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Admissions at Elite Colleges**

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Early Admissions at Elite Colleges**

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NOTE: This report is a brief summary of a larger study to be published as a book by Harvard University Press.

I. Introduction

While the admission process has been placed under ever increasing scrutiny in recent years, this rite of passage for high school seniors continues to be shrouded in mystery. Institutions publish numerous statistics, including average SAT's, percentage of students in the top 10% of the class, selectivity, and yield, but parents, students, and guidance counselors continue to encounter significant uncertainty when engaging in the admission process.

The evolution of early admission programs over the past decade has served to increase the tension and confusion surrounding the process. In addition to the (already daunting) task of selecting a set of schools to which they will apply, students must now also strategize about whether they should apply Early Action (EA) or Early Decision (ED), and if so, where. (Early Action allows students the chance to gain an admissions decision in the fall of the senior year without requiring a commitment to attend the given college. Early Decision requires applicants to commit to matriculate if admitted.) These decisions have important consequences on the central admission issues: who applies where, who is admitted, and on what terms.

This would matter little if the standards for early and regular admission were the same. However, theory suggests that colleges benefit in many ways if a student applies early, and the student must be given an advantage for doing so. Our empirical analysis confirms the hypothesis that early applicants are significantly more likely to be admitted than applicants with similar credentials who apply regular decision. This dynamic has important consequences, since it injects a strategic element into the application decision, and affects who attends which colleges. It should be noted that early applicants, on average, are wealthier, better informed, and better connected than regular applicants.

This paper confronts two key research questions:

1. *Are the admission standards for Early Action and Early Decision applicants different from those for Regular Decision applicants?*
2. *Do prospective students and their college counselors have sufficient and accurate information to make informed choices of whether to apply Early Action, Early Decision, or Regular Decision?*

II. Theoretical Analysis: The “Ideal” vs. “The Pragmatic”

Each of the “players” in the college admission process – applicants, college counselors, and admission officers - has a set of incentives which guide decision-making. In the “ideal” world championed by many educators, each prospective student would seek to attend his or her top-choice institution, colleges and universities would admit those students who are "best qualified" for admission, and college counselors would seek to help each individual find the institutions that best meets his or her goals.

But many external factors have arisen in recent decades that have distorted these incentives and transformed the admission process into the “admission game”. Early applications are the most significant new phenomenon. Students are now forced to make strategic decisions about whether to apply early and, if so, where; colleges and universities must determine whether to set differential standards for early and regular admission processes; and college counselors must make strategic choices about managing the application decisions of their respective graduating classes. The net result is likely one in which society may lose – many students do not attend

their top choice (even if they would have been admitted had they applied) and colleges and universities are unlikely to maximize the quality of their incoming classes.

We first review the incentives for students, college counselors and colleges in how they participate in the early admissions process. To address our first question, we then examine statistics on how an early application affects one's admissions prospects, after controlling for a variety of background variables. Our second question about the participants' information is answered through interviews of students, both applicants and those already at college, and of college counselors; and by reviewing public information sources.

A. Incentives for Prospective Students

Two factors have changed the incentives for prospective students in the past two decades. First, the rise in prominence of early admission programs has added a layer of complexity to student choices. Further, Stanford adopted Early Decision after years with offering no early program, while Princeton and Yale switched from Early Action to Early Decision in 1995-96.¹ In 2001-2002, Brown also switched from Early Action to Early Decision, leaving Harvard as the only Ivy League college offering Early Action. The increasing prevalence of Early Decision ups the stakes of the game.

Students now confront a strategic choice of whether to apply Early Decision. For those people who believe that applying ED enhances one's chances of admission (as our data strongly suggest), students are now faced with a calculated gamble. Should I apply to my top choice early if it is a long shot to be admitted, or to a lesser choice where the early application is more likely to make a difference? Does ED make enough of a difference in admissions chances to offset a potentially premature commitment?

Second, the elimination of "the Overlap" process for financial aid in the early 1990's added financial issues for prospective students to evaluate in determining when and where to apply. In years past, many selective colleges agreed explicitly on financial aid need levels for incoming students (through a process of information sharing known as Overlap) in order to assure equity across students and to avoid bidding wars. The Justice Department in the Bush Administration charged that the practice of Overlap violated anti-trust regulations. In 1991, the eight Ivy League colleges settled the case (U.S. Government vs. Brown University), and agreed to change their practices; M.I.T. reached a separate settlement in 1993. Today, students who are accepted to multiple schools may well receive financial aid packages that vary significantly, and can choose among colleges based on their financial aid offers.

Prior to these changes, students and their families could be relatively certain that applying Early Decision would not deprive themselves of a potentially more lucrative financial aid package if they were to wait to see where they were admitted during Regular Decision. But the elimination of Overlap and the apparently increasing use of financial aid as a tool for recruiting top applicants at highly selective colleges have changed the equation for students with demonstrated financial need. In this new paradigm, students and families with demonstrated need may be hesitant to apply binding Early Decision to one institution for two reasons:

- First, they may believe that they will receive a less attractive financial aid package from the ED institution, because they have signaled that it is their first choice and are bound to attend

¹ See Arenson (1996) for a contemporaneous account of the decisions by Princeton, Stanford, and Yale to offer Early Decision.

once admitted. Stories in the popular press revealed that institutions such as Johns Hopkins have reduced financial aid packages to students interested in their nationally recognized programs based on data that showed that such students were most likely to matriculate. Similarly, several of the counselors believe that they have observed subtle methods of price discrimination against early applicants, with colleges shifting grant money and merit scholarships to regular admits, while asking early admits to take on more loans. Carlene Riccelli, counselor at Amherst Regional High School, said that she views Early Decision as a "marketing tool," with financial aid administrators saying that they "have to reserve money for negotiations [with regular admits]." While the counselors are divided in their views of whether colleges offer systematically different financial packages to early and regular admits, some students are wary of applying early. As one student explained, "They figure they've already convinced this guy to go if he's applying early -- (so they must think) 'why sweeten the deal if we don't have to?'"

- Secondly, students and their families deprive themselves of comparing packages and negotiating with schools if they lock themselves into one ED school. Even if we discount the first concern that institutions will offer less financial aid to early applicants than to regular applicants, students and families may be hesitant to commit to a given school without knowing what it will actually cost to attend each of the schools which they are considering.

The market for colleges and universities is atypical. It is one of the few markets in which consumers do not have open access to prices. Students only discover the "true price" for tuition and fees after they have been admitted. Thus, students cannot make fully informed decisions about whether to commit to a college or university, because they do not have full information on the relative prices of the institutions.

B. Incentives for Colleges

One might speculate that the standards for early admission would be more rigorous than the standards for regular admission, since the college commits itself to an admission offer before learning the strength of this year's applicant pool. However, there are many incentives for colleges to set lower standards for early than for later admission, particularly for colleges that use ED. Some of these incentives are natural and laudable; others seem to be unnatural, and possibly detrimental.

1. Identifying Enthusiasts

The opportunity to apply early, and the restriction that one can only do so at a single school,² gives students an unusual opportunity to signal their enthusiasm for a particular college. As a full commitment to attend a given college, an Early Decision application is an even more convincing signal of enthusiasm. As prospective students have begun to suspect that early admission programs provide an increased likelihood of being admitted, however, an early application has ceased to become a signal of a student's top choice in many cases. Some students will now apply

² Historically, Ivy League colleges offering Early Action have restricted students to apply early to only one college. Brown and Harvard, however, changed their rules for 1999-2000 to allow students to submit Early Action applications to multiple colleges (M.I.T. and others had allowed this before 1999-2000). As a result, early applications to Brown increased by 62% in 1999-2000. (Further details are available at the following website: http://www.brown.edu/Administration/George_Street_Journal/vol24/24GSJ12c.html.) Brown made a further change from Early Action to Early Decision for 2001-2002.

to a second or third choice as a strategy of maximizing the probability of getting in somewhere within their top echelon of choices.

2. Reducing Uncertainty

By accepting students early, colleges reduce the uncertainty over final class size, or over standards, should they adjust to fill the class. Indeed, most of the Admissions Offices that responded to our survey stated that ED helps them to manage enrollment figures for the entering class. We found that 95.8% of early admits and 31.0% of regular admits matriculated to the ten ED colleges in our sample.³ While Early Action admits are not committed to any college, they are much more likely to matriculate than applicants from the regular pool. We found that 67.9% of early admits and 42.5% of regular admits matriculated to the four EA colleges in our sample.

3. Minimizing Financial Aid Commitments

Some critics assert that colleges give preference to early applicants to help them limit their financial aid budgets. As Bruce Breimer, the College Counselor at the Collegiate School in New York City, notes, early applicants tend to be "well-heeled"; they have less financial need than do regular applicants. The College Board handbook makes a similar point:

"some colleges find that they can stretch their limited financial aid budgets by admitting students [in Early Decision] who are not only bright and committed to their school, but who are also 'full pay students', i.e., ones who are not relying on financial aid." (p. 14)

Many leading colleges announce a policy of need-blind admissions, which means that admissions officers do not examine financial aid applications to help decide which students to admit and which to reject. The wealthiest colleges may wish and be able to implement need-blind admissions policies. Less wealthy colleges, which are concerned about tuition revenues net of aid, may find that admitting a large number of early applicants can hold down aid handouts without sacrificing the trappings of need-blind admissions.

4. Improving Selectivity Ratings

Popular rankings of colleges have gained importance rapidly during the last decade. Of particular note is the annual U.S. News ranking of colleges. A high ranking attracts applications and increases a school's ability to enroll high quality students. One recent study finds that colleges suffer heavy financial costs when seeking to recruit students in response to a decline in the U.S. News college rankings. (Monks and Ehrenberg, 1999). Each Admissions Office has some control over two numerical measures that factor in the rankings: *Selectivity* and *Yield*. Selectivity measures the proportion of applicants who are admitted, while yield measures the proportion of admits who enroll as freshmen.

One obvious way for a college to improve its performance in terms of selectivity and yield is to accept more early applicants. By increasing the number of early admits, a college can reduce the total number of applicants it must accept to fill the incoming class. Good things here go together. Favoring early applicants improves a college's selectivity ranking, assuming that the change in

³ The College Board Handbook explains that "You are only released from an ED decision if the college is unable to meet your need for financial aid as demonstrated by the completion of a financial aid form." (p. 13)

policy does not dramatically reduce applications. Yield improves as well. That is because early applicants are either (nearly) certain to matriculate (ED) or much more likely to do so (EA) than regular applicants.⁴

5. Competing for Applicants

Early admission programs can also help colleges to attract applicants. Faced with the choice of two similar colleges for an early application, some students will be drawn to the one that is perceived to be more lenient towards early applicants. Similarly, applicants who are uncertain about a first-choice college may still be drawn to apply early, even applying Early Decision. This is a logical strategy for an applicant who believes that applying early is the most likely way to get admitted to a school of a given quality. Thus, favoring early applicants enables a college to attract applicants who might not have chosen that college at the end of the application process.

IV. Empirical Analysis

Several different approaches inform our assessment of early application practices. Our theoretical analysis describes a number of incentives for colleges to favor early applicants in admission decisions. Our empirical analysis uses six years of applicant-level data from fourteen highly selective colleges (a total of 500,000+ individual applicant records) to determine the effect that applying early has on an applicant's chances of admission. We augment that analysis with surveys of admissions officers and conducting interviews with 25 high school counselors 415 college students from the graduating classes of 1998 through 2002, and 60 high school seniors who applied to college in 1999-2000. These surveys and interviews sought to elicit information about the beliefs and strategies of applicants with regard to Early Action and Early Decision.

1. Are the admission standards for Early Action and Early Decision applicants different from those for Regular Decision applicants?

When we began this project in 1996, the overwhelming majority of highly selective colleges and universities insisted that the standards for early and regular decision applicants were identical. These assertions, however, appeared to run counter to data suggesting that admission rates for ED and EA applicants were significantly greater than those of regular decision applicants.

We initiated our research to confront this core question. The most obvious test is a simple comparison of admission rates. Table 1 contrasts the overall admission rates for early and regular applicants at a number of elite colleges. These statistics are publicly available; we reprint them from the widely read Newsweek annual college guides.

⁴ This discussion assumes that the ranking service does not fully correct the yield rate to account for early admissions. We have seen no evidence of such corrections. See Thompson (2000) for further details on the history and methodology of the U.S. News rankings.

Table 1: Early Admissions and Early Applications for Fall 1999 Entry

	Acceptance Rate RD	Acceptance Rate Early	% of Class from Early Pool
Amherst	17 %	35 %	30 %
Harvard	6 %	26 %	72 %
Stanford	14 %	24 %	30 %
Bucknell	43%	57%	37%
Columbia	16%	44%	45%
Cornell	25%	48%	30%
Macalester	53%	61%	22%
U. Virginia	31%	42%	27%
Wesleyan	29%	47%	43%

Source: Newsweek 1999-2000 College Issue

But mere comparisons of admission rates do not provide conclusive evidence of differing admission standards. When faced with these data, many institutions have asserted that the differing rates of admission are functions of differing quality in applicant pools. If, in fact, the quality of the early admission pool were superior to that of the regular decision pool, one would expect the rate of admission to be higher.

Data and Methodology

To test this hypothesis, we gained access to the full historical databases of 14 of the most selective colleges and universities in the country for the years 1991 to 1996.⁵ Each participating college ranks in the top 20 in one of the U.S. News lists ("Best National Universities" and "Best Liberal Arts Colleges"), with a significant majority of the fourteen garnering a top ten ranking in its relevant comparison list. We agreed to protect their identities in exchange for access to their data.

In order to compare "likes" with "likes" in our analysis, we first remove applicants who are alumni children (also known as "legacies"), athletic recruits, or minorities from the sample that we study. These applicants are often considered priorities by particular institutions, and they may not be admitted on the same criteria as others. Next, we classify applicants according to their academic and other qualifications, as measured by SAT scores, class rank, and ratings given to them by admissions officers who read their applications. In this report, we focus on the results when applicants are compared according to SAT scores alone, as these results are the easiest to interpret. We find such a strong advantage to applying early that differences in the criteria used for classifying applicants has little or no effect on the thrust of our results.

⁵ We list applications according to the year of matriculation. Applications received in November and December of 1995 for matriculation in September, 1996 are thus listed as 1996. We had data for 1991-1996 for ten of the fourteen colleges. For the remaining four colleges, we had data for (at least) 1992-1996 or 1993-1997.

In all of the statistical analysis which follows, we present averaged results across the colleges - with the results for the four Early Action colleges presented separately from the results of the four Early Decision colleges. Each college is given equal weight in the averages though they are of different sizes. So, the averages for the Early Action colleges gives each of those four institutions a weight of 25%. (More detailed results, including formal regression results, are available on request from the authors; the regression results are completely consistent with the more straightforward analysis presented here.)

Qualifications of the Applicant Pool

The credentials of Early Action applicants (as measured by SAT score⁶ and high school class rank) are stronger on average than those of regular applicants at colleges using EA.⁷ Across the four EA schools we examined, EA candidates averaged about 31 points higher on the SATs (1402 vs. 1371) and 1.8% higher in class rank (93.8% vs. 92.0%) than regular applicants.

By contrast, at Early Decision schools, the credentials of early applicants are nearly equal on average to those of regular applicants. Early applicants and regular applicants were within 10 points in average SATs at six of the ten ED colleges. Across the ED schools, early applicants averaged 9 points less on the SAT's (1329 vs. 1338) and 0.3% lower on class rank than regular applicants (90.1% vs. 91.4%).

Table 2: Average Qualifications for Early and Regular Applicants

	Early Action Schools			Early Decision Schools		
	Early	Regular		Early	Regular	
Eng. SAT	692.5	678.2		Eng. SAT	673.1	675.6.
Math SAT	709.3	692.5		Math SAT	656.2	662.5
Class Rank	93.8	92.0		Class Rank	90.1	90.4

Admissions Standards for Early Applicants

Applying early appears to increase significantly an applicant's chances of acceptance based on academic credentials, other quantifiable characteristics, and the rating scores of Admissions Offices (these ratings were available at eleven of the fourteen participating schools). This is true at both EA schools and ED schools. This result holds consistently within each category of candidates and for each measure of ability (SAT scores, class rank, Admissions Office ratings). On average, ED applicants receive a larger advantage from applying early than do EA applicants, which is what would be expected, given that it is a more restrictive process.

⁶ SAT scores were recorded on a different scale in 1996 (after recentering by the Educational Test Service) than in previous years. Verbal scores are approximately 70 points higher on the new scale. We adjust the SAT scores for 1996 and 1997, back to the previous scale for our analysis.

⁷ EA applicants were stronger within each subgroup in the sample: Asians, african-americans, Latinos, athletes, alumni children, financial aid applicants, public school students, and private school students who applied in EA had stronger credentials than their peers who applied in regular decision. The results throughout the text refer to the restricted sample.

Figures 1a and 1b show the difference in admissions rates for early and regular applicants within each 100-point band for SAT scores, where the rate for early applicants includes deferred admits.⁸ We also classified applicants by 1. class rank, 2. SAT score combined with class rank, and 3. Admissions Office ratings (available at all four Early Action and seven of the ten Early Decision participants). The results from each classification (and from regression analysis) proved similar. For simplicity, we only present the detailed results for the classification based on SAT scores here.

Within each band of SAT scores, the admissions rate for early applicants is at least five percentage points higher than the admissions rate for regular applicants. For example, 41% of early and 27% of regular applicants with SAT scores from 1300-1390 were accepted at Early Action schools, a difference of 11 percentage points; 51% of early and 30% of regular applicants with SAT scores from 1300-1390 were accepted at Early Decision schools, a difference of 21 percentage points.

In most cases, the admissions rate for regular applicants in a 100-point band of SAT scores is approximately equal to the admissions rate for early applicants in the next higher 100-point band of SAT scores. For example, 41% of early applicants with SAT scores from 1300-1390 and 39% of regular applicants with SAT scores from 1400-1490 were admitted to the Early Action schools in the study. Similarly, 51% of early applicants with SAT scores from 1300-1390 and 48% of regular applicants with SAT scores from 1400-1490 were admitted to the Early Decision schools in the study. This suggests that the admissions effect of applying early is approximately equal to a 100 point increase in SAT score, a result which is borne out by more technical analysis not presented here. (Again, regression results are available on request from the authors.)

Qualifications about Ranking Variables:

Several important qualifications must be attached to these results.

First, we were only able to classify candidates based on numerical scores and ratings. If early and regular applicants differ in systematic ways that are not captured by test scores, grades, or Admissions Office rating, we will not be able to allow for those differences in our analysis.

Second, the classifications based on class rank apply only to those applicants for whom such rank information is available. It is common for private schools not to release class rank information. As a result, a disproportionate number of private school applicant cannot be classified according to their class rank.

Third, a comparison of Admission Office ratings suggests that early applicants receive higher Admissions Office ratings than regular applicants with the same SAT scores and class ranks. If early applicants are systematically more attractive than Regular applicants in non-academic or other unmeasured attributes (some of which are captured in the Admissions ratings), then the classifications based on SAT scores and class ranks will underestimate the percentage and number of early admits who would have been admitted at the Regular Decision standard.

Quite possibly, there is a significant bias cutting in the opposite direction. If the Admissions Office ratings are biased in favor of early applicants relative to regular applicants -- as the theory

⁸ Another possibility would be to count deferred applicants along with the regular pool. That approach would magnify the difference in admission rates between EA and RD. Deferred applicants are generally accepted at much lower rates than regular applicants with similar objective qualifications.

of cognitive dissonance might suggest they would be given that they are admitted more readily given the same qualifications -- then the classifications based on the Admissions Office ratings will lead to an overestimate of the percentage of early admits who would have been admitted at the Regular Decision standard. The timing and the purpose of the rating procedure is critical to this assessment. For example, if the Admissions Office ratings are assigned after the discussion of an applicant's case is underway, then the determination of the rating may be intertwined with and to some extent a projection of the admissions outcome, rather than serving as an absolute standard for comparing candidates on an equal basis. If so, the projections based on the Admissions Office ratings would be contaminated by the rating procedure.

We performed a more detailed analysis of the Admissions Office ratings for each college, comparing the results for early and regular applicants with similar combinations of ratings. Figure 2a shows the results for one illustrative Early Action college. (The results were similar for the other colleges.). This school gives each applicant an academic rating and a personal rating, where higher ratings indicate stronger candidates. Ratings better than 4 were relatively rare.

Figure 2a groups applicants in terms of common rating combinations. Slightly more than half of the applicants at this school fell into one of the seven categories shown in the figure. Early applicants in each category had admissions rates at least ten percentage points higher than regular applicants in the same category. Furthermore, similar percentages of early applicants with ratings of 4.0 - 3.0 and regular applicants with ratings of 4.0 - 3.5 were admitted. Once again, this suggests a clear advantage to early applicants.

In at least one instance, as shown in Figure 2b for a particular Early Decision school, the Admission Office ratings indicated a separate cutoff for early and regular applicants. At this school, a lower score indicates a stronger rating. In fact, most applicants with ratings of 3.7 or lower were admitted. However, whereas most regular applicants with rating of 4 or above were denied admission, almost 90% of early applicants with a ratings of 4 or 4.3 were admitted. More than half of ED-1 applicants with a rating of 4.7 were admitted, while only about 10% of ED-2 and regular applicants with that rating gained entry. In summary, it appears that an implicit cutoff of 4.7 was used for ED-1 admission, while implicit cutoffs of 4.3 and 4 were used for ED-2 and regular applicants, respectively.

2. Do prospective students and their college counselors have sufficient and accurate information to make informed choices of whether to apply Early Action, Early Decision, or Regular Decision?

To address this question, we conducted thirty minute interviews with 25 secondary school guidance counselors, and 415 college students at Harvard, M.I.T., Princeton, Wesleyan, and Yale, from the classes of 1998 to 2002. The goal of these interviews was to determine the beliefs of the primary demand-side participants in the system regarding early admissions programs and the associated strategies that they recommend for early applications. We also followed thirty high school seniors at each of two separate high schools in New England over the course of a year, beginning in the summer before they applied to colleges for entry as freshmen in the fall of 1999.

Our data analysis indicates that early applicants are substantially favored in admissions decisions. Our interviews, however, reveal that this information does not flow readily to applicants. Our respondents expressed a wide variety of beliefs about the effect of applying

early, generally based on limited information, often anecdotal, or personal experience. Those applicants who had the best connections to colleges tended to be the best informed and the most precise in recommending strategies.

A. Student Interviews

Many students employed common sense and logic to determine the effect of applying early. Unfortunately, there are so many factors that might and do play a role that their conclusions were quite inconsistent. Table 3 summarizes the views of the college students and counselors whom we interviewed. We found that there was broad agreement that applying early would help your chances of admission, but that a significant minority believed that it would not help your chances, particularly if applying Early Action. We should emphasize that the college students and national counselors are not a random sample. The students were all successful enough in the application process to matriculate at Harvard, M.I.T., Princeton, or Yale, while we interviewed national counselors who had considerable experience with early application programs.⁹

Table 3: Percentage Who Believe that Applying Early Provides an Advantage in Admissions Decisions

	College Students	Counselors from Competitive National High Schools	Counselors from Public Schools in Massachusetts
Early Action	73.9%	73.3%	50%
Early Decision	83.9%	100%	60%
Number of Respondents	317	15	10

We classified students by the type of high school they attended: "Highly Competitive Private", "Private", "Highly Competitive Public", "Competitive Public", and "Noncompetitive Public". Less competitive public schools, for instance, were those where students reported that it was rare for their classmates to go to college outside their home state.

The informational advantage for students at competitive high schools is most apparent in the percentage of students who reported that they did have enough information about early applications, did not understand that some schools offered Early Action or Early Decision, or who made blatantly contradictory statements in the interviews. We classified all such students as "fair" or "poorly informed". As shown in Table 4, more than half of the students from less competitive public schools were poorly informed. At the other extreme, only 6% of the students from competitive private schools were poorly informed at the time that they applied.

Table 4: Knowledge of Early Applications When Applying to College: Students at Harvard, M.I.T., Princeton, and Yale

	"Good" Understanding of Early Applications	"Fair" or "Poor" Understanding of Early Applications

⁹ We are grateful to Margit Dahl and others in the Yale Admissions Office for compiling a list of counselors at highly competitive schools for us to approach. We selected the Massachusetts counselors at random from a list of the public high schools in the state.

Highly Competitive Private Schools,	74 of 79 (94%)	5 of 79 (6%)
Highly Competitive Public Schools,	79 of 90 (88%)	11 of 90 (12%)
Other Private Schools	30 of 35 (86%)	5 of 35 (14%)
Competitive Public Schools	45 of 58 (78%)	13 of 58 (22%)
Less Competitive Public Schools	25 of 60 (42%)	35 of 60 (58%)
OVERALL	253 of 322 (79%)	69 of 322 (21%)

V. Policy Concerns

Early admissions programs have significant effects on who applies to which colleges, and who gets admitted. It is also believed, though we have not shown, that it may affect financial aid awards. These may be significant policy concerns, for the applicants, the colleges, and the society at large.

There are two sources of additional concern. First, since early admissions programs usually limit the number of applications, they push applicants into making strategic choices, e.g., applying to a third-choice school even though acceptance would be binding. Second, many aspects of the early admissions process may be a form of prisoners' dilemma, suggesting that none of the participants can change strategies without harming themselves, but all would jointly prefer alternative structures.

A. Composition of the Pools

Early applicants are quite different from those who apply in regular admissions. Jean Fetter, Dean of Admissions at Stanford from 1984 to 1991, expressed the conventional wisdom about the differences:

I would be willing to wager that an overwhelming percentage of Early Action and Early Decision candidates are white students who come either from select private high schools or from established public high schools in higher-income neighborhoods with well-informed college guidance counselors. They are mostly the children of college graduates who are also well-informed.¹⁰

Questions and Admissions, p. 52.

Fetter's comments are consistent with our findings. At the colleges that we studied, identified minorities, public school students, and financial aid applicants comprise a smaller proportion of the early applicant pool than they do in the regular pool. Similarly, legacies are a disproportionately large percentage of the early pool. For categories that are institutional priorities, e.g., identified minorities, this disparity probably does not matter, for subsequent

¹⁰ Hernandez (1999) is blunter still: "most early applicants tend to be affluent white students." (p. 31)

recruiting efforts and admissions standards presumably adjust to admit a class that is representative for these groups. The outcome for legacies would also probably be the same. Assuming colleges wish to favor alumni children, early admissions enables them to do so in a less visible manner.

However, outcomes are changed for a category to which admissions processes are blind. If it has fewer members in the early pool, it will have fewer members admitted. Consider financial aid applicants, who are comparatively scarce in the early pool. Many college admission processes are ostensibly blind to financial aid. A lower early admissions standard, combined with a less needy earlier pool, reduces the cost of maintaining this stance. If early admissions were abolished, or early and regular standards were required to be the same, what would be the result? Presumably, more students requesting aid would be part of what would be the need-blind admit pool. Some wealthy colleges might just devote more resources to aid. Other colleges would now find need blind admissions too costly, and would abandon the policy. Finally, some colleges, such as Brown, which already admit to considering ability-to-pay among their marginal admits, would find it becoming a more salient factor. Would more net aid be provided? It depends on whether early admissions a comforting cover for aid restriction, or just happens to incur lower aid requirements.

Some financial aid applicants are deterred from applying early decision because they believe that they will receive less money since they can neither compare financial aid packages nor get colleges to bid against one another. Assume that they are correct. Then, assuming that colleges work with a fixed financial aid budget, although early decision favors early aid applicants on admissions prospects, it favors regular aid applicants on aid amounts.

Whatever its consequences across groups, early admissions has haphazard consequences within groups, such as affluent white males. Those who complete an early application are favored in admissions relative to those who do not, which implies that average quality of admits for such a group will be lower than it would be with an equal standard.

B. Driving Applicant Choices

Early admissions introduces a significant additional dimension to application strategies. Assuming that early applications do offer an advantage, an applicant has to weigh desire to go to alternative colleges against the perceived boost in prospects of applying early to each. How to do this is a challenging problem. But our interest is not in solving the problem, but in seeing what students believe and do.

We elicited information about strategies in several ways during our interviews. First, we asked the direct question: "Under what circumstance would you advise an applicant to apply EA (or ED)?" Subsequently, for those students who had stated previously that applying early could help your chances of admission, we asked a different question. "How would you advise someone who says "I'm not sure if I want to go to Yale (or Princeton), but I'm worried that it will be a disadvantage if I don't apply ED?"

In response to these questions, roughly half (47.9%) of the college students we interviewed advocated a straightforward strategy. Apply ED if you have a solid first choice and it offers ED. Otherwise apply EA if you are considering a school that offers EA. Given the prevalence of that strategy, at least in conversation, it is not surprising that so many applicants applied to Brown,

Harvard, M.I.T, and other schools once Princeton, Stanford, and Yale adopted Early Decision in 1995-96.

Some college administrators are alarmed by the thought that students are following anything other than straightforward strategies. In a recent editorial in the Williams Alumni Magazine, former Williams College President Harry Payne wrote that

"at a panel discussion on higher education, I was startled to hear a prominent educator indicate that, in the current era, the choice to apply early decision to college was a 'rational one' for students. I think I know what he meant - if college admissions is a game, then as a strategy, such a decision might well be rational."

Indeed, many of the college students, including 46% of the ED applicants in our interviews, indicated that the possible admissions advantage was a primary reason that they applied early. Among ED applicants, 67% applied to a solid first choice college with the remainder applying to their favorite school, though it was not a solid first choice. Incidentally, our interviews suggest that "favorite" is an elastic concept, consistent with the following critique from President Payne: "Often the process forces students to convince themselves that they have an unequivocal first choice when that is just not so."

The rise in popularity of early admissions -- with applicants and colleges reinforcing each other's actions -- is pushing back the recruitment process into the junior, and in some cases, the sophomore year. As Larry Momo of the Trinity School observes.

"Early programs force the process earlier - to January of the Junior Year, as students say 'I might want to apply early and there aren't a lot of test dates in the fall.' Conversations about colleges, planning, and testing begin earlier. It's too early for 10th graders to be taking the writing test."

Mathews (1998) documents many of the newfound pressures at suburban public schools, as students compete to stand out in the first years of high school, recognizing that each activity and each A.P. course is a component of their future college applications.

On the college side of the market, Bill Fitzsimmons and Marlyn Lewis of Harvard told us that they have shifted their schedule to plan more recruiting trips to meet with juniors in the spring rather than with seniors in the fall. By meeting with those juniors, they hope to forestall their rivals who are attempting to induce those students to apply ED elsewhere, and thus never to consider Harvard at all.

VI. Conclusion

The college admissions system has developed over time into a complex and formal set of procedures. Within this highly complicated process, early admissions has been growing steadily in importance over the past two decades, accounting for between one-fifth and three-quarters of matriculants at the elite colleges we studied. The early admissions game is played by most selective colleges and by hundreds of thousands of students each year. Despite the importance of early admissions, there is wide variation among participants in the system in terms of information and how they believe the system works. Students, who pass through the system but once, are those most likely to be confused. Some do not even realize that they are facing a strategic situation.

Two clear conclusions emerge from our analysis. First, as Roth and Xing have discovered in other markets, the college admissions process is moving forward in time. This is due not so much to a change in the application dates, but rather because a greater proportion of applicants is applying and getting accepted early. Second, as predicted by theoretical considerations and confirmed by our empirical results, colleges set lower standards for early than regular applicants. This will induce students to apply early in increasing percentages as they come to understand the workings of the system, and witness the actions and experiences of more of their peers and recent predecessors.

The early applications system is currently in flux because of major rule changes by Brown, Harvard, Princeton, Stanford, and Yale between 1995 and today and at other colleges throughout the country. College admissions officers, high school counselors, and student applicants express anxiety about whether the system will continue to creep earlier. Yet, as "helpless" defectors in a complex Prisoners' Dilemma, these individual actors bolster the forces that lead colleges collectively to rush the admissions season. Despite numerous disadvantages to the participants, there are some real gains to elite colleges from early admissions, and some applicants are advantaged at the expense of others. Yet all might prefer an outcome with later applications and admission decisions.

Appendix: Details of Interviews

1. Interviews with High School Counselors

Table 5a: Interviews with National College Counselors

Counselor	High School	Type	# of Seniors	% applying Early
Carlene Riccelli	Amherst Regional (MA)	Public	240	12.0%
Rory Bled	Berkeley (CA)	Public	550	3.3%
Phyllis McKay	Oyster River (NH)	Public	140	17.5%
Eileen Blattner	Shaker Heights (OH)	Public	400	12.5%
Carol Katz	Stuyvesant (NY)	Public	734	27.2%
Alice Purington	Andover (MA)	Private	346	60.0%
Terry Giffen	Choate (CT)	Private	250	50.0%
Bruce Breimer	Collegiate School (NY)	Private	50	10.0%
Cathy Nabbefeld	Colorado Academy (CO)	Private	55	51.0%
Kathy Giles	Groton (MA)	Private	90	94.4%
Stephen Singer	Horace Mann (NY)	Private	150	50.0%
Scotte Gordon	Moses Brown (RI)	Private	55	40.0%
Alan Crocker	New Hampton (NH)	Private	100	30.0%
Larry Momo	Trinity (NY)	Private	95	58.0%
Nancy Beane	Westminster (GA)	Private	200	53%

Table 5b: Interviews with Massachusetts Public School Counselors

High School	# of Seniors	% to 4-year Colleges	% applying Early
Boston English	300	30%	0%
Brockton		80%	10 per year
Bridgewater	356	69%	9.8%
Holyoke	200	40%	5%
Marshfield	262	84%	15.3%
Mount Greylock	90	65%	16.7%
North Andover	192	76%	5.2%
Oakmont Regional	150	65%	2%
Pittsfield	255	40%	3.5%
Springfield	400	40%	2.5%

References

Arenson, Karen. "Top Colleges Filling More Slots With Students Who Apply Early," The New York Times, February 14, 1996, p. A1.

Fitzsimmons, William R., Marlyn McGrath Lewis, and James S. Miller. "Preserving Access in Changing Times: Why Harvard's Early Action Admissions Program Works," The Harvard Crimson, March 17, 1998, p. 9.

Hernandez, Michele A. A is For Admission: The Insider's Guide to Getting Into the Ivy League and Other Top Colleges. Warner Brothers: New York, 1997.

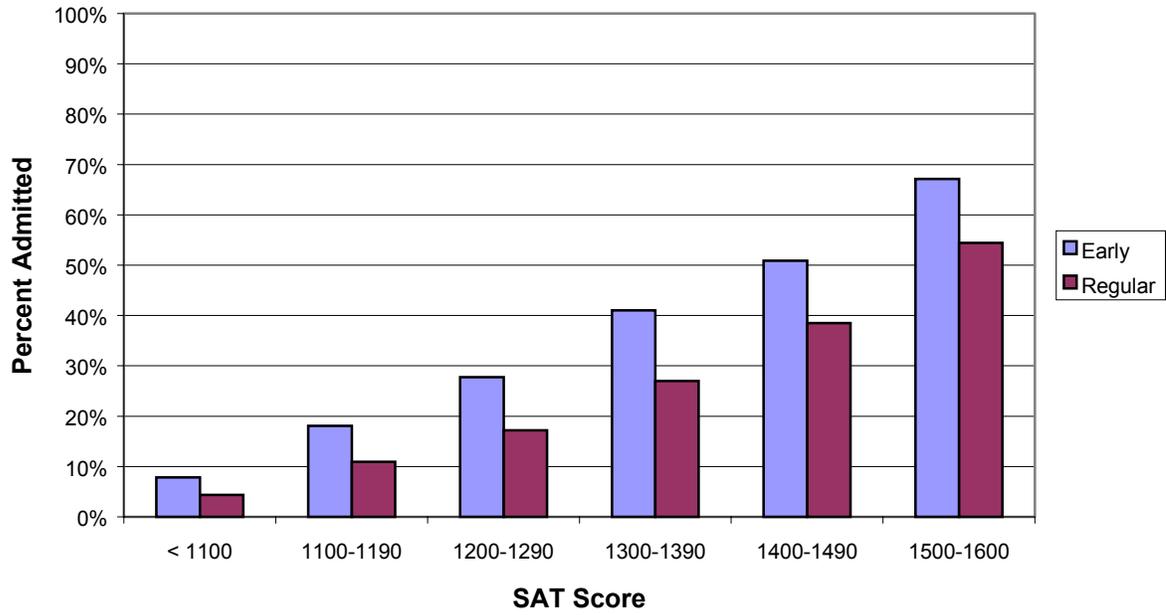
Mathews, Jay. Class Struggle: What's Right and Wrong with America's Best High Schools. Times Books: New York, 1998.

Monks, James, and Ronald G. Ehrenberg. "Admission Outcomes and Pricing Decisions at Selective Private Colleges," NBER Working Paper, July, 1999.

Roth, Alvin E. and Xiaolin Xing. "Jumping the Gun: Imperfections and Institutions Related to the Timing of Market Transactions," American Economic Review, 84, September 1994, 992-1044.

Thompson, Nicholas. "Playing With Numbers: How U.S. News Mismeasures Higher Education and What We Can Do About It", Washington Monthly, September 2000.

**Figure 1a: Admission Rates by SAT Score:
Early Action Colleges**



**Figure 1b: Admission Rates by SAT Score:
Early Decision Colleges**

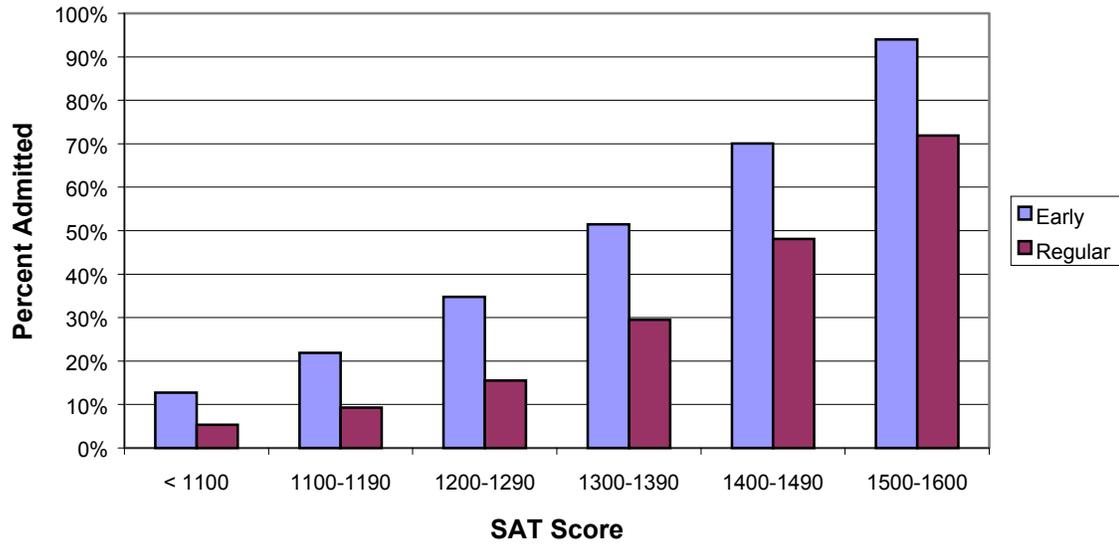


Figure 2a: Ratings and Decisions at one EA College

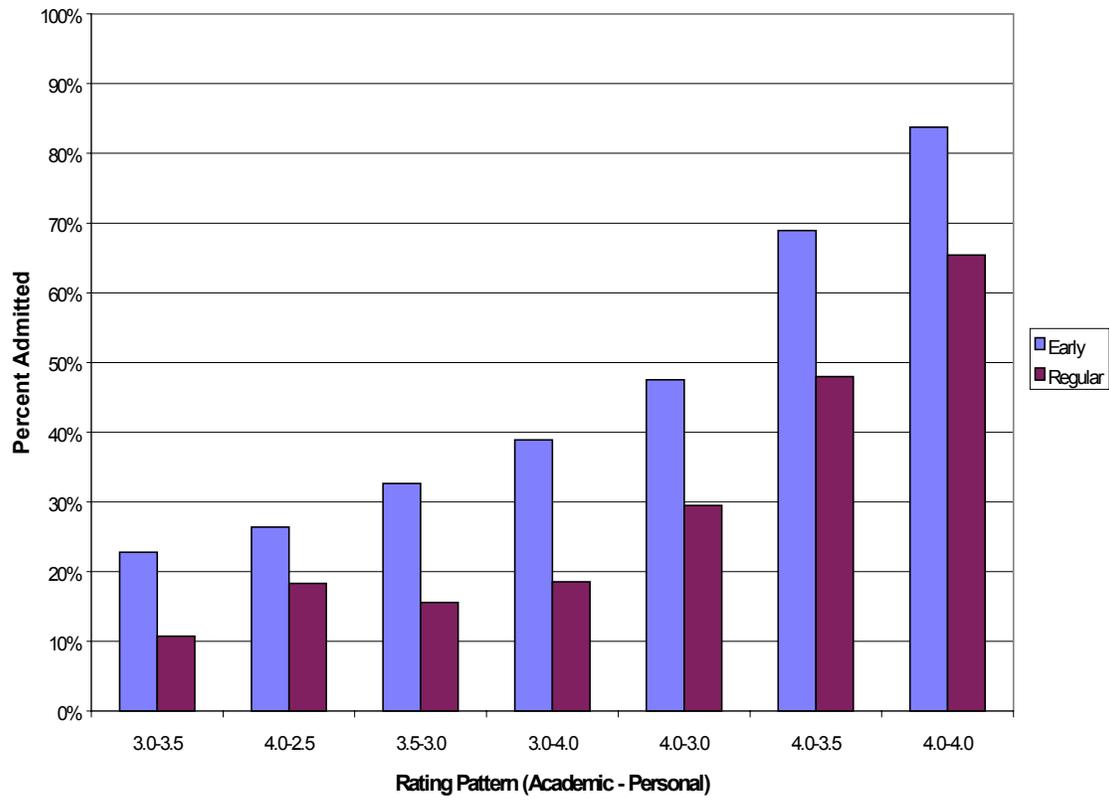


Figure 2b: Ratings and Decisions at one ED College

