4	0.9	12.9	14.2	52.0767	-10.6767
LINWOOD CITY	81.4	19.1	4	26.6	73.7069	7.6931
LITTLE FALLS TWP	59.8	8.2	5.5	24.7	68.1683	-8.3683
LITTLE FERRY BORO	56.7	6.7	6	22.2	65.8413	-9.1413
LITTLE SILVER BORO	97.6	37.6	2.9	41	87.5884	10.0116
LIVINGSTON TOWNSHIP	83.2	34	1.7	36.7	85.6825	-2.4825
LODI	57.9	2.1	11.4	15.2	54.6477	3.2523
LOGAN TWP	65.5	7.5	3.8	19	66.8053	-1.3053
LONG BRANCH	47.9	8	14.4	16	53.1594	-5.2594
LONG HILL TWP	85.6	28.8	3.2	31.8	79.9504	5.6496
LOPATCONG TWP	76.6	6.3	4.2	17.7	65.328	11.272
LOWER ALLOWAYS CREEK	60.8	1	3.1	10	61.0076	-0.2076
LUMBERTON TWP	72.8	13.9	6.7	21.3	66.3824	6.4176
LYNDHURST TOWNSHIP	59.4	7.4	4.4	19.2	66.2032	-6.8032
MADISON	73	27.1	4.4	31.9	78.199	-5.199
MAGNOLIA BORO	68	2.3	4.5	13.6	61.7139	6.2861
MAHWAH TOWNSHIP	81.5	23	2.8	32.1	79.0937	2.4063
MANASQUAN	82.1	18	3.6	31.3	76.4643	5.6357
MANCHESTER TOWNSHIP	70.9	1.3	7.8	10.3	55.872	15.028
MANVILLE BOROUGH	60.3	2.6	5.6	10.8	58.9948	1.3052
MAPLE SHADE TOWNSHIP	60.1	1.5	8	16.8	59.2627	0.8373
MARGATE CITY	76.3	13.7	10.2	25.4	64.5783	11.7217
MARLBORO TWP	82.2	29.9	1.4	32.1	82.4548	-0.2548
MAURICE RIVER TWP	47.6	0.4	11.2	9.1	51.0941	-3.4941
MAYWOOD BORO	76.6	5.6	5.6	26.6	68.434	8.166
MEDFORD LAKES BORO	73.8	17.7	5.7	33.6	75.2481	-1.4481
MEDFORD TWP	84.9	20.4	2.6	33.5	79.4281	5.4719
MENDHAM BORO	94	37.2	2.9	33.7	83.4787	10.5213
MENDHAM TWP	92.3	49.4	4.6	35.4	85.5782	6.7218
MERCHANTVILLE BORO	43.8	7.9	13	22.8	58.4687	-14.6687
METUCHEN	76.5	21.8	3.2	31.8	78.1654	-1.6654
MIDDLE TOWNSHIP	70.2	2.9	8.5	15	58.0595	12.1405
MIDDLESEX BOROUGH	73	8.6	1.5	20.3	70.4307	2.5693
MIDDLETOWN TOWNSHIP	66.8	17.4	3.1	25	73.4246	-6.6246

MIDLAND PARK BOROUGH	75.5	13.2	2.7	31.4	76.3248	-0.8248
MILLBURN TOWNSHIP	90.1	51.6	2.6	35.2	88.3174	1.7826
MILLSTONE TWP	85.9	29.9	1.1	28.1	80.602	5.298
MILLTOWN BORO	79.2	5.4	4.5	19.3	65.6337	13.5663
MILLVILLE	51.7	2.3	18.9	9.9	43.209	8.491
MONMOUTH BEACH BORO	80	32.2	3.1	38.5	84.6101	-4.6101
MONROE TOWNSHIP (GLOUCESTER)	58.9	5.6	7.2	16.4	61.0038	-2.1038
MONROE TOWNSHIP (MIDDLESEX)	78	13.8	3.3	22.9	71.1249	6.8751
MONTCLAIR	69.3	29.1	6.7	32.5	76.4072	-7.1072
MONTGOMERY TWP.	88.5	38.7	2.1	35	85.4901	3.0099
MONTVALE BORO	83.6	31.6	4.2	34.3	80.8929	2.7071
MONTVILLE TOWNSHIP	89.8	28.9	3.8	34	80.4973	9.3027
MOORESTOWN TOWNSHIP	80.1	34.6	2.9	28.3	79.8511	0.2489
MORRIS PLAINS BORO	89.1	31.1	2.4	30.3	80.6286	8.4714
MOUNT ARLINGTON BORO	69	8.6	3.5	24.4	70.3936	-1.3936
MOUNT EPHRAIM BORO	63.2	4.3	7.7	9	56.0377	7.1623
MOUNT HOLLY TWP	57.4	2	9.5	15.9	57.1801	0.2199
MOUNT LAUREL TWP	78.4	13.8	3.6	31.1	75.2835	3.1165
MOUNTAIN LAKES	87	46.7	1	48.9	96.4196	-9.4196
MOUNTAINSIDE BORO	81.8	32	4.2	30.6	78.9636	2.8364
MT. OLIVE TOWNSHIP	78.3	10.5	5.9	30.2	71.3167	6.9833
MULLICA TWP	78.8	3.5	9.6	11.3	54.9228	23.8772
NEPTUNE CITY	52.1	1.5	4.6	14.4	61.8347	-9.7347
NEPTUNE TOWNSHIP	38.5	6.4	10.2	18.3	58.8189	-20.3189
NETCONG BORO	75.7	2	10.8	10.2	52.5636	23.1364
NEW BRUNSWICK	25.1	2.5	27.9	12.5	34.3914	-9.2914
NEW PROVIDENCE	88.7	34.4	4.8	35.9	81.7989	6.9011
NEWARK	34.1	1.4	26.1	9	34.2486	-0.1486
NEWTON	53.4	3.5	14	13.7	51.2068	2.1932
NORTH ARLINGTON	75.2	6.9	6.5	21.2	64.7713	10.4287
NORTH BERGEN	61.5	3.8	11.6	15.8	55.1818	6.3182
NORTH BRUNSWICK TOWNSHIP	63.3	7.6	6.2	27.3	68.6419	-5.3419
NORTH HALEDON BORO	70.4	15.5	2	27.8	75.7357	-5.3357
NORTH PLAINFIELD BOROUGH	41.1	4.6	8.3	16.1	59.3257	-18.2257
NORTH WILDWOOD CITY	65.5	4.5	13.3	12	51.3293	14.1707
NORTHFIELD CITY	79.2	3.5	5	20.7	65.3458	13.8542
NORTHVALE BORO	71.8	13.4	6	22.8	67.8792	3.9208
NORWOOD BORO	76.8	13.1	2.8	36.8	79.1495	-2.3495
NUTLEY	77.7	11.6	4.2	25.7	71.0715	6.6285
OAKLAND BORO	79.5	15.8	2.8	31.9	77.1479	2.3521

OAKLYN BORO	59.1	4.3	5	15.6	62.7499	-3.6499
OCEAN CITY	71.3	9.4	7.4	24.5	66.1909	5.1091
OCEAN TOWNSHIP	75.3	13.3	5.6	27.2	70.7269	4.5731
OCEANPORT BORO	86.7	19.2	7.4	25.1	69.0193	17.6807
OGDENSBURG BORO	70.9	5.9	5	18.5	64.75	6.15
OLD BRIDGE TOWNSHIP	66.5	9.8	3.9	23.6	69.8028	-3.3028
OLD TAPPAN BORO	91.5	34.3	1.6	32.1	83.348	8.152
ORANGE TOWNSHIP, CITY OF	32.3	1.8	19.2	13.4	44.6598	-12.3598
OXFORD TWP	59.2	0.5	4.5	14.9	61.9686	-2.7686
PALISADES PARK	61.9	5	12.5	30	62.254	-0.354
PALMYRA BOROUGH	49.3	2.4	8.8	19.9	60.2789	-10.9789
PARAMUS	70.6	16.5	3.6	29.2	74.9289	-4.3289
PARK RIDGE	72.3	21.7	2.2	34	80.4917	-8.1917
PARSIPPANY-TROY HILLS TWP	78.1	13.4	3.5	29.6	74.4724	3.6276
PASSAIC CITY	35.6	1.7	29.2	9.8	31.2179	4.3821
PATERSON	36.9	1.2	27.1	7.7	32.3399	4.5601
PAULSBORO	33.4	0.6	25.3	6.8	33.752	-0.352
PEMBERTON TOWNSHIP	47.2	2.1	9.8	9.6	53.4037	-6.2037
PENNSAUKEN TOWNSHIP	57.9	3	9.2	13.5	56.4607	1.4393
PENNSVILLE TOWNSHIP	64.2	3.3	10.8	13.5	54.7068	9.4932
PEQUANNOCK TOWNSHIP	82.8	14.3	2.6	30.4	76.1707	6.6293
PERTH AMBOY	32.3	2.3	19.9	11.2	42.7787	-10.4787
PHILLIPSBURG	39	2.2	19.5	8.6	41.7834	-2.7834
PITMAN	72.6	5.4	5.4	21.3	65.7021	6.8979
PITTSGROVE TOWNSHIP	69.8	4.7	5.2	15.5	62.5682	7.2318
PLAINFIELD	29.5	5.1	19	13.5	45.785	-16.285
PLEASANTVILLE	39.9	1.3	19	7.4	41.4671	-1.5671
PLUMSTED TOWNSHIP	64.5	5.7	4.5	12.9	62.1966	2.3034
POHATCONG TWP	58	5.1	4.5	20.6	66.2709	-8.2709
POINT PLEASANT BEACH	80.8	8.9	11	27.3	63.4822	17.3178
POINT PLEASANT BOROUGH	76	8.9	3.9	22.8	69.1341	6.8659
POMPTON LAKES	56.8	7	3.5	29.3	72.6757	-15.8757
PROSPECT PARK BORO	54.3	4.3	7.8	9.4	56.1429	-1.8429
QUINTON TWP	67.3	2.5	6.6	8.1	56.343	10.957
RAHWAY	55.7	2.2	10.9	15.2	55.2452	0.4548
RAMSEY	85.7	27.4	3.4	37	82.2194	3.4806
RANDOLPH TOWNSHIP	84	33.4	3.1	35.3	83.1593	0.8407
READINGTON TWP	85.6	24.9	3.7	28.3	76.4624	9.1376
RED BANK BORO	43.3	10.1	16.2	23.3	55.6434	-12.3434
RIDGEFIELD	66.6	7.6	5.4	24.1	67.8003	-1.2003
RIDGEFIELD PARK	60.9	7.1	4.7	24.2	68.5285	-7.6285

RIDGEWOOD VILLAGE	90.5	43	3.6	40.4	87.8352	2.6648
RINGWOOD BORO	78	15.1	3.3	28	74.2563	3.7437
RIVER VALE TWP	75.7	28.5	3.3	37.2	82.7241	-7.0241
RIVERDALE BORO	66.6	7.1	2.6	22.8	70.1623	-3.5623
RIVERSIDE TOWNSHIP	34.1	2.1	8.8	10.1	54.8222	-20.7222
ROCHELLE PARK TWP	76	3.1	3.7	21.1	66.9506	9.0494
ROCKAWAY BORO	60.9	12.7	6.8	15.8	62.9425	-2.0425
ROCKAWAY TWP	74.9	16.1	1.5	30.1	77.7234	-2.8234
ROSELLE BOROUGH	47.7	5.2	9.5	14.4	57.1726	-9.4726
ROSELLE PARK	74.1	5.1	6.1	18.1	63.068	11.032
ROXBURY TOWNSHIP	74.5	12.2	4.9	28.3	71.8511	2.6489
RUMSON BORO	89.2	41.1	4.9	36.3	83.6126	5.5874
RUNNEMEDE BORO	44.2	1.4	9	11.1	54.9639	-10.7639
RUTHERFORD	71.4	13	5.6	29.4	71.8582	-0.4582
SADDLE BROOK TOWNSHIP	57.2	5.3	7.1	21.5	63.8416	-6.6416
SALEM CITY	19.7	2.5	31.4	4.3	25.8856	-6.1856
SAYREVILLE	70.7	5.8	5.1	20.3	65.5983	5.1017
SECAUCUS	64.1	13	7.3	23.2	66.5096	-2.4096
SHAMONG TWP	82	13.2	3	24.8	72.3582	9.6418
SHREWSBURY BORO	93.6	29.2	0.6	35.1	84.8385	8.7615
SOMERDALE BORO	57.5	1.8	5.9	13.1	59.7103	-2.2103
SOMERS POINT CITY	43.9	2.3	12.2	14.7	53.509	-9.609
SOMERSET HILLS	90.5	18	2.2	29.4	77.0228	13.4772
SOMERVILLE BOROUGH	63.2	5	5.4	24.3	67.2471	-4.0471
SOUTH AMBOY	47.9	7.3	8.5	14.9	59.1266	-11.2266
SOUTH BOUND BROOK	70.2	3.7	4.1	22	67.1401	3.0599
SOUTH BRUNSWICK TOWNSHIP	75.6	18.1	2.4	32.4	78.4665	-2.8665
SOUTH PLAINFIELD	65	6	3.6	18.9	66.5967	-1.5967
SOUTH RIVER	48	5.5	8	14.8	59.1847	-11.1847
SOUTHAMPTON TWP	67.3	9.1	5.6	13.2	61.9699	5.3301
SPARTA TOWNSHIP	74.3	26	3.3	34.9	80.8239	-6.5239
SPOTSWOOD	79.8	6.7	3.8	13.1	63.3622	16.4378
SPRING LAKE BORO	74.3	33.6	4.1	28.1	78.1135	-3.8135
SPRING LAKE HEIGHTS BORO	86.3	14.2	6	34.2	74.3418	11.9582
SPRINGFIELD TWP	53.3	11.5	3.3	23.2	70.7031	-17.4031
STANHOPE BORO	71.1	7.6	5.5	21.4	66.2036	4.8964
STRATFORD BORO	67.5	6.3	6.3	20	64.1883	3.3117
SUMMIT CITY	79.1	39.5	6.7	33.4	79.5533	-0.4533
TABERNACLE TWP	70.8	9.9	1.9	21.3	70.8536	-0.0536
TEANECK	57.1	18	7.2	30.6	71.9616	-14.8616
TENAFLY	86.4	37.9	4	33.1	82.0694	4.3306

TEWKSBURY TWP	88.8	44.9	1.5	33	86.6595	2.1405
TINTON FALLS	74	9.6	3.7	26	71.2982	2.7018
TOTOWA BORO	62.9	6.9	6.3	16.2	62.2551	0.6449
TOWNSHIP OF ROBBINSVILLE	78.1	23.5	3.6	31.5	77.9766	0.1234
TRENTON	21.2	2	26.5	7.1	32.9009	-11.7009
UNION BEACH	50	3	4.9	9.1	58.9643	-8.9643
UNION CITY	63.8	1.6	21.1	11.3	41.2823	22.5177
UNION TOWNSHIP	60.6	27.7	4.2	25.7	75.177	-14.577
UNION TWP	94.6	6.3	5	19.4	65.3461	29.2539
UPPER DEERFIELD TWP	44.9	2	25.6	11.4	36.2912	8.6088
UPPER PITTSGROVE TWP	50	5.7	6.5	12.2	59.5243	-9.5243
UPPER SADDLE RIVER BORO	85.4	48.6	3	37.9	88.5771	-3.1771
UPPER TWP	77.5	5.6	4.5	25	68.814	8.686
VENTNOR CITY	65.6	8.7	11.3	15	56.3353	9.2647
VERNON TOWNSHIP	70.5	6.4	4.5	18.1	65.2299	5.2701
VERONA	78	24.7	3	32.2	79.3533	-1.3533
VINELAND CITY	48.2	5	13.1	11.4	51.3562	-3.1562
VOORHEES TWP	76.2	16.7	6.3	29	71.7813	4.4187
WALDWICK	81.9	16.4	1.6	28.1	76.5875	5.3125
WALL TOWNSHIP	77.2	17.5	5.5	27.3	71.9672	5.2328
WALLINGTON	60.5	1.2	9.6	18.6	58.344	2.156
WANAQUE BORO	70.5	6.4	2.7	20	68.3322	2.1678
WARREN TWP	78	39.3	1.4	34.1	85.9498	-7.9498
WASHINGTON TOWNSHIP	65.2	22.7	1.7	30.5	79.3972	-14.1972
WASHINGTON TWP	85	0	5.8	17.9	62.0009	22.9991
WATCHUNG BORO	87.6	38.9	2.8	28.1	80.9522	6.6478
WAYNE TOWNSHIP	78.1	19.5	3.6	29.5	75.8586	2.2414
WEEHAWKEN TOWNSHIP	56.8	10.4	12.5	32.8	65.1682	-8.3682
WEST DEPTFORD TOWNSHIP	60.8	6.1	5.3	19	64.7323	-3.9323
WEST LONG BRANCH BORO	68.6	17.6	7.2	24.6	68.5656	0.0344
WEST MILFORD TOWNSHIP	59.7	8	3.5	21.2	68.4838	-8.7838
WEST NEW YORK	61	5	19	16.9	47.6261	13.3739
WEST ORANGE	49.4	16.9	6.1	26.8	70.8533	-21.4533
WESTAMPTON	68.1	8.2	4.3	25	69.7058	-1.6058
WESTFIELD	86.4	37.6	2.8	36.3	85.1225	1.2775
WHARTON BORO	71.1	4.2	6.7	15.8	60.8894	10.2106
WHITE TWP	76.2	10.2	4.5	13.9	63.8931	12.3069
WILDWOOD CITY	49.1	4.6	25.1	14.6	39.283	9.817
WILDWOOD CREST BORO	75.9	8.9	11.2	23.9	61.3868	14.5132
WILLINGBORO	31.8	3.1	8.4	17.4	59.5425	-27.7425
WOOD-RIDGE	72.3	3.8	3.7	25	69.2702	3.0298

WOODBRIDGE TOWNSHIP	74.9	6.3	5.2	21.4	66.2153	8.6847
WOODBURY	60	3.4	12.1	18.1	55.7705	4.2295
WOODCLIFF LAKE BORO	87.3	35.8	1.8	34.2	84.6546	2.6454
WOODLAND PARK	69.6	4.2	6.5	20.1	63.4789	6.1211
WOODLYNNE BORO	40	2	16.2	7	44.6292	-4.6292
WYCKOFF TWP	82.5	43.8	1.7	40.6	90.3226	-7.8226