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ABSTRACT

Immigrant Examination Behavior*

In this paper, we estimate differences in examination behavior between immigrants and natives, by examining differences in the propensity to forego a passing grade on a final exam in order to retake that final exam. Retaking a final exam involves some level of uncertainty, so differences in examination behavior may be due to differences in motivation, risk-taking, and discipline. We find that immigrants are about 2 percentage points more likely to retake a passed exam than natives. This represents a large difference given a baseline retake rate of about 6.5 percentage points.

JEL Classification: J15, I23, D81

Keywords: immigrant-native differences, examination behavior, uncertainty, motivation

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1 Introduction

Immigrants compose a significant fraction of the population of developed countries. How immigrants fare in the labor markets they enter has been studied through various angles, including the differentials in earnings between immigrants and natives initially and over time, how earnings depend on the sending country, and where the immigrants received their education, among other factors.[1] What is missing in many of the studies that examine how immigrants fare in the countries they enter are measures of possible differentials between immigrant and native preferences, which may impact their assimilation. In order to contribute to this aspect of the literature, we examine a decision regarding final exams that undergraduate students make in their first two years of study. Specifically, we test for differences in the propensity of immigrants and natives to forego a passed exam and retake that exam. Retaking a passed exam may lead to a lower grade and possibly not passing the course. Differences in the decision to retake an exam may signal differences between immigrants and natives in terms of motivation, risk-taking, and discipline, attributes which may also have labor market implications.

The relationship between immigrant status and preferences has been examined previously through surveys regarding factors such as motivation, risk-taking and the Big Five personality traits,[2] relying on the fact that answers to surveys are generally consistent with individual's behavior. For instance, Jaeger et al. (2010) examined the different risk-taking propensities of migrants within Germany using the German Socio-Economic Panel (GSOEP) survey, finding

[1] For analysis of the relative incomes of immigrants to natives see Chiswick (1978) for the United States (US), Adsera and Chiswick (2007) for Western Europe, and Gorodzeisky and Semyonov (2011) and Semyonov, Raijman, and Maskileyson (2015) for Israel. Borjas (1994), among others, shows the importance of accounting for country of origin when measuring convergence of incomes. For the dependence of earnings on country of origin see, for example, Borjas (1994), and for the importance of where immigrants received their education see, for example, Friedberg (2000) for Israel and Zeng and Xie (2004) for Asian-Americans in the US.

[2] The Big Five personality traits are openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism.

that individuals willing to take risks are 1.5 percentage points more likely to ever migrate.[3] Bonin et al. (2009), also using the risk question from the GSOEP, find that first-generation immigrants are more risk averse than natives, but that in the second generation levels of risk-aversion equalize. Constant, Krause, and Zimmerman (2011) examine German workers who entered unemployment and also find a positive correlation between migration and risk-taking, finding that second generation migrants view themselves as being more willing to take risks than natives. Jokela (2009) finds that high openness to experience and low agreeableness are associated with increased migration across states in the US and Silventoinen et al. (2007) find that immigrants are, among other factors, more extroverted. Data on actual behavior in the field, however, is more difficult to obtain as researchers need to have data not only on the behavior being examined, but also on immigrant status. Our unique data set allows us both to determine immigrant status through a policy change and also to observe decisions made in the field regarding final exams.

Our sample includes undergraduate Economics students at a large college in Israel. We examine the differential propensity of immigrants and natives to retake final exams in courses where the entire course grade depends on the final exam grade. Every student who passes the first final exam with a score of 60 or above has the choice of retaking the exam. In retaking the exam, students may receive a lower grade on the second final exam (and still pass the course) and therefore lower their grade point average. Students may also fail the second final exam which would require them to retake the course and incur monetary, psychic and time costs. Retaking the course involves both paying for the course and most likely attending classes. As

[3] Using the same data set, Bauernschuster et al. (2014) find that more educated and risk-loving individuals are more likely to migrate.

such, the decision to retake the final exam may be influenced by one's degree of risk-aversion, motivation for a higher grade point average, and self-discipline, among other factors.

In addition to data on student grades and some demographic characteristics, the changes over time in the identification (ID) numbers given to Israelis enables us to determine immigrant status in two different ways. First, before the mid-1980s, ID numbers beginning with the number 1 indicated immigrant status. Second, in the mid-1980s, ID numbers changed from including 8 digits to including 9 digits. Since ID numbers are given at birth for those born in Israel and upon arrival in Israel for immigrants, we determine immigrant status if one was born before the mid-1980s and has an ID number consisting of 9 digits.

We analyze immigrant and native students' differential exam behavior in several ways. First, we examine if there are differences in the probability of immigrants and natives to retake at least one exam out of the exams that s/he passed. Second, we look at the percentage of exams that each student retook out of all of the exams that the student had an opportunity to retake (i.e., those exams that the student passed). Third, we estimate whether there is a difference between how much immigrants and natives improve their scores when they decide to retake an exam. Fourth, we examine the retake rates across different courses, which enables us to delve deeper into the different traits that are correlated with retaking an exam. For instance, on an exam like Principles of Micro/Macroeconomics there is a greater benefit to knowing the language than an exam like Mathematics. As such, immigrants may benefit more than natives from already experiencing one exam in the subject, and therefore retake the exam at higher rates. Fifth, we examine whether retake rates change over the four semesters examined. It could be the case that differences between immigrants and natives change as they gain more experience in their college

career. Finally, we examine whether the propensity of immigrants and natives to retake an exam is influenced by previous success in retaking exams.[4]

We find evidence that immigrants retake exams at higher rates than natives. While there is no statistically significant difference in the probability of immigrants and natives to retake at least one exam, immigrants retake a higher proportion of the exams they pass than natives. Overall, the results of our linear probability model indicate that immigrants are about 0.02 more likely to retake a passed exam than natives. While this number is small in magnitude, since the overall retake rates are low (about 0.065), this represents a relatively significant difference. Both immigrants and natives improve their scores by retaking exams. While the mean improvement of natives is greater than that of immigrants, there is no statistically significant difference in the improvement in scores of the two groups. When looking at each group of courses separately, in all cases immigrants retake the exam at a higher rate than natives, although the magnitude and statistical significance of the results vary by course. We also do not find evidence of a convergence in retake rates over the first two years of studies. Although we do not have data on precisely how many years immigrants were in the country at the time of their studies, we are able to divide the immigrants into two groups, where one group was, on average, more years in the country before the beginning of their studies. We find that those students who were in the country more years have retake rates that are closer to that of natives, which may be due, at least partly, to the notion of assimilation. As such, the differences we find are driven by immigrants who were, on average, in the country for less time prior to the beginning of their studies. We do

[4] We report this in Appendix A. Since there are not many students who did not improve their score after retaking an exam and even less immigrants (in absolute terms) who did not improve their score, there is little statistical power in these specifications.

not find significant differences in the reaction of natives and immigrants to prior success in retaking exams.

Since more immigrants than natives retake the exam, and those who retake the exam improve their scores, this difference in behavior closes some of the grade gap between the two groups, although the final course grades of natives are still higher than the final course grades of immigrants. This difference in behavior in an educational setting, whether it is driven by extra motivation, risk-taking, or some other attribute, may apply in other settings as well, such as the job market, where the stakes are higher.

2 Data

Our data set on grades is composed of grades in 12 core courses in the first-year and second-year of studies for students at a large college in Israel over 18 years, from the 1995-1996 through the 2014-2015 academic years. Because immigrant status can only be determined for students born before 1986 (the year of the policy change), there are very few students in our sample from the 2012-2013 through 2014-2015 academic years. From these data we determine which students chose to relinquish a passing grade and retake an exam. We also use as controls data on students' observable characteristics, including their gender, age and scores on country-wide exams taken prior to college entry (*Bagrut* and *Psychometry*).[5]

[5] These factors have been shown to be related to the traits associated with the decision to retake an exam. Nekby, Skogman, and Vahtrik (2015) show that males are more likely to retake quizzes on final exams than females, and Sansani (2018) finds that Ashkenazi males are more likely to retake final exams using a similar data set. To the extent that this decision involves risk, Croson and Gneezy (2009) and Eckel and Grossman (2008) offer reviews of the relationship between gender and risk-aversion. Dohmen et al. (2011) show that age is negatively correlated with risk-taking, and Dohmen, Falk, Huffman, and Sunde (2010) show that cognitive ability is positively related to risk-taking behavior. To the extent that motivation and self-discipline are driving the difference between immigrants and natives, Meece and Painter (2008) and Duckworth and Seligman (2006) show that females are more motivated and self-disciplined than males.

Each course in the Economics degree includes two final exams. A student needs a score of at least 60 to pass the final exam and therefore the course. Students have the option of taking one or both of the exams.[6] However, only students who score 60 or above on the first exam have the *option* of sitting for the second exam. Students who score less than 60 are *required* to sit for the second exam. Therefore, students who score 60 or above on the initial exam face a decision on whether to attempt to improve their score or not, since a student who does not pass the last exam s/he sits for has to retake the course, and a student may get a lower score on the second exam.

3 Identification of Immigrants

Every Israeli citizen has a unique ID number. This number is given at birth to those individuals born in Israel, or upon arrival in Israel to those who immigrate to Israel. ID number policy is such that parents to newborns in Israel, parents of child immigrants, or immigrant adults, do not have control over what ID number they receive. The way in which we identify immigrants through changes in how ID numbers were issued is discussed in Appendix B. The final sample includes 3,818 students, of which 472, 12.4 percent, are identified as immigrants.

In addition to identifying who is an immigrant, we also try to determine the countries immigrants immigrated from. Since Israel gained independence in 1948, different time periods have corresponded with immigration from different countries. Because our sample of grades begins in 1996, individuals who immigrated before 1970 would have to be at least 26 years old at the beginning of their studies. As such, we assume that our sample includes few, if any, individuals from these earlier immigration cohorts. From 1970 to 1989 there was a steady stream

[6] Since the final score recorded for the student does not depend on which exam the score was received on, the exams are required to be of equal quality.

of immigrants from the Soviet Union, United States, Eastern Europe, and Argentina. Starting in 1989 there was a drastic change with a large number of immigrants from the Former Soviet Union (FSU).[7] Because our identification of immigrants enables us to delineate those who immigrated before 1985 and after 1985, a higher percentage of those who immigrated after 1985 are going to be from the FSU versus those who immigrated before 1985, although immigrants from the FSU most likely make up the most students in both samples. As in other countries, the country an immigrant arrives from is going to be correlated with labor market outcomes in Israel as well. There are two major Jewish groups in Israel, Ashkenazim and Mizrahim.[8] In general, Ashkenazim arrived in Israel before statehood in 1948 from Eastern and Central Europe, while Mizrahim came from countries in the Middle East and North Africa. Ashkenazim fare better than Mizrahim in terms of labor market outcomes (Haberfeld and Cohen, 2007). In terms of our sample, those from the FSU, and therefore most of the immigrants in our sample, are ethnically like Ashkenazim. That said, on average they still fare worse than natives in the labor market. For instance, many faced downward occupational mobility when arriving to Israel and have not assimilated in terms of earnings and occupational status even 15 years after arrival (Gorodzeisky and Semyonov, 2011). Combined with these labor market differentials which may be partly due to discrimination, Raijman (2010) mentions the perceived threat natives feel from immigrants in terms of employment opportunities. As such, perhaps feeling the need to compensate for this discrimination in the labor market, immigrants may feel like they need to take more risk in order to achieve greater academic success to improve their chances in the labor market.

[7] Beginning in 1984 there were waves of immigration of Ethiopian Jews to Israel, but Ethiopian Jews make up a miniscule proportion of the student body, especially in the years that make up our sample.
[8] Arabs make up about 20% of the Israeli population, but, like those who immigrated from Ethiopia, they are a very small part of the student body.

Our data does not allow us to determine which countries immigrants arrived from, but the way we identify immigrants does allow us to determine whether they immigrated before or after 1985. Since our first year of grades is in 1996, those arriving before 1985 must be at least 11 years in Israel before beginning their studies. On the other hand, those who arrived after 1985 may have started their studies upon arrival. Therefore, in some of our analysis we include a variable that delineates these two groups by the average length of time they were in Israel before the beginning of their studies.

4 Methodology and Results

To estimate the differential exam-taking behavior of immigrants and natives, we run linear probability models of the following form[9]:

$$Y_{it} = \alpha + \beta_1 Immigrant_i + \beta_2 Male_i + \beta_3 Age_i + \beta_4 Bagrut_i + \beta_5 Psychometry_i + \text{AvgScore}_i + \sigma_t + \varepsilon_{it}$$

The dependent variable *Y* takes on the value 1 if the student took at least one retake exam and 0 if a student never retook an exam. In other specifications, *Y* represents the percentage of exams that a student decided to retake out of the number of exams that a student had the opportunity to retake. We limit the sample to the students who passed the first exam and therefore had the option of retaking the exam. *Immigrant* is a dummy variable that takes on the value 1 if the student is an immigrant and 0 otherwise. We include the dummy variable *Male* to control for gender, and *Age* to control for age at the beginning of one's studies. *Bagrut* and *Psychometry* are

[9] The results are qualitatively unchanged when using a probit or logit model.

country-wide exams required for college admission, taken mainly during students' high school years, which is the only proxy we have for student ability prior to the start of studies. The main drawback of using these exams is that the College database does not include a *Psychometry* and/or *Bagrut* score for all students, so some observations are dropped in these specifications.[10] In addition, many students decided to forego the *Psychometry* exam since it is not required for admission to the college. Because these pre-college exam measures are only partially available for many years, we include fixed effects for the number of exams passed. This is another measure of student ability as those students with greater ability pass more of the initial exams. *AvgScore* represents the student's average score on the first exams they took and is therefore a proxy for student ability as well. We also include year-fixed effects, σ_t, to control for unobservable factors in certain years that could have been correlated with natives' and immigrants' propensity to retake an exam. Finally, we interact immigrant status with the different covariates in order to test for whether immigrant-native differences are dependent on age, gender, and student ability.

As a robustness check, because immigrants and natives differ on some observable characteristics, we also estimate our model using propensity-score matching (PSM). The propensity scores are estimated using logit and probit models for the probability of being an immigrant:

$$\Pr[\text{Immig} = 1] = \text{F}(\alpha + \beta_1 Male_i + \beta_2 Age_i + \beta_3 AvgScore_i + \varepsilon_{it})$$

The propensity scores derived from this estimation are used to match natives and immigrants with similar characteristics (propensity scores). A comparison of the retake rates in this matched

[10] While all students need a score on either the *Bagrut* or *Psychometry* for college admission, for years prior to 2005, most of the pre-college exam data was lost in electronic form when the college retroactively merged the pre-college exam data with student demographic data. Therefore, only about 20% of the students who began their studies before 2005 have pre-college exam data.

sample depicts the difference in retake rates between immigrants and natives using only those individuals who have someone with similar covariates in the other group.[11]

In addition to the above estimations, in order to get a better sense of the factors that go into the decision to retake a final exam, we conduct a survey of contemporary students asking them about the amount of risk they feel they are incurring when retaking an exam and their motivation for completing the degree with a high grade point average.[12] We use the responses to the survey in the interpretation of our results.

In Table 1 we present summary statistics depicting the different characteristics of immigrants and natives. First, there are some differences between immigrants and natives in terms of demographic characteristics, which necessitates including these variables as controls in our regressions and compels the use of propensity score matching to check the results. While 87.6 percent of the sample is identified as natives and 12.4 percent as immigrant, which is expected, 65.7 percent of the native students are male, while only 43.3 percent of the immigrant students are male. This aligns with the findings of Feniger, Ayalon, and Mcdossi (2013), who show that a higher percentage of female than male immigrants from the Soviet Union choose middle-income education categories, of which economics is one. The slight difference in age between immigrants and natives can be attributed to the higher percentage of female students among immigrants, since females have shorter compulsory military service and therefore start their studies at an earlier age than males. In addition, compulsory military service is shorter for those who immigrate at older ages. Immigrants score slightly higher on the *Bagrut* exams but

[11] We perform several checks to determine the validity of the propensity-score matching approach. First, the differences in covariate values in the matched sample is close to 0. Second, there is significant overlap in propensity scores between immigrants and natives. Third, we check that the results remain unchanged when dropping the propensity scores of natives which are outside the range of propensity scores for immigrants. (Austin, 2011)
[12] The survey is discussed in detail in Appendix C.

score lower on the *Psychometry* exam. Not all immigrants and natives have scores for both exams since both are not necessary for acceptance to the college. The higher *Psychometry* score for natives is most likely due to the weight of verbal ability on the *Psychometry* exam. The *Bagrut* exams give students some latitude on the subjects they would like to be examined in. For instance, there are some required subjects like Mathematics, but also subjects like Geography, which are considered easier. Students may use these easier subjects in order to bolster their average *Bagrut* grade. Consequently, immigrants may be able to avoid subjects that non-native speakers are more likely to struggle with. On the other hand, natives, perhaps more familiar with the system, may receive higher *Bagrut* grades because they have more information regarding which exams are considered easier. Whether immigrants or natives benefit more from the way the overall *Bagrut* score is calculated, we posit that the *Bagrut* score is not as precise an indicator of student cognitive ability as the *Psychometry* exam, where subjects are fixed. To the extent that the aforementioned markers of student ability affect the decision to relinquish a passing grade on an exam and retake an exam, they are included in the regressions. In terms of student final exam grades, Table 1 shows that natives have higher final course grades and pass the initial final exams at a higher rate than immigrants. Finally, Table 1 shows the effect of the decision to retake an exam. The difference in scores between immigrants and natives before the retake exam, out of those that have the option of retaking the exam, decreases after the option to retake the exam, although this decrease is statistically insignificant. As we depict later in the paper, while immigrants retake the exam at a higher rate than natives, and both groups improve their scores by retaking exams, because the baseline retake rates are low, this differential behavior does not statistically alter the differences in grades between these two groups.

In terms of the representativeness of our sample, the average *Psychometry* score in Israel in the years covered in our sample ranged from 530 to 541 (NITE, 2016). As shown in Table 1, both immigrants and natives have average scores that are above this. However, the country-wide average of those who took the exam in the Hebrew language is around 565, which is comparable to the native average of 567 in our sample (NITE, 2016). As noted earlier, it is more difficult to compare the *Bagrut* exam score across individuals because students can choose the intensity and difficulty of their studies in a certain subject and take the different components of the *Bagrut* exam accordingly.

[Table 1 near here]

In Table 2 we depict the unconditional differences in retaking an exam between natives and immigrants. We report both the differences overall and also by the grade that the student received on the first exam. For instance, the decision whether to retake an exam if a student passes the exam with a score of 60 (the minimum passing score) is different than if a student receives a 90. On the one hand, a lower grade gives the student more room to improve. On the other hand, a lower grade shows less mastery of the material and a student risks not passing the exam when s/he sits for it a second time. Dividing the students into bins also aids in controlling for ability differences. For instance, those who score 60, on average, have lower ability than those who score 90. Panel A represents a comparison of all immigrants to natives, showing that both overall and by grade range, immigrants are always more likely to retake exams than natives. This difference is not statistically significant in the highest grade range because very few students retake an exam after receiving 90 or more on the original exam. Overall, immigrants retake a passed exam 8.6 percent of the time while natives retake a passed exam 6.3 percent of the time. When taking out those individuals who score 90 or above, because they have little room

to improve their score, immigrants retake a passed exam 10.1 percent of the time and natives retake a passed exam 7.6 percent of the time. In Panel B we report the differences when comparing recent immigrants to natives. Recall that these immigrants were, on average, less time in the country before the beginning of their studies. Here we find that the differences are larger, showing that recent immigrants retake exams at higher rates than older immigrants (those who were, on average, more time in the country). Overall, recent immigrants retake 9.7 percent of the exams they pass, which is about 50 percent more than natives, who retake 6.3 percent of the exams they pass.

[Table 2 near here]

In Table 3 we estimate whether there are immigrant-native differences in the propensity to retake at least one exam over the 12 courses examined. We find no difference in the propensity of natives and immigrants to retake at least one exam in any of our specifications. This is expected given that the proportion of immigrants who retake at least one exam is 0.479 and the proportion of natives who retake at least one exam is 0.451. A positive statistically significant relationship is found with a student's *Psychometry* score and a negative relationship is found with age. Those with higher *Psychometry* scores may have more motivation for higher grades and they may also be less risk-averse (Dohmen, Falk, Huffman, and Sunde (2010)). The negative relationship with age may be due to a time constraint. Older students are likely to have more responsibilities outside of school (e.g. family) and therefore the cost of studying for a retake exam is higher. This may also be due to a negative relationship between age and risk-taking as found by Dohmen et al. (2011). None of the interaction terms are statistically significant, signaling that the propensity of immigrants to retake at least one exam relative to

natives does not change with gender, age, the scores on the pre-college exams, or the average grade on the first exams.

[Table 3 near here]

Table 4 depicts our main model, which estimates whether there are differences in the percentage of passed exams immigrants and natives retake out of the exams they had an opportunity to retake. Overall, immigrants retake a higher percentage of their passed exams than natives. Columns 1 through 3 include the entire sample because the pre-college exam scores are not included. We find a positive relationship between immigrant status and the percentage of exams that a student retakes (column 1), with this relationship being stronger for more recent immigrants (columns 2, 4 and 6). The coefficient on *Older Immigrant*, which represents immigrants that immigrated before 1986, is around -0.045, depicting that older immigrants are less likely to retake exams than newer immigrants. As mentioned earlier, these individuals are more likely to have been in Israel more time before the beginning of their studies than the other immigrants. This may point, to a degree, to the idea that the more time immigrants are in the host country, the more their behavior assimilates to that of natives. The inclusion of pre-college exam scores (columns 4 and 6) only increases the point estimate on *Immigrant*. As noted earlier, the inclusion of these variables decreases the sample size substantially, by dropping most of the observations from before 2004. There are more *Psychometry* scores for the years prior to 2004, so these specifications are going to include more immigrants from older cohorts than the specifications with *Bagrut* scores. It is important to note that the changing coefficient on *Immigrant* is due to the select sample of students who have a *Bagrut* or *Psychometry* score and is not the result of the inclusion of these variables. Running the regressions for those individuals

with a *Bagrut* or *Psychometry* score, but without a control for *Bagrut* or *Psychometry* leaves the coefficient on *Immigrant* relatively unchanged.[13]

While the point estimates on *Immigrant* are generally small in magnitude, recall that the overall retake rate is around 0.065, and therefore a point estimate of around 0.02 represents a non-trivial difference. Expectedly, the higher the grade on the initial exam, the lower the likelihood a student retakes an exam. The coefficient on *Age* is consistently negative and statistically significant, while the coefficient on *Male* is positive, statistically insignificant, and much smaller in magnitude than that of *Immigrant*. As in table 3, we find a positive relationship between the *Psychometry* score and the propensity to retake a passed exam.

None of the interaction terms of immigrant status with male, age, *Bagrut*, *Pscyhometry*, or the average scores on the first exams is statistically significant, signaling that the relationship between immigrant status and retake rates does not change when the level of these variables changes.

[Table 4 near here]

In Table 5 we run the same analyses as in Tables 3 and 4, but using PSM. The models using this matching procedure estimate the 'effect' of being an immigrant by comparing immigrants and natives with similar characteristics.[14] Comparing the results from Table 5 with those of Tables 3 and 4 shows that the effect of being an immigrant remains virtually unchanged. This strengthens the finding that the different behaviors of immigrants and natives are not due to differences in observable characteristics between the two groups.

[Table 5 near here]

[13] These results are available from the authors upon request

[14] We perform a number of checks to determine whether conditional on propensity scores, the distributions of covariates are similar between immigrants and natives. These checks are available upon request.

In Table 6 we examine the retake rates across different groups of courses. Since courses require different skills, the differences in retake rates between immigrants and natives may depend on the course examined. For instance, courses in Mathematics (columns 1 and 2) require less knowledge of the language than Principles of Economics courses (columns 5 and 6).[15] For each group of courses we run the analysis with and without differentiating for recent versus older immigrants. When looking at immigrants overall, we find that in all groups of courses the point estimate is positive, but only statistically significant in the Econometrics courses and Price Theory courses. The specifications that include a dummy variable for older immigrants show that recent immigrants are more likely to retake exams than natives in all groups of courses. The coefficients on older immigrants vary in magnitude and statistical significance, but like Table 4 they are negative in sign. Overall, the results of Table 6 indicate that there is no evidence for the differences between immigrants and natives being dependent on course characteristics – that is, whether a course is more quantitative or more qualitative.

[Table 6 near here]

In Table 7 we examine whether the retake rates depend on the semester examined. We find that in the first, third, and fourth semesters, immigrants retake at least one exam at a significantly higher rate than natives. In the second semester, the point estimate on immigrant-native differences is small in magnitude and statistically insignificant. Given this U-shape of immigrant-native differences in retaking exams across semesters, we cannot point to a specific trend in the differences between immigrant and native retake rates across the first two years of studies. We may expect that there is assimilation in college and that in the second year of studies

[15] To gain statistical power, we combine year-long courses in the same subject into one course. For instance, Mathematics A and Mathematics B are combined into 'Mathematics', Statistics A and Statistics B are combined into 'Statistics', etc.

there would be smaller differences between immigrants and natives, but we find that this is not the case with our sample. What is evident, as can also be seen in the analysis by course in Table 6, is that the differences in the second year are greater than the differences in the first year. This may signal immigrants becoming more comfortable with their studies and being even less hesitant to retake exams relative to natives.

[Table 7 near here]

Table 8 shows the degree by which the scores of immigrants and natives change when they decide to retake an exam. We find that both natives and immigrants improve their scores after retaking an exam. Although natives improve their scores by more than immigrants, the difference in improvement between natives and immigrants is not statistically significant. There is also no statistically significant improvement for immigrants that score between 80 and 90, but this is due to the small sample size.

[Table 8 near here]

In Table 9 we depict the results of a regression with the change in exam score as the dependent variable. In accordance with Table 8, we find no difference in improvement between immigrants and natives and that the higher the grade on the first exam, the less the grade is improved when retaking the exam. The regressions allow us to include the scores on the pre-college exams as well as interactions between our covariates and immigrant status. We find that the higher the score on the pre-college *Bagrut* and *Psychometry* exams, the more one increases his/her score when retaking an exam. None of the interaction terms are statistically significant, indicating that the improvement in scores between immigrants and natives is not correlated with differences between the two groups in terms of gender, age, initial scores on the exams, or the scores on pre-college exams.

Overall, the results depicted in Tables 8 and 9 suggest that it is not the case that immigrants retake the exams at higher rates because they improve their scores more than natives. Rather, some other attribute is causing them to retake the exams at higher rates.

[Table 9 near here]

Several findings emerge from our survey of contemporary students, which appear in Table A2 in the appendix. In Panel A we compare the responses of immigrants and natives and in Panel B we compare the responses of those who did retake an exam and those who did not retake an exam. These results should be interpreted with the caveat that we assume that the reasons students retake exams, and native-immigrant differences in these reasons, are similar between the contemporary students in our survey sample and the students several years prior, whose exam behavior we analyze. First, we find no evidence that the work-loads of immigrants and natives are different. Ninety-four percent of immigrants (16 out of 17) are employed and 92 percent of natives (131 out of 143) are employed. Therefore, it is most likely not the case that immigrants retake the exams at a higher rate than natives because they have more time due to less work obligations. Second, those who retook at least one exam answered 8.1 (on a one to ten scale) to the question of how important their final grade point average is to them. Those who did not retake a passed exam answered 7.1 to this question. Immigrants and natives answered 6.8 and 7.6 to these questions, respectively, but this difference is not statistically significant. From these responses we infer that increased motivation is part of the reason students retake an exam. Third, those who did not retake an exam thought there was greater risk of receiving a lower grade (7.4 out of 10) versus those who did retake an exam (6.0 out of 10). On this question there was also no difference between immigrants and natives. Expectedly, students perceive some risk when they retake an exam and forego a passing grade. Fourth, there was no difference between those

who did retake an exam versus those who did not in the answer to the question of whether students thought they studied enough for the first exam. Those who retook an exam answered 6.1 and those who did not retake an exam answered 6.3. Lastly, there was no difference in how difficult individuals thought the second exam is relative to the first exam.

5 Conclusion

In explaining differential labor market and other economic outcomes between two groups, such as immigrants and natives, unobservable traits like risk-taking and motivation may help fill in the differences that are unexplained by conventional factors like human capital accumulation. While some of these differences in preferences have been examined in lab settings and surveys, it is hard to isolate these attributes in the field. In this paper, we examine the decision to forego a passing grade on an exam and retake a final exam to determine whether there is a difference in this decision between immigrants and natives.

Overall, we find that immigrants retake passed exams at a higher rate than natives. When controlling for other factors that may be correlated with the propensity to retake an exam, including gender, age, and a proxy for cognitive ability, we find that immigrants are 0.02 more likely to retake a passed exam than natives. This difference holds for the different courses we examine. We also find some evidence that natives are more likely to retake an exam when they have had prior success in retaking exams. Moreover, we find that older immigrants, those that were most likely, on average, in Israel for more time before starting their studies, retake the exam at lower rates than those immigrants who were, on average, in Israel for less years before beginning their studies. This is perhaps partly due to assimilation in behaviors as immigrants are in the host country for more years.

While immigrants retake the exams at a higher rate than natives, the retake rates overall are low, about 0.065. Because these differences in retake rates are low, they do not significantly alter the differences in grades between immigrants and natives. There are several factors to note with regard to the magnitude of the difference in retake rates between immigrants and natives. First, the low retake rates emphasize the significant cost of this decision. Students have to invest time studying for an exam that they have already passed, incur the extra stress of sitting for another exam, while having no guarantee of receiving a higher grade. Second, the overall retake rates include all students who passed the exam. However, those students who received high scores, for instance 90 and above, do not have much room to improve their scores. If we take out these students, the overall retake rates increase to 0.081, with immigrants retaking over 10% of the exams they pass. Third, while a 0.02 difference in retakes rates seems low, if natives were to retake exams at the same rate as immigrants, they would have retaken 1940 exams versus the 1411 that they retake. With an average increase in scores of over 12 points, this represents potentially 'missed' higher grades, for many students.

Overall, our findings lead us to several hypotheses for the differences we find in exam behavior between immigrants and natives. Perhaps immigrants are willing to take more risk than natives. This would back the evidence found by Jaeger et al. (2010) and others using survey data, since there is some uncertainty regarding the results of the retake exam. Students who retake an exam increase their grade, on average, but they may also receive a lower grade and if the retake grade is below 60 they are required to retake the course. Another possible explanation for the differential retake rates is that immigrants have greater motivation than natives, as proposed in an investigation of high school students by Areepattamannil and Freeman (2008). Under this explanation, even though studying for and retaking an exam is a costly time endeavor,

immigrants are willing to do so at a higher rate because they are more motivated. Relatedly, Duckworth and Seligman (2006) show that self-discipline plays a role in explaining differences in academic outcomes between genders. Differences in discipline could also account for differences in the propensity to take the time and effort to study again for an exam. These two explanations, differences in risk-aversion versus motivation/discipline, run counter to each other. On the one hand, most students improve their score when foregoing a passing grade and retaking the exam, signaling that this may not be such a risky endeavor. On the other hand, if most students improve their score and retaking the exam is simply a matter of motivation/discipline, then why are only about 7% of passed exams taken again? Our survey of students confirms these two hypotheses, as we find that those who retook exams place greater emphasis on their final degree grade point average, and we find that those who did not retake an exam perceive greater risk in retaking an exam than those who did retake an exam. It may also be the case that other factors, like discrimination in the labor market, are driving our results. Immigrants, fearing discrimination in the labor market, may find it necessary to receive higher grades in school, leading them to retake exams at a higher rate than natives.

While our analysis cannot isolate a precise attribute that explains the differential retake rates we find, this type of decision is not isolated to an educational setting and one may face similar decisions in other contexts. For instance, suppose a student is seeking a job after graduation. Upon receiving an initial job offer s/he must decide whether to forego the initial job offer in hand, or seek a better one. This decision involves similar factors as with the final exams. One must be motivated for a better outcome, and also be willing to risk not securing a better offer. As such, the differences between immigrants and natives found in this paper may be more consequential and have implications outside of the educational setting as well.

Conflict of Interest:

The authors declare that they have no conflict of interest.

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Appendix A

In this appendix, we present an estimate of whether prior success on a retake exam influences the probability that a student retook an exam in the future, and whether this is related to immigrant status:

$$Y_{it} = \alpha + \beta_1 Immig_i + \beta_2 Male_i + \beta_3 Age_i + \beta_4 Improve_{it} + \beta_5 Improve * Immig_{it} + \sigma_t + \varepsilon_{it}$$

In these models, only students who retook an exam are included. The models are run separately for each of the second, third, and fourth semesters. *Y* is equal to 1 if the student retook at least one exam in the semester being investigated, and 0 otherwise. The variable *Improve* is equal to 1 if a student improved his/her grade by retaking an exam in a previous semester and 0 if the student did not improve his/her grade. For instance, when estimating the model for the third semester, the variable *Improve* is equal to 1 if a student improved his/her grade on a retake exam after either the first or second semester. The variable *Improve*Immigrant* measures whether the reaction to improving one's grade in a previous semester is different for immigrants versus natives.

In Table A1 we show that in all semesters students are more likely to retake an exam if they improved their score on a previous retake exam (columns 1, 3, and 5). For instance, students who improved their score after the first semester are 0.159 more likely to retake an exam after the second semester than students who retook an exam but did not improve their score (column 1). We do not find consistent differences in the reaction of immigrants versus natives to prior success. In the second semester, we find that natives retake exams at a higher rate than

immigrants if they had success with retaking an exam in the first semester (column 2). While the coefficient on *Improve*Immigrant* is large and negative, it is offset by the large coefficient on *Immigrant*. In the third and fourth semesters, immigrants retake the exam at a higher rate relative to natives if they had prior success, with this difference being statistically insignificant after the third semester and statistically significant after the fourth semester. Therefore, overall there is no indication of native and immigrants consistently reacting differently to prior success on exams. It is important to note that the number of students who do not improve their score after retaking an exam is low and the number of immigrants out of these students is even lower since they make up a small percentage of the sample, leaving few observations for differences to be identified from. As such, we do not infer much regarding native-immigrant differences from these estimations.

[Table A1 near here]

Appendix B

There are two main ways ID number policy changed that allows for the identification of immigrants in our sample. First, until 1985, immigrants' ID number began with the number '1'. After that time, immigrants received the same ID numbers as natives and ID numbers beginning with the number '1' were no longer issued. As such, everyone with an ID number beginning with the number '1' is an immigrant. The second way one can be identified as an immigrant, for those who immigrated to Israel after 1985, is through the policy change that occurred in the issuing of ID numbers. After 1985, ID numbers included 9 digits instead of 8.[16] As such, students with 9 digit ID numbers who were born before the policy change must be immigrants. For instance,

[16] Technically, ID numbers before 1985 were made up of nine digits and began with the number 0, while those after 1985 were nine digits and began with the numbers 2 or 3.

suppose there are two students born in 1980, student A is an immigrant that came to Israel in 1990 and student B was born in Israel. Student A came to Israel after the policy change so s/he receives an ID number consisting of 9 digits. Student B was born before the policy change and therefore receives an ID number consisting of 8 digits.

Using this method has a couple of shortcomings. First, we have to drop the data for those born after the policy change in 1985 because there is no way to determine immigrant status. Someone born after the policy change will receive a 9 digit ID number whether s/he is an immigrant or native. Therefore, while the data on grades is available up to the 2014-2015 academic year, there are only 51 students who were born before 1986 in the 2012-2013 through 2014-2015 academic years. Of these 51 students, 13 are identified as immigrants. Second, for those born in 1986, the year when the policy change went into effect, there was a period where both 8 digit and 9 digit ID numbers were issued simultaneously, so we are not able to precisely determine during this year who is an immigrant and who is not.

Appendix C

In order to get a better sense of the factors that go into the decision to retake a final exam, we conduct a survey of contemporary students. The survey was given to all undergraduate Economics students who attended class on the day the survey was conducted. While the survey is not of the sample used in the study because they have already graduated, it includes students who study a very similar curriculum in the same degree because the core classes in the degree are identical. Below are the questions to the survey, with the results in Table A2.

[Table A2 near here]

Survey:

1. Male Female

2. Country of birth:

Israel Other country

3. If you circled “other country”, to what extent do you feel that your knowledge of the Hebrew language affects your grade?

1 2 3 4 5 6 7 8 9 10

(not at all) (very much)

4. Are you employed?

Yes, full-time Yes, part-time No

5. To what degree is your final grade point average important to you?

1 2 3 4 5 6 7 8 9 10

(not at all) (very much)

6. Do you think the retake exams are easier, harder, or about the same difficulty as the first exams?

1, much easier 2, somewhat easier 3, same difficulty 4, somewhat harder 5, much harder

7. Have you ever given up a passing grade and retaken an exam?

Yes No

8. Do you think you would have retaken more exams if you had more time?

Yes No Maybe

Answer questions 9 and 10 if you have retaken a passed exam before

Answer questions 11 and 12 if you have not retaken a passed exam before

9. To what extent did you feel like you are taking a risk and may receive a lower grade?

1 2 3 4 5 6 7 8 9 10

(not at all) (very much)

10. To what extent did you feel like you did not study enough for the first exam and therefore there is a high probability that you will improve your grade?

1 2 3 4 5 6 7 8 9 10

(not at all) (very much)

11. To what extent did you feel like you will be taking a risk and may receive a lower grade?

1 2 3 4 5 6 7 8 9 10

(not at all) (very much)

12. To what extent did you feel like you did not study enough for the first exam and therefore there is a high probability that you will improve your grade?

1 2 3 4 5 6 7 8 9 10

(not at all) (very much)

Table 1: Summary Statistics

	(1)	(2)	(3)		(4)	(5)	(6)
Sample Sizes:							
Overall	n = 3818						Difference:
Natives	n = 3346				Native	Immigrant	Immigrant -
Immigrant	n = 472						Native
Recent Immigrants	n = 397			Psychometry Score	566.77	545.10	-21.67***
Older Immigrants	n = 75						(4.74)
	Native	Immigrant	Difference Immigrant - Native	Final Course Grades	75.54	73.72	-1.81*** (0.25)
Percent of Students	0.876	0.124	-0.753*** (0.005)	Overall Passing Rate on First Exams	0.808	0.758	-0.050*** (0.007)
Percent Male	0.657	0.470	-0.187*** (0.023)	Pre-decision to retake exam: Overall Grades on First Exam	77.85	77.08	-0.77*** (0.237)
Age	24.01	23.91	-0.10 (0.13)				
				Post-decision to retake exam: Overall Grades	78.63	78.05	-0.58** (0.24)
Bagrut Score	89.65	91.10	1.45*** (0.47)				
						DiD estimate:	-0.187 (0.337)

Notes : Comparison of immigrant-native descriptive statistics and grades before and after the opportunity to retake the final exam. Standard errors in parentheses. *** sig. at 1%; ** at 5%; * at 10%

Table 2: Percentage of Students Retaking Exam by Immigrant Status - All Courses

Panel A: Comparison of All Immigrants and Natives

	All Exams		Original score between 60 and 90		Original score between 60 and 70		Original score between 71 and 80		Original score between 81 and 90		Original score between 91 and 99	
	Native	Immig.	Native	Immig.	Native	Immig.	Native	Immig.	Native	Immig.	Native	Immig.
Proportion of Students Taking Second Exam	0.063	0.086	0.076	0.101	0.128	0.159	0.064	0.091	0.019	0.030	0.003	0.006
Difference: Immigrant - Native	0.024***		0.026***		0.031***		0.027***		0.011*		0.003	
Standard error	(0.005)		(0.006)		(0.011)		(0.010)		(0.006)		(0.003)	
Number of Times Students Took Second Exam	1411	246	1403	244	928	157	371	66	104	21	8	2
Number Times Students Passed First Exam	22497	2852	18464	2404	7268	989	5803	723	5393	692	3072	361

Panel B: Comparison of Recent Immigrants and Natives

	All Exams		Original score between 60 and 90		Original score between 60 and 70		Original score between 71 and 80		Original score between 81 and 90		Original score between 91 and 99	
	Native	Recent Imm.	Native	Recent Imm.	Native	Recent Imm.	Native	Recent Imm.	Native	Recent Imm.	Native	Recent Imm.
Proportion of Students Taking Second Exam	0.063	0.097	0.076	0.113	0.128	0.181	0.064	0.100	0.019	0.031	0.003	0.007
Difference: Recent Imm. - Native	0.034***		0.037***		0.054***		0.037***		0.012*		0.004	
Standard error	(0.005)		(0.006)		(0.012)		(0.011)		(0.006)		(0.003)	
Number of Times Students Took Second Exam	1411	231	1403	229	928	149	371	62	104	18	8	2
Number Times Students Passed First Exam	22497	2385	18464	2018	7268	821	5803	617	5393	580	3072	294

Notes: Students who score 60 or above on the first exam have the option of retaking the exam. Students that sit for the retake exam relinquish the grade on the first exam. Panel A compares all immigrants to natives and Panel B compares only the most recent immigrants to natives. *** significant at 1%; ** at 5%; * at 10%

Table 3: Probability of Retaking at Least One Exam

	Dependent variable: Retook at least one exam						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Immigrant	0.0173	0.00566	0.0198	-0.0126	0.0844	0.198	-0.403
	(0.0233)	(0.0258)	(0.0333)	(0.0384)	(0.307)	(0.519)	(0.545)
Male		0.0259	0.0121	-0.00924	0.0250	0.0103	-0.0115
		(0.0163)	(0.0234)	(0.0255)	(0.0174)	(0.0254)	(0.0279)
Male*Immigrant					0.0135	0.0130	0.0214
					(0.0482)	(0.0657)	(0.0698)
Age		-0.00490	-0.0117**	-0.0135**	-0.00369	-0.0108**	-0.0141**
		(0.00342)	(0.00471)	(0.00658)	(0.00362)	(0.00507)	(0.00698)
Age*Immigrant					-0.00699	-0.00549	0.00472
					(0.00810)	(0.0104)	(0.0155)
Older Immigrant		0.0718	-0.00362	0.0368			
		(0.0603)	(0.116)	(0.0739)			
Average Grade		-0.00113	-0.00161	-0.00392**	-0.00130	-0.00134	-0.00450**
		(0.00115)	(0.00159)	(0.00181)	(0.00120)	(0.00166)	(0.00190)
Average Grade*Immigrant					0.00124	-0.00264	0.00425
					(0.00301)	(0.00416)	(0.00435)
Bagrut Mean			-0.000168			-0.000324	
			(0.00162)			(0.00176)	
Bagrut*Immigrant						0.00163	
						(0.00456)	
Psychometry Score				0.000571***			0.000594***
				(0.000189)			(0.000204)
Psychometry*Immigrant							-0.0000818
							(0.000528)
Observations	3650	3619	1860	1565	3619	1860	1565

Notes: Linear probability model where dependent variable is a dummy variable that is equal to 1 if student retook at least one exam. The specifications with a Psychometry or Bagrut score include less observations because students can be admitted to the college if they reach a minimum threshold in either and because some of the data on these pre-college exams was lost. All specifications include fixed effects for year and number of exams passed. Standard errors in parentheses. *** significant at 1%; ** at 5%; * at 10%.

Table 4: Immigrant-Native Difference in Retaking Passed Exams

Dependent variable: Percentage of passed exams that student retook							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Immigrant	0.0173**	0.0228***	0.0701	0.0257**	0.310*	0.0312**	-0.0347
	(0.00714)	(0.00778)	(0.0923)	(0.0119)	(0.185)	(0.0134)	(0.191)
Male	0.00738	0.00793	0.00971*	-0.000782	0.00229	0.00583	0.0103
	(0.00491)	(0.00491)	(0.00525)	(0.00836)	(0.00906)	(0.00893)	(0.00977)
Male*Immigrant			-0.0187		-0.0255		-0.0316
			(0.0145)		(0.0235)		(0.0245)
Age	-0.00213**	-0.00199*	-0.00190*	-0.00433**	-0.00363**	-0.00264	-0.00302
	(0.00103)	(0.00103)	(0.00109)	(0.00168)	(0.00181)	(0.00230)	(0.00244)
Age*Immigrant			-0.00119		-0.00460		0.00239
			(0.00244)		(0.00370)		(0.00543)
Older Immigrant		-0.0341*		-0.0451		-0.0559**	
		(0.0181)		(0.0414)		(0.0259)	
Average Grade on First Exam		-0.00111***	-0.00109***	-0.00130**	-0.00124**	-0.00210***	-0.00218***
		(0.000347)	(0.000362)	(0.000567)	(0.000593)	(0.000634)	(0.000667)
Average Grade*Immigrant			-0.000207		-0.000769		0.000789
			(0.000905)		(0.00148)		(0.00152)
Bagrut score				0.000228	0.000447		
				(0.000579)	(0.000630)		
Bagrut*Immigrant					-0.00113		
					(0.00163)		
Psychometry score						0.000242***	0.000248***
						(0.0000662)	(0.0000715)
Psychometry*Immigrant							-0.0000857
							(0.000185)
Observations	3619	3619	3619	1860	1860	1565	1565

Notes : Linear probability model where dependent variable is equal to the percentage of times a student decided to retake a final exam after passing the first exam. The specifications with a Psychometry or Bagrut score include less observations because students can be admitted to the college with either. All specifications include fixed effects for year and for the number of exams a student passed. Standard errors in parentheses. *** significant at 1%; ** at 5%; * at 1%.

Table 5: Propensity Score Matching Analysis

Panel A: Student Retook at Least One Exam

	Immigrant-Native Differences	Standard Error
Logit Model, Nearest Neighbors = 1	0.0516	(0.0332)
Logit Model, Nearest Neighbors = 5	0.0448	(0.0275)
Probit Model, Nearest Neighbors = 1	0.0529	(0.0346)
Probit Model, Nearest Neighbors = 5	0.0435	(0.0288)
	N = 3619	

Panel B: Retake Rate of Passed Exams

	Immigrant-Native Differences	Standard Error
Logit Model, Nearest Neighbors = 1	0.0256**	(0.0107)
Logit Model, Nearest Neighbors = 5	0.0210**	(0.0088)
Probit Model, Nearest Neighbors = 1	0.0292***	(0.0105)
Probit Model, Nearest Neighbors = 5	0.0205**	(0.0090)
	N = 3619	

Notes: Table shows results of Tables 3 and 4 using propensity score matching. Propensity scores are calculated with a logit or probit model using students' age, gender, and average scores on the first exam in each subject. Immigrants are matched to either 1 or 5 natives with the closest propensity score. Panel A shows immigrant-native differences in the propensity to retake at least one exam (like in Table 3). Panel B shows immigrant-native differences in proportion of passed exams that a student retook (like in Table 4). *** statistically significant at 1%; ** at 5%; * at 10%.

Table 6: Probability of Retaking Exam by Course

Dependent Variable: Retook Exam in Particular Course												
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Mathematics		Statistics		Principles		Econometrics		Macroeconomics		Price Theory	
Immigrant	0.0264	0.0347*	0.0195	0.0319**	0.0200	0.0252	0.0363**	0.0450**	0.0258	0.0453*	0.0354**	0.0428**
	(0.0165)	(0.0180)	(0.0146)	(0.0161)	(0.0330)	(0.0341)	(0.0171)	(0.0187)	(0.0220)	(0.0239)	(0.0172)	(0.0191)
Male	0.0290**	0.0297***	0.0236**	0.0248**	0.0251	0.0261	-0.00627	-0.00562	0.00735	0.00830	0.0102	0.0106
	(0.0115)	(0.0115)	(0.00996)	(0.00998)	(0.0236)	(0.0237)	(0.0115)	(0.0115)	(0.0145)	(0.0145)	(0.0115)	(0.0115)
Age	-0.000501	-0.000352	-0.00262	-0.00244	-0.00971**	-0.00957**	0.00349	0.00359	-0.00330	-0.00301	-0.000422	-0.000324
	(0.00260)	(0.00261)	(0.00216)	(0.00216)	(0.00421)	(0.00421)	(0.00258)	(0.00258)	(0.00344)	(0.00344)	(0.00261)	(0.00261)
Older Immigrant		-0.0480		-0.0674*		-0.0742		-0.0489		-0.113**		-0.0361
		(0.0418)		(0.0362)		(0.123)		(0.0424)		(0.0557)		(0.0407)
Observations	3069	3069	3302	3302	1118	1118	2610	2610	2540	2540	2471	2471

Notes : Linear probability model where dependent variable is equal to the percentage of times a student decided to retake a final exam after passing the first exam. All specifications include fixed effects for year and for the number of exams a student passed. Standard errors in parentheses. *** sig at 1%; ** at 5%; * at 10%

Table 7: Propensity to Retake Exam by Semester

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Retook Exam after First Sem.		Retook Exam after Second Sem.		Retook Exam after Third Sem.		Retook Exam after Fourth Sem.	
Immigrant	0.0442***	0.0558***	0.00949	0.0203	0.0396*	0.0576**	0.0571***	0.0744***
	(0.0165)	(0.0179)	(0.0187)	(0.0204)	(0.0216)	(0.0236)	(0.0197)	(0.0214)
Older Immigrant		-0.0687		-0.062		-0.102*		-0.102**
		(0.0422)		(0.0471)		(0.0537)		(0.0500)
Male	0.0226**	0.0239**	0.0482***	0.0491***	0.0238*	0.0248*	-0.0176	-0.0164
	(0.0114)	(0.0114)	(0.0127)	(0.0127)	(0.0144)	(0.0144)	(0.0134)	(0.0134)
Age	-0.00563**	-0.00545**	-0.00590**	-0.00570**	-0.00579*	-0.00551*	-0.000527	-0.000328
	(0.0024)	(0.00241)	(0.00282)	(0.00283)	(0.00323)	(0.00323)	(0.00297)	(0.00297)
Observations	3447	3447	3183	3183	2825	2825	2907	2907

Notes: Linear probability model where dependent variable is a dummy variable that is equal to 1 if student retook an exam after a particular semester. All specifications include year fixed effects. Standard errors in parentheses. *** significant at 1%; ** at 5%; * at 10%.

Table 8: Change in Grades for those Retaking Exam

	Grades 60-70		Grades 71-80		Grades 81-90	
	Native	Immigrant	Native	Immigrant	Native	Immigrant
	(1)	(2)	(3)	(4)	(5)	(6)
Grade after Retaking	78.12	77.99	85.04	82.85	88.06	86.48
Grade before Retaking	63.78	64.25	74.76	74.65	84.17	83.71
Difference	14.33**	13.73**	10.28**	8.20**	3.88**	2.76
Standard error	(0.47)	(1.09)	(0.66)	(1.33)	(1.10)	(3.13)
Difference in Differences: Immigrant - Native	-0.60 (1.17)		-2.09 (1.60)		-1.12 (2.69)	
Observations	928	157	371	66	104	21

Notes : Change in grades for immigrants and natives as a result of retaking exam. Standard errors in parentheses. *** sig. at 1%; ** at 5%; * at 10%.

Table 9: Change in Grades when Retaking Exam

Dependent Variable: Change in Grade after Retaking Exam						
	(1)	(2)	(3)	(4)	(5)	(6)
Immigrant	-1.223	-0.969	-1.349	-8.350	-14.91	5.936
	(0.923)	(0.898)	(0.903)	(12.14)	(13.83)	(9.144)
Grade on First Exam		-0.419***	-0.425***	-0.422***	-0.445***	-0.520***
		(0.0425)	(0.0418)	(0.0453)	(0.0508)	(0.0571)
Grade on First Exam*Immigrant				-0.00688		
				(0.118)		
Male			0.525	0.383	0.962	-1.518
			(0.695)	(0.766)	(0.865)	(0.936)
Male*Immigrant				1.083		
				(1.836)		
Age			0.0303	-0.0591	0.200	-0.224
			(0.188)	(0.221)	(0.243)	(0.287)
Age*Immigrant				0.292		
				(0.373)		
Bagrut score					0.172***	
					(0.0584)	
Bagrut*Immigrant					0.147	
					(0.152)	
Psychometry score						0.0339***
						(0.00717)
Psychometry*Immigrant						-0.0109
						(0.0159)
Observations	1657	1657	1657	1657	1117	885

Notes: Linear regression where dependent variable is the change in grade for students retaking a passed exam. The specifications with a Psychometry or Bagrut score include less observations because students can be admitted to the college with either. Standard errors in parentheses. *** sig at 1%; ** at 5%; * at 10%"

Table A1: Effect of Previous Success on Retaking Exams

	(1)	(2)	(3)	(4)	(5)	(6)
	Retook Exam after Second Sem.		Retook Exam after Third Sem.		Retook Exam after Fourth Sem.	
Immigrant	0.0145	0.530**	0.0384	-0.262	0.145***	-0.130
	(0.0771)	(0.211)	(0.0605)	(0.202)	(0.0486)	(0.142)
Male	0.0558	0.0658	0.00114	-0.00556	-0.0654*	-0.0667*
	(0.0610)	(0.0606)	(0.0448)	(0.0450)	(0.0356)	(0.0355)
Age	-0.00244	0.00147	-0.0242**	-0.0255**	0.000147	-0.000856
	(0.0163)	(0.0162)	(0.0120)	(0.0120)	(0.00978)	(0.00977)
Improved Score in 1st Sem.	0.159**	0.225***				
	(0.0788)	(0.0820)				
(Improved Score in 1st Sem.)*Immig		-0.592***				
		(0.225)				
Improved Score in 1st or 2nd Sem.			0.152**	0.121*		
			(0.0614)	(0.0644)		
(Improved Score in 1st or 2nd Sem.)*Immig				0.328		
				(0.210)		
Improved Score in 1st 2nd or 3rd Sem.					0.0872*	0.0553
					(0.0465)	(0.0489)
(Improved Score in 1st 2nd or 3rd Sem.)*Immig						0.310**
						(0.151)
Observations	335	335	533	533	766	766

Notes: Linear probability model where dependent variable is a dummy variable that is equal to 1 if student retook an exam after a particular semester. Standard errors in parentheses. *** sig. at 1%; ** at 5%; * at 10%

Table A2: Responses to Survey

	Panel A: Comparison of immigrants and natives				
	All Subjects	Immigrant	Native	Difference = Immigrant - Native	
				Diff.	Std. Error
Are you employed?	0.92	0.94	0.92	0.03	(0.07)
To what degree is your final grade point average important to you?	7.51	6.82	7.59	-0.76	(0.54)
Do you think that the retake exams are easier, harder, or about the same difficulty?	3.40	3.47	3.39	0.08	(0.22)
Have you ever given up a passing grade and retaken an exam?	0.41	0.29	0.43	-0.13	(0.13)
Do you think you would have retaken more exams if you had more time?	1.10	1.00	1.12	-0.12	(0.22)
Have retaken an exam: To what extent did you feel like you are taking a risk and may receive a lower grade?	6.02	7.20	5.92	1.28	(1.42)
Have retaken an exam: To what extent did you feel like you did not study enough for the first exam and therefore there is a high probability that you will improve your grade?	6.11	4.80	6.21	-1.41	(1.31)
Have not retaken an exam: To what extent did you feel like you are taking a risk and may receive a lower grade?	7.39	7.25	7.41	-0.16	(0.79)
To what extent did you feel like you did not study enough for the first exam and therefore there is a high probability that you will improve your grade?	6.32	5.58	6.40	-0.82	(0.71)
Observations	163	17	145	162	

	Panel B: Comparison of those who retook exam and those who did not				
	All Subjects	Did Not Retake an Exam	Retook an Exam	Difference = Did Not Retake - Retook	
				Diff.	Std. Error
Are you employed?	0.92	0.94	0.90	0.04	(0.04)
To what degree is your final grade point average important to you?	7.51	7.09	8.10	-1.01***	(0.32)
Do you think that the retake exams are easier, harder, or about the same difficulty?	3.40	3.35	3.47	-0.12	(0.13)
Do you think you would have retaken more exams if you had more time?	1.10	1.00	1.24	-0.24*	(0.14)
To what extent did you feel like you are taking a risk and may receive a lower grade?	6.83	7.39	6.03	1.36***	(0.44)
To what extent did you feel like you did not study enough for the first exam and therefore there is a high probability that you will improve your grade?	6.23	6.30	6.13	0.16	(0.40)
Observations	163	96	67	163	

Notes: Table displays student responses to the survey. Panel A compares the responses of immigrants to natives and Panel B compares the responses of those who did not retake an exam with those who did retake an exam. *** significant at 1%; ** at 5%; * at 10%.