

The logo consists of the letters 'MJUR' in a stylized, handwritten font. The 'M' and 'J' are connected, and the 'U' and 'R' are also connected. The letters are black and positioned above a horizontal line.

***Does School Choice Lead to Educational Equality?
A Study of the Colorado Springs District 11
Open Enrollment System***

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The purpose of this article is to determine the effect of open enrollment programs on socioeconomic and academic stratification within Colorado Springs School District 11. Over the past fifteen years, both inter- and intra- district open enrollment have become increasingly popular in Colorado, and specifically within District 11. Proponents of school choice believe open enrollment programs lead to equity in the educational system by providing lower income students with the opportunity to attend a public school in a richer neighborhood; yet, within District 11, open enrollment policies exemplify the existing socioeconomic stratification. This study reveals that more students in neighborhood schools participated in the free and reduced lunch program than in choice schools, and that the percentage of students using this service increased faster at neighborhood schools than choice schools. Moreover, competitive economic pressures do not force all schools to improve at equal rates in academic quality. Fifth grade students at choice schools consistently outperformed their neighborhood school counterparts on the mathematics portion of the Colorado Student Assessment Program (CSAP), and, yet, the test scores at choice schools improved more rapidly than at neighborhood schools.

Introduction

The purpose of this article is to evaluate the effects of open enrollment policies in an individual district (Colorado Springs School District 11) with a focus on open enrollment's effect on socioeconomic and academic stratification in the public school system. Results from this study provide useful information to educational administrators and policy makers when deliberating reforms of the current open enrollment policy.

A major question in the school choice debate is "Does school choice lead to educational equality?" The key term of the school choice debate is

“equality” which is difficult to define. The Oxford English Dictionary defines equality as “the state of being equal, especially in status, rights, and opportunities” and further describes the term “equal” as “being the same in quantity, size, degree or value.” In *Brown v. Board of Education*, the Supreme Court ruled against the *Plessy v. Ferguson* doctrine of “separate but equal” (163 U.S. 537). This study determined that while no two schools are identical and, thus, no two schools are perfectly equal, if certain schools are growing further apart in quality (such as segregated schools in the 1950s or choice/neighborhood schools today), then unfair inequality certainly exists. However, a lack of research on the effects of school choice policies creates difficulties in determining whether school choice leads to educational equality.

Today, the academic impact of school choice is largely unknown. Current research extends to various school districts, but rarely addresses the overall impact of open enrollment. One reason behind the lack of research to date is privacy issues; frequently, school level data is not available because of small student counts (Holme and Richards 156). As open enrollment programs have become increasingly popular, some school level data has become available, such as in Colorado Springs School District 11. Moreover, most data available until recently was in the form of aggregate data, which can be deceptive (Holme and Richards 156). For instance, knowing the percentage of choice school students across the nation on free and reduced lunch plans does not provide any knowledge about possible socioeconomic stratification. If half of choice school students participate in the free and reduced lunch program, then the data appears to show integration; however, one school could contain all students on the free and reduced lunch plan and another school may contain all students paying full price for his/her lunch. To counter the aggregate data dilemma, this study analyzes Colorado Springs School District 11, a district that has provided data on permits in and out of its schools since 2003.

This study looks at both socioeconomic and academic stratification by analyzing the percentage of students on the free and reduced lunch plan, and by analyzing fifth-grade students’ scores on the mathematics section of the Colorado Student Assessment Program (CSAP). The study hypothesizes that open enrollment policies lead to increased socioeconomic stratification between choice and neighborhood schools. And thus, this study hypothesizes that the percentage of students on the free and reduced lunch plan will be higher at neighborhood schools than at choice schools and that the percentage of students on free and reduced lunch plan will increase faster in neighborhood schools than in choice schools as open enrollment becomes increasingly popular. This study also hypothesizes that open enrollment programs will lead to increased academic stratification: CSAP scores will be higher in choice schools than neighborhood schools, and as open enrollment becomes increasingly popular, CSAP scores in choice schools will increase at a faster rate than those in neighborhood schools.

Currently, academics unanimously embrace the concept that school choice must be constrained by a set of rules and regulations. The educational system cannot be a completely free market, which Adam Smith idealizes.

However, debates persist concerning which rules and how many rules are necessary for the best possible educational system. The only way to solve this dilemma is by discovering more about the effects of school choice policies.

What follows in this article is a second chapter reviewing the scholarly literature of the school choice debate, focusing on economic pressures, socioeconomic stratification, and academic stratification. The following chapter, or the methodology section, will outline the techniques used to analyze the relationship between choice schools and the percentage of students on the free and reduced lunch plan, as well as test scores. The fourth chapter will present the results of the application of data. Finally, the fifth chapter will make conclusions, followed by the concluding chapter, which will make recommendations based on the analysis of the aforementioned sections.

Background

Defining School Choice

“Public school choice” has multiple meanings, but there are three main forms of choice necessary to understanding the current debate: charter schools, open enrollment programs, and the voucher system. First, charter schools are public schools which students attend free of charge; however, a student must be admitted into a charter school. Some charter schools have strong academic programs, while others are more academically accepting. In particular, magnet schools have a specialized focus, typically in math and science or in the arts. The specificity of magnet schools allows a student to delve further into his/her fields of interest because the school offers courses tailored to the student’s needs. Second, open enrollment programs can be implemented within an individual district or an entire state. These programs allow students to choose to attend a public school outside of his/her assigned attendance zone. Usually transportation will not be provided for students participating in open enrollment programs and the government gives a portion of the family’s taxes to the district where the student attends school, instead of the district where the family resides. Finally, in the voucher system, the state gives parents a voucher that transfers funds to the student’s school of choice, including private schools. All three forms of choice have different effects; yet, the arguments for and against all choice programs are fairly similar.

Political Debate: The State’s Role in Education

Throughout most of history, politicians have debated a state’s role in education. The argument over school choice is not merely an argument about education, but rather, the debate parallels the political theories about the role of the state in society. The scale ranges from classical liberals, who give parents the strongest rights, to communitarians, who give states the strongest rights. Classical and political liberals are most likely to support school choice, where-

as progressive liberals and communitarians are most likely to oppose school choice; comprehensive liberals can sway either way.

Both classical liberals and political liberals have similar concepts of a state's role in society and are most likely to support open enrollment programs. Locke and Mill, the leading proponents of the classical liberals, believed the state should be limited to protect "life, liberty, and property;" similarly, political liberals, led by Rawls and Galston, believed in protecting constitutional rights while promoting pluralism and autonomy (Godwin and Kemerer, 67-68). Mill argued the state should fund education, but not necessarily provide education. He believed the only regulation a state should have was literacy and numeracy tests because he believed the development of practical skills was necessary for economic self-sufficiency and political self-government (Godwin and Kemerer, 25). The political liberals argue some regulation of schools is necessary, but in agreement with the classical liberals, believe education develops tolerant citizens, and thus, leads to successful autonomy. Classical and political liberals emphasize parents' control of content when dealing with virtue and what constitutes a good life and a good person; whereas, progressive liberals and communitarians, on the opposing end of the scale, support the state's decisions with regard to content (Godwin and Kemerer, 77-78).

Progressive liberals and communitarians agree the state's role is to fund and provide as a monopoly; communitarians are specifically against the existence of private schools and both oppose open enrollment programs. Similar to their views of the state's role in society, both believe citizens should support the decisions made by the state or community: they put great faith in the democratic process. Progressive liberals believe in creating a deliberative and egalitarian democracy with multiple shared values. In line with their views of the state's role in society, progressive liberals believe that the goal of education is to develop shared common values "emphasizing science, creativity, participatory democracy, and political and economic equality," ensuring the practical skills for economic self-sufficiency (Godwin and Kemerer, 91). Likewise, communitarians believe the state should provide the structure through which the community will create the values it wants to promote and, thus, believe the role of education is to develop participatory concerns of citizens who share common values and to recognize the state's duty to society (Godwin and Kemerer, 82). Progressive liberals and communitarians argue that school choice programs take away from the democratic process which is essential to the survival of the United States.

The political arguments behind school choice are the fundamental disagreements when debating educational policy at the national level. However, equally important to writing policies are the actual results: the effectiveness of competitive, economic pressures in affecting socioeconomic diversity and academic achievement among public schools.

Economic Pressure

Economically, proponents of school choice believe choice leads to improved performance at neighborhood schools due to competitive pressures. Students want to attend better schools; thus, to attract more students, schools must increase in quality. Conventionally, public school districts' funding comes from property taxes; if a student elects to attend a school in another district, the government gives his/her family's property taxes to the district where he/she attends school, rather than where he/she lives. Parents will favor districts that produce higher achievement for a lower local tax liability. Thus, when families move, they are more likely to relocate to a district with a better school system because stronger districts have extra property taxes from out-of-district families and, therefore, less local tax liability. In districts with less successful schooling systems, housing demands will drop and property values will fall (Hoxby, 302). Therefore, in theory, not only for the school's sake, but also for the prosperity of the district, every school should aim to improve in the hopes of attracting more students and families into the district.

However, those against school choice programs argue that public schools do not run exactly like a for-profit business. The education market is neither perfect nor complete; therefore, mechanisms that normally raise standards can be compromised (Goodwin, 272). Furthermore, strong, competitive programs are disadvantageous for some students who do not thrive in a competitive environment. The system can further stratify academic achievement rather than improve students' success rates. Burges and Slater suggest competition does not have a statistically significant effect on school performance.

Many experts believe competitive pressures increase educational quality. Parents are a resource which principals utilize to create and fulfill a vision for their school. In a study of Minnesota, traditional public schools benefited because of the existence of charter schools. The implementation of charter schools increased awareness of the importance behind customer satisfaction. However, all of the statistically significant data in this study was qualitative, rather than quantitative: test scores did not appear to improve (Abernathy, 73-88). Some experts argue that school choice does not improve student achievement, but rather, merely redistricts students, leaving the overall educational quality of the district unaffected (Astin).

Socioeconomic Stratification

One of the greatest fears among opponents of school choice is that despite the program's intentions, choice provides a vehicle for segregation by race, class, special education, and religion. Most school choice policies, such as Colorado's Public School of Choice Act of 1990, do not allow students to open enroll if it conflicts with desegregation plans, which conquer the issue of racial segregation. However, the issue of open enrollment yielding socioeconomic stratification looms as a constant fear.

Proponents of school choice argue the programs ensure equity by “[extending] to all a privilege that was previously available only to those able to afford houses in desirable suburban catchment areas or to send their child to a fee-paying school” (Goodwin 272). Moreover, supporters of choice believe open enrollment policies increase diversity within the schooling system because students from poorer communities, generally consisting of minorities, can move to schools in richer communities, generally consisting of white students. In theory, school choice has the potential to increase diversity, but do choice schools actually promote diversity or do they lead to socioeconomic stratification?

In Henig’s book *Spin Cycle*, he reviews charter schools and concludes that on the whole, these schools do not lead to segregation, but his results are inconclusive because paralleling most research to date, he is unable to analyze each individual school. His research concludes that at an aggregate level, charter schools are actually more likely to enroll students of lower socioeconomic status. Over the past decade, the percentage of students on the free and reduced lunch plan at charter schools and traditional public schools has been comparable at the national level (Henig 96). However, as discussed in Chapter 1, aggregate data can be deceptive, and not all learning environments are necessarily integrated. While no analysis has been done to analyze individual states, there are known instances of charter schools increasing segregation. For instance, “in Texas, whites moving into charter schools moved into schools that had 10 percent fewer blacks and 2.3 percent fewer Hispanics than the school they were leaving” (Henig 100). Charter schools and any other form of choice school will increase the opportunity for “white flight” from an area with a concentration of minorities and further allows rich students to flee poorer school systems.

In another study of an individual district, the Denver Public School System, Holme and Richards concluded the open enrollment policies further exemplify socioeconomic stratification (168). If a student wants to attend a school outside of his/her attendance area, there are greater costs, such as transportation, which deter poorer students from choosing a school outside of his/her attendance zone. Additionally, Holme concluded that, on the whole, white students were more likely to transfer out of racially diverse districts into districts with more white students; thus, the Denver open enrollment program realistically increases segregation rather than diversity (Holme and Richards, 168).

One potential reason behind socioeconomic stratification is that for school choice programs to be equal, all individuals must have the same, perfect information. Yet, not all families receive the same information regarding school choice. Bell, representing the Educational Testing Service, recognizes this dilemma in her paper: “All Choices Created Equal?” She says the three options parents have are to not search for a school, to conduct a closed search, or to conduct an open search (197-198). While any parent can make any of these decisions, the process remains unfair because parents receive different information. Frequently in poorer areas “information [is] . . . often either par-

tially or wholly inaccurate – concerned with the reputation of schools instead of the curricular, test score, and other academic data about the school. Despite this, the information was highly valued” (Bell, 194). Thus, parents from lower socioeconomic areas generally make less informed decisions than those from higher socioeconomic areas, increasing the difficulty of closing the socioeconomic gap through the “equality” of school choice.

While theoretically schools of choice have the opportunity to increase diversity, in reality the research done to date shows open enrollment policies increase segregation. No studies have been completed analyzing all of Colorado; most research parallels this study by analyzing one district. Socioeconomic stratification is not the only potential negative effect of open enrollment policies; school choice provides opportunities for all forms of segregation to escalate.

Academic Satisfaction

Test scores are critically important because they serve as a quantitative measure of a school’s academic success. As previously mentioned, competitive economic pressures should provide an incentive for all schools to improve, but in reality, not all schools are improving. Increased test scores at choice schools have the potential to lead to decreased test scores at traditional, neighborhood schools (Bell).

Private schools are the epitome of choice schools; all students who attend private schools chose to attend the school and pay tuition to attend the school. In a study of public and private schools, John Chubb and Terry Moe found that the educational environment of private schools was more conducive to learning than that of public schools (Hoxby, 128). More relevant to this study was Peterson et al.’s review of public and private schools focusing on quantitative data. The study analyzed the change in test scores for African-American students moving from public to private schools in three cities: D.C., New York City, and Dalton, Ohio. Dalton et al. concluded that, on the whole, attending a private school has a “moderately large” effect on test scores (Hoxby 134). They analyzed the results of the Iowa Test of Basic Skills (ITBS) in both reading and mathematics. On average, African-Americans who switched to private schools scored 0.18 standard deviations higher after one year, 0.28 standard deviations higher after two years, and 0.30 standard deviations higher after three years (Hoxby 134). These two studies demonstrate the benefits of private schools through qualitative measures, the educational environment, and quantitative measures (test scores).

Open enrollment policies do not allow students to attend private schools free of charge, but they do allow students to attend charter schools which are public schools paralleling private schools because all students choose to attend the school and charter schools select all their students. According to Schemo, a New York Times reporter, “the first national comparison of test scores among children in charter schools and regular public schools shows charter school students often [performing] worse than comparable stu-

dents in regular public schools” (8/17/2004, A1). Many, such as Amy Stuart Wells, a sociology professor at Columbia University Teaching College, attribute the findings to “a lack of accountability. [Charter schools] really are uneven in terms of quality” (Schemo, 8/17/2004, A1). After the first critiques of charter schools’ effectiveness, future studies were completed comparing charter schools to traditional public schools. Most important to charter schools’ redemption is Tom Loveless’ study of 569 charter schools across ten states revealing “that while charter school students typically score lower on state tests, over time they progress at faster rates than students in traditional public schools” (Henig 76). Loveless concludes that charter schools or “public schools of choice” are effective in improving test scores for their own students. With students in private schools scoring higher than those in traditional public schools and students in charter schools improving faster than those in traditional public schools, an academic divide begins to form between schools of choice and traditional public schools.

To successfully improve overall educational quality, students at all academic levels must improve, not just those who are able to attend his/her school of choice. In a study of the NYC schooling system, Rosenbloom analyzes the negative consequences on non-admits, those who are not able to enroll in their school of choice. Over time, students who remain in poorer schools begin to blame themselves and many “non-admits” become highly critical of his/her school. Additionally, non-admits feel they have fewer opportunities than their counterparts at choice schools and, consequently, over time, motivated students become discouraged. In an interview, one student noted that “when you got influences around you, . . . it really is hard. There are all these commercials that say if you want to do good, you really could. They got to understand that there are negative influences surrounding us all the time, constantly” (Rosenbloom, 9). These negative feelings stress the pre-existing academic gap between schools of choice and public schools, forming difficulties for public schools that are trying to raise their test scores to remain competitive with choice schools.

Paralleling this study, Howe studies the importance of test scores among public schools in an individual district: Boulder Valley School District (BVSD). In Howe’s analysis of BVSD, she determined that students requesting open enrollment for the sixth and ninth grades, generally, have higher test scores than their BVSD cohorts, and apply to attend schools where students earn higher test scores (Howe 7). Thus, the open enrollment pool consists of more high-scoring students and causes “skimming:” some schools gain a disproportionate number of high-scoring students while other schools lose a disproportionate number of high-scoring students (Howe 7). Howe concludes that the movement of students causes academic stratification within the BVSD (Howe 9).

Methodology

In order to provide context for this research, Chapter 3 will first discuss the selection of the analyzed district, Colorado Springs School District 11. The following sections will explain the mechanisms behind the selection of data and the analysis of the collected data.

Setting

The goal of this study is to examine the effects of open enrollment policies within one region, Pikes Peak, and to examine how choice trends relate to patterns of socioeconomic and academic stratification. When determining a district to analyze, the most important qualities were the state and district's policies, the district's participation in open enrollment programs, the district's proximity to other districts, and the district's range of socioeconomic standings; Colorado Springs School District 11 met all of these prerequisites.

Because this study only analyzes one district, an important aspect of the study is its ability to recommend areas for further research on the larger scale of the national school choice debate; thus, the chosen district's rules and regulations involving school choice policies needed to parallel the forty-three other states with inter-district open enrollment programs. The Colorado Public Schools of Choice Act of 1990 required all public school districts in Colorado to permit both inter- and intra- district open enrollment (C.R.S. 22-36-101). Under the law, the only circumstances in which a student cannot choose his/her public school are a lack of space or teaching staff, a lack of necessary programs to fulfill a student's needs, if a student does not have the prerequisites for a given program, if a student must remain in his/her assigned attendance zone to comply with desegregation plans, and if a student has been expelled (C.R.S. 22-36-101). These restrictions are common traits in most open enrollment policies, specifically the compliance with court-ordered desegregation plans (Holme and Richards, 154). Moreover, Colorado's plan does not require districts to provide transportation for any out-of-district students. This regulation parallels most states' policies because only two states require transportation assistance for all students and only seven states require transportation assistance for students from low-income families (Holme and Wells). Overall, Colorado Springs School District 11's open enrollment policies represent a typical school choice district and, thus, the district serves as an appropriate, representative district necessary for this study's analysis.

Furthermore, the district's increasing participation in the open enrollment program is integral to analyzing this study's data because this study focuses on change over time. Since Colorado's open enrollment law took effect in the 1994-95 school year, the open enrollment program has become increasingly popular across the state: 60,916 students participated in the program during the 2009-10 academic school year which is a large jump from the 22,993 students who participated during the 2000-01 academic school year. The increased participation at the state level is also represented within Colorado

Springs School District 11 (Colorado Department of Education). As Table 1 displays, both the number of District 11 students attending out-of-district schools and the number of out-of-district students attending District 11 schools has increased over the past decade.

Equally important in choosing Colorado Springs School District 11 was the proximity of neighboring districts. Colorado Springs School District 11's location encourages both inter- and intra- district open enrollment. Unlike Detroit, which has one school district per twenty-four square miles, Colorado Springs 11 is more spread out, encouraging intra-district enrollment (Holme and Richards 154). However, as Figure 1 shows, Colorado Springs School District 11 borders seven other districts: Academy 20, Falcon 49, Elicott 22, Widefield 3, Harrison 2, Cheyenne Mountain 12, and Manitou Springs 14.

The bordering districts provide an opportunity for students to enroll in a nearby district, promoting inter-district open enrollment as well. By having both inter- and intra- district enrollment in Colorado Springs School District 11, the study analyzes the effects of open enrollment policies in general, rather than limiting the study to a specific form of open enrollment.

Finally, the chosen district had to consist of families from a large breadth of socioeconomic statuses; a model that Colorado Springs School District 11 fulfills. One of the most important variables in this study was the percentage of students on free and reduced lunch plans. The study hypothesized that open enrollment programs would lead to increased socioeconomic stratification; to test this hypothesis, socioeconomic stratification had to be a possible

Table 1.
District 11's Increasing Mobility

Academic Year	Number of Out-of-District Students Attending District 11 Schools	Number of District 11 Students Attending Schools Out of District
2009-2010	2,064	4,880
2008-2009	1,945	4,124
2007-2008	1,862	3,494
2006-2007	1,614	2,656
2005-2006	1,566	2,498
2004-2005	1,501	2,216
2003-2004	1,479	1,886
2002-2003	Data not available	1,628
2001-2002	Data not available	1,331
2000-2001	Data not available	1,227

Source: Colorado Department of Education

result. Therefore, the chosen district had to contain families from different socioeconomic statuses. During the 2009-10 academic school year, 51.4% of District 11's K-12 students were on the free and reduced lunch plan, 9.7% of students were on the reduced lunch plan, and 41.7% of students paid full prices for his/her lunch (CDE Data Summary Report from Student October Count, 2009). Since the state determines free and reduced lunch plans by family income, the range of lunch plans is representative of the range of family incomes within Colorado Springs School District 11.

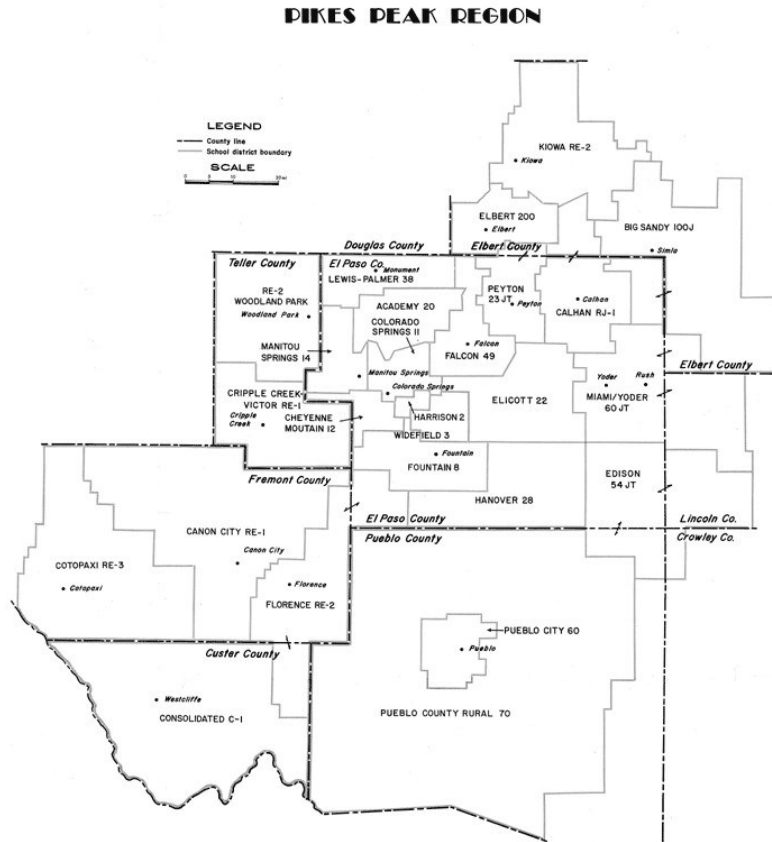
Data Collection

This study looks at both the effects of open enrollment policies on socioeconomic and of academic stratification between choice and neighborhood schools. There are three necessary analyses: defining a choice school, determining open enrollment's effect on socioeconomic stratification, and determining open enrollment's effect on academic stratification. For all three analyses, the study could have analyzed multiple quantitative data sets; yet, this study chose to analyze the number of permits in and out of Colorado Springs School District 11's elementary schools, the percentage of students on the free and reduced lunch plan, and the scores of fifth grade students on the Mathematics CSAP.

First, when determining schools of choice, there were two important decisions: the schools the study would analyze and how the study would compute schools of choice. The study chose to analyze Colorado Springs School District 11's elementary schools. Colorado Springs School District 11 currently consists of thirty-five elementary schools, nine middle schools, five high schools, seven charter schools, and ten alternative options (District 11 Website). Thus, by assessing elementary schools, the study would have the largest sample size which reduces the margin of error. Next, a traditional public school was defined as a choice or a neighborhood school. Then, when determining whether a traditional public school was a choice or neighborhood school, the simplest method was to look at the number of students entering an elementary school from outside of the school's attendance zone and the number of students leaving a school to attend a school outside of one's assigned attendance zone. A "choice school" had positive net permits and a "neighbourhood school" had zero or negative net permits. This analysis relies on the inter- and intra- district transfer data from the 2003-04 academic year through the 2009-10 academic year for Colorado Springs School District 11 region which was obtained from the District 11 website. Since the study analyses the past decade, the data went back as far as possible within the past decade which was the 2003-04 academic school year.

Second, when analysing socioeconomic status, this study decided to analyse the percentage of students participating in the free and reduced lunch program. This analysis relies on the data obtained from the Colorado Department of Education. The data provided by the Colorado Department of Educa-

Figure 1.
Pikes Peak Region's School District Boundaries



Source: Colorado Department of Education

tion was useful because it broke down the results by elementary school, whereas district data frequently focused on the district as a whole.

Finally, when analysing academic stratification, this study decided to analyse test scores; specifically, the fifth-grade Mathematics CSAP. Test scores are a straight-forward quantitative measure representing academic understanding. This study chose to analyse fifth grade results because the results represent the school's teachings over the past five to six years for students who did not transfer into the given school. Also, sometimes a school's curriculum does not prepare students specifically for the CSAP; however, before a student leaves an elementary school, he/she should be prepared to enter a middle school and, thus, should have learned and comprehended most of the material on the CSAP. This study chose to analyse the mathematics section in particular because of the test's quantitative nature. Unlike the reading and writing

sections where a grader subjectively scores a section of the exam, the mathematics exam consists of questions that are either correct or incorrect. Objectiveness is critical when analysing quantitative data, so the mathematics section fits the needs of this study the best. This data was also obtained from the Colorado Department of Education.

Data Analysis

The first step when analysing data was to determine a definition for a choice school. Under Colorado's inter-district open enrolment program, students can choose to attend any school in Colorado and with the movement of students out of his/her assigned school, some schools are more likely to obtain students, whereas other schools are more likely to lose students. The elementary schools were split into two categories: "choice schools," containing students from outside of the school's attendance zone, and "neighbourhood schools," containing mostly students from the school's assigned attendance zone. The method used to determine each school's category was to sort the data by the number of net permits at each elementary school (Permits In – Permits Out).

As seen in Table 2, if the number of net permits is greater than zero, then the school was categorized as a "choice" school, and if the number of net permits was zero or less, then the school was categorized as a "neighborhood school." This data was calculated over seven years to ensure that the average number of net permits would not be skewed by one outlying year.

The next step after each school was analyzed and placed into one of two categories: "choice" and "neighborhood" was to determine if open enrollment leads to socioeconomic and/or academic stratification. So, for each year, the average percentage of students on free and reduced lunch plan was calculated for each category. This data was then plotted on a graph (Figure 2). The same mechanism was used to create the time-series graph for Figures 3 and 4 which used the variables percentage of fifth grade students scoring advanced on the mathematics CSAP and percentage of fifth grade students scoring proficient and above on the mathematics CSAP. The study analyzed those scoring advanced to determine a difference exists in high-level of achievement, as well as proficient and above to determine if a difference exists in the percentage of students meeting the state's expected knowledge level.

While Figure 2 had a high R^2 values, Figures 3 and 4 had lower R^2 values, so the highest and lowest outlying data points were taken off of each data set. In Figure 3, the choice data points eliminated were for 2007 and 2009 academic years and the neighborhood data points eliminated were for 2005 and 2009 academic years. This changed the R^2 value from 0.7973 for choice schools and 0.6021 for neighborhood schools to 0.888 and 0.7879 respectively. In Figure 4, the choice data points eliminated were for 2007 and 2009 academic years and the neighborhood data points eliminated were for 2006 and 2008 academic years. By removing the high and low data points, the R^2 value

Lincoln	-77	-94	-103	-81	-100	-98	-44	-85	Neighborhood
Longfellow	-46	-21	-66	-57	-18	-10		-36	Neighborhood
Madison	61	52	59	69	-36	-1	-46	23	Choice
Martinez	-69	-70	-63	-70	7	-8	13	-37	Neighborhood
Midland	12	10	15	37	21	2	-7	13	Choice
Monroe	-29	-47	-67	-60	-111	-77	-97	-70	Neighborhood
Queen Palmer	-32	-31	-29	-37	-43	-50	-14	-34	Neighborhood
Penrose	134	114	95	70	18	5	26	6	Choice
Pike	-9	-15	-15	-23	-28	-26		-19	Neighborhood
Rogers	-11	-1	21	6	5	-15	-49	-6	Neighborhood
Rudy	-133	-154	-168	-159	-13	3	3	-89	Neighborhood
Scott	25	53	36	62	23	37	43	40	Choice
Steele	81	58	74	66	59	53		65	Choice
Stratton	155	149	150	142	156	195	181	161	Choice
Taylor	82	70	72	85	67	84	92	79	Choice
Trailblazer	63	60	65	69	56	80	113	72	Choice
Twain	-71	-69	-107	-91	-2	-28	-71	-63	Neighborhood
Washington	102	73	91	110	105	96		96	Choice
Whittier	-20	-17	23	12	7	6		2	Choice
Wilson	-17	-13	-38	-64	11	-32	25	-18	Neighborhood

Table 2.
Net Permits In and Out of District 11's Elementary Schools

School Name	Net Permits (Permits In – Permits Out)										Average	Category
	03-04	04-05	05-06	06-07	07-08	08-09	09-10					
Adams	-52	-28	-54	-50	-35	-25					-41	Neighborhood
Audubon	-22	-8	-5	-36	-42	-55					-34	Neighborhood
Bates	13	20	14	20	35	10					13	Choice
Bristol	26	28	30	22	31	28					23	Choice
Buena Vista	-67	-33	-24	4	-13	-15	146				0	Neighborhood
Carver	-16	-25	-26	-53	15	4	1				-14	Neighborhood
Chipeta	11	23	31	25	56	54	44				35	Choice
Columbia	28	47	1	36	15	36	73				34	Choice
Edison	-26	-18	-18	-48	-31	-26	-9				-25	Neighborhood
Fremont	-7	12	40	40	9	39	-19				16	Choice
Grant	76	82	49	57	40	33	5				49	Choice
Henry	62	53	46	19	3	-8	15				27	Choice
Howbert	74	75	43	53	71	83	44				63	Choice
Hunt	-9	-19	-13	-19	2	0	-76				-19	Neighborhood
Ivywild	6	4	-4	-2	11	-10					1	Choice
Jackson	-5	-11	-29	-34	-23	-20	-47				-24	Neighborhood
Jefferson	50	80	76	73	41	34					59	Choice
Keller	144	164	177	148	151	127	150				152	Choice
King	70	65	56	44	22	3	-24				34	Choice

changed from 0.701 for choice schools and 0.6243 for neighborhood schools to 0.8221 and 0.775 respectively.

Discussion

Socioeconomic Stratification

The first analysis in this study compares choice schools and neighborhood schools in relation to the percentage of students on the free and reduced lunch plan. As Figure 2 shows, neighborhood schools consistently have a higher percentage of students on the free and reduced lunch plan than choice schools. Moreover, the number of students requiring payment assistance has been increasing since 2002. This data has a fairly linear trend: the neighborhood school data had an R^2 value of 0.9923, which rounds to a perfect fit of 1, and the choice school data had an R^2 value of 0.9096. Additionally, the neighborhood schools have a steeper slope, 0.0329, than choice schools, whose trend line has a slope of 0.0215. Displaying that each year, on average, neighborhood schools have 3.29% more students on the free and reduced lunch plan, while choice schools have 2.15% more students on the free and reduced lunch plan.

Academic Stratification

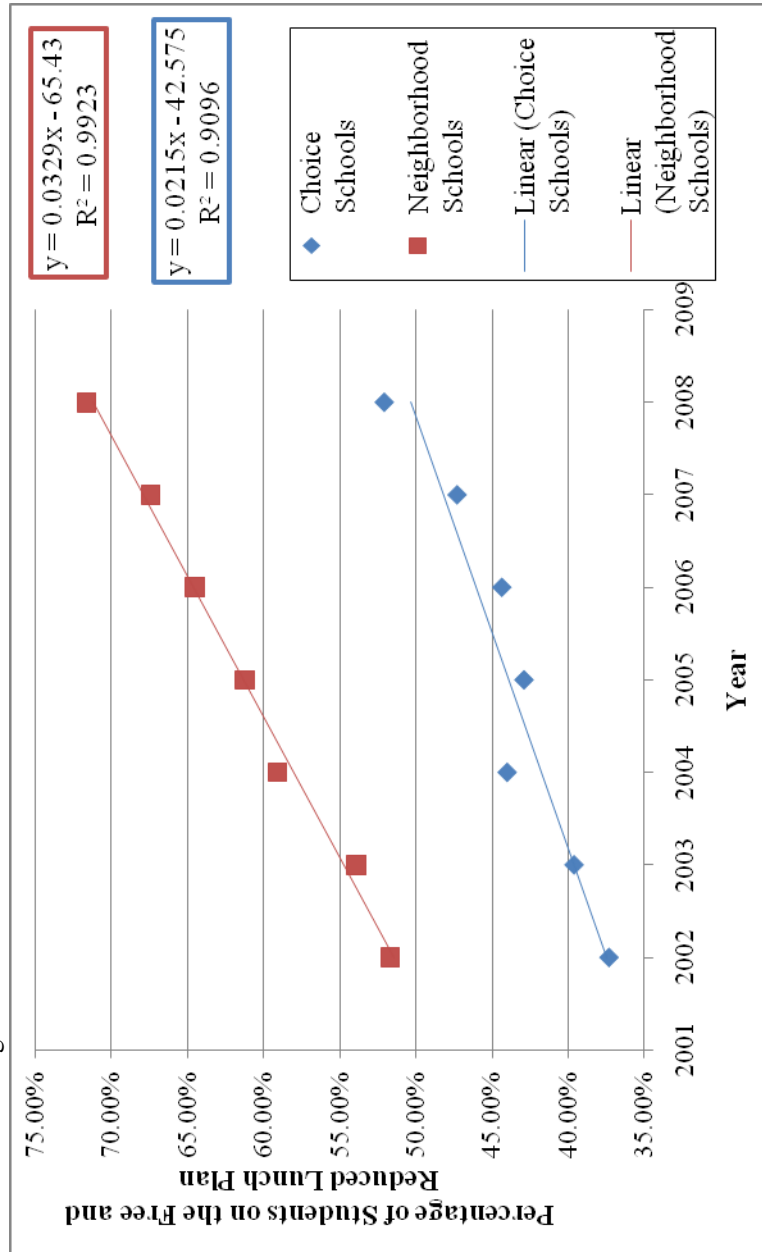
The second analysis was of test scores to determine if open enrollment causes academic stratification between choice and neighborhood schools. This study used two methods of analysis, both looking at fifth grade scores on the mathematics section of the CSAP. Figure 3 compares choice and neighborhood schools in relation to students scoring advanced on the mathematics CSAP, thus testing if there is a difference in high-level achievement between choice and neighborhood schools. Figure 4 compares choice and neighborhood schools in relation to students scoring proficient and above on the mathematics CSAP, thus testing if there is a difference in the schools' abilities to meet state standards.

The analysis of Figure 3 reveals that while both choice and neighborhood schools have more students performing at an advanced level each year, choice schools consistently have a higher percentage of students scoring at an advanced level than neighborhood schools. Moreover, the data also reveals that students are improving at a faster rate in choice schools than neighborhood schools. In neighborhood schools, each year 1.67% more of fifth-grade students achieve an advanced level on the mathematics CSAP, and in choice schools, each year 2.28% more of fifth grade students achieve an advanced level on the mathematics CSAP. Both choice and neighborhood schools appear to be improving at a linear trend with R^2 values of 0.888 and 0.7879 respectively, displaying a high level of goodness of fit.

The analysis of Figure 4 parallels the analysis of Figure 3, revealing that while both choice and neighborhood schools have more students perform-

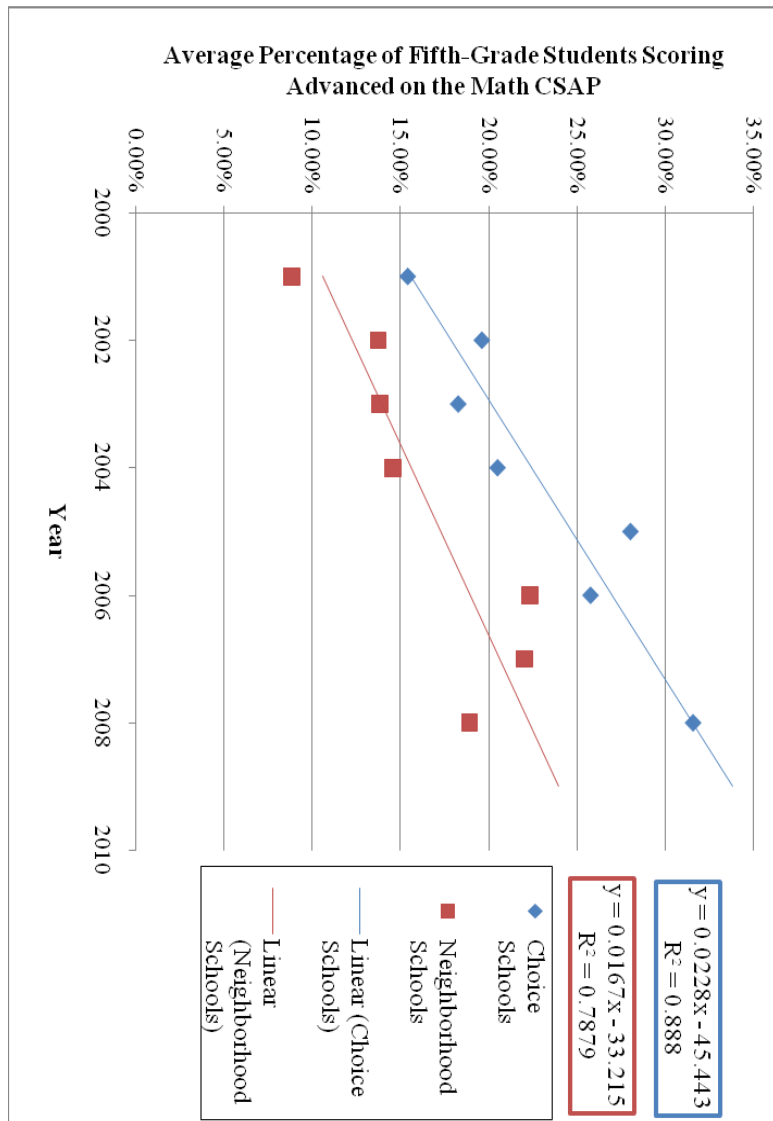
ing at a proficient and advanced level each year, choice schools consistently have a higher percentage of students scoring at a proficient and advanced level than neighborhood schools. Moreover, the data also reveals that students are improving at a faster rate in choice schools than neighborhood schools. In neighborhood schools, each year 2.18% more of fifth grade students achieve a

Figure 2
District 11 Students on the Free and Reduced Lunch Plan
in Choice and Neighborhood Schools



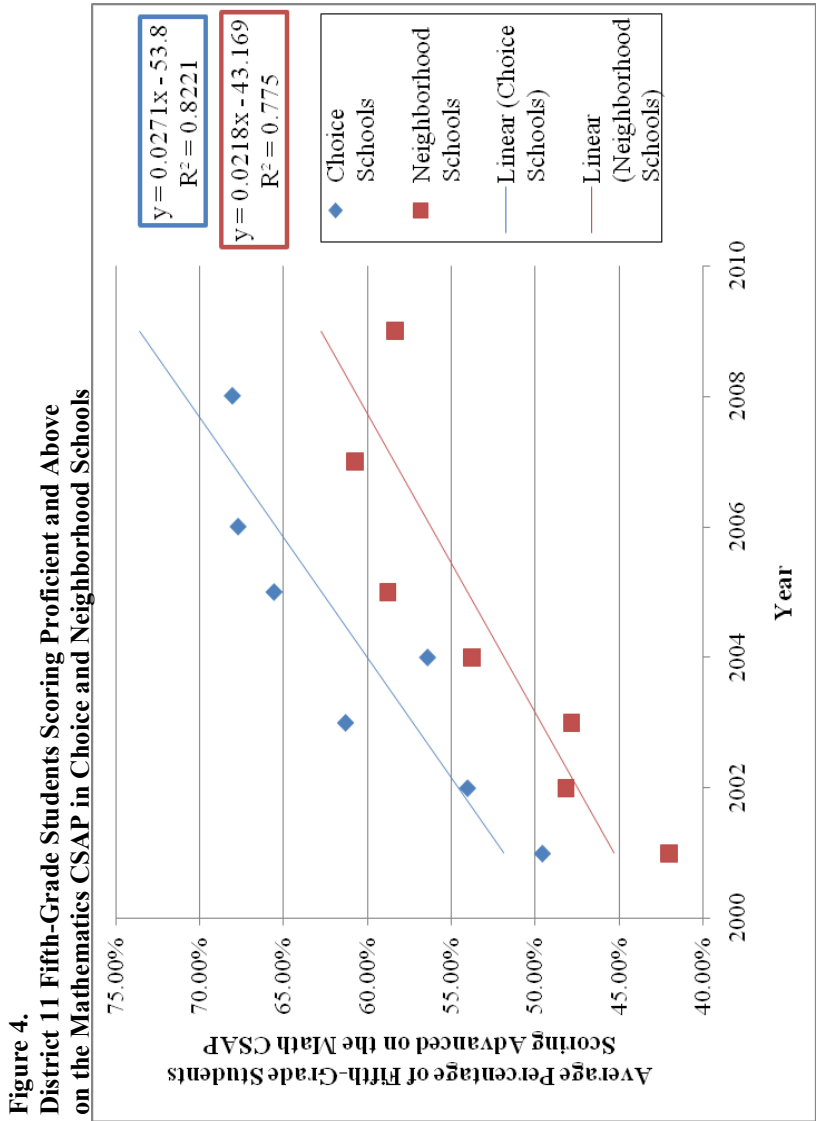
proficient or advanced level on the mathematics CSAP, and in choice schools, each year 2.71% more of fifth grade students achieve a proficient or advanced level on the mathematics CSAP. Both choice and neighborhood schools appear to be improving at a linear trend with R^2 values of 0.8221 and 0.775 respectively, displaying a high level of goodness of fit.

Figure 3.
District 11 Fifth-Grade Students Scoring Advanced on the
Mathematics CSAP in Choice and Neighborhood Schools



Conclusion

The major question permeating this article is “Does school choice lead to educational equality?” While defining equality is extremely difficult, defining what is not equality is quite straightforward. If school choice policies only improve education for those privileged enough to attend a choice, then the system does not lead to equity. Thus, this article sought to examine if socioeconomic and academic stratification developed between choice and neighborhood schools as open enrollment programs become increasingly popular. The



study concluded that open enrollment exemplifies both forms of stratification in Colorado Springs School District 11. This chapter will begin by making conclusions about socioeconomic stratification, followed by academic stratification. The concluding section will summarize the study's findings.

Socioeconomic Stratification

This study hypothesized that open enrollment does not lead to education equality. Within Colorado Springs School District 11, this article hypothesized that the percentage of students on the free and reduced lunch plan would be higher in neighborhood schools than choice schools and that the percentage of students on free and reduced lunch plan will increase faster in neighborhood schools than choice schools, as the open enrollment program becomes increasingly popular.

The findings discussed in Chapter 5 supported the hypothesis of socioeconomic stratification. Figure 2 shows neighborhood schools consistently having a higher percentage of students on the free and reduced lunch plan than choice schools. With more students at choice schools requiring payment assistance, this study reveals that individuals at neighborhood schools are consistently of a lower socioeconomic makeup than their companions at choice schools. More importantly, over time, open enrollment has been increasing and in accordance with this study's hypothesis. Figure 2 also shows the rate of neighborhood schools' students requiring aid increasing faster than the rate of choice at choice schools. Specifically, Figure 2 displays that each year, on average, neighborhood schools have 3.29% more students on the free and reduced lunch plan, while choice schools have 2.15% more students on the free and reduced lunch plan. This difference of 1.14% of students each year displays a growing distance between choice and neighborhood schools, implying that open enrollment programs lead to a lack of equity in the educational system.

Academic Stratification

This article also analyzed academic stratification between choice and neighborhood schools by looking at fifth grade students' scores on the mathematics CSAP. Similar to with socioeconomic stratification, this study hypothesized that academic stratification would exist, and thus, hypothesized that CSAP scores will be higher in choice schools than neighborhood schools. And moreover, this study hypothesized that as open enrollment becomes increasingly popular, the CSAP scores in choice schools will increase at a faster rate than those in neighborhood schools. Both of these hypotheses were supported by the findings discussed in Chapter 5.

The first hypothesis answered the question, "Do students perform at a higher level in choice schools?" The study first looked at the percentage of students scoring in the advanced level on the mathematics CSAP because this percentage reveals the school's ability to help its students achieve a high level

of success. As expected, Figure 3 displays choice schools consistently having more students score at an advanced level than neighborhood schools. This study also analyzed the percentage of students scoring at a proficient or above level on the mathematics CSAP to determine if a difference exists between choice and neighborhood schools' ability to reach state standards. Once again, Figure 4 displays choice schools consistently having a higher percentage of students scoring at a proficient or above level than neighborhood schools.

The second hypothesis looked at the rate at which choice and neighborhood schools were improving to see if choice schools were improving faster than neighborhood schools. Figures 3 and 4 display this data. For students scoring at an advanced level, this study revealed that in neighborhood schools, each year 1.67% more of fifth grade students achieve an advanced level on the mathematics CSAP, while 2.28% more of fifth grade students achieve an advanced level on the mathematics CSAP at choice schools each year. Moreover, for students scoring at a proficient or above level, the study revealed that in neighborhood 2.18% more students perform at a proficient or above level each year and in choice schools, 2.71% more students perform at a proficient or above level each year. In both analyses, students attending choice schools improved at a faster rate than their cohorts in neighborhood schools. Thus, the gap in test scores between choice and neighborhood schools is growing larger, leading this study to conclude that open enrollment has a positive effect on the growing socioeconomic gap between choice and neighborhood schools.

Summary

In conclusion, this report analyzed socioeconomic and academic stratification through quantitative measures (test scores and percentage of students on the free and reduced lunch program) and, specifically, their rates of change. Both of these statistics revealed that socioeconomic stratification exists within Colorado Springs School District 11 because more students at neighborhood schools are on the free and reduced lunch plan than at choice schools and the percentage of students requiring payment assistance is increasing more rapidly at neighborhood schools than at choice schools. Furthermore, both of these statistics also revealed that academic stratification exists within Colorado Springs School District 11 because more students at choice schools consistently outperform their counterparts at neighborhood schools at an advanced level, as well as a proficient or above level. Finally, choice schools improve their test scores faster than neighborhood schools.

Recommendations

As discussed in Chapter 5, this study determined that open enrollment leads to both socioeconomic and academic stratification in public elementary schools. Important to this study's findings would be to see if the same patterns of stratification appear in other districts within Colorado and to analyze the

entire state of Colorado. This research also reveals areas for future research including: school closings, student-to-teacher ratios, and secondary schools.

During the duration of this study, seven elementary schools in Colorado Springs School District 11 closed: Adams, Ivywild, Jefferson, Longfellow, Pike, Washington, and Whittier. Interestingly, three of these schools were neighborhood schools and four of these schools were choice schools, displaying that the district did not necessarily close the least popular schools. Additionally, if each school is ranked according to the average net permits (as seen in the above Table 2) with highest net permits ranked first, then the closed schools received an average ranking of 21.43 which is close to the district's average of 19.5. Future research could be done to determine if districts tend to close down less popular schools, rather than more popular schools.

Future research should also be done analyzing other aspects beyond socioeconomic and academic stratification because these are not the only two qualities that are important when evaluating the quality of a school. Some other important values are the student to teacher ratio, the percentage of teacher's teaching in the subject where they earned their degree, and school attendance rates. While subjective and not worth analyzing on its own, Colorado's school accountability rating takes all of these variables into account when calculating a schools ranking (1 = Low, 2 = Average, 3 = High, 4 = Excellent). As Figure 5 shows, there is a difference between choice schools and neighborhood schools in SAR Ratings which include other variables beyond academic achievement, implying that these other variables should be tested.

Interestingly, Figure 5 and 6 look remarkably different. Figure 5 analyzes Colorado Springs School District 11's elementary schools, whereas Figure 6 analyzes Colorado Springs School District 11's secondary schools. Neighborhood schools are improving in SAR ratings much faster in secondary schools than elementary schools. One cause could be the slightly different qualifications. Secondary ratings consider the percentage of teachers teaching in the subject area where he/she earned his/her degree which elementary ratings do not consider. Moreover, the elementary data set compared forty-one schools, whereas the secondary data set only compared thirteen schools giving the secondary school data set a greater margin of error. Either way, the differences shown in SAR data between elementary schools and secondary schools suggest a study should be done in a larger district to include secondary schools. The important variables behind choosing a school could be significantly different at the elementary and secondary level.

Figure 5.
District 11 Elementary School's School Accountability
Ratings (SAR) in Choice and Neighborhood Schools

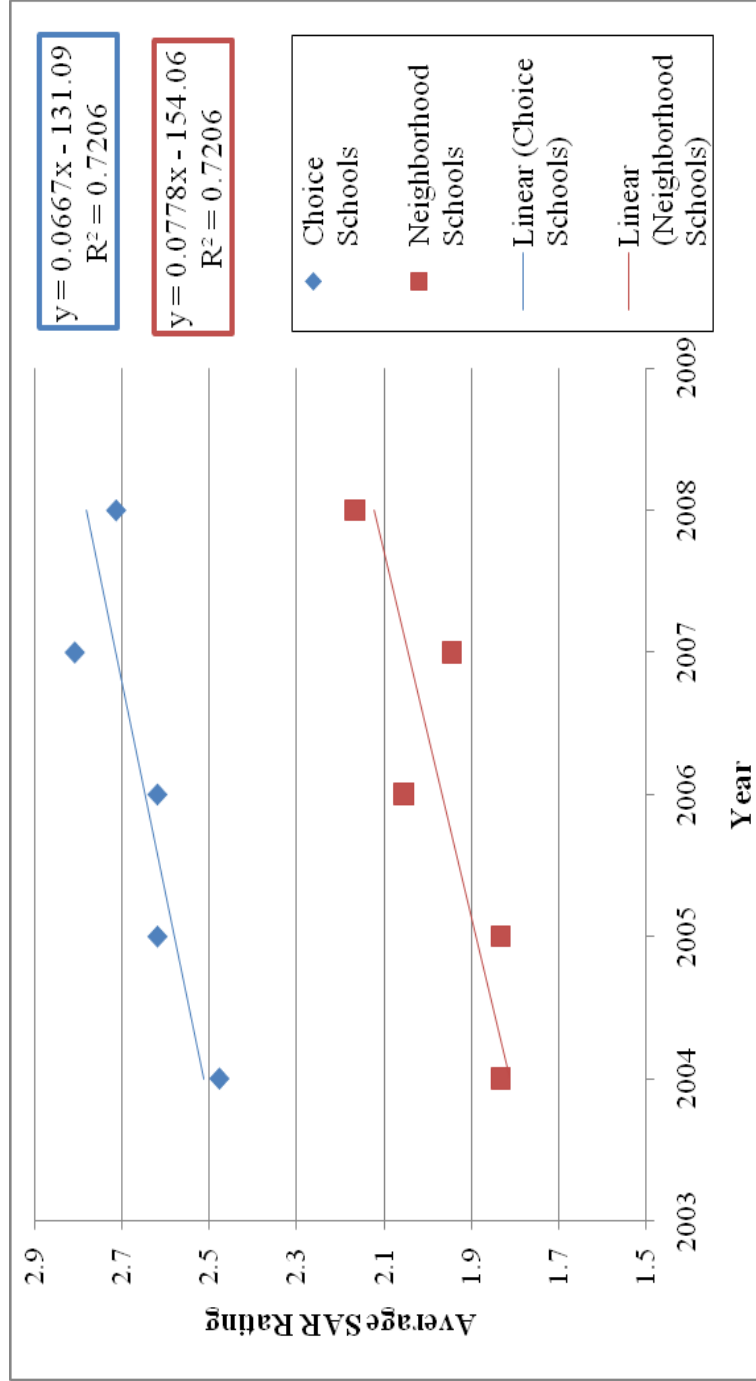
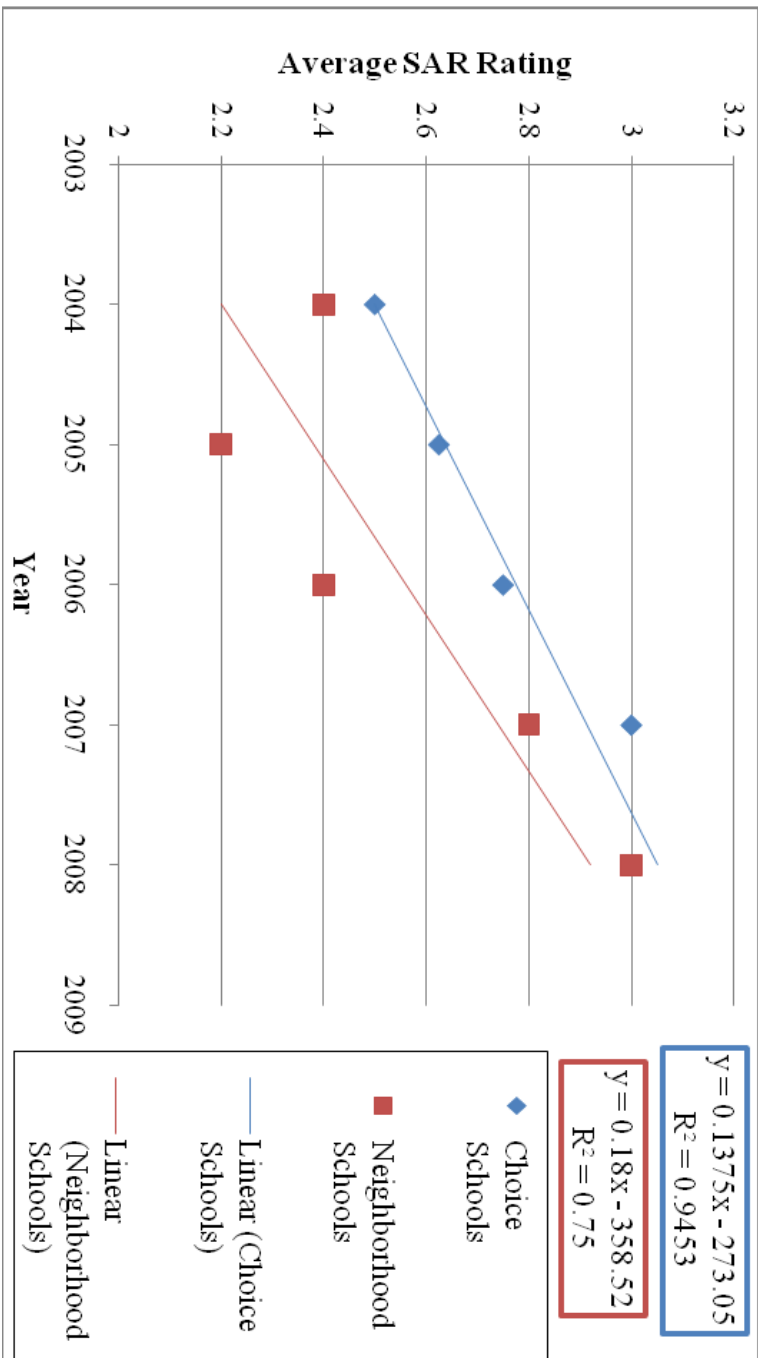


Figure 6.
 District 11 Secondary Schools Accountability Ratings (SAR) in Choice and Neighborhood Schools



Sources

- Abernathy, Scott F. *School Choice and the Future of American Democracy*. Ann Arbor: University of Michigan Press, 2005.
- Astin, Alexander W. Educational "Choice": Its Appeal May be Illusory. *Sociology of Education* 65, no. 4 (1992):255-260.
- Bell, Courtney A. All Choices Created Equal? The Role of Choice Sets in the Selection of Schools. *PJE.Peabody Journal of Education* 84, no. 2 (2009):191-208.
- Burgess and Slater. *Using Boundary Changes to Estimate the Impact of School Competition on Test Scores*. Bristol: Centre for Markets and Public Organizations, 2006.
- Colorado Department of Education. "Students Attending Public Schools Not in District of Parent's Residence." 2000-2009, <http://www.cde.state.co.us/cdereval/rv2000pmlinks.htm>.
- Colorado Department of Education. "Assessment and Data Results for Colorado Springs 11." 2003-2009. <http://www.d11.org/images/index.2.jpgw.schoolview.org>.
- Colorado Springs 11. "Enrollment Data: Permits In and Out." 2003-2009, <http://www.d11.org/enrollment/>.
- Godwin, R. K., and Kemerer, Frank R. *School Choice Tradeoffs: Liberty, Equity, and Diversity*. 1st ed. Austin: University of Texas Press, 2002.
- Goodwin, Mark. Choice in Public Services: Crying 'Wolf' in the School Choice Debate. In Wiley-Blackwell, 2009.
- Henig, Jeffrey R. *Spin Cycle: How Research is Used in Policy Debates: The Case of Charter Schools*. New York: Russell Sage Foundation, 2008.
- Holme, Jennifer J., and Meredith P. Richards. School Choice and Stratification in a Regional Context: Examining the Role of Inter-District Choice. *PJE.Peabody Journal of Education* 84, no. 2 (2009):150-171.
- Howe, Kenneth, Margaret Eisenhart, and Damian Betebenner. School Choice Crucible: A Case Study of Boulder Valley. *Phi Delta Kappan* 83, no. 2 (2001):137.
- Hoxby, Caroline M., and National Bureau of Economic Research. *The Economics of School Choice*. Chicago: University of Chicago Press, 2003.
- Kahlenberg, Richard D. *All Together Now: Creating Middle-Class Schools through Public School Choice*. Washington, D.C.: Brookings Institution Press, 2001.
- Loveless, Tom. How Program Officers at Education Philanthropies' View Education. In *With the Best of Intentions*. Cambridge: Harvard Educational Press, 2005.

- Rosenbloom, Susan. My So-Called Choice: The Trappings of School Choice for Non-Admits. *Urban Review* 42, no. 1 (2010):1-21.
- Schemo, Diana. "Charter Schools Train in Results, U.S. Data Reveals." *New York Times* (New York, NY) Aug. 17, 2004.
- Seibel, Harriet. *A History of the Colorado Springs Schools, District 11*. Colorado Springs: Century One Press, 1975.
- Stern, Sol. *Breaking Free: Public School Lessons and the Imperative of School Choice*. 1st ed. San Francisco, Calif.: Encounter Books, 2003.
- Wiggins, Grant. Defining 'Standards' as Qualities not Quantities. *Independent School* 49, no. 3 (1990):12.

