



Edmond de Rothschild Foundation (Israel)

The Edmond de Rothschild Research Series

A collection of studies in the area of:

Access to and Success in Higher Education

2020

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Dear Partners,

The Edmond de Rothschild Foundation (Israel) works to create an inclusive and collaborative Israeli society, by promoting excellence, diversity, and leadership through higher education. We continue a legacy of philanthropic innovation, investing in change agents and promoting a pioneering spirit.

The Foundation, which operates within the framework of the network of the Edmond de Rothschild Foundations worldwide, initiates dozens of innovative projects throughout Israel, aimed at reducing social gaps and fostering young leadership.

The Foundation's efforts to achieve higher education in as many communities as possible, to promote innovative academic research, to engage artists in social involvement, to invest in groundbreaking economic and social models, and to nurture young and committed leadership affect the lives of tens of thousands of people and shape the future generation of Israel's pioneers and entrepreneurs.

In keeping with its philosophy of strategic philanthropy, in 2011, the Foundation established **the Edmond de Rothschild Research Series**, aiming to promote excellence in research, to expand the knowledge in the Foundation's areas of interest, and to provide access to it to organizations operating in the social field.

The booklet before you centers on **Access to and Success in Higher Education**, as part of the second research series. In its efforts to reduce social gaps, the Foundation strives to ensure access to and success in higher education for periphery populations. It supports programs aimed at improving access to higher education options through preparation and guidance, reducing academic student dropout rates, and translating graduates' education into commensurate employment.

A call for proposals was sent out to Israel's higher education institutions; academic steering committees were established and a total of six research proposals were approved. The researchers created new knowledge and are distributing it, through various academic and non-academic channels. With the conclusion of the project, we are presenting summaries of all the completed studies and their main findings. The full publications of these studies can be found on the Foundation's website: www.edrf.org.il.

We would like to thank all the researchers from The Hebrew University of Jerusalem, Tel Aviv University, and the University of Haifa, who participated in this research series.

Enjoy your reading,

Elli Booch

Director of Philanthropy

Vardit Gilor

Program Officer - Academic Excellence

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Affirmative Action—Dropping Out of Bachelor's Degree or Moving on to Master's Programs?

Prof. Gad Yair and Nir Rotem, The Hebrew University of Jerusalem

Purpose and contribution of the study

Student attrition from institutions of higher education is a well-documented phenomenon, both globally and in Israel. Studies have found that students from a lower socioeconomic background have a higher likelihood of dropping out. Academic challenges were also identified as predictors. That said, dropout prediction, i.e., the ability to predict who will drop and who will graduate, is a field that has been little studied in Israel. Its clarification has direct implications on student diversification policy, particularly for students from disadvantaged backgrounds. Recent attempts echo this spirit; for example, the Israeli program for affirmative action, administered by the Society for Advancement of Education. Additionally, whereas master's degree programs increase in popularity, decision-makers do not have available information about the distinct dropout characteristics at this level.

This study uses a unique database on the entire bachelor's and master's student population at The Hebrew University to shed light on the following: First, the establishment of learning-based prediction models, designed to equip decision-makers with simple tools for attrition-prevention interventions. Second, delving deeply into the dropout patterns of the affirmative action students and studying if they form a distinct risk group for dropout. Third, studying the dropout characteristics of master's degree program students, with emphasis on risk groups.

Combined, these three stages provide a comprehensive platform to improve understanding of the student dropout phenomenon in the Israeli higher education system. From a pragmatic standpoint, they contribute to the generation of concrete insights for student diversification.

The research method

To estimate dropout patterns and establish prediction models, we used anonymized administrative data from The Hebrew University of Jerusalem on all its undergraduate students in 2003–2015. The annual files were combined into a single file, and students still enrolled in 2015 were omitted. We thus generated a list of all the students who were not studying in 2015, having either graduated or dropped out. To differentiate between the two, we used final grade data and an administrative symbol for 'Degree complete.'

Among the background variables are age at entry, gender, minority, immigration, socioeconomic background (based on the Israel Central Bureau of Statistics' decile score for communities), and a periphery/center dummy variable. We also used pre-academic

attainments variables, such as high-school matriculation, English proficiency score, psychometric test score, studies in pre-academic preparatory programs, and affirmative action eligibility. Finally, academic performance variables were used, with information on first year course credits, number of failures, scholarship applications, and cumulative GPA.

For the study of master's degree student dropout, a parallel database was used (2007-2017). Similar data clearing procedures were conducted. Students on the direct PhD track were omitted, being a unique group. As the data analysis advanced, a fruitful link was identified to data from a former survey, conducted by the researchers on master's degree student dropout. Therefore, and as an additional step to the analysis of the student records, insights from that survey, which were analyzed for the first time, were also integrated. The online survey was distributed to former students who dropped out from their master's studies in 2012-2017.

Analysis of these variables advanced in several steps, utilizing a number of advanced artificial intelligence statistical tools. Following descriptive statistics to access overall student dropout rates, the variables were analyzed using hierarchical logistic regression models. This method is designed to evaluate the effect of different groups of variables (background, academic) on dropout prediction. We subsequently ran Decision Tree Models, which use segments of the data to predict future data, thus being conceived as 'learning models.' We also used Artificial Neural Networks Models, another learning model, to optimize the separation between graduates and dropouts.

Finally, for the survey data analysis, we performed an exploratory factor analysis on 16 items measuring reasons for departure. Open-ended responses were also analyzed to place against the constructed clusters. A complementary analysis was conducted on seven items that were relevant only for students in research tracks.

Main findings and their significance

The riddle of the existential dropouts

Descriptive statistics of the undergraduate student records (2003-2015) reveal that 18% of all students dropped out. We learned that this is a heterogenic group. Specifically, 42% dropped after an academic failure, but 58% of the dropouts took an existential leave—never failing a course though taking a limited number of course credits.

The logistic regression was carried in a hierarchical fashion. The first model estimates the effects of students' background variables and their pre-academic attainments on dropping out. The second model estimates the effects of academic predictors. The third and 'full' model estimates the joint effects of both variable groups on dropping out. Whereas the third model explained 44% of the variation, the first model explained only 5.5% of the variation; this signifies that academic variables are more meaningful for predicting dropout. The Artificial Neural Networks Models and the Decision Tree Models supported this finding. Based on the latter, GPA was found to be the most effective predictor for graduating and dropping out. According to the model, 87.6% of the students with a GPA of 74.4 and below will drop out. The number of course credits is the second most important variable: Taking less than 29.75 course credits in the first year of studies predicts 70.9% dropout, even when the GPA is higher than 74.4. The different background variables hold a much weaker predictive power.

The models enable us to predict graduates and dropouts who failed a course, took a low

number of course credits, or have a low GPA. However, they fail to predict the dropout of a large group of students that decided to stop their studies without early warning—the ‘existential dropouts’ who had never failed, had ostensibly reasonable grades, and yet decided to leave. This is a challenge for future studies as well as for decision holders.

Open the gates wider

Approximately 5% of the undergraduate students at The Hebrew University (2003-2015) were eligible for affirmative action. Presumably, these are students for whom admission criteria were lowered. Hence the question arises, do they graduate on similar terms as the rest of the student population?

We first examined the characteristics of the affirmative action-eligible students. The classification abilities of the decision tree model exposed that the main traits for the identification of those students are: Attendance in a preparatory program, application for a scholarship on a financial basis, a low grade on the psychometric test, coming from the periphery, and holding a minority status. While the Society for Advancement of Education, which grants affirmative action eligibility, keeps its procedures confidential, the results confirm that those awarded the affirmative action status are truly students with structural disadvantages.

Secondly, we turned to examine the dropout patterns of the affirmative action-eligible students vis-à-vis the rest of the students. The dropout rate of the former is 21.3%, compared with 20.3% of the latter; however, this gap is not statistically significant. A hierarchical logistic regression model informed us that academic variables are the strongest predictors for dropout or graduation. The normalized importance of the variables in a decision tree model teaches us that cumulative GPA is the most important variable for predicting dropout. In contrast, affirmative action eligibility was ranked last. Combined, these two models inform us that affirmative action eligibility is unrelated to predicting dropout.

Thirdly, we tested the affirmative action-eligible students against members of other traditional risk groups. Using a decision tree model, we conducted a cluster analysis. The model relied on the background characteristics of the affirmative action-eligible students to construct another cluster of similar students who have not been awarded an affirmative action status. Whereas the dropout rate among the quasi-affirmative action students was slightly higher than the affirmative action-eligible students, this gap was not statistically significant. We then turned to compare the dropout rates of affirmative action-eligible students with members of the following three groups: Students attending a preparatory program, students from the periphery, and students who are part of a minority group. In each of the cases, no statistically significant connections were identified in dropout rates. Indeed, the affirmative action-eligible students take a bit longer to graduate, but they do so at a similar rate. They also tend to fail at a higher number of courses, but the effect of these findings is insignificant. On the contrary, the findings inform us that affirmative action-eligible students are more resilient to academic hardships than their peers.

Lastly, we examined dropout rates among affirmative action-eligible students versus regular students, grouped by GPA and (A) standardized matriculation grades, (B) psychometric test score. The two tests lead to the same conclusion: Affirmative action-eligible students’ performance is equal to that of their peers. Academic hardships negatively affect all students. In fact, it seems that among students on the medium GPA scale, affirmative action-eligible students drop out less than others.

Dropping out of master's degree programs is an academic business

Descriptive statistics inform us that master's degree students' dropout rates are 12%. There is some variation across faculties in both dropout rates and time to degree completion (for instance, the rate of timely graduation was 93% in Business Administration, versus 64% in the Humanities). The background and the academic variables were then used in a hierarchical logistic regression model. This analysis suggested that background variables contribute nearly nothing to dropout prediction; the academic variables were more significant. Additionally, and reinforcing the descriptive statistics, the different faculties contributed to the explanation of variation. However, even at its peak, the models explained only 18% of the variation, in comparison to the above-mentioned model for undergraduate students, which explained 44% of the variation. Therefore, in the case of master's degree students, much of the variation was left unexplained.

To decode this gap, and from a different perspective, the findings of a survey conducted among former master's degree students who had dropped out were analyzed. The exploratory factor analysis of the survey's 16 items led to the identification of five factors for dropping out. The first is work-life, which lumps together items referencing the student's integration into the labor market. The second is institutional, capturing a general notion of mismatch and estrangement from the institution. The third refers to family-personal challenges. The fourth addresses pre-career considerations, ranging from immediate financial hurdles to disillusionment with the relevance of the sought degree for the job market. The fifth factor refers to harassment. The thematic interpretation of the open-ended questions supported these factors, without yielding additional insights.

Analyzing and comparing the replies of former students in research tracks (in the sciences vs. the social sciences and humanities) revealed some variation between the two. The early stages of research work constituted a greater challenge for students in the social sciences and humanities. Supervisory related issues rose as a source of concern for students in the sciences.

Significance of the findings

This study raises a range of insights with implications for Israeli academia. We believe that this study's sample of the baccalaureate and master's degree students, based on The Hebrew University's students, is not distinct. Therefore, we estimate the findings are relevant to the Israeli academia as a whole.

The study identified a large group, constituting about one half of the undergraduate dropout population, that, until today, have slipped under the institutions' radar—the existential dropouts. Never failing a course and receiving reasonable grades throughout their academic studies, they have, nonetheless, terminated their studies.

In addition, we found that academic variables alone serve as an effective tool for predicting dropout. The first course failure increases the dropout risk by 20% and should flash a warning light for institutions.

Accordingly, while many dropout intervention programs target specific categories of students as risk-prone for dropping out, this study implies that they may miss many of the potential dropouts. Without ignoring the programs' possible positive effect (it is likely that without them the situation would have been worse), it is recommended to promote intervention practices based on monitoring first-year academic performance, preferably even in the first

semester. First signs of academic distress, even prior to a first failure, should be identified. Teaching assistants and professors should offer support to struggling students. This requires institutional preparedness; professors need to structure the first-year learning environment so that it is not based on the 'winner takes all' approach. End-of-course exams should never be the first and final points of assessment, and second-chance options should be made available. Furthermore, administrations can supply departments with simple reports—one of all students averaging 75 and below, and another of students who failed at least one course. Teaching staff can and should assist these struggling students.

Focusing on affirmative action-eligible students provided important insight. On the surface, this is a case of lowering the admission bar. However, this group of students does not terminate studies at a higher rate than the overall student population, and its performance is not lower than those of other reference groups. In fact, studying the affirmative action-eligible students informs us it offers a true success story of providing a second chance. Therefore, this is a promising avenue for diversifying higher education and opening its gates. It comes without significant risks to the institution (in terms of a higher dropout risk).

It also informs us about system-level meritocracy: Once students enter its gates, the university ignores differences in their social background. This trend should be strengthened. Since academic variables were found to be the best predictors for dropout, universities must focus their attention on their primary task, namely teaching and engaging students. The university's social mission and its responsibility to a wider clientele would be attained as byproducts of its institutional focus. Put simply, we call universities to open their gates wider, while providing programs with high academic rigor.

Finally, it emerges that the scale of dropout at the master's degree level is limited. Some students require additional time to graduate, but most do so successfully. This implies that acceptance criteria to master's degree programs are reasonable. In terms of predicting dropout, academic variables, while carrying some predictive power, are limited. Background variables have practically no value in predicting dropout outcomes from master's degree programs. Perhaps this relates to the quality of the variables, but it is also possible that this state of affairs reflects a system that holds to meritocratic principles. Whereas acceptance does not guarantee completion, it does come close. If institutions need to focus their efforts on minimizing dropout—master's programs are not a major target.

This is not to minimize the problem of dropping out; our survey results do point to several areas for possible improvement. Each of the five factors we identified—i.e., work-life challenges, institutional problems, family-personal difficulties, pre-career considerations, and harassment—points to a different dimension of life circumstances faced by master's students. Universities cannot solve all of these challenges, but they can do more to assist when possible. Elimination of harassment is obvious. Reinforcing ties with faculty and advisors is another important avenue. Finally, monetary support, in the form of scholarships, can assist in relieving students' financial hardship.

College Retention and Field of Study Application Patterns

Prof. Sigal Alon and Dr. Dafna Gelbgiser, Tel Aviv University

Purpose and contribution of the study

College education is an important predictor of young adults' life chances. College-educated adults earn higher wages, tend to be healthier and more civically engaged, and report higher levels of life satisfaction. From a national perspective, increasing the rate of college-educated adults in the population has substantial socioeconomic benefits, and is critical for competing in global economic markets. Over the past few decades, many western countries, including Israel, have invested substantial resources in expanding their higher-education system and increasing the rates of college enrollment. However, the success of these efforts has been limited, as numerous students do not complete their degree studies, or follow non-traditional educational pathways that are often longer, expensive, and frustrating. Thus, any effective policy aimed at increasing degree attainment rates should focus on college retention rather than enrollment.

Problem Scope

On average, across OECD countries with available data, around 70% of students entering post-secondary programs graduate with a bachelor's degree. In the U.S., six-year graduation rates at public universities markedly and consistently differ by level of institutional selectivity. Within the state system, the average graduation rate of students who began their studies in 1999 at less selective schools is about 50%, compared to 77% at more selective schools. At the most selective flagship schools, the average rate is 86%.

Our analysis of students attending the four most selective universities in Israel reveals that 68% obtained a degree within five years, only 59% of them within the same field of study. These results confirm that many students leave their fields, and, in worse cases, depart university without a degree. A previous analysis, conducted by Prof. Alon for the Rothschild Caesarea Foundation and Social Finance Israel, shows that the highest overall graduation rate is attained at law schools, where 88% of the graduates obtain a degree in this field. Among the students who began their studies in mathematics and physics, only 40% obtain a degree in these two fields. In computer sciences, the rate is 50%.

What do we know about college retention?

Most of the literature examines retention as a binary outcome of degree attainment (did /did not graduate from college) and focuses on background factors, such as demographics (ethnicity, gender, etc.) and academic readiness, or on post-enrollment factors, such as students' academic performance in their freshman year, their academic match with their classmates, the college's or field's academic and social climate, and the availability of mentoring and financial aid.

Current knowledge gaps

The binary outcome of degree attainment ignores the fact that today, a college field of study (FOS) is the most important determinant of future earnings, even after controlling for personal ability. In fact, the disparity in earnings across FOSs rivals the overall college wage premium (for example, the earnings gap between electrical engineers and others with general education majors is as large as the gap between college and high school graduates). Moreover, many students follow non-traditional pathways, switching between FOSs and colleges. From the students' perspective, switching fields and colleges is taxing and expensive: they need to be admitted to the new field and often have to extend their studies for another year. Departments, on their part, are often evaluated and funded based on their students' performance, so from their perspective, students who switch FOSs during college are not so different from students who leave the university without a degree, as they fail to retain them.

In this study, we provide a more nuanced understanding of the retention problem, by distinguishing between (1) Attainment of a BA degree in the original field of study; (2) Attainment of a BA degree from the institution (in any field of study); and (3) Dropping out from the institution.

The second—and main—problem is that linking retention to post-enrollment factors provides only partial insights into the causes of dropping out and the actions required to curb it. While finding that low freshmen GPA is a precursor of dropping out is valuable, it may be too late for intervention programs to change a course already set in motion; it may therefore be more constructive to know who are the students at risk of failing in their first year. The existing literature about college retention omits addressing the students' first encounter with the higher education institution, i.e., their application, as a potentially important mechanism in structuring future retention outcomes.

Let us consider, for example, two students who begin their academic career in sociology. Their qualifications are in the 65th percentile of the applicant pool that year, with the admission threshold for a sociology major being the 50th percentile. Both students begin their studies with similar academic qualifications, but their application behavior was substantially different: Student A ranked sociology as her top choice; for her, sociology is a "safe" choice. In contrast, student B ranked as her first choice computer science, a highly selective field with an admission threshold above the 70th percentile (a "reach" choice for her), and ranked sociology last in her application form (a "safe" choice). We explore whether these different application behaviors lead to substantially different retention outcomes and whether they can provide an early marker of dropping out or shifting to a different FOS.

In this study, we examine the long-term implications of applicants' field-of-study selections on a wide array of retention outcomes. Specifically, we explore how patterns of risk-taking in application affect enrollment and retention outcomes.

In addition to these conceptual contributions, our study also uniquely relies on rare access to data on revealed choices—the only type of data that enables scholars to observe the process of ranking and choosing from among the true range of alternatives. Taking advantage of the facts that in Israel ¹, college applicants are required to rank their FOS preferences upon application (so that both the application and admission processes are major-specific) and that most professional degrees are offered at the undergraduate level, we use high-quality administrative data on all students' and graduates' choices at four leading universities from 1997-2003.

Our findings indicate that the way students apply to fields of study, specifically, the degree of risk they take, structures their enrollment and retention outcomes in distinct ways: Risk takers are less likely than other students to attain a BA degree—both in general, and in their original enrollment FOS. The fact that most risk takers are not enrolled in their first field of choice is the key reason for these gaps. Among students enrolled in their first-choice field, risk takers are more likely than risk-averse students to attain a BA and to persist in the field in which they first enrolled. Thus, risk-averse students drop out of the department and university at higher rates than predicted by their academic abilities and class rankings (even though they graduate at higher rates than risk takers). That is, risk-averse students do not realize their academic potential.

This valuable information enriches the toolkit and widens the window of opportunity to implement effective retention interventions.

The research method

Data

The study is based on unique administrative data on all students and graduates of the four leading public research universities in Israel in 1997-2003: Tel Aviv University, The Hebrew University of Jerusalem, Ben-Gurion University of the Negev, and the Technion – Israel Institute of Technology. The data spans each student’s full application data, including a ranked list of FOS preferences, academic background, admission outcomes, enrolled fields, and retention outcomes. This data enables us to accurately assess the risks students take in their application and trace their implications for their academic careers. Our analyses focus on the subset of 81,134 students who applied to regular admission in each university².

Variables

Retention outcomes

- 1.** Attainment of a BA degree in the original field of study: Students who have enrolled in a given institution and department, and attained a degree from that department. This is coded 1 for those who have obtained a BA in the same FOS as of first enrollment within five years (the standard length of baccalaureate degree programs in Israel is three to four years), and 0 for those who have not.
- 2.** Attainment of a BA degree from the institution (in any field): Students who have enrolled in a given university and attained a degree in the same school. This is a categorical variable, coded 1 for all students who have obtained a BA degree (in any FOS) within five years of enrollment, and 0 for those who have not.

Academic qualifications

Academic composite scores: The sole criterion for admission to Israeli universities is a weighted mean of an individual’s matriculation diploma grades (weighted by type and level of courses) and psychometric test scores (equivalent to SAT). Because of differences among the institutions in the scale of this measure, it is converted into a percentile distribution (by institution and by year).

Application behavior

Risk taking: The risk applicants take in their first-choice field, defined as the difference between the student's academic composite score and the FOS admission threshold ³. We have collapsed the risk distribution into quartiles:

- Risk-taker applicants: Those at the bottom quartile (14% of the students in our sample).
- Risk-averse applicants: Those at the top quartile (31%).

We compare the retention patterns of these groups to those of the middle two quartiles.

Enrollment measures

Application behavior can be associated with enrollment patterns, including whether or not students enroll in their first choices, and the extent to which students are matched academically with their classmates—both of which can influence retention. We account for these potential mechanisms with two measures:

1. Enrollment in the first-choice FOS: A categorical variable, coded 1 for those enrolled in their first-choice field, and 0 for those who are not. 75% of students began their studies in their first-choice field.
2. Student's class rank: A continuous variable denoting the rank of the student's academic composite scores relative to classmates (class=major-institution-year).

Background variables

Our estimates also adjust for a standard set of social, demographic, and academic factors known as related both to application behavior and for retention outcomes. These include age, gender, ethnic origin/generation ⁴, and socioeconomic background ⁵.

Analytical Strategy

We assess the effect of application behavior on retention by fitting a series of logistic regressions predicting each retention outcome—BA attainment and field persistence—as a function of the risk students take in their application. For each outcome, we estimate four nested models:

- **Model 1** estimates the raw differences in retention between students with different application behaviors.
- **Model 2** adjusts for students' academic composite score.
- **Model 3** adjusts for students' socio-demographic background.
- **Model 4** adjusts for enrollment in student's first-choice FOS and class rank.

We explore the extent to which the association between application behavior and attainment is mediated by associated enrollment patterns. For example, risk takers may be less likely to enroll in their first-choice application, and subsequently more likely to switch fields. Similarly, risk-averse applicants may be more likely to enroll in their first-choice field, which may increase their likelihood of obtaining a degree. Models 2-4 provide the net association between application behavior and attainment.

Because logit coefficients depend on the value of their predictors, we present and interpret changes in the predicted retention probabilities of students with similar characteristics, but different application behaviors. In the full report, we discuss the robustness check for our models.

Main findings and their significance

Key Findings

- Among enrolled students, 59% attained a BA degree in their original field of study, an additional 9% obtained a degree in a different field of study (yielding a total of 68% students who obtained a BA in any field), and 32% dropped out from the institution.
- Among enrolled students, only 14% demonstrated risk taking in the application. This is the natural and expected outcome of the admission decision that excludes applicants with a high level of risk taking. This variation is not completely explained by students' academic skills or other background variables (academic achievements explain 8% of the variance and sociodemographic factors explains 2% of the variance in risk taking).
- Risk takers are less likely than are other students to enroll in their first-choice field: Only a minority (29%) of students classified as risk takers were enrolled in their first choice. Thus, the majority of risk takers who were admitted to the university did so in lower-ranked choices.
- Risk takers are more likely than other students to be academically ranked at the bottom of their department's freshman class. Their academic ranking is in the 34th percentile compared to the 78th percentile for risk-averse students.
- Risk takers are less likely than other students to attain a BA degree: 61%, compared to 73% of risk-averse students. They are also less likely to obtain a degree in the field they first enrolled in (52% vs. 61%, respectively). These gaps shrink after we take into account students' academic preparation and background characteristics.

The key explanation for these gaps in field persistence and graduation between risk takers and risk-averse students is that most the former are not enrolled in their first-choice field. Once we focus on students enrolled in their first-choice field (and account for their academic preparation and background characteristics), we find that risk takers are more likely than risk-averse students to attain a BA and also to persist in the field they first enrolled in (BA 71% vs. 67%; field persistence 63% vs. 56%). Risk-averse students drop out of the department and university at higher rates than what is predicted by their academic abilities and class rankings (even though they graduate at higher rates than risk takers). That is, risk-averse students do not realize their academic potential.

Taken together, these results shed new light on how application behavior impacts students' retention outcome. Although risk takers are less likely to obtain a degree or persist in the same field to graduation, these disparities are accounted for by their enrollment patterns. Namely, they are less likely to be admitted to their first-choice field. Yet risk takers who are enrolled in their first-choice field of study are substantially more likely than are their peers to obtain a degree. These results likely reflect the high motivation of risk takers when admitted to their first-choice field. Risk aversion, by contrast, emerges as a negative and consequential application behavior for student retention, especially for field persistence. These students, at the top of their class, are more likely to switch fields after enrollment, probably in a search for a more challenging academic climate.

Significance

This study provides important theoretical insights regarding the pathways to dropping out or switching fields. The way in which students enter fields, not only the fields themselves, is consequential for their academic path. Rather than viewing enrollment as a student's starting point to higher education, these results suggest that students' pathways start before they ever set foot in the university.

From a policy standpoint, these results can be instrumental in designing effective policies that can increase students' persistence and degree attainment. Specifically, rather than wait for the end of their freshman year, as many interventions do, institutions can use application behavior to identify students who are at greater risk of switching fields or dropping out, and design interventions that target the specific pattern of retention based on application data.

Our policy recommendations

Enrich the toolkit and widen the window of opportunity to implement effective retention interventions.

Early interventions:

- Universities can use students' application data to identify individuals at greater risk to switch fields or leave altogether. Interventions can be implemented at the beginning of the freshman year—no need to wait for the end of the student's first year of studies.

Targeted interventions for students at risk of dropping out from the university/department:

- Risk takers enrolled at their lower-priority fields: A summer bridge program, remedial and developmental courses, and tutoring.
- Risk-averse students in any field: Design challenging programs for high achieving students, and engage in faculty's research project.

Endnotes

1 While we cannot study FOS choices in late specialization systems, as in the U.S. and Canada, because applicants' FOS revealed (ex-ante) preferences cannot be observed directly, we can advance our understanding of the social component of decision making and of the role of FOS choices in determining life chances by using data from countries with early specialization systems, where college applicants are asked to list and rank their FOS preferences at the application stage.

2 We omitted from the sample a small number of applicants to special programs (remedial courses, older students, military-related programs, etc.), for which the admission criteria are different.

3 We followed Alon and DiPrete (2015) in defining the admission threshold as the score of the 25th percentile of admitted students in the previous academic year. For new fields, we used the 25th-percentile academic scores of students admitted in the same year.

4 Arab; Jewish immigrants of the 1st generation; 2nd-generation Jews born to parents from Asia/Africa, 2nd-generation Jews born to parents from Europe/America, and 3rd-generation Jews.

5 Measured by the socioeconomic cluster of their locality—a measurement designed by Israel's Central Bureau of Statistics that uses information on the demographic composition, education, wellbeing, employment and retirement of the population in the geographic unit.

Barriers and Resources in Transition from Higher Education to Finding Decent Work—the Psychology of Work Perspective

Prof. Rachel Gali Cinamon, Tel Aviv University

Purpose and contribution of the study

This study draws on the innovative theoretical framework of the psychology of working theory (PWT) to study the variables associated with the transition into the world of work for college and university graduates. The PWT model focuses on the combined contribution of social processes of marginalization, economic constraints, and personal variables to explain employment status. The present study examined the contribution of personal and environmental variables during schooling among Israeli undergraduates as antecedents of their employment status after graduation. The variables tested included the obligation to work during the students' degree studies, as well as work characteristics during school, gender, and the type of post-secondary institution in which they were enrolled (college or university). Individual variables of critical social consciousness and work volition were examined as mediating variables in the model.

The study, with its quantitative, longitudinal design, examined associations between employment characteristics in the academic period, study-work relations (aspects of conflict and enrichment), educational institution (college or university), and demographics (socioeconomic status and gender). In addition, relationships between the personal variables of critical social consciousness and work volition to explain employment status and the ability to be employed in decent work seven months after graduation were examined.

The research method

Participants

First wave of data collection (started July 2019): 607 Israeli undergraduates, age range 19 - 42 ($M = 26.63$; $SD = 2.76$), of whom 411 were women, 195 men, and one participant who did not report gender. The majority of participants were Jewish Israelis ($n = 578$, 95.2%), 11 Muslims, four Druze, and three Christians. The remainder ($n = 11$) defined themselves as atheists. Most participants were single (78.6%), 126 married (20.8%), and four divorced. Most participants ($n = 252$, 41.5%) reported an above-average family income (relative to a national monthly

average of NIS 9,845), 24.9% reported a below-average family income, 24.7% average, and 54 (8.9%) reported a well above-average family income. All study participants were in the final year of their bachelor's degree studies.

All participants were enrolled in undergraduate institutions: 383 participants at universities and 224 at 4-year colleges. The majority of participants ($n = 458$, 75.5%) worked during their studies. A statistically significant difference in life satisfaction was found between working students ($M = 4.87$; $SD = 1.17$) and non-working students, $M = 4.63$; $SD = 1.41$, $t(605) = 2.02$; $p < .05$.

The second wave of data collection (completed February 2020) included 358 individuals, comprising 59% of the first-wave participants. Of these, 240 (66.9%) were women, 117 men, and one did not report gender, ranging in age from 19 to 38 ($M = 26.58$; $SD = 2.71$). Most participants in the second wave ($n = 274$, 76.3%) were single, 81 (22.6%) were married, and four were divorced. Twenty-six participants had children.

Occupationally, of the second wave participants, most ($n = 277$, 77.2%) were employed, and 81 (22.6%) were not employed. Of the employees, 121 worked part-time, and 156 worked full-time. The workers' average weekly work hours were 46.59 ($SD = 39.53$). Among the second wave participants, 254 (70.8%) were university graduates, and 104 (29.2%) were four-year college graduates.

Measures

The Decent Work Scale (Duffy et al., 2017) includes 15 items, comprising five categories (three items in each category):

1. Safe workspace (e.g., "I am emotionally comfortable talking to people at work")
2. Access to health services (e.g., "I have extended health insurance because of existing arrangements at my work")
3. Adequate remuneration (e.g., "I am sufficiently rewarded for my work")
4. Free time and rest (e.g., "I have free time during the workweek")
5. Appropriate values (e.g., "My organization's values match my family's values").

Participants were asked to rate their answers on a 7-point Likert-type scale, ranging from 1 ("not at all") to 7 ("to a large extent"). Internal reliability in the original questionnaire ranged between 0.79 and 0.97 for the five categories and 0.86 for the total questionnaire. This questionnaire was translated and validated in Hebrew as part of an international study. The overall reliability of the Hebrew version was 87. Overall reliability for the current sample was 87.

The Critical Consciousness Scale (Diemer et al., 2017) includes 22 items, divided into three categories:

1. Critical reflection: Perceived inequality (eight items; e.g., "Poor children have fewer chances to get a good high school education")
2. Critical reflection: Egalitarianism (five items; e.g., "Group equality should be our ideal")
3. Critical action: Socio-political participation (nine items; e.g., "Participated in a political party, club, or organization")

With regards to the first two categories, participants are required to rate their degree of agreement on a 6-point Likert-type scale, ranging from 1 ("Strongly disagree") to 6 ("Strongly agree"). For the third category, participants were asked to rate the frequency of their involvement in the actions indicated on a 5-point Likert-type scale, ranging from 1 ("Did not engage in this") to 5 ("Engaged in this at least once a week"). Internal reliability in the original questionnaire ranged between 0.85 and 0.90 for the three categories. This questionnaire was translated into Hebrew and validated in a pilot study. Cronbach's alpha for the current sample was 0.89 for perceived inequality, 0.81 for egalitarianism, and 0.80 for socio-political participation.

Work-Study Relationship Questionnaire (Cinamon, 2016) comprises 17 items measuring aspects of work-study conflict and work-study enrichment, presented on a 5-point Likert-type scale, ranging from 1 ("Do not agree") to 5 ("Agree to a great extent"). Eight items examine aspects of conflict between study and work (e.g., "My work takes time that I would prefer to spend studying"); the original scale reported a Cronbach alpha of 0.90 and 0.88 for the current sample. Nine items measure aspects of enrichment in combination between study and work (e.g., "My professional development at work helps me to be a better student"); Cronbach's alpha for the original scale was 0.87 and 0.80 for the current sample.

Work Volition Scale—Student Version Questionnaire (Duffy et al., 2012) includes two factors of 17 items: Volition factor (7 items) that measures individuals' perceived capacity to make occupational choices, and constraints factor (10 items) that measure the ability to perform occupational tasks despite constraints (e.g., "I will be able to do the type of work I want despite external barriers"). Items were presented on a 7-point Likert-type scale, ranging from 1 ("Not at all") to 7 ("To a large extent"). Reported internal reliability for the original questionnaire was 0.92. The questionnaire was translated into Hebrew and validated in a pilot study. The internal reliability of the scale in the current study is 0.89.

A background questionnaire administered to obtain general demographic data, such as age, gender, religion, school major, family status, city of residence till age 18, city of residence during undergraduate studies, academic institution, year of study, working status (including weekly workload), income, and if receiving financial support. Participants were requested to report their GPA thus far as well as their pre-enrollment psychometric score.

Procedure

Following the approval of Tel Aviv University's Ethics Committee, participants were recruited through the university and college career centers and student social networks at the various academic institutions. Participants completed the research questionnaires during the final month of their degree studies (July 2019) through an adapted link. Each participant could receive NIS 30 upon submitting a completed questionnaire or enter a lottery of NIS 1,000. In recruiting the participants, we sought to achieve parity between university and college students, and between engineering and exact sciences vs. humanities and social sciences for each of the two institution types.

The first wave of data collection (during the final month of studies) included the following questionnaires: Background questionnaire, the Work-Study Relations Questionnaire, the Critical Consciousness Scale, and the Work Volition Scale—Student Version Questionnaire. For the second wave of data collection, administered approximately seven months after the first wave, questionnaires sent to the participants' email accounts included the background

questionnaire and the Decent Work Scale. Second-wave respondents were also awarded NIS 30 for submitting a completed questionnaire. Recruiting participants for the second wave proved to be a complex task, requiring several prompts aside from the monetary reward, and resulting in a response rate of 62%.

Results

Graduates' employment characteristics seven months post-graduation

Among the second-wave participants, 277 graduates (77.2% of the second-wave sample) reported working. Of these, 260 were salaried employees, 10 were self-employed, and seven were engaged in a combination of self-employed and salaried work. Among the second-wave working participants, 156 were working full-time, and 121—part-time. The average number of weekly working hours was 46.59 (SD = 39.53).

Regarding the second-wave working graduates' perception of their current work, 32% believed that their work was "in line" or "very much in line" with their field of study (indicating 6 or 7 on a 7-point scale: "To what extent is your job in line with your field of study"), whereas 21.3% believed that their work did "not at all" or "to some extent does not" match their field of study (1 or 2 on the 7-point scale). Among the workers, 30.6% believed their job matches their skills and abilities (indicating 6 or 7 on a 7-point scale: "To what extent does the job fit your skills and abilities?"), and only 6.7% reported that their job does not fit their skills and abilities at all (1 or 2 on the 7-point scale).

Main findings and their significance

Main findings on the relationship between the study variables

The ability to work in a decent job (according to the International Labor Organization's criteria of income, working hours, emotional and physical security, conformity to individual values, and access to supplementary health insurance) seven months after the degree was found to be positively associated with job satisfaction ($r = 0.47$; $p < 0.01$) and life satisfaction ($r = 0.39$; $p < 0.01$). These data make sense and are expected, given the centrality of work in our lives, and are supported by the existing research literature, suggesting that respectable working conditions are associated with job and life satisfaction.

The individual variables measured during the first wave were also found to be associated with decent work. Work volition was positively associated with working after completing the degree ($r = 0.20$; $p < 0.01$). Critical social consciousness during schooling was negatively associated with the ability to find post-graduation work ($r = -0.16$; $p < 0.01$), indicating that awareness to social inequality may weaken the successful transition into the labor market.

Work-to-study enrichment relationships were positively associated with the ability to find decent work ($r = 0.18$; $p < 0.01$), job satisfaction ($r = 0.19$; $p < 0.01$), and life satisfaction ($r = 0.18$; $p < 0.01$). Working hours and work-study conflict during schooling were not significantly associated with the ability to find decent work after degree completion.

Examining the contribution of gender, family of origin's socioeconomic status, and the type of academic institution provides an interesting picture. Males appear to have an advantage

in their ability to find paid work. Among women, 37.1% worked full-time and 37.1% worked part-time, with 25% not working. Among men, 57.3% were full-time workers, 24.8% worked part-time, and only 17.9% did not work. These differences were found to be statistically significant chi-square = 13.07; df = 2; $p < 0.001$. Significant gender differences emerged also in the ability to find decent work—females: $M = 4.10$; $SD = 0.92$ vs. males: $M = 4.36$; $SD = 0.87$; $t(274) = 2.26$; $p = 0.02$). Women also demonstrated higher levels of critical social consciousness ($M = 4.44$; $SD = 0.85$) compared with males ($M = 4.19$; $SD = 0.93$) $t(355) = 2.54$; $p = 0.01$).

Among the 94 participants (72%) who reported their family of origin's financial status as "below average," 21.3% did not work (15 participants). In contrast, of those who defined their family of origin's financial status as "average," 77.4% (65 participants) worked, and 22.6% (19 participants) did not. Among those who defined their family of origin's financial status as "above average," 74.5% (111 participants) worked and 25.5% (38 participants) did not. Among those defining their family of origin's financial status as "well above average," 73.3% (30 participants) had jobs, and 26.7% (22 participants) did not. These differences approached statistical significance (chi square = 6.79, df = 4, $p = 0.06$).

Significant differences were found between university graduates and college graduates. Of the 253 university graduates who participated in both waves, 190 (75.1%) were at paid work seven months after the degree, and 63 (24.9%) of the graduates were not working. In contrast, of the 104 college graduates who participated in both waves of the study, 87 (83.7%) were employed, and only 17 (16.3%) participants were not employed. These differences were found to be statistically significant, chi-square = 3.10; df = 1; $p < 0.05$.

Hierarchical regression analyses for predicting the ability to find decent work seven months after graduation and job satisfaction by variables of gender and institution type, work-study relationships in the final year of studies (work-study conflict and enrichment aspects), work volition, and critical social consciousness were found to be significant. The model for predicting decent work explained 12% of the variance of the variable, $F(2,195) = 7.05$; $p < 0.001$. The variables that emerged as significant predictors were work-study enrichment ($\beta = 0.18$), work volition ($\beta = 0.20$), and critical social consciousness ($\beta = -0.15$). Thus, enrichment work-study relationship during studies and work volition increase the chances of finding decent work seven months after graduation. Conversely, critical social consciousness weakens the prospect of finding decent work.

The job satisfaction model predicts 10% of the variance of decent work, $F(2,191) = 5.30$; $p < 0.001$. The variables that emerged as significant predictors were work-study enrichment ($\beta = 0.18$) and work volition ($\beta = 0.23$). Thus, the enrichment relationship between study and work during studies and work volition increased the chances of being satisfied with work after completing the degree.

Main findings and their significance

Both theoretically and empirically, this study adopted the innovative concept of decent work, critical social consciousness, and work volition, and developed valid and reliable Hebrew versions of the scales used to measure these concepts. The studied concepts and theoretical model are at the forefront of research in the field of career development, and the research

findings indicate the relevance of the PWT model for understanding the transition from a bachelor's degree to the labor market. This model emphasizes the importance of research on the intersection between social processes of marginalization and personal variables, and the ability to find decent work.

In line with the model's contentions, the findings show that disadvantaged populations find it relatively more challenging to attain decent paid work. Indeed, our findings reveal that women and low-socioeconomic status groups are less likely to be in paid work after graduation and to attain decent work than males and higher socioeconomic status groups. Working students who experienced an enriching work-study relationship increased their chances of becoming involved in decent work after graduation. Previous studies have already shown that integrating work with study may comprise a positive force in its associations with high academic achievement and life satisfaction during studies higher-education institutions. The present study supports and expands on these findings, suggesting that enriching relationships may also promote a positive post-degree transition into respectable employment.

This study's findings indicate the importance of two personal variables that have not received sufficient research attention that could contribute to our understanding of entering the job market following graduation—work volition and critical social consciousness. Young people with high work volition, pursuing their professional goals despite obstacles and limitations, are more likely to attain decent work than those with low work volition.

Awareness to inequality can weaken the individual and reduce chances of finding paid and decent work. The present study's findings highlight the importance of guiding students about the development of social inequality and the potential to increase social cohesion through active citizenship involvement and behaviors.

Practical Implications

The study's findings highlight two vulnerable populations and two unique variables that must be considered in labor market preparation programs for higher-education graduates. The findings indicate the importance of preparing young women in general and young people from low socioeconomic status. The finding also highlight the particular vulnerability still evident for young women, who face greater difficulty in integrating into the job market post-graduation, and finding decent work. Therefore, these populations should receive target interventions in career workshops. The findings also point to the importance of skill training and attitude orientation that can reinforce work volition. Furthermore, the findings present the need to relate to social inequality (critical social consciousness) as a mutable and evolving state. Since it was found that awareness to inequality can weaken the individual and reduce chances to find paid and decent work, strengthening skills of work volition and active citizen participation to increase social equality in student career workshops may increase the chances of finding decent post-graduate work. Ideas for such workshops can be found in recently proposed models for career preparation of.

Whereas the current findings support encouraging students to combine studies with work during their undergraduate degree studies, this combination must be enriching and non-conflictual. Thus, it is critical to educate students about the importance of seeking out enriching work-study integration and striving to avoid conflictual integration, even when wages are high and enticing. These career guidance interventions work should be combined with encouragement to employers to hire more young people, as valuable human capital may remain untapped.

Between Attrition and Hope: Factors Associated with Academic Retention among Ultra-Orthodox Students

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Purpose and contribution of the study

In recent years, Israel has invested considerable resources in integrating the ultra-Orthodox (Haredi) sector into higher education, as part of a dual effort: Bringing the Haredi sector, currently comprising approximately 12% of the population in Israel, into the workforce, while raising the number of academic graduates in Israel's socioeconomic periphery. Consequently, the number of Haredi students increased by 630% between 2003 and 2012 and by 240% between 2011 and 2015.

Nevertheless, the process has met with significant impediments, including the high level of attrition among Haredi students. For example, 23.9% of the Haredi students who began studying in 2015 dropped out the following year—three times more than in the general population (8.2%).

Contemporary models of academic attrition in the general population implicate four sets of factors: Individual (e.g., academic capabilities and personality traits), societal (e.g., societal norms and power structures with regards to higher education), educational/institutional (e.g., previous schooling, characteristics of academic institutions), and economic (e.g., socioeconomic status). However, previous papers on Haredi attrition focused on the educational/institutional factor, primarily implicating the disparity between the minimal acceptance requirements in these institutions and the high level of academic requirements in the programs themselves, for which these students are ill-prepared.

Several important questions remained: What differentiates between Haredi students who drop out and those who persist in their studies in terms of background, experience, and skills? What characterizes the process of attrition and what are its costs? In constructing our study, we integrated all four sets of attrition factors and compared samples of Haredi higher education students who dropped out of studies (henceforth: dropouts) to students or recent graduates (henceforth: persistors).

Based on previous models, two types of academic attrition were considered: Vertical attrition

(leaving higher studies entirely) and horizontal attrition (significantly lengthening the study period by shifting between programs or institutions). Each of these carries a price-tag, in terms of invested time and money, self-esteem, and motivation. At the same time, even partial degree completion confers benefits in terms of social and cultural capital, which we also considered.

While this study focuses on individuals, it is worth keeping in mind Bronfenbrenner's Ecological Systems Theory (1978), which describes a feedback loop between the individuals and the micro (e.g. family), exo (e.g., community), macro (e.g., cultural ideologies) and chrono (changes over time) systems in which they are embedded. The study's findings reflect the complexities of the various ecological systems which influence Haredi students.

Study goals:

1. To characterize the population of Haredi dropouts in relation to Haredi persistors.
2. To identify retention accelerators and decelerators.
3. To issue policy recommendations for increasing academic retention of Haredi students.

The research method

Design and tools

Our study utilized a fully mixed quantitative-qualitative sequential equal-status design. The design involved four stages:

1. Exploratory pilot interviews with Haredi respondents who dropped out of academic studies over the past three years.
2. A set of qualitative interviews based on the pilot study.
3. A pilot survey distributed to dropout and persistor Haredi respondents, designed using insights from the interviews.
4. A survey based on the pilot study.

The quantitative findings enabled us to compare dropouts and persistors and to test the statistical significance of the findings, while the qualitative findings focused on those who dropped out, allowing for a deeper understanding of their experiences. Interview protocol and survey questionnaire are available in the study's full report.

Procedure and participant characteristics

Sampling and study procedures: A matrix of maximal diversity was used to diversify the sample as much as possible, interviewing males and females, respondents of different Haredi sub-streams, students with/without high-school matriculation certificates, vertical and horizontal drop-outs, and students of diverse disciplines and types of academic institutions. Interviewers were trained master's degree students from the Haredi community. In the quantitative section, respondent-driven sampling was used. We enlisted 23 distributors from different institutions and Haredi sub-populations across the country, to allow multiple entry

points for sampling—creating as diverse a sample as possible. Surveys were distributed via personal links to a Qualtrics survey platform. Participants were compensated for their time.

Participants: Eight participants completed the pilot interviews. Then, 57 participants were interviewed individually and four additional participants formed a focus group, to enable methodological triangulation. Among the qualitative interviewees (n=61), 71% of interviewees were female. Of the participants, 53% dropped out vertically and the rest dropped out horizontally. In terms of study institutions, 36% studied in Haredi institutions, 26% studied in Haredi tracks within general institutions, 14% studied in general institutions, and 24% studied at academic preparatory programs.

For the quantitative part, 30 participants pilot-tested the survey and offered feedback, on the basis of which the questions were adjusted. The main survey data was collected in two waves (first wave: 606 dropouts and persistors; second wave: 248 dropouts only). The merged data set included data from all 854 respondents. After removing those non-consenting and ineligible participants, as well as those who provided partial data, the sample consisted of 540 participants, of whom 68.5% were female, 35% were dropouts, of whom 69% were vertical (full) dropouts.

Analysis: The pilot qualitative data was analyzed narratively, in order to understand how the participants perceived and framed their experiences. A grounded theory analysis was used for the main interview set, with the help of Atlas-TI©. This generated 271 grounded codes, which were organized under 40 main headings and 231 sub-codes.

Quantitative analyses involved descriptive and comparative statistics of dropouts and persistors, MANCOVA, regression analyses, and additional statistical tests, as needed.

Main findings and their significance

While many of the quantitative findings were echoed and elaborated upon in the qualitative interviews, the interviews also uncovered students' personal experiences at a resolution which the survey could not reach. Thus, we integrated the qualitative and quantitative findings in the following sections.

What motivates Haredi students to turn to higher education?

From among a wide selection of options, participants (dropouts and persistors) reported choosing to attend higher education primarily for financial reasons (M = 4.11 on a 1-5 Likert scale) and for self-realization reasons (M = 3.77). Dropouts attributed significantly less weight to self-realization considerations than did persistors, as did men in comparison to women. Similarly, persistors were more likely to choose a study field that interested them and matched their personal capabilities than those who eventually dropped out. The latter more often pursue a field of study because of its popularity or because they had been directed to do so by their Rabbi or teacher. These patterns were echoed in the code-frequency analysis of the qualitative interviews, providing triangulation.

When it came to choosing the higher-education institution, a shared preference emerged for both groups: Most cited religious concerns as the most prominent consideration in choosing the institution.

Which variables are related to dropping out?

While this was a single-point study and cannot offer causal reasoning for dropping out, comparisons between dropouts and persistors revealed several significant differences:

- Individual—Using a short version of the Big Five personality test, post-hoc analyses with Bonferonni corrections indicated that persistors were more conscientious than dropouts. No significant differences were found for openness or emotional stability. Additionally, intrinsic motivation to learn was significantly related to lower dropout rates.
- Societal—Retention and parental higher education were highly related (Chi Square (4) = 13.83. $p < 0.01$, $n=450$). If neither parent had a degree, respondents were more likely to drop out. If both parents had a degree, respondents were more likely to persist. Persistors also perceived more opportunities and family support than did dropouts.
- Educational/institutional—Respondents who attended a high school which prepared students for matriculation exams were more likely to persist in their studies (Chi Sq. (4) = 10.06, $p < 0.05$, $n = 450$).
- Economic—Perceived relative financial wellbeing was significantly related to dropout status. (Chi Sq. (4) = 11.85 $p < 0.05$, $n = 453$.) Respondents who reported that their lifestyle was below the Haredi average were more likely to report dropping out. Persistors perceived receiving more financial support from their surroundings than dropouts.

Marital status, having children, and the number of children were not significantly correlated with drop-out rates.

What characterizes the Haredi students' experiences of higher education?

Both persistors and dropouts reported various difficulties in their studies. Chief among them were perceived life challenges ($M = 3.2$, $sd = 0.99$), followed by institutional challenges ($M = 2.2$, $sd = 0.73$) and spiritual challenges ($M = 2.2$, $sd = 1.21$). This was matched by the qualitative code frequencies, in which 24 categories of challenges arose, the three most prevalent being task overload, experiencing a religious-academic conflict, and lack of institutional support. Each of these was reported by over 60% of participants.

Among dropouts, qualitative analysis indicated a recurring framing of their experience as involving a sense of entitlement alongside a sense of victimhood and insignificance. These students often felt like an implicit contract was being breached: While they were heeding the call of the state and the secular majority to undertake degree studies, the institutions did not fully adapt themselves to the needs, limitations, or abilities of their Haredi students. This led to frustration along the lines of, "If you want us so much, why don't you help us succeed?". Jointly, this self-perception weakened students' motivation to excel at their studies.

What, in their perception, leads Haredi students to drop out of their studies?

In the survey, we asked students why they dropped out. The three most common explanations were financial burden (16.2%), unfitness for academic studies (14.8%), and personal necessities (14.8%).

A more complex picture emerged when interview narratives were analyzed, where the recurrent narrative pattern was a mismatch between expectations and reality. This involved the feeling that Haredi students were lured into academic programs through promises of

an 'easy degree' or 'easy income' (via scholarships). Often, students sailed through the preparatory year, a honey trap of sorts, only to discover that the actual academic studies are considerably more difficult and that challenges were piling up. Typically, this led to a downward spiral of failing courses, losing heart, and leaving altogether. This pattern was corroborated by quantitative data, in which 37.5% of all participants reported a sense of being duped, mostly about the amount of study hours required, the costs of studying, and scholarship criteria. Surveys showed that 49.2% of the dropouts struggled for quite some time, completing over 20% of their degree before leaving. Despite these efforts, according to the participants, the institutions reached out to only 35.6% of dropouts, while 57.2% would have liked to have been contacted.

What are the effects of degree completion and of dropping out?

In persistors' survey responses, we found a mixed picture of benefits and unmatched expectations: 39.5% did not end up working in their field of studies, 72.8% were not promoted, and 70% did not increase their salary. However, 64.3% felt more appreciated at their workplace and 77.3% did not regret choosing to study for an academic degree.

The balance of benefits and losses was bleaker among dropouts. Interviews uncovered a prominent theme of personal vulnerability, relating to unspoken prices of dropping out. First, dropping out significantly diminished many of the dropouts' self-esteem. Some of the women students who were considered 'the best and brightest' in the Haredi world discovered that they could not manage academic studies as well as they had hoped, and were shocked to discover they were failing. Among the men, the damage to self-esteem was even more devastating, compared to being the luminaries of the Yeshiva (who typically remained there). Men reported feeling "humiliated and worthless" (for instance, "My self-esteem plummeted, my confidence... the fact that my wife, my children saw how I dropped out..."; "There were so many failures. One followed another. How many failures can a person experience?").

In terms of code frequencies, 50% of the interviewees experienced significant mental difficulties, including depression, loss of self-esteem, anxiety, and a decreased sense of communal belonging. The impact on self-esteem was also reflected in how some participants re-evaluated their own community.

Conclusions and recommendations

Based on our findings (see our full report), we propose two set of factors which are positively correlated with Haredi students' academic persistence:

- 1.** Social, educational, and cultural capital: Having academically educated parents, previous core studies, and a higher socioeconomic status, as a cluster reflecting high social and educational capital, places Haredi students at a low risk for dropping out.
- 2.** A positive attitude towards bridging worlds: Flexible reasoning, which supports integration of academia and Haredi life, is another retention accelerator, alongside high motivation to succeed in academic studies, and positive experiences in the academic institutions.

Since changing social and cultural factors can take years, policy makers should work to increase their awareness of and attempt to improve the academic experience of Haredi students, by ensuring that students benefit from adequate academic assistance, adapted to the gaps in their knowledge and skills, as well as financial and emotional support. In general

institutions, it is particularly important to establish institutional plans for the integration of Haredi students and hire a Haredi administrative staff member who would specialize in the unique academic and religious needs of these students.

Most Haredi students are first-generation higher education students. Like new immigrants, they are exposed not only to new knowledge, but also to strange and novel ideas and patterns of thought. Thus, Haredi students' success depends on academic institutions' ability to teach them the new language, rather than expect immediate proficiency. Economic barriers may be addressed by larger scholarships, possibly through programs that include social commitments. We also recommend opening new tracks that would offer Haredi students broader options for self-realization. Particularly, our respondents mentioned their wish for medical programs and arts.

In addition, we recommend to policy-makers to change the framing of the national goals in the context of integrating Haredi students into higher education, from "maximal integration" to "optimal integration." Rather than assessing success in terms of numbers of students in a given year, success should consider retention rates, graduation rates, increases in employment and salary and—most importantly—the students' wellbeing. Including retention rates in the models of social inequality would reflect a shift, from making higher education accessible, to models of cumulative inequality. Including wellbeing as a key factor would reflect a further shift from an economic model to a model of subjective wellbeing.

Preventing Academic Dropout in Peripheral Groups: The Practices and Practice-Based Knowledge of Student Retention in Israeli Higher Education Institutions

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Purpose and contribution of the study

This research explores student support and student retention as a practice within higher education institutions in Israel. Employing a qualitative and practice-based approach, the study is focused on the day-to-day experience of student support practitioners working in universities and academic colleges. These practitioners possess valuable practice-based knowledge—local, situated knowledge, developed through their work experience—that is often ignored in both research literature and policy discourse. The study's main objective is to gain insights from the knowledge and expertise of support practitioners and offer practice-based inputs for shaping better institutional and national policy guidelines on student retention.

The study suggests several insights and recommendations concerning students' experience and the student support practices. The main recommendations include the provision of a national support program for students from low socioeconomic status; the development of flexible, partial-scale modes of study, tailored to the needs of students from disadvantaged groups; the facilitation of support services that cover the entire student lifecycle; and the development of a systematic approach to student support that includes institutional commitment, organization-wide engagement with student support and the reorganization of the student support system into a distributed organizational structure.

The research method

The empirical inquiry employs qualitative research methods suitable for analyzing and interpreting knowledge in practice. In-depth semi-structured interviews were conducted with 43 support practitioners working at five universities, eight public academic colleges, and one private college, three colleges of education, two NGOs, and two student organizations.

Main findings and their significance

The findings suggest several insights concerning students' experiences and institutional barriers to student success:

First, it appears that the practice of support work provides a basis for a holistic framing of studentship. One implication of this approach is the insight that support services, especially for students from disadvantaged groups, should begin at the early stages of admission, and carry on throughout the student lifecycle. Another implication is that support should be provided to those students who eventually drop out during their adaptation to their new circumstances. Support practitioners also recommend to extend support services to all the students, both in terms of supporting transitions related to entering a new stage in life and supporting academic learning skills.

Support practitioners report that a significant number of students from disadvantaged backgrounds express feelings of loneliness, alienation, and mistrust, in the context of academic culture of meritocracy, competition, and individual responsibility, especially prevalent in universities. Practitioners also identify another group of "non-traditional students" that is currently not supported by existing national support programs: Students from low socioeconomic status. Financial insecurity is a major barrier for these students, and many of them face further difficulties because they are the first in their families to enter higher education.

The study reveals the following insights about the practice of student support and student retention:

An essential skill for support practitioners is their ability to broker and mediate between individual students and multiple agencies within higher education institutions—asking for consideration, understanding, and adjustments. Interviewees described complicated relationships with administrative personnel and academic faculty, which necessitated negotiating expectations and perceptions, identifying potential collaborators, gaining visibility and trust, and mitigating resistance.

The partial collaboration with academic departments is related to another significant issue in the support work: The identification of students who are at risk of dropping out. Practitioners use different types of data, such as grades or feedback from peer mentors, but the crucial point is the early identification of students with difficulties. Better collaborative relationships with academic departments, and the transfer of additional data indicating difficulty in coping, such as class non-attendance or failure to submit assignments, can prove to be useful.

The findings point to some effective student support strategies beyond the familiar pool of programs and tools. For example, more flexible timetables, enabling students to extend the period of their studies or study part-time, can be beneficial for many students from disadvantaged backgrounds. Another important practice is providing advice concerning institutional regulations. For the practitioners, familiarity with institutional rules and the knowledge of how to work with them is an important tool that often spares students from making mistakes that can lead to their dropping out.

The findings present several local support programs that have been found to be successful, including:

- Mentoring programs with academic faculty members that help foster students' sense of belonging.
- Learning Centers, an effective solution for first-year science and engineering students. These centers are designed to provide learning support in the department's field of study, support a large number of students and focus on challenging study topics.
- In some institutions and programs, support practitioners are situated within academic programs and faculties, rather than at the Dean of Students' Office. These practitioners are more closely acquainted with the departments, and manage more effective collaborations with academic and administrative staff.

The study identifies several inherent tensions in student support work. The first tension concerns the potential stigmatizing effects of support programs aimed at disadvantaged groups. Practitioners debate how to navigate the obvious benefits of these programs and their unintended consequences, of labeling students as deficient or disadvantaged. Another tension relates to the requirement to shift from one-on-one support sessions to workshops focused on either academic or soft skills, such as time management or test anxiety. The challenge of motivating students to participate in these workshops remains unresolved, and the balance between personal and group support may require rethinking. Finally, practitioners aim to find a balance between providing support services on the one hand, and nurturing personal responsibility and the ability to navigate independently within the academic system, on the other.

In terms of needs, practitioners raise the need for stable financing: Current budgetary pressures result in heavy workloads and raise the problem of support programs' long-term sustainability. Additional needs relate to professional development and learning and for systematic research and evaluation of various support programs and tools.

The major policy recommendations are:

1. **Support for students from lower socioeconomic groups.** It is recommended to build a national support program for these students, according to criteria similar to those of the philanthropic programs currently operating in institutions, alongside existing national programs for supporting students from other marginalized groups.
2. **Flexible learning opportunities.** The findings call for restructuring academic timetables, in the context of rewarding universities for undergraduates who complete their studies in a period of three or four years. It is recommended to develop flexible, partial-scale modes of study, tailored to the needs of students from disadvantaged groups.
3. **A holistic approach to student support that covers the entire student lifecycle.** Support services that accompany students at the various stages of their higher education journey, can offer comprehensive and dynamic support. It is especially recommended to add the following components: (1) Support at the enrollment phase; (2) Support for the advanced years of study; (3) Support for transition to employment; (4) Support for students who drop out of HE.

4. A systemic approach to student support. A systematic approach requires:

- An institutional policy that emphasizes excellence and innovation in teaching, allocates resources to budgeting and evaluating support programs, and rewards faculty members and programs for supporting students from disadvantaged groups.
- Support work should include the involvement of academic staff, department heads, lecturers, and administrative staff, as well as collaboration with other relevant entities, such as student associations, English study units, student administration, and admissions. As a first step, it is recommended that each faculty will develop its own support strategy.
- Reorganization of the student support system into a distributed organizational structure, which includes a combination of a centrally-based support unit at the dean of students and practitioners located throughout the various faculties. The findings of this study show that this structure proves to be the best organizational structure for support work.

Vocational Post-Secondary Education in Israel: Who Studies What? And Who Benefits from It?

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Purpose and contribution of the study

"Let your son be a tinsmith" is what (Mizrahi) Minister Silvan Shalom shouted at (Ashkenazi) Prime Minister Benjamin Netanyahu in the midst of a fierce debate on a proposal by the Minister of Education to reinvigorate vocational schools and training in Israel (*The Marker* 2014). This charged exchange only serves to illustrate how traumatic was the process by which Mizrahi pupils were tracked to vocational training and tracks, and Ashkenazi pupils—to the academic track, more than 40 years ago. In fact, most students in Israeli society would agree that educational tracking played a crucial role in structuring and preserving the domination of Ashkenazi Jews over Mizrahi Jews in Israel.

The negative consequences of vocational education provide the background for de-tracking and academization processes of vocational education in Israel, which were instituted in order to reduce the extent to which vocational education inhibits educational and labor market opportunities. In this context, the Ministry of Education's proposal mentioned above, of reviving vocational schools and training, can be seen as a U-turn in policy—hence the emergence of all the ethnic demons of past times. But is it really a bad idea? Does vocational education carry only negative consequences? These questions are at the heart of a lively debate in Israel and elsewhere in the western world. Despite a massive body of research, both in Israel and elsewhere, the current research into the consequences of vocational education in Israel is novel in two main ways:

1. This study provides focus on **post-secondary** vocational education (PSVE).
2. It examines the **long-term consequences** of PSVE.

Focusing on PSVE is important not only because this sector of the educational system has been largely neglected in Israel, but mainly because the academization of post-secondary education has been operating in full steam since the 1990s, and thus its consequences for vocational education (i.e., PSVE) are expected to be significant.

The academization of post-secondary education was a policy adopted by many Western governments since the 1990s. Accordingly, educational systems have significantly increased opportunities for post-secondary education, particularly academic education, by dramatically expanding the tertiary educational sector. In Israel, for example, academization was achieved through the expansion of universities' capacities, in terms of numbers of students, coupled by

the establishment of public and private colleges. The public, aware of these new opportunities and responsive to the relatively high economic gains associated with an academic degree, enrolled in growing numbers into universities and academic colleges, resulting in growing share of the academic graduate workforce, both in Israel and in other western countries. This led the relative share of PSVE to shrink, while the economic gains associated with PSVE in a highly educated workforce are subject to growing debate in the literature.

One side of this debate involves approaches to education as having an absolute value, determined by its contribution to productivity. The other side of the debate includes approaches that view education as a positional good. Yet another view claims that the value of education is negotiated between social partners seeking to use education as a mean of preserving social boundaries. Concurrently, recent scholarship, mainly in economics, have argued that individuals with vocational education may trade positive short-term returns for negative long-term prospects. That is, due to specific skills gained in vocational education, the transition to the labor market is relatively smooth, but the ability to maintain an advantage over time is rather low as these skills become obsolete. Finally, it is often argued by industrialists and media commentators that the expansion of academic post-secondary education has largely come at the expense of the quantity and quality of non-academic post-secondary education, resulting, in turn, in a shortage of a skilled labor force. Moreover, this shortage is expected to benefit PSVE qualification holders in the labor market.

The current research fills a knowledge gap with regards to the implications of the expansion of post-secondary academic education on the value of non-academic post-secondary vocational education. Particularly, the following questions are addressed:

1. What are the socio-demographic characteristics of PSVE in Israel? That is, who are the typical PSVE graduates in Israel?
2. What are the long-term economic returns to PSVE in Israel? How do these returns compare with academic degrees, and to high-school diplomas?
3. Do PSVE graduates have easier access to the labor market, when compared to both high-school graduates and academic degree holders?

The research method

The data for this study are based on information from numerous sources: Population registry data on country of birth, place of residence, parental country of birth, etc.; the Ministry of Education's data on pupils' socio-demographic characteristics and matriculation exam files; data from the majority of post-secondary education institutions in Israel, about diploma/degree completion, field of study, duration and timing of study; and Ministry of Finance data on annual labor force participation and earnings. This information was handled and merged by the Central Bureau of Statistics using the advantage of Israel's unique personal ID number. The result is a longitudinal file of high school graduates in 1997. Using this longitudinal file, we are able to trace the entire education and labor market histories of this particular cohort from 1997 to 2013. The file includes some 74,240 senior high-school graduates in 1997, and the analysis was restricted, due to confidentiality, to the research room of the Central Bureau of Statistics office in Haifa.

Analysis was focused on two main issues. First, we start by examining who attends PSVE programs in Israel. This is then followed by examining how the 1997 high school seniors are filtered through the post-secondary educational system, and the extent to which background characteristics influence this process. This analysis was largely done by fitting a multinomial logistic regression models to the data at hands.

Subsequently, the analysis moved to address the educational, employment, and earning trajectories of vocational post-secondary education and the four identified educational trajectories. This is achieved by fitting extended regression models to the data, each time for different outcome variable (i.e., education, employment and earnings), as a function of PSVE. An advantage of these models is that they can derive the causal effect of a treatment (in our case, PSVE) on the outcome variable. Another advantage of these models is that they allow to include a selection model (i.e., Heckman selection model for employment) to identify the effect of PSVE on earnings. To the best of our knowledge, this is the first time that such analysis is applied to Israeli data.

Main findings and their significance

The first task was to examine who attends PSVE programs in Israel. Our results indicate very clearly that PSVE programs attract students from relatively weaker social backgrounds. However, the weakest students drop out of school soon after graduating high-school. We also found that within PSVE, there is a clear hierarchy between technical, grades 13-14 programs, and Ministry of Economy programs. The former attract students from more advantaged social and academic backgrounds than the latter. We conclude this part of the analysis by arguing that PSVE provides to those originating from relatively weak background a “safety net” that prevents downward movements, but also prevents upward movements.

We then move to analyze how high school seniors are filtered through the post-secondary educational system. We identified four main educational trajectories: The high road (high school to college); the PSVE track (high school to PSVE); a mixed trajectory (high school to PSVE and then to college); and a counter trajectory (high school to college and then to PSVE), and examine the background profile of the populations in these various educational trajectories. These educational trajectories are, as expected, stratified socioeconomically and serve in the next stage of the analysis as background variable in the transition to the labor market.

In this section of the study, we found that the labor market returns received for PSVE as the highest education were characterized by internal variability according to the type of institution and gender. We found that among men, the boundary that separated non-academic and academic education was dissolved, and that returns received for PSVE exceeded those of some 40% of the college and university graduates. This finding supported the assertion of a shortage of PSVE graduates and the excess of academics in certain fields of study. At the same time, we found that in about one quarter of the cases, PSVE was an intermediate stop which led to the acquisition of a relatively prestigious academic education.

In conclusion, our study resonates well with the current literature and debates the role of vocational education—this time post-secondary vocational education—as a safety net. In this regard, our results indicate very clearly that PSVE provides better economic opportunities when compared to high school drop-outs. At the same time, PSVE does not provide better

economic opportunities and returns than most academic degrees.

The novelty in our findings relates to the role of PSVE as a path—as far as the Israeli context is concerned—that can lead to prestigious academic degrees (i.e., engineering degrees). We propose to refer to this mechanism as a “spring board,” whereby PSVE provides the relatively less selected individuals with the opportunity to go to college. Here we argue that for those from less privileged social origins, who are relatively more risk-averse and have relatively low levels of self-efficacy, the opportunity to “test the waters” in the shorter, less demanding, vocational programs, is important and serves as a spring board in their long and meandering way to achieve the socially desired academic degree.

This research is also important for policy makers. In the context of the need for more skilled workforce, and the over-populated general academic programs, PSVE might be a good alternative for improving the economic situation of those deliberating between a general academic degree and PSVE training, particularly those originating from less fortunate backgrounds. This, then, suggests that additional efforts are needed to increase the awareness of the benefits associated with PSVE programs, particularly amongst two population groups. The first are those who do not meet the academic threshold requirements to attain college or university in Israel. For them, PSVE pays the highest premium, as they have more economic opportunities when compared to high-school dropouts. The second group is those who find the academic environment intimidating, as is often the case amongst those who are the first generation of participants in higher education in their families. For this group, educators and policy makers should emphasize the potential role of PSVE as a spring board to college.



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