

## College application behavior: who is strategic? Does it help?

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**Abstract** The paper examines whether college application behavior assists members of privileged social groups to preserve their advantages in diversified higher education systems. The study is based on a survey conducted in Israel in 1999 on a sample of 4,061 freshmen in the research universities and the academic colleges, which are often perceived as the second tier of higher education. The findings show that strategic application behavior helps less able children of academic parents to achieve the summit of higher education: studying lucrative fields of study at the research universities. Mizrachim, the disadvantaged Jewish ethnic group, are strategic when applying for lucrative fields of study, but it does not affect their actual enrollment. Strategic application behavior helps Arabs, the most disadvantaged group in Israel, increase their odds of achieving the “worst” option, studying non-lucrative fields in colleges. Talented women successfully practice strategic behavior when applying for lucrative fields of study. The effects of strategic application behavior are, thus, mixed. It helps in preserving socio-economic and ethnic inequalities, but also helps in reducing gender inequality among talented students.

**Keywords** College application behavior · Single and multiple applications · Qualitative aspect of multiple applications · Inequality in higher education · Fields of study · First-tier and second-tier institutions

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## Introduction

The expansion and diversification of higher education has shifted the focus of social inequality in higher education from attendance rates to attendance patterns (e.g., Hearn, 1991). In other words, the reduction of social inequality in rates of enrollment in higher education is accompanied by the emergence of inequality in college destination. Diversified higher education systems encompass institutions that vary by prestige, resources, and outcomes (Hearn, 1991), and students' social stratification often corresponds to that of institutions. This pattern is manifested in various studies conducted in different countries. Hearn showed that in the U.S. parental education and income affected selectivity of the post-secondary institution a student attended, beyond academic ability and high school grades. Karen (2002) and Alon (2001), who analyzed racial, ethnic, and socio-economic disparities in college destinations in the U.S., found that inequality in enrollment varied according to type of institution. Ambler and Neathery (1999) who summarized findings on Sweden, France, Britain, and Germany reported that in these countries, children of manual workers enrolled in the less prestigious and less selective institutions. Ambler and Neathery concluded that the diversification of higher education created "a new status hierarchy within higher education" (p. 454).

An additional source of social differentiation in higher education systems is field of study. Previous research shows that the hierarchy of fields affects the profile of their students. Davies and Guppy (1997), who analyzed socio-economic and ethnic composition of students in various fields of study, reported that students with a higher socio-economic background were more likely to enter selective universities and lucrative fields of study in them. These inequalities persisted net of ability. In Israel, Ayalon and Yogev (2005) found that the social stratification of students in higher education corresponded to the combination of the hierarchy of institutions and of fields of study.

The emergence of new sources of students' stratification in diversified systems of higher education accords with Lucas's (2001) effectively maintained inequality hypothesis. Lucas argued that when attendance at a given level of schooling reaches saturation, privileged groups look for qualitative differences at that level to secure qualitative differences within the quantitative equality. Lucas also suggested that in the absence of saturation (which is usually the case in higher education), privileged groups will seek both quantitative and qualitative advantages. Ayalon and Shavit (2004) supported that claim in respect of Israeli secondary education by showing that when a given level of education is tracked, socio-economic inequalities in the odds of its attainment could decline before privileged groups have reached saturation.

The persistence of social inequality in diversified systems of higher education is often explained by the better ability of members of privileged groups to utilize the opportunities offered by those systems. Despite the popularity of this explanation, research on the mechanisms yielding these advantages is limited. Studies that have referred to them emphasize the cultural capital of the students and their families, expressed in acquaintance with the higher education system and the ability to decode its signals, and make better choices (Hutchings, 2003; McDonough, 1997). Information on the system, which is mainly transmitted by families and schools (Hutchings, 2003), is translated into college choice behavior and college application strategies (McDonough, 1997). One of these strategies is multiple applications (Lopez Turley, 2005).

College application strategies, like other plans of action, vary according to social class and carry different outcomes (Lopez Turley, 2005; Swidler, 1986). As such, they constitute a mechanism that may help members of privileged groups to take better advantage of educational opportunities.

My purpose in the study reported here was to test whether patterns of college application enhanced the advantage of socially privileged groups. The test consisted of two parts. First I studied whether multiple applications were practiced by socially privileged groups, and second whether they produced better outcomes. The first step treats patterns of college applications as an outcome, the second as a predictor.

### **Multiple applications as an outcome**

Who are the practitioners of multiple college applications? Empirical research on the issue is very limited, but we can draw hypotheses about the social profile of applicants who use this strategy from the literature on college choice behavior. Three sets of factors that affect college choice behavior emerge: socio-demographic characteristics, such as gender and parental education; educational factors, such as academic ability and high school experience; and college choice preferences (Hossler & Gallagher, 1987; Hurtado, Inkeles, Briggs, & Rhee, 1997; Persell, Castambis, & Cookson, 1992). Hurtado et al., who conducted one of the few studies on number of college applications, used the above factors as predictors, and showed that higher parental education and income, better academic ability, and better high school experience increased the likelihood of multiple applications. These findings corroborate the belief that multiple applications are practiced more often by socially privileged students, who thereby enhance their advantages. Still, Hurtado et al. found significant between-race differences in the effects of the various predictors. In their study they analyzed four American groups: whites, African Americans, Latinos, and Asian Americans. Parental education and school factors proved particularly significant among whites, which suggests that whites, more than the other groups, convert their resources into an application strategy that may eventually carry educational advantages. But this is only part of the story. Hurtado et al. also showed that after controlling for socio-demographic characteristics, academic ability, and preferences, students of color tended to submit more applications than white students. The researchers interpreted this finding as indicating, other things being equal, that to succeed, minority students need to be more strategic than white students in the college application process.

Another group that can be expected to be strategic in its college choice behavior is composed of applicants with high socio-economic status (SES) and moderate academic ability. Based on Bourdieu's concept of habitus, McDonough (1994) suggested that members of the upper-middle class view attending a "good" college as their birthright. Intensifying competition and the high standards at elite American universities threaten the likelihood of the less able members of the upper-middle class to retain that right. Consequently, they develop strategies that enhance their likelihood to enroll in a "good" college, despite their average scholastic ability. McDonough referred mainly to hiring private counselors and tutors, visiting campuses, and attending coaching programs, which assisted the applicants in their admission management. She did not concentrate on multiple applications as a strategy, but she reported on variations in application practices according to SES.

McDonough found that students of higher strata filed on average ten applications, while lower status students filed two or three applications. Based on McDonough's approach, we can predict that less able students of higher SES will practice multiple applications as a strategy of enhancing their chances to enroll in a "good" higher education institution.

Another study that analyzed patterns of college application was conducted by Lopez Turley (2005). She referred to an aspect that is particularly relevant in the American context: the geographic location of colleges. Concentrating on parents' influence, Lopez Turley distinguished between "college-at-home parents" and "college anywhere parents." Lopez Turley reported that students' and parents' preference for "college anywhere" significantly increased the likelihood of multiple college applications. Beyond that distinction, Lopez Turley's findings reproduced those of Hurtado et al. (1997) in showing, *ceteris paribus*, that African American and Asian American students were more likely to effectuate multiple applications than white students. Her findings also showed the positive effects of parental education and academic ability on the odds of multiple applications.

Although Hurtado et al. and Lopez Turley did not concentrate on gender, it was included in their analyses. Hurtado et al. reported that among whites, women were less likely than men to practice multiple applications. They did not find a significant gender effect among African Americans, Latinos, and Asian Americans. Lopez Turley finds no effect of gender on the likelihood of practicing multiple applications in applying to a college. Neither study examined interactions of gender with other explanatory variables in their analyses. Gender differences in converting assets into college choice behavior (Persell et al., 1992) suggest that gender may interact with socio-demographic and educational characteristics in affecting the likelihood of practicing multiple applications. Persell et al. surmised that since women's assets convert into post-secondary attendance and destination at lower rates than men's, they need more assets to reach the level of men. In the context of multiple applications, it suggests that parental education and income, and academic ability, will be more significant for women than men in practicing multiple applications.

### **Multiple applications as a predictor**

The literature on college choice behavior assumes that making multiple college applications constitutes an advantageous strategy. By applying to several colleges, candidates for higher education widen their opportunities and increase the likelihood of entering a "good" college. The logic of this assumption notwithstanding, it was not corroborated by empirical evidence.

Hurtado et al. (1997), who treated multiple applications both as explanatory and outcome variables, tested the effect of that strategy on the odds of applicants' acceptance by their first-choice institution. Their results showed that multiple applications reduced the odds. This is hardly surprising considering that the college of first choice was also the single choice for those who applied to one school. Hurtado et al. did not refer to the stratification of the various choices. Applicants who believed that they had low prospects of being accepted into first-tier institutions probably tried, from the outset, only second-tier ones. They might be enrolling in the college of their first choice, but this does not necessarily mean that they made a good choice.

## What is missing in research on application behavior?

Research on application behavior, as both an outcome and a predictor of college destination, has concentrated on the quantitative aspects of this strategy, overlooking the qualitative. The number of applications widens the applicants' opportunities by definition, but different patterns of multiple applications provide different opportunities. As noted, stratified education systems consist of first-tier and second-tier institutions that vary in prestige and future advantages. Students who practice multiple applications can apply to first-tier as well as second-tier institutions. Clearly, the opportunities offered by institutions that belong to the different tiers of higher education are different. Field of study further complicates the picture. Fields vary in their prestige and future economic returns. Applying for various prestigious fields, for various non-prestigious fields, or for prestigious and non-prestigious fields alike, carries different social implications. In the present study, which analyzes multiple applications in the Israeli education system, I define patterns of multiple applications as a combination of institutional type and field of study. The hypotheses that govern the study refer to both quantitative (number of applications) and qualitative (patterns of multiple applications) aspects of application behavior. The first hypothesis is based on previous research on college choice behavior.

- (1) Students with better socio-economic background, members of dominant ethnic groups and men will tend to practice multiple applications in general, and the better patterns of multiple applications in particular. Lower status students, members of disadvantaged ethnic groups, and women will need the encouragement provided by better social and educational resources in order to perform those practices.

The second hypothesis rests on the assumption that underprivileged groups need to be strategic to realize the better options provided by the higher education system.

- (2) Multiple applications will be particularly significant in affecting the college destination of women, disadvantaged ethnic groups, and members of lower social strata.

Prior to the analysis I shall briefly describe the Israeli higher education system.

### The Israeli higher education system

The Israeli system of higher education is composed of research universities and academic colleges (*michlalot*). Despite their inner differentiation (Ayalon & Yogev, 2006; Yogev, 2000), all universities are considered the first tier of higher education, and all colleges are viewed as the second-tier.

Until its expansion in the 1990s, the Israeli system of higher education was composed of research-oriented publicly supported universities. Most colleges that existed at that time were not allowed to grant an academic degree and were not considered a part of the higher education system. The decision to expand the colleges and give academic accreditation to their undergraduate programs was made by the Israeli Council for Higher Education (CHE) during the early 1990s, in response to the growing demand for higher education that followed demographic changes

(such as massive immigration), a significant increase in the number of high school matriculates, and the credentialing trends of the labor market (Guri-Rosenblit, 1999). Unlike the universities, which are publicly supported, some colleges are privately owned. The CHE, however, accredits the programs of all higher education institutions, public and private, and, as such, it autonomously controls the major part of developments related to the expansion of the system of higher education.

Post-secondary students in Israel apply for specific fields of study, and their studies concentrate on these fields from the very beginning. This is true for both universities and colleges. The universities are quite similar in their admission policies. Admission criteria vary according to fields of study, based on supply and demand. The sought-after fields are the most selective. With few exceptions, admission to the universities is based almost exclusively on test scores: high school matriculation grades and a psychometric score. The matriculation exams are standardized tests mostly taken at the end of high school. The psychometric test is a general aptitude test required by all universities and most colleges. Admission criteria to the colleges are more flexible, but also largely depend on test scores. Students can apply to more than one institution (university and college, different universities, or different colleges) and to different departments within the same institution. Applicants are charged for each institution they apply to, but applying to several departments within the same institution does not incur additional payment. Most students (about 75%) apply to a single institution (ICBS, 2000). Students who apply to both universities and colleges usually prefer the universities and use the college application as a “safety net” (Ayalon & Yogev, 2002). Applicants are aware of the selectivity of the various fields of study and usually do not apply for selective fields unless they are close to meeting the entry requirements (Guri-Rosenblit, 1999).

Inequality in Israeli higher education has several sources. Members of lower socio-economic strata, Arabs, Mizrachim (Jews of Middle Eastern and North African origin, the Jewish disadvantaged ethnic groups), and residents of the periphery are under-represented in higher education in general and in the research universities and the prestigious fields of study in particular (Ayalon & Yogev, 2002, 2005; Guri-Rosenblit, 1999). Gender inequality in Israeli higher education is similar to that in many other countries (e.g., Gerber & Schaffer, 2004): women’s attendance rates are higher than men’s, but women are under-represented in the lucrative and prestigious fields of study (Ayalon, 2003).

## The study

The study is based on a survey conducted by a team headed by the author and Abraham Yogev in 1999 for the Israeli Ministry of Education on a stratified-clustered representative sample of freshmen at 24 colleges and the 6 major universities. The survey data include students’ socio-demographic characteristics; details of their current education; their educational history (high school track and achievements in exams that serve as acceptance criteria for higher education), and their institutional application patterns.

Sampling was based on stratification of students by college or university type, geographic location, and study areas. We started by listing all colleges that offered at least one of the seven major fields of study provided by colleges in general: education, technology, business and economics, arts, law, architecture, and social

sciences. Within each field of study we conducted internal sampling according to college type and geographic location (north, center, and south), so that all types of colleges and the different geographic areas were represented in the sample. Within each of the 24 sampled colleges we randomly selected first-year compulsory courses in the selected fields of study. We included a sample of students from the same fields of study from the six major universities.

The survey was based on an anonymous questionnaire comprised mainly of closed items. The respondents answered the questionnaire while attending one of the first-year compulsory courses. After excluding non-completed questionnaires and inappropriate respondents (second-year students participating in first-year courses), the final sample includes 4,061 students, of whom two-thirds were enrolled at colleges and one-third at universities.

In Israel, the selectivity of fields of study is evaluated by means of the universities' admission policies. Admission cut-off points of fields of study are based on supply and demand, and as such serve as good indicators of the attractiveness of each field. Admission is based on a combination of the average score of the matriculation certificate and the psychometric test, and it ranges between 200 and 800.

## Analysis and variables

### *Method and dependent variables*

The analysis is based on one logistic regression and two multinomial logit regressions. In the first analysis, students are defined as multiple applicants if they practiced more than one application (to the same field in various institutions, to various fields in the same institution, or to various fields in various institutions). I use a dummy variable instead of the exact number of applications because of the small number of students who made more than two applications.<sup>1</sup> The dependent variable in the second analysis is application patterns. It consists of five categories, which combine institution type (university or college) and prestige of the field of study. Fields of study are dichotomized into lucrative and non-lucrative fields. The prestigious professions (law, engineering, architecture, medicine) are classified as lucrative, humanities, social sciences, and education, are examples of non-lucrative (see Ayalon, 2003; Ayalon & Yogev, 2005).<sup>2</sup> The categories of application patterns are as follows. *University-lucrative*: all applications were for lucrative fields at universities; *college-lucrative*: all applications were for lucrative fields, at least one of them at a college; *university-non-lucrative*: all applications were for universities, at least one of them for a non-lucrative field; *college-non-lucrative*: at least one of the multiple applications was for non-lucrative fields at colleges. This categorization distinguishes applicants who tried for only the better options in terms of institution,

<sup>1</sup> Seven hundred and twenty-three students made two applications, 410 made three applications, 207 made four applications, and 85 made five or more applications.

<sup>2</sup> The decision to categorize fields of study according to their expected economic returns is based on the centrality of that factor in shaping the prestige of fields of study in Israel. Research in the U.S. and Europe shows that high-SES students tend to prefer fields that are characterized by cultural capital over fields that promise high economic returns (see, for example, Goyette & Mullen, 2006, for the U.S.; Van de Werfhorst, De Graaf, & Kraaykamp 2001, for Holland). The findings on Israel are completely different showing that high-SES students prefer the lucrative professions over all other fields of study (e.g., Ayalon & Yogev, 2005).



field, or both, from those who were willing to settle for the less advantageous options. Single application is the reference category in the multinomial logistic regression. The dependent variable in the third analysis is the actual enrollment of the applicant. It consists of four categories: lucrative field at a university, lucrative field at a college, non-lucrative field at a university, non-lucrative field at a college.

### *Explanatory variables*

Following previous research on college choice behavior, the explanatory variables include measures of socio-demographic characteristics, school track, academic ability, and significant others.

*Socio-demographic characteristics:* Age, gender (1 for females), nationality, and ethnic origin. Nationality is classified as *Arab* (coded 1) or *Jewish* (0). Among the Jewish students ethnic origin is classified as *Mizrachi* (Jews of Middle Eastern or North African origin, the Jewish disadvantaged ethnic group, coded 1), or other (Ashkenazi, Jews of European or American origin, and second-generation Israeli Jews, all coded 0). Other socio-demographic characteristics refer to the student's parents. Information on the parents is reported by the student in the questionnaire. *Academic parents* is defined as a dichotomous variable, coded 1 if at least one parent had post-secondary education. Parental *income* is measured according to respondents' evaluation of their family's position relative to the national income average. The variable ranges from 1—much below national average, to 5—much above national average. Students also gave information on place of abode, which is classified as *periphery* for the northern and the southern parts of Israel (1), and *center* (0). In Israel, the periphery is usually disadvantaged in terms of resources in general and educational opportunities in particular (Yogev, 1997).

*Significant others:* The students were asked how significant were their families, friends, and neighbors in providing information on higher education. It is a dichotomous variable, coded 1 if the student reported on high significance.

*Vocational track:* A dummy variable, coded 1 for vocational track, 0 for academic track.

*Academic ability:* I use the students' matriculation and psychometric test scores, which as noted serve as selection criteria by all universities and most colleges. I calculate the composed score of the two tests (ranging from 200 to 800) according to the formula used by the universities, and I use the composed variable (hereafter *academic ability*) in the analyses.

*Treatment of missing values:* In the multivariate analyses, missing values are substituted by the means for the quantitative variables, and by the mode for the qualitative ones. For each variable, dummy variables coded 1 for missing values are introduced into the equation (according to the strategy proposed by Cohen & Cohen, 1983). However, most dummies do not reach statistical significance and they have no effect on the results. To gain degrees of freedom, I omit from the analysis the dummies that had no effect on the results. In the final equations I include three dummies that reached statistical significance in some categories—*income missing*, *significant others missing*, and *ability missing*. Income, significant others, and academic ability are the variables with the highest proportion of missing data (income 5%, significant others 2.4%, and academic ability about 3%). The proportion of missing values for the other variables is lower, usually less than 1%.



*Centering:* Age, income, and ability are centered around their grand means. This allows a clearer interpretation of the coefficients, which is of particular value in analyses that include interactions.

## Results

Who practices multiple applications?

### *Quantitative aspects*

Table 1 compares the application behavior of several groups. About 35% of the sample practice multiple applications, but there are variations among the different groups. The table corroborates some, but not all predictions about the social and educational profile of the practitioners of multiple applications. Children of academic parents tend to practice multiple applications more than children of non-academic parents (39 and 30%, respectively); students who report on significant others as a major source of information are more likely to practice multiple applications than other students (37 and 32%, respectively). The discrepancy between

**Table 1** Multiple applications according to socio-demographic characteristics

	<i>N</i>	Proportion with multiple applications	Significance ( <i>t</i> -test)
<i>Gender</i>			
Women	2,290	0.375	$P < 0.000$
Men	1,771	0.312	
<i>Ethnicity (Jews)</i>			
Mizrachi Jews	1,156	0.307	$P < 0.0034$
Non-Mizrachi Jews	2,738	0.356	
<i>Ethnicity (Jews and Arabs)</i>			
Arabs	167	0.491	$P < 0.0001$
Jews	3,894	0.341	
<i>Geographic location</i>			
Periphery	992	0.328	$P < 0.1323$
Center	3,069	0.354	
<i>Parental education</i>			
Academic	2,038	0.393	$P < 0.0000$
Non-academic	2,023	0.302	
<i>Significant others as:</i>			
Major source of information	2,294	0.368	$P < 0.0001$
Marginal source of information	1,767	0.321	
<i>Track</i>			
Vocational	672	0.253	$P < 0.0018$
Academic	3,389	0.366	
Total	4,061	0.347	
Correlation among the quantitative variables			
	Income	Academic ability	Multiple applications
Age	-0.057**	-0.142**	-0.137**
Income		0.223**	0.060**
Academic ability			0.161**

\*\* $P < 0.05$

students who followed the different tracks at high school is greater: 37% of the graduates of the academic track practiced multiple applications, compared with 25% of the graduates of the vocational track.

The results regarding ethnicity and gender are less expected. The comparison between the two Jewish ethnic groups yields anticipated results. Thirty-one percent of the disadvantaged Jewish ethnic group practiced multiple applications, compared with 36% of the privileged Jewish group. The proportion of students who practiced multiple applications among Arabs, who clearly constitute the most disadvantaged ethnic group in Israel (Al-Haj, 1995), is particularly high: 49%. Recall that the American findings reported, *ceteris paribus*, that ethnic minorities tended to practice multiple applications more than whites (Hurtado et al., 1997; Lopez Turley, 2005). In Israel, members of the most disadvantaged group prove more strategic than other groups in their application behavior, regardless of their social and educational characteristics. As to gender, unlike the American findings, in Israel women are more likely to practice multiple applications than men (38 and 31%, respectively).

The correlations of multiple applications with the quantitative variables are low, although statistically significant. They show that younger age, higher parental income, and better academic ability are somewhat related to the practice of multiple applications.

Table 2 presents a multivariate analysis of the odds of multiple applications. Based on the hypothesis, the model includes several interactions. In order to save degrees of freedom I omitted from the analysis interactions that did not reach statistical significance. All interactions that are not presented in the table (and in the subsequent ones) were non-significant in previous (unreported) analyses.

The findings show that the significant effects of Arab origin, academic parents, and academic track persist net of controls. Academic parents increase the odds of multiple applications by 1.178 ( $e^{0.164}$ ), whereas Arabs are almost twice

**Table 2** Logistic coefficients for multiple applications

Gender: female	0.039
Age	-0.053**
Ethnicity (non-Mizrachi Jews omitted)	
<i>Mizrachi</i>	-0.007
<i>Arab</i>	0.575**
Periphery	-0.079
Academic parents	0.164**
Parental income	0.062
Parental income missing	-0.339**
Significant others	0.041
Significant others missing	-1.048**
Vocational track	-0.205**
Academic ability	0.000
Academic ability missing	-0.558**
Female × parental income	0.159**
Female × significant others influence	0.249*
Interactions with ability	
<i>Mizrachi</i>	0.003**
<i>Arab</i>	-0.003
Female	0.003**
Significant others	0.002**
Constant	-0.792**
$N = 4,061$ ; LR $\chi^2 = 283.16^{**}$ ; Pseudo $R^2 = 0.054$	

*I* indicates multiple applications; *0* indicates single application

\* $P < 0.10$

\*\* $P < 0.05$

( $e^{0.575} = 1.778$ ) as likely as non-Mizrachi Jews to practice this behavior. Ethnicity operates differently among Jews. The main effect of *Mizrachi* indicates that among students of average ability Mizrachi and non-Mizrachi Jews do not differ in their odds of practicing multiple applications. The interaction with *academic ability* shows that increasing ability increases the relative odds of the disadvantaged Jewish ethnic group to practice this behavior. Graduates of the vocational track are 1.23 less likely than graduates of the academic track to practice multiple applications.

The results on gender accord with the predictions. According to the main effect of gender, women of average ability, average parental income, and significant others as a marginal source of information are not different from men in their application behavior. Better academic ability, higher parental income, and significant others as a major source of information increase the odds of women, compared with men, practicing multiple applications. As predicted, women seem to need the encouragement of social and educational resources in order to be strategic in their application behavior.

Academic ability does not affect the odds of multiple applications among non-Mizrachi Jewish males who do not report on significant others as a major source of information. The effect of ability grows stronger among Mizrachi Jews, women, and students who received information from their significant others. Better ability, then, mainly affects members of disadvantaged groups, who may feel the need for strategic behavior in order to increase the probability of success.

The absence of a significant interaction between parental education and ability refutes the hypothesis that less able members of higher social strata tend to use multiple applications. However, this is true for the quantitative aspect of making multiple applications. I shall turn now to its qualitative aspect.

### *Qualitative aspects*

The four categories of multiple applications, presented in Table 3, represent four different, partly ordered, patterns. *University-lucrative* represents the best choice—all applications are for lucrative fields at universities. *College-lucrative* indicates that all applications were for lucrative fields, at least one of them for a college. It represents applicants who were ready to compromise and enroll at a college, as long as they could study a lucrative field. *University-non-lucrative* indicates that all applications were for a university, at least one of them for a non-lucrative field. It represents applicants who were prepared to compromise regarding field of study, as long as they could enroll at a university. *College-non-lucrative* represents the “worst” choice—at least one application was for a non-lucrative field in a second-tier institution. The hierarchy of the four patterns is based on the assumption that students prefer universities over colleges, and lucrative over non-lucrative fields. Although this assumption is probably not valid for all students, is certainly holds for most of them (Ayalon & Yogev, 2002).

The distribution of the four categories shows that students practice multiple applications mainly when they are interested in enrolling at a university. About 54% of the multiple applicants applied to universities and did not consider a college, compared with 36% of the single applicants. This supports the notion that multiple applications are a strategy aimed at achieving the better options provided by higher education.

**Table 3** Patterns of applications according to socio-demographic and educational characteristics

	Universities- lucrative fields	Colleges- lucrative fields	Universities- non-lucrative fields	Colleges- non-lucrative fields	Total
<i>Proportion of multiple applications for the various combinations of institution and field of study</i>					
Total	0.218	0.210	0.324	0.249	1,388
Women	0.147	0.123	0.420	0.310	543
Men	0.328	0.346	0.173	0.153	845
Mizrachi Jews	0.241	0.286	0.269	0.204	353
Non-Mizrachi Jews	0.217	0.179	0.360	0.245	957
Arabs	0.115	0.256	0.128	0.500	78
Residents of the geographic periphery	0.245	0.220	0.270	0.258	318
Residents of the geographic center	0.209	0.206	0.339	0.246	1,070
Academic parents	0.241	0.168	0.380	0.211	786
Non-academic parents	0.188	0.266	0.249	0.297	602
Significant others as major source of information	0.215	0.180	0.347	0.257	832
Significant others as marginal source of information	0.221	0.255	0.288	0.236	556
Vocational track	0.176	0.430	0.139	0.255	165
Academic track	0.223	0.181	0.348	0.248	1,223
<i>Means and S.D. of quantitative variables</i>					
Income					
Mean	3.395	3.298	3.506	3.208	3.362
S.D.	1.066	1.001	0.949	1.050	1.017
Academic ability					
Mean	643.61	566.931	608.981	555.707	594.339
S.D.	56.853	58.401	57.338	63.875	67.961
<i>Proportion of single applications for the various combinations of institution and field of study</i>					
Total	0.226	0.372	0.132	0.271	2,673
<i>Distribution of actual enrollment</i>					
Total	0.264	0.330	0.164	0.242	4,061

The reference category—single application—is heterogeneous. Twenty-three percent of that category applied for a lucrative field at a university; 37% applied for a lucrative field at a college; 13% applied for a non-lucrative field at a university; and 27% applied for a non-lucrative field at a college. This heterogeneity complicates the interpretation of the findings. Still, we can see that students who practiced multiple applications are as likely as their fellows who performed a single application to choose the extreme options (the “best” or the “worst” options). Multiple applicants are less likely than single applicants to apply for lucrative fields in colleges (21 and 37%, respectively), and more likely to apply for non-lucrative fields in universities (32% versus 13%). It seems that multiple applicants are more interested than single applicants in enhancing their chances of enrolling in a university and less interested in studying a lucrative field (43% of the multiple applicants applied for a lucrative field, compared to 60% of the single applicants).

The multivariate analysis (Table 4) shows that application patterns vary according to applicants' characteristics, implying that we are dealing with a strategy and not with an accidental choice. I shall briefly discuss the findings in regard of the major explanatory variables.

*Gender.* Field of study is more significant than institution type regarding gender differences in application behavior. Women are more likely than men to settle for a single application than practice multiple applications for lucrative fields, at either universities or colleges. The picture changes when the multiple applications are for non-lucrative fields: here women are more likely than men to prefer multiple applications over a single application. This pattern is in accordance with the well-known gender gap in fields of study (e.g., Ayalon, 2003). In practicing multiple applications, women conform to the traditional stereotypes of "feminine" and "masculine" fields of study. The interactions with gender show, as expected, that social and educational advantages change the pattern of the gender gap. Higher parental income decreases the gender gap in practicing multiple applications for the "best" option—lucrative fields at universities. Better academic ability reduces the

**Table 4** Multinomial logistic coefficients for patterns of multiple applications

	University-lucrative field	College-lucrative field	University-non-lucrative fields	College-non-lucrative field
Female	-1.168**	-0.612**	1.193**	0.800**
Age	-0.201	-0.054	-0.677**	-0.659**
Ethnicity (non-Mizrachi Jews omitted)				
<i>Mizrachi</i>	-0.100	0.376**	0.037	-0.511*
<i>Arab</i>	0.353	1.152**	0.634	0.273
Periphery	0.442**	-0.016	-0.227	-0.348**
Academic parents	2.954*	1.392	1.003	0.221
Parental income	-0.191**	0.049	0.006	0.028
Parental income missing	-0.364	-0.172	-0.532*	-0.503
Significant others	0.219	-0.083	0.313**	0.321**
Significant others missing	-1.064**	-0.318	-1.189**	-2.401**
Vocational track	-0.157	0.184	-0.757**	-0.138
Academic ability	0.008	-0.006	-0.021**	-0.033**
Academic ability missing	-0.534	-0.233	0.045	-2.214**
<i>Interactions with female</i>				
Age	-0.194**	0.012	-0.090**	-0.042
Mizrachi	0.011	-0.148	-0.191	0.224
Arab	-2.357**	-0.524	-1.575**	0.892
Income	0.264**	0.198	0.067	0.040
<i>Interactions with ability</i>				
Female	0.009**	0.009*	0.002	0.004*
Age	0.000	0.000	0.001**	0.001**
Mizrachi	0.007**	0.001	0.003	0.002
Arab	0.001	0.003	0.004	0.001
Periphery	-0.002	0.004*	0.005**	0.000
Academic parents	-0.004*	-0.002	-0.001	-0.000
Vocational track	-0.008**	0.003	-0.000	0.003
Constant	-7.319	-2.271	-18.664**	-18.298**
$N = 4,061$ ; LR $\chi^2 = 1,038.99$ **; Pseudo $R^2 = 0.115$				

Reference category: single application

\* $P < 0.10$

\*\* $P < 0.05$

gender gap in practicing multiple applications for lucrative fields. Women need the support of better academic ability to attempt to increase their probability of studying a lucrative (usually “masculine” field). Better academic ability has an opposite, increasing effect on the gender gap in practicing multiple applications for the “worst” choice—non-lucrative fields at colleges. This suggests that better ability is more effective in reducing the odds of men, compared to women, of being strategic regarding the “worst” choice.<sup>3</sup>

*Ethnicity:* Mizrachi Jews are more likely than non-Mizrachi Jews to practice multiple applications for lucrative fields than to settle for a single application. This is true for college applications, and, for academically able students, also for university applications. This result is in accordance with previous findings showing that Mizrachim used the expansion of the Israeli higher education mainly for studying lucrative professions, for which the universities are highly selective (Ayalon & Yogev, 2005). When equipped with academic ability, Mizrachim practice multiple applications also for lucrative fields at universities. When the alternative is multiple applications for non-lucrative fields at colleges, Mizrachim, more than non-Mizrachi Jews, settle for a single application. In short, Mizrachim are more strategic than non-Mizrachi Jews in their effort to study lucrative fields.

Gender is a central factor in producing Arab–Jewish differences in application patterns. Arab men do not differ from non-Mizrachi Jewish men in preferring multiple university applications to a single application. Arab women, however, clearly prefer a single application to making several university applications, regardless of field of study. Arabs, men and women alike, are about three times as likely as non-Mizrachi Jews to practice multiple applications for lucrative fields at colleges than to make a single application.

*Parental education:* Academic parents affect application behavior only in the contrast between the “best” option and a single application. Children of academic parents are about 20 times as likely as children of less educated parents to practice multiple applications for lucrative fields at universities than to settle for a single application. The negative interaction between parental education and academic ability suggests that better academic ability decreases the advantage provided by academic parents. In other words, academic parents serve as an asset for less able students. As predicted, this implies that multiple applications is a strategy used by less able members of higher social strata who wish to make the most of higher education despite their scholastic shortcomings. Parental education has no effect in all other contrasts.

*Parental income:* Like parental education, parental income affects application behavior only in the contrast between practicing multiple applications for lucrative fields at universities and a single application. Parental income increases the likelihood of a single application for men, and of multiple applications for women. This may stem from different application patterns of the two genders: men may be applying more often for different lucrative fields at the same university (which does

<sup>3</sup> An additional (unreported) analysis shows that this pattern is related to the tendency of women to apply to teachers training colleges. In Israel, as in many other countries, the teaching profession is both “feminine” and non-prestigious (Ayalon & Yogev, 2006). Teachers training colleges usually absorb less talented members of underprivileged social groups (Ayalon & Yogev, 2005). The findings show that strategic talented women, more than strategic talented men, apply to these colleges, using them, probably, as a “safety net.”

not involve additional expenses) and women to different universities. Unfortunately, this information is not included in the data.

*Significant others:* The coefficients imply that significant others increase the odds of multiple applications for non-lucrative fields versus a single application. All interactions with this factor did not reach statistical significance. This refutes the hypothesis that significant others serve as a resource that helps members of disadvantaged social groups to practice multiple applications.

### Who benefits from multiple applications?

Multiple applications are usually considered a strategy that enhances applicants' opportunities to enroll in a "good" higher education institution. This is an assumption more than an empirical finding. In this section I test whether multiple applications enhance the odds of escaping the "worst" option—studying a non-lucrative field in a second-tier institution. The outcome variable, higher education destination, consists of four categories, parallel to those used in the analysis of application patterns (university-lucrative, college-lucrative, university-non-lucrative, and college-non-lucrative). *College-non-lucrative* serves as the reference category.

The main effect of *multiple applications* in the contrast between the two extreme options, studying a lucrative field at a university or a non-lucrative field at a college, does not reach statistical significance. This implies that multiple applications are not related to better opportunities for non-Mizrachi Jewish men with non-academic parents and average ability. The picture is different for women. *Ceteris paribus*, among women, multiple applications increases the odds of enrolling in the "best" versus the "worst" option almost three times [ $\exp(0.295 + 0.726)$ ]. In other words, a strategic application behavior helps women to avoid the stereotypic feminine choice of non-lucrative fields of study.

Academic ability has a positive main effect in the three contrasts (Table 5), implying that better ability helps students to escape the "worst" option. In the contrast between the two extreme options, academic ability interacts with multiple applications and academic parents. The effect of the triple interaction is negative, implying that in children of academic parents, multiple applications reduce the effect of academic ability on the odds of enrolling in the "best" versus the "worst" option. In other words, multiple applications help less talented children of educated parents to reach the summit of higher education.

The main effect of *multiple applications* in the contrast between studying a lucrative versus a non-lucrative field at a college is negative, but it does not reach statistical significance. Here again, the interaction with *female* is positive, implying that among college students multiple applications enhance the odds of women studying "masculine" fields. The triple interaction of academic parents, academic ability, and multiple applications in the contrast between a lucrative versus a non-lucrative field at a college has the same meaning as in the previous contrast (but a lower level of statistical significance). It suggests that the positive impact of multiple applications on the likelihood of less talented children of academic parents to study lucrative fields is also true for college students.

Among students in non-lucrative fields, multiple applications increase the odds of university versus college enrollment. The effect of the interaction between academic ability and multiple applications is negative, implying that application strategy is less



**Table 5** Multinomial logistic coefficients for higher education destination

	University-lucrative fields	College-lucrative fields	University-non-lucrative fields
Gender: female	-2.188**	-1.585**	0.269
Age	0.010	0.080**	0.021
Ethnicity (non-Mizrachi Jews omitted)			
Mizrachi	-0.242	0.388**	0.010
Arab	-1.041**	-0.625**	-0.973**
Periphery	0.145	-0.067	-0.055
Academic parents	1.927	1.221	0.820
Parental income	-0.096	-0.034	-0.041
Parental income missing	-0.039	0.154	-0.156
Significant others	-0.317**	-0.263**	-0.102
Significant others missing	1.705**	1.230**	0.292
Vocational track	0.097	0.004	-0.619**
Academic ability	0.032**	0.004**	0.020**
Academic ability missing	-0.019	-0.144	-0.362
Multiple applications	0.295	-0.411*	0.665**
Academic parents × academic ability	-0.003	-0.002	-0.001
Female × academic ability	0.011**	0.089**	-0.002
<i>Interactions with multiple applications</i>			
Female	0.726**	0.471**	0.417
Mizrachi	0.152	0.390	-0.155
Arab	0.437	0.600	-1.727**
Academic parents	0.074	0.016	-0.303
Academic ability	-0.001	0.002	-0.007**
Academic parents × academic ability	-0.010**	-0.007*	-0.002
Constant	0.570**	1.551**	-0.532**
$N = 4,061$ ; LR $\chi^2 = 2,772.61$ **; pseudo $R^2 = 0.252$			

Reference category: college-non-lucrative fields

\* $P < 0.10$

\*\* $P < 0.05$

significant for students with better academic ability. In other words, application strategy serves as partial compensation for the deficiency in academic ability. We saw in the previous contrasts that multiple applications assisted children of academic parents to enroll in lucrative fields at either universities or colleges. In the present contrast, which includes only students of non-lucrative fields, better ability is advantageous for all, regardless parental education. The uniqueness of children of academic parents in utilizing a strategic application behavior is relevant only for lucrative fields. When settling for a non-lucrative field, they do not succeed more than children of less educated parents.

The contrast between lucrative and non-lucrative fields at colleges reveals a significant interaction of *Arab* with *multiple applications*: multiple applications enhance the odds of Arabs studying a non-lucrative field at colleges. Arabs are more likely than non-Mizrachi Jews to study non-lucrative fields at colleges in all three contrasts, but the effect of application behavior reaches statistical significance only in the last one. While strategic members of other groups manage to avoid the “worst” option, strategic Arabs enhance their relative odds of realizing that very option. In other words, multiple applications increase the gap between two extreme groups: Arabs, the most disadvantaged group, and non-Mizrachi Jews, the most privileged group in the Israeli education system.

## Discussion

Acquaintance with the higher education system, recognizing the options that it provides, and identifying the strategies for increasing the likelihood of achieving the best options are considered part of the cultural capital of members of privileged social groups. Is that capital translated into strategic application behavior? And if it is, does it enhance the probability of realizing the better options offered by higher education? I studied these issues by analyzing application behavior in Israeli higher education. Unlike previous studies, which referred to number of applications, I analyzed the qualitative, in addition to the quantitative aspects of application behavior. The qualitative aspect of applications is defined as a combination of the stratification of institutions and of fields of study: lucrative fields at universities, being the “best” option; lucrative fields at colleges; non-lucrative fields at universities; and non-lucrative fields at colleges, being the “worst” option.

The results reveal the significance of the qualitative aspects of application behavior. Applicants seem to be conscious of the hierarchy of the various combinations of institutions and fields, and they utilize them according to their social and educational characteristics. The link between application patterns and applicants’ characteristics suggests that these patterns are indeed a strategy practiced by ambitious high school graduates who wish to better their chances of making the most of higher education. The decision to practice multiple applications and the choice of particular patterns of applications is by no means accidental.

One major implication of the study is that multiple applications serve different purposes for different social groups. Less able children of educated parents practice multiple applications when they wish to study lucrative fields, at either a university or a college. Members of this category are not strategic when they plan to study non-lucrative fields (which are less selective). Strategic behavior proves efficient. Analysis of the actual enrollment of the applicants shows that multiple applications increase the likelihood of less able children of educated parents studying a lucrative field at a university, the “best” option, versus a non-lucrative field at a college, the “worst” option. In McDonough’s (1994) terminology, this strategy indeed helps less talented members of higher social strata to maintain their perceived right of getting the best possible education.

Whereas multiple applications serve as compensation for deficiencies in academic ability for children of academic parents, it has different purposes for members of less privileged social groups. Mizrachim, the Jewish disadvantaged ethnic group, use multiple applications more than non-Mizrachi Jews in their effort to study lucrative fields at colleges. When equipped with better academic ability, Mizrachim are more strategic than non-Mizrachi Jews also in applying for lucrative fields at universities. In other words, multiple applications serve as a device for talented members of the disadvantaged Jewish ethnic group who wish to study lucrative fields at universities. Application behavior, however, does not appear to be an efficient strategy for Mizrachim. Among college students, Mizrachim are more likely than non-Mizrachi Jews to study a lucrative than a non-lucrative field. Application behavior does not affect that link. The two Jewish ethnic groups do not differ in their odds of studying lucrative fields at universities versus non-lucrative fields at colleges. Here again, the practice of multiple applications has no effect on the results.

Multiple applications have a clear role in decreasing gender inequality in higher education destination. Talented women practice multiple applications when they make the non-typical move of applying for lucrative fields. The application strategy works for women: multiple applications increase the likelihood of women studying lucrative fields, at either a college or a university.

Arabs are more likely than non-Mizrachi Jews to apply for lucrative fields at colleges. This, however, is not expressed in their actual enrollment. Arabs are more likely than non-Mizrachi Jews to study non-lucrative fields at colleges than any of the other options. Multiple applications do not change that pattern. On the contrary, multiple applications increase the likelihood of Arabs, compared with non-Mizrachi Jews, to reach the less desirable option provided in higher education, namely studying a non-lucrative field at a college.

The effects of multiple applications on inequality in higher education are mixed. They help in preserving socio-economic and ethnic inequalities, they increase inequalities between Arabs and Jews, but they also help in reducing gender inequality among talented students. These different effects are related to different patterns of inequality in higher education. In Israel, like in many other countries, gender inequality in higher education is different from other types of inequality. The disadvantage of underprivileged ethnic or socio-economic groups stems primarily from lower participation in post-secondary education. Female students are not disadvantaged in this respect. In Israel, as in most Western societies, women outnumber men in enrollment rates in higher education, but are disadvantaged regarding fields of study (Ayalon, 2003). Women do not need to be more strategic than men in order to increase their enrollment rates, but they do need strategic behavior when they wish to make the non-traditional choice of a lucrative field of study. It is different for the other groups, particularly for Arabs, whose attendance rates in higher education are especially low (Al-Haj, 1995). As noted, strategic Arabs increase their likelihood of achieving the “worst” option. Considering their low attendance rates in higher education, it is probable that for Arabs the alternative to studying a non-lucrative field in a college is to forgo higher education. Arabs probably feel that strategic behavior will enhance their odds of being accepted to a higher education institution. Applying for non-lucrative field in a college (the least selective option) may be interpreted as a part of that strategy. The efficiency of that strategy is enhanced by the fact that several teachers training colleges are a priori targeted to the Arab population. In the absence of competition with Jewish applicants, the odds of Arab applicants to be accepted to teachers training colleges (one of the “worst” options, due to the low status of the teaching profession in Israel) are relatively high. In other words, Arab teachers training colleges may be serving as a “safety net” for Arab applicants. If this speculation is true, it portrays application behavior as a mechanism that contributes to the emergence of qualitative inequality (in Lucas’ terms) in higher education. Obviously, the substantiation of this speculation requires further research.

I started the paper by reviewing American literature on college application behavior. We can see now that the Israeli results are similar to the American in some respects and different in others. The most interesting finding, in a comparative perspective, refers to the link between ethnic origin and application behavior. Ethnic minorities appear as more strategic in Israel than in the U.S. In the U.S., whites convert their social and educational assets into strategic behavior more than ethnic minorities do. In Israel, Mizrachim, the Jewish disadvantaged ethnic group, convert

academic ability into strategic application behavior more than non-Mizrachi Jews, the privileged ethnic group in Israel. Arabs, the most disadvantaged ethnic group in Israel, constitute the most strategic group, regardless of socio-demographic and educational characteristics. In the U.S., ethnic minorities appear as more strategic than whites only after controlling for socio-demographic and educational characteristics.

I believe that the different results are mainly a consequence of structural differences between undergraduate studies in Israel and the U.S., and not of different attitudes toward higher education. In Israel, students apply for a particular field of study, and their studies concentrate on that field from the very beginning. This is true for all fields, including professions such as law, engineering, and medicine. In the U.S., where students choose their majors at later stages of their undergraduate studies, college applications do not refer to fields of study. There are, thus, more forms of strategic behavior in Israel than in the U.S. In Israel, candidates can apply for the same field in various institutions, for various fields in the same institution, or for various fields in various institutions, whereas in the U.S., the only way of being strategic is applying to various institutions. Previous research shows that ethnic minorities in the two countries are similar in preferring vocational fields that may lead to economically rewarding professions (see Ayalon & Yogev, 2006, for Israel; Goyette & Mullen, 2006, for the U.S.). Israeli applicants can shape their application behavior according to these preferences, while American applicants cannot do it, at least not directly.<sup>4</sup> Ethnic minorities in Israel can apply for lucrative fields in the universities, but also in the colleges, where the entry requirements are lower. The analysis of the patterns of application shows that strategic Mizrachim and Arabs are more likely than strategic non-Mizrachi Jews to apply for lucrative fields either in both universities and colleges, using the colleges as a “safety net,” or in several colleges. In other words, ethnic minorities in Israel, just like ethnic minorities in the U.S. need the assurance provided by multiple applications. The Israeli system offers options that assist their strategic behavior more than the American system does.

Does this imply that ethnic minorities in Israel have better chances to study lucrative fields in universities than ethnic minorities in the U.S.? Not necessarily. The current results show that in Israel, application behavior does not affect the actual enrollment of Mizrahi students. They also show that multiple applications increase the odds of Arabs studying the “worst” option—non-lucrative fields in colleges. American research did not analyze the effect of application behavior on the actual enrollment of different ethnic groups, but a comparative study shows that ethnic inequality in post-secondary enrollment and destination is more moderate in the U.S. than in Israel (Ayalon, Grodsky, Gamoran, & Yogev, 2000). This implies that strategic application behavior of less privileged groups may assist in moderating inequalities in higher education, but it certainly cannot guarantee it.

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<sup>4</sup> According to Goyette and Mullen (2006) institutional choice in the U.S. is related, to some degree, to major choice because institutions differ in their curricula offerings. Still, this is different from the direct choice of field of study prevalent in Israel.

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