THE EFFECT OF TEXAS CHARTER HIGH SCHOOLS ON DIPLOMA GRADUATION AND GENERAL EDUCATIONAL DEVELOPMENT (GED) ATTAINMENT

Catherine Maloney, B.A., M.A.

Dissertation Prepared for the Degree of

DOCTOR OF PHILOSOPHY

UNIVERSITY OF NORTH TEXAS

August 2005

APPROVED:

Frank R. Kemerer, Major Professor
Margie A. Tieslau, Minor Professor
Paul A. Jargowsky, Committee Member and Interim Director of the Texas Schools Project at the University of Texas at Dallas
Johnetta Hudson, Committee Member
M. Jean Keller, Dean of the College of Education
Sandra L. Terrell, Dean of the Robert B. Toulouse School of Graduate Studies
Maloney, Catherine, *The effect of Texas charter high schools on diploma graduation and General Educational Development (GED) attainment*. Doctor of Philosophy (Educational Administration), August 2005, 221 pp., 23 tables, references, 121 titles.

This dissertation is a study of the effect of Texas's charter high schools on diploma graduation and General Educational Development (GED) attainment. Utilizing data from the Texas Schools Project at the University of Texas at Dallas, the study follows a cohort of Texas students enrolled as 10th graders in the fall of 1999 and tracks their graduation outcomes through the summer of 2002 when they were expected to have completed high school. The analysis uses case study research and probit regression techniques to estimate the effect of charter school attendance on graduation and GED outcomes as well as the effect of individual charter school characteristics on charter students' graduation outcomes.

The study's results indicate that charter school attendance has a strong negative effect on diploma graduation and a strong positive effect on GED attainment. In addition, the study finds that charter schools that offer vocational training, open entry/exit enrollment options, and charters that are operated in multiple sites or “chain” charters have positive effects on charter students’ diploma graduation outcomes. Charters that offer accelerated instruction demonstrate a negative effect on diploma graduation. The study finds that charter school graduation outcomes improve as charters gain experience and that racially isolated minority charter schools experience reduced graduation outcomes.
The study’s results also indicate that Texas’s charter high schools may be providing district schools with a means through which to offload students who may be difficult to educate. The analysis finds that districts may be pushing low-performing high school students with attendance and discipline problems into charter schools in order to avoid the effort of educating them and to improve district performance on accountability measures related to standardized test scores and graduation rates. This finding suggests that competition from charter high schools will not provide much incentive for districts to improve their programs, undermining a central premise of school choice initiatives.
Copyright 2005

by

Catherine Maloney
ACKNOWLEDGEMENTS

I owe an overwhelming debt of gratitude to Dr. Frank Kemerer for his generous mentorship and unyielding support throughout my graduate course work and the process of this dissertation. I would like to thank Dr. Margie Tieslau for her excellent instruction in econometrics and for her careful reading of early drafts of empirical chapters. In addition, I am very grateful to the faculty and staff of the University of Texas at Dallas’s Green Center for generously granting me access to the Texas Schools Project data set, without which this study would not have been possible. In particular, I would like to thank Greg Branch for his STATA programming expertise and advice and for his interest in econometric problem solving. Finally, I would like to thank my parents and my dear friend Ken Fox for their continued support throughout the course of my graduate studies.
TABLE OF CONTENTS

ACKNOWLEDGEMENTS .................................................................................................................. iii

LIST OF TABLES ........................................................................................................................ ix

Chapters

1. INTRODUCTION .................................................................................................................. 1
   Overview of Charter School Research ................................................................. 3
   Purpose of the Study ................................................................................................. 4
   Statement of the Problem ......................................................................................... 5
   Research Questions ..................................................................................................... 5
   Research Hypotheses ................................................................................................. 5
   Research Methodology ............................................................................................... 6
   Significance of the Study ............................................................................................. 7
   Limitations of the Study ............................................................................................... 8
   Cross-section Analysis ............................................................................................... 8
   Non-experimental Design ........................................................................................... 8
   Omitted Variable Bias ................................................................................................. 9
   Organization of the Study ............................................................................................ 10
   Summary ......................................................................................................................... 11

2. DEFINITION OF TERMS .................................................................................................... 12
   General Terms ............................................................................................................. 12
   Charter School ............................................................................................................ 12
   Traditional Public School ........................................................................................... 13
   Public Education Information Management System ............................................. 14
   Academic Excellence Indicator System ................................................................. 14
   At-risk Student ............................................................................................................. 15
   Economically Disadvantaged Student ..................................................................... 16
   Graduation Outcomes ................................................................................................. 16
   High School Graduate ................................................................................................. 16
   General Educational Development ......................................................................... 18
<table>
<thead>
<tr>
<th>Charter School Qualitative Characteristics</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>One-race School (OR_BLK, OR_HISP, OR_WHT, OR_NOT)</td>
<td>18</td>
</tr>
<tr>
<td>College Preparatory Program (COL_PREP)</td>
<td>19</td>
</tr>
<tr>
<td>General Educational Development Program (GED_PROG)</td>
<td>19</td>
</tr>
<tr>
<td>Accelerated Instruction (ACCEL)</td>
<td>19</td>
</tr>
<tr>
<td>Open Entry/exit Enrollment (OPEN)</td>
<td>20</td>
</tr>
<tr>
<td>Flexible Scheduling (FLEX)</td>
<td>20</td>
</tr>
<tr>
<td>Vocational Program (VOC)</td>
<td>20</td>
</tr>
<tr>
<td>Chain Charter (CHAIN)</td>
<td>21</td>
</tr>
<tr>
<td>At-risk Charter (ATRISK_CH)</td>
<td>21</td>
</tr>
<tr>
<td>Conversion Charter (CONV)</td>
<td>21</td>
</tr>
<tr>
<td>Statistical Terms</td>
<td>21</td>
</tr>
<tr>
<td>Dummy Variable</td>
<td>21</td>
</tr>
<tr>
<td>Base or Omitted Group</td>
<td>22</td>
</tr>
<tr>
<td>Probit Estimation</td>
<td>23</td>
</tr>
<tr>
<td>Marginal Effect</td>
<td>23</td>
</tr>
</tbody>
</table>

3. BACKGROUND AND LITERATURE REVIEW .............................................. 24

Overview of Charter Schools .......................................................... 24
Charter Schools Nationally and in Texas ........................................... 27
  Texas’s Charter School Policy .................................................... 28
  Texas Charter Schools and At-risk Students .................................. 29
Research on Charter School Student Outcomes ................................ 30
  Research on Texas’s Charter School Student Outcomes .................. 31
  The Effect of Charter School Maturity ........................................ 34
  Charter Schools and Segregation .............................................. 35
  The Competitive Effect of Charter Schools ................................ 38
Graduation Outcomes and School Performance .................................. 41
  High School Diploma ............................................................ 41
  The GED’s Role as a Graduation Outcome .................................. 43
Summary ......................................................................................... 48
4. RESEARCH METHODOLOGY .............................................................. 49
   Data Sources .................................................................................. 49
   Student-level Data ................................................................. 49
   Charter School Program Data .................................................. 50
   Sample Identification: Quantitative Analyses .............................. 50
   10th Grade Students .............................................................. 50
   PEIMS Attendance Data ........................................................... 51
   Omitted Campuses ..................................................................... 52
   Limited Attendance ................................................................... 53
   Eliminating Duplicate Observations in Terms of Student IDs ....... 54
   Additional Restrictions ............................................................ 55
   Quantitative Sample .................................................................... 58
   Sample Identification: Qualitative Case Studies ........................ 59
   Methodology ............................................................................... 62
   Qualitative Methodology .......................................................... 62
   Quantitative Methodology ....................................................... 62
   Summary ..................................................................................... 69

5. QUALITATIVE ANALYSES: CHARTER SCHOOL CASE STUDIES ..... 71
   Case Study: The Achievement Project ......................................... 73
   The Achievement Project Program ........................................... 74
   Relationship with Traditional District Schools ......................... 82
   Case Study: Success Academy Charters .................................... 83
   The Success Academy Charter Program .................................. 85
   Relationship with Traditional District Schools ......................... 87
   For-profit Management ............................................................ 88
   Case Study: The Pencey Preparatory School ............................ 89
   The Pencey Program ................................................................. 91
   The Pencey Focus on Post-secondary Education ......................... 93
   Relationship with Traditional District Schools ......................... 94
   Case Study: High Country Charter High ................................... 96
   The High Country Charter High Program ................................ 97
<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Largest Charter Programs 2004: Charter Schools Operated and Student Enrollment</td>
<td>27</td>
</tr>
<tr>
<td>2.</td>
<td>National and Texas Student Information (by School Type): 2002</td>
<td>28</td>
</tr>
<tr>
<td>3.</td>
<td>Summary of Sample Restriction Omissions</td>
<td>58</td>
</tr>
<tr>
<td>4.</td>
<td>Sample Demographics (by School Type)</td>
<td>59</td>
</tr>
<tr>
<td>5.</td>
<td>Overview of Case Study Charters Schools: 2002</td>
<td>61</td>
</tr>
<tr>
<td>6.</td>
<td>Charter School Qualitative Characteristics: Percent of Schools and Students Enrolled; Fall 1999</td>
<td>72</td>
</tr>
<tr>
<td>8.</td>
<td>TEA Reported High School Graduates, GED Recipients and Dropouts by Student Group: 9th Grade Cohort Expected to Graduate in 2002</td>
<td>114</td>
</tr>
<tr>
<td>10.</td>
<td>Regression Results: Single Equation Probit; Dependent Variable = GRAD</td>
<td>128</td>
</tr>
<tr>
<td>11.</td>
<td>Regression Results: Single Equation Probit; Dependent Variable = GRAD/GED</td>
<td>129</td>
</tr>
<tr>
<td>12.</td>
<td>Regression Results: Single Equation Probit; Dependent Variable = GED</td>
<td>130</td>
</tr>
<tr>
<td>13.</td>
<td>Calculated Likelihood Ratio (LR) Statistics: Group Dummies</td>
<td>131</td>
</tr>
<tr>
<td>14.</td>
<td>Variable Definitions: Two-stage Probit Models</td>
<td>149</td>
</tr>
<tr>
<td>15.</td>
<td>Summary Statistics Full Models: GRAD, GRAD/GED and GED</td>
<td>151</td>
</tr>
<tr>
<td>16.</td>
<td>Summary Statistics GRAD and GRAD/GED Models (by School Type)</td>
<td>152</td>
</tr>
<tr>
<td>17.</td>
<td>Summary Statistics: GED Models (by School Type)</td>
<td>153</td>
</tr>
<tr>
<td>18.</td>
<td>Regression Results: First-stage Regressions of Charter School Attendance</td>
<td>175</td>
</tr>
<tr>
<td>19.</td>
<td>Second-stage Regression Results: Dependent Variable = GRAD</td>
<td>176</td>
</tr>
<tr>
<td>20.</td>
<td>Second-stage Regression Results: Dependent Variable = GRAD/GED</td>
<td>177</td>
</tr>
<tr>
<td>21.</td>
<td>Second-stage Regression Results: Dependent Variable = GED</td>
<td>178</td>
</tr>
</tbody>
</table>
22. Calculated Likelihood Ratio (LR) Statistics: Dummy Variable Groups............ 179
23. Full Sample: Graduation Outcomes by Credential Type......................................... 188
CHAPTER 1
INTRODUCTION

In November of 1996, Texas celebrated its first charter school graduate with a ceremony in Austin. The State Board of Education honored the graduate, a single mother and a returning high school dropout, with a certificate recognizing her accomplishment, and the state’s then Commissioner of Education, Mike Moses, helped the student into her cap and gown. The event garnered considerable attention. Texas’s major newspapers covered the story, and Texas’s then governor, George W. Bush, wrote the graduate a congratulatory letter, applauding her “self-discipline, determination and plain old hard work” and asserting that her achievement “proved that Texas is wise to offer choices to our students” (G. W. Bush, personal communication, November 4, 1996). The excitement over Texas’s first charter school graduate was fueled largely by the relative newness of charters at the time. Texas had passed its charter legislation in 1995 and the state’s first charter schools had opened only 2 months earlier in September. Texas, like many states, had been seeking a politically palatable means to introduce choice-based reform to its system of public education, and its charter law was a compromise written by legislators split over the issue of school choice and vouchers.

Generally speaking, charter schools are public schools of choice. They receive per-pupil education funding for the students that choose to attend them, and they usually operate outside of traditional district structures. In order to open a charter school, interested individuals or groups apply to a state agent for a “charter” authorizing the new school. Charter operators are exempted from many of the regulations that
apply to district schools and are expected to use the freedom to develop creative programs that compete with districts for students and per-pupil funding. Despite their independence, charters remain publicly accountable. If a charter school fails to produce the outcomes specified in its charter, it loses its contract to operate and is shut down.

Political conservatives tend to like charters because they introduce competition and market-based incentives to public schools. In competing with districts for student resources, conservatives reason that charters will develop innovative approaches to educational needs of students who are not well served by districts and that districts will respond to competition by improving their schools. School choice is a rising tide policy, the argument goes, all boats are lifted and all students benefit when schools compete for enrollment. Students who choose charters benefit from programs that better fit their educational needs, and those who remain in district classrooms benefit when districts improve their programs in order to retain students and funding.

To political liberals charter schools are appealing because, unlike vouchers, which permit parents and students to attend private schools at public expense, charters remain public schools and are publicly accountable for their programs, policies, and student outcomes. A public agency controls the charter application and approval process, is responsible for monitoring and oversight responsibilities, and may close a school if it fails to live up to the terms of its charter.

The political appeal of charters coupled with increasing public interest in choice-based school reform has made charter schools a fast growth industry, both nationally and in Texas. Since the first charter schools opened in Minnesota in 1992, forty states and the District of Columbia have passed charter school legislation, and in January of
2005, some 3,400 charters were educating nearly a million students nationwide. Texas enrolled more than 74,000 students in 234 charter schools in 2005, making it the nation’s second largest charter school program in terms of students enrolled and fourth largest in terms of schools operated (The Center for Education Reform [CER], 2005).

Overview of Charter School Research

Despite the enthusiasm for charter schools, there has been relatively little research on how charter schools may be affecting student achievement or whether competition from charters causes district schools to improve. And there is little agreement among the existing studies’ findings. Researchers in California found that students in charters and district schools performed about the same on standardized tests (Zimmer et al., 2003). Studies of charter student achievement in Michigan (Bettinger, 1999) and North Carolina (Bifulco & Ladd, 2004) found that charter students’ test scores tended to lag those of district students. And in Arizona (Solmon, Paark, & Garcia, 2001) and Texas (Gronberg & Jansen, 2001; Hanushek, Kain, & Rivkin, 2002), researchers found that charter schools exhibited a negative first-year effect, but that test score performance improved as the schools gained experience and as students remained enrolled for longer periods of time.

As for the competitive effect of charters, Hoxby (2002) found that districts in Arizona and Michigan improved their performance when faced with competition from charters, but a North Carolina study (Bifulco & Ladd, 2004) and another study of Michigan’s charters (Bettinger, 1999) found no evidence that districts were sensitive to charter competition.
Graduation rates have been a largely overlooked indicator of school performance in the existing charter school literature. The literature review conducted for this study could find no research addressing charters’ effects on graduation outcomes. RAND noted the absence of research “on the long-term academic effects of charter schools,” in its comprehensive (2001) review of charter school research and underscored the need to examine whether charters “are effective not only at raising test scores, but also at promoting long-term academic outcomes such as high school graduation” (Gill, Timpane, Ross, & Brewer, p. 97). In a recent commentary in Education Week, Paul Hill (2005) faulted the existing charter school research for its singular focus on test scores, arguing that “It matters [ ] whether students attend school and persist until they complete a course of study. So, in judging a school’s performance, it makes sense to ask what proportion of its students persist to graduation” (p. 33).

Purpose of the Study

This dissertation responds to the calls for research on charter schools and graduation outcomes. It seeks to understand how charter schools may be affecting high school completion rates for the students they serve and considers both diploma graduation and General Educational Development (GED) certification as graduation outcomes. The study identifies a cohort of students who attended Texas public high schools as 10th graders in the fall of 1999 and tracks their graduation and GED outcomes through the summer of 2002 when they were expected to have graduated. The study asks whether charter school graduation and GED outcomes vary across the characteristics of students served and the characteristics of the charter schools.
attended, and it considers whether the likelihood of graduating differs for students attending charters relative to those in district schools.

Statement of the Problem

In an attempt to understand how charter schools affect graduation outcomes, the study poses the following research questions:

Research Questions

1. Does charter school attendance have any statistically significant effect on the likelihood of a student graduating from high school or obtaining a GED?
2. Do charter school student graduation and GED outcomes vary significantly across student demographic characteristics?
3. Do charter school student graduation and GED outcomes vary significantly across school characteristics related to type of program offered, level of segregation, and duration of charter?

In the absence of previous research on charter school graduation outcomes, the study posits the following hypotheses:

Research Hypotheses

1. Charter school attendance has no statistically significant effect on the likelihood of a student graduating from high school or obtaining a GED.
2. Charter school student graduation and GED outcomes do not vary significantly across student demographic characteristics.
3. Charter school student graduation and GED outcomes do not vary significantly across school characteristics related to type of program offered, level of segregation, and duration of charter.
Research Methodology

The study uses both qualitative and quantitative research methodologies in seeking answers to these questions. The qualitative analysis takes the form of case studies of four very different charter schools that served cohort students over the course of the 2000, 2001, and 2002 school years. Case studies include site visits to individual charter school campuses, interviews with charter school administrators, and observations in charter classrooms. The case studies provide a context in which to illustrate the charter school characteristics included as regression variables in the quantitative analyses. These variables indicate whether charters offered programs such as vocational education; accelerated graduation; morning, afternoon, or evening attendance options; college preparatory instruction; open entry/exit enrollment; and GED preparation. Each of the case study charters is described by one or more of these characteristics, and site visits and interviews with charter personnel clarify how the programs are implemented. Interviews with charter directors also reveal valuable information about the reasons behind many students’ decision to attend charters, and classroom observations provide a window to students’ experiences in charter classrooms. This information fleshes out the study’s quantitative discussions and provides the rationale for some of its statistical approaches.

The study’s quantitative analyses utilize maximum likelihood estimation (MLE) regression techniques and rely on the unique data set of the Texas Schools Project (TSP) housed at the University of Texas at Dallas’s Green Center for the Study of Science and Society. The TSP data include an encrypted student-identifier code that

---

1This study identifies school years by the year associated with the spring semester. Thus, the 1999-2000 school year is identified as the 2000 school year, the 2000-2001 school year is the 2001 school year, and so on.
permits the tracking of students as they move between schools and across school years. Using students’ Public Education Information Management System (PEIMS) attendance, discipline, and demographic data as well as information about charter school program offerings gathered from school documents, the study estimates two sets of regressions. The first set focuses on the effect of charter school characteristics related to program offerings, levels of segregation, and duration of charter on the likelihood of students graduating or obtaining a GED. These analyses are restricted to cohort students who attended charter schools in the fall of 1999. The second set of regressions uses a larger sample that includes students from both charter and traditional public schools. This analysis seeks to identify the effect of charter schools relative to district schools on graduation and GED outcomes. All statistical analyses are completed using STATA statistical software.

Significance of the Study

Graduation outcomes are a key indicator of school performance. Texas currently includes graduation rates as a central indicator of high school performance in its public school accountability system, the Academic Excellence Indicator System (AEIS). The federal No Child Left Behind Act (NCLB) requires that states include “the percentage of students who graduate from secondary school with a regular diploma in the standard number of years” (NCLB § 1111(b)(2)(C)(vi)) when assessing the progress of high schools. The absence of research about how charter schools perform on graduation performance indicators marks a notable gap in the charter school literature. The study presented in this dissertation is significant because it addresses this gap in the research

---

2Prior to the 2005 school year, AEIS used the dropout rate rather than the graduation rate as a primary indicator of school performance.
and provides a first look at how Texas’s charter high schools are shaping graduation outcomes for the students they serve.

Beyond school accountability concerns, graduation outcomes are an important gauge of school performance because of their positive relationship to economic variables, such as the employment and wage rates. In economic terms, schools meet a “market test” when they retain students until graduation because students’ investments pay off terms of higher rates of employment and increased future earnings (Card & Krueger, 1996, p. 98). This thinking underscores the significance of studying graduation outcomes and suggests that this study’s findings may mark a starting point for longer term assessments of the effect of charter schools on students’ college enrollment and labor market outcomes.

Limitations of the Study

Cross-section Analysis

A central limitation of the study is that it is a cross-section analysis that considers outcomes for a single cohort of students. Further research is needed in order to know whether this study’s results hold over time and for other cohorts of students.

Non-experimental Design

Because students do not randomly choose to attend charter schools, the study is necessarily non-experimental in design and must confront the issue of selection bias. The problem of selection bias arises because students who choose to attend charters may be qualitatively different from the students who remain in district schools. And it may be the differences in the students rather than their choice of schools that affects educational outcomes. Variables measuring school choice are endogenous to most
statistical models that estimate educational outcomes. Endogenous variables are statistically problematic because it is not possible to identify a clear cause-and-effect relationship between the endogenous regressor and the model’s dependent variable.

There are a number of statistical approaches that may be used to control for the endogeneity of school choice, although as one prominent researcher has suggested, the application of these approaches to the problem of charter school choice is “hopeless” given the nature of charter schooling and the available education data (comments of E. A. Hanushek, February 20, 2004). This study proceeds, despite the gloomy prognosis, and models outcomes using an instrumental variables approach that utilizes two-stage MLE regression when analyses include students from both traditional district and charter schools. As expected, these models confront some substantial statistical problems, but despite their difficulties, the regression results point to some important insights about the effect of charter schools and the reasons some students choose to attend them. The regressions that estimate the effect of charter school characteristics on charter student graduation outcomes are less troubled by selection bias issues because they use a sample comprised of only those cohort students who attended charter schools. These model specifications are relatively straightforward and their results provide empirical evidence as to how charter school characteristics may shape graduation outcomes.

**Omitted Variable Bias**

In addition to selection bias, the study is also affected by the problem of omitted variable bias. Variables related to parental education level, income level, and marital status and whether students are pregnant or parenting are important to the outcomes
considered in this study. Texas’s system of public school data collection does not include this information, and the omission of these variables from regressions indicates that estimates will be biased.

Organization of the Study

Chapter 2 presents a relatively comprehensive definition of terms. This section introduces some Texas-specific definitions of educational terminology and includes statistical language important to this dissertation’s discussion. Chapter 2 also defines a set of terms representing the charter school characteristics examined in case studies and included as regression variables in chapter 6’s analyses.

Chapter 3 provides background information on the charter school concept and reviews the relevant research on charter schools in Texas and other states. The review includes a section addressing graduation outcomes as indicators of school performance and the changing role of the GED as a graduation credential.

Chapter 4 describes the study’s methodological approaches, providing a detailed discussion of data sources, sample selection processes, and qualitative and quantitative research methodologies.

Chapter 5 presents case study analyses of four Texas charter high schools that served cohort students in the fall of 1999. Each case study illustrates some of the characteristics defined in chapter 2 and included as variables in chapter 6’s regressions. The case studies provide the contextual backdrop for chapter 6’s analysis of charter characteristics and inform chapter 7’s approach to modeling the decision to attend a charter school.
Chapter 6 is an empirical assessment of how charter school characteristics may affect graduation outcomes in charter schools. It controls for student characteristics and considers charter program offerings, segregation levels, and maturity when estimating graduation and GED outcomes. The sample used for chapter 6’s analyses is limited to charter students only and its regressions experience fewer of the selection issues that complicate chapter 7’s estimates.

Chapter 7 attempts to assess the effect of charter schools relative to district schools in estimating graduation outcomes. This analysis uses a larger sample of charter and district school students and wrestles with endogeneity of charter school choice in the model. In spite of its problems, chapter 7’s analysis points to insights about why students may be choosing charter schools and why competition from charters may not produce the expected improvements in district programs.

Chapter 8 summarizes what is learned from the study and suggests possibilities for future research.

Summary

This chapter introduced this dissertation’s study of charter schools and graduation outcomes. It stated the dissertation’s research questions and hypotheses and provided a brief overview of its research methodology. The following chapters take up these topics in greater detail.
CHAPTER 2  
DEFINITION OF TERMS

This chapter provides an overview of terms related to public schooling in Texas that figure prominently in this dissertation and introduces some of the statistical concepts that are important to the discussion of model specifications and regression results.

General Terms
Charter School

Texas Education Code (TEC) §12.002 provides for three classes of charter schools: home-rule charters, campus charters, and open-enrollment charters. Although the regulatory provisions vary by class, each type of charter operates relatively free of most state and local school requirements.  

Home-rule Charter

A home-rule charter is established when an entire school district elects to convert to charter status. Home-rule proposals may be adopted if approved by majority vote in an election in which at least 25% of the district’s registered voters participate (TEC §§12.021-12.022). As of this writing, no Texas public school district has adopted home-rule charter status.

Campus Charter

Campus charters enable individual district schools to convert to charter status. The parents of the majority of students in the school and the majority of the school’s teachers must sign a petition requesting conversion. The petition is presented to the
district’s governing board, which may not arbitrarily deny the request. Campus charters remain the legal responsibility of the district school board and receive state and local funding (TEC §§ 12.051-12.065). In the fall of 2004, the Texas Education Agency (TEA) reported that 43 active campus charters operated in Texas. Most of these were elementary school programs and more than 60% were located within the Houston Independent School District.

Open-enrollment Charter

Open-enrollment charters are entirely new public schools created by “eligible entities,” such as nonprofit organizations, universities, or local government groups. Open-enrollment charters may be located in commercial or public facilities and draw their enrollments across district lines. They may not charge tuition and must provide transportation. Open-enrollment charters receive the state funded per-pupil expenditures for the students they enroll and do not receive local property tax revenues (TEC §§12.101-12.109). In the fall of 2004, 275 open-enrollment charter campuses operated in Texas, enrolling about 63,000 students (Resource Center for Texas Charter Schools, 2005).

This dissertation limits its discussion of charter schools to open-enrollment charters only. The differing legislative provisions for campus and open-enrollment charters as well as the close nexus between campus charters and traditional districts suggest that combining the two types of charters may not be appropriate when comparing graduation outcomes.

Traditional Public School
This dissertation identifies a traditional public school as a school that is operated by an independent, consolidated independent, municipal, or common school district that has been accredited by TEA and is not formed as a campus charter.

**Public Education Information Management System**

The Public Education Information Management System (PEIMS) is Texas’s data collection system for public education. “PEIMS encompasses all data requested and received by TEA about public education, including student demographic and academic performance, personnel, financial and organizational information.” In compliance with TEC § 42.006, PEIMS “contains only the data necessary for the legislature and [TEA] to perform their legally authorized functions in overseeing public education. It does not contain any information relating to instructional method, except as required by federal law” (TEA, 2005a).

**Academic Excellence Indicator System**

The Academic Excellence Indicator System (AEIS) is Texas’s system of public school accountability. AEIS gauges school performance largely in terms of standardized test performance and graduation rates. Through the 2001 school year, AEIS also considered attendance rates as a primary indicator of school performance (TEA, 2003a). Districts and schools are rated “Exemplary,” “Recognized,” “Academically Acceptable” or “Academically Unacceptable” depending upon their performance with respect to test score, graduation, and attendance standards. AEIS includes a second, reduced rating standard for alternative education schools that serve students at risk of dropping out or failure. Schools that apply for and receive alternative education
accountability status are eligible for the ratings: “Commended,” “Acceptable,” “Needs Peer Review,” or “Not Rated.”

During the 2001 school year, the Exemplary rating under the standard accountability system required that schools have a 90% TAAS passing rate and a dropout rate of 1% or less. By comparison, the Commended rating under the alternative accountability system required that schools have a 30% TAAS passing rate and dropout rate of less than 6% (TEA, 2001f). Of the high schools included in this study, 68% of charter schools were subject to alternative education standards compared with less than 1% of traditional district schools.

At-risk Student

TEC §29.081 defines a student in grades 7 through 12 who is under the age of 21 as “at risk of dropping out of school” if the student has failed to advance grade levels for 2 or more years, is 2 years or more below grade level in math or reading, is not passing two or more courses in a semester, or is not expected to graduate on time. A student also is characterized as at risk if he or she has failed an assessment instrument, is pregnant or a parent, or lives in a residential placement facility. For pre-kindergarten through the 6th grade, the designation includes students with: unsatisfactory performance on a beginning of the year “readiness” instrument or on a state required standardized test; limited English proficiency; a history of physical, sexual or psychological abuse; as well as those living in residential placement facilities (TEC § 29.081(d)(1)(2)).

The PEIMS Data Standards:1999-2000 and subsequent years, expand the consideration of parenting to include students who are not birth mothers or fathers but
who “assum[e] responsibility for the regular provision of emotional and physical support of a child (e.g., a sibling)” (TEA, 2001b, p. 2.90).

This dissertation uses these definitions of at-risk and PEIMS coding to identify at-risk students. Detailed discussions of the regression variables representing at-risk status (ATRISK00_02 and ATRISK98_99) are provided in chapters 6 and 7.

Economically Disadvantaged Student

PEIMS includes four categories for the reporting of economic disadvantage: 1) not disadvantaged, 2) eligible for free meals under the National School Lunch and Child Nutrition Program 3) eligible for reduced-price meals under the National School Lunch and Child Nutrition Program, and 4) other economic disadvantage. The “other economic disadvantage” category includes children from households with incomes below the federal poverty line and from families eligible for various types of public assistance.

This dissertation recognizes students as economically disadvantaged if they are coded in any of the latter three categories in the PEIMS data. Detailed discussions of the regression variables representing economic disadvantage (EC_DIS00_02 and EC_DIS98_99) are provided in chapters 6 and 7.

Graduation Outcomes

High School Graduate

Three graduation plans were available to 10th grade students attending Texas public schools in the fall of 1999: the Minimum Graduation Plan\(^1\), the Recommended Graduation Plan, and the Distinguished Achievement Program. The Texas Administrative Code (TAC), Title 19, Chapter 74, Subchapter B, specifies the number of

---

\(^1\)TEA also allows for special education students with individualized education plans (IEPs) to graduate under a Minimum Graduation Plan with IEP.
credits required in each subject in order for students to complete the requirements of each plan. In addition to completing the required coursework, the cohort of students considered in this dissertation was required to pass the exit-level Texas Assessment of Academic Skills (TAAS) test in order to receive a diploma. The exit-level TAAS was administered during the spring of students’ 10th grade year, and students who did not initially pass were provided “multiple opportunities” to retake the test (TEC §39.023(c)).

In general terms, Texas students may have graduated under the Minimum Graduation Plan if they earned 22 credits, completed the courses required by TAC § 74.11(d), and passed the exit-level TAAS test prior to the completion of their 12th grade year. Under the Recommended Graduation Plan, students must have obtained 24 credits, completed the coursework specified by TAC § 74.12, and passed the exit-level TAAS test. To complete the Distinguished Achievement Program, students must have obtained 24 credits, completed the coursework specified under TAC § 74.13, passed the exit-level TAAS, and demonstrated performance at the college or professional level by conducting original research; earning a score of three or more on the College Board Advanced Placement exam, a score of four or more on the International Baccalaureate exam, or a score that qualified the student as a Commended Scholar on the Preliminary Scholastic Assessment Test (PSAT); or earning a grade point average of 3.0 or higher in a course that counted for college credit (TAC § 74.13(a)(3)).

This dissertation does not distinguish between the three routes to graduation, and characterizes cohort students as high school graduates if they completed any of the plans prior to August 1, 2002.
In 2003, Texas replaced the TAAS test with the more rigorous Texas Assessment of Knowledge and Skills (TAKS) at all grade levels and shifted exit-level testing for high school students to the 11th grade. This change did not affect cohort students during the period considered by this study.

**General Educational Development**

The General Educational Development (GED) credential is a high school equivalency certificate that is issued to individuals who pass a battery of five tests developed and administered by the American Council on Education (ACE) and the GED Testing Service (GEDTS). The tests cover math, reading or “interpreting literature and the arts,” writing, science, and social studies and take seven and a half hours to complete. The tests are made up of multiple choice questions and the writing test includes a written essay. ACE sets a minimum passing score of 40 on each test (80 points are possible) and requires an average score of 45 for the five tests. States are permitted to establish their own passing standards in excess of ACE’s minimum, but Texas does not. This dissertation characterizes cohort students as GED recipients if they obtained a GED certificate prior to August 1, 2002.

**Charter School Qualitative Characteristics**

The following terms represent the qualitative characteristics of the charter schools discussed in this dissertation. Each characteristic is observed in at least one of the case studies presented in chapter 5, and the characteristics are included as variables in the regressions of chapters 6 and 7. Regression variable names appear in all capital letters. The definitions provided are specific to this dissertation.

**One-race School (OR_BLK, OR_HISP, OR_WHT, OR_NOT)**
A one race school had average attendance across the 2000, 2001, and 2002 school years comprised of 90% or more one race or ethnicity. One-race school variables are defined for Black (OR_BLK), Hispanic (OR_HISP), and White (OR_WHT) student attendance. Schools that do not enroll more than 90% one race or ethnicity are represented by the variable OR_NOT.

**College Preparatory Program (COL_PREP)**

A college preparatory charter program emphasizes college preparation and offers rigorous academic curricula, including Advanced Placement or International Baccalaureate programs. Students were coded COL_PREP in statistical analyses if they attended a charter school indicating that it offered college preparatory instruction in its promotional materials.

**General Educational Development Program (GED_PROG)**

A charter is considered to have offered a GED program if it provided instruction tailored to GED test preparation during any of the 2000, 2001, or 2002 school years.

**Accelerated Instruction (ACCEL)**

Accelerated instruction charters offer programs in which students are able to earn course credits rapidly and graduate in fewer than 4 years. Some accelerated instruction charters are self-paced programs in which students work independently on computer-based courses or workbook units. Students earn course credit for each successfully completed a unit and students’ progress is determined by the pace at which they are able to master independent study units. Some accelerated programs experiment with class and semester schedules that permit students to accrue credits rapidly.
Open Entry/exit Enrollment (OPEN)

A charter is characterized as an open entry/exit program if it permits students to enroll in and exit from the school at multiple points during the school year. Some open entry/exit charters are self-paced programs in which students may enter and exit at any point during the year. Because students work at their own pace, students who exit the school do not lose credit for incomplete courses—they simply resume work on incomplete units when they return.

For charters, such as the Achievement Project² schools discussed in chapter 5, the open entry/exit characteristic is represented through the operation of four independent 9-week semesters during the school year. Students may enroll at the beginning and may leave at the end of any of these semesters. Classes are completed within the 9-week period, so students do not interrupt their coursework or lose credits if they need to leave school for a semester or more.

Flexible Scheduling (FLEX)

A flexible scheduling charter offers a 4 hour instructional day in which students may attend school in either a morning, afternoon, or evening session. TAC requires that students be enrolled in school for at least 4 hours in order for schools to receive full Average Daily Attendance (ADA) per-pupil funding. Schools are eligible for half ADA funding for students who attend school for at least 2 hours (19 TAC § 129.21(h)).

Vocational Program (VOC)

A charter is considered to offer a vocational program if it emphasizes vocational training in its curricula or offers a work co-op program in which students are able to earn course credit for job experience or both. The vocational charters included in this study's

²All charter schools are identified by pseudonyms.
analyses offered programs in construction trades, cosmetology, auto and motorcycle mechanics, restaurant management, technology and computer repair, nursing, drafting, and agricultural fields.

Work co-op charters generally permit students to attend school for 4 hours in the morning and to earn credit for hours worked for an employer who provides structured feedback to the school.

**Chain Charter (CHAIN)**

A chain charter replicates its program in three or more separate locations. Some chain charters are local entities that operate multiple programs within one city or region of the state. Others are statewide operations with campuses in many Texas cities, and some Texas chain charters also operate campuses in other states.

**At-risk Charter (ATRISK_CH)**

A charter is considered to offer an at-risk program if the school indicates that its instructional program is designed for at-risk students or recovered dropouts or both in its promotional materials or in TEA's Charter School Profiles (2001e).

**Conversion Charter (CONV)**

Texas permits pre-existing private educational programs as well as private schools to convert to open-enrollment charter schools so long as their instructional programs are secular. This dissertation recognizes conversion charters as those charters that were private schools or pre-existing educational programs prior to obtaining open-enrollment charter school status.

**Statistical Terms**

**Dummy Variable**
Also known as a binary or dichotomous variables, dummy variables take on one of two values—one or zero—and present a statistical method of expressing the qualitative characteristics of a sample. Sample observations that possess a certain characteristic are coded “1” and those that lack the characteristic are coded “0.” For example, in the regressions presented in chapters 6 and 7, the variable MALE is coded “1” if the observed student is male and “0” if otherwise.

**Base or Omitted Group**

Although the dummy variable MALE is made up of two classifications, male and female, it is expressed by a single variable. In order to avoid the statistical problem of collinearity or the “dummy variable trap,” it is necessary that one classification of a qualitative characteristic be omitted when defining dummy variables. In the case of MALE, the omitted category, or the “0”, is female. Females represent the “base” group in regressions because the marginal effects returned for MALE are understood as the performance of male students relative to female students, holding all other factors constant.

The need for a base group requires that a dummy variable expressing “k” characteristics is represented by “k-1” dummies so long as the model contains a conventional intercept. The statistical analyses presented in chapters 6 and 7 consider four ethnic categories: Black, Hispanic, White, and other. In regressions, however, only three dummies appear: Black (BLK), Hispanic (HISP), and other (OTH). In this instance, White students (WHT) have been designated as the base group and the marginal effects for the included variables, BLK, HISP, and OTH, are measured relative to the performance of White students.
When dummy variables represent a set of qualitative characteristics, such as ethnicity, it is necessary to test whether the group of characteristics, on the whole, is a relevant predictor of an event’s occurrence. The likelihood ratio (LR) test evaluates the statistical significance of dummy groups, and LR test results are reported for each set of group dummy variables included in chapter 6 and 7’s regressions.

**Probit Estimation**

Probit estimation is an econometric approach to estimating statistical models in which the dependent variable is a dummy variable, representing the presence or absence of some trait or event. The regression models presented in chapters 6 and 7 are estimated using probit analysis because the dependent variables considered—graduation and GED attainment—are binary. That is, a student either receives a GED or does not and a student either graduates or does not. A more detailed discussion of probit estimation is provided in chapter 4.

**Marginal Effect**

In the case of a continuous independent variable, the marginal effect, denoted \( \frac{dF}{dx} \) in regression results, indicates the change in the probability of observing the occurrence of some event given a very small change in the independent variable. In the case of a dummy independent variable, the marginal effect indicates how much more likely it is that the event will occur for the included group relative to the base group.
CHAPTER 3
BACKGROUND AND LITERATURE REVIEW

This chapter provides a discussion of the charter school concept and an examination of the research on charter school outcomes and attributes relevant to this dissertation’s analyses. The chapter begins with an overview of charter schools nationally and in Texas and then considers some key Texas Education Code (TEC) provisions that structure charter schools in the state. The chapter’s second section reviews the current research on charter schools and student test scores, the effect of charter school maturity and segregation levels, and whether district schools are responsive to competition from charters. The chapter’s final section discusses the value of high school graduation as a school performance indicator and examines the General Educational Development’s (GED) role as a graduation credential.

Overview of Charter Schools

Charter schools are independent schools of choice that are publicly funded but generally operate outside of traditional district structures. Charter schools may not charge tuition or discriminate in their admissions policies and are held publicly accountable for results. They receive per-pupil school revenues for the students they enroll and are exempted from varying degrees of state and local school regulations. Individuals or groups that are interested in opening a charter school apply to a government authority for a “charter” or contract to operate a school. The charter defines the school’s program, clarifies accountability standards, and identifies applicable sanctions if the school fails to meet the terms of its charter.
As schools of choice, charters must develop innovative educational programs that attract parents and students away from traditional district classrooms, and many charters strive to create programs that address educational needs and interests that may not be well served in district programs. Some charters target talented and gifted students; others focus on specific subject areas such as foreign languages, math, and science; and others offer curricula appealing to particular cultural or ethnic interests. In a recent government survey of charters nationwide, more than a quarter of charter operators indicated their programs were designed for “low-performing students, dropouts or potential dropouts, or students from low-income communities,” and more than half reported attracting low-performing, at-risk, and low-income students irrespective of their educational missions (U.S. Department of Education, 2004).

Many states, including Texas, have underscored the importance of serving at-risk and low-income students in their charter school legislation. The charter school laws of Arkansas, California, Colorado, Delaware, Florida, Illinois, Missouri, New York, North Carolina, Oklahoma, Rhode Island, Tennessee, and Virginia express preferences for charters that serve low-income or at-risk students (Education Commission of the States, 2005). This emphasis reflects the perception that many such students attend low-quality public schools and are not able to exercise the choices available to wealthier families, such as enrolling in tuition-charging private schools or relocating to districts with better educational offerings.

As a means to encourage innovation in charter programming, charter schools are exempted from many regulations that apply to district schools. The degree of exemption varies from state to state, but charters are generally excused from regulations affecting
the length of the school day and year; teacher employment, salary, and certification 
requirements; budget and finance policies; and district-level student assessment 
requirements. Some states further exempt charters from regulations affecting 
In exchange for this autonomy and flexibility, charter schools are expected to develop 
new educational approaches and to provide models of reform for traditional public 
schools.

Charter sponsors also vary by state and include state education agencies, 
universities, local school districts, county boards of education, and some states, such as 
Arizona, have created government agencies devoted solely to charter authorization. 
Just about anyone with a feasible school plan may apply to operate a charter school. If 
approved, the charter is generally issued for 3 to 5 years and its terms spell out the 
school’s mission, governance, academic approach, curricular structure, performance 
standards, and so on. With the exception of Arizona, all states that currently authorize 
charter schools limit authorization to not-for-profit entities, although many states permit 
charter operators, once authorized, to contract services from for-profit educational 
management organizations (EMOs). As of this writing, only Arizona permits for-profit 
entities to apply directly for a charter.

Charter authorizers are responsible for oversight and monitoring duties, and in 
theory, schools are closed if they fail to meet the terms of their charters. In practice, 
however, most authorizers report implementing less severe sanctions, such as written 
notification of deficiencies, campus improvement plans, and probation rather than 
nonrenewing or revoking the charters of poor-performing schools. Only 4% of the
charter authorizers surveyed for the U.S. Department of Education’s (2004) report on charter schools indicated that they had nonrenewed a charter, and only 6% stated that they had revoked a charter (p. xvii). Political, financial, and public relations pressures as well as concern for the authorizer’s own reputation may make some charter authorizers reluctant to close failing schools (Hassel & Herdman, 2000; Hill, Lake, Celio, Campbell, Herdman, & Bulkey, 2001; Vergari, 2001), and many authorizers report they lack resources to adequately fulfill their monitoring and oversight obligations (U.S. Department of Education, 2004).

Charter Schools Nationally and in Texas

California currently operates the largest charter program in terms of students enrolled and schools operated. As noted in chapter 1, Texas ranks second in terms of enrollment and fourth in terms of schools operated in 2005 (see Table 1).

Table 1

Largest Charter Programs 2005: Charter Schools Operated and Students Enrolled

<table>
<thead>
<tr>
<th>State</th>
<th>Schools Operated</th>
<th>Student Enrollment</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>533</td>
<td>153,935</td>
</tr>
<tr>
<td>Arizona</td>
<td>509</td>
<td>73,542</td>
</tr>
<tr>
<td>Florida</td>
<td>301</td>
<td>53,350</td>
</tr>
<tr>
<td>Texas</td>
<td>234</td>
<td>74,129</td>
</tr>
<tr>
<td>Michigan</td>
<td>216</td>
<td>60,236</td>
</tr>
</tbody>
</table>


Within states, charters tend to be concentrated in cities. In 2000, more than 80% of charters nationally and 83% of Texas charters were located in urban areas (National Center for Education Statistics [NCES], 2002a; Texas Education Agency [TEA], 2001d). Not surprisingly, the nation’s charter schools tend to serve larger proportions of Black, Hispanic, and low-income students and smaller proportions of White students than its
traditional public schools (see Table 2). Texas’s charters reflect national patterns, but
enroll Hispanic students at somewhat lower rates than the state’s district schools.

Table 2

National and Texas Student Information (by school type): 2002

<table>
<thead>
<tr>
<th>Student Group</th>
<th>Nation</th>
<th>Texas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Charter</td>
<td>All Public</td>
</tr>
<tr>
<td></td>
<td>Schools</td>
<td>Schools</td>
</tr>
<tr>
<td>%Black</td>
<td>38.0</td>
<td>17.2</td>
</tr>
<tr>
<td>%Hispanic</td>
<td>19.0</td>
<td>17.1</td>
</tr>
<tr>
<td>%White</td>
<td>37.0</td>
<td>60.3</td>
</tr>
<tr>
<td>%Other</td>
<td>6.0</td>
<td>5.4</td>
</tr>
<tr>
<td>%Low-income(^a)</td>
<td>53.0</td>
<td>--(^b)</td>
</tr>
</tbody>
</table>

\(^a\)Eligible for free or reduced price lunches.
\(^b\)Statistic not available.

Texas’s Charter School Policy

Texas’s system of open-enrollment charter schools began with legislation permitting 20 schools in 1995. Seventeen of the new schools opened in the fall of 1996, enrolling 2,498 students. Subsequent modifications to the charter school law expanded the number of schools permitted, and during the 2005 school year, 275 charter schools enrolled about 63,000 Texas students (Resource Center for Texas Charter Schools, 2005).

Texas charters are sponsored by the State Board of Education (SBOE) and are authorized for a period of 5 years. Charters may be granted to universities, nonprofit organizations, and government entities (TEC § 12.101). Charters receive state funding and are eligible for federal categorical programs, such as special education and Title 1 funding for disadvantaged students. Because charters have no taxable property, they do not receive local property tax revenues and are more reliant on state and federal
funding sources and school-level fundraising efforts than traditional district schools. For the 2002 school year, Texas charters averaged $6,762 in per-pupil revenues compared with $7,851 for traditional public schools (TEA, 2003b).

Although Texas charters are prohibited from discriminating in their enrollment policies, they are permitted to exclude students with documented histories of discipline problems, criminal offenses, or adjudication (TEC § 12.111(6)). The charter school’s governing board retains legal responsibility for the management, operation, and accountability of the school (TEC § 12.121) and is permitted to contract school management and instructional services from for-profit educational vendors (TEC § 12.125). Charter school teachers must be high school graduates and are exempted from Texas’s teacher certification requirements (TEC § 12.130).

**Texas Charter Schools and At-risk Students**

Texas has encouraged its charter schools to develop programs for at-risk students. In 1997, the state legislature increased the number of charters permitted to 120 and introduced provisions permitting an unlimited number of charter schools that enrolled more than 75% at-risk students. During the 1998 school year, the SBOE approved 40 of the new at-risk schools, designated “75 Percent Rule” charters, and an additional 100 open-enrollment charters (TEA, 1998).

The rapid acceleration in the growth of charters coupled with concerns over weak accountability led the legislature to eliminate the 75 Percent Rule designation and to cap the number of permissible charters at 215 in 2001.¹ Although the 75 Percent Rule designation has been eliminated, charters continue to enroll large proportions of at-risk

¹Because many charter schools operate more than one campus, the number of campuses operating exceeds the cap on the number of charters granted.
students. During the 2002 school year, 42% of Texas charters enrolled 70% or more at-risk students (TEA, 2003b).

Research on Charter School Student Outcomes

The current research on charter school student achievement has focused primarily on elementary students’ performance on standardized tests. Many states collect student-level data, including test scores, across years, and because charter schools are public schools, most states require that they participate in statewide standardized testing programs. With such data, researchers are able to measure changes in test score growth as students progress through the elementary grades and move between charter and traditional public schools.

Analyses of charter schools’ effects of on test performance have produced mixed results. A study of student achievement in Michigan found that charter school students performed below traditional public school students on the statewide standardized test for the 7th grade and about the same on the 4th grade test (Bettinger, 1999). In Arizona, students experienced a decline in test scores for the year in which they moved to a charter school, but if they remained at the school for 2 or 3 years, their test score gains appeared to outpace those of students remaining in traditional public schools (Solmon, Paark, & Garcia, 2001). There were no significant differences between the performance of California’s charter and traditional public school students in an analysis of Stanford 9 achievement test scores—charter students performed slightly worse in math and about the same in reading as students in conventional district schools (Zimmer et al., 2003). North Carolina’s charter students had “considerably smaller achievement gains” than students in similarly situated district schools, and researchers estimated that about 30%
of the negative effect was attributable to increased rates of student turnover caused by movement between the two types of schools (Bifulco & Ladd, 2004, p. 6).

**Research on Texas’s Charter School Student Outcomes**

Some of the strongest research on charter school student outcomes has come from studies of Texas’s charter schools. Because Texas collects Public Education Information Management System (PEIMS) data at the individual student level, it enables more finely tuned analyses of school performance than states that limit statewide data collection to the school level.

**Quantitative Research on Texas Charter Schools**

Texas A&M economists Gronberg and Jansen (2001) studied the changes in test scores of charter school students relative to those of students in traditional public schools in grades 3 through 8 using scores on the Texas Learner Index (TLI). Utilizing panel data from 1997 through 2000, the authors analyzed the influence of charter schools in regression models that considered at-risk and non-at-risk charter schools separately and controlled for individual student characteristics, including at-risk and special education status, limited English proficiency, and previous test performance.

Gronberg and Jansen first estimated a district fixed effect model and found that traditional districts, on average, had a positive fixed effect of 0.13. For charter schools, however, the effect was -3.2. When they added controls for type of charter school to their models, at-risk charters produced a fixed effect of -3.03 and non-at-risk charters produced an effect of -2.4. The authors then controlled for how long a charter school had been operation and found that first-year charters had an effect of -4.37, second

---

2 Similar to a z-score, the TLI is a statistic that transforms raw Texas Assessment of Academic Skills (TAAS) scores and permits comparison across grades and years of education.
year charters -1.75, and charters that had been in operation for 3 or more years had an effect of -.79.

Reasoning that the discouraging charter results may have been caused by the small size of the charter sample \( n = 83 \), the authors re-estimated the model treating all charter schools as a single school district. This resulted in a “charter district” effect of -0.61 (p. 41).

Because the district-level models may have masked systematic differences in the types of students served by charters and traditional schools, Gronberg and Jansen included a “student fixed effect model” that controlled for the individual characteristics of each student. This produced a charter school effect that reflected the portion of student performance that could not be explained “by knowledge of students’ past scores and individual student average achievement levels, by certain student characteristics that might change over the sample, and by school overall campus characteristics” (p. 42). Charter performance improved in this model. After adjusting for student differences, charters as group had an average effect of -.909. For at-risk charters, the average effect was 0.76 and for non-at-risk charters -1.56 (p. 42).

In an unpublished paper incorporating the Texas Schools Project (TSP) data used by this dissertation, authors Hanushek, Kain, and Rivkin (2002) found that open enrollment charters typically under perform traditional public schools in both math and reading but that the magnitude of charters’ negative effect was reduced when controls for student mobility were included in the statistical model. When the authors introduced variables related to the age of the charter, they found that “first year charters significantly under perform regular schools in both mathematics and reading but that
charter schools get up to speed fairly rapidly” (p. 18). By the 3rd or 4th year of operation, charter schools had hit their stride and were performing at a level that was not significantly different from that of traditional public schools.

Qualitative Research on Texas Charter Schools

Researchers at the Texas Center for Educational Research (TCER) sought to identify the qualitative characteristics of high and low-performing Texas charter schools using Academic Excellence Indicator System (AEIS) indicators related to Texas Assessment of Academic Skills (TAAS) test passing rates, end of course exams passing rates, and course completion rates (Shapley, Benner, & Pieper, 2002). The study examined the program characteristics of 15 high-performing and 8 low-performing charters that had operated for at least 2 years during the 2000 school year. The authors defined high-performing charters as those that scored over 80% on at least three performance indicators and were rated Exemplary, Recognized, or Acceptable by AEIS’s accountability system. Poor-performing or “struggling” schools scored 55% or below on three or more performance indicators and were rated Low-Performing or Needs Peer Review by AEIS (p. 11).

TCER found that successful charters tended to serve fewer at-risk students and had student ethnic distributions similar to those in conventional public schools. They set high achievement goals for students, emphasized rigorous curricula, and included enrichment course work in foreign languages and the arts. High-performing charters incorporated learner-centered instruction, accelerated instruction, and instructional approaches shaped by multiple intelligences research. They had strong ties to the community and were generally chartered by community, civic, or educational leaders
“with a vision and clear goals” (p. 19). Parent involvement was frequently required as a condition of enrollment, and teachers were better paid, better educated, and more experienced than the teachers in low-performing schools.

Low-performing charters tended to enroll 75% or more at-risk students and larger proportions of minority students than traditional public schools. These schools espoused high academic standards but generally emphasized basic skills, vocational education, remedial coursework, and GED preparation in their curricula. Low-performing charters frequently utilized teacher-directed learning, self-paced instruction, publisher-packaged or “canned” curricula, and computer-assisted instruction and were often chartered by management companies that opened schools in urban regions, targeting at-risk students. Low-performing schools generally did not mention parent involvement in their charter applications and employed less experienced and lower paid teachers and staff.

**The Effect of Charter School Maturity**

The most consistent finding that has emerged from the charter school research thus far is that new charters tend to have a negative effect on student achievement, but charter performance generally improves as schools gain experience (Gill, Timpane, Ross, & Brewer, 2001). By necessity, first year charters enroll students who have transferred from other schools, and a drop in academic achievement for the year of transfer is a recognized cost of changing schools (Pribesh & Downey, 1999; Swanson & Schneider, 1999). For students transferring into first year charters, the negative effect of moving may be increased by schools’ struggles with new and inexperienced staff, lack of funding, and inadequate facilities (RPP International, 2000).
Both the Gronberg and Jansen (2001) and the Hanushek, Kain, and Rivkin (2002) studies of Texas charter schools discussed above found that performance improved as schools gained maturity. Arizona researchers found that the magnitude of charter schools’ fixed effect on students’ scores on the reading and math portions of the Stanford 9 achievement test increased the longer a student remained enrolled. While the effect sizes varied depending on the method of estimation, first year charters exhibited an effect that ranged from -2.019 to -1.134, second year charters had an effect between 0.824 and 2.095, and the third year effect was between 2.398 and 3.402 (Solmon, Paark, & Garcia, 2001, p. 4).

The finding that charter maturity affects performance frames a central question asked by this dissertation. That is, does charter maturity improve the likelihood of a student graduating or obtaining a GED? To address this question, chapter 6’s analyses of the influence of charter school characteristics on graduation outcomes include variables related to school maturity, including the year in which a charter school first began serving students and a variable indicating whether the school is categorized as a conversion or start-up charter.

**Charter Schools and Segregation**

This study also considers how high levels of school segregation may influence graduation outcomes and includes variables identifying racially homogenous schools in its empirical analyses. The inclusion of these variables is motivated by a growing body of research indicating that charter schools are leading to greater ethnic segregation in public schooling. Researchers at the Harvard Civil Rights Project (2003) studied charter school segregation levels in 16 states that enrolled more than 5,000 students in charter
schools in the 2001 school year. The authors found that charters were more racially segregated than traditional district schools even though they were not limited by neighborhood attendance zones and could draw their enrollments from beyond racially segregated residential areas. The study found that Black students, in particular, enrolled in “charter schools—as well as intensely segregated minority charter schools—at a rate nearly twice their share of the public school population” and “regardless of the white share of the entire charter school enrollment, black students in charter schools experience high levels of racial isolation and are exposed to very low percentages of white students” (Frankenberg & Lee, p. 47).

A study of segregation in Arizona charter schools compared enrollment trends between “propinquitous charter and traditional district schools” from 1995 to 1997 (Cobb & Glass, 1999, p. 8). The authors found evidence that charters were more segregated than district schools, particularly in terms of their White enrollments. When compared with traditional schools in their proximity, Arizona charters were “typically 20 percentage points higher in White enrollment.” Arizona charters that enrolled a majority of ethnic minority students were typically vocational programs or “schools of last resort” for students who had been expelled from district schools (p. 28).

Weiher and Tedin (2002) studied racial segregation in Texas charter schools and found that parents tended to “sort themselves along racial and ethnic lines” when choosing a charter program (p. 91). The authors used interviews with more than 1,000 charter school parents to determine if school preferences differed systematically by race. Parents were asked to identify their most important consideration in choosing a school from a list of six factors: “test scores, discipline, school racial or ethnic
characteristics, location, the teaching of moral values, and safety” (p. 82). Although more than 60% of parents indicated test scores were a primary consideration in choosing a school, the “vast majority” of parents transferred their children into “charter schools with demonstrably worse performance on the state achievement test than the traditional public school they had previously attended” (p. 91). The authors further found that while almost none of the parents indicated that racial considerations informed their choice of schools, race was a “powerful predictor” of the schools children attended:

African American students are more likely to attend charter schools with higher concentrations of African American students than the traditional public schools they previously attended. Hispanic students are also likely to find their way to charter schools with higher concentrations of Hispanic students, and white students are likely to find their way to charter schools with higher concentrations of white students (p. 91).

Although the high degree of correlation between racially isolated schools and schools of concentrated poverty or wealth makes it difficult to identify the effect of racial isolation on student achievement, some research has indicated that students enrolled in racially homogenous minority schools tend to have lower test scores, take fewer advanced courses, and are less likely to attend college than students enrolled in more integrated schools (Wells & Crain, 1994). Graduation outcomes also may be affected by increased levels of racial isolation. Swanson (2004) analyzed trends in graduation rates at the national and individual state level and considered the performance of school districts with high levels of racial segregation. After controlling for factors related to school expenditures, numbers of low-income and special education students, district size and location, Swanson found a “sizeable” (.106) and statistically significant negative relationship between a district’s level of minority segregation and its graduation rate (p. 32).
The Competitive Effect of Charter Schools

Although educational policy makers may not have anticipated the tendency for charters to increase segregation, they did expect that choice would introduce competitive incentives to public schooling. Advocates of school choice and charter schools have argued that traditional public schools will respond to competition from charters by improving their programs and performance in order to retain their students and per-pupil funding (Chubb & Moe, 1990; Finn, Manno, & Vanourek, 2000). This reasoning is reflected in state-level charter school policies. In nearly identical language, the “Purposes” sections of California and Florida’s charter school laws establish that charter schools will “Provide [in California “vigorous”; in Florida, “rigorous”] competition within the public school system to stimulate continual improvement in all public schools” (California Education Code § 47601(g); Florida Education Code §1002.33(2)(c)).

According to the U.S. Department of Education’s (2004) survey of charter sponsors nationwide, “Creating competition in the public school system” was the most frequently cited reason for authorizing charter schools (p. 36).

But do charters create competition? It is hard to say. Even the nation’s largest charter school programs are comparatively small. Less than 3% of California’s and only about 2% of Texas’s public school enrollments attend charters. In order to offset the small size of charter programs, some researchers have looked to regions with high concentrations of charter schools to examine their effects on district schools. Bettinger (1999) and Bifulco and Ladd (2004) used the proximity of charters to district schools as an indicator of competition in their respective studies of charter schools in Michigan and North Carolina, but neither study found evidence of a competitive influence. Hoxby
(2002) analyzed the competitive effect of Milwaukee’s voucher system and Michigan and Arizona’s charter school programs on achievement and productivity in districts in which at least 6% of students attended voucher or charter schools. Using changes in mean test scores before and after the introduction of choice schools, Hoxby found that in each program “regular public schools boosted their productivity when exposed to competition” (p. 50). However, Hoxby does not consider how the student composition of district schools may have changed when charter schools began drawing students, and it may be that districts had higher average test scores because their lowest performing students transferred to charter schools.

In Exit, Voice, and Loyalty (1970), Stanford University economist Albert Hirschman described the phenomenon of the lazy monopolist who is pleased when competitors draw away customers that it does not want to serve:

[T]here are many [ ] cases where competition does not restrain monopoly as it is supposed to, but comforts and bolsters it by unburdening it of its more troublesome customers….In the economic sphere such “lazy” monopolies which “welcome competition” as a release from effort and criticism are frequently encountered when monopoly power rests on location and when mobility differs strongly from one group of local customers to another (emphasis in original, pp. 58-59).

Hirschman uses public schools as an example, explaining that public schools are relieved of troublesome customers when parents who are critical of declines in educational quality and who press for improvements by meddling in school affairs and complaining at board meetings choose to enroll their children in private schools. In this instance, the most quality conscious customers are also the most mobile—they can afford to pay private school tuition. And while their exit relieves public schools of
complaining parents, it also removes a powerful force for the improvement, permitting public schools to “persist in [ ] comfortable mediocrity” (p. 59).

Hirschman reasons “the presence of competition could do more harm than good when the main concern is to counteract the monopolist’s tendency toward flaccidity and mediocrity” because these traits are reinforced when competitors draw away the customers that are most likely to highlight the monopolist’s shortcomings (pp. 58-59). In Hirschman’s example, these customers are students with vocal, quality-sensitive parents, and Hirschman argues that the lazy monopolist seeks to create an opportunity for exit for these customers so that the monopoly can give up its “strenuous and tiresome quest for excellence” (p. 60).

In the current era high of stakes accountability, the students who draw the most attention to the poor-performance of public schools tend to be those that do not test well and those that dropout. These students act as signals to public school monitors that accountability standards have not been met, and schools that fail to improve their performance with respect to these students may be subject to sanctions and penalties.

While intended to motivate, the threat of sanctions inadvertently creates an incentive for schools to push low-performing students out. In an interview with the Austin American-Statesman newspaper, Rice University researcher Linda McNeil explained that the current emphasis on high test scores “rewards the principals who get [low-performing] kids out of the building” and off of schools’ accountability report cards (“State undercounts dropouts,” September 8, 2003, p. B1). In a separate report in the San Antonio Express-News, San Antonio Independent School District superintendent Rubin Olivarez expressed concern about his district’s tendency to “encourage students
who are having difficulty to get GEDs rather than challenging them.” Once students left district schools for GED programs, they were no longer a district accountability concern. Their test scores were not included in district averages, and if students dropped out of the GED program, it was not the district’s problem (Hughes, January 10, 2003, p. 1A).

These reports suggest that public schools respond to low-performing students in much the same manner as Hirschman’s lazy public school monopolist responded to pressure from quality conscious parents. In both cases, public schools did not improve the quality of their programs in order to satisfy demands for improvement. Instead, they sought to exit the customers that highlighted school quality issues. Charter schools provide districts with a potential channel through which to exit students that are difficult or troublesome to serve. If charters readily accept these students, they alleviate the pressure for district schools to improve, undermining a central premise of charter school initiatives.

Graduation Outcomes and School Performance

Currently, standardized tests are the primary means of assessing and reporting student achievement in American public education. This is not particularly surprising. Test scores are readily available, easily understood, and generally accepted as reliable measures of students’ academic achievement. And from a research point of view, they are valuable because they are standardized and permit comparison across different types of schools and students.

High School Diploma

But test scores are not the only, or even the best, measure of school performance. Schools that are able to retain and educate students until they complete a
secondary school program are able to substantially improve the life chances of the students they serve. It is well known that high school graduates earn more, enjoy higher rates of employment, and are less likely to be on public assistance than nongraduates (Evans & Schwab, 1995; NCES, 2002a). They also have lower arrest and incarceration rates (Thornberry, Moore, & Christenson, 1985; Wald & Losen, 2003) and are less likely to become single parents or to smoke or take drugs (Kaufman, Alt, & Chapman, 2004; Mensch & Kandel, 1988).

A high school diploma is prerequisite for most post-secondary educational programs, and students who maintain consistent enrollment in high school enroll in post-secondary programs at twice the rate of students who have interrupted their schooling at least once since the 7th grade (NCES, 2004). Completion of a rigorous high school program is the strongest predictor of a student’s ability to earn a bachelor’s degree (Adelman, 1999), and for first generation students—those whose parents did not attend college—completing an academically challenging high school curriculum offsets the negative influence low levels of parental education have on post-secondary educational persistence (NCES, 2002a).

Economists frequently point to graduation outcomes as the appropriate measure of school quality because of the strong positive relationship between level of educational attainment and labor market outcomes (Angrist & Krueger, 1991; Becker, 1975; Card & Krueger, 1996). Evans and Schwab (1995) argued that measures of students’ educational attainment are more valuable indicators of school performance than test scores because of their influence on important economic variables such as unemployment and the wage rate. They found that tests may be culturally, racially, or
sexually biased; that teachers “teach to the test” artificially inflating scores; and that standardized tests measure a limited range of student abilities and do not consider a student’s creativity or problem solving skills. Most importantly, improved standardized test scores have only a “modest” effect on economic outcomes (p. 942).

Federal and state-level school accountability measures recognize the value of graduation outcomes and include graduation rates in public school accountability systems. The federal No Child Left Behind Act (NCLB) requires that states include graduation rates in their definitions of adequate yearly progress for schools that serve secondary school students. Texas included the annual dropout rate for grades 7 through 12 as a “base indicator” in its public school accountability rating system, the Academic Excellence Indicator System (AEIS) through 2003. In the fall of 2004, TEA adjusted its graduation indicator to comply with NCLB and began using the high school completion rate instead of the annual dropout rate in AEIS ratings (TEA, 2004b). NCLB limits its definition of a high school graduate to only those students who complete high school with a diploma. Texas currently includes GED recipients in its definition of a graduate. However, in the 2005 school year, Texas will align its definition with that of NCLB, and Texas students who obtain a GED will no longer be counted as graduates (TEA, 2004b)

The GED’s Role as a Graduation Outcome

As evidenced by Texas’s policy shift on GEDs, the perception of the GED as a high school equivalency credential has begun to fade. Many find the GED to be a giveaway diploma, or what comedian Chris Rock, himself a GED holder, calls the “good enough degree.” The GED’s developer, the American Council on Education (ACE,
maintains the credential is the equivalent of a high school diploma, asserting that most employers do not differentiate between GED holders and high school graduates and that most colleges and universities accept the GED as evidence of academic readiness in their admissions processes. On its face, this argument is hard to accept. The GED requires considerably less time and effort to obtain than a high school diploma. GED recipients spend about 30 hours, on average, preparing for the test, and the test itself, a battery of 5 exams, takes about seven and a half hours to complete (Tyler, 2003).

The GED was developed in the 1940s to permit returning war veterans to take advantage of the GI Bill and enroll in college, and since that time more than 15 million individuals have obtained a GED. The rate of testing has increased rapidly over the past decade, with more than a million people taking at least one portion of the test in 2001. Texas consistently awards more GEDs than any other state, issuing 53,582 credentials in 2001. Of these, 33% went to persons 18 years-of-age or younger (ACE, 2002).

The increase in the number of GED test takers over the past 10 years has sparked considerable research interest in the long term implications of GED attainment for credential holders. These studies have produced convincing evidence that the GED is not the equivalent of a high school diploma.

Evidence of the GED’s Nonequivalence

Economists Cameron and Heckman (1993) used data from the National Longitudinal Survey of Youth (NLSY) to compare the labor market outcomes at age 25 and again at age 28 of male high school graduates, GED holders, and dropouts who were between 13 and 20 years-of-age in 1978. Their results indicated that GED
recipients and dropouts were “inferior to high school graduates in terms of hours, wages, salaries, weeks worked, and length of time on their current job.” While GED holders enjoyed a “small premium in hourly wages and salary” over dropouts, the difference was not statistically significant (p. 13). Finding that GED holders were “statistically indistinguishable” from dropouts in terms of their labor market outcomes, Cameron and Heckman argued that there “is no cheap substitute for classroom instruction” and that educational programs that “focus on the GED as an end in itself are misguided” (pp. 43-44).

Additional evidence of the nonequivalence of the GED comes from the armed forces’ recruitment policies. The military initially classified GED holders in the same category as high school graduates for enlistment purposes, but in the late 1970s the high attrition rates of GED holders caused all four branches of the armed services to revise their classification of graduates and to create a separate category for GED recipients. ACE was quick to question the separate classification, and the military responded with a comprehensive study of the characteristics that predicted the probability of a recruit completing the first term of enlistment. The study included demographic factors, Armed Forces Qualifying Test (AFQT) scores, marital status, as well as whether a recruit completed high school, earned a GED, or dropped out. The results indicated that high school graduation was the strongest predictor of first term completion and that GED holders had attrition rates similar to high school dropouts. The 24-month attrition rate was 20% for high school graduates, 36.8% for GEDs, and 38.6% for dropouts (Laurence, 1993). These differences were not attributed to cognitive
ability. Instead, high school graduates were credited with traits such as “maturity, participation in and accommodation to group learning situations, team spirit, conformity, tolerance of and adaptability to rules and regulations, determination, and self-control,” and these qualities rendered them better suited to the military environment (Laurence, 1993, p. 9).

The GED’s Value for Dropouts with Poor Skills

Although the evidence on the GED’s value is discouraging, some research has found that obtaining a GED may improve economic outcomes for dropouts who leave school with poorer skill sets. Murnane, Willett, and Boudett (1999) estimated the effect of GED attainment on earnings for males with strong and weak cognitive abilities as measured by the AFQT. Their results indicated that men whose scores were in the lowest quarter of the AFQT distribution and who obtained a GED received a wage that was 6% larger than similarly situated men who did not earn the credential and that the difference was statistically significant. Male dropouts with better cognitive abilities had better labor market outcomes irrespective of GED attainment, but for these men, obtaining a GED had no statistically significant effect on earnings (pp. 491-92).

The authors explained that dropouts with better cognitive skills can pass the test with little preparation and effort, thus achievement of the credential marks no real increase in their abilities. For poorly skilled dropouts, however, attainment of a GED may be the result of considerable effort expended in improving skills and remedying language deficiencies. For these dropouts, earning a GED marks a substantial improvement in their human capital that translates to a higher wage offer.

---

3Analyses of recruits’ AFQT scores demonstrated that cognitive ability was weakly related to attrition (Laurence, 1993).
The GED and Self-esteem

Labor market outcomes aside, the GED may be a valuable resource in improving the self-esteem of students who have struggled in public schools. Brouillette (1999) interviewed 40 participants in a GED preparation program about their decisions to dropout and their experiences preparing for and taking the test. Most of the students interviewed attended urban schools prior to dropping out, and many reported that increasing gang violence, chaotic classrooms, and a pervading sense of hopelessness in the public school system guided their decisions to leave school. The students reported that participation in the program was a positive experience and that many of the benefits they encountered grew out of their relationships with teachers in the program. Students were able to trust their teachers in ways that had not been possible in traditional school settings. Because the GED teachers did not set testing standards or control testing outcomes, students recognized them as supports rather than barriers to achievement.

Although only about half of the students obtained their GEDs during one enrollment term, Brouillette underscored the value of the program in improving the students' perceptions of their own abilities:

[The students] became more confident, engaging in constructive dialogues with instructors and beginning to think of themselves as people who could learn this stuff, who could aspire to success in the larger world. They had begun the process of seizing control of their lives, of breaking out of the mood of hopelessness that had paralyzed them. A major step in doing this was the shedding of the pejorative label “dropout.” Through passing the GED test, they were able to prove to themselves and to others that there was life after the decision to drop out of school (1999, p. 315).

While improved self-esteem is difficult to measure in an empirical sense, it is a viable outcome that may be worth more than the credential in terms of student benefit.
This chapter has provided an overview of the charter school concept and reviewed the charter school and graduation outcomes research germane to this dissertation’s discussions and analyses. In addition, it has provided an introduction to Hirschman’s theory of the lazy monopolist. Hirschman’s theory suggests that traditional district schools may not be sensitive to competition from charters and that districts may use charters as a means to avoid serving students who test poorly or drag down other measures of public school performance. This thesis gains increasing importance in the chapters that follow.
CHAPTER 4
RESEARCH METHODOLOGY

This chapter describes data sources, clarifies how sample students and schools were identified for quantitative analyses and how charter schools were selected for case studies, and introduces the qualitative and quantitative methodologies used to analyze data.

Data Sources

Student-level Data

The student-level data used in the quantitative analyses presented in chapters 6 and 7 were drawn from the dataset of the Texas Schools Project (TSP) at the University of Texas at Dallas. The TSP database contains student-level Public Education Information Management System (PEIMS) and Academic Excellence Indicator System (AEIS) data for all students attending Texas public schools from 1990 through the present as well as the Texas Higher Education Coordinating Board (THECB) and Texas Workforce Commission (TWC) data for the same time period. The use of encrypted student IDs permits the tracking of students as they move through the Texas public school system and into Texas’s workforce and public postsecondary educational institutions.

With the exception of variables expressing the charter school program characteristics discussed below, all but two of the variables utilized in the regressions of chapters 6 and 7 were derived from the TSP PEIMS data. The variable WAGE_99, an indicator of student employment, was constructed using TWC data, and URBAN, an
Charter School Program Data

Chapter 6’s regressions include variables expressing the qualitative characteristics of charter schools defined in chapter 2. Because PEIMS does not include information about schools’ program offerings, these data were collected through charter school document analysis and conversations with charter school personnel.

Document analysis included reviews of charter schools’ promotional and admissions materials, student and parent handbooks, school newsletters and student publications, internet Web sites, local news media reports, and the Texas Education Agency’s (TEA) Charter School Profiles (2001e). Requests for individual charter school documents were made to all sample schools by telephone in November 2003. All schools were apprised of the purpose of the request. In cases where charter documents were unclear about program offerings, schools were contacted again and asked to clarify ambiguities.

Sample Identification: Quantitative Analyses

Chapter 6 and 7’s analyses incorporate samples of students and schools identified using the PEIMS attendance, enrollment, and demographic data files for students attending Texas public schools as 10th graders during the 2000 school year.

10th Grade Students

The rationale for using a sample of 10th graders is rooted in the large number of Texas students who are required to repeat the 9th grade. TEA (2001a) reported that 18.8% of Texas’s 9th graders were retained in the 1999 school year and that
“approximately one-fourth of all African American and Hispanic ninth graders were retained” (p. 6). The high level of student retention in the 9th grade complicates expectations of when 9th graders will graduate. In addition, difficulties in the 9th grade appear to motivate the decision to attend a charter school for some high school students. Of the sample of 10th grade charter students identified for this study, 72.4% did not attend the charter school during the spring semester of the previous school year.

PEIMS Attendance Data

PEIMS attendance files were the primary means of identifying the study’s quantitative sample. PEIMS attendance data are collected twice daily (i.e., morning and afternoon) and are reported in data files representing each 6-week attendance and grading period. There are six such periods in each school year, and each period constitutes a separate data file. The first three periods comprise the fall semester, and the latter three periods comprise the spring semester. Attendance files include encrypted student IDs, campus and district of attendance IDs, number of days attended, and number of days absent. Days attended are reported for each student at each campus the student attended over the course of a 6-week period. Students that attend more than one campus in a 6-week period have multiple records in the 6-week attendance file. The incidence of multiple records increases when the 6-week files are merged because many students attend more than one campus over the course of a semester or year. In some instances, students attend more than one campus at the same time. Districts that do not offer all courses or services at each school may permit students to attend a second campus in order to attend a course or receive a service. In
such cases, students’ attendance will be reported at multiple campuses on the same day.

Merging the six 6-week attendance files for 2000 school year produced a master file of 322,217 10th grade students. Of these, 43,350 had attendance recorded at two or more campuses throughout the year. The task of the steps described below was to identify each student observation with a single campus of attendance for the fall 1999 semester and to omit students whose attendance was determined by special circumstances. Table 3 summarizes the number of observations omitted by each of the criteria described below.

## Omitted Campuses

### Special Circumstances Attendance

The sample omits student observations at campuses where attendance was determined by special circumstances such as adjudication, court order, disciplinary referral, drug or alcohol rehabilitation, medical disability or specialized needs, and so on. Such campuses included juvenile justice alternative education programs (JJAEPs), disciplinary alternative education programs (DAEPs), residential drug and alcohol treatment programs, foster care facilities, runaway shelters, homes for pregnant teens, homebound student programs, programs for hospitalized students, and other alternative educational facilities. The unique character of these schools coupled with the sporadic and often compulsory nature of their enrollments suggests that graduation outcomes are not an appropriate measure of their performance.
As noted in chapter 2, Texas permits traditional district schools to convert to campus charters under TEC §§12.051-12.065. Campus charters are not included in this dissertation’s definitions of either charter or traditional public schools. Therefore, students attending such schools are omitted from the sample.

**Closed Charters**

The sample omits observations showing attendance at a charter school that closed prior to the summer of 2002. Students attending such schools as 10th graders in 1999 were not able to remain enrolled through their expected graduation date in 2002.

**Campuses without 11th or 12th Grades**

The sample also omits observations with attendance recorded at a school that enrolled 10th graders but did not offer the instruction for the 11th or 12th grades. These 10th graders were unable to complete their secondary programs at the identified school.

**Campuses with Fewer than Five 10th Grade Students in Attendance**

The sample drops observations with attendance recorded at a Texas public school with fewer than five students attending the 10th grade in the fall of 1999. The small size of such programs may render student records personally identifiable and intrude upon student privacy rights protected by the Family Educational Rights and Privacy Act (FERPA).

**Limited Attendance**

**No Attendance: Fall 1999 Semester**

Because the focus of these criteria is to identify students with a campus of attendance for the fall 1999 semester, the sample omits student observations that
showed no attendance at any Texas public school during the fall 1999 semester (i.e., the first three attendance periods of the 2000 school year).

**Students Attending for One 6-week Period: Fall 1999**

The sample also omits observations with attendance recorded for only one of the first three attendance periods of 2000. Students' brief attendance at these campuses suggests that the schools had insufficient time to influence educational outcomes.

**Eliminating Duplicate Observations in Terms of Student IDs**

The following steps address only those student observations with attendance recorded at multiple campuses and use student attendance patterns to identify a primary campus of attendance for the fall of 1999.

**Consistent Attendance: 2000 School Year**

The sample retains student observations that demonstrated consistent attendance at a single campus for all six attendance periods of the 2000 school year. It drops additional observations for the student at campuses where attendance was recorded for five or fewer periods.

**Consistent Attendance: Fall 1999 Semester**

The sample retains observations with consistent attendance at a single campus for the first three attendance periods of the 2000 school year and drops duplicated records at campuses with inconsistent attendance over the three periods.

**Most Days Attended: Fall 1999**

Some students showed consistent attendance or sporadic attendance at two or more campuses over the first three attendance periods of 2000. In such instances, the sample retains the observation at the campus with the largest number of days attended.
Retain Observation at Campus of Enrollment

In addition to attendance data, PEIMS also collects enrollment data. Texas public schools are required to submit reports documenting their fall enrollment to TEA on the last Friday of October each year. Enrollment data were utilized to eliminate duplicate observations but were not useful for the larger purposes of sample identification because of many inconsistencies in the enrollment reports.

For students who attended two or more campuses for equivalent numbers of days over the course of the fall 1999 semester, the sample retains observations with attendance recorded at the campus of enrollment.

Most Days Attended: First Four Attendance Periods

The remaining duplicated student observations showed equivalent attendance at two or more campuses throughout the fall of 1999 and were not represented in the PEIMS enrollment data. For these observations, consideration of days attended extended to the fourth attendance period, and the sample retains the observation at the campus with the greatest number of days attended over the first four periods.

Remaining Duplicates

After the imposition of the steps cited above, five students exhibited identical attendance patterns at two campuses over the fall of 1999 (i.e., ten observations). These students were not included in the PEIMS enrollment data and showed no attendance in any Texas public school beyond the first semester of the 2000 school year. These observations were dropped.

Additional Restrictions
The steps described above eliminated all duplicate attendance records in terms of student IDs and identified each student with a unique campus of attendance for the fall of 1999. The criteria described below restrict the sample to students who were between 14 and 21 years of age in the fall of 1999 and to students who continued to attend their identified campus for at least three additional attendance periods beyond the fall 1999 semester.

**Age Restrictions**

The sample omits observations for students who were 21 years-of-age or older or 14 years-of-age or younger on September 1, 1999. Texas’s compulsory school law restricts public school admission to students who are “under 21 years of age on the first day of September of any school year” (TEC § 25.001). Because students aged 21 or older were subject to enrollment restrictions that did not apply to other 10th grade students, they were dropped from the sample. Although it may seem unlikely that 10th grade students who were 19 or 20 years old would have been able to complete their high school programs by the time they were 21, charter schools that offer accelerated instruction or GED preparation permit the rapid completion of high school, allowing older students to graduate or obtain a GED within the time allotted by Texas’s compulsory school law. For this reason, the sample retains overage 10th grade students.

While students aged 14 or younger and attending 10th grade classes in the fall of 1999 may have completed high school by the spring of 2002, they also may have graduated at a substantially later date and still have completed their high school programs on time. The sample omits these younger students because they were allotted considerably more time to graduate.
Persistent Enrollment Beyond the Fall 1999 Semester

While the attendance patterns of the students identified in the sample thus far indicated that students maintained attendance at a single campuses through the fall 1999 semester, it is unlikely that a school can substantially affect the likelihood of a 10th grade student graduating or obtaining a GED if the student attended classes for only one semester. In order to be certain that the campuses identified with each student had sufficient time to affect graduation outcomes, the sample was further limited to only those students who continued to attend classes at the identified campus for at least three additional attendance periods. That is, students attended classes at the identified campus for roughly the equivalent of one school year.
Table 3

Summary of Sample Restriction Omissions

<table>
<thead>
<tr>
<th>Omission Criteria</th>
<th>Observations Omitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special Circumstances Attendance</td>
<td>15,931</td>
</tr>
<tr>
<td>Campus Charters</td>
<td>83</td>
</tr>
<tr>
<td>Closed Charters</td>
<td>880</td>
</tr>
<tr>
<td>Campuses without 11th or 12th Grades</td>
<td>45</td>
</tr>
<tr>
<td>Campuses with Fewer than Five 10th Grade</td>
<td>123</td>
</tr>
<tr>
<td>Students in Attendance</td>
<td></td>
</tr>
<tr>
<td><strong>Limited Attendance</strong></td>
<td></td>
</tr>
<tr>
<td>No Attendance: Fall 1999 Semester</td>
<td>13,933</td>
</tr>
<tr>
<td>Students Attending for One 6-week Period: Fall 1999</td>
<td>10,391</td>
</tr>
<tr>
<td><strong>Eliminating Duplicate Observations in Terms of Student IDs</strong></td>
<td></td>
</tr>
<tr>
<td>Consistent Attendance: 2000 School Year</td>
<td>273</td>
</tr>
<tr>
<td>Consistent Attendance: Fall 1999 Semester</td>
<td>1,341</td>
</tr>
<tr>
<td>Most Days Attended: Fall 1999</td>
<td>2,132</td>
</tr>
<tr>
<td>Retain Observation at Campus of Enrollment</td>
<td>203</td>
</tr>
<tr>
<td>Most Days Attended: First Four Attendance Periods</td>
<td>23</td>
</tr>
<tr>
<td>Remaining Duplicates</td>
<td>10</td>
</tr>
<tr>
<td><strong>Additional Restrictions</strong></td>
<td></td>
</tr>
<tr>
<td>Age Restrictions</td>
<td></td>
</tr>
<tr>
<td>Students 21 and older on September 1,1999</td>
<td>28</td>
</tr>
<tr>
<td>Students 14 and younger on September 1, 1999</td>
<td>5,943</td>
</tr>
<tr>
<td>Persistent Enrollment Beyond the Fall 1999 Semester</td>
<td>23,220</td>
</tr>
<tr>
<td><strong>Sample Total</strong></td>
<td>247,658</td>
</tr>
</tbody>
</table>

Quantitative Sample

After imposing the restrictions described above, the study’s sample is comprised of 247,658 10th graders. Each of the sample 10th graders is identified with one primary campus of attendance for the fall of 1999, at which they continued to attend classes for
at least three additional attendance periods beyond the fall semester. Seventy-two of
the identified primary campuses are charter schools and 1,257 are traditional public
schools. Table 4 presents demographic information about the sets of students attending
each type of school.

Table 4

Sample Demographics by School Type

<table>
<thead>
<tr>
<th>Student Characteristic</th>
<th>Full Sample</th>
<th>Traditional Public</th>
<th>Charter</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>247,658 Students</td>
<td>245,897 Students</td>
<td>1,761 Students</td>
</tr>
<tr>
<td></td>
<td>1,329 Schools</td>
<td>1,257 Schools</td>
<td>72 Schools</td>
</tr>
<tr>
<td>% Male</td>
<td>51.04</td>
<td>51.05</td>
<td>50.01</td>
</tr>
<tr>
<td>Average Age</td>
<td>15.36</td>
<td>15.35</td>
<td>16.52</td>
</tr>
<tr>
<td>% Black</td>
<td>13.32</td>
<td>13.15</td>
<td>36.57</td>
</tr>
<tr>
<td>% Hispanic</td>
<td>34.30</td>
<td>34.24</td>
<td>43.21</td>
</tr>
<tr>
<td>% White</td>
<td>49.29</td>
<td>49.51</td>
<td>19.36</td>
</tr>
<tr>
<td>% Other</td>
<td>3.08</td>
<td>3.10</td>
<td>0.85</td>
</tr>
<tr>
<td>% At-risk(^a)</td>
<td>55.25</td>
<td>55.07</td>
<td>80.98</td>
</tr>
<tr>
<td>% Economic Disadvantage(^a)</td>
<td>38.70</td>
<td>38.66</td>
<td>44.75</td>
</tr>
</tbody>
</table>

\(^a\)The at-risk and economic disadvantage statistics are collected across the 2000, 2001,
and 2002 school years and follow the pattern of the variables ATRISK00_02 and
ECONDIS00_02 described in chapter 6.

Sample Identification: Qualitative Case Studies

The schools selected for case studies were identified following the methodology
of Wells, Lopez, Scott, and Holme (1999). Wells et al.’s 2-year qualitative study of
California’s charter schools, examined 17 charter schools that differed on a variety of
factors, including location, size, racial and socioeconomic diversity, type and duration of
charter, and philosophy of schooling. In an attempt to mirror the diversity represented in
Texas’s charter schools, this dissertation identified charters that differed in location,
size, chartering entity, duration of charter, type of student served, and programs offered
for case study analysis. Brief profiles of the case study schools are presented in Table 5.
### Table 5

**Overview of Case Study Charters Schools: 2002**

<table>
<thead>
<tr>
<th></th>
<th>The Achievement Project</th>
<th>Success Academy Charters</th>
<th>The Pencey Preparatory School</th>
<th>High Country Charter High&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Location</strong></td>
<td>Urban</td>
<td>Urban</td>
<td>Suburban</td>
<td>Rural</td>
</tr>
<tr>
<td><strong>Grades Served</strong></td>
<td>9-12</td>
<td>6-12</td>
<td>1-12</td>
<td>9-12</td>
</tr>
<tr>
<td><strong>Start Year</strong></td>
<td>1996</td>
<td>1999</td>
<td>1997</td>
<td>1999</td>
</tr>
<tr>
<td><strong>Conversion or Start-up</strong></td>
<td>Conversion</td>
<td>Start-up</td>
<td>Start-up</td>
<td>Start-up</td>
</tr>
<tr>
<td><strong>Number of campuses operated (2002)</strong></td>
<td>6</td>
<td>16</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td><strong>Enrollment (2002)</strong></td>
<td>1,607</td>
<td>2,119</td>
<td>799</td>
<td>201</td>
</tr>
<tr>
<td><strong>Number of Graduates (2001)</strong></td>
<td>399</td>
<td>157</td>
<td>n/a</td>
<td>37</td>
</tr>
<tr>
<td><strong>% Black</strong></td>
<td>53</td>
<td>27</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td><strong>% Hispanic</strong></td>
<td>41</td>
<td>51</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td><strong>% White</strong></td>
<td>6</td>
<td>21</td>
<td>60</td>
<td>90</td>
</tr>
<tr>
<td><strong>% Other</strong></td>
<td>0</td>
<td>1</td>
<td>23</td>
<td>1</td>
</tr>
<tr>
<td><strong>% Economic Disadvantage</strong></td>
<td>58.6</td>
<td>28.3</td>
<td>1.6</td>
<td>21.9</td>
</tr>
</tbody>
</table>

**Program Characteristics**
- Accelerated Instruction
- Open Entry/exit Enrollment
- At-risk Program
- Flexible Scheduling
- GED Program
- College Preparatory Program
- Vocational Program
- Accelerated Instruction
- Flexible Scheduling

Source: TEA (2002b); charter documents.

<sup>a</sup>High Country Charter High ethnicity percentages do not sum to 100 in TEA (2002b).
Methodology

Qualitative Methodology

Each case study charter school was visited in the spring of 2004. Site visits lasted a full school day and included an interview with at least one campus-level school administrator. In the case of the Achievement Project Schools, a chain charter, three campuses in separate cities were visited. Although Success Academy Charters also operates a chain charter, the school’s central administration limited case study visitations to campuses that it labeled “flagship” programs. Given the administration’s restrictions and scheduling conflicts, only one Success Academy campus was visited in conducting the case study.

In order to gather consistent information across schools, the study utilized the observation and interview protocols contained in the Appendix. The protocols guided the qualitative data collection process and provided a framework for analyzing the characteristics of each charter program.

Quantitative Methodology

This study’s quantitative analyses are divided into two chapters. Chapter 6’s analyses are limited to only those students who attended charter schools. It uses single equation probit regression techniques to assess the effects of charter school characteristics on the likelihood of a student graduating or obtaining a GED. Chapter 7 employs a larger sample of charter and traditional public school students and utilizes two-stage probit regression models that attempt to address the endogeneity of a student’s choice to attend a charter school in determining graduation outcomes. The
two-stage models are statistically more complex than those of chapter 6, and as discussed below, encounter some problems.

This section provides a general discussion of the single equation and two-stage approaches to probit estimation. The particular specifications of chapter 6 and 7’s regression models are reserved to their respective chapters.

**Binary Dependent Variables**

Each chapter’s regression models are estimated for three separate outcomes: (1) graduation with a diploma only (GRAD); (2) a broader definition of graduation, which includes both diploma graduates and GED recipients (GRAD/GED); and (3) completion of a GED only (GED). Each of these outcomes is binary in nature—a student either achieves the outcome \( Y_i = 1 \) or does not \( Y_i = 0 \). Models that are regressed on binary dependent variables are intrinsically nonlinear. As such, maximum likelihood estimation (MLE) is the appropriate method of estimation. As its name suggests, MLE estimates unknown coefficients such that the probability or likelihood of observing the given dependent variable is as high as possible. It produces unbiased, consistent, and efficient estimates provided regression models are correctly specified and are estimated using sufficiently large samples in which the distributions of the dependent variable and the error term are known.

Modeling GED outcomes in a binary framework poses some difficulties because a binary variable assumes that both the base \( Y_i = 0 \) and included \( Y_i = 1 \) groups are homogenous sets of observations. That is, the observations either obtained the outcome or they did not. In the GED model, however, the base group is not homogenous. Not obtaining a GED may indicate that a student dropped out of school,
or it may indicate that a student persisted in school and obtained a diploma. In order to
offset this limitation, models that estimate GED outcomes utilize samples that exclude
students who earned a diploma. In this way, the included group \( Y_i = 1 \) is comprised of
those students who obtained a GED, and the base group \( Y_i = 0 \) is comprised of
students who received neither a diploma nor a GED and are understood as dropouts.

The Probit Model

Let \( Y_i = 1 \) if a student obtained the specified graduation outcome (diploma or
GED) and let \( Y_i = 0 \) if otherwise. The equation expressing this problem is described
using the latent variable model:

\[
Y_i^* = \beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \ldots + \beta_K X_{ik} + \epsilon_i, \quad (1)
\]

where \( Y_i^* \) represents a continuous but unobservable index of a student’s ability to obtain
a diploma or GED; the \( X_i \)s represent independent variables expressing individual
student traits, urbanicity, school program characteristics, and so on; and \( \epsilon_i \) is a random
error term assumed to have a standard normal distribution with a mean of zero and a
variance of one.\(^1\) Although it is not possible to observe a student’s net ability to achieve
a graduation outcome, it is possible observe whether this ability reaches the threshold
required for graduation or GED completion. This frames observations such that

\[
Y_i = 1 \text{ if } Y_i^* > 0, \quad \text{and}
\]

\[
Y_i = 0 \text{ if } Y_i^* \leq 0. \quad (2)
\]

Thus, students graduate or obtain GEDs only if they demonstrate positive net ability to
do so. The probability that a student will obtain the desired graduation outcome is:

\(^1\)Greene (2003) finds the assumption of a normally distributed error term in latent variable models to be
an “innocent normalization”—if the scale of \( \epsilon_i \) changes, the underlying regression model involving \( Y_i^* \) may
change, but because the relationship between \( Y_i^* \) and \( Y_i \) depends on the sign and not the scale of \( Y_i^* \), the
observed regression remains the same (p. 669).
\[ \Pr [Y_i = 1] = \Pr [\beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \ldots + \beta_K X_{iK} + \varepsilon_i > 0] \]

\[ = \Phi [\beta_0 + \beta_1 X_{i1} + \beta_2 X_{i2} + \ldots + \beta_K X_{iK} + \varepsilon_i], \]

where \( \Phi [\cdot] \) is the evaluation of the standard normal cumulative density function.

Probit models are particularly sensitive to model misspecification and will produce inconsistent estimates if relevant regressors have been omitted or if models suffer from any form of heteroskedasticity. In order to control for possible heteroskedasticity, the regressions presented in chapters 6 and 7 incorporate the Huber/White/sandwich estimator of variance. The models use the Wald Chi Square test statistic in order to assess goodness of fit and the pseudo \( R^2 \) statistic as the coefficient of determination. The predicted value of \( Y_i \), or \( \hat{Y}_i \), is estimated using the mean value of the respective independent variable. Unlike linear regression models, probit parameter estimates do not represent the marginal effects of the regressors. The sign of a probit coefficient will provide some information about an independent variable’s effect, but the magnitudes of parameter estimates are not particularly meaningful. Once \( \hat{Y}_i \) has been estimated, however, the probability of \( Y_i \) occurring can be calculated by evaluating the standard normal cumulative density function at \( \hat{Y}_i \). This probability will equal the area under the function’s curve from \(-\infty\) to \( \hat{Y}_i \). Estimated marginal effects for individual regressors are calculated in a similar fashion and evaluate the probability density function using the probit estimates of the independent variables. The regression results presented in chapters 6 and 7 include the estimated marginal effects (\( dF/dx \)) and robust standard errors (\( SE \)) of independent variables as well as statistical significance measured at the 95% and 99% confidence levels.

**Two-Stage Probit Estimation**
As noted above, the two-stage probit approach is used in an attempt to control for the endogeneity of choice in models that estimate outcomes using both charter and traditional public school students. Including a choice variable, such as charter school attendance, as an independent variable in a single-equation framework will produce biased estimates if the choice is correlated with unobservable factors which affect the dependent variable and are relegated to the model’s error term. For example, if more academically able students self-select into charter schools and therefore graduate at higher rates, all else constant, then failing to control for this correlation will produce upwardly biased estimates of charter schools’ effects on graduation rates. In such situations, an auxiliary model is required to control for factors affecting the decision to attend a charter school.

The two-stage probit extends the single-equation framework discussed above to include an auxiliary model. The auxiliary model, or first-stage regression, estimates the predicted value of an unobservable regressor, in this case the decision to attend a charter school. This predicted value is then included as a regressor in the second-stage equations that estimate the outcomes of primary interest—graduation and GED attainment. This frames equations such that

\[ Y_{i1}^* = \alpha_0 + \alpha_1 X_{i1} + \alpha_2 X_{i2} + \ldots + \alpha_K X_{iK} + \varepsilon_i, \text{ and} \]

\[ Y_{i2}^* = \beta_0 + \beta_1 Y_{i1} + \beta_2 Z_{i2} + \ldots + \beta_K Z_{iK} + \xi_i. \]

In this dissertation, \( Y_{i1} \) is understood to be the dichotomous realization of whether a student chooses to attend a charter school (\( Y_{i1} = 1 \)) or otherwise (\( Y_{i1} = 0 \)), and \( Y_{i2} \) is the dichotomous realization of a student achieving the specified graduation outcome (\( Y_{i2} = 1 \)) or otherwise (\( Y_{i2} = 0 \)). The latent variable \( Y_{i1}^* \) is understood as a continuous index
of a student’s desire to attend a charter school, and $Y_{i2}^*$ is a continuous index of a
student’s ability to obtain the specified graduation outcome. This frames observations
such that

$$Y_{i1} = 1 \text{ if } Y_{i1}^* > 0,$$
$$Y_{i1} = 0 \text{ if } Y_{i1}^* \leq 0.$$  \hspace{1cm} (6)

And

$$Y_{i2} = 1 \text{ if } Y_{i2}^* > 0,$$
$$Y_{i2} = 0 \text{ if } Y_{i2}^* \leq 0.$$  \hspace{1cm} (7)

In chapter 7’s analyses, the first-stage equation estimates an imputed probability
of a student attending a charter school based on demographic characteristics and work
habits as well as the student’s attendance patterns, and disciplinary records, during the
previous school year, and whether the student had been retained in the 9th grade. The
imputed probability of attending a charter is then included as an independent variable
(PCHARTER) in second-stage estimations of the three graduation outcomes: GRAD,
GRAD/GED, and GED.

This procedure results in some substantial statistical difficulties. One problem is
that PCHARTER is an estimate of an unobserved variable—the likelihood that a student
will attend a charter school—and as an estimate, it possesses sampling error. The
inclusion of the estimated unobservable and its sampling error in the second-stage
equation produces biased estimates of second-stage the models’ variance statistics,
resulting in understated second-stage standard errors and unreliable tests of statistical
significance. Murphy and Topel (1985) and Hardin (2002) have suggested procedures
that will calculate the correct variance for second-stage regressions that include imputed unobserved regressors. These procedures are discussed in chapter 7.

A second statistical problem results from the manner in which the decision to attend a charter school is modeled in this study. Based on the interviews with charter school administrators included in the case studies of chapter 5, the choice to attend a charter school in the 10th grade is expressed largely as a function of students’ attendance and discipline habits during the previous school year and whether a student was retained in the 9th grade. While this results in a particularly well-fitted model of charter school choice, the approach is problematic because it expresses decision to attend a charter school using endogenous instruments that are correlated with graduation outcomes. That is, the qualities that determine charter school attendance also affect the likelihood of a student graduating or earning a GED.

In some instances, researchers have been able to design estimation approaches that incorporate exogenous instruments of school choice. For example, in a study of differences in graduation outcomes between public and private Catholic schools, the first-stage regression estimated the probability that students were Catholic based on survey data that included questions about students’ religious affiliations and practices. The study’s authors reasoned that Catholic students were more likely to choose Catholic schools and that the choice to attend a Catholic school was exogenous to the model because being Catholic did not influence the probability of a student graduating (Evans & Schwab, 1995).

Given data limitations, such an instrument was not available for this study. And, as discussed in chapter 7, even if detailed data on students’ family backgrounds,
income levels, and household attributes were available, it seems unlikely that such an instrument could be found for Texas’s charter high school students. The reason for this, as this study strives to demonstrate, is that for high school students in Texas, the choice to attend a charter school is frequently motivated by the perception that a student is unlikely to graduate from a traditional public school.

Summary

This study utilizes the quantitative and qualitative methodologies discussed in this chapter to assess how charter schools affect the likelihood of students graduating or obtaining a GED. The results of the qualitative analyses are presented in chapter 5’s case studies. The case study schools provide practical examples of how each of the charter school program characteristics included in chapter 6’s regressions are implemented at the school level and frames expectations of how the charter school program traits may affect student outcomes.

Chapter 7’s analyses also rely on data gathered in the case studies. The interviews with campus-level school administrators provide valuable insight into the reasons that students choose to attend charter schools. This information informs chapter 7’s regressions and establishes the rationale for modeling charter school choice as a function of students’ attendance and discipline patterns. As noted above, this approach confronts statistical problems that substantially limit the inferences that may be drawn from chapter 7’s second-stage regressions. The first-stage model of school choice, however, is unaffected by the variance and endogeneity issues that trouble the second-stage models. As discussed in chapter 7, the strong fit of the first-stage model
points to important inferences about the reasons students choose to attend charter high schools and the role charter high schools play in Texas public education.
This chapter presents case studies of four charter school programs that served sample students over the course of the 2000, 2001, and 2002 school years. Following the methodology of Wells, Lopez, Scott, and Holme (1999), case study charters were chosen because they differed on a variety of characteristics, including size, location, chartering entity, instructional focus, and type of student served. Two of the case study charters, the Achievement Project and Success Academy Charters, are urban programs that focus on the needs of at-risk youth. Although these programs are similar in some respects, both are included as case studies because they present different approaches to meeting the needs of at-risk youth. All case study schools are identified by pseudonyms.

Each of the charter programs described in this chapter is defined by some of the qualitative characteristics described in chapter 2, and each characteristic is represented in at least one school.¹ The case study descriptions of the schools and their programs attempt to understand how these characteristics affect day-to-day school operations and influence student outcomes and provide a context for chapter 6’s analyses, which include the characteristics as variables in regressions on graduation outcomes. Table 6 lists the characteristics, their regression variable names, the percent of sample charters defined by each characteristic, and the percent of sample students enrolled.

¹One-race schools are understood as a single characteristic with four classifications: one-race Black, one-race Hispanic, one-race White, and not one-race. Only one classification of the one-race characteristic is presented in this chapter’s case studies—one-race White.
Each case study includes an overview of the charter school’s instructional program, a discussion of how Table 6’s characteristics are represented in the school, a description of classroom instruction, and interview responses from charter school personnel. The case studies also describe some characteristics unique to each school and examine the relationships between charter schools and traditional public schools.

### Table 6

**Charter School Qualitative Characteristics: Percent of Schools and Students Enrolled**

**Fall 1999**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Variable Name (Chapter 6)</th>
<th>% of Schools (n = 72)</th>
<th>% of Students Enrolled (n = 1,761)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vocational Program</td>
<td>VOC</td>
<td>37.50</td>
<td>39.80</td>
</tr>
<tr>
<td>College Preparatory Program</td>
<td>COL_PREP</td>
<td>9.72</td>
<td>9.48</td>
</tr>
<tr>
<td>Accelerated Instruction Program</td>
<td>ACCEL</td>
<td>80.56</td>
<td>87.62</td>
</tr>
<tr>
<td>Open Entry/exit Enrollment</td>
<td>OPEN</td>
<td>34.72</td>
<td>31.97</td>
</tr>
<tr>
<td>GED Program</td>
<td>GED_PROG</td>
<td>41.67</td>
<td>59.57</td>
</tr>
<tr>
<td>Flexible Scheduling</td>
<td>FLEX</td>
<td>43.06</td>
<td>64.79</td>
</tr>
<tr>
<td>Chain Charter</td>
<td>CHAIN</td>
<td>48.61</td>
<td>52.92</td>
</tr>
<tr>
<td>At-risk Charter</td>
<td>ATRISK_CH</td>
<td>87.50</td>
<td>91.82</td>
</tr>
<tr>
<td>Conversion Charter</td>
<td>CONV</td>
<td>13.89</td>
<td>22.83</td>
</tr>
<tr>
<td>One-race Charter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One-race Black Charter</td>
<td>OR_BLK</td>
<td>8.33</td>
<td>5.62</td>
</tr>
<tr>
<td>One-race Hispanic Charter</td>
<td>OR_HISP</td>
<td>20.83</td>
<td>20.73</td>
</tr>
<tr>
<td>One-race White Charter</td>
<td>OR_WHT</td>
<td>1.39</td>
<td>0.79</td>
</tr>
<tr>
<td>Not One-race Charter</td>
<td>OR_NOT</td>
<td>69.44</td>
<td>72.86</td>
</tr>
</tbody>
</table>

Perhaps the most striking aspect of Table 6’s statistics is the difference in the number of students enrolled in at-risk and college preparatory programs. More than 90% of sample charter students attended a charter for students at risk of failure or dropping out and less than 10% attended a college preparatory program. This trend
may be explained, in part, by Texas’s emphasis on at-risk charter schools, but the lack of academic programming at the high school level may also reflect the challenges charters face in attracting and retaining high school students. As small schools, charters generally are not able to provide the wide range of academic and extracurricular programs offered by comprehensive public high schools. Swim teams, marching bands, and, in Texas, large-scale football programs exert a strong appeal for high school students, and for college bound students, the broader range of district high school offerings provides greater opportunities for college resume building. Enrollment trends suggest that many college preparatory charters lose students as they matriculate into high school. Like the Pencey Preparatory School described below, most of Texas’s college prep charter high schools also offer academic elementary programs. And while most of these charters had crowded elementary grades, their enrollments dropped markedly in high school. Several such schools were omitted from analyses because they enrolled fewer than five 10th grade students in the fall of 1999 or did not offer the 11th or 12th grades in the subsequent school years.

Case Study: The Achievement Project

The Achievement Project (AP) is currently Texas’s largest charter school program in terms of student enrollment. Over the course of the 2004 school year, AP schools reported enrollment of more than 6,000 students (AP Annual Report: 2003). The AP is an at-risk program for students in grades 9 through 12 which currently operates 11 campuses in six Texas cities. The AP is a conversion charter school and prior to converting to charter status in 1995, had 20 years experience working with at-risk, urban youth. The AP began as a ministry for adjudicated youth in 1976 and
expanded into an urban GED program in 1985. When Texas passed its charter school law in 1995, AP administrators rapidly adapted the GED program to include the curricula and coursework necessary for the completion of a high school diploma. The AP was among Texas’s first 20 charter recipients and opened its first charter campus in September 1996.

The AP case study is comprised of site visits to three AP campuses in three Texas cities. One campus is located in the downtown area of a large Texas city. It was the first AP charter school site and was home to the AP’s GED program prior to 1996. It occupies a former bank building that has been renovated to include classrooms, offices, computer labs, and a small cafeteria area. The second campus is located in a residential section of a mid-sized Texas city. This program occupies an elementary school space belonging to a Catholic church along with some portable buildings set up behind the school. The third site is the AP’s only suburban program. The suburban campus occupies a facility that had once been a health club, and like the bank building described above, had been renovated to accommodate the needs of a school. Each site’s classrooms were small and contained expected features such as desks, whiteboards, bulletin boards, computers, overhead projectors, shelves for textbooks, spaces for student work, and so on. At each AP campus a uniformed police officer occupied a desk in the main entry way and remained visible throughout the school day.

The Achievement Project Program

The AP’s mission is to “provide a second chance for academically at-risk youth and for their families to achieve economic independence and hope for a better life through relationship-based education” (AP Charter School Student Handbook). To
achieve this mission, AP schools provide students with considerable flexibility in attending classes, offering open entry/exit enrollment, flexible scheduling, and accelerated instruction. The AP school year is broken into four 9-week semesters and a 3-week summer school session. Students attend school for 4 hours each day and may attend classes in either a morning (7:45 a.m.-12:00 p.m.) or afternoon (12:45 p.m.-5:00 p.m.) session. Students may enroll at the start of any semester and may withdraw without losing credits at the conclusion of any semester. Over the course of each semester, students take four 55 minute courses and earn half a credit for each passed course. Students may earn 2 credits per semester and an additional credit if they attend a 3-week summer school. This schedule enables students to complete up to 9 credits a year and the 22 credits required by Texas’s Minimum Graduation Plan in about two and a half years. Posters placed in AP classrooms apprise students of their progress in terms of credits:

<table>
<thead>
<tr>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-22</td>
<td>Senior</td>
</tr>
<tr>
<td>12-17.5</td>
<td>Junior</td>
</tr>
<tr>
<td>6-11.5</td>
<td>Sophomore</td>
</tr>
<tr>
<td>0-5.5</td>
<td>Freshman</td>
</tr>
</tbody>
</table>

For students who have completed 22 credits but are unable to pass the state exit-level exam required for graduation, the AP offers intensive TAKS (previously TAAS) preparation courses. TAKS students attend a half-day (2 hour) program. Some TAKS students completed their coursework at traditional high schools and were referred to the AP for the TAKS preparation classes. Several AP campuses also offer a Saturday school for struggling 9th grade students. Many of these students transferred from district schools where they had been retained, some for more than 3 years, in the 9th grade.
The Saturday school is a computer-based credit recovery program that allows students to earn additional credits while attending regular Monday through Friday classes. Saturday school students work independently on self-paced computerized units developed by Plato Learning (PLATO). In this way, students are able to address their deficiencies in Texas’s 9th grade curriculum, but are able to move forward with some subsequent coursework.

Weekday classes are taught by instructors in a traditional classroom format and some courses also incorporate PLATO units into the curriculum. In order to attend classes, students are required to wear a uniform of a white collared shirt and belted khaki trousers or skirts that fall below the knee. Some students carry backpacks, but they do not bring any books or materials with them to class. All instructional materials and student work remain in the classroom. Teachers maintain a set of classroom folders for students’ daily work and homework generally is not assigned.

The AP Approach to Classroom Instruction

AP classrooms vary in their instructional approaches. In some classes, such as a combined world history, economics, and geography course, students worked independently on study packets and worksheets focused on subject matter preparation for standardized tests. Other classes implemented a direct-instruction approach, in which the teacher cited class objectives and directed activities. The quality of instruction varied widely. In one math classroom, a teacher led a game show-styled review of basic geometry in preparation for final exams. About a third of the class’s 18 students actively participated and other students appeared engaged. The review took about 45 minutes and the last 10 minutes of class students sat and talked quietly. In a second classroom
on the same campus, students reviewed for an exam in criminal law. The review was short, lasting 15 minutes, and incorporated a teacher-developed worksheet that included fictional crime scenarios involving various media personalities. The remaining 40 minutes of class, the teacher, who had worked as an attorney, talked on a variety of topics, including Texas’s state prisons, the incarceration of Lynette “Squeaky” Fromm, the salaries of dentists, the benefits of e-filing taxes, debit vs. credit cards, and Lubbock’s Buddy Holly statue. Several of the class’s 10 students slept despite the teacher’s repeated prompts that “nap time is over,” and another listened to music on a portable CD player. In a third classroom on the same campus, an English teacher had no review prepared for an exam covering Arthur Miller’s play *The Crucible*. The teacher explained that the review was supposed to be a video but that Blockbuster did not carry the film version of the play. The teacher darkened the lights and students rested their heads on their desks. One student rifled through a classroom closet and produced a *History Channel* video on the Salem witch trials. Most students continued to sleep while the video played.

On another campus, a teacher in a senior-level English class presented a lesson on how to address an envelope. The need for such instruction was recognized when the school’s registrar asked students to address envelopes to their homes, and many students were unsure how to approach the task. After students had addressed their envelopes, they worked on a paragraph writing assignment. The teacher worked one-on-one with several students and most students remained on task throughout the 55-minute period. On another AP campus, a math instructor opened class with a journal writing assignment and then provided graphing-calculators to each of the class’s 18
students for a lesson that encompassed Texas Assessment of Knowledge and Skills (TAKS) objectives related to the geometry of triangles and basic algebra. The teacher monitored students as they worked and encouraged students, underscoring the value of effort and reminding students that they would not know their potential unless they tried. All students worked through the lesson, which lasted the entire class period. In an English class on the same campus, a first-year teacher had decorated her classroom with bright posters describing the elements of plot and had filled a bookshelf with books that she loaned to students. The class’s 20 students worked for a portion of the period on a lesson of frequently confused words (e.g., accept and except) and the remainder of the period was spent on independent reading or writing assignments.

**Relationship-based Education**

The AP stresses the importance of strong personal relationships in keeping at-risk youth in school and emphasizes the role of counselors as well as teachers in supporting student achievement. Each AP school maintains a 45-to-1 student-counselor ratio. Counselors are charged with keeping track of students’ attendance and are required to follow-up with an immediate phone call if a student fails to attend school. According to one counselor, attendance and behavior issues are the primary reasons students enroll in AP schools:

> The majority of our students, in my opinion, they have attendance problems. That is the main reason why they’re here—because their attendance at other schools or their behavior at other schools warranted them to be put out or truancy was filed. And they transfer out before the truancy catches up with them, but it stays with them. Some students attend truancy court while they’re attending school here.

He explained that that AP counselors work closely with students’ families to identify solutions to attendance problems:
We try to find out: What’s the problem?...You may have a 14-year-old whose parents may say “You have to stay here and keep your little sister today because I got to go to work.” So he’s gonna miss school. So we deal with the parents—“What can we do? What are your hours of employment? Let’s see if we can put him in a schedule where he can attend school in between so he won’t miss.”—We try to give a personal note with the parent and the child to see why [the child is] missing school.

In addition to attendance issues, counselors assist students with “personal/social, family, emotional, academic, or chemical dependency needs” and maintain contact with external student support agencies (AP Charter School Student Handbook). The counselor cited above explained that, like him, many AP counselors have backgrounds in the criminal justice system:

For here, that helps a lot because...some of our students, like I said, are on probation, parole, truancy, so they attend court. And what that’s doing is, me being a PO (probation officer) before, I know what [probation officers] do and what they don’t do. So [students] can’t come tell me that [their] PO is sending [them] to boot camp this weekend. I say, “I’ve never heard of that—you go to boot camp on the weekends?” So, we take [the student] and say, “Okay, I’ll call your PO, because that’s something new. When I was a PO, we didn’t do that.” …We have close contact with the POs.... [The students] can’t just come in and tell me anything without me verifying it with a reliable source.

The AP’s emphasis on relationships is underscored in the school’s “Winner’s Circle” awards assembly in which teachers and counselors celebrate student achievements and present awards to students who have mastered difficult lessons, maintained perfect attendance, improved negative attitudes, and remained focused on goals in the face of mounting obstacles. Students invite family members and friends to the lively assembly, which opens with students singing, “I am a winner, I’ve got to be a winner, I am a winner now!”

Graduation and GED Outcomes
In the foyer of the AP’s longest operating campus, a large blue banner reading “We Make Winners!” stretches across a wall covered with copies of diplomas of recent graduates. The AP celebrates graduation twice a year, holding winter and summer commencement ceremonies in each city where an AP campuses is located. In 2004, more than 1,500 students graduated with a high school diploma from AP schools (AP Web site).

The AP maintained its GED preparation program along with the high school diploma program through the 2003 school year. In 2002, Texas implemented legislation that reduced funding for students attending in-school GED preparation programs at the same time the American Council on Education (ACE) increased the test’s difficulty. The funding cuts coupled with the increased rigor of the GED led AP administrators to discontinue the school’s GED offering. Now all AP students complete the program with a high school diploma.

The AP’s GED program was implemented as a self-study program. Students worked independently on workbook and computer-based study units developed for GED test preparation. Instructors and volunteer tutors were available to assist students who encountered difficulties mastering concepts. When students were successfully able to pass a practice GED subject test, they received a voucher to take the actual test at a testing center operated by the GED Testing Service. Students generally prepared for and took the five GED subject tests one at a time.

Recognizing that not all at-risk students are able to successfully complete the requirements for graduation, the AP maintains close contact with community college GED programs. It refers students whose circumstances prevent them from graduating
and encourages them to remain in the community college program after they have received a GED.

Flexibility and At-risk Youth

The AP’s program is structured to accommodate the needs of at-risk high school students, many of whom are parents or must work. Frequently, these students are unable to maintain attendance in district schools that require a longer school day and are more rigid in their attendance policies. The AP surveys students about the reasons they enroll and students consistently cite the 4 hour school day as the school’s primary appeal. A principal who has worked at multiple AP campuses explained, “Four hours is awesome for [students] to come to school…. Everybody wants to be in the morning because they want to have the rest of the day to work or play or take care of their kids.” When the principal moved to second campus in a different city, however, she noted that attendance patterns changed because the city had different employment opportunities: “There’s a lot of jobs in [city name] that kids are able to work at night, overnight. So they like being able to go home and go to sleep and come in the afternoon.”

The flexibility of the 9-week open entry/exit semester system permits students to continue in school despite problems that may interrupt their attendance. An AP principal explained that students who are in danger of dropping out sometimes need time away from school in order to take care of issues that interrupt their schooling:

Our kids come with so much baggage. What I really try to do is when they’re getting ready to dropout, I call them in and tell them, “Look, this is what I’ve noticed”—a lot of times kids don’t realize, me being the principal, that I’ve actually noticed what’s going on with them. And I like to say that I do have a good relationship with the kids, and part of that is being able to meet with them when they enroll. But I don’t know everybody’s story. When the counselors keep me informed, I try to keep everybody’s story straight. But I do feel that part of what makes us successful is that the kids know that we care about them. And so what
I will say, “I’ve noticed your grades and you’re doing really well. And I know that you have issues, but I want you to know—go ahead and take the 9 weeks off. Take care of your business. Take care of your situation and come back.” And I would say nine out of ten times, the kids come back. Some have taken a little bit longer than 9 weeks, but they usually come back.

This is a markedly different approach to attendance than that of most traditional district schools. In district programs, students who must leave school during a semester risk losing credits for all incomplete courses and frequently must repeat classes or make up an entire semester’s coursework when they return.

**Relationship with Traditional District Schools**

At the outset, some AP schools have experienced tension with traditional district programs. Local districts’ concerns over lost enrollment and reduced per-pupil expenditures caused some initial difficulties for students seeking to attend one AP program. The principal explained that her program drew students from a large urban district and a small suburban district:

At first [the districts] were very hesitant, of course, because they saw it as us taking their money. You know and we really had to explain to them that a lot of the kids that we get anyway—I would say 30% of those kids have been out of school for a year or two. So [districts] are not getting money for them anyway, and when we pick them up, that comes off [the districts’] accountability because [the students] are no longer a dropout. They’re now a student somewhere else. And so, I think that the first two semesters were really hard for us….

[The large urban district] was more alarmed because the kids wanted to come here, you know. And [the students] were like “We want to go there. We’ve been waiting for that school to open up.” And so they threatened the kids, “Well, if you go there, you can’t come back here. Your credits will not transfer.” It took us just knowing some [urban district] officials and to say, “Hey, this is not acceptable. We are accredited by TEA and do not threaten the kids.”…But after we established a good relationship and after they realized that the kids that wanted to come here were the kids that they wanted to kick out, unfortunately, they were like “Oh, okay” and they started referring. Like they started cleaning house and sending them to us.
While the traditional districts described above were slow to warm up to the AP, some districts have been quick to recognize the advantage in having an independent alternative program in the neighborhood. After learning about the AP on a local television talk show, one suburban district superintendent asked AP administrators to open a school in her district. In response to the request, the AP opened its first suburban program in the fall of 2003. The suburban AP principal explained:

[The traditional district] felt that [an AP school] in this area would serve the students that were not doing as well in their system as they would like them to do. So, they thought that this [program] might serve [the students] better, and so they actively sought us to come in here.

One semester after opening, the suburban AP was full, enrolling more than 200 students in each its morning and afternoon sessions. The principal estimated that 70% of his students were referred from the suburban district and that the primary reason for referrals was attendance issues.

The local school district in another Texas city also welcomed the AP. It permitted AP students to use portable classrooms on district property and later sold the AP a vacant district school in which to permanently house its program.

Case Study: Success Academy Charters

Success Academy Charters (SAC) began serving students in 1999 and is Texas's largest charter school program in terms of campuses, operating 17 campuses in 17 Texas cities in 2005. The campuses are generally located in urban areas and, like the Achievement Project, the SAC program is tailored to the needs of students at risk of failure or dropping out. SAC schools enroll students in grades 6 through 12 and provide a self-paced program in which students work independently on study packets and computer-based units. Course credits are measured in the number of packets or units a
student is successfully able to complete. Students work at their own pace and when they have completed the work equivalent to the 22 credits required by the Minimum Graduation Plan, they may graduate. Because all work is completed independently, students may enter and exit at any time during the course of the school year. When students exit and return, they resume work on the units they were completing at the time of their departure and do not lose credit for any work completed before they left the program.

The SAC campus visited for this case study was housed in a storefront location in a residential section of a mid-sized Texas city. The interior of the school was a large room in which study carrels were arranged to create four smaller learning areas or classrooms. Each classroom space was made up of about 40 carrels, a teacher’s desk, and a long table in the center of the space. During the case study visitation, only two of the classrooms were in use, and within each of these, students occupied about a quarter of the carrels.

While SAC does not require that its campuses implement a formal dress code, individual school directors may require uniforms. The students at this SAC campus were required to wear khaki or black trousers and collared shirts that were to remain tucked in. The principal asserted that by taking care of little problems such as dress code issues, the school had been able to avoid bigger problems. He explained that when he took over the principal’s position the previous school year, a uniformed police officer was needed on campus at all times. This year there had been no student fights and there was no need for the officer.
The Success Academy Charter Program

SAC students are assigned to a study carrel and are encouraged to personalize the space with decorations. The program requires that students work independently at their carrels and request help by displaying either a yellow or a black flag on plastic mount at the top of the carrel. The yellow flag is displayed if a student’s question requires a yes or no answer, and the black flag is displayed if the question requires some explanation. If a teacher is assisting someone else, students should raise the appropriate flag and continue working until the teacher is able to attend to their question.

Students work either on packets entitled “DiscoveryUnits” or on “OdysseyWare” computer lessons. A student must complete a set of ten DiscoveryUnits or OdysseyWare lessons in a subject in order to earn a credit. For subjects, such as economics, where only half a credit is required for graduation, students must complete only five units or lessons. A computer orientation advises students that they must complete at least one lesson unit every 2 weeks in order to maintain satisfactory progress. When students complete a DiscoveryUnit, they alert their teacher. The teacher initials the packet, indicating that it is now appropriate for the student to grade his work. Grading takes place at the long table in the center of the learning area and is completed by students using an answer key. The orientation spells out the exact procedure for marking incorrect answers and scoring packet work. Students must complete DiscoveryUnits with 70% or more correct work in order to take tests, and if they answer 70% of the test’s questions correctly, they receive credit for the unit.
OdysseyWare computer lessons and tests are monitored and checked by the computer program.

Students attend school from 8:00 a.m. to 3:00 p.m. The day is divided by a 30 minute lunch period at noon and a 20 minute break during the course of the both morning and afternoon. The campus is closed and students are not permitted to leave during any of the breaks. In the fall of 2004, this SAC campus will begin permitting high school students to leave at 1:30 if they are making sufficient academic progress and have consistent attendance. Middle school students will continue to attend school until 3:00 p.m. SAC site administrators have the authority to design school schedules, and a principal in another SAC school implements the two 4-hour sessions schedule used by Achievement Project schools.

Classroom Instructional Approach

There was little classroom teacher-student instruction in the SAC program observed for this case study. At the start of the school day, teachers held a brief meeting with students in order to take roll and attend to administrative tasks. Students then said the Pledge of Allegiance and observed moment of silence.

After the moment of silence, students settled into their carrel spaces and began working on independent study units. During the course of the morning, there were few teacher-student interchanges and little discussion among students. By mid-morning several students were sleeping and some girls had set up mirrors in their carrel spaces and were applying make up. The teacher, who had recently served as the school’s receptionist, sat at a central desk, calling out instructions and reminding students to wake up.
At the morning break, students moved to the small cafeteria area and sat together at tables. A few students chatted, but most students appeared not to know their classmates and sat in silence.

**Character-based Education**

SAC’s mission is “to provide each student with personalized, high-tech, character-based learning tools and techniques in a safe, positive environment in preparation to reach his/her maximum potential and achieve a successful future” (SAC Student/Parent Handbook). The SAC program is adapted from a Christian values-based curriculum used by home-schools and private Christian schools. In an interview in *The Austin Chronicle* newspaper, one SAC principal explained the adaptation:

> We took the Christian vernacular out and put in character traits that reflect our values. Almost everyone in [SAC’s] management has been in the ministry, but that isn’t a requirement. I think that faith does help the staff here have more patience with the kids. We are here to help change lives, but we don’t preach to the students. It’s more that we want to be an example of healthy living (“Chartered well,” April 4, 2003, On-line).

Concern over mismanagement at some campuses has caused SAC to reduce its reliance on ministers as school directors. The principal at the SAC program visited for this case study had a Ph.D. in education and had worked as an administrator in several traditional district schools. He was new to SAC in 2004 and explained that the principal he replaced had been fired for misappropriating funds. In order to offset the damage done to the school’s reputation by poor leadership, the new principal had hired a marketing specialist to visit surrounding districts and promote SAC’s program.

**Relationship with Traditional District Schools**
Like the Achievement Project Schools, SAC gets most of its enrollment through referrals from traditional districts. The principal estimated that about 80% of his school’s enrollment had been referred by district schools. He explained:

That’s good and it’s bad. What happens is that there’s been a metamorphosis with the regular I.S.D.s, specifically the [urban district] referring students to us. Earlier in the year, from my perception, what the [urban district] saw is “Oh, great. Here is a great place to dump all of our kids that have truancy problems or our special ed kids, too. They’re having discipline problems and truancy problems.” And so we saw an extraordinary amount of students come for those reasons. We heard stories how the regular I.S.D. high school would tell students that they couldn’t go to school there anymore—to the regular district school. And that they had to withdraw and had to go to a different school and then they referred them to a charter school, such as [SAC].

In order to stem the referrals for discipline and attendance issues, the principal scheduled meetings with the urban district’s counselors and attendance officers to let them know that

[SAC] is not just a dumping ground anymore. That’s the way we were in the past, but our goal is to educate kids. And we’re not just here to take all the, all the leftovers. And so hopefully we’ve kinda got that straight.

**For-profit Management**

While Texas charter schools must remain nonprofit entities, they are permitted to contract school management and instructional services from for-profit educational management organizations (EMOs). SAC’s schools purchase management services from the for-profit Success School Management (SSM).\(^2\) SSM’s Web site indicates it provides “Public School Administration management solutions” for functions such as financial services, human resources, TEA accountability, facilities acquisitions, curriculum, grants, charter applications and renewals, special education, and so on. The principal at the case study school explained that SSM takes care of the central office

---

\(^2\)Success School Management is a pseudonym.
responsibilities of managing schools. “They work very well with us,” he said “…They are a group of good-hearted people—a group of Christian people, actually, especially in upper management—that really have kids’ interests at heart. So they work very well with us.”

SSM occupies the same street address and suite number as SAC’s central office administration, and until TEA objected, SAC’s superintendent also served as the CEO of SSM. Success Academy Charters are the bulk of SSM’s business. The principal cited above thought that SSM had some contracts with other charters, but he did not know which schools. A review of TEA’s “Charter School Amendments” found entries indicating SSM contracts for all of SAC’s schools, but for no other charters. The Austin Chronicle reported that the CEO/Superintendent is also a partner in the publicly held publishing company that produces SAC’s DiscoveryUnits and OdysseyWare computer programs (“Chartered well,” April 4, 2003). At the request of TEA, he resigned his position as SAC’s superintendent and now acts only as Success School Management’s CEO.

Case Study: The Pencey Preparatory School

The Pencey Preparatory School (TPPS) is located in a suburb of a large Texas city and provides a rigorous college preparatory program for students in grades 1 through 12. Pencey offers a liberal arts curriculum that emphasizes a global point of view and foreign language studies. Its mission statement reads:

We believe all children should have an education that empowers them to reach their highest potential and inspires a love of learning. We provide a challenging curriculum that not only encourages children to raise the level of expectations that they place upon themselves, but also motivates them to become successful leaders. Strong parental involvement with enthusiastic and knowledgeable teachers ensures an environment of honesty and respect, in which students
embrace the ideals of responsible citizenship locally and around the globe (TPPS Student Handbook).

At its inception, Pencey was planned as a tuition-charging private school. Several prominent community leaders were concerned with lack of educational opportunities in the area and were developing plans for a private academic program. When Texas passed its charter school law in 1995, Pencey’s founders revised their plans and designed Pencey as a charter school.

Although Pencey was among the first 20 schools to receive a charter in 1996, administrators delayed opening for a year and used the interim period to develop the school’s academic program. When Pencey opened in the fall of 1997, it served students in grades 5 through 8. The school added a subsequent grade each year to accommodate students as they progressed, and when the school moved to its current location in 2001, it added grades 1 through 4.

Pencey currently shares space with an equestrian center. Its small classrooms have been shaped out of office and barn space, and the school’s library was once a tack shop. Although crowded, the school’s classrooms were well equipped and included computers, shelving for texts, overhead projectors, large whiteboard spaces, and displays of student work. At the time of this case study, Pencey administrators were negotiating with property owners to purchase the stables, riding ring, and paddock space that adjoined the school. The purchase would enable Pencey to expand its program, relieve its cramped classrooms, and enroll more of the students on its waiting list.

Pencey draws its enrollment from three large suburban school districts as well as some private schools. In the spring of 2004, it was oversubscribed and had a waiting list
of 300 to 350 students, most whom were in the elementary grades. When oversubscribed, Pencey admits students by lottery with preference given to children who have siblings already enrolled in the school. After applying to Pencey, prospective students and their parents are required to attend a conference with a school administrator. Both parent and student are required to sign a “letter of commitment” indicating that they accept the responsibilities of the school’s challenging program. As permitted by Texas’s charter school law, Pencey denies admission to students with histories of discipline problems or adjudication (TEC § 12.111(6)). The school’s admissions office thoroughly checks previous discipline records during the admissions process and students who are admitted on the “basis of incomplete or false records shall be subject to having their admission revoked” (TPPS Student Handbook).

Once admitted, Pencey students must to observe a strict uniform policy and dress code. High school students must wear a navy blazer Monday through Thursday, uniform pants or skirts, and a white button-down shirt. On Mondays, young men are required to wear a tie and girls must wear the uniform skirt or jumper. The school requires conservative hair cuts and natural hair color and prohibits girls from wearing make up before they are in the 7th grade. Male students are prohibited from wearing earrings, make up, or nail polish at any time (TPPS Student Handbook).

The Pencey Program

Pencey students in grades 1 through 4 attend school from 8:00 a.m. to 3:00 p.m., and students in grades 5 through 12 attend from 8:15 a.m. to 3:30 p.m. High school courses are arranged in “block A/B” schedules, in which students attend one set of four classes on “A” days and a separate set on “B” days. Classes are 90 minutes long and
students also are required to attend a 20 minute advisory period each day. Pencey requires 29 credits for graduation and all student complete either the Recommended or Distinguished Achievement Graduation Plans. In order to graduate, high school students must complete 4 years (4 credits) of math, science, English, and a foreign language, and five semester-long (half credit) courses in social studies (i.e., world geography, world history, U.S. history, economics, etc.). Additional requirements include a year and a half of physical education, semester courses in health and speech, a year of fine arts and technology coursework, and seven semesters (3.5 credits) of elective courses. Pencey offers pre-Advanced and Advanced Placement courses in English, history, math, science, and foreign languages. In addition to coursework, high school students are required to complete a minimum of 100 hours of community service in order to graduate.

TPPS’s school director previously served as an administrator in a private college preparatory program. He explained that Pencey’s “explicitly academic environment” is highly appealing to parents and students:

We’re not here to do anything but prepare kids for college. In that regard, among the kids, there is a community of striving that you see only in pockets in traditional schools. We are that pocket….Everybody knows that they’re going to college and that’s what they’re here for.

The Pencey Approach to Classroom Instruction

The Pencey teachers observed during the site visit used traditional, direct-instruction, classroom methodology and did not provide any instruction tailored to standardized test preparation. At the time of the site visit, a pre-Advanced Placement 9th grade English class comprised of about 25 students was concluding a unit on Romeo and Juliet. The lesson opened with a journal writing session in which students
responded to quotes from the play posted on an overhead projector. The journal activity was followed by a discussion of vocabulary in which students shared sentences they had written using words from a previously assigned vocabulary list. The teacher called on all students for responses and all students had prepared the assignment. The remainder of class, the teacher led a discussion focused on the theme of fate in the play. The discussion incorporated the journal responses students' had written at the start of the lesson. The school's cramped classroom required that students sit very close to one another, but there were no disruptions during the 90 minute lesson.

In an International Baccalaureate (IB) calculus class, 12 Pencey students used integration techniques to find the volumes of solids of revolution. The atmosphere was relaxed. Students ate and drank at their desks, and classical music played from a small radio on the teacher's desk. The teacher, who had a Ph.D. in mathematics, worked at the board, demonstrating the solutions to problems, and students, each of whom had their own graphing calculator, followed along, checking their work.

The last 20 minutes of the 90-minute period were spent in a discussion of IB requirements for group student projects. The teacher had recently attended an IB conference and brought some examples of other schools’ student projects to share with the class. The published projects used math to solve a variety of problems and included statistical analyses and sophisticated graphs and charts. The students were interested in and excited by the projects, and some students expressed concern that they needed to get up to speed with their skills in presenting math-based research.
As part of its college preparatory program, Pencey begins promoting college enrollment to students in middle school. As part of a week-long 7th grade “Texas History Tour,” students visit the campuses of Baylor University, the University of Texas in Austin, Trinity University, and the University of Houston. Active college counseling begins in the 9th grade and the 9th grade class trip is a tour of southeastern private colleges and universities, including Vanderbilt, Emory, Tulane, and Duke. In addition to school sponsored college visitations, Pencey excuses the absences of junior and senior students who take time away from school to visit colleges.

Pencey’s director explained that college counseling becomes “serious, personal, and integrated” in the 11th grade. The TPPS Student Handbook reads:

The counselor advises students in matters relating to the college application process, helping them make realistic college choices, suggesting strategies to strengthen their college application and providing information about the application process. Conferences with students and parents shall begin in the junior year.

According to Pencey’s director, all of the school’s graduates, with the exception of one special education student, had applied to colleges. When the school celebrated its first commencement ceremonies in the spring of 2002, more than 80% of its first graduating class had been accepted to four-year colleges. The remaining students planned to enroll in community colleges, and the one special education student had enrolled in a vocational program. Pencey’s director was not aware of any students who were at risk of dropping out. In his experience, students left the school because they graduated, returned to private or traditional public schools, or were home schooled. He indicated that Pencey’s PEIMS data showed a zero percent dropout rate.

Relationship with Traditional District Schools
Pencey does not receive any student referrals from traditional district schools. The school’s director estimated that “99.9%” of families that chose to send their children to Pencey had learned about the program through parents’ word-of-mouth. He explained that Pencey is a net loss for traditional school districts because districts lose the per-pupil funding that follows students when they enroll in Pencey. “They tolerate us,” he said, “They sign a piece of paper that says they are willing to deal with the impact of [TPPS], but we are a net loss of revenue for them.”

In public venues, Pencey and traditional district administrators are polite and do not to denigrate the other’s program, but Pencey’s director explained that in private, opinions are more openly expressed:

Privately, I have heard that [district superintendent]—I want to choose this word carefully—I’ll say grouse about the fact that of course charter schools do better than public schools because they don’t deal as many issues as the [district schools] have to deal with. Which, you know, giving him his due, is not entirely incorrect. He does not run a district of choice. He has to provide something for everyone who lives in the district, whereas I run a district of choice. Not that I get to do a lot of choosing, but by setting the bar where we set the bar, the people who come here are self-selected in the program that we offer. As I said, giving him his due, he’s right. I don’t have to deal with the number of problems that he does.

Pencey’s success has led the school’s administrators to open a second campus modeled on the Pencey program in the fall of 2004. The new school is located in an inner-city neighborhood of a large Texas city and will enroll largely low-income and minority children. Like Pencey, the new school will initially serve students in grades 5 through 8 and will expand its program as enrollment increases and students matriculate.
Case Study: High Country Charter High

High Country Charter High (HCCH) provides a foreign language and arts-based educational option for students who reside in a rural region of Texas. Located in a community of fewer than 4,000 residents, HCCH draws students from rural school districts across several Texas counties. The school has five vans that provide transportation to students, some of whom live as many as 50 miles away. The school serves students in grades 9 through 12 and offers accelerated instruction, flexible scheduling for working students, and vocational training. HCCH enrolled more than 90% White students over the course of the 2000, 2001, and 2002 school years and is characterized as a one-race White school by this dissertation.

HCCH began as a grassroots community effort to provide an alternative school that would stem the region’s growing dropout rate. A community leader applied for the charter in 1998 and the school opened in the fall of 1999. In its charter application, HCCH estimated it would serve 5% at-risk and 5% special education students. According the school’s principal, HCCH enrolled more than 60% at-risk and more than 20% special education students in 2004.

HCCH occupies a warehouse that has been renovated to create a space that serves the particular needs of the school’s program. HCCH’s vocational programs focus on the culinary arts, and the school’s entrance way opens into a small cafeteria space adjoining a large open kitchen in which students are able to take the courses required for Texas’s Food Handler and Food Management certifications. Off the kitchen area is a large, open, center space that contains a small set of bleachers, a volley ball court, and areas in which picnic benches have been arranged to denote classrooms devoted to
different artistic genres. In one space, benches were organized in the neighborhood of a kiln where students learned ceramics and pottery work. In another area, work benches and shelving had been arranged to accommodate a course in the industrial arts. The course’s teacher was a local glass blower, and work benches were cluttered with student projects that incorporated glass media.

Off the open center space, pockets of small classrooms had been constructed using plaster board walls. In addition to classes for traditional subjects such as English, history, and math, HCCH has classrooms for less conventional courses such as yoga and guitar. The classrooms were sparsely furnished. Some had desks or tables and others had picnic bench seating arrangements. Classrooms for academic subjects had white boards and at least one computer.

The High Country Charter High Program

The HCCH mission is to “foster an appreciation for learning, nurture individual interests, and enhance community responsibilities. In small classes, using an integrated and practical approach, students will be encouraged to become lifelong learners and to achieve an accredited high-school diploma” (HCCH Student Handbook). HCCH requires that students complete the Recommended High School Plan (24 credits) in order to graduate. Students are able to complete eight credits per year and with consistent enrollment may complete graduation requirements in 3 years. The HCCH school day lasts from 8:00 a.m. to 3:20 p.m. and students attend eight 45 to 50 minute classes each day. At 9:35 each morning the school breaks for a 25 minute brunch and at noon there is a 30 minute lunch break.
The HCCH curriculum emphasizes foreign language study and fine arts education. It offers courses in Spanish, French, and Latin, as well as graphic design, industrial arts, ceramics, and music. HCCH operates a Saturday school in which students are able to make up missed class work. If a student earns two grades below 65% in a semester, he must meet with HCCH’s “Academic Relation Committee” and is assigned to work one-on-one with a tutor.

The increasing number of at-risk students choosing to attend HCCH has caused the school to reshape its academic program. During the 2004 school year, HCCH applied for and received grant money to purchase the computers necessary to install a “virtual school.” The virtual school is made up of 16 new Dell computers loaded with the OdysseyWare computer programs used by Success Academy Charters. Like SAC students, HCCH students are able to work through the computer-based curricula at their own pace and earn credits quickly. But HCCH uses OdysseyWare only to assist at-risk students who need to make up lost credits in order to graduate on time, and virtual school students also must attend classroom-based courses.

**The HCCH Approach to Classroom Instruction**

HCCH’s classes are small and the teaching style is relaxed. Most classes have ten or fewer students and teachers are permissive with respect to student behavior. In an algebra class, five students watched as a young teacher dressed in jeans and a t-shirt demonstrated techniques for identifying least common multiples. Several students struggled with the concept, and those that grasped it quickly were not required to remain with the lesson. One student sat in a window dangling his legs outside and another watched a *Star Trek* video on the classroom computer.
In an English class, a teacher who had spent more than 30 years teaching in an urban Texas district, confided that HCCH was her best teaching experience. She liked the school’s small size and felt that she had a voice in the school’s administrative decisions. Her class of five students was reading separate novels at the time of the site-visit. The students briefly discussed their reading and then were expected to read silently for the remainder of the period. Students who wanted to read outside of the classroom were permitted to leave in order to find a more comfortable space elsewhere in the school.

Vocational Programs

HCCH’s 11th and 12th graders may participate in a work program that permits students to attend classes for 4 hours each morning and to work at a job during the afternoon hours. The school maintains contact with students’ employers and students are able to earn credit for their work experiences. Approximately a third of HCCH’s students participate in the work program.

HCCH’s rural location provides limited employment opportunities and most students work in restaurant jobs that the school’s principal labeled the “fast food ghetto.” In order to improve students’ employment prospects, HCCH offers courses in restaurant work that allow students to become certified as restaurant and kitchen managers. A local chef teaches part-time at the school, and students are able to gain experience catering school social events.

HCCH also implements a “job shadow” program in which students may spend a day or more following business professionals through a typical work day and ask questions about what they observe. Students are required to complete a written
assignment about the experience and businesses are encouraged to use the program to gain “access to a pool of interested individuals who may be potential interns or employees” (HCCH Career Opportunities on Location pamphlet).

**Small School Size**

HCCH strives to maintain small class sizes and structures enrollment and staffing in order to achieve a 10-to-1 student-teacher ratio. When HCCH reaches full enrollment, no new students are admitted until enrollment drops. The principal maintained that in spite of demand for places in the school, HCCH has no intention of expanding its program beyond its current enrollment of about 120 students. She stated: “We don’t see the future as growing bigger; we see it as growing better.”

An HCCH teacher explained that the school’s small size worked well for many of its students. He pointed out that there were no cliques at HCCH and that all students knew one another and were socially accepted. In an HCCH school newspaper article addressing the importance of putting forth effort on the upcoming TAKS test, a student writer rallied students:

…since we are a much smaller school, the percentage of effect that each student has is much higher than in a school like [school name], which has seething multitudes of students. There, you’re allowed to slack off because there are a lot of other students who will pick up your useless, dead weight. Not so here at [HCCH]. Everyone is required to do their share….

The writer underscored the importance of doing well on the test because HCCH risked losing its charter if students performed poorly. She warned that if the school was closed, …those of you who come here because it’s the “slacker school” will have to go back to your beloved public schools, where you will subsequently be kicked out, and forced into early bondage under some self-appointed Beverage Dictator at the local Sac-n-Pac.

She concluded:
The least students could do is TRY to do well, so that teachers and the students, don’t have to go back to the uniformity and bore of public education.

Permissive Atmosphere

HCCH’s relaxed atmosphere is attractive to many of its students. The student dress code is loosely drawn and imposes the following restrictions:

Students shall not wear clothes that are threats to the health and safety of the student, other students, or [HCCH] staff. Students shall not wear clothes bearing obscene language or images, or those words or images that are offensive to others. Students shall not wear clothes that advertise or glorify tobacco, alcohol, or drugs, express hatred or prejudice, portray or glorify violence or identify the student as a member of a gang or cult (HCCH Student Handbook).

At the time of the case study site visit, many HCCH students expressed themselves through their apparel and grooming choices. A substantial number of students wore the dark clothing, dramatic make up and dyed jet-black hair currently associated with gothic style trends. Others displayed multiple body piercings and tattoos, bleached Mohawks, and rainbow-dyed dread locks.

HCCH’s romantic student pairings were openly expressed and included both straight and gay relationships. Openness to students’ expressions of homosexuality has been the source of conflict between the school’s staff and governing board that has resulted in a lawsuit. The dispute arose when an art teacher permitted students to paint a mural on a school wall that contained an image of male students kissing. HCCH’s board contended that mural’s content was inappropriate and had it painted over on a weekend break. The ensuing protest by students and the art teacher led to the firing of the teacher, who later sued the school claiming a violation of free speech.

Relationship with Traditional District Schools
According to its principal, HCCH maintains a “complementary” relationship with traditional district schools. HCCH’s focus on foreign languages and fine arts addresses areas which are not generally emphasized in the area’s traditional district schools. The principal, who holds a Ph.D. in economics, stated that HCCH is in “constant communication” with district programs and that districts sometimes refer “troubled students” to her school. She explained:

Parents are grateful that there’s an option when things aren’t going well. Initially, they might be a bit hesitant because [HCCH] is something new, but they know that their child is not getting on very well wherever they are. And I think they like the openness—there’s not much bureaucracy here—[Parents] can reach me straight away.

An HCCH teacher said that many of the school’s students had difficulty “fitting in” in the area’s conservative rural districts. Some HCCH students had been expelled from district programs. Others struggled with restrictive dress codes and behavioral requirements and were drawn to HCCH because of its more permissive learning environment. Referring to the *Harry Potter* novels, she explained “[HCCH] is like Hogwarts without the magic.”

In addition to students who experienced difficulties in traditional programs, the small size of HCCH is appealing to the parents of special education students who seek to have their children mainstreamed in small classes as well as to parents who have home-schooled through the elementary grades and seek socialization experiences for their adolescent children.

Like Pencey, HCCH reserves the right to deny admission to students with histories of discipline problems. The principal explained that the school is “is not a rehab center and is not equipped to handle high-level misbehavior.” Over the course of 5
years, however, only one student had been prevented from enrolling because of previous behavioral problems, and at the time of the site visit, HCCH was implementing an on-site drug and alcohol abuse program coordinated with a residential rehabilitation facility.

Summary

While not all of the case study schools were as formally committed to the small school environment as HCCH, all were small programs when compared to district schools, and during each site visit, it was evident that size mattered. In each school, teachers and students expressed their preferences for teaching and learning in a small school environment. Several HCCH students explained that they felt lost in large rural district high schools, and a student commentator writing in an AP school newspaper wrote of the anonymity of the public school system:

My old school was big, crowded, and you hardly knew who was who. That’s why you never said names. You would just be like, “hey you” except for the people you were around 24/7. If you said that to them, you would be in real trouble.

A student writing in another AP publication explained that he liked the AP because the staff cared about him and knew him by his first name. Pencey’s director reluctantly explained that although he wished he could say the school’s academic program was its most desirable feature, most parents chose his school because it was smaller and safer than schools in the large suburban districts.

In terms of innovation, the case study charters were not particularly innovative in their approaches to classroom instruction in spite of their small class sizes. With the exception of the self-paced and computer-based classrooms, all observed teachers used traditional direct-instructional approaches to presenting course material.
With respect to attendance policies, however, the case study charters proved to be quite innovative. With the exception of Pencey, each case study charters had developed a unique attendance policy that was structured to retain students who were in danger of dropping out. The AP introduced the 9-week semester and flexible morning and afternoon enrollment, SAC implemented an open door approach to enrollment, and HCCH experimented with abbreviated class periods and a shortened school day for working students. Chapter 6 examines the effect of these policies on graduation outcomes. And it may be that the most valuable innovations of charter high schools will be in the form of attendance policies and not classroom instruction.

One of the most significant findings from this chapter’s analyses is how many students are referred to charters by regular district schools. The AP and SAC administrators stated that between 70 and 80% of their enrollments were referred by districts, and HCCH’s principal acknowledged that neighboring districts referred “troubled” students to her program. It is possible that these referrals are made with students' best interests in mind. Students experiencing difficulty attending school may be better served by charter schools that offer more flexible options, and students experiencing difficulty fitting in may be more comfortable in an alternative program such as HCCH. But the high number of referrals raises concerns as to whether districts may be counseling students into charter schools in order to serve district interests.

As described in chapter 3, Hirschman theorizes that lazy monopolists respond to competition by creating opportunities for exit on the part of their more difficult customers. The comments of the charter school directors included in this chapter suggest that public schools respond to competition from charters in this way and refer
their low-performing students to charters. The referrals permit districts to appear improved—their average test scores and graduation rates rise when students who test poorly or are dropouts enroll in charters—but no improvement may actually take place. This releases the district from the “effort and criticism” (Hirschman, p. 59) associated with the struggle to improve outcomes for low-performing students.

Chapter 7 examines this issue in greater detail. It considers the charter school directors explanations of why districts refer students to charters and asks whether students who were retained in the 9th grade or who experienced attendance and discipline difficulties were more likely to than other students to choose charter schools. While this analysis does not directly address the issue of district counseling out, its findings suggest the lazy monopolist’s shoes may be a comfortable fit for districts faced with competition from charters.
CHAPTER 6
ANALYSIS OF CHARTER SCHOOL AND STUDENT CHARACTERISTICS

This chapter utilizes the single equation probit regression techniques described in chapter 4 to assess how charter school graduation and GED outcomes vary across student and school characteristics. The regressions estimate the effects of charter school maturity and the program characteristics described in chapter 2 on the likelihoods of students graduating or obtaining a GED and control for student characteristics related to gender, age, ethnicity, at-risk and low-income status, as well as status as a recovered dropout.

The single equation models presented below are relatively straightforward, and because they are estimated using only those sample students who attended charter schools, they sidestep most of the selection bias issues that trouble chapter 7’s analyses. This chapter’s regressions assess the effectiveness of charter school program characteristics in terms of graduation outcomes but do not provide any information about the performance of charter schools relative to district schools. This information may prove valuable for charter school operators and authorizers seeking to design and approve effective charter programs, and it may inform the decisions of traditional districts interested in implementing similar programs for their at-risk students.

Over the past 5 years, the Texas state legislature has introduced incentives such as the Ninth Grade Success Initiative (NGSI) and Grants to Reduce Academic Dropouts (GRAD) that provide funding for schools to design innovative programs for at-risk high school students. NGSI provided $42.5 million “for each year of the 2000-01 biennium” to
fund programs for at-risk 9th graders (Texas Education Agency [TEA], 2002a, p. i), and GRAD, introduced in 2003, provides funding to schools that “demonstrate the greatest potential to increase graduation rates among economically disadvantaged students” (TEA, 2004b, p. 4). Many of Texas’s traditional district schools that have received funding under NGSI and GRAD have experimented with charter-like programming. Of the 231 district programs that received initial NGSI money, 71% implemented self-paced software, 13% implemented accelerated instruction, and 1% implemented open entry/exit courses (TEA, 2002a p. 13). Schools receiving GRAD funds have developed programs that include accelerated credit recovery, flexible scheduling, and work/study arrangements (TEA, 2004b).

Summary Statistics and Model Specifications

A brief definition of each regression variable and its summary statistics are presented in Table 7. Both the GRAD and GRAD/GED models are estimated using the full sample of charter school students (n = 1,761), but recall that in order to retain a homogenous base group, the model estimating GED outcomes omits diploma graduates, resulting in a smaller sample (n = 1,230). While variable definitions and minimum and maximum values are identical for the two groups, the mean (M) and standard deviation (SD) statistics differ and are reported separately. With the exception of URBAN, all variables were constructed using Public Education Information Management System (PEIMS) data.

The full model specification for each outcome follows the table of summary statistics, and a more detailed discussion of the independent variables and their expected outcomes is the subject of the next section.
<table>
<thead>
<tr>
<th>Variable Name and Definition</th>
<th>GRAD and GRAD/GED (n = 1,761)</th>
<th>GED (n = 1,230)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td><strong>Dependent Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(GRAD)$_i$ = 1 if student$_i$ received a high school diploma prior to August 1, 2002.</td>
<td>0.302</td>
<td>0.459</td>
</tr>
<tr>
<td>(GRAD/GED)$_i$ = 1 if student$_i$ received either a high school diploma or a GED prior to August 1, 2002.</td>
<td>0.449</td>
<td>0.497</td>
</tr>
<tr>
<td>(GED)$_i$ = 1 if student$_i$ received a GED prior to August 1, 2002.</td>
<td>0.147</td>
<td>0.354</td>
</tr>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(MALE)$_i$ = 1 if student$_i$ is male.</td>
<td>0.496</td>
<td>0.500</td>
</tr>
<tr>
<td>(AGE)$_i$ = student$_i$’s age on September 1, 1999.</td>
<td>16.521</td>
<td>1.141</td>
</tr>
<tr>
<td>(BLK)$_i$ = 1 if student$_i$ is Black.</td>
<td>0.366</td>
<td>0.482</td>
</tr>
<tr>
<td>(HISP)$_i$ = 1 if student$_i$ is Hispanic.</td>
<td>0.432</td>
<td>0.496</td>
</tr>
<tr>
<td>(WHT)$_i$ = 1 if student$_i$ is White (base group).</td>
<td>0.194</td>
<td>0.395</td>
</tr>
<tr>
<td>(OTH)$_i$ = 1 if student$_i$ is of another ethnic background.</td>
<td>0.009</td>
<td>0.092</td>
</tr>
<tr>
<td>(ATRISK00_02)$_i$ = 1 if student$_i$ was coded at-risk during any of the 2000, 2001, or 2002 school years.</td>
<td>0.810</td>
<td>0.393</td>
</tr>
<tr>
<td>(EC_DIS00_02)$_i$ = 1 if student$_i$ was coded economically disadvantaged during any of the 2000, 2001, or 2002 school years.</td>
<td>0.447</td>
<td>0.497</td>
</tr>
<tr>
<td>Variable Name and Definition</td>
<td>GRAD and GRAD/GED (n = 1,761)</td>
<td>GED (n = 1,230)</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>(NOATT_99) = 1 if student\textsubscript{i} had no recorded attendance at any Texas public school during the 1999 school year.</td>
<td>0.195</td>
<td>0.396</td>
</tr>
</tbody>
</table>

School and Student Characteristics

| (URBAN)\textsubscript{i} = 1 if student\textsubscript{i} attended school in an urban area. | 0.936 | 0.245 | 0.935 | 0.247 | 0 | 1 |
| (OR.BLK)\textsubscript{i} = 1 if student\textsubscript{i} attended a one-race Black school. | 0.056 | 0.230 | 0.064 | 0.245 | 0 | 1 |
| (OR.HISP)\textsubscript{i} = 1 if student\textsubscript{i} attended a one-race Hispanic school. | 0.207 | 0.405 | 0.211 | 0.408 | 0 | 1 |
| (OR.WHT)\textsubscript{i} = 1 if student\textsubscript{i} attended a one-race White school. | 0.008 | 0.089 | 0.007 | 0.080 | 0 | 1 |
| (OR.NOT)\textsubscript{i} = 1 if student\textsubscript{i} attended a school that was not characterized by one-race enrollment (base group). | 0.729 | 0.445 | 0.718 | 0.450 | 0 | 1 |

Charter School Program Characteristics

<p>| (COL.PREP)\textsubscript{i} = 1 if student\textsubscript{i} attended a charter offering a college preparatory program. | 0.095 | 0.293 | 0.093 | 0.290 | 0 | 1 |
| (CH.ATRISK)\textsubscript{i} = 1 if student\textsubscript{i} attended a charter that offered a program for at-risk students. | 0.918 | 0.274 | 0.950 | 0.219 | 0 | 1 |
| (GED.PROG)\textsubscript{i} = 1 if student\textsubscript{i} attended a charter offering a GED program. | 0.596 | 0.491 | 0.609 | 0.488 | 0 | 1 |
| (VOC)\textsubscript{i} = 1 if student\textsubscript{i} attended a charter offering a vocational program. | 0.398 | 0.490 | 0.410 | 0.492 | 0 | 1 |
| (ACCEL)\textsubscript{i} = 1 if student\textsubscript{i} attended a charter offering accelerated instruction and early graduation. | 0.876 | 0.329 | 0.911 | 0.284 | 0 | 1 |
| (FLEX)\textsubscript{i} = 1 if student\textsubscript{i} attended a charter offering an abbreviated school day (4 hours) and morning, afternoon, and/or evening sessions. | 0.648 | 0.478 | 0.658 | 0.475 | 0 | 1 |</p>
<table>
<thead>
<tr>
<th>Variable Name and Definition</th>
<th>GRAD and GRAD/GED $(n = 1,761)$</th>
<th>GED $(n = 1,230)$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>(OPEN)$_i$ = 1 if student$_i$ attended a charter offering open entry/exit enrollment.</td>
<td>0.320</td>
<td>0.466</td>
</tr>
<tr>
<td>(CHAIN)$_i$ = 1 if student$_i$ attended a charter that replicates its program in three or more separate sites.</td>
<td>0.529</td>
<td>0.499</td>
</tr>
</tbody>
</table>

Charter School Maturity Variables

<table>
<thead>
<tr>
<th></th>
<th>GRAD and GRAD/GED $(n = 1,761)$</th>
<th>GED $(n = 1,230)$</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>(CONV)$_i$ = 1 if student$_i$’s charter was a pre-existing private school or educational program that converted to charter status.</td>
<td>0.228</td>
<td>0.420</td>
</tr>
<tr>
<td>(CH_97)$_i$ = 1 if student$_i$ attended a charter that began serving students during the 1997 school year.</td>
<td>0.191</td>
<td>0.393</td>
</tr>
<tr>
<td>(CH_98)$_i$ = 1 if student$_i$ attended a charter that began serving students during the 1998 school year.</td>
<td>0.026</td>
<td>0.160</td>
</tr>
<tr>
<td>(CH_99)$_i$ = 1 if student$_i$ attended a charter that began serving students during the 1999 school year.</td>
<td>0.461</td>
<td>0.499</td>
</tr>
<tr>
<td>(CH_00)$_i$ = 1 if student$_i$ attended a charter that began serving students during the 2000 school year (base group).</td>
<td>0.321</td>
<td>0.467</td>
</tr>
</tbody>
</table>
Model Specification: Graduation Outcomes

The full model specification for diploma graduation dependent variable (GRAD)_i is expressed using the latent variable (GRAD)_i^*, a continuous but unobservable index of a student’s ability to obtain a diploma:

\[
(GRAD)_i^* = \alpha_{11}(MALE)_i + \alpha_{21}(AGE)_i + \alpha_{31}(BLK)_i + \alpha_{41}(HISP)_i + \alpha_{51}(OTH)_i + \alpha_{61}(ATRISK00_02)_i + \alpha_{71}(EC_DIS00_02)_i + \beta_{11}(URBAN)_i + \beta_{21}(OR_BLK)_i + \beta_{31}(OR_HISP)_i + \beta_{41}(OR_WHT)_i + \delta_{11}(COL_PREP)_i + \delta_{21}(CH_ATRISK)_i + \delta_{31}(GED_PROG)_i + \delta_{41}(VOC)_i + \delta_{51}(ACCEL)_i + \delta_{61}(FLEX)_i + \delta_{71}(OPEN)_i + \delta_{81}(CHAIN)_i + \lambda_{11}(CONV)_i + \lambda_{21}(CH_97)_i + \lambda_{31}(CH_98)_i + \lambda_{41}(CH_99)_i + \epsilon_i.
\]

Where

\[
(GRAD)_i = 1 \text{ if } (GRAD)_i^* > 0, \text{ and } \quad (GRAD)_i = 0 \text{ if } (GRAD)_i^* \leq 0.
\]

Model Specification: Combined Graduation and GED Outcomes

The full model specification for the more broadly defined graduation outcome (GRAD/GED)_i, which includes both GEDs and diploma graduates, is expressed using the latent variable (GRAD/GED)_i^*, a continuous but unobservable index of a student’s ability to earn a diploma or a GED:
\begin{align*}
(\text{GRAD/GED})_i^* &= \alpha_{12}(\text{MALE})_i + \alpha_{22}(\text{AGE})_i + \alpha_{32}(\text{BLK})_i + \alpha_{42}(\text{HISP})_i \\
&+ \alpha_{52}(\text{OTH})_i + \alpha_{62}(\text{ATRISK00_02})_i + \alpha_{72}(\text{EC_DIS00_02})_i \\
&+ \beta_{12}(\text{URBAN})_i + \beta_{22}(\text{OR_BLK})_i \\
&+ \beta_{32}(\text{OR_HISP})_i + \beta_{42}(\text{OR_WHT})_i + \delta_{12}(\text{COL_PREP})_i \\
&+ \delta_{22}(\text{CH_ATRISK})_i + \delta_{32}(\text{GED_PROG})_i + \delta_{42}(\text{VOC})_i + \delta_{52}(\text{ACCEL})_i \\
&+ \delta_{62}(\text{FLEX})_i + \delta_{72}(\text{OPEN})_i + \delta_{82}(\text{CHAIN})_i + \lambda_{12}(\text{CONV})_i \\
&+ \lambda_{22}(\text{CH}_97)_i + \lambda_{32}(\text{CH}_98)_i + \lambda_{42}(\text{CH}_99)_i + \varepsilon_{2i}.
\end{align*}

Where

\begin{align*}
(\text{GRAD/GED})_i &= 1 \text{ if } (\text{GRAD/GED})_i^* > 0, \text{ and} \\
(\text{GRAD/GED})_i &= 0 \text{ if } (\text{GRAD/GED})_i^* \leq 0.
\end{align*}

Model Specification: GED Outcomes

The full model specification for the GED only model is expressed using the latent variable \((\text{GED})_i^*\), a continuous but unobservable index of a student’s ability to earn a GED:

\begin{align*}
(\text{GED})_i^* &= \alpha_{13}(\text{MALE})_i + \alpha_{23}(\text{AGE})_i + \alpha_{33}(\text{BLK})_i + \alpha_{43}(\text{HISP})_i \\
&+ \alpha_{53}(\text{OTH})_i + \alpha_{63}(\text{ATRISK00_02})_i + \alpha_{73}(\text{EC_DIS00_02})_i \\
&+ \alpha_{83}(\text{NOATT_99})_i + \beta_{13}(\text{URBAN})_i + \beta_{23}(\text{OR_BLK})_i \\
&+ \beta_{33}(\text{OR_HISP})_i + \beta_{43}(\text{OR_WHT})_i + \delta_{13}(\text{COL_PREP})_i \\
&+ \delta_{23}(\text{CH_ATRISK})_i + \delta_{33}(\text{GED_PROG})_i + \delta_{43}(\text{VOC})_i + \delta_{53}(\text{ACCEL})_i \\
&+ \delta_{63}(\text{FLEX})_i + \delta_{73}(\text{OPEN})_i + \delta_{83}(\text{CHAIN})_i + \lambda_{13}(\text{CONV})_i \\
&+ \lambda_{23}(\text{CH}_97)_i + \lambda_{33}(\text{CH}_98)_i + \lambda_{43}(\text{CH}_99)_i + \varepsilon_{3i}.
\end{align*}

Where
\[(\text{GED})_i = 1 \text{ if } (\text{GED})_i^* > 0, \text{ and} \]
\[(\text{GED})_i = 0 \text{ if } (\text{GED})_i^* \leq 0. \]

Independent Variables and Expected Effects

The discussion presented below provides a more detailed discussion of the models’ independent variables and their expected influences on graduation outcomes. The first two sets of variables, “Student Characteristics” and “Student and School Characteristics,” are also included as regressors in chapter 7’s second-stage equations. The research discussed below provides the rationale for the expected effects of these variables in both chapters’ regressions.

**Student Characteristics**

Table 8 presents TEA’s (2003a) tabulations for the percent of students who graduated, obtained a GED, or dropped out by student group for the cohort of students who were enrolled in the 9th grade in the 1999 school year and were expected to graduate in the 2002 school year. Although Texas has been faulted for its poor accounting of these statistics (Abrams & Haney, 2004), the patterns in Table 8’s statistics reflect trends in national and state-level reports that utilize different and perhaps more rigorous approaches to measuring high school completion rates (see e.g., Balfanz & Legters, 2004; Kaufman & Chapman, 2004; Swanson, 2004).
Table 8

TEA Reported High School Graduates, GED Recipients and Dropouts by Student Group: 9th Grade Cohort Expected to Graduate in 2002a

<table>
<thead>
<tr>
<th>Student Group</th>
<th>%Diploma Graduate</th>
<th>%Received GED</th>
<th>%Dropped Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Students (N = 254,040)</td>
<td>82.8</td>
<td>4.1</td>
<td>5.0</td>
</tr>
<tr>
<td>Maleb</td>
<td>79.2</td>
<td>5.3</td>
<td>5.5</td>
</tr>
<tr>
<td>Femaleb</td>
<td>86.4</td>
<td>3.0</td>
<td>4.5</td>
</tr>
<tr>
<td>Black (n = 34,597)</td>
<td>79.8</td>
<td>2.5</td>
<td>6.6</td>
</tr>
<tr>
<td>Hispanic (n = 87,984)</td>
<td>75.7</td>
<td>3.7</td>
<td>7.8</td>
</tr>
<tr>
<td>White (n = 122,739)</td>
<td>88.2</td>
<td>5.1</td>
<td>2.7</td>
</tr>
<tr>
<td>Other (n = 8,720)</td>
<td>90.1</td>
<td>2.1</td>
<td>2.7</td>
</tr>
<tr>
<td>At-risk (n = 106,595)</td>
<td>70.7</td>
<td>5.9</td>
<td>7.9</td>
</tr>
<tr>
<td>Econ. Disadv. (n = 78,567)</td>
<td>75.8</td>
<td>3.9</td>
<td>7.7</td>
</tr>
</tbody>
</table>


aGraduation outcomes do not total to 100%. TEA included students who remained in school beyond their expected graduation date as a category in its report.
bTEA did not provide totals for these student groups.

Gender (MALE)

MALE is coded “1” if a student is male and “0” if otherwise, making female students the base group in all regressions. National and state-level data consistently indicate that male students tend to have lower high school completion rates and higher GED attainment rates than females (Kaufman & Chapman, 2004; Swanson, 2004; TEA, 2003a; Wayman, 2002). This suggests that male students will experience negative graduation outcomes and positive GED outcomes relative to female students. The marginal effect of MALE is expected to be negative in the GRAD models and positive in the GED models. It is not clear whether these differences will be statistically significant. It is also not clear how gender will influence outcomes in the combined graduation and GED models (GRAD/GED).

Age (AGE)
AGE is a continuous variable indicating student’s age on September 1, 1999. TEA (2003a) reported annual dropout rates by age for 2002: the rate was 1.0% for 16-year-olds, 5.1% for 18-year-olds, and 10.6% for 20-year-olds (p. 108). This trend mirrors national patterns and may indicate that older students are more frustrated with their schooling and pursue GEDs and drop out at higher rates than younger students (Boesel, Alsalam, & Smith, 1998; Cameron & Heckman, 1993; Riehl, 1999). This implies that AGE will have a negative effect in the GRAD models and a positive and statistically significant effect in the GED models. It is not clear how AGE will perform when outcomes are combined in the GRAD/GED models.

Ethnicity Dummies (BLK, WHT, HISP, OTH)

Students are coded BLK if the PEIMS demographic data indicates they are Black, WHT if it indicates they are White, HISP if it indicates they are Hispanic, and OTH if it indicates they are of another ethnic background. In the full sample of charter and traditional school students (N = 247,658), OTH is comprised of 92.2% Asian students; American Indian and Alaskan Natives make up the remainder of the category. WHT operates as the base group in all models.

National and state-level data trends indicate that Asian students enjoy the highest graduation rates and the lowest GED attainment rates of all student groups and that White students have higher graduation and GED attainment rates than Hispanic and Black students (Kaufman & Chapman, 2004; Swanson, 2004; TEA, 2003a). Given this pattern, BLK and HISP are expected to produce negative and significant marginal effects in all models. OTH, which is comprised primarily of Asian students, is expected to exhibit positive effects in the GRAD models and negative effects in the GED models.
As a group, the ethnicity dummies BLK, HISP, and OTH are expected to be statistically significant in all models.

**At-risk Student (ATRISK00_02)**

Although TEC § 29.081(d)(1)(2)) and the PEIMS Data Standards:1999-2000 (TEA, 2001b) provide definitions of at-risk status, varying interpretations of the at-risk criteria have resulted in inconsistent reporting of at-risk students, and in some cases, schools omit the category altogether. These problems are particularly acute among charter schools where many administrators are new and lack experience with reporting requirements. For the full sample of students considered in this study (N = 247,658), more than 30% of charter students lacked at-risk coding in the 2000 PEIMS data compared with 4% of traditional district students.

In an attempt to recover some of this missing information, students were coded at-risk (ATRISK00_02 = 1) if the PEIMS data indicated they were at-risk in any of the 2000, 2001, or 2002 school years. Students who were missing codes over all 3 years were coded not-at-risk (ATRISK00_02 = 0). This implies that the effect of ATRISK00_02 will be understated particularly for charter students who are more likely to be at-risk but are less likely to be so coded in the PEIMS data. Further, any observation with a recorded age of 17 or older on September 1, 1999 was coded at-risk. It is likely that older 10th graders have experienced some of the difficulties defined by the at-risk category (e.g., repeating a grade, pregnancy or parenthood, or delayed graduation).

Table 8 indicates that Texas’s at-risk students are considerably less likely to graduate and somewhat more likely to earn GEDs than other student groups. This suggests negative and significant marginal effects for ATRISK00_02 in the GRAD
models and positive but insignificant effects in GED models. It is unclear how ATRISK00_02 will behave in the combined GRAD/GED model.

**Economic Disadvantage (EC_DIS00_02)**

PEIMS identifies four categories for coding economic disadvantage: (1) not disadvantaged, (2) eligible for free meals, (3) eligible for reduced price meals, and (4) other disadvantage. The latter three categories represent some form of economic disadvantage and are coded EC_DIS00_02 = 1.

The same set of observations that lacked at-risk coding also lacked coding for economic disadvantage. The procedure to recover this missing data followed the same steps described above. Observations received the economic disadvantage code (EC_DIS00_02 = 1) if they were coded any of the latter three PEIMS economic disadvantage categories over the course of the 2000, 2001, or 2002 school years. Observations coded in the first PEIMS category or that lacked coding over the three years were coded not disadvantaged (EC_DIS00_02 = 0).

Table 8 indicates that in 2002, Texas’s economically disadvantaged students graduated and earned proportionately fewer GEDs than students who were not disadvantaged. Swanson (2004) included variables related to the number low-income students served by public school districts in his analysis of national graduation trends and found that “for every 10 percent increase in [the percent of low-income students served by a district], we would expect the graduation rate to drop by 3.8 percent,” holding other factors constant (p. 32). In Texas, Swanson found that districts with enrollments comprised of less than 38% low-income students had an average graduation rate of 73.3%; for districts that enrolled more than 38% low-income students,
the average graduation rate was 59.4% (p. 86). This suggests that EC_DIS00_02 will be negative and statistically significant across all models.

No Attendance 1999 School Year (NOATT_99)

NOATT_99 is coded “1” if the PEIMS data showed no recorded attendance for the student in any Texas public school during the 1999 school year and “0” if otherwise. While not attending a Texas public school may indicate that a student was enrolled out-of-state, in a private school, or home-schooled, the emphasis on at-risk students and recovered dropouts in Texas charter school programs suggests that NOATT_99 charter students were likely to be returning dropouts.

Wayman (2002) studied the graduation outcomes of recovered dropouts and found 43% failed to obtain a high school credential, 34% received a GED, and 23% earned a high school diploma (p. 173). These discouraging results suggest that returning dropouts continue to struggle once they are back in school and frames negative and statistically significant expectations for NOATT_99 across all models.

School and Student Characteristics

Urbanicity (URBAN)

The variable URBAN was extracted from the National Center for Education Statistics (NCES) Common Core of Data (CCD) for the 2000 school year. Using school address, CCD codes locale according to eight categories: (1) “Large City;” (2) “Mid-size City;” (3) “Urban Fringe of Large City;” (4) “Urban Fringe of Mid-size City;” (5) “Large Town;” (6) “Small Town;” (7) “Rural, outside Metropolitan Statistical Area (MSA);” and (8) “Rural, inside MSA.” This dissertation recognizes schools as urban if they are coded in any of the first four CCD categories. Applying CCD’s definitions, students are coded
urban (URBAN = 1) if they attended a school located in a central city of an MSA with a population of at least 100,000; a school in an urbanized area with a population of at least 50,000; or a school located in “a closely settled area, contiguous to a central city; with a minimum population of 2,500 inhabitants; with a population density of at least 1,000 per square mile; and [with] a Census Urbanized Area code” (NCES, 2001, p. 14).

Although there is evidence that urban schools nationally and in Texas tend to have lower graduation rates than suburban or rural schools (Balfanz & Legters, 2004; Rumberger & Thomas, 2000; Swanson, 2004), urbanicity is not expected to have a negative or statistically significant influence on outcomes in this chapter’s estimations. The concentration of charter schools in urban areas and the tendency of nonurban charters such as High Country Charter High to serve academically at-risk students imply that school location will have little effect on outcomes when the analysis is limited to charter students only.

One-race School Variables (OR_BLK, OR_HISP, OR_WHT, OR_NOT)

A one-race school is defined as a school that had average attendance across the 2000, 2001, and 2002 school years comprised of 90% or more one racial or ethnic group. The regressions presented here and in chapter 7 include variables that indicate whether a student attended a one-race Black (OR_BLK), one-race Hispanic (OR_HISP), or one-race White (OR_WHT) school. Students who attended schools that were not characterized by one-race enrollments (OR_NOT) act as the base group in all models.

As discussed in chapter 3, a growing body of research suggests charter schools are leading to greater racial and ethnic isolation among public school students (Cobb &
Glass, 1999; Frankenberg & Lee, 2003; Weiher & Tedin, 2002; Wells, Lopez, Scott, & Holme, 1999). Like all public schools, Texas charters are prohibited from discriminating in their enrollment practices, but nothing in the state’s charter law precludes charters from developing programs that attract particular racial groups. Several sample charters indicate a Hispanic appeal through their Spanish names, and another sample charter describes itself as “the only public institution in the State of Texas that is’ [sic] designed with the express interest of preparing students for college with a 95% Afro-American population” (TEA, 2001e).

As shown in Table 9, according to this study’s definition of one-race schools, Texas’s charters were more likely to be one-race in terms of Black enrollments and were less likely to be one-race in terms of White and Hispanic enrollments than the state’s traditional district schools. The sample of charter high schools used in this study was more likely to be one-race in terms of both Black and Hispanic enrollments.

Table 9
Texas’s One-race Schools: Average Attendance 2000, 2001, 2002

<table>
<thead>
<tr>
<th>One-race Schools</th>
<th>All Texas Public Schools</th>
<th>Sample Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Trad. Public (n = 7,767)</td>
<td>Charter (n = 278)</td>
</tr>
<tr>
<td>% Not One Race</td>
<td>81.24</td>
<td>80.22</td>
</tr>
<tr>
<td>% One-race Black</td>
<td>1.00</td>
<td>9.35</td>
</tr>
<tr>
<td>% One-race Hispanic</td>
<td>11.42</td>
<td>9.35</td>
</tr>
<tr>
<td>% One-race White</td>
<td>6.33</td>
<td>1.08</td>
</tr>
</tbody>
</table>

While the research on how racially isolated minority schools affect student achievement is far from conclusive, the current evidence suggests that students who attend such schools experience reduced graduation and testing outcomes (Balfanz &
Legters, 2004; Frankenberg & Lee, 2003; Swanson, 2004). Swanson’s state-level analysis of graduation rates found that Texas’s “Majority White” districts had average graduation rates of 72.8% compared with 59.5% for “Majority Minority” districts (p. 86). Balfanz and Legters measured high schools’ “promoting power,” or the ratio of 9th grade students promoted to 12th grade within 4 years, and defined “weak promoting power” schools as those in which 60% or fewer students reach the 12th grade on time (pp. 2-3). According to this definition, 91% of Texas’s weak promoting power schools were majority minority, and 56% enrolled 90% or more minority students (p. 18).

While these findings do not address specifically one-race schools, they imply that OR_BLK and OR_HISP will have negative and significant effects in all models. Only one sample charter school was classified as OR_WHT, and it is not clear whether this school\(^1\) will have a positive or statistically significant effect on outcomes. As a group, the one-race variables are expected to be statistically significant in all models.

**Charter School Program Characteristics**

The qualities discussed below were defined in chapter 2 and represent dummy variables coded “1” if students attended schools that possessed the characteristic and “0” if otherwise. The background research on this set of variables is limited. Some of the variables have been discussed in qualitative studies of charter schools in Texas and elsewhere, others have been included in analyses of traditional public schools outcomes, and for others no research is available. The following set of expectations draws on established research when available, and when research is not available, relies on chapter 5’s case studies and intuitive understandings to flesh out expectations of variable performance.

\(^1\)High Country Charter High (chapter 5 case study)
College Preparatory Charter (COL_PREP)

College preparatory charter schools indicate they prepare students for college and are assumed to offer academic curricula focused on diploma graduation and to discourage high school equivalency options such as the GED. Therefore, COL_PREP is expected to be positive and statistically significant in the GRAD models and negative and significant in the GED models. It is less clear how COL_PREP may behave in the more inclusive GRAD/GED models.

At-risk Charter Schools (ATRISK_CH)

Although Gronberg and Jansen (2001) found positive test score effects for Texas’s at-risk charters relative to traditional public schools serving at-risk elementary school students, this chapter’s analysis is framed differently and anticipates different outcomes. This study asks whether charter high schools that target at-risk students perform differently from those that do not. By definition, Texas’s at-risk high school students are in danger of dropping out. Therefore, it seems reasonable that charters that target this type of student will experience reduced graduation and GED outcomes relative to schools that do not. This suggests that ATRISK_CH will produce negative and statistically significant effects across models.

GED Program (GED_PROG)

A charter is identified as a GED program if it offers GED preparation in addition to its high school diploma program. It seems reasonable that a school offering GED instruction would attract students interested in the credential as well as improve the likelihood of their obtaining it; thus, GED_PROG is expected to be positive and statistically significant for the GED and GED/GRAD outcomes. It is unclear how
GED_PROG will perform in the diploma only GRAD model, but it is unlikely to be statistically significant.

**Vocational Program (VOC)**

Although the research on student employment and academic achievement indicates that working students generally experience reduced educational outcomes (Carr, Wright, & Brody, 1996; Ruhm, 1995; Stern, Finkelstein, Stone III, Latting, & Dornsife, 1995), there is evidence that schools offering vocational training and work co-op programs improve outcomes for employed students (Bishop & Mane, 2004; Stern, Finkelstein, Urquiola, & Cagampang, 1997). Of the full sample of charter and traditional district students included in this study (N = 247,658), 48% of charter and 20% of traditional district students had wages recorded by the Texas Workforce Commission during the fall of 1999. The large proportion of working charter students suggests that charter schools providing vocational options may improve graduation outcomes relative to those that do not and frames positive and statistically significant expectations for VOC across models.

**Accelerated Instructional Program (ACCEL)**

Students are coded ACCEL if they attended a school that offered accelerated instruction and graduation. There is little current research on the effect of accelerated instruction on student outcomes but the early research on accelerated instruction in high schools found that such programs improved student retention and test scores (Cuban, 1989; Klausmeir & Wiersma, 1964; Kulik & Kulik, 1984). Although the accelerated programs considered by the cited studies were implemented differently than those of
their results suggest that students benefit from accelerated instruction and that ACCEL will produce positive and significant effects across models.  

**Flexible Scheduling (FLEX)**

Students enrolled in flexible scheduling charters attend school for an abbreviated (4 hour) school day offered in a morning, afternoon, or evening session. It seems reasonable that students who spend less time in school will not improve their skills as greatly as students who devote more time to schooling. This implies that FLEX will have a negative and statistically significant effect in the GRAD and GRAD/GED models. As noted in chapter 3, obtaining a GED requires less time than diploma graduation, so it is less likely that GED outcomes will be affected by a shortened school day. Therefore, FLEX is expected to be negative though not statistically significant in the GED model.  

**Open Entry/exit Enrollment (OPEN)**

Open entry/exit charter programs permit students to enroll in and withdraw from school at multiple points during the school year. This flexibility in enrollment is designed to support students who may have been unsuccessful in traditional high schools environments because they experienced difficulties that caused them to interrupt their schooling. Shapley et al. (2002) found open entry/exit programs to be a characteristic of poor-performing Texas charter schools. However, based the comments of charter school directors included in chapter 5, this study reasons that open entry/exit enrollment policies are an effective means to retain students who may be parents, work, or have other obligations that require them to take time off from school. This reasoning expects

---

2Klausmeir and Wiersma (1964) studied condensed math instruction for grades 9 and 10, and Kulik and Kulik’s (1984) review focused on outcomes for gifted and talented students enrolled in accelerated programs.
the marginal effect of OPEN to be positive across models, although it is not clear that
the strength of the effect will be statistically significant.

**Chain Charter (CHAIN)**

Students are coded CHAIN if they attended a charter school that replicated its
program in three or more separate locations. Although Shapley et al. (2002) found the
chain charter organizational structure to be characteristic of poor-performing charter
schools, this dissertation reasons that chain charters are able to gain considerably more
expertise and experience than smaller programs. The Achievement Project schools
discussed in chapter 5 were able to open new schools with administrators and teachers
who had been trained at campuses that had been in operation longer. This is a
substantial advantage over smaller programs that must open new schools with less
experienced staff and suggests that CHAIN will produce positive and statistically
significant marginal effects across outcomes.

**Charter School Maturity Variables**

A consistent finding of the existing charter school research is that charter test
score outcomes tend to improve as the schools gain experience (Gronberg & Jansen,
2001; Hanushek, Kain, & Rivkin, 2002; Solmon, Paark, & Garcia, 2001). If these
findings hold for graduation outcomes, more mature charter schools should be expected
to have higher graduation and GED attainment rates than schools with less experience.
The following variables are indicators of school maturity:

**Conversion Charter (CONV)**

An observation is coded CONV if the student attended a charter school that was
a pre-existing private school or educational program before converting to charter status.
Some conversion charters have considerably more experience than newly created start-ups. The Achievement Project discussed in chapter 5 had been educating at-risk teens for 20 years prior to converting to charter status in 1996. Another sample conversion charter began serving students as a private parochial school in the late 1960s. Shapley et al. (2002) found that Texas’s conversion charters had established strong links to the community and tended to earn high marks under the Academic Excellence Indicator System (AEIS). This indicates that CONV will have positive and statistically significant effects across all models.

**Start Year Dummies (CH_97, CH_98, CH_99, CH_00)**

Students are coded CH_97 if the PEIMS attendance data indicate the charter school they attended began serving students in the 1997 school year. Students are coded CH_98 if they attended a school that began serving students in the 1998 school year, CH_99 if the school began serving students the 1999 school year, and CH_00 if the school began serving students the 2000 school year. CH_00 operates as the base group in all models. Given the evidence on school maturity and testing outcomes, charters that have been in operation longer are expected to have improved graduation outcomes. This suggests that CH_97, CH_98, and CH_99 will have positive and significant autonomous effects and statistically significant group effects across all models.

**Regression Results**

The estimated marginal effects for each model, where the dependent variables are GRAD, GRAD/GED, and GED, are presented in Table 10, Table 11, and Table 12, respectively. For each dependent variable, four model variations are estimated. The first
includes only student characteristics as independent variables, the second includes student and school related characteristics, the third adds charter school program characteristics, and the fourth estimates the full model specification and includes the charter school maturity variables. The results measure statistical significance at the 95% and 99% confidence levels and incorporate the Huber/White/sandwich estimator of variance to control for the presence of heteroskedasticity.

For each regression, the Wald Chi Square “goodness of fit” test statistic is statistically significant at the 99% level of confidence, indicating that the groups of independent variables are able to predict outcomes. As explained in chapter 2, a likelihood ratio (LR) test must be conducted in order to assess the statistical significance of a group of dummy variables. The results of the LR tests conducted for the dummy groups included in this chapter’s regressions are presented in Table 13. A discussion of results follows the tabular presentations.
### Table 10

**Regression Results: Single Equation Probit; Dependent Variable = GRAD**

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
<th>Model 3</th>
<th></th>
<th>Model 4</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dF/dx</td>
<td>SE</td>
<td>dF/dx</td>
<td>SE</td>
<td>dF/dx</td>
<td>SE</td>
<td>dF/dx</td>
<td>SE</td>
</tr>
<tr>
<td><strong>Student Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MALE</td>
<td>-0.063</td>
<td>0.022</td>
<td>-0.060</td>
<td>0.022</td>
<td>-0.055</td>
<td>0.022</td>
<td>-0.052</td>
<td>0.022</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.025</td>
<td>0.012</td>
<td>-0.027</td>
<td>0.012</td>
<td>-0.019</td>
<td>0.012</td>
<td>-0.022</td>
<td>0.012</td>
</tr>
<tr>
<td>BLK</td>
<td>-0.066</td>
<td>0.031</td>
<td>-0.057</td>
<td>0.033</td>
<td>-0.026</td>
<td>0.037</td>
<td>-0.011</td>
<td>0.037</td>
</tr>
<tr>
<td>HISP</td>
<td>-0.033</td>
<td>0.030</td>
<td>-0.006</td>
<td>0.033</td>
<td>-0.002</td>
<td>0.035</td>
<td>-0.003</td>
<td>0.035</td>
</tr>
<tr>
<td>OTH</td>
<td>0.103</td>
<td>0.131</td>
<td>0.098</td>
<td>0.133</td>
<td>0.056</td>
<td>0.119</td>
<td>0.055</td>
<td>0.120</td>
</tr>
<tr>
<td>ATRISK00_02</td>
<td>-0.032</td>
<td>0.034</td>
<td>-0.040</td>
<td>0.034</td>
<td>0.021</td>
<td>0.035</td>
<td>0.032</td>
<td>0.034</td>
</tr>
<tr>
<td>ECNDIS00_02</td>
<td>0.078</td>
<td>**</td>
<td>0.091</td>
<td>**</td>
<td>0.124</td>
<td>**</td>
<td>0.111</td>
<td>**</td>
</tr>
<tr>
<td>NOATT_99</td>
<td>-0.208</td>
<td>**</td>
<td>-0.208</td>
<td>**</td>
<td>-0.173</td>
<td>**</td>
<td>-0.166</td>
<td>**</td>
</tr>
<tr>
<td><strong>Student and School Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>URBAN</td>
<td>0.073</td>
<td>0.043</td>
<td>0.037</td>
<td>0.049</td>
<td>-0.028</td>
<td>0.057</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_BLK</td>
<td>-0.109</td>
<td>*</td>
<td>-0.113</td>
<td>*</td>
<td>-0.131</td>
<td>**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_HISP</td>
<td>-0.070</td>
<td>*</td>
<td>-0.074</td>
<td>*</td>
<td>-0.100</td>
<td>**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_WHT</td>
<td>0.131</td>
<td>0.147</td>
<td>0.002</td>
<td>0.142</td>
<td>0.029</td>
<td>0.149</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Charter School Program Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COL_PREP</td>
<td>0.024</td>
<td>0.048</td>
<td>0.027</td>
<td>0.059</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH_ATRISK</td>
<td>-0.344</td>
<td>**</td>
<td>-0.280</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GED_PROG</td>
<td>0.052</td>
<td>0.030</td>
<td>0.023</td>
<td>0.031</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOC</td>
<td>0.072</td>
<td>**</td>
<td>0.029</td>
<td>0.101</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCEL</td>
<td>-0.209</td>
<td>**</td>
<td>-0.185</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPEN</td>
<td>0.095</td>
<td>**</td>
<td>0.034</td>
<td>0.112</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLEX</td>
<td>-0.055</td>
<td>0.032</td>
<td>-0.058</td>
<td>0.032</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHAIN</td>
<td>0.169</td>
<td>**</td>
<td>0.158</td>
<td>**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Charter School Maturity Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONV</td>
<td>0.002</td>
<td>0.033</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH_97</td>
<td>0.177</td>
<td>**</td>
<td>0.051</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH_98</td>
<td>0.177</td>
<td>**</td>
<td>0.117</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH_99</td>
<td>0.077</td>
<td>**</td>
<td>0.032</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Observations</strong></td>
<td>1,761</td>
<td></td>
<td>1,761</td>
<td></td>
<td>1,761</td>
<td></td>
<td>1,761</td>
<td></td>
</tr>
<tr>
<td>Wald Chi Square</td>
<td>112.00</td>
<td>**</td>
<td>121.34</td>
<td>**</td>
<td>227.20</td>
<td>**</td>
<td>240.44</td>
<td>**</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.053</td>
<td>0.059</td>
<td>0.117</td>
<td>0.124</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Statistically significant at the 95% level of confidence.

**Statistically significant at the 99% level of confidence.
Table 11

Regression Results: Single Equation Probit; Dependent Variable = GRAD/GED

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
<th>Model 3</th>
<th></th>
<th>Model 4</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dF/dx SE</td>
<td>dF/dx SE</td>
<td>dF/dx SE</td>
<td>dF/dx SE</td>
<td>dF/dx SE</td>
<td>dF/dx SE</td>
<td>dF/dx SE</td>
<td>dF/dx SE</td>
</tr>
<tr>
<td><strong>Student Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MALE</td>
<td>-0.031</td>
<td>0.025</td>
<td>-0.026</td>
<td>0.025</td>
<td>-0.017</td>
<td>0.025</td>
<td>-0.014</td>
<td>0.025</td>
</tr>
<tr>
<td>AGE</td>
<td>0.018</td>
<td>0.013</td>
<td>0.015</td>
<td>0.013</td>
<td>0.013</td>
<td>0.013</td>
<td>0.012</td>
<td>0.013</td>
</tr>
<tr>
<td>BLK</td>
<td>-0.235**</td>
<td>0.034</td>
<td>-0.229**</td>
<td>0.035</td>
<td>-0.224**</td>
<td>0.038</td>
<td>-0.201**</td>
<td>0.039</td>
</tr>
<tr>
<td>HISP</td>
<td>-0.171**</td>
<td>0.034</td>
<td>-0.133**</td>
<td>0.037</td>
<td>-0.151**</td>
<td>0.039</td>
<td>-0.156**</td>
<td>0.039</td>
</tr>
<tr>
<td>OTH</td>
<td>-0.023</td>
<td>0.129</td>
<td>-0.035</td>
<td>0.130</td>
<td>-0.034</td>
<td>0.124</td>
<td>-0.035</td>
<td>0.127</td>
</tr>
<tr>
<td>ATRISK00_02</td>
<td>-0.003</td>
<td>0.037</td>
<td>-0.015</td>
<td>0.038</td>
<td>0.006</td>
<td>0.040</td>
<td>0.026</td>
<td>0.040</td>
</tr>
<tr>
<td>EC_DIS00_02</td>
<td>-0.007</td>
<td>0.027</td>
<td>0.012</td>
<td>0.027</td>
<td>0.036</td>
<td>0.028</td>
<td>0.018</td>
<td>0.029</td>
</tr>
<tr>
<td>NOATT_99</td>
<td>-0.329**</td>
<td>0.027</td>
<td>-0.331**</td>
<td>0.027</td>
<td>-0.303**</td>
<td>0.030</td>
<td>-0.290**</td>
<td>0.031</td>
</tr>
<tr>
<td><strong>Student and School Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>URBAN</td>
<td>0.101</td>
<td>0.051</td>
<td>0.055</td>
<td>0.054</td>
<td>-0.039</td>
<td>0.060</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_BLK</td>
<td>-0.155**</td>
<td>0.053</td>
<td>-0.132</td>
<td>0.067</td>
<td>-0.159*</td>
<td>0.062</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_HISP</td>
<td>-0.110**</td>
<td>0.035</td>
<td>-0.111**</td>
<td>0.040</td>
<td>-0.141**</td>
<td>0.040</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_WHT</td>
<td>0.078</td>
<td>0.151</td>
<td>-0.087</td>
<td>0.156</td>
<td>-0.039</td>
<td>0.163</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Charter School Program Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COL_PREP</td>
<td>-0.082</td>
<td>0.051</td>
<td>-0.077</td>
<td>0.060</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH_ATRISK</td>
<td>-0.295**</td>
<td>0.062</td>
<td>-0.208</td>
<td>0.072</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GED_PROG</td>
<td>0.124**</td>
<td>0.033</td>
<td>0.081*</td>
<td>0.034</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOC</td>
<td>0.080**</td>
<td>0.031</td>
<td>0.104**</td>
<td>0.032</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCEL</td>
<td>-0.135**</td>
<td>0.051</td>
<td>-0.103*</td>
<td>0.054</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPEN</td>
<td>0.087*</td>
<td>0.037</td>
<td>0.099**</td>
<td>0.037</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLEX</td>
<td>-0.033</td>
<td>0.036</td>
<td>-0.026</td>
<td>0.036</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHAIN</td>
<td>0.144**</td>
<td>0.033</td>
<td>0.119*</td>
<td>0.034</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Charter School Maturity Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONV</td>
<td>0.010</td>
<td>0.038</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH_97</td>
<td>0.206**</td>
<td>0.050</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH_98</td>
<td>0.259*</td>
<td>0.107</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH_99</td>
<td>0.127**</td>
<td>0.036</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Observations: 1,761 1,761 1,761 1,761
Wald Chi Square: 169.12** 180.76** 242.89** 275.05**
Pseudo R²: 0.074 0.082 0.115 0.125

*Statistically significant at the 95% level of confidence.
**Statistically significant at the 99% level of confidence.
Table 12

Regression Results: Single Equation Probit; Dependent Variable = GED

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
<th>Model 3</th>
<th></th>
<th>Model 4</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dF/dx</td>
<td>SE</td>
<td>dF/dx</td>
<td>SE</td>
<td>dF/dx</td>
<td>SE</td>
<td>dF/dx</td>
<td>SE</td>
</tr>
<tr>
<td>Student Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MALE</td>
<td>0.023</td>
<td>0.022</td>
<td>0.025</td>
<td>0.023</td>
<td>0.025</td>
<td>0.022</td>
<td>0.024</td>
<td>0.022</td>
</tr>
<tr>
<td>AGE</td>
<td>0.048**</td>
<td>0.011</td>
<td>0.047**</td>
<td>0.011</td>
<td>0.035**</td>
<td>0.011</td>
<td>0.035**</td>
<td>0.012</td>
</tr>
<tr>
<td>BLK</td>
<td>-0.208**</td>
<td>0.026</td>
<td>-0.203**</td>
<td>0.027</td>
<td>-0.213**</td>
<td>0.028</td>
<td>-0.205**</td>
<td>0.028</td>
</tr>
<tr>
<td>HISP</td>
<td>-0.162**</td>
<td>0.027</td>
<td>-0.140**</td>
<td>0.029</td>
<td>-0.160**</td>
<td>0.029</td>
<td>-0.164**</td>
<td>0.029</td>
</tr>
<tr>
<td>OTH</td>
<td>-0.084</td>
<td>0.082</td>
<td>-0.091</td>
<td>0.076</td>
<td>-0.082</td>
<td>0.072</td>
<td>-0.075</td>
<td>0.078</td>
</tr>
<tr>
<td>ATRISK00_02</td>
<td>0.015</td>
<td>0.034</td>
<td>0.009</td>
<td>0.035</td>
<td>-0.027</td>
<td>0.039</td>
<td>-0.014</td>
<td>0.038</td>
</tr>
<tr>
<td>EC_DIS00_02</td>
<td>-0.097**</td>
<td>0.023</td>
<td>-0.084**</td>
<td>0.023</td>
<td>-0.080**</td>
<td>0.023</td>
<td>-0.089**</td>
<td>0.023</td>
</tr>
<tr>
<td>NOATT_99</td>
<td>-0.194**</td>
<td>0.021</td>
<td>-0.193**</td>
<td>0.021</td>
<td>-0.183**</td>
<td>0.021</td>
<td>-0.177**</td>
<td>0.022</td>
</tr>
<tr>
<td>Student and School Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>URBAN</td>
<td>0.044</td>
<td>0.043</td>
<td>-0.001</td>
<td>0.050</td>
<td>-0.051</td>
<td>0.060</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_BLK</td>
<td>-0.101*</td>
<td>0.040</td>
<td>-0.082</td>
<td>0.050</td>
<td>-0.086</td>
<td>0.048</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_HISP</td>
<td>-0.068*</td>
<td>0.028</td>
<td>-0.056</td>
<td>0.031</td>
<td>-0.063*</td>
<td>0.030</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_WHT</td>
<td>-0.031</td>
<td>0.118</td>
<td>-0.102</td>
<td>0.071</td>
<td>-0.083</td>
<td>0.086</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charter School Program Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COL_PREP</td>
<td>-0.122**</td>
<td>0.031</td>
<td>-0.093</td>
<td>0.041</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH_ATRISK</td>
<td>-0.106</td>
<td>0.082</td>
<td>-0.048</td>
<td>0.074</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GED_PROG</td>
<td>0.114**</td>
<td>0.029</td>
<td>0.084**</td>
<td>0.030</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VOC</td>
<td>0.044</td>
<td>0.029</td>
<td>0.037</td>
<td>0.029</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ACCEL</td>
<td>0.055</td>
<td>0.041</td>
<td>0.068</td>
<td>0.039</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OPEN</td>
<td>0.030</td>
<td>0.036</td>
<td>0.030</td>
<td>0.036</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FLEX</td>
<td>0.003</td>
<td>0.031</td>
<td>0.010</td>
<td>0.031</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHAIN</td>
<td>0.032</td>
<td>0.031</td>
<td>0.007</td>
<td>0.031</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Charter School Maturity Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CONV</td>
<td>0.013</td>
<td>0.034</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH_97</td>
<td>0.091</td>
<td>0.054</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH_98</td>
<td>0.008</td>
<td>0.165</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CH_99</td>
<td>0.089**</td>
<td>0.032</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>1,230</td>
<td>1,230</td>
<td>1,230</td>
<td>1,230</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wald Chi Square</td>
<td>125.15**</td>
<td>129.19**</td>
<td>156.01**</td>
<td>171.93**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pseudo R^2</td>
<td>0.114</td>
<td>0.122</td>
<td>0.151</td>
<td>0.158</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Statistically significant at the 95% level of confidence.
**Statistically significant at the 99% level of confidence.
### Table 13

**Calculated Likelihood Ratio (LR) Statistics: Group Dummies**

<table>
<thead>
<tr>
<th>Dummy Group</th>
<th>Model</th>
<th>GRAD</th>
<th>GRAD/GED</th>
<th>GED</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethnicity (BLK, HISP, OTH)</td>
<td></td>
<td>0.30</td>
<td>25.81**</td>
<td>45.66**</td>
</tr>
<tr>
<td>One-race Charter (OR_BLK, OR_HISP, OR_WHT)</td>
<td></td>
<td>8.24*</td>
<td>15.49**</td>
<td>7.51</td>
</tr>
<tr>
<td>Charter Maturity (CH_97, CH_98, CH_99)</td>
<td></td>
<td>14.37**</td>
<td>20.36**</td>
<td>7.81*</td>
</tr>
</tbody>
</table>

*Statistically significant at the 95% level of confidence.
**Statistically significant at the 99% level of confidence.

### Student Characteristics

As expected, the variable MALE returned negative marginal effects in the GRAD and GRAD/GED models and positive effects in the GED model. The only statistically significant effects were those in the GRAD model, indicating that, holding other factors constant, male charter students were less likely than females to graduate with a diploma.

AGE also followed the expected patterns. For the dependent variable GRAD, the effects of students’ age were consistently negative and statistically significant only in Models 1 and 2. Across the GRAD/GED models, AGE was positive and consistently insignificant, and for GED outcomes, AGE was positive and strongly significant (p < 0.01) across all models, indicating that older charter students were more likely to obtain GEDs, all else constant.

The ethnicity dummies BLK, HISP, and OTH demonstrated the expected relationships with the base group WHT across all models. The variables BLK and HISP produced consistently negative effects, and OTH returned positive effects in the GRAD models and negative effects in models that included GED attainment. The autonomous
effects for BLK and HISP and group effects for the set of ethnicity variables were statistically significant in the GRAD/GED and GED models (see Table 12).

ATRISK00_02 and EC_DIS00_02 returned unexpected results. Although it was not statistically significant in any of the regressions, ATRISK00_02’s sign changed across the models for each outcome. In the GRAD models, ATRISK00_02 was negative in Models 1 and 2 and positive in Models 3 and 4. This pattern was repeated in the GRAD/GED models, and reversed in the GED models, producing positive effects in Models 1 and 2 and negative effects in 3 and 4.

EC_DIS00_02 also produced curious results. In the GRAD models, EC_DIS00_02 was consistently positive and statistically significant. In the GRAD/GED models it switched signs, producing positive and negative insignificant effects, and in the GED models, it was consistently negative and significant. These results seem to indicate that, holding other factors constant, low-income students were more likely to graduate and less likely to earn GEDs than students from more affluent backgrounds. This result stands in contrast to the data trends and prior research cited earlier in this chapter.

A possible explanation for this finding is that low-income charter school students may attend charter schools because they need flexible schedules in order to maintain jobs, while more affluent students may be enrolled in charters because they experienced discipline problems or had been expelled from district schools. If this were true, it may be that the low-income students were more focused on their school work and more committed to graduating than wealthier students who wasted time goofing off. The data did not support this explanation, however. When discipline and work patterns
for charter school students were compared by low-income status, no significant
differences emerged.

The most likely explanation for the unforeseen results for ATRISK00_02 and
EC_DIS00_02 rests in the manner in which the variables were coded. Recall that 30%
of charter students lacked coding in these categories and that the same students who
lacked coding for at-risk status also lacked coding for economic disadvantage. The
patterns in the missing data may indicate that these variables suffer from the statistical
problem of multicollinearity. Multicollinearity is a common data problem that reflects the
tendency of some regressors to share a linear or other type relationship with other
regressors in the dataset. There are few appropriate corrections for multicollinearity,
and this study chooses to overlook the problem and draws no inferences from
ATRISK00_02 and EC_DIS00_02 in this chapter’s regressions.

The variable indicating that a student was a returning drop out, NOATT_99,
produced strongly significant negative marginal effects (p < 0.01) across all models. The
large magnitudes of NOATT_99’s effects suggest that, all else constant, the probability
of charter students graduating or earning GEDs is substantially reduced if they have
interrupted their schooling for a year or more.

Student and School Characteristics

As expected, urbanicity was not a statistically significant predictor of charter
schools’ graduation outcomes for this set of regressions.

The one-race school variables, OR_BLK and OR_HISP, returned the expected
negative marginal effects across all models and were consistently significant across the
set of GRAD models. OR_HISP was also negative and significant in the GRAD/GED
models. OR_WHT returned the expected signs, producing positive effects in the GRAD models and negative effects in the GED models. As shown in Table 12, as a group, one-race schools were statistically significant in the GRAD and GRAD/GED models. These results indicate that, holding other factors constant, students enrolled in one-race minority charter schools experienced reduced graduation outcomes, although it does not appear that this result holds for GED attainment. The magnitude of the negative effect was consistently larger for students in one-race Black charters than for students in one-race Hispanic schools.

**Charter School Program Characteristics**

College preparatory charters did not produce the expected statistically significant positive effects in the GRAD models. The lack of significance may reflect inaccuracies in how the schools present their programs. It is clear that charters such as Pencey are genuinely focused on preparing students for college, but it is not certain that all charters that promote college preparatory programs are as singularly committed to academic education. For example, a sample charter that advertised an International Baccalaureate (IB) college preparatory curriculum also offered GED preparation, licensure programs in cosmetology and drafting, and “Fast Track” accelerated graduation options. While these offerings are not mutually exclusive, it seems unlikely that a school attuned to the rigors of a college preparatory education would define its instructional program so broadly. For the GRAD/GED outcome, COL_PREP is negative and insignificant, and for the GED only models, it returned the expected negative effects across models and was statistically significant in Model 3.
At-risk charter schools (CH_ATRISK) produced negative and statistically significant results across all models as expected.

Charters that offered GED programs also performed as expected, producing positive and significant effects on the likelihood of a student obtaining a GED and positive but insignificant effects on the likelihood of students graduating with a diploma.

Vocational charters (VOC) and programs that offered open entry/exit enrollment (OPEN) produced positive and statistically significant effects in the GRAD and GRAD/GED models. The effect of both variables remained positive in the GED only models, but neither produced significant effects. These results suggest that flexibility in enrollment policies and vocational programs may be effective methods of retaining at-risk high school students until they are able to meet the requirements of diploma graduation.

Charters that offered accelerated instruction (ACCEL) returned negative and statistically significant effects across the GRAD and GRAD/GED models. The magnitude of the negative effects was also quite strong, ranging from -0.103 in GRAD/GED Model 4 to -0.209 in GRAD Model 3. A possible explanation for the negative effect of accelerated instruction may be that such programs are able to increase the rate at which students complete coursework but that rapid course completion does not provide students with ability levels sufficient to pass the state mandated exit-level exams required for diploma graduation. Further study is necessary in order to determine whether this explanation holds. Although ACCEL is not statistically significant in the GED only models, its effect is positive, which may indicate that accelerated programs may hold some benefit for students seeking GEDs.
Flexible scheduling charters (FLEX) returned negative but statistically insignificant effects across the GRAD and GRAD/GED models and positive but insignificant results in the GED models. The signs on marginal effects reflect expectations; however, the lack of statistical significance indicates that charter students who attend school only 4 hours a day do not experience reduced outcomes relative to students in full day programs.

The strong positive and highly significant ($p < 0.01$) effect of chain charters in the GRAD and GRAD/GED models indicates that, all else constant, large-scale charter operators improved students’ graduation outcomes relative to charters with one or two campuses. This result contrasts the findings of some qualitative studies that have associated multiple site charters with poor school performance and reduced student test scores.

**Charter School Maturity Characteristics**

Conversion charters (CONV) produced positive marginal effects across models but contrary to expectations, were not a statistically significant predictor of outcomes. A review of conversion school programs did not reveal an explanation for this result. Most of the schools were at-risk urban programs and several were suburban college preparatory schools. In 2002, TEA was monitoring one sample conversion because of problems with poor financial management, low student achievement, and a reported student drug problem (TEA, 2001c, p. 12).

The results for the start year variables parallel the findings of previous research indicating that charter school testing outcomes improve as schools mature. While the significance of the autonomous start year effects varied across dependent variables,
their marginal effects were consistently positive, and as a group, the start year variables were statistically significant in all models (see Table 12). These findings indicate that, like test scores, charter schools’ graduation outcomes also improve as schools gain experience.

Summary

This chapter’s strongest results are those that are rooted in prior research. These include the positive effects of vocational programs and charter school maturity as well as the negative effects of racially isolated schools. The finding that more tenured charter schools have better graduation outcomes supports previous research indicating that experience influences effectiveness. This result suggests that charter school policymakers must be sensitive to school maturity levels when assessing performance and may want to delay assessments of new charters until the schools have had some time to get up to speed.

The reduced probability of graduation for students attending one-race Black and Hispanic charter schools underscores the educational benefits of integrated schooling and suggests that charters should strive to attract diverse enrollments in their recruitment policies. While legal restrictions prevent legislators in most states from including racial balancing provisions in their charter school policies, provisions requiring charter schools to balance enrollments by socioeconomic status or geographic region, which may act as proxies for race, are permissible and may be effective approaches to integrating charter school enrollments.

There is little research to support or contradict the results for the remaining charter program variables included in this chapter’s analyses. The following conclusions
are offered noting the need for further research to establish whether these results hold over time and for other cohorts of students.

The strong negative effect of accelerated instructional is somewhat alarming given the broad implementation of accelerated programs in Texas. More than 80% of the charters included in this dissertation’s analyses offered some form of accelerated instruction (see Table 6), and as noted earlier in this chapter, many of Texas’s traditional districts are implementing accelerated coursework for their at-risk high school students. Accelerated instruction appeals to students because it promises rapid completion of a high school program—some sample charters promoted accelerated options in which students may have completed the requirements for a high school diploma in as little as 2 years. These are hollow promises, however, if the fast-track to graduation is paved with thin curricula that provide inadequate support for exit-level testing. If this is the case, charter policy makers may want to decelerate such programs in order to ensure that students master the coursework and skills necessary to pass exit-level exams.

The strong positive effect of open entry/exit enrollment policies on diploma graduation suggests that students who are permitted to interrupt their schooling for brief periods in order to handle other obligations resume their schooling and graduate. This finding is bolstered by the comments of the Achievement Project principal who estimated that “nine out of ten” of the students who took advantage of open entry/exit options at her campus returned to school (see chapter 5). This result indicates that flexible enrollment policies are an effective means to retain high school students until they are able to complete a high school program.
The strong positive effect of chain charters on graduation rates indicates that large-scale charter operators are reproducing programs that are effective in keeping students in school until they graduate. While further research is needed in order to determine whether the positive effect for chain charters holds over time, the results of this chapter’s analyses suggest that chain charter operators are able to develop considerable expertise in the management charter schools and that this expertise translates into improved outcomes for students.
CHAPTER 7

CHARTER AND TRADITIONAL DISTRICT GRADUATION OUTCOMES

This chapter’s analyses estimate graduation and General Educational Development (GED) outcomes using a larger sample of charter and traditional public school students. The inclusion of both types of students requires that the regression models account for students’ nonrandom selection into charter schools. Students who choose to attend charter schools may be qualitatively different from students who remain in traditional public schools, and it may be the qualities of the students rather than their choice of schools that determined graduation outcomes. In situations where students choose to attend a type of school, it is difficult to establish a cause-and-effect relationship between the chosen school and observed outcomes because the decision to attend the school is often shaped by student characteristics that also affect outcomes. Suppose, for example, that families that enroll their children in charter schools place a high value on education and that charter school parents are better educated and more involved in their children’s schooling than other parents. And suppose that a comparison of student achievement in charter schools and district schools revealed that charter students tended to earn higher test scores. While it might appear that the charter schools did a better job of educating students, it is hard to determine the true source of charter students’ achievement gains because the background characteristics that caused students to choose charters also influenced their test scores. Researchers refer to this problem as the endogeneity of choice.
Regression variables that measure choice are said to be endogenous if they exhibit a two-way, causal relationship with the model’s dependent variable.

The central problem of endogenous regressors is that their values are determined within the system of a regression equation and are therefore correlated with the unobserved factors included in the model’s error term. In contrast, exogenous variables have values that are determined outside of a regression model and are uncorrelated with the model’s error term. Researchers studying testing outcomes in the example cited above might include gender as an exogenous predictor of test scores—gender may affect test scores, but it seems clear that test scores do not affect gender. The same cannot be said of a variable expressing the choice to attend a charter school, however. While charter school attendance may have affected test scores, test results also may have affected a student’s decision to attend a charter. In this instance, test score gains and the choice to attend a charter school are jointly-determined, making it difficult to identify the source of outcomes.

The Problem of Endogenous Regressors

Endogenous independent variables share a simultaneous, or two-way, relationship with a regression’s dependent variable. That is, X explains Y, and Y simultaneously explains X. In models that include endogenous choice variables, it is necessary to include a second, auxiliary regression that estimates the choice variable as a function of a variable or set of variables recognized as instruments for the choice. The auxiliary regression estimates a predicted value, or probability of choosing, for each observation that is then included in place of the endogenous choice variable in the regression estimating the outcome of primary interest. In ideal situations, the auxiliary,
or first-stage, regression controls for the unobserved factors that motivated choice, and the inclusion of the imputed probability from the first-stage regression produces unbiased and consistent estimates in second-stage regressions.

This chapter implements this two-step approach using probit regression, estimating sets of two-stage probit models in which the first-stage regression attempts to control for the factors that affect a student’s decision to attend a charter school and the second-stage models estimate graduation outcomes. The first-stage model regresses the endogenous variable CHARTER, a dummy variable indicating that a student chose to attend a charter school in the fall of 1999, on a set of exogenous variables related to students’ demographic characteristics, standardized test scores, and employment status as well as a set of variables that act as instruments for choice. The instrumental variables used here express students’ attendance and discipline patterns from the previous school year and indicate whether a student repeated the 9th grade. The rationale for using attendance, discipline, and retention variables as instruments for choice is based on interviews with charter school directors who reported that difficulties with attendance and discipline in traditional public schools frequently influenced a student’s decision to attend a charter school. The first-stage regression produces a predicted value for each sample observation that represents a student’s predicted probability of choosing a charter school, and the predicted values (PCHARTER) are included as a variable the second-stage regressions of graduation outcomes.

As in chapter 6, this chapter models graduation outcomes using three dependent variables: graduation with a diploma only (GRAD), graduation with a diploma or GED
(GRAD/GED), and GED only (GED). And as in chapter 6, this chapter uses a smaller sample that excludes diploma graduates when estimating its GED only model. Because two samples are used, the predicted probability of attending a charter school must be estimated separately for each sample. This results in two variables: PCHARTER, the predicted probability of attending a charter school estimated using the sample that includes diploma graduates and GEDs, and PCHARTER2, the predicted probability estimated from the smaller sample that omits diploma graduates. PCHARTER is used in place of the endogenous regressor CHARTER in the second-stage regressions of graduation outcomes, GRAD and GRAD/GED, and PCHARTER2 replaces CHARTER in the GED only model. The estimated marginal effects for PCHARTER and PCHARTER2 in the second-stage regressions represent the average effect of charter school attendance on the respective graduation outcomes conditioned by the values of the models’ other independent variables. A central limitation of this approach is that the marginal effects for the model’s remaining independent variables are restricted to be the same for charter and traditional public school students. For example, it is not possible to know whether the effect of charter school attendance differs across ethnic categories.

Ideally, the instruments used to control for choice are exogenous to the second-stage model’s dependent variable. According to Angrist and Krueger (2001): “A good instrument is correlated with the endogenous regressor for reasons the researcher can verify and explain, but uncorrelated with the outcome variable for reasons beyond its effect on the endogenous regressor” (p. 73). Such instruments are difficult to find in studies of school choice because most of the student characteristics that influence schooling decisions also influence educational outcomes. As noted in chapter 4, one
study of the differences in student levels of educational attainment between public and private Catholic schools used students’ religious affiliation as an exogenous instrument of choice (Evans & Schwab, 1995). In a similar study, Neal (1997) used geographic proximity to Catholic schools as an instrument for Catholic school attendance. In both instances, researchers asserted that the instruments were exogenous because being Catholic and living in close proximity to a Catholic school were not correlated with educational outcomes. However, as Altonji, Elder, and Taber (2002) have suggested, such claims are “far from bulletproof” (p. 3). Catholic parents may choose to live near Catholic schools so that their children may attend them. Thus, living in close proximity to a Catholic school may act as a proxy for parental interests that may have a strong influence on educational outcomes. As for the exogeneity of religious affiliation, Altonji et al. argued that being Catholic, “could well be correlated with characteristics of the neighborhood and family that influence the effectiveness of schools” (p. 2).

The instruments used to model charter school choice in this chapter have similar and more apparent flaws. Ninth grade retention and attendance and discipline problems may be the reasons many students choose to opt out of district schools in order to attend charters, but these problems are not exogenous to graduation outcomes. As discussed below, students who repeat the 9th grade are less likely to graduate as are students with poor attendance and discipline problems. To admit impediment, however, is not to concede defeat, and this chapter proceeds with the acknowledgement that its instruments for choice are imperfect and that its second-stage estimates are not without bias.

Understated Second-stage Estimates of Variance
The inclusion of PCHARTER in the second-stage regressions causes another statistical problem. Because PCHARTER is an estimate of an unobserved variable—the likelihood a student will attend a charter school—it contains sampling error. As discussed in chapter 4, the sampling error included in estimated independent variables causes second-stage standard errors to be understated, leading to unreliable tests of statistical significance.

Murphy and Topel (1985) have designed a method for calculating the correct standard errors through a series of adjustments to the second-stage variance-covariance matrix. Hardin (2002) demonstrated that the sandwich estimator produces variance estimates that are equivalent to those produced by the Murphy-Topel correction when the regression utilizes a large sample. This chapter uses a sample comprised of 30,930 students in its estimation of diploma outcomes and a sample of 6,266 students in its estimation of GED outcomes. Noting the relatively large size of its samples, this chapter uses the sandwich estimator instead of the Murphy-Topel correction in its second-stage regressions.

Sample Identification

As noted above, this chapter’s regressions include students’ standardized test scores as controls for academic ability. In order not to introduce additional endogenous variables, the regressions utilize student’s 3rd grade Texas Assessment of Academic Skills (TAAS) reading and math scores. Because these tests were taken before charters existed in Texas, it is unlikely that students’ scores had any influence on the decision to enroll in a charter school. The use of students’ 3rd grade scores ensures that the TAAS variables STDRED3 and STDMTH3 are exogenous but substantially reduces the
sample of charter school students available for this chapter’s analyses. Of the full sample of charter school students (n = 1,761) identified for this study, only 930 (52.8%) had TAAS scores recorded in the Texas Schools Project (TSP) data set. The earliest TAAS scores included in the TSP data are for the 1991 school year; therefore, students who attended the 3rd grade prior to 1991 do not have scores in the database. Because charter school students tended to be older than students in traditional high schools, more of their scores were lost. Of the full sample of traditional public school students identified in chapter 4 (n = 245,897), 71.8% had 3rd grade TAAS scores included in the TSP data. After omitting observations that lacked TAAS score, charter students comprised about half a percent (0.52%) of the full sample of students with available test scores (n = 177,395).

While it is possible to estimate charter school attendance and graduation outcomes under these conditions, regressions that include such a small percentage charter students will produce estimated marginal effects that are too small to permit meaningful inference. In order to offset this limitation, the regressions presented below included the 930 charter students with TAAS scores and a random sample of 30,000 traditional public school students with scores. In this way, charter students comprise about 3% of the sample, and the estimated marginal effects produce more meaningful results.

Variable Definitions and Summary Statistics

Table 14 presents brief variable definitions of each of the variables included in this chapter’s regressions. Summary statistics, including mean (M), standard deviation (SD), and minimum (Min) and maximum (Max) values for all variables are presented in
Tables 15, 16, and 17. Table 15 presents summary statistics for the full samples of traditional and charter school students used in the regressions of GRAD and GRAD/GED models and the GED model. Recall that GED models omit diploma graduates and therefore are comprised of a smaller sample of students. Table 16 presents summary statistics by type of school attended for the sample of students included in the GRAD and GRAD/GED models, and Table 17 does the same for the sample of students included in the GED only model. A discussion of the rationale behind this chapter’s approach to modeling charter school choice and its model specifications is the subject of the next section.

Tables 16 and 17 highlight some important differences between cohort students who attended charter schools and those who remained in traditional district classrooms. As noted in chapters 4 and 6, charter schools enrolled larger proportions of Black, Hispanic and at-risk students than traditional public schools, and cohort charter students were more likely to be enrolled one-race minority schools. Table 16 indicates that of the full sample \((n = 30,930)\) included in this chapter’s analyses, about 10% of charter students compared with approximately 2% of district students did not attend a Texas public school during the 1999 school year \((\text{NOATT}_99)\), and 32.5% of charter students compared with 13.1% of district students worked during the spring semester of 1999 \((\text{WAGE}_99)\). There are also pronounced differences between charter and traditional public school students with respect to the retention, attendance, and discipline variables included as instruments for charter school choice. Table 16’s summary statistics indicate that 29% of charter students repeated the 9th grade compared with 5% of district students \((\text{REPEAT}_\text{GR9})\). Ten percent of charter students missed school for
large blocks of time during the 1999 school year (MISSATT_99) compared with less than 1% of district students. Nearly 9% of charter students attended three or more separate campuses during the 1999 school year compared with less than 1% of district students (MOBILE_99). And about 13% of charter students compared with 4.3% of district students had three or more disciplinary referrals during the 1999 school year (DISC_99). Table 17’s statistics for the smaller GED sample reflect these patterns, although for some variables, the differences are less pronounced.
### Table 14

**Variable Definitions: Two-stage Probit Models**

<table>
<thead>
<tr>
<th>Dependent Variables</th>
<th>Independent Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>(CHARTER)$_i$ = 1 if student$_i$’s primary campus of attendance in the fall of 1999 was a charter school.</td>
<td>Student Characteristics</td>
</tr>
<tr>
<td>(GRAD)$_i$ = 1 if student$_i$ received a high school diploma prior to August 1, 2002.</td>
<td>(MALE)$_i$ = 1 if student$_i$ is male.</td>
</tr>
<tr>
<td>(GRAD/GED)$_i$ = 1 if student$_i$ received either a high school diploma or a GED prior to August 1, 2002.</td>
<td>(AGE)$_i$ = student$_i$’s age on September 1, 1999.</td>
</tr>
<tr>
<td>(GED)$_i$ = 1 if student$_i$ received a GED.</td>
<td>(BLK)$_i$ = 1 if student$_i$ is Black.</td>
</tr>
<tr>
<td>(GRAD/GED)$_i$ = 1 if student$_i$ received either a high school diploma or a GED prior to August 1, 2002.</td>
<td>(HISP)$_i$ = 1 if student$_i$ is Hispanic.</td>
</tr>
<tr>
<td>(EC_DIS00_02)$_i$ = 1 if student$_i$ qualified for free or reduced price lunch or another disadvantage during any of the 2000, 2001, or 2002 school years.</td>
<td>(WHT)$_i$ = 1 if student$_i$ is White (base group).</td>
</tr>
<tr>
<td>(EC_DIS98_99)$_i$ = 1 if student$_i$ qualified for free or reduced price lunch or another disadvantage during the 1998 or 1999 school year.</td>
<td>(OTH)$_i$ = 1 if student$_i$ is of another ethnic background.</td>
</tr>
<tr>
<td>(STDRED3)$_i$ = student$_i$’s standardized score on the TAAS 3rd grade reading exam.</td>
<td>(ATRISK00_02)$_i$ = 1 if student$_i$ was characterized at-risk during any of the 2000, 2001, or 2002 school years.</td>
</tr>
<tr>
<td>(STDMTH3)$_i$ = student$_i$’s standardized score on the TAAS 3rd grade math exam.</td>
<td>(ATRISK98_99)$_i$ = 1 if student$_i$ was characterized at-risk during the 1998 or 1999 school year.</td>
</tr>
<tr>
<td>(NOATT_99)$_i$ = 1 if student$_i$ had no recorded attendance at any Texas public school during the 1999 school year.</td>
<td>(WAGE)$_i$ = 1 if the Texas Workforce Commission recorded wages for student$_i$ during the first two quarters of 1999.</td>
</tr>
</tbody>
</table>

Table 14 (continued)

Variable Definitions

Student and School Characteristics

(URBAN)$i$ = 1 if student$i$ attended school in an urban area.
(OR_BLK)$i$ = 1 if student$i$ attended a one-race Black school.
(OR_HISP)$i$ = 1 if student$i$ attended a one-race Hispanic school.
(OR_WHT)$i$ = 1 if student$i$ attended a one-race White school.
(OR_NOT)$i$ = 1 if student$i$ attended a school that was not characterized by one-race enrollment (base).

Retention, Attendance, and Discipline Characteristics

(REPEAT_GR9)$i$ = 1 if student$i$ attended a Texas public school as a 9th grade student during the fall semester of both the 1998 and 1999 school years.
(MISSATT_99)$i$ = 1 if student$i$ lacked attendance for two of the PEIMS six 6-week attendance periods of 1999.
(MOBILE_99)$i$ = 1 if student$i$ attended three or more separate campuses during the 1999 school year.
(RATIO_99)$i$ = the ratio of days student$i$ attended school to the days available for instruction during the spring semester of the 1999 school year.
(DISC_99)$i$ = 1 if student$i$ had three or more disciplinary referrals during the 1999 school year.
(EXPEL_99)$i$ = 1 if student$i$ was expelled during the 1999 school year.

Predicted Probabilities of Charter School Attendance (from first-stage regressions)

(PCHARTER)$i$ = the predicted probability of student$i$ attending a charter school from the first-stage regression using the full sample.
(PCARTER2)$i$ = the predicted probability of student$i$ attending a charter school from the first-stage regression using the smaller sample limited to students who either obtained a GED or did not graduate.
Table 15

Summary Statistics Full Models: GRAD, GRAD/GED and GED

<table>
<thead>
<tr>
<th></th>
<th>GRAD and GRAD/GED</th>
<th>GED only</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(n = 30,930)</td>
<td>(n = 6,266)</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Dependent Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRAD</td>
<td>0.797</td>
<td>0.402</td>
</tr>
<tr>
<td>GRAD/GED</td>
<td>0.834</td>
<td>0.372</td>
</tr>
<tr>
<td>GED</td>
<td>0.037</td>
<td>0.188</td>
</tr>
<tr>
<td>CHARTER</td>
<td>0.030</td>
<td>0.171</td>
</tr>
<tr>
<td>Independent Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MALE</td>
<td>0.508</td>
<td>0.500</td>
</tr>
<tr>
<td>AGE</td>
<td>15.332</td>
<td>0.593</td>
</tr>
<tr>
<td>BLK</td>
<td>0.137</td>
<td>0.344</td>
</tr>
<tr>
<td>HISP</td>
<td>0.340</td>
<td>0.474</td>
</tr>
<tr>
<td>WHT</td>
<td>0.499</td>
<td>0.500</td>
</tr>
<tr>
<td>OTH</td>
<td>0.024</td>
<td>0.152</td>
</tr>
<tr>
<td>ATRISK98_99</td>
<td>0.435</td>
<td>0.496</td>
</tr>
<tr>
<td>EC_DIS98_99</td>
<td>0.414</td>
<td>0.493</td>
</tr>
<tr>
<td>ATRISK00_02</td>
<td>0.554</td>
<td>0.497</td>
</tr>
<tr>
<td>EC_DIS00_02</td>
<td>0.382</td>
<td>0.486</td>
</tr>
<tr>
<td>STDRED3</td>
<td>0.021</td>
<td>0.986</td>
</tr>
<tr>
<td>STDMTH3</td>
<td>0.016</td>
<td>0.988</td>
</tr>
<tr>
<td>NOATT_99</td>
<td>0.020</td>
<td>0.141</td>
</tr>
<tr>
<td>WAGE_99</td>
<td>0.137</td>
<td>0.343</td>
</tr>
<tr>
<td>Student and School Characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>URBAN</td>
<td>0.717</td>
<td>0.451</td>
</tr>
<tr>
<td>OR.BLK</td>
<td>0.010</td>
<td>0.101</td>
</tr>
<tr>
<td>OR.HISP</td>
<td>0.100</td>
<td>0.300</td>
</tr>
<tr>
<td>OR.WHT</td>
<td>0.051</td>
<td>0.220</td>
</tr>
<tr>
<td>OR.NOT</td>
<td>0.839</td>
<td>0.368</td>
</tr>
<tr>
<td>Retention, Attendance, and Discipline Characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REPEAT_GR9</td>
<td>0.059</td>
<td>0.236</td>
</tr>
<tr>
<td>MISSATT_99</td>
<td>0.012</td>
<td>0.107</td>
</tr>
<tr>
<td>RATIO_99</td>
<td>0.977</td>
<td>0.162</td>
</tr>
<tr>
<td>MOBILE_99</td>
<td>0.008</td>
<td>0.088</td>
</tr>
<tr>
<td>DISC_99</td>
<td>0.045</td>
<td>0.208</td>
</tr>
<tr>
<td>EXPEL_99</td>
<td>0.007</td>
<td>0.082</td>
</tr>
<tr>
<td>Predicted Value of Charter School Attendance (from First-stage Regressions)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCHARTER</td>
<td>0.030</td>
<td>0.071</td>
</tr>
<tr>
<td>PCHARTER2</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>
Table 16

Summary Statistics GRAD and GRAD/GED Models by School Type

<table>
<thead>
<tr>
<th></th>
<th>Traditional Public School Students (n = 30,000)</th>
<th>Charter School Students (n = 930)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Dependent Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GRAD</td>
<td>0.812</td>
<td>0.391</td>
</tr>
<tr>
<td>GRAD/GED</td>
<td>0.845</td>
<td>0.362</td>
</tr>
<tr>
<td>GED</td>
<td>0.033</td>
<td>0.179</td>
</tr>
<tr>
<td>CHARTER</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td>Independent Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MALE</td>
<td>0.509</td>
<td>0.500</td>
</tr>
<tr>
<td>AGE</td>
<td>15.304</td>
<td>0.557</td>
</tr>
<tr>
<td>BLK</td>
<td>0.131</td>
<td>0.338</td>
</tr>
<tr>
<td>HISP</td>
<td>0.336</td>
<td>0.472</td>
</tr>
<tr>
<td>WHT</td>
<td>0.509</td>
<td>0.500</td>
</tr>
<tr>
<td>OTH</td>
<td>0.024</td>
<td>0.153</td>
</tr>
<tr>
<td>ATRISK98_99</td>
<td>0.424</td>
<td>0.494</td>
</tr>
<tr>
<td>EC_DIS98_99</td>
<td>0.410</td>
<td>0.492</td>
</tr>
<tr>
<td>ATRISK00_02</td>
<td>0.545</td>
<td>0.498</td>
</tr>
<tr>
<td>EC_DIS00_02</td>
<td>0.379</td>
<td>0.485</td>
</tr>
<tr>
<td>STDRED3</td>
<td>0.020</td>
<td>0.987</td>
</tr>
<tr>
<td>STDMTH3</td>
<td>0.014</td>
<td>0.989</td>
</tr>
<tr>
<td>NOATT_99</td>
<td>0.018</td>
<td>0.133</td>
</tr>
<tr>
<td>WAGE_99</td>
<td>0.131</td>
<td>0.337</td>
</tr>
<tr>
<td>Student and School Characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>URBAN</td>
<td>0.711</td>
<td>0.453</td>
</tr>
<tr>
<td>OR_Blk</td>
<td>0.009</td>
<td>0.095</td>
</tr>
<tr>
<td>OR_HISP</td>
<td>0.096</td>
<td>0.294</td>
</tr>
<tr>
<td>OR_WHT</td>
<td>0.052</td>
<td>0.223</td>
</tr>
<tr>
<td>OR_NOT</td>
<td>0.843</td>
<td>0.364</td>
</tr>
<tr>
<td>Retention, Attendance, and Discipline Characteristics</td>
<td></td>
<td></td>
</tr>
<tr>
<td>REPEAT_GR9</td>
<td>0.052</td>
<td>0.223</td>
</tr>
<tr>
<td>MISSATT_99</td>
<td>0.009</td>
<td>0.094</td>
</tr>
<tr>
<td>RATIO_99</td>
<td>0.981</td>
<td>0.149</td>
</tr>
<tr>
<td>MOBILE_99</td>
<td>0.005</td>
<td>0.073</td>
</tr>
<tr>
<td>DISC_99</td>
<td>0.043</td>
<td>0.202</td>
</tr>
<tr>
<td>EXPEL_99</td>
<td>0.007</td>
<td>0.081</td>
</tr>
</tbody>
</table>

Predicted Value of Charter School Attendance (from First-stage Regression)

|                                |      |      |      |      |      |      |      |      |
| PCHARTER                       | 0.025| 0.055| 0.000| 0.941| 0.196| 0.204| 0.000| 0.953|

152
Table 17

Summary Statistics: GED Models by School Type

<table>
<thead>
<tr>
<th></th>
<th>Traditional Public School Students (n = 5,638)</th>
<th>Charter School Students (n = 628)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td><strong>Dependent Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GED</td>
<td>0.176</td>
<td>0.381</td>
</tr>
<tr>
<td>CHARTER</td>
<td>0.000</td>
<td>0.000</td>
</tr>
<tr>
<td><strong>Independent Variables</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Student Characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MALE</td>
<td>0.590</td>
<td>0.492</td>
</tr>
<tr>
<td>AGE</td>
<td>15.658</td>
<td>0.729</td>
</tr>
<tr>
<td>BLK</td>
<td>0.146</td>
<td>0.353</td>
</tr>
<tr>
<td>HISP</td>
<td>0.419</td>
<td>0.493</td>
</tr>
<tr>
<td>WHT</td>
<td>0.422</td>
<td>0.494</td>
</tr>
<tr>
<td>OTH</td>
<td>0.013</td>
<td>0.115</td>
</tr>
<tr>
<td>ATRISK98_99</td>
<td>0.645</td>
<td>0.478</td>
</tr>
<tr>
<td>EC_DIS98_99</td>
<td>0.546</td>
<td>0.498</td>
</tr>
<tr>
<td>ATRISK00_02</td>
<td>0.762</td>
<td>0.426</td>
</tr>
<tr>
<td>EC_DIS00_02</td>
<td>0.487</td>
<td>0.500</td>
</tr>
<tr>
<td>STDRED3</td>
<td>-0.208</td>
<td>1.097</td>
</tr>
<tr>
<td>STDMTH3</td>
<td>-0.179</td>
<td>1.107</td>
</tr>
<tr>
<td>NOATT_99</td>
<td>0.047</td>
<td>0.211</td>
</tr>
<tr>
<td>WAGE_99</td>
<td>0.198</td>
<td>0.398</td>
</tr>
<tr>
<td><strong>Student and School Characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>URBAN</td>
<td>0.750</td>
<td>0.433</td>
</tr>
<tr>
<td>OR_BLK</td>
<td>0.012</td>
<td>0.110</td>
</tr>
<tr>
<td>OR_HISP</td>
<td>0.109</td>
<td>0.312</td>
</tr>
<tr>
<td>OR_WHT</td>
<td>0.037</td>
<td>0.190</td>
</tr>
<tr>
<td>OR_NOT</td>
<td>0.841</td>
<td>0.366</td>
</tr>
<tr>
<td><strong>Student Retention, Attendance, and Discipline Characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REPEAT_GR9</td>
<td>0.154</td>
<td>0.361</td>
</tr>
<tr>
<td>MISSATT_99</td>
<td>0.020</td>
<td>0.141</td>
</tr>
<tr>
<td>RATIO_99</td>
<td>0.943</td>
<td>0.233</td>
</tr>
<tr>
<td>MOBILE_99</td>
<td>0.019</td>
<td>0.136</td>
</tr>
<tr>
<td>DISC_99</td>
<td>0.121</td>
<td>0.327</td>
</tr>
<tr>
<td>EXPEL_99</td>
<td>0.019</td>
<td>0.136</td>
</tr>
<tr>
<td><strong>Predicted Value of Charter School Attendance (from First-stage Regression)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCHARTER2</td>
<td>0.083</td>
<td>0.097</td>
</tr>
</tbody>
</table>
Modeling Choice

Some Evidence on Who Chooses Charter Schools

Like much of the research on school choice and charter schools, the evidence on which students take advantage of school choice options and the reasons for their choices is divided. Some studies have found that students with better academic abilities and higher socioeconomic backgrounds are more likely to enroll in choice schools (Cullen, Jacob, & Levitt, 2000; Godwin & Kemerer, 2002), and others have found that choice programs are background neutral and draw students across a broad range of abilities (Schneider & Schiller, 1996).

Weiher and Tedin (2002) surveyed the parents of Texas charter school students about the reasons they chose to enroll their children in charter schools. The authors found that while parents indicated that academic quality was a primary factor in their decision processes, most of the parents surveyed enrolled their children in charter schools with lower test scores than the public schools they previously attended. In its annual charter school evaluations, the Texas Education Agency (TEA) surveyed students about their reasons for choosing charters. Although the percent of students responding to the survey and the possible responses varied across years, the results generally indicated that students chose charter schools because charter programs were more suited to their needs, had better and more attentive teachers, and were preferred by parents (TEA, 2001d, 2002c, 2003b).

In an analysis of the factors influencing student choice among high school programs, Zietz and Joshi (2005) found that previous academic performance, family background characteristics, and peer pressure were primary factors influencing
students’ decisions between academic and vocational high school programs. Students with higher income backgrounds, more educated parents, and histories of academic success were more likely to choose college preparatory curricula, and students with low-income backgrounds, less educated parents, and histories of academic difficulty were more likely to choose vocational tracks or programs with general and unfocused curricula (p. 10).

**First-stage Model Specification**

As noted in chapter 1, information about students’ family characteristics and whether students are pregnant or parenting was not available for this study. These are important variables and their omission will bias regression results because variables that may have had a strong effect on outcomes were not included in the models. Perfect data sets are rare, and most empirical research must contend with some degree of omitted variable bias because it is seldom possible to include all relevant regressors in model specifications.

Acknowledging this limitation, the first-stage regressions presented below model charter school choice using data related to students’ demographic characteristics, 3rd grade standardized test scores, work force participation, academic ability, 9th grade retention, attendance patterns, and discipline histories. The at-risk (ATRISK98_99), economic disadvantage (EC_DIS98_99), and 9th grade retention (REPEAT_GR9) variables were measured across the 1998 and 1999 school years, and the variables representing students’ work, attendance, and discipline characteristics were measured during the 1999 school year. Structuring the equation in this way assumes that the decision to attend a charter school in the fall of 2000 was based primarily on students’
experiences during the previous 2 school years. Recall that more than 72% of the sample’s charter students did not attend the charter school during the spring of the previous school year. This suggests that many cohort charter students started high school in traditional district programs and then transferred to charter schools.

**Second-stage Model Specifications**

**Graduation Outcomes**

The first stage equation for the diploma graduate only (GRAD) outcome expresses (CHARTER)$_i$, a variable indicating that student$_i$ attended a charter school using the latent variable (CHARTER)$_i^*$, a continuous but unobservable index of a student’s desire to attend a charter school. The second-stage regression of graduation outcomes expresses (GRAD)$_i$, a binary variable indicating that student$_i$ obtained a high school diploma, using the latent variable (GRAD)$_i^*$, a continuous but unobservable index of a student’s ability to obtain a diploma. Thus,

$$\begin{align*}
(CHARTER)_i^* &= \alpha_{11}(MALE)_i + \alpha_{21}(AGE)_i + \alpha_{31}(BLK)_i + \alpha_{41}(HISP)_i \\
&+ \alpha_{51}(OTH)_i + \alpha_{61}(ATRISK98_99)_i + \alpha_{71}(EC\_DIS98_99)_i \\
&+ \alpha_{81}(STDMTH3)_i + \alpha_{91}(STDRED3)_i + \alpha_{101}(WAGE\_99)_i + \beta_{11}(URBAN)_i \\
&+ \gamma_{11}(REPEAT\_GR9)_i + \gamma_{21}(MISSATT\_99)_i + \gamma_{31}(RATIO\_99)_i \\
&+ \gamma_{41}(MOBILE\_99)_i + \gamma_{51}(DISC\_99)_i + \gamma_{61}(EXPEL\_99)_i + \epsilon_{1i}.
\end{align*}$$

Where

$$\begin{align*}
(CHARTER)_i &= 1 \text{ if } (CHARTER)_i^* > 0, \text{ and} \\
(CHARTER)_i &= 0 \text{ if } (CHARTER)_i^* \leq 0.
\end{align*}$$

And
(GRAD)\ i∗ = δ_{11}(MALE)\ i + δ_{21}(AGE)\ i + δ_{31}(BLK)\ i + δ_{41}(HISP)\ i + δ_{51}(OTH)\ i 
+ δ_{61}(ATRISK00_02)\ i + δ_{71}(EC\_DIS00\_02)\ i + δ_{81}(STDMTH3)\ i 
+ δ_{91}(STDRED3)\ i + δ_{101}(NOATT_99)\ i + λ_{11}(URBAN)\ i + λ_{21}(OR\_BLK)\ i 
+ λ_{31}(OR\_HISP)\ i + λ_{41}(OR\_WHT)\ i + θ_{11}(PCHARTER)\ i + ξ_{i}.

Where

(\text{GRAD})\ i = 1 \text{ if } (\text{GRAD})\ i∗ > 0, \text{ and} (17)

(\text{GRAD})\ i = 0 \text{ if } (\text{GRAD})\ i∗ < 0.

Combined Graduation and GED Outcomes

The first-stage regression estimating charter school attendance for the more broadly defined graduation outcome (GRAD/GED)i, which includes both GEDs and high school graduates, is as expressed in Equations 14 and 15 above. The second-stage regression of graduation outcomes is expressed using the latent variable (GRAD/GED)i∗, a continuous but unobservable index of a student’s ability to earn a diploma or a GED. Thus,

(\text{GRAD/GED})\ i∗ = δ_{12}(MALE)\ i + δ_{22}(AGE)\ i + δ_{32}(BLK)\ i + δ_{42}(HISP)\ i 
+ δ_{52}(OTH)\ i + δ_{62}(ATRISK00_02)\ i + δ_{72}(EC\_DIS00\_02)\ i + δ_{82}(STDMTH3)\ i 
+ δ_{92}(STDRED3)\ i + δ_{102}(NOATT_99)\ i + λ_{12}(URBAN)\ i + λ_{22}(OR\_BLK)\ i 
+ λ_{32}(OR\_HISP)\ i + λ_{42}(OR\_WHT)\ i + θ_{12}(PCHARTER)\ i + ξ_{i}.

Where

(\text{GRAD/GED})\ i = 1 \text{ if } (\text{GRAD/GED})\ i∗ > 0, \text{ and} (19)

(\text{GRAD/GED})\ i = 0 \text{ if } (\text{GRAD/GED})\ i∗ < 0.

As before, the first-stage regression estimating charter school attendance for the GED only model is expressed as in Equations 14 and 15 above. The second-stage
regression estimating graduation outcomes is expressed using the latent variable (GED)$_i$*, a continuous but unobservable index of a student’s ability to earn a GED. Thus,

\[(GED)_i^* = \delta_{13}(MALE)_i + \delta_{23}(AGE)_i + \delta_{33}(BLK)_i + \delta_{43}(HISP)_i + \delta_{53}(OTH)_i + \delta_{63}(ATRISK00_02)_i + \delta_{73}(EC_DIS00_02)_i + \delta_{83}(STDMTH3)_i + \delta_{93}(STDRED3)_i + \delta_{103}(NOATT_99)_i + \lambda_{13}(URBAN)_i + \lambda_{23}(OR_BLK)_i + \lambda_{33}(OR_HISP)_i + \lambda_{43}(OR_WHT)_i + \theta_{13}(PCHARTER2)_i + \xi_i.\]

Where

\[(GED)_i = 1 \text{ if } (GED)_i^* > 0, \text{ and } \quad (GED)_i = 0 \text{ if } (GED)_i^* \leq 0.\]

Independent Variable Expected Outcomes: First-stage Regressions of Charter School Attendance

Student Characteristics

Gender (MALE)

MALE is a dummy variable that is coded “1” if a student is male and “0” if otherwise. Gender is not expected to have a statistically significant effect on a student’s decision to attend a charter school.

Age (AGE)

AGE is a continuous variable indicating a student’s age on September 1, 1999. The research on public schools’ influence on dropout and transfer rates indicates that districts frequently seek to discharge older students who appear to be potential dropouts (Bowditch, 1993; Riehl, 1999; Rumberger, 2003; Rumberger & Thomas, 2000). In a
study of how public school personnel influence the decision to dropout, Riehl (1999) found:

…if a student attains a certain age without having met a minimum subset of a school’s graduation requirements, school personnel decide that it is highly unlikely that the student will ever graduate and take steps to remove him or her from the school, perhaps through a dropout discharge or by seeking an alternative educational placement where the student might be more likely to succeed (p. 234).

The research indicating that district schools seek to discharge older students coupled with the emphasis on accelerated instruction in charter programs suggests charter schools may provide districts with a convenient “alternative educational placement” for older students who appear unlikely to graduate. Even if Texas districts do not direct older students toward charters, charter schools may appeal to older students who seek accelerated routes to graduation or require more flexible enrollment options because of work or parenting responsibilities. This reasoning suggests that AGE will have a positive and statistically significant effect on the likelihood of a student choosing a charter school.

**Ethnicity Variables (BLK, HISP, WHT, OTH)**

As in chapter 6, student ethnicity is represented through a set of dummy variables, which are coded “1” if the Public Education Information Management System (PEIMS) data indicate that the student is the specified ethnicity and “0” if otherwise. WHT operates as the base group in all regressions. The national and state-level reports of charter school enrollments discussed in chapter 3 indicated that charter schools tend to enroll proportionately more Black students and proportionately fewer White students than traditional public schools. Of the sample of 10th grade students included in this study, charter schools also enrolled larger proportions of Hispanic students (see Tables
4 and 16). This suggests that HISP and BLK will demonstrate positive and statistically significant effects on the probability of a student attending a charter school choice relative to WHT. It is not clear how OTH will behave in the choice model, but its effect is unlikely to be statistically significant. As a group, the ethnicity variables are expected to be statistically significant indicators of the likelihood of a student attending a charter school.

**At-risk Student 1998-1999 (ATRISK98_99)**

ATRISK98_99 is a dummy variable that is coded “1” if the PEIMS data indicated that a student was characterized as at-risk for the 1998, 1999, or both school years. Observations are coded “0” if the PEIMS data indicated that the student was not at-risk for these years or if the student lacked coding over the years. The emphasis on at-risk educational programs in Texas’s charter schools suggests that at-risk students are substantially more likely to choose charter schools relative to students who are not at-risk. This indicates that ATRISK98_99 will have positive and statistically significant effect on the likelihood of a student attending a charter school.

**Economically Disadvantaged Student 1998-1999 (EC_DIS98_99)**

EC_DIS98_99 is a dummy variable that is coded “1” if the PEIMS data indicated that a student was characterized as economically disadvantaged for the 1998, 1999, or both school years. Observations are coded “0” if the PEIMS data indicated that the student was not economically disadvantaged for these years or if the student lacked coding over both years. Although sample charter students were somewhat more likely to come from economically disadvantaged backgrounds, EC_DIS98_99 is not expected
to have a statistically significant effect on charter school choice when other factors are held constant.

3rd Grade Math and Reading TAAS Scores (STDMTH3 and STDRED3)

Students’ 3rd grade TAAS math and reading test scores are included as early measures of academic ability. The included scores are standardized raw scores drawn from four distributions, covering the 1991 through 1994 school years, and are not directly comparable. If students were included in two or more distributions (i.e., they repeated the 3rd grade), only the first set of test scores was included in regressions.

As discussed above, the research is divided about the role of academic ability in the decision to attend a school of choice, such as a charter school. This dissertation frames no expectations about the influence of STDRED3 and STDMTH3 in the charter school selection model.

Urbanicity (URBAN)

The variable URBAN is defined as in chapter 6. Nationally and in Texas, charter schools tend to be concentrated in urban areas and serve larger proportions of urban students than do traditional public schools (TEA, 2003b; U.S Department of Education, 2004). This indicates that students in urban regions have greater access to and are more likely to enroll in charter schools relative to students in nonurban regions and suggests URBAN will have a positive and statistically significant effect on charter school attendance.

Working Student (WAGE_99)

WAGE_99 is a dummy variable that is coded “1” if a student had wages recorded by the Texas Workforce Commission (TWC) during the first or second quarters of 1999
and “0” if otherwise. As discussed in chapter 6, many of Texas’s charter high schools have developed programs tailored to the needs of working students. Charters that offer vocational programs, flexible attendance, and open entry/exit enrollment provide students with options that allow them to balance the demands of working and schooling. This suggests that charters will be attractive to high school students who must work and frames positive and statistically significant expectations for WAGE_99’s effect on the likelihood of a student choosing a charter school.

Student Retention, Attendance, and Discipline Characteristics

The research on high school dropouts has established that district policies and personnel exert a strong influence over which students choose to leave school and that districts frequently seek to “push out” students with low test scores, poor attendance, and behavior problems, as well as students who are over age (Bowditch, 1993; Bryk & Thum, 1989; Riehl, 1999; Rumberger, 2004, 2003; Rumberger & Thomas, 2000). The comments of charter school directors included in chapter 5 indicated that districts often “pushed” such students into charter schools—the directors said that districts “referred,” “cleaned house,” and “dumped” students with attendance and discipline problems into charters. The Success Academy Charter director reported that some district counselors and administrators forced problem students out, telling students that they were no longer permitted to attend district schools and then referring them to charter programs. Although this dissertation did not have access to data about district policies and practices that may have encouraged students to withdraw and enroll in charters, it did have access to reliable information about students’ attendance and disciplinary records.
Variables measuring these characteristics are included here as instruments of charter school choice.

In addition to attendance and discipline characteristics, 9th grade retention is included as an instrument of choice. Ninth grade retention is a strong predictor of dropping out (Abrams & Haney, 2004; Haney, 2000), and this dissertation reasons that district and student concerns over delayed promotions may influence the decision to attend a charter school.

**Ninth Grade Retention (REPEAT_GR9)**

REPEAT_GR9 is a dummy variable that is coded “1” if the PEIMS data show that a student attended a Texas public school as a 9th grader during the fall semester of both the 1998 and 1999 school years and “0” if otherwise. Although research has indicated that retention may hold some benefits for low-achieving students (Roderick, Bryk, Jacob, Easton, & Allensworth, 1999), the majority of studies find that retention, even in the lower grades, significantly increases the probability that a student will dropout (Goldschmidt & Wang, 1999; Jimerson, 2001; Nagoka & Roderick, 2004; Roderick, Nagoka, Bacon, & Easton, 2000; Rumberger, 1995, 2004; Rumberger & Larson, 1998). Abrams and Haney (2004) found that national student retention rates are highest in the 9th grade and that Texas ranked fourth among states with the highest 9th grade retention rates in 2000 (p. 186). The authors pointed to high-stakes testing as the source of this trend, and Haney (2000) found that Texas schools retained low-achieving students in the 9th grade in order to make 10th grade TAAS scores “look better” (p. 40). The authors highlighted the dangers of this practice, indicating that as many as 80% of Texas’s retained 9th graders did not complete their high school programs. A retained
Texas 9th grader quoted in the Austin American-Statesman newspaper explained her school’s approach to her retention: “[School personnel] told me there was no hope. It would take me so many years to graduate. They told me it would be better for me to get my GED.” (“State undercounts dropouts,” September 8, 2003, p. B1).

While nothing cited above addresses the relationship between 9th grade retention and charter school enrollment, the understanding that districts nudge potential dropouts into charter schools suggests that REPEAT_GR9 will have a positive and statistically significant effect on charter school attendance.

**Missing Attendance (MISSATT\_99)**

MISSATT\_99 is a dummy variable that is coded “1” if a student showed no recorded attendance in any Texas public school for two or more of the six PEIMS attendance periods during the 1999 school year and “0” if otherwise. As discussed in chapter 4, the PEIMS annual attendance data are reported in six files, each of which covers a 6-week period. A student who lacked attendance in two or more of these periods missed a minimum of 12 weeks of school. Students with attendance patterns that include such large breaks—often labeled “stopouts”—are recognized as potential dropouts and several studies have indicated that such students are frequently pushed to transfer to other schools by district policies that establish barriers to reenrollment (Bowditch, 1993; Fine, 1991).

District reluctance to reenroll stopouts coupled with the tendency of charter schools to structure open entry/exit enrollment policies that may appeal to such students suggest that MISSATT\_99 will have a positive and statistically significant effect on charter attendance.
Absenteeism Ratio (RATIO_99)

RATIO_99 is a continuous variable that represents the ratio of the number of days a student attended school to the number of days available for instruction over the latter three PEIMS attendance periods of 1999 (i.e., the spring semester). Because some schools permit students to accelerate instruction through increased attendance (e.g., Saturday schools or flexible scheduling programs), some students will have RATIO_99 values that exceed one.

The research examining the effect of attendance on student achievement has found that students who do not attend school regularly tend to be less engaged in their schooling, have lower test scores, and are more likely to dropout than students with more consistent attendance patterns (Bryk & Thum, 1989; Newman, 1992; Rumberger, 1995; Rumberger & Thomas, 2000). These findings suggest that students with poor attendance habits present challenges to district high schools concerned with performance measures related to attendance, test scores, and dropout rates. This suggests that students with poor attendance and lower RATIO_99 values were more likely to attend charters and frames negative and statistically significant expectations of RATIO_99's effect on a student’s decision to attend a charter school.

Student Mobility (MOBILE_99)

MOBILE_99 is a binary variable that is coded “1” if a student attended three or more separate campuses over the course of the 1999 school year and “0” if otherwise. While high levels of student mobility, or nonpromotional school changes, are frequently the result of family residential moves, increased mobility also is related to student behavior, particularly at the high school level (Rumberger, 2003). Rumberger and
Larson (1998) found that high school students with behavior and discipline problems were 40% more likely to change schools than students without such difficulties and that high rates of absenteeism and poor academic performance were also strong predictors of mobility during high school. Schools affected student mobility through the enforcement of strict attendance and discipline policies that often pushed, or in some cases forced, at-risk students to withdraw and enroll elsewhere (Rumberger, 2003). A student writing in an Achievement Project publication described his pattern of mobility:

I was kicked out of two public high schools, and was labeled a problem child. Teachers never had any time for me. Whenever I asked a question, I was told just to do my work. After I was kicked out of school, I got a full-time job. After 6 months it struck me that I wanted more than this for the rest of my life. At 16, I knew there must be more than this.

This evidence suggests that students with high levels of mobility were more likely to be disengaged from their schooling and at-risk of dropping out than students with more consistent attendance. These factors coupled with the increased likelihood of changing schools among mobile students suggest that MOBILE_99 will demonstrate positive and statistically significant effects on charter school attendance.

Three or More Disciplinary Action Reports in 1999 (DISC_99)

DISC_99 is a binary variable that is coded “1” if a student had three or more disciplinary action reports filed during the 1999 school year and “0” if otherwise. A disciplinary action report is required for each disciplinary action that results in the removal of the student from all classes for at least one day (TEA, 2001b, p. 2.141). For most actions, students are assigned to in-school suspension programs for varying periods of time. More severe offenses may result in out-of-school suspensions,
expulsions, or assignments to Disciplinary Alternative Education Programs (DAEPs) or Juvenile Justice Alternative Education Programs (JJAEPs).

A broad study of American high schools in the 1980s summarized high school discipline policies:

Schools tend to deal with their troublemakers through an elaborate set of administrative procedures that move them from one status to another, gradually distancing them from the rest of the school. First come in-house suspensions, then a special self-contained in-school program. Sometimes the final step is a separate no-frills continuation school, and sometimes the reverse movement back into the school is made if a student is showing signs of improvement. But the behavior of unruly students rarely gets better (Powell, Farrar, & Cohen, 1985, p. 140).

More current research has found that the distancing process frequently concludes when troublemakers are pushed out of school. Riehl (1999) indicated that schools use disciplinary measures to discourage problem students from remaining in school. Students with behavioral difficulties often were pressured to transfer to other schools or dropped from enrollment when they reached the age at which schooling was no longer compulsory. In one case study analysis, researchers observed school personnel facilitating transfers by assisting problem students to shift their legal residences to those of relatives who lived in different attendance zones (Bowditch, 1993).

Charter schools present districts with relatively easy transfer alternatives because, as choice schools, they are not subject to attendance zone restrictions that limit transfers between traditional district schools. A charter school director who provided information for this dissertation, but whose school was not included as a case study, indicated that district high schools encouraged problem students to transfer to her charter program. Parents and students were not informed that the transfer meant
they were withdrawing from district schools, and many became angry when students were no longer permitted to participate in district-sponsored activities.

Texas permits charter schools to deny admission to students with documented histories of discipline problems and adjudication so long as charters publish the restriction in their admissions policies. Nine of the 72 charter schools included in this study cited disciplinary restrictions in their admissions materials, but only Pencey indicated that it routinely performed background checks of students’ disciplinary records in the admissions process. Other charters, such as High Country Charter High, included the restriction but did not actively inquire into students’ disciplinary histories prior to admission and seldom enforced the restriction.

This discussion suggests that students with discipline problems are likely candidates for charter school enrollment and frames positive and statistically significant expectations for DISC_99’s effect on charter school attendance.

Expulsion in 1999 (EXPEL_99)

EXPEL_99 is a dummy variable that is coded “1” if a student was expelled during the 1999 school year and “0” if otherwise. Texas students may be expelled for serious disciplinary infractions, including the possession of weapons or drugs, assault, murder, arson, and so on (Texas Education Code § 37.007). Expulsion is another indicator of student behavioral and discipline difficulties, and like DISC_99, is expected to demonstrate a positive relationship with charter school attendance, although it is not clear that this relationship will be statistically significant.
Independent Variable Expectations: Second-stage Regressions of Graduation Outcomes

Many of the variables included in this chapter’s second-stage regressions were defined in chapter 6, and the rationales anchoring expectations of variable performance are frequently the same for both chapters’ regressions. The discussion below briefly reviews these variable expectations but does not repeat chapter 6’s definitions or discussions of relevant research when there is no change in the variable’s expected performance.

Gender (MALE)

As in chapter 6, male students are expected to have lower graduation rates and higher GED attainment rates than females. Thus, MALE is expected to produce marginal effects that are negative in the GRAD models and positive in GED models. It is not clear whether these differences will be statistically significant, and it is unclear how MALE will perform when outcomes are combined in the GRAD/GED models.

Age (AGE)

AGE is expected to demonstrate negative and statistically significant marginal effects in the GRAD models and positive and significant effects in the GED models. The effect of AGE in the combined GRAD/GED model is unclear.

Ethnicity Dummies (BLK, HISP, WHT, OTH)

Expectations of the ethnicity variables follow the same patterns as in chapter 6. BLK and HISP are expected to demonstrate uniformly negative autonomous marginal effects relative to the base group WHT. OTH is expected to produce positive autonomous effects in the GRAD and GRAD/GED models and negative effects in the
GED only model. As a group, the ethnicity variables are expected to be statistically significant in all models.

At-risk and Economic Disadvantage: 2000-2002 School Years (ATRISK00_02 and EC_DIS00_02)

In chapter 6’s regressions, ATRISK00_02 and EC_DIS00_02 returned unexpected results that were most likely caused by multicollinearity problems arising from the manner in which missing data were recovered and coded. These problems are less likely to trouble this chapter’s analyses because the sample includes both charter and traditional public school students. Less than 4% of traditional public school observations lacked PEIMS coding for at-risk and economic disadvantage, and the inclusion of these observations should offset the variables’ multicollinearity problems. Following the rationales established in chapter 6, ATRISK00_02 and EC_DIS00_02 are expected to demonstrate negative and statistically significant marginal effects across all models.

No Attendance 1999 School Year (NOATT_99)

Noting that NOATT_99 is more likely to include students who transferred into Texas public schools from out-of-state or private schools as well as home schooling arrangements when the sample includes both charter and traditional school students, this analysis, like that of chapter 6, understands NOATT_99 to be an indicator of a returning dropout. As in chapter 6, NOATT_99 is expected to produce negative and statistically significant marginal effects across all graduation outcomes.

Third Grade Math and Reading Standardized Test Scores (STDMTH3 and STDRED3)
The variables STDMTH3 and STDRED3 are as defined in the previous section. Because academic ability is a strong predictor of educational attainment (Hamilton, 1984; Rumberger & Thomas, 2000; Walsh, 2000), STDMTH3 and STDRED3 are expected to demonstrate positive and statistically significant effects across all graduation outcomes.

**Urbanicity (URBAN)**

Chapter 6’s regressions were limited to charter students only, and because both urban and nonurban sample charters tended to focus on the needs of at-risk youth, urban charters were not expected to have a statistically significant effect on graduation outcomes. This chapter’s analyses include students who attended traditional as well as charter schools and frames different expectations for the effect of urbanicity on graduation outcomes. In a nationwide study of graduation rates, Swanson (2004) found that students attending schools in urban districts had graduation rates that lagged “from 15 to 18 percent behind their peers” (p. vi). In Texas, Balfanz and Legters (2004) found that 91% of weak promoting power\(^1\) schools were located in urban areas (p. 18). This research indicates that URBAN will produce negative and statistically significant marginal effects across all graduation outcomes.

**One-race School Variables (OR-BLK, OR_HISP, OR_WHT, and OR_NOT)**

Expectations for the one-race school variables follow the same pattern as described in chapter 6. OR_BLK and OR_HISP are expected to demonstrate negative and statistically significant autonomous marginal effects, and OR_WHT is expected to

---

\(^1\)Recall from chapter 6’s discussion of one-race school expectations that Balfanz and Legters’ promoting power statistic is the ratio of 9th grade students promoted to the 12th grade in 4 years and that the authors define “weak promoting power” schools as those in which 60% or fewer students reach the 12th grade on time.
demonstrate positive but insignificant autonomous effects across all models. OR_NOT operates as the base group in all regressions. As a group, the one-race school variables are expected to be statistically significant in all regressions.

The Predicted Probabilities of Charter School Attendance (PCHARTER and PCHARTER2)

PCHARTER is the predicted probability of a student attending a charter school estimated by the first-stage regression on CHARTER using the chapter’s full sample (n = 30,930), and PCHARTER2 is the predicted probability of charter school attendance estimated using the smaller GED sample that omits diploma graduates (n = 6,266). PCHARTER and PCHARTER2 represent predicted values of the likelihood that a student will attend a charter school and are included in second-stage regressions in place of the endogenous regressor CHARTER.

One of the themes emerging from this dissertation’s analyses thus far is that districts may be referring students who are difficult to educate or appear unlikely to graduate into charter high schools in order to improve accountability ratings. This tendency coupled with the emphasis on at-risk programs in Texas’s charter school provisions has created a fertile market for charter high schools that offer programs designed to improve graduation outcomes for potential dropouts. If charter schools serve as an intermediate placement for students in danger of dropping out, then for many students, simply enrolling in a charter school may be a strong indication that they will not graduate. This understanding frames strong negative and statistically significant expectations for PCHARTER in the diploma graduation model (GRAD).
In contrast, charter school enrollment is expected to have a positive effect on GED attainment. Many students pursue GEDs in lieu of dropping out. As discussed in chapter 3, obtaining a GED requires considerably less time to attain than a high school diploma (Tyler, 2003), and the student attributes associated with its attainment are more reflective of dropouts than diploma graduates (Laurence, 1993). This suggests that students who are channeled into charter schools because they look like dropouts may be more inclined to seek GEDs than diplomas and frames positive and statistically significant expectations for the performance of PCHARTER2 in the GED model. It is unclear how PCHARTER will perform in when outcomes are combined in the GRAD/GED model.

Regression Results

The regression results for each model estimated in this chapter’s analyses are presented in Tables 18 through 22. Regression results include the estimated marginal effect (dF/dx) and the estimated robust standard error (SE) produced by the sandwich estimator of variance for each regression variable. Statistical significance is measured at the 95% and 99% confidence levels. As in chapter 6, the regressions incorporate the Wald Chi Square statistic as the measure of goodness of fit and the Pseudo $R^2$ statistic as the coefficient of determination. As discussed in chapter 6, a likelihood ratio (LR) test must be performed in order to assess the statistical significance of groups of dummy variables. The results of the LR tests conducted for the dummy variable groups included in this chapter’s regressions are presented in Table 22. A discussion of regression results is the subject of the next section.

First-stage Regression of Charter School Attendance
Table 18 presents results of the first-stage regressions of charter school attendance using the full chapter’s full sample (n = 30,930) and the smaller GED sample (n = 6,266). For ease of presentation and discussion, the results of the regression using the larger sample are labeled CHARTER, and the regression results using the smaller sample are labeled CHARTER2. The predicted values of charter school attendance estimated by the CHARTER regression were saved as the variable PCHARTER, which is included in the second-stage regressions of GRAD and GRAD/GED. The predicted values from CHARTER2 were saved as the variable PCHARTER2, which is included in the second-stage regressions of GED. Two variations of each charter attendance model were estimated. The first variation estimates charter attendance using variables expressing students’ demographic, work, and urbanicity characteristics, and the second estimates the full model specification including the instrumental variables for students’ attendance, discipline, and 9th grade retention characteristics.

For each regression of charter school attendance, the Wald Chi Square statistic is statistically significant at the 99% level of confidence, indicating that that the independent variables were able predictors of charter school attendance. The notably strong Pseudo $R^2$ statistics confirm these results.
### Table 18

Regression Results: First-stage Regressions of Charter School Attendance

<table>
<thead>
<tr>
<th></th>
<th>CHARTER</th>
<th></th>
<th>CHARTER2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td></td>
<td>dF/dx</td>
<td>SE</td>
<td>dF/dx</td>
<td>SE</td>
</tr>
<tr>
<td>General Student Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MALE</td>
<td>-0.007**</td>
<td>0.001</td>
<td>-0.006**</td>
<td>0.001</td>
</tr>
<tr>
<td>AGE</td>
<td>0.022**</td>
<td>0.001</td>
<td>0.016**</td>
<td>0.001</td>
</tr>
<tr>
<td>BLK</td>
<td>0.026**</td>
<td>0.003</td>
<td>0.020**</td>
<td>0.003</td>
</tr>
<tr>
<td>HISP</td>
<td>0.010**</td>
<td>0.002</td>
<td>0.007**</td>
<td>0.002</td>
</tr>
<tr>
<td>OTH</td>
<td>-0.002**</td>
<td>0.005</td>
<td>-0.001</td>
<td>0.004</td>
</tr>
<tr>
<td>ATRISK98_99</td>
<td>0.008**</td>
<td>0.002</td>
<td>0.008**</td>
<td>0.001</td>
</tr>
<tr>
<td>EC_DIS98_99</td>
<td>-0.002</td>
<td>0.001</td>
<td>0.000</td>
<td>0.001</td>
</tr>
<tr>
<td>STDRED3</td>
<td>0.003**</td>
<td>0.001</td>
<td>0.002**</td>
<td>0.001</td>
</tr>
<tr>
<td>STDMTH3</td>
<td>0.002</td>
<td>0.001</td>
<td>0.001</td>
<td>0.001</td>
</tr>
<tr>
<td>WAGE_99</td>
<td>0.006**</td>
<td>0.002</td>
<td>0.005**</td>
<td>0.002</td>
</tr>
<tr>
<td>URBAN</td>
<td>0.013**</td>
<td>0.001</td>
<td>0.011**</td>
<td>0.001</td>
</tr>
<tr>
<td>Retention, Attendance, and Discipline Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>REPEAT_GR9</td>
<td>0.008</td>
<td>0.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MISSATT_99</td>
<td>0.013**</td>
<td>0.006</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RATIO_99</td>
<td>-0.026**</td>
<td>0.002</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MOBILE_99</td>
<td>0.085**</td>
<td>0.017</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DISC_99</td>
<td>0.010**</td>
<td>0.003</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXPEL_99</td>
<td>-0.003</td>
<td>0.004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>30,930</td>
<td>30,930</td>
<td>6,266</td>
<td>6,266</td>
</tr>
<tr>
<td>Wald Chi Square</td>
<td>1551.95**</td>
<td>1809.27**</td>
<td>508.49**</td>
<td>647.73**</td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.236</td>
<td>0.282</td>
<td>0.161</td>
<td>0.205</td>
</tr>
</tbody>
</table>

*Statistically significant at the 95% level of confidence
**Statistically significant at the 99% level of confidence

Second-stage Regressions of Graduation Outcomes

Tables 19, 20, and 21 present the results of the second-stage regressions of the GRAD, GRAD/GED, GED models respectively. For each model, three variations of the regression are estimated. The first variation estimates the dependent variable using student characteristics only, the second adds the urbanicity and one-race school
variables, and the third estimates the fully specified model, including the predicted probability of charter school attendance from the first-stage regressions. The Wald Chi Square statistic for each model is statistically significant at the 99% level of confidence, indicating that the models are well-fitted.

Table 19

Second-stage Regression Results: Dependent Variable = GRAD

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
<th>Model 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dF/dx</td>
<td>SE</td>
<td>dF/dx</td>
<td>SE</td>
<td>dF/dx</td>
<td>SE</td>
</tr>
<tr>
<td>Student Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MALE</td>
<td>-0.028**</td>
<td>0.005</td>
<td>-0.028**</td>
<td>0.005</td>
<td>-0.036**</td>
<td>0.005</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.149**</td>
<td>0.004</td>
<td>-0.149**</td>
<td>0.004</td>
<td>-0.114**</td>
<td>0.005</td>
</tr>
<tr>
<td>BLK</td>
<td>0.007</td>
<td>0.007</td>
<td>0.022**</td>
<td>0.007</td>
<td>0.041**</td>
<td>0.007</td>
</tr>
<tr>
<td>HISP</td>
<td>-0.005</td>
<td>0.006</td>
<td>-0.004</td>
<td>0.006</td>
<td>0.003</td>
<td>0.006</td>
</tr>
<tr>
<td>OTH</td>
<td>0.052**</td>
<td>0.014</td>
<td>0.060**</td>
<td>0.013</td>
<td>0.061**</td>
<td>0.013</td>
</tr>
<tr>
<td>ATRISK00_02</td>
<td>-0.111**</td>
<td>0.005</td>
<td>-0.109**</td>
<td>0.005</td>
<td>-0.107**</td>
<td>0.005</td>
</tr>
<tr>
<td>EC_DIS00_02</td>
<td>-0.026**</td>
<td>0.006</td>
<td>-0.032**</td>
<td>0.006</td>
<td>-0.034**</td>
<td>0.006</td>
</tr>
<tr>
<td>STDRED3</td>
<td>0.007*</td>
<td>0.003</td>
<td>0.008*</td>
<td>0.003</td>
<td>0.011**</td>
<td>0.003</td>
</tr>
<tr>
<td>STDMTH3</td>
<td>0.000</td>
<td>0.003</td>
<td>0.001**</td>
<td>0.003</td>
<td>0.003</td>
<td>0.003</td>
</tr>
<tr>
<td>NOATT_99</td>
<td>-0.373**</td>
<td>0.022</td>
<td>-0.372**</td>
<td>0.022</td>
<td>-0.323**</td>
<td>0.024</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student and School Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>URBAN</td>
<td>-0.033**</td>
<td>0.005</td>
<td>-0.024**</td>
<td>0.005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_BLK</td>
<td>-0.067**</td>
<td>0.025</td>
<td>-0.067**</td>
<td>0.025</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_HISP</td>
<td>0.027**</td>
<td>0.007</td>
<td>0.031**</td>
<td>0.007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_WHT</td>
<td>0.024*</td>
<td>0.010</td>
<td>0.024*</td>
<td>0.010</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Predicted Probability of Charter School Attendance (from first-stage regression)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCHARTER</td>
<td>-0.455**</td>
<td>0.053</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observations</td>
<td>30,930</td>
<td></td>
<td>30,930</td>
<td></td>
<td>30,930</td>
<td></td>
</tr>
<tr>
<td>Wald Chi Square</td>
<td>3640.81**</td>
<td></td>
<td>3671.77**</td>
<td></td>
<td>3442.13**</td>
<td></td>
</tr>
<tr>
<td>Pseudo R²</td>
<td>0.131</td>
<td></td>
<td>0.133</td>
<td></td>
<td>0.137</td>
<td></td>
</tr>
</tbody>
</table>

*Statistically significant at the 95% level of confidence
**Statistically significant at the 99% level of confidence
Table 20

Second-stage Regression Results: Dependent Variable = GRAD/GED

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
<th>Model 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dF/dx</td>
<td>SE</td>
<td>dF/dx</td>
<td>SE</td>
<td>dF/dx</td>
<td>SE</td>
</tr>
<tr>
<td><strong>Student Characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MALE</td>
<td>-0.018**</td>
<td>0.004</td>
<td>-0.018**</td>
<td>0.004</td>
<td>-0.022**</td>
<td>0.004</td>
</tr>
<tr>
<td>AGE</td>
<td>-0.103**</td>
<td>0.003</td>
<td>-0.102**</td>
<td>0.003</td>
<td>-0.086**</td>
<td>0.004</td>
</tr>
<tr>
<td>BLK</td>
<td>-0.020**</td>
<td>0.007</td>
<td>-0.004</td>
<td>0.007</td>
<td>0.005</td>
<td>0.007</td>
</tr>
<tr>
<td>HISP</td>
<td>-0.021**</td>
<td>0.005</td>
<td>-0.018**</td>
<td>0.006</td>
<td>-0.015**</td>
<td>0.006</td>
</tr>
<tr>
<td>OTH</td>
<td>0.038**</td>
<td>0.013</td>
<td>0.047**</td>
<td>0.012</td>
<td>0.047**</td>
<td>0.012</td>
</tr>
<tr>
<td>ATRISK00_02</td>
<td>-0.090**</td>
<td>0.005</td>
<td>-0.088**</td>
<td>0.005</td>
<td>-0.087**</td>
<td>0.005</td>
</tr>
<tr>
<td>EC_DIS00_02</td>
<td>-0.033**</td>
<td>0.005</td>
<td>-0.037**</td>
<td>0.005</td>
<td>-0.038**</td>
<td>0.005</td>
</tr>
<tr>
<td>STDRED3</td>
<td>0.018**</td>
<td>0.003</td>
<td>0.018**</td>
<td>0.003</td>
<td>0.020**</td>
<td>0.003</td>
</tr>
<tr>
<td>STDMTH3</td>
<td>0.004</td>
<td>0.003</td>
<td>0.005</td>
<td>0.003</td>
<td>0.006*</td>
<td>0.003</td>
</tr>
<tr>
<td>NOATT_99</td>
<td>-0.361**</td>
<td>0.022</td>
<td>-0.359**</td>
<td>0.022</td>
<td>-0.333**</td>
<td>0.023</td>
</tr>
</tbody>
</table>

**Student and School Characteristics**

<p>| | | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>URBAN</td>
<td>-0.036**</td>
<td>0.004</td>
<td>-0.032**</td>
<td>0.004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_BLK</td>
<td>-0.083**</td>
<td>0.023</td>
<td>-0.083**</td>
<td>0.023</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_HISP</td>
<td>0.013*</td>
<td>0.007</td>
<td>0.015*</td>
<td>0.007</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_WHT</td>
<td>0.014</td>
<td>0.010</td>
<td>0.014</td>
<td>0.010</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Predicted Probability of Charter School Attendance (from first-stage regression)**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PCHARTER</td>
<td>-0.192**</td>
<td>0.038</td>
</tr>
</tbody>
</table>

Observations: 30,930
Wald Chi Square: 3238.79**, 3282.41**, 3238.61**
Pseudo R²: 0.126, 0.130, 0.131

*Statistically significant at the 95% level of confidence
**Statistically significant at the 99% level of confidence
Table 21

Second-stage Regression Results: Dependent Variable = GED

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th></th>
<th>Model 2</th>
<th></th>
<th>Model 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dF/dx</td>
<td>SE</td>
<td>dF/dx</td>
<td>SE</td>
<td>dF/dx</td>
<td>SE</td>
</tr>
<tr>
<td>Student Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MALE</td>
<td>0.017</td>
<td>0.009</td>
<td>0.018</td>
<td>0.009</td>
<td>0.031**</td>
<td>0.009</td>
</tr>
<tr>
<td>AGE</td>
<td>0.034**</td>
<td>0.006</td>
<td>0.036**</td>
<td>0.006</td>
<td>0.006</td>
<td>0.008</td>
</tr>
<tr>
<td>BLK</td>
<td>-0.107**</td>
<td>0.009</td>
<td>-0.094**</td>
<td>0.010</td>
<td>-0.118**</td>
<td>0.010</td>
</tr>
<tr>
<td>HISP</td>
<td>-0.078**</td>
<td>0.010</td>
<td>-0.065**</td>
<td>0.011</td>
<td>-0.076**</td>
<td>0.011</td>
</tr>
<tr>
<td>OTH</td>
<td>-0.016</td>
<td>0.038</td>
<td>-0.006</td>
<td>0.039</td>
<td>-0.006</td>
<td>0.039</td>
</tr>
<tr>
<td>ATRISK00_02</td>
<td>-0.031**</td>
<td>0.012</td>
<td>-0.028*</td>
<td>0.012</td>
<td>-0.029**</td>
<td>0.012</td>
</tr>
<tr>
<td>EC_DIS00_02</td>
<td>-0.061**</td>
<td>0.010</td>
<td>-0.059**</td>
<td>0.010</td>
<td>-0.055**</td>
<td>0.010</td>
</tr>
<tr>
<td>STDRED3</td>
<td>0.061**</td>
<td>0.007</td>
<td>0.060**</td>
<td>0.007</td>
<td>0.055**</td>
<td>0.007</td>
</tr>
<tr>
<td>STDMTH3</td>
<td>0.040**</td>
<td>0.008</td>
<td>0.041**</td>
<td>0.008</td>
<td>0.037**</td>
<td>0.008</td>
</tr>
<tr>
<td>NOATT_99</td>
<td>-0.100**</td>
<td>0.012</td>
<td>-0.098**</td>
<td>0.012</td>
<td>-0.113**</td>
<td>0.010</td>
</tr>
<tr>
<td>Student and School Characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>URBAN</td>
<td>-0.044**</td>
<td>0.012</td>
<td>-0.062**</td>
<td>0.013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_BLK</td>
<td>-0.120**</td>
<td>0.018</td>
<td>-0.123**</td>
<td>0.015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_HISP</td>
<td>-0.038**</td>
<td>0.014</td>
<td>-0.044**</td>
<td>0.014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR_WHT</td>
<td>-0.018</td>
<td>0.022</td>
<td>-0.017</td>
<td>0.022</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Predicted Probability of Charter School Attendance (from first-stage regression)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCHARTER2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.311**</td>
<td>0.057</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Observations</td>
<td>6,266</td>
<td>6,266</td>
<td>6,266</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Wald Chi Square</td>
<td>508.70**</td>
<td>524.18**</td>
<td>566.32**</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pseudo R²</td>
<td>0.120</td>
<td>0.127</td>
<td>0.132</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Statistically significant at the 95% level of confidence
**Statistically significant at the 99% level of confidence
### Table 22

#### Calculated Likelihood Ratio (LR) Statistics: Dummy Variable Groups

<table>
<thead>
<tr>
<th>Dummy Group</th>
<th>Ethnicity (BLK, HISP, WHT, OTH)</th>
<th>One-race Schools (OR.BLK, OR.HISP, OR.WHT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHARTER</td>
<td>82.62**</td>
<td>----</td>
</tr>
<tr>
<td>CHARTER2</td>
<td>77.45**</td>
<td>----</td>
</tr>
<tr>
<td>GRAD</td>
<td>49.02**</td>
<td>29.36**</td>
</tr>
<tr>
<td>GRAD/GED</td>
<td>25.44**</td>
<td>22.60**</td>
</tr>
<tr>
<td>GED</td>
<td>95.59**</td>
<td>22.92**</td>
</tr>
</tbody>
</table>

*Statistically significant at the 95% level of confidence

**Statistically significant at the 99% level of confidence

### Discussion of Results

**First-stage Regressions: Charter School Attendance**

**Student Characteristics**

In the first-stage regression of charter school attendance, MALE demonstrated a consistently negative and statistically significant effect on charter school attendance in both the CHARTER and CHARTER2 models, indicating that, holding other factors constant, male students were less likely to attend charter schools than their female counterparts.

AGE returned the uniformly positive and statistically significant marginal effects in both sets of estimations, indicating, as expected, that older students were more likely to attend charter schools, all else constant.

In both the CHARTER and CHARTER2 regressions, the autonomous effects for BLK and HISP returned the expected positive and statistically significant effects, indicating that relative to White students, Black and Hispanic students were more likely to attend charters, all else constant. OTH produced negative and insignificant effects in
the CHARTER models and positive and insignificant effects the CHARTER2 estimations. As a group, the ethnicity variables were statistically significant at the 99% level of confidence in both sets of estimations (see Table 22).

ATRISK98_99 produced positive and statistically significant marginal effects in both variations of the CHARTER model and in the full model specification of CHARTER2, indicating that, holding other factors constant, at-risk students were more likely than non-at-risk students to attend charter schools.

EC_DIS98_99 returned negative results across the charter attendance models. It was statistically insignificant in both variations of CHARTER and in the full model specification of CHARTER2. This result suggests that economic disadvantage did not affect a student’s decision to attend a charter school when other factors were held constant.

STDRED3 and STDMTH3 demonstrated uniformly positive effects on charter school attendance across models. The effect of STDRED3 was statistically significant across estimations of CHARTER, and both STDRED3 and STDMTH3 were statistically significant in the CHARTER2 regressions. These results indicate that students with greater academic ability as measured by their 3rd grade TAAS scores were more likely to attend charter schools, holding other factors constant.

As expected, URBAN returned positive and statistically significant marginal effects across models, indicating that students in urban areas were more likely to attend charter schools, all else constant.

WAGE_99 produced the expected positive and statistically significant effect on charter school attendance in both variations of the CHARTER model, and in the
CHARTER2 model, its effect was consistently positive but insignificant. These results suggest that working students pursuing diploma graduation were more likely to attend charter schools, all else constant. This effect did not hold for students seeking GEDs.

**Retention, Attendance, and Discipline Characteristics**

With the exception of EXPEL_99, all of the attendance and discipline variables returned the expected marginal effects and were statistically significant across estimations of charter school attendance. REPEAT_GR9 returned the expected statistically significant effect in the CHARTER model but was insignificant in the CHARTER2 model, suggesting that, all else constant, retained students were more likely to enroll in charter school programs than students who were not retained when the outcome sought was a high school diploma. While REPEAT_GR9 is positive in the CHARTER2 model, its lack of statistical significance suggests that retention did not affect the decision to attend a charter school when the sample was restricted to those students who did not graduate with a diploma.

The attendance variables MISSATT_99 and RATIO_99 produced the expected effects and were statistically significant across both models. Students who missed large blocks of schooling (MISSATT_99) were more likely to attend charters, and students with better attendance habits (RATIO_99) were less likely to attend charter schools, all else constant.

Relative to the models' other regressors, MOBILE_99 produced statistically significant and notably large positive marginal effects across both models. In the CHARTER model, MOBILE_99’s results indicated that, holding other factors constant, a 1% increase in the likelihood that a student attended three or more schools during the
9th grade resulted in an 8.5% increase in the probability that a student would choose to attend a charter school in the 10th grade. In the CHARTER2 model, the probability of attending a charter increased to 18.1% for each 1% increase in the likelihood of a student attending three or more schools, all else constant.

While the large effect sizes for MOBILE_99 are noteworthy, it is not particularly surprising that students accustomed to changing schools were more likely to transfer into charter programs.

As expected, DISC_99 produced positive and statistically significant results across the charter school attendance models, indicating that students with multiple discipline reports were more likely to enroll in charter high schools, holding other factors constant.

The unexpected negative and statistically insignificant effects for EXPEL_99 may be the result of this study’s sample selection process. As described in chapter 4, the sample omitted student observations attending DAEPs and JJAEPs in the fall of 1999. Many students who were expelled during the 1999 school year may have been required to attend DAEPs and JJAEPs during the 2000 school year, and the unexpected results for EXPEL_99 may have been caused by the study’s omission of these schools.

Second-stage Regressions: Graduation Outcomes

The following discussion of outcomes is offered with a note of caution. As indicated above, the results of the second-stage regressions will be biased by the inclusion of the imputed probabilities of charter school attendance, PCHARTER and PCHARTER2. The instruments used to model charter school attendance were not
exogenous to graduation outcomes, and therefore, the endogeneity of choice has not been effectively controlled.

**Student Characteristics**

As in chapter 6’s regressions, the variable MALE produced negative marginal effects in the GRAD and GRAD/GED models and positive effects in the GED models. The results for MALE differ in this chapter’s regression in that they are statistically significant across all graduation types, indicating that relative to females, males were less likely to graduate and more likely to obtain GEDs, all else constant.

AGE followed the expected patterns, producing negative and statistically significant marginal effects in models that included diploma graduation and positive and statistically significant effects in Models 1 and 2 of the GED regressions. When PCHARTER2 was included in the Model 3, however, AGE was no longer statistically significant, indicating that when the factors that affect charter school attendance are controlled for, AGE no longer affects the likelihood of obtaining a GED.

The ethnicity dummies, BLK and HISP, and OTH produced unexpected results. In the GRAD model, BLK and HISP returned positive autonomous marginal effects. These effects were statistically significant for Black students in Models 2 and 3. OTH returned the expected positive effects and was statistically significant across estimations of GRAD and GRAD/GED.

In the combined GRAD/GED model, HISP returned the expected negative and statistically significant marginal effects across estimations. BLK produced the expected negative and statistically significant autonomous marginal effects in Models 1 and 2, but returned positive and insignificant effects in Model 3. And in the GED only model, BLK
and HISP returned the expected negative and statistically significant results across estimations and OTH returned negative but statistically insignificant results. As a group the ethnicity dummies were statistically significant at the 99% level of confidence in each model (see Table 22).

The unexpected results for the ethnicity variables in this set of regressions may indicate that graduation outcomes of Black and Hispanic students were improved when the factors affecting charter school choice were controlled, but given the tenuous nature of these regressions, this study is hesitant to draw any inferences from these results.

As expected ATRISK00_02 and EC_DIS00_02 produced negative and statistically significant marginal effects across all graduation models, indicating that at-risk and low-income students were less likely to graduate or obtain GEDs, all else constant.

The indicators of students’ early academic ability, STDRED3 and STDMTH3, returned the expected positive marginal effects across each of the graduation outcomes. In the GRAD models, however, only STDRED3 was statistically significant, which suggests that students’ early reading ability positively influenced their ability to complete high school with a diploma, holding other factors constant. Both STDRED3 and STDMTH3 produced statistically significant effects when the models included GED outcomes, which suggests that early math and reading skills affected the likelihood of students obtaining GEDs, all else constant.

Although it was less certain whether students coded NOATT_99 could be as readily understood as returning dropouts when the sample included both charter and traditional public school students, the returned marginal effects for NOATT_99 suggest
that this explanation still holds. Similar to chapter 6’s results, NOATT_99 produced statistically significant and large negative marginal effects across all models. The size of the effect was somewhat smaller in the GED models, but the uniformly negative effect suggests that students who interrupted their schooling for a year or more were considerably less likely to graduate or obtain GEDs than students who remained in school, holding other factors constant.

Student and School Characteristics

URBAN produced the expected negative and statistically significant effects across all models, indicating that, holding other factors constant, students who attend schools in urban areas were less likely to graduate or obtain GEDs than students in nonurban settings.

Among the one-race school variables, OR_BLK returned the expected negative and statistically significant autonomous marginal effects across models. OR_WHT returned the expected positive autonomous marginal effects in models that included diploma graduation and returned the expected negative autonomous marginal effects in the GED only model. The autonomous effects of OR_WHT were statistically significant only in the GRAD model. OR_HISP returned unexpected positive and statistically significant autonomous marginal effects in the models including diploma graduation, and the expected negative and statistically significant effects in the GED model. As shown in Table 22, the one-race school variables were statistically significant as a group across all models.

The positive effect of one-race Hispanic schools on graduation outcomes in this chapter’s regressions contrasts chapter 6’s results and the research indicating that
students in majority minority schools generally experience reduced educational outcomes and the statistically significant negative effects of OR_HISP in chapter 6’s regressions. It may be that one-race Hispanic district schools devoted more resources to the specific educational needs of Hispanic students, but this study is not confident in asserting explanations for unexpected outcomes given the statistical troubles encountered by the second-stage estimations.

The Predicted Probability of Charter School Attendance

PCHARTER returned the expected strong negative and statistically significant marginal effect in the GRAD model and also produced a statistically significant negative effect in the combined GRAD/GED model. The results for the GRAD model indicated that for this cohort of students, a 1% increase in the probability of a student attending a charter school resulted in a 45.5% decrease in the likelihood that the student would graduate, all else constant. For the GRAD/GED model the effect was somewhat reduced, indicating that a 1% increase in the probability of charter school attendance resulted in 19.2% decrease in the likelihood of a student graduating or obtaining a GED, all else constant.

For GED outcomes, the probability of attending a charter school had the expected positive and statistically significant effect, indicating that, holding factors constant, a 1% increase in the likelihood of a student attending a charter school resulted in a 31.1% increase in the probability that the student would obtain a GED.

As noted throughout this discussion, these estimates are biased and are therefore uncertain measures of the effect of charter school attendance on graduation outcomes. In spite of the bias implicit in these estimates, the magnitudes of the
estimated effects for charter school attendance are quite startling. The surprising effect sizes are most likely the product of how choice was modeled in this chapter’s analyses. Because the decision to enroll in a charter school was modeled as a function of students’ attendance, retention, and discipline characteristics, the large effect sizes for charter school attendance are therefore attributable to both the qualities of the students that chose to attend charter schools and the charters they attended. Thus, charter school attendance is not the sole source of the effect. The characteristics of charter school students also contribute to the strong decrease in the likelihood of diploma graduation and strong increase in the likelihood of completing high school with a GED associated with charter school attendance.

A Hausman-like test\(^2\) of the correlation between the equations of the two-stage models estimated in this chapter (PCHARTER and GRAD, PCHARTER and GRAD/GED, PCHARTER2 and GED) returned a strong rejection ($p < .01$) of the hypothesis that the model estimates were uncorrelated for each set of two-stage regressions. Even without statistical tests, however, it was apparent that the models would be correlated because the retention, attendance, and discipline characteristics that predicted charter school attendance were also known determinants of graduation outcomes.

While statistical arguments against the accuracy of these results are well-founded, in practical terms, the estimated marginal effects for the probability of charter school attendance appear to be on target. Table 23 presents a summary of type of graduation credential earned by school type attended for the larger sample of students.

\(^2\)STATA statistical software permits a Hausman-like test of correlation between models that is applicable to probit estimations using the SUEST command for seemingly unrelated estimates.
identified in chapter 4 (N = 247,658). The results indicate that about 30% of charter
school students completed high school with some form of diploma, about 15% obtained
a GED, and 55% earned no credential at all or dropped out. For the cohort of students
attending traditional district schools, nearly 80% finished with a diploma, about 3%
earned a GED, and 18% failed to obtain a graduation credential. The discouraging
outcomes for charter school students parallel the regression results reported above.
That is, students who were more likely to attend charter high schools were considerably
less likely to graduate and more likely to obtain GEDs relative to students remaining in
traditional public high schools.

Table 23

<table>
<thead>
<tr>
<th>Graduation Credential</th>
<th>All Students (N = 247,658)</th>
<th>Trad. Public Students (n = 245,897)</th>
<th>Charter School Students (n = 1,761)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Minimum Graduation Plan</td>
<td>28.21</td>
<td>28.24</td>
<td>23.11</td>
</tr>
<tr>
<td>% Minimum Graduation Plan with IEP (special education accommodation)</td>
<td>2.17</td>
<td>2.18</td>
<td>0.68</td>
</tr>
<tr>
<td>% Recommended Graduation Plan</td>
<td>41.90</td>
<td>42.16</td>
<td>5.45</td>
</tr>
<tr>
<td>% Distinguished Achievement Plan</td>
<td>4.85</td>
<td>4.88</td>
<td>0.34</td>
</tr>
<tr>
<td>% Other Credential</td>
<td>1.19</td>
<td>1.20</td>
<td>0.57</td>
</tr>
<tr>
<td>% GED</td>
<td>3.30</td>
<td>3.21</td>
<td>14.71</td>
</tr>
<tr>
<td>% No Credential</td>
<td>18.38</td>
<td>18.12</td>
<td>55.14</td>
</tr>
</tbody>
</table>

Summary

Although this chapter’s estimations of graduation outcomes are of questionable
validity given the statistical weaknesses of the second-stage models, the first-stage
regressions of charter school attendance are not troubled by the problems of
endogenous regressors or understated estimates of variance. Standing alone, the
estimations of CHARTER present relatively straightforward and uncomplicated estimations of charter school attendance. And while this chapter is hesitant to draw conclusions from its second-stage results, the results for the first-stage regressions of charter school attendance point to inferences about the reasons students choose to attend charter schools that have important implications. The goodness of fit statistics for the estimations of CHARTER indicated that these models were particularly well-fitted, which suggests that the independent variables did a good job of predicting charter school attendance. The notable increase in the Pseudo $R^2$ between the first and second variation of each regression of CHARTER indicates that the addition of the retention, discipline, and attendance variables substantially improved the models' ability to explain charter school attendance. In the first estimation of CHARTER, the Pseudo $R^2$ increased from 0.236 to 0.282 when the instruments for choice were introduced. In the CHARTER2 estimation, the Pseudo $R^2$ statistic rose from 0.161 to 0.205 with the inclusion of instruments.

These results indicate that 9th grade retention as well as attendance and discipline problems were strong predictors of charter school attendance for this cohort of students. Coupled with the charter school director comments indicating that districts directed poor-performing students with attendance and discipline problems into charters, these findings suggest that charter high schools may be providing districts with a convenient means of offloading challenging students.

Certainly, district referral is not the only reason students choose to attend charter schools. For the most part, the Texas charter school high schools included in this study had programs designed to appeal to students who were behind in their coursework or
had difficulty meeting the attendance requirements of district schools. This chapter is not able to discern whether these students were prompted to attend charters by district personnel or whether students recognized charters as a better fit for their needs and decided to enroll without district coercion. More research is necessary in order to determine the extent to which districts use charters as alternative placements for their difficult to educate students. This is an important area of concern for educational policy makers and school administrators. If charter schools present districts with a means to avoid educating difficult students, it is unlikely that charters will provide much stimulus for educational improvement.
CHAPTER 8
SUMMARY AND CONCLUSION

This chapter summarizes the study’s findings and presents some conclusions about the role charter high schools play in Texas public education. The chapter opens with a discussion of the study’s responses to its research questions and then addresses some additional findings. The chapter concludes, highlighting some concerns about effectiveness of school choice policies and identifying directions for future research.

Responses to Research Questions

Research Question 1

This study’s first research question asked whether charter school attendance affected the likelihood of students graduating with diplomas or obtaining General Educational Development credentials (GEDs). Chapter 7’s analyses addressed this question, finding that, holding other factors constant, charter school students were less likely to graduate and more likely to obtain GEDs than students in traditional district schools. As reported in Tables 19 and 21, a 1% increase in the likelihood that a student attended a charter high school indicated that a student was 45.5% less likely to graduate with a diploma and 31% more likely to obtain a GED, all else constant. These findings suggest that simply enrolling in a charter high school is a strong indication that a student will not persist to diploma graduation and is more likely to finish school with a GED.

As noted in chapter 7, the large effect sizes for charter schools are attributable to the types of students who enrolled charter schools as well as to the effect of charter
school attendance. Charter students were more likely to have struggled with 9th grade retention and attendance and discipline difficulties, and given these characteristics, were less likely to graduate than students without such problems irrespective of the type of school attended. Because the study was not able to distill the effect of charter schooling from the effect of charter student characteristics, the large negative effect for charter schools’ diploma graduation outcomes and large positive effect for GED outcomes are attributable to the types of students who choose charter schools as well as to the effect of charter schooling.

Research Question 2

This study’s second research question asked whether charter school graduation outcomes varied across students’ demographic characteristics. Chapter 6’s regression results indicated that charter student graduation and GED outcomes did vary across students’ demographic characteristics, but that charter schools’ student graduation patterns were similar to those of traditional district schools. As in district schools, male charter students had lower graduation rates and higher GED attainment rates than females, Black and Hispanic students had reduced graduation and GED attainment rates relative to White students, and older charter students were less likely to graduate and more likely to obtain a GED, all else constant. Given the multicollinearity problems with the variables expressing economic disadvantage and at-risk status in chapter 6’s regressions, the study did not draw any conclusions about the effect of these characteristics on the likelihood of charter students graduating or obtaining a GED.

Research Question 3
The study’s third research question asked whether charter student outcomes varied across school characteristics related to program offerings, school segregation levels, and duration of charter.

**Charter School Program Characteristics**

As discussed in chapter 6, charter schools that offered vocational programs and open entry/exit enrollment options improved the likelihood of students completing high school with a diploma, and charters providing accelerated instructional programs had a strong negative effect on diploma graduation. Multiple site, or chain, charters also exerted a positive influence on diploma graduation. While more research is necessary to determine if chapter 6’s results hold over time and for other cohorts of students, its findings point to insights that may inform the policies and practices of both charter and traditional district schools.

**Vocational education.**

Some efforts at high school reform have deemphasized vocational education because it tends to steer students away from more academic pursuits (Hoachlander, 2005). However, not all high school students are equally interested in pursuing academic goals, and chapter 6’s results suggest that vocational programs may satisfy nonacademic students’ educational interests and motivate them to remain in school until they graduate. In chapter 6’s regression of diploma-only graduation outcomes (see Table 9), students attending charter high schools that offered vocational education were 10% more likely to graduate than students in charters without such programs, all else constant. This finding suggests that vocational programs may play an important role in high school reform efforts that seek to address the needs of students who may be
disengaged from academic coursework. More research is necessary to identify whether the positive effect of vocational education extends to student test scores and attendance rates.

**Open entry/exit enrollment.**

The case studies of chapter 5 found that some of the most notable innovations of charter schools were in the form of attendance policies. With exception of The Pencey Preparatory School, each of the case study charters had developed a unique attendance policy that satisfied the state’s attendance requirements and provided substantial flexibility to students. While charter schools that offered a 4 hour school day did not have a statistically significant effect on outcomes, schools that designed flexible enrollment options, permitting students to leave school for blocks of time and reenroll without losing credit for courses, had a strong positive effect on diploma graduation outcomes. Table 9’s results indicate that cohort students attending charter schools with open entry/exit enrollment policies were 11% more likely to complete high school with a diploma than students attending charters without such policies, all else constant. These results suggest that charter school enrollment policy innovations may be effective models for district reforms seeking to improve graduation rates among at-risk youth.

**Accelerated instruction.**

As discussed in chapter 6, the strong negative effect of accelerated instruction on diploma graduation is of great concern given the wide implementation of accelerated programs in both traditional and charter high schools. According to chapter 6’s diploma-only regression, students attending accelerated instruction charter schools were 18.5% less likely to graduate than students in charters without accelerated programs, all else
constant (see Table 9). Although more research is necessary to identify the cause of this effect, this dissertation surmises that rapid completion of coursework does not provide students with adequate preparation for the exit-level testing required for diploma graduation in Texas.

Chain charters.

Charter schools have been a fast growth industry in Texas and part of that growth is attributable to charter school operators that replicate their programs in multiple locations. The Achievement Project, which started as a single school in 1996, now operates 11 campuses statewide and is seeking to expand its program to other states. Success Academy Charters has spread its program across the state, operating schools in 17 Texas cities.

For the most part, Texas’s chain charters have programs designed to meet the needs of at-risk, urban youth. Previous research on chain charters has tended to fault these programs because they lack connection to the communities in which they are located and promote a “free enterprise ideology that calls for market solutions to all social ills” (Wells, Lopez, Scott, & Holme, 1999, p. 192). This dissertation finds that despite their ideology, chain charters tend to do a good job improving graduation outcomes for the students they enroll. Chapter 6’s regressions found that students in chain charters were about 16% more likely to complete high school with a diploma than students in smaller charter programs, all else constant (see Table 9). Although more research is needed to identify the cause of this effect, chapter 5’s case study of Achievement Projects schools suggests that chain charters are able open new
campuses with experienced staff and that this experience translates into improved graduation rates for students.

**Level of School Segregation**

This study considered the effect of highly segregated charter schools on students’ graduation outcomes. It defined highly segregated, or one-race, schools as those that enrolled 90% or more one race or ethnicity over the 2000, 2001, and 2002 school years. Consistent with previous research addressing the effects of segregation on district graduation rates, this study found that highly segregated minority charters had a negative effect on diploma graduation outcomes. In the full specification of chapter 6’s diploma-only model (see Table 9), students attending one-race Black schools were 13% less likely to graduate and students attending one-race Hispanic schools were 10% less likely to graduate than students in more integrated charters, all else constant. These results coupled with the finding that Texas’s charter high schools tend to be more racially segregated than its traditional district schools suggest that charter operators and policy makers may wish to consider legally feasible means of cultivating more integrated charter school enrollments. As noted in chapter 6’s discussion, racial balancing provisions are prohibited by law, but policies requiring charter schools to balance enrollments by geographic region or socioeconomic status, which may act as proxies for race, are permissible and may foster more diverse charter school enrollments.

**Charter School Maturity**

This dissertation found charters that had been in operation longer had positive effects on students’ diploma graduation and GED outcomes, all else constant. This
finding is supported by previous research that has examined the effect of charter school maturity on students’ standardized testing outcomes. The finding that experience predicts performance suggests that charter school monitors should postpone assessments of new charter schools until they have had some time to establish their programs.

Additional Research Findings

The Competitive Effect of Charter High Schools

A persistent theme emerging from this dissertation’s discussion is that the presence of charter schools allows district high schools to avoid serving educationally challenging students. Hirschman (1970) used public schools as an example of a lazy monopoly, explaining that public schools were pleased when complaining, quality-sensitive parents chose to enroll their children in private schools because the exit of these students and their noisy parents released schools from criticism and the effort of improving. According to Hirschman, the lazy monopolist’s insensitivity to exit is “exhibited by public agencies that can draw on a variety of financial resources outside and independent of sales revenue” (p. 46). For these monopolists, customer exit does not spur improvement. Rather, competition enables laziness because it removes the impetus for improvement and allows the monopolist to persist in “comfortable mediocrity” (p. 59).

Charter high schools also appear to bring out the lazy monopolist in public schooling. In the case of charter schools, however, districts are pleased to see their low-performing students exit. Low-performing students highlight school quality issues on standards-based accountability rubrics that measure school performance in terms of
average test scores and graduation rates. When schools perform poorly on these assessments, government-mandated sanctions as well as public criticism produce considerable pressure for improvement. District schools that are able to usher low-performing students into charters are able to sidestep some of this criticism and the effort of improvement by avoiding those students whose performance reflects poor school quality. As an added benefit, when low-performing students exit to charters, district schools appear to have improved because average test scores and graduation rates increase.

Hirschman explained that lazy monopolists are “frequently encountered when monopoly power rests on location and when mobility differs strongly from one group of local customers to another” (p. 59). In the private school example, quality-sensitive parents were the more mobile customers because they tended to be more affluent and could afford to pay tuition. In the case of charter schools, however, low-performing high school students are frequently the more mobile customers. Chapter 7’s first stage regressions indicated that a 1% increase in the likelihood that a student attended three or more separate campuses over the course of the 1999 school year resulted in an 8.5% increase in the likelihood that the student enrolled in a charter school in the fall of the 2000 school year, all else constant (see Table 18). Although this study did not have access to district policies that may have influenced student mobility, previous research suggests that high levels of mobility among low-performing high school students is frequently the result of district attendance and discipline policies that discourage such students from attending district schools (Rumberger, 2003; Rumberger & Larson, 1998).

Chapter 5’s case studies found that urban districts faced with competition from
charters routinely referred problem students to charter programs and that some districts enabled students’ exit by inviting charters set up in their neighborhoods and permitting charters to use district facilities. This, too, fits Hirschman’s description—“Those who hold power in the lazy monopoly may have an interest in creating some limited opportunities for exit” for their troublesome customers (emphasis in the original, p. 60). The loss of low-performing students to charter schools does not threaten district survival, and districts are more comfortable without the pressure to improve outcomes for these difficult to serve students.

The snug fit of Hirschman’s lazy monopolist theory to the competitive relationship between district and charter high schools suggests that competition from charters does not motivate improvement in district high schools. And given Texas’s current framework for charter schooling, competition from charters may provide a disservice to high school students with the greatest educational needs because these students may be pushed into charter programs that employ less qualified teachers and are funded at lower rates than district schools.

**Alternative Accountability Standards**

In some respects, the study’s charter schools were less sensitive to accountability concerns than its district schools. Sixty-eight percent of study charters were subject to the relaxed alternative accountability standards described in chapter 2 compared with less than 1% of district schools included in the study. Even with the reduced standards, however, it appears unlikely that the study’s charters would have fared very well. In order to be rated “Acceptable” under the alternative accountability system, schools were required to have a dropout rate of 10% or less for all students.
(TEA, 2001f, p. 14), and it seems evident that the majority of charters included in the study were not able to meet this criterion.

TEA recently revised its alternative education policy largely because of the high number of charters seeking alternative accountability status (Fisher, 2005, p. A1). Through the 2005 school year, schools were granted alternative accountability status if they indicated a commitment to serving students at-risk of failure and dropping out. However, for the 2006 school year, schools seeking alternative accountability status must demonstrate that they enroll 65% or more at-risk students in order to be eligible. In 2007, the enrollment criterion increases to 70%, and in 2008, it rises to 75%. Alternative accountability test score and dropout rate criteria also grow more rigorous over the 3 years (TEA, 2005b, p. 2).

The dissertation finds that TEA’s revisions may be unfair to charter high schools. If districts are pushing high school students who test poorly or look like dropouts into charter schools in order to avoid accountability sanctions, it seems inappropriate to sanction charters simply because they provide a place for such students.

Small School Size

As noted in chapter 5, the small size of charter programs may address some student needs that are not reflected in test score improvements or increased graduation rates. Charter students appeared to feel more connected to their schooling in smaller school environments where they were recognized and felt they “fit in.” This finding lends credence to current high school reform efforts that seek to break large, comprehensive high schools into smaller, more specialized schools (see e.g., Toch, 2003). At each of the case study schools included in chapter 5, school personnel knew students and were
familiar their personal as well as educational backgrounds. The emphasis on counseling and relationship-based education at Achievement Project schools appeared to provide strong support for students at risk of dropping out. Future research may wish to consider the effect of school size and the role of increased counseling services in improving educational outcomes for at-risk high school students.

Conclusion

Hirschman warned that the presence of competition may “do more harm than good” when the intent is to prompt improvement in a lazy monopoly (p. 59). The experience of this dissertation indicates that charter school policy makers should take note of this warning. This dissertation finds that Texas’s at-risk students may be routed to charter schools by districts seeking to avoid the effort of educating them. And while it is not possible to observe what outcomes might have been had charter students remained in district schools, the fact that less than a third graduated and that 15% received the GED—a credential of questionable value—raises questions as to whether outcomes could have been much worse if they had.

Critics will not have to search far to find fault with this study’s approach—it looks at a single cohort of students and utilizes a flawed approach to modeling charter school choice. In spite of the study’s weaknesses, the finding that so few students graduated from Texas’s charter high schools has got to be alarming, particularly when calls for increased school choice dominate Texas’s legislative discussions of how best to improve educational outcomes for low-income, at-risk, urban student populations (Stutz, 2005, p. 1A).
Clearly, more research is needed on the effects charter schools and the role of school choice in educational reform. The results of this study suggest that future research should examine the role of district schools in the choice processes of at-risk students. Market-based arguments touting the benefits of competition and school choice are substantially weakened if self-serving districts exert a strong influence over which students attend choice schools. Future research should also seek to examine the longer term effects of charter schools, including charter students’ college entrance rates and labor market outcomes. Finally, it is necessary to repeat the study presented here in order to identify whether its findings hold across time and for other cohorts of students.
APPENDIX

CASE STUDY OBSERVATION AND INTERVIEW PROTOCOLS
Curricular Materials Observation Protocol

School ____________________________ Grade Level Observed

________________

Date of Observation _________________ Subject(s) Observed

________________

1. What is the school's educational mission?

2. How does the school describe its curricular offerings in promotional materials, on its website or in the student handbook?

3. Does the school have a particular curricular emphasis? Is this emphasis apparent in its curricular materials? Explain

4. Which of the following best describes the curricular materials I observed used in the school?
   ____ teacher developed
   ____ publisher packaged
   ____ textbook driven
   ____ other

5. Which of the following curricular materials are available for student use in classrooms and learning areas?
   ____ textbooks
   ____ student workbooks
   ____ self-paced learning materials
   ____ computer-assisted instruction programs
   ____ teacher developed materials
6. Are students issued their own textbooks and materials?

7. Does the school utilize curriculum guides for teachers? If so, what is the source of these guides (e.g., TEA, publisher-developed, school-developed)?

8. Describe how the school assesses student mastery of the curriculum.

9. In order to graduate, how many years or credits of instruction must a student obtain in each of the following subjects:

   ____ English
   ____ Math
   ____ Social Sciences (history, government, economics, etc.)
   ____ Foreign Languages
   ____ Physical or Biological Sciences
   ____ Physical Education
   ____ Other

GED Programs

If the school offers preparation for GED certification, respond to the following:

10. Describe the materials used for GED preparation.

11. What are the sources of these materials?

12. How does the school assess GED readiness?
Classroom Observation Protocol

Subject Taught _____________________ Time of Observation _____ to _______

Grade Level ________________________ Number of Students _____________

1. Describe the classroom /learning area.

2. If appropriate, what is the lesson’s objective?

3. What materials are incorporated in the lesson?

4. What percent of class time is devoted to each of the following activities:
   _____ routine classroom management activities (e.g., attendance, taking up
    homework, etc.)?
   _____ seatwork?
   _____ teacher directed learning (e.g., lecture, demonstration, etc.)?
   _____ student directed learning (e.g., independent projects, group work, etc.)?
   _____ assessment activities (e.g., homework, quizzes, tests, etc.)?
   _____ computer assisted instruction?
   _____ other?

5. What percent of students participate in the lesson’s activities? Describe their
   participation.

6. Describe the types of teacher-student interactions observed.

7. Describe the types of student-student interactions observed.

8. Describe any disciplinary measures implemented during the observation period.

Classroom Observation Protocol

Self-paced Learning

If the school’s instructional approach includes self-paced learning, respond to the following:


11. Describe the teacher's role in the self-paced learning process.

12. Describe the materials involved in the self-paced learning process.

13. Explain how self-paced student progress is monitored and assessed.
Protocol for Charter School Director Interview

School ____________________  Director _____________________
Phone_____________________  Date of Interview _____________

1. What methods does the school use to recruit students?

2. Do district schools refer students to your school? If so, approximately what percent of students were district referrals during the 2002-03 school year? What were the reasons for these referrals?

3. For the 2002-03 school year, was the school able to accommodate all students who applied? If no, approximately how many students were not able to enroll?

4. What attributes of this school do you perceive to be the most attractive to parents and students?

5. How is the attendance policy monitored and enforced? Is there a staff member who supervises attendance issues? If so, what are the primary responsibilities of this position?

6. Does the school have a policy and/or program to support students “at-risk” of dropping out? If so, how is this policy and/or program implemented and monitored? Is there a staff member who supervises the at-risk program? If so, what are the primary responsibilities of this position?

7. Does the school have a policy and/or program to support students in pursuing postsecondary educational opportunities? If so, how is this policy and/or program implemented? Is there a staff member who supervises the program? If so, what are the primary responsibilities of this position?

8. Does this school implement any policies or programs to assist students with job placement and employment? If so, please describe these policies or programs. Which staff members are responsible for these programs, and what are their responsibilities?

9. Of those students who completed this school’s educational program during the 2002-03, approximately what percent subsequently
   _____ attended a vocational or career training programs?
   _____ attended community colleges?
   _____ attended four year colleges?
   _____ got a job?

10. Is there anything about your school that you would like to tell me that I have not asked?
REFERENCES


Texas Administrative Code, 19 § 74 et seq. (2004).


Texas Education Agency (2001c). *Status report on the accreditation, intervention, and sanctions of school districts and charter schools*. Austin, TX: Author.


Texas Education Agency (2001e). *Texas open-enrollment charter schools: Fourth year evaluation (school profiles)*. Austin, TX: Author.

Texas Education Agency (2002a). *At-risk students and the transition to high school: Texas’ efforts to support ninth grade students.* Austin, TX: Author.


Texas Education Agency (2003b). *Texas open-enrollment charter schools: Sixth year evaluation.* Austin, TX: Author.


Texas Education Code, 1 § 12.000 et seq. (2004).

Texas Education Code, 1 § 29.000 et seq. (2004).

Texas Education Code, 1 § 37.000 et seq. (2004).


