Global Roommates, Local Outcomes: How Foreign Peers Influence Domestic Students in Higher Education

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Abstract

This paper investigates the causal impact of foreign roommates on the academic outcomes of domestic students at a large U.S. public university. Leveraging quasi-random roommate assignment, I estimate the effects of living with foreign peers on major choices and academic performance, with a particular focus on STEM participation. The results show that male students assigned foreign roommates are 3.5 percentage points more likely to pursue a STEM major and to graduate in STEM fields, while no significant effect is found for female students. The positive effect for male students is primarily observed among those who initially declared STEM majors. Further analysis reveals that domestic students from areas with higher proportions of foreign-born residents are more responsive to the influence of foreign roommates, suggesting that prior exposure to diversity is associated with a greater likelihood of being influenced by peer effects in college. GPA and overall graduation rates show minimal impacts, though male students benefit from a reduced time to graduation. The effect is likely through affecting students' perceptions of their abilities relative to their higher-achieving foreign peers, especially in STEM. These findings contribute to the literature on peer effects and gender disparities in education, highlighting the broader role of diversity in shaping academic trajectories in higher education.

Keywords: Higher Education, Peer Effects, International Students, STEM, Academic Performance, Diversity

JEL classification: I23, I24, J15, J61

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1 Introduction

The role of foreign students in shaping the academic outcomes of domestic college students is a topic of ongoing debate. While international students may enrich the learning environment by introducing diverse perspectives and knowledge, their presence could also introduce challenges. Increased competition, language barriers, and cultural differences may impede the academic performance of domestic students. Research has documented various effects of peer group diversity, especially along dimensions of race, ethnicity, and socioeconomic background. Boisjoly et al. (2006) find that white students assigned African American roommates develop more favorable attitudes toward affirmative action and racial diversity, indicating greater empathy toward minority groups. Corno et al. (2022) demonstrate that interracial roommate pairings at a South African university improve white students' attitudes toward Black peers, while also boosting Black students' academic performance. Little evidence, however, exists on how interactions specifically with foreign peers affect domestic students, particularly on outcomes beyond academic performance[1].

College major choice is central to shaping students' career paths and economic outcomes, with wage differentials across fields that are as large as the premium associated with a college degree itself (Altonji et al., 2012). These differences have widened over time, making major choice an increasingly important human capital decision (Altonji et al., 2014; Gemici and Wiswall, 2014). The need for STEM-trained workers is especially urgent, given the sector's critical role in driving innovation and economic growth (Griliches, 1992; Jones, 1995). Yet, despite high wage premiums, domestic STEM completion rates remain low, with dropout rates above 50% (Chen, 2013). International students, with nearly half pursuing science and technology fields—compared to just 35% among U.S. citizens and permanent residents—have helped to fill this gap(National Science Board, 2022). While recent work suggests foreign peers may influence domestic students' major choices, particularly in STEM, evidence on

[1]Another strand of literature (e.g., Shih (2017)) examines whether foreign students affect the educational opportunities of domestic students on the extensive margin, such as college enrollment. In contrast, this paper focuses on the intensive margin, specifically the outcomes of students who are already enrolled.

how these peer effects extend to non-classroom settings remains limited.

In this study, I estimate the causal relationship between living with foreign roommates and student outcomes using administrative student data from a large public research univeristy with approximately 16% of the undergraduate student body being international. The analysis exploits the quasi-randomized nature of the university's housing assignment system. While students can express preferences for communities, room types, and roommates, final assignments mainly depend on room availability, introducing idiosyncratic variation in roommate pairings. This variation serves as the basis for my identification strategy, mitigating the challenge of non-random peer selection and creating a natural experiment. As a result, the conditionally random assignment of foreign roommates to domestic students enables a more accurate assessment of their impact on academic and non-academic outcomes.

Utilizing the quasi-experimental setting, my evidence suggests that having one or more foreign roommates significantly increases the likelihood of male students both choosing a STEM major and graduating with a STEM degree, by 3.5 percentage points (7.1%). In contrast, for female students, the presence of foreign roommates does not significantly affect STEM major enrollment or graduation. These effects are primarily driven by encouraging existing STEM students to persist, rather than influencing non-STEM students to switch into STEM fields. Additional analysis indicates that students from areas with higher proportions of foreign-born residents are more responsive to the influence of foreign roommates, suggesting that prior exposure to diversity enhances receptivity to peer effects. Female foreign roommates at the university tend to have higher SAT scores and are more likely to focus on non-pre-med STEM fields, such as engineering, computer science, and physical sciences, compared to their domestic peers. This focus likely reflects the fact that international students rarely pursue pre-med tracks, given the competitive and restrictive nature of U.S. medical school admissions for non-citizens. Male foreign roommates, while also high-achieving, generally have slightly lower scores and are less concentrated in STEM fields overall. This suggests that the outcomes may be influenced by students' perceptions of their

abilities relative to the achievements of their foreign peers. The impact on GPA and graduation rates is minimal, mostly limited to the first year, with no lasting effects observed in subsequent years. However, male students with foreign roommates benefit from a shorter time to graduation, while female students take more time to finalize their major choices. These findings imply that foreign roommates do influence STEM major choices, though the effects vary by gender and initial major. The changes in major choice are unlikely to be driven by differences in academic performance. Instead, the evidence suggests that female students might be discouraged from entering or continuing in STEM fields after interacting with their higher-achieving foreign peers, and female students have a worse relationship with their foreign roommates compared to those living with only domestic roommates.

To further explore how foreign roommates shape the behaviors and attitudes of domestic students, as a new ongoing project, I am conducting a series of surveys on newly admitted domestic students living in on-campus housing communities at the university. These surveys focus on understanding students' experiences, interactions, and outcomes in diverse residential settings, particularly in relation to their foreign peers. Participants are asked about their social habits and intercultural attitudes, with special attention to their expectations and experiences regarding peers from different national and ethnic backgrounds. I conducted a pilot survey among first-year domestic undergraduate housing residents assigned roommates by the housing office, with 229 out of 498 (45.98%) respondents completing the survey. Formal surveys are planned to launch, including baseline surveys in the summer before housing assignments are announced and follow-up surveys at the end of each academic year. The survey data will enable me to estimate the effects of foreign roommates on a wider range of student outcomes and to gain insights into the mechanisms driving these peer effects.

This paper addresses key questions in the literature, particularly those concerning the impact of diverse environments on student outcomes. Previous research has focused on various aspects of diversity, such as racial diversity (Boisjoly et al., 2006; Corno et al., 2022), ethno-linguistic diversity (Chevalier et al., 2020), income diversity (Londoño-Vélez, 2022),

and multidimensional diversity (Braakmann and McDonald, 2018). For example, Anelli et al. (2023) find that foreign classmates in an introductory math course discourage domestic students from pursuing and graduating with STEM degrees, pushing them towards social science majors with comparable earnings. Similarly, Costas-Fernández et al. (2023) show that foreign students have little impact on graduation rates or degree types in the English higher education system. However, these studies are limited to classroom interactions. My paper moves beyond classroom settings and provides new insights into how foreign students affect domestic peers in shared living environments. Specifically, I examine the influence of foreign roommates in a university dormitory, a setting where students spend more time together and form deeper social bonds, potentially leading to more significant academic and social impacts. By exploiting the quasi-random assignment of roommates, my study minimizes biases and offers a stronger identification strategy than previous research based on control variables and fixed effects.

This paper also contributes to the broader literature on student success, which has primarily examined factors like school resources (Bound et al., 2010), coaching and advising (Angrist et al., 2009), and the role of professors and teaching assistants (Fairlie et al., 2014; Lusher et al., 2018). While much of this research has identified key determinants of academic outcomes, the influence of foreign students, particularly in residential settings, has received less attention. As higher education becomes increasingly global and the presence of foreign students in U.S. universities continues to grow, this study adds new evidence on the intensive margin by focusing on how foreign roommates impact the educational outcomes of domestic students.

2 Background and Data

2.1 Institutional Background

The data for this study are drawn from a large public university in the United States. This university is notably attractive to international students, who comprise 26% of the overall student population and 16% of undergraduates, compared to the U.S. national average of 5.5% in higher education enrollment. This significant proportion of international enrollment provides sufficient variation in exposure to foreign peers.

The university operates on a trimester system, dividing the academic year into three quarters: fall, winter, and spring. Students typically enter in the fall quarter and may choose to declare a major upon application or remain undeclared in their first year. Those who remain undeclared are required to declare at least one major before starting their junior (third) year. Declaring or switching majors after enrollment is subject to departmental approvals, with varying acceptance rates. Students can declare double or triple majors, although the latter is extremely rare (less than 1% in my sample). Approximately 65% of students graduate within four years, and 85% graduate within six years.

Although not mandatory for first-year students, 50%–60% opt to live in university-run residence halls during their freshman year, distributed across two major undergraduate communities. Housing applications for freshmen take place in May, once students accept their offers of admission. The application form allows students to express preferences for specific communities, room types, thematic options, and to specify preferred roommate(s). Housing assignments are jointly determined by room availability within each community and student preferences. Assignment staff compile all application forms into a spreadsheet, with each row representing a student, and maintain another spreadsheet listing all available vacant spaces.

Students who do not list any preferred roommates (around 50%) are assigned roommates by the housing staff. The assignment process begins by matching students with specific preferred roommates as groups, assigning them to appropriate spaces. Once all roommate

groups are accommodated, the staff proceed to assign students without preferred roommates based on space availability and common preferences such as room occupancy, themes, and living habits. These students are grouped into sets of two, three, or four, then assigned to available rooms with corresponding capacities. Although the application forms solicit a comprehensive set of preferences, only a subset of these preferences is considered during assignments.

My analysis focuses on students without preferred roommates who are thus assigned roommates by the housing staff. While the assignment procedure does not involve a lottery-like system, there is sufficient quasi-random variation in roommates' nationality for two reasons. First, the housing staff do not observe any demographic information during the assignment process, so nationality does not directly influence assignment outcomes. Second, although international students might systematically differ in preferences for room types or themes compared to domestic students, these preferences can be controlled for using the comprehensive housing application data. Consequently, conditional on all the preferences listed on the application form, the remaining variation in being assigned international roommates is reasonably quasi-random and thus exogenous to unobserved abilities of domestic students.

2.2 Data

2.2.1 Housing Preferences and Assignments

I obtain housing assignment records for all freshmen spanning the period from 2014 to 2018. These records include detailed information on students' preferences for residential communities, room types, and roommates, as well as their actual community and room assignments.

The housing preference data are gathered through housing application forms completed by students prior to their housing assignments. Students can select from two large on-campus residential communities, each offering different theme options and amenities. They

indicate their preferred room types—such as single, double, triple, or suite-style rooms—and specify their preferences for gender-specific or co-ed housing arrangements. Additionally, students have the option to request specific roommates with whom they wish to share a room. Finally, they provide information about their daily habits, including sleep schedules, study patterns, smoking behaviors, and their interests and hobbies to facilitate lifestyle and interest matching. Appendix A.1 provides a template of the housing application form.

These detailed preference records are then matched with the housing assignments, which include the community, building, room, and bed number for each resident. Although the actual assignments may change after the initial round due to student requests or capacity issues—which I do not observe, making the housing assignment an intention-to-treat rather than an actual treatment—these changes affect only a negligible proportion of the initial assignments.

2.2.2 Student Records

I match the housing application and assignment data with administrative student records, tracking these cohorts throughout their tenure at the university. For each student in the housing sample, I have access to comprehensive registrar information, including course enrollments, declared majors, and term-specific grades. I also observe graduation outcomes, time to degree, and details of the degrees awarded. In addition, I obtain admission records that provide demographic and background information such as race, family income, high school GPA, and standardized test scores (SAT/ACT).

2.2.3 Foreign Roommates

In this study, foreign roommates are defined as those who hold foreign citizenship and are traveling to the United States on an F-1 (student) visa. This definition employs a strict criterion that combines nationality and visa status. Similar studies in the U.S. context, such as Anelli and Peri (2023), typically define foreign students based solely on nationality, which

likely includes a significant share of students who are U.S. permanent residents but have foreign citizenship. Consequently, their definition may encompass several types of students who are scarcely different from domestic students: (1) students who migrated with their parents at an early age and received all or part of their previous education in the United States but have not yet acquired U.S. citizenship due to a lengthy waiting period, and (2) students born outside the United States whose parents are U.S. citizens (e.g., children of U.S. diplomats) or those who choose to hold a foreign passport along with U.S. permanent residency. These students may assimilate with domestic students in many ways. For instance, children born outside the United States who later migrated with their parents and received all their education domestically might be indistinguishable from students born as U.S. citizens. In contrast, F-1 visa holders come to the United States solely for educational purposes and have received most of their prior education abroad.

Earlier studies using other data sources find it difficult to applying my definition of foreign students, as their data contain very few student-visa holders. At the university under study, however, 86% of foreign students hold an F-1 visa, which allows me to define a cleaner treatment while still maintaining the size of the treatment. In the rest of this paper, I exclude students who are not U.S. citizens and are on another type of visa or residency status.

2.2.4 Sample for Analyses

The analytical sample consists of domestic first-year students residing in two university-operated residence communities who did not indicate any preferred roommates in their initial housing applications. The sample includes five cohorts entering between 2014 and 2018, for whom I track all university records until graduation or departure for other reasons. The selected sample comprises 8,239 domestic housing residents across the 2014–2018 cohorts.

Table 1 summarizes the mean and standard deviation of various demographic and test score variables for students at the university. Columns 1 and 2 present these statistics for all

students (both on-campus and off-campus) by nationality, while Column 3 focuses solely on domestic students residing in the dormitories. Column 4 provides statistics for foreign students who are assigned to rooms with domestic students, excluding those assigned exclusively to other foreign students. Overall, 55.0% of the students in these cohorts are female; however, only 45.3% of foreign students are female, and this proportion decreases to 40.9% within the foreign roommates sample in Column 4. Asians are overrepresented among the international student population, as indicated by Columns 2 and 4. Foreign students exhibit higher academic achievement, as evidenced by both SAT total scores and math scores. Regarding STEM major choices at admission, international students are initially less likely to choose a STEM major. However, since U.S. postgraduate medical schools typically require students to complete specific undergraduate courses and majors (so-called pre-med), many domestic students select health-related STEM majors to fulfill these prerequisites. In contrast, very few international students pursue this path, potentially due to the highly competitive nature of U.S. medical school admissions. When pre-med majors are excluded, international students are actually more likely to choose STEM majors than domestic students.

[Table 1 about here.]

Table 2 provides descriptive statistics for academic outcomes and major choices for domestic students and their foreign roommates in university-operated housing during their first year. The sample includes 8,239 domestic students and 836 foreign roommates, spanning five cohorts from 2014 to 2018. The first row reports the average first-year GPA. Domestic students attain an average GPA of 3.067, while their foreign roommates perform slightly better, with an average GPA of 3.157. Graduation rates, shown in the second row, are comparable between the two groups, with domestic students graduating at a slightly higher rate (85.7%) compared to foreign roommates (84.4%). The time to degree, measured in terms of academic quarters, is also longer for foreign roommates (11.52 quarters) compared to domestic students (12.04 quarters). While 44.1% of domestic students pursue STEM degrees,

a slightly higher proportion of foreign roommates (46.2%) choose STEM fields. When pre-med majors are excluded, the gap widens, with 26.1% of domestic students selecting STEM degrees compared to 39.8% of foreign students. Social science degrees are also more common among foreign students (39.8%) than domestic students (34.9%).

[Table 2 about here.]

3 Empirical Strategy

3.1 Estimation

To identify the causal effect of foreign roommates on student academic outcomes, this paper exploits quasi-random variation in the assignment of freshman dormitories. Unlike an ideal experiment where exposure to foreign roommates is randomized and orthogonal to other student characteristics, the housing assignments still account for students' housing preferences and gender [2]. To account for potential bias due to unobserved characteristics related to these revealed housing preferences and utilizes the random variation from the housing assignments, I use the following estimation equation:

$$Y_{irt} = \beta_0 + \beta_1 ForeignRoommate_{rt} + \delta Pref_{irt} + \gamma Cov_{irt} + \lambda_t + \epsilon_{irt} \tag{1}$$

In this equation, Y_{irt} represents the outcome variable for student i in room r within cohort t. The key independent variable, $ForeignRoommate_{rt}$, is a binary indicator equal to 1 if the student is assigned to a room with one or more foreign roommates. The vector $Pref_{irt}$ includes students' preferences over room types (single, double, or triple), specific communities, three theme choices (included as dummy variables), and the interactions of room type preferences and theme preferences with the perceived importance of these factors. The vector Cov_{irt} includes other covariates used in the balance checks in Tables 3 and 4. For

[2]The university started offering gender-neutral rooms as an option in 2019. In my sample period, all dorm assignments are seperately for each gender.

high school GPA, I include all five bins of students' high school GPA ranges (1–3.5, 3.5–3.8, 3.8–4, 4–4.2, 4.2–5[3]) to allow for greater flexibility in the functional form. The term λ_t controls for cohort fixed effects to account for any time-invariant differences across cohorts. The error term ϵ_{irt} captures the idiosyncratic error. The coefficient of interest, β_1, indicates the impact of being assigned foreign roommates on the outcomes of interest.

3.2 Effects by gender

There is a persistent gender gap in major choices and graduation rates among college students, with female students being less likely than their male counterparts to choose and complete a STEM major. The literature has documented several factors contributing to women's decisions not to pursue or to drop out of STEM majors, including class composition (Fischer, 2017), gender match between teachers and students (Carrell et al., 2010; Hoffmann and Oreopoulos, 2009), and differential responsiveness to grades (Ost, 2010; Rask and Tiefenthaler, 2008). Given that international students differ from domestic students in various ways, it is plausible to expect that their influence on major choices and academic outcomes may vary by gender.

To capture potential gender differences in the impact of foreign roommates, I expand equation 1 to allow the core parameter of interest, β_1, to vary by student gender:

$$\begin{aligned} Y_{irt} = \beta_0 + \beta_1 ForeignRoommate_{rt} + \beta_2 ForeignRoommate_{rt} \times Female_{irt} \\ + \delta_1 Pref_{irt} + \delta_2 Pref_{irt} \times Female_{irt} + \gamma Cov_{irt} + \lambda_t + \epsilon_{irt} \end{aligned} \tag{2}$$

Compared to equation 1, equation 2 allows the overall effect of exposure to foreign roommates to vary by gender, with β_1 representing the effect for male students, and $\beta_1 + \beta_2$ indicating the effect for female students. In addition to the set of housing preferences, I

[3]Each student's actual high school GPA is converted to a unique scale used by the university for admission purposes.

interact all the housing preferences in $Pref_{irt}$ with the female dummy to account for the differential role that each preference plays in the housing assignments, which are conducted separately for male and female students.

3.3 Identification Challenges

The literature on peer effects in education often begins by estimating a student's own performance based on the average performance of peers within a group. Several challenges of this methodology have been identified, such as reflection, selection, and the inability to separately identify the effects of peer performance (e.g. test scores) and peer characteristics (e.g. demographics and study habits) (Manski, 1993; Sacerdote, 2011). The first challenge, known as the reflection problem, refers to the reverse causation between a student's performance and that of their peers, making it difficult to identify the causal effect in one direction. Instead of using the average performance of foreign peers, this paper focuses on the effect of peers' nationality, which is exogenously determined by students' citizenship and visa status at the time of admission and is therefore unlikely to be influenced by peer performance. Similarly, the issue of disentangling peer performance from peer characteristics does not threaten my identification strategy, as I concentrate solely on the effect of peers' exogenous characteristics rather than their performance.

In the remainder of this subsection, I discuss how the quasi-randomization of roommates in my identification strategy overcomes the selection issue. Students with certain ethnic backgrounds or in certain majors may be more exposed to international peers. For example, Chinese American students might find it easier to study with international students from China due to a shared native language. Similarly, students majoring in computer science may have more friends from abroad because international students constitute a large share of many computer science classes.

To account for the endogenous selction into peer groups, existing approaches in the literature can be classified into two categories. The first involves including fixed effects at various

levels—such as school, class, cohort, and teacher—to account for the endogenous selection of student peer composition. For instance, Anelli et al. (2023) include course-by-teacher and course-by-term fixed effects, which control for unobserved factors but leave out idiosyncratic variation within course-teacher pairs. The second category relies on exogenous shocks to peer-group composition, such as the random assignment of roommates (Corno et al., 2022; Foster, 2006; Sacerdote, 2001; Stinebrickner and Stinebrickner, 2006; Zimmerman, 2003) or other forms of peer groups (Booij et al., 2017; Carrell et al., 2009, 2015, 2013).

To account for the endogenous selection into peer groups, my identification strategy exploits the quasi-random assignment of roommates, conditional on all housing preferences indicated by students. Although the university has each student's demographic information—including nationality, race, and academic ability—the housing assignment staff do not link this data to the housing application data during the assignment process. Instead, assignments are made primarily based on the preferences students express regarding room types, residential communities, and thematic options. Additionally, I focus on freshmen who did not indicate preferred roommates, a group that comprises 40% to 50% of housing applicants each year. By excluding students who self-select their roommates, I eliminate potential bias arising from students choosing peers with similar unobserved characteristics. This approach controls for factors that could influence both roommate assignments and academic outcomes. The lack of demographic consideration in the assignment process ensures that, conditional on the observed preferences, the assignment of foreign roommates is independent of unobserved student characteristics. Consequently, this quasi-random variation in roommate nationality allows me to address endogeneity concerns associated with peer group selection. Since students cannot strategically choose their roommates based on unobserved traits, and because the housing assignments are made without linking demographic data to preferences, any remaining variation in exposure to foreign roommates is effectively random. By exploiting this randomization within preference groups and among students without preferred roommates, I isolate the causal effect of foreign roommates on student academic outcomes. This

methodology ensures that my estimates are not biased by self-selection into peer groups or by unobserved factors correlated with both roommate assignment and academic performance, allowing me to attribute differences in outcomes to the influence of foreign roommates rather than to pre-existing differences among students.

3.4 Quasi-Randomization

To benchmark the identification tool my roommate assignment algorithm creates against those expected under a perfect random matching setting, I conduct a series of balance tests. Technically, even students do not list any preferred roommates, they are more likely to be assigned to foreign roommates if they share more common preferences with international students. These preferences can be associated with student background characteristics, which weakens my identification. However, with a comprehensive set of housing application data, I am able to control for all preferences options students choose in their application.

[Table 3 about here.]

Tables 3 and 4 present descriptive statistics of demographic and test score variables for male and female students, respectively, comparing students assigned to all domestic roommates versus those with at least one foreign roommate. In each table, columns 1 to 3 report the means and standard deviations for various covariates: the full sample of students (column 1), students assigned to domestic roommates (column 2), and those assigned to foreign roommates (column 3). Columns 4 through 6 show the differences between students with domestic versus foreign roommates, where column 4 reports the raw difference in means, and columns 5 and 6 include controls for room preferences and fixed effects.

For both male and female students, the overall balance of characteristics is strong across most covariates, indicating no significant selection bias in roommate assignments. The racial composition is balanced for Black, Hispanic, and students from California in both roommate settings. However, Table 4 shows a notable difference for female students assigned to foreign

roommates: the share of Asian students is 6.8% higher (significant at the 5% level) compared to those with domestic-only roommates. This difference diminishes when controlling for preferences and fixed effects (column 6), suggesting that the imbalance is driven in part by differences in theme preferences. This finding aligns with the fact that 91.3% of international students in my sample are Asian, primarily from countries such as China, South Korea, and Japan.

In terms of academic background, high school GPA and SAT percentiles are similarly balanced across the groups. The same is true for students who attended private high schools, those from low-income households, and those admitted to a STEM major. These balanced characteristics support the validity of the quasi-random assignment approach, suggesting that, despite some minor imbalances, the assignment process can be considered as good as random. This provides a credible foundation for estimating the causal impact of being assigned a foreign roommate on various academic and behavioral outcomes.

[Table 4 about here.]

4 Results

4.1 Majors

Table 5 reports the estimated effects of being assigned a foreign roommate on two key outcomes: enrolling in a STEM major[4] after the first year (Panel A) and obtaining a STEM degree (Panel B). In columns 1-3 of both panels, I present the baseline estimates with covariates and fixed effects added by step. The estimated effect of having a foreign roommate on enrolling in a STEM major after the first year is a statistically insignificant increase of 1.3 percentage points for male students (column 3). The results for STEM degree attainment in Panel B similarly show a small, statistically insignificant increase of 0.8 percentage points.

[4]Appendix Table B.1 summarizes a list of majors I classify as STEM. Similarly, a list of non-STEM majors can be found in Appendix Table B.1.

The results altogether suggest no significant effect of foreign roommates on either STEM enrollment or degree attainment for domestic students.

In columns 4-6 of both panels, I extend the analysis by estimating equation 2, which introduces an interaction term between foreign roommate dummy and a dummy for female. Therefore, the estimated coefficient for $ForeignRoommates$ alone should now be interpreted as the estimated effect for male students, while the coefficient for the interaction term should be interpreted as the gap between female and male students. For male students, the estimates are statistically significant. In Panel A (STEM enrollment after the first year), the effect of having a foreign roommate on the likelihood of choosing a STEM major after the first year 3.5 percentage points (7.0% of one standard deviation) in column 5 and statistically significant at the 5% level. Similarly, the effect on obtaining a STEM degree (Panel B) becomes significant, showing an increase of 3.5 percentage points (7.0%) in column 5. These results suggest that foreign roommates have a positive effect on male students' likelihood of choosing a STEM major in or graduating with a STEM degree.

For female students, the interaction term captures the difference in the effect of foreign roommates relative to male students. The interaction coefficient is negative and statistically significant, suggesting that the overall effect for female students differs from that for male students, showing evidence of systematic difference in interaction with foreign roommates between male and female students. To estimate the total effect for female students, I sum the main effect for males and the interaction term. For example, in column 5 of Panel A, while the effect for male students is an increase of 3.6 percentage points, the interaction term for females is -5.0 percentage points. However, the sum of these two effects for female students is not statistically significant ($p = 0.346$). A similar pattern is observed for STEM degree attainment in Panel B. The effect for males is an increase of 3.5 percentage points (column 5), while the interaction term for females is -6.9 percentage points. Again, the total effect for female students is not statistically significant.

As students sharing more common preferences with foreign students also get a higher

chance of living with foreign roommates, it is possible that the estimated effects in columns 1 - 2 and 4 - 5 are driven by certain communities, room types and themes (i.e., if foreign students are concentrated in certain rooms). To account for this, I include a series of actual room type and community controls in columns 3 and 6. Compared to columns 2 and 5, the estimated coefficients are robust to this change, indicating that the effect on STEM major choices and degree is not through specific room characteristics.

As a summary, findings in Table 5 reveal a significant gender difference in the impact of foreign roommates on STEM outcomes. While male students experience a higher likelihood of choosing and graduating STEM from exposure to foreign roommates, there is no evidence suggesting that female students are affected the same way, This gendered dynamic suggests that the presence of foreign roommates may exacerbate the existing gender gap in STEM major choices. These results highlight the importance of considering peer effects not only in the aggregate but also in terms of how they may differentially influence male and female students. My evidence suggests that the influx of international students and their presence as roommates potentially widening the already persistent gender disparities in STEM education for domestic college students in the U.S..

[Table 5 about here.]

4.1.1 Major effect by baseline STEM

In the previous section, evidence suggests a positive effect of foreign roommates on male students' likelihood of choosing and graduating from a STEM major. To further investigate the nature of this STEM-promoting effect, I examine whether it is primarily driven by retaining students already in STEM or by attracting non-STEM or undeclared students to switch into STEM. To do this, I estimate equation 2 separately based on whether the student initially applied with a declared STEM major[5].

[5]At this university, students are allowed to apply with an undeclared major status and can remain undeclared until the start of their junior (third) year.

Table 6 summarizes the coefficients from this analysis. The outcome in this table is whether a student is enrolled in a STEM major at the end of their freshman year, similar to panel A of Table 5. Panel A provides suggestive evidence that male students admitted as STEM majors are more likely to remain in STEM by the end of their first year, with an estimated effect of 4.1 percentage points (column 5), representing 14.9% of a standard deviation of the dependent variable. In contrast, panel B shows a much smaller and statistically insignificant effect for students who were not initially admitted as STEM majors. The difference between the estimates in panels A and B suggests that the positive effect for male students observed in Table 5 is primarily driven by those already enrolled in STEM majors.

[Table 6 about here.]

4.2 Academic Performance

One of the motivating factor of this paper is the premise that the influx of foreign students alters the learning environment for domestic students, thereby affecting their educational outcomes such as GPA. Firstly, foreign students change the composition of peer groups. As suggested by the literature on peer effects in dormitory settings (Sacerdote, 2001), students' academic performance can be significantly influenced by the academic performance of their roommates. Secondly, the lack of English proficiency among some foreign students can potentially lower the overall quality of the learning environment (Anelli et al., 2023).

In Table 7, I test whether having foreign roommates significantly affects academic performance by estimating equation 2. To further explore the dynamics of the effects on academic performance, I measure GPA in three period: the first quarter, the first academic year, and the second academic year.

For male students, columns 1 through 3 present the estimated impact on their first-quarter GPA. Results suggest that sharing room with foreign roommates leads to an increase in their first-quarter GPA by approximately 0.06 (8.4% of a standard deviation). The marginally siginificant positive effect turns out not persistent into the following terms, as suggested by

results in columns 4 through 9. For female students, the estimated coefficients (calculated as the sum of the two coefficients) for the first-quarter and first-year GPA for female students are indistinguishable from zero and generally noisy. However, the gender gap in the GPA effects, as suggested by the coefficient of the interaction term, turns out to be persistent over time.

[Table 7 about here.]

To further examine the time profile of the impact of foreign roommates on GPA, Figure 1 plots quarterly estimates of equation 1 separately for male (panel a) and female students (panel b). The black estimates represent the baseline regression results, consistent with Table 7, which indicate little to no lasting impact of foreign roommates on GPA overall. For male students, there is a positive effect in the first quarter, which fades quickly by the second quarter, suggesting any initial GPA boost from foreign roommates is short-lived. The gray estimates include major fixed effects to control for potential GPA differences across majors, given that male students with foreign roommates are more likely to shift into STEM fields. Including these controls does not alter the main finding: there is no significant evidence that foreign roommates affect GPA within majors. This pattern reinforces the conclusion that any observed GPA changes are not driven by shifts in academic focus or major-specific performance.

[Figure 1 about here.]

4.3 Progress towards Graduation

In Table 8, I analyze the effects of having foreign roommates on various outcomes related to students' progress toward graduation. Columns 1-3 present the estimated impact on graduation rate, defined as whether a student graduates with any degree within six years of enrollment. Columns 4-9 examine the time, measured in terms of the number of academic terms, for students to declare a major and to graduate with a degree.

As shown in Table 8, exposure to foreign roommates has little to no impact on the six-year graduation rate. The estimated coefficient for male students is 0.028, but it is not statistically significant. For female students, the effect is a small, insignificant -0.004. Columns 4-6 show no evidence of a causal relationship between foreign roommates and the timing of major declaration for male students. In contrast, female students with foreign roommates are found to take 0.23 more terms (10.9% of one standard deviation) to declare a major. Focusing on the time taken to graduate, columns 7-9 provide suggestive evidence that living with foreign roommates shortens the number of terms to graduation by approximately 0.17 terms (13.0% of one standard deviation), a result that is significant at the 5% level. The magnitude remains stable even after controlling for room characteristics in column 6. The estimated coefficient for the interaction term suggests a significant gender gap in the effect, with the overall effect for female students being small and statistically insignificant.

The significant differences in both major declaration time and time to graduate between male and female students suggest that exposure to foreign roommates has differential effects. Compared to male students, female students living with foreign roommates take longer to decide on their major, potentially leading to delays in their time to graduation.

[Table 8 about here.]

5 Discussions

5.1 Robustness Checks

I conduct a series of regressions to assess the robustness of my results on the effects of exposure to foreign roommates on students' STEM choices (Panel A) and time to degree (Panel B). Table 9 presents the outcomes of these checks. The baseline model, shown in column 1, is the same as in my main results, controlling for housing preferences, individual covariates, and cohort fixed effects.

In column 2, I add dummies for each community and room type to account for the actual room students were assigned. The rationale here is that the effects observed in column 1 could be influenced by the specific characteristics of certain communities or room types, particularly if foreign students are concentrated in particular areas. However, the coefficients in column 2 remain largely unchanged from those in column 1. This evidence rules out the possibility that the significant effects are driven by housing environments that are more favorable to foreign students, further supporting the robustness of the observed peer effects.

In column 3, I explore the possibility that the intensity of exposure to foreign roommates—rather than a simple binary treatment—might affect the results. While students living in double rooms would experience this exposure similarly, a substantial portion of students in my sample live in triple or quadruple rooms due to increased first-year enrollment and limited housing availability. In column 3, I replace the binary treatment indicator with a variable representing the proportion of foreign students among all roommates (ranging from 0 to 1). The estimates in column 3 remain consistent with those in columns 1 and 2, suggesting that the main results are robust to this alternative definition of foreign roommate exposure.

Columns 4 and 5 present two additional tests designed to confirm that the observed effects are due to exposure to foreign students rather than other factors, such as specific demographic characteristics or exposure at a broader level. In column 4, I include a dummy variable for having an Asian roommate and its interaction with a female dummy. Given that 95% of international students at this university come from Asian countries (e.g., China, South Korea, Japan, India), it is possible that they share similarities with domestic Asian students in terms of study habits or living preferences. However, the results in column 4 show that the coefficients for Asian roommates are neither comparable in size to those for foreign roommates, nor statistically significant. This suggests that the effects are not driven by students' Asian heritage but rather by their foreign status.

Finally, in column 5, I control for the percentage of foreign students at the building level

to test whether the observed effects are due to room-level exposure rather than interactions occurring elsewhere, such as in common areas or dining halls. The results remain virtually unchanged, indicating that the effects on STEM major choice and time to degree are driven by interactions within dormitory rooms rather than broader communal settings.

[Table 9 about here.]

5.2 Mechanisms

This section examines possible mechanisms underlying the observed effects of foreign roommates on male students' likelihood of graduating with a STEM degree and their reduced time to degree. Additionally, it considers why these effects vary by gender.

One possible explanation is that female students are less likely to benefit from the presence of higher-ability peers, potentially negating any positive spillover effects that foreign students might create. Another possibility is that female students, on average, may experience less positive roommate relationships with foreign students compared to their male counterparts.

The hypothesis that female students might shy away from STEM majors is supported by literature examining the gender gap in response to competition, both in experimental settings (Garratt et al., 2013; Niederle and Vesterlund, 2007) and educational environments (Fischer, 2017). When faced with higher-ability peers, women are more likely than men to withdraw from competition.

Tables 10 and 11 provide descriptive evidence on differences in the characteristics of roommates for male and female students, respectively. In both tables, I compare average measures of key characteristics, including SAT scores and STEM major enrollment at admission, for rooms with and without foreign students. Both tables show that rooms with foreign students have significantly higher average SAT math scores compared to rooms with only domestic students. For female students, the gap in average SAT math score between rooms with and without foreign students is approximately 16 percentile points (about one standard deviation). Although female foreign students are less likely to be admitted as STEM

majors, when pre-med majors are excluded, rooms with female foreign students show a 5-6 percentage point higher proportion of STEM majors at admission.

The higher average SAT math scores for female students living with foreign roommates suggest that these female domestic students are sharing rooms with higher-achieving peers. This may alter their beliefs about their likelihood of success in STEM majors or increase their perception of the competitiveness in these fields. Both factors could lead to a higher likelihood of switching out of STEM majors. In contrast, foreign roommates assigned to male domestic students do not show as large a gap in academic ability, and thus, the displacement effect on STEM enrollment is less pronounced for males.

[Table 10 about here.]

[Table 11 about here.]

Furthermore, the quality of the roommate relationship may play an important role in the peer effects observed. If domestic students rarely interact with their foreign roommates, it is unlikely that significant peer effects would emerge. While a complete understanding of this relationship requires comprehensive survey data on social interactions, attitudes, and beliefs, I can infer some aspects of the relationship by examining housing application behavior for the following academic year.

Most students move off-campus after their first year, with 9.5% of male students and 14.8% of female students in my sample applying for on-campus housing for their second year[6]. I define three outcome variables: (1) whether students applied for second-year housing, (2) if they applied, whether they selected their first-year roommates as preferred roommates, and (3) a version of (2) that is not conditional on applying. As shown in Table 12, being assigned a foreign roommate during the first year does not affect the housing application behavior of male students. However, female students assigned foreign roommates are significantly less likely to select their first-year roommates for their second-year housing application.

[6]This is partially due to the university's limited dormitory spaces and its policy of guaranteeing housing only for first-year students.

Specifically, column 2 shows that female students are 11.7 percentage points less likely to select their current roommates if they had a foreign roommate in their first year. Column 3 indicates that this negative effect persists even when not conditioning on the application for second-year housing. The results in Table 12 suggest that female students do not form as strong of a bond with their foreign roommates, as indicated by their housing application choices and their selection of preferred roommates for the following year. When combined with the earlier findings on the negative effects of foreign roommates on female students' GPA and likelihood of remaining in STEM, it is plausible that these negative academic outcomes are partly driven by unsatisfactory roommate relationships.

[Table 12 about here.]

5.3 Pre-College Diversity

Prior studies have highlighted heterogeneous treatment effects of exposure to diverse peer groups, which often depend on individuals' pre-existing beliefs or experiences with different races or ethnicities (Boisjoly et al., 2006). Given that prior beliefs are likely shaped by past interactions with diverse groups, it is valuable to explore whether exposure to foreign-born populations before college influences interactions with foreign roommates in college.

Table 13 presents an analysis focused on male students, examining the role of prior exposure to foreign-born peers based on ZIP code-level data for students' home addresses. I measure this exposure using two indicators: (1) the share of the foreign-born population within each student's ZIP Code Tabulation Area (ZCTA), constructed using 2013 American Community Survey data, and (2) the share of English Language Learners (ELL) within each student's school district, derived from National Center for Education Statistics (NCES) data and translated to ZIP level using geographic relationship files. I use the ELL share as a proxy for the share of international students, as NCES data do not provide explicit counts of international students in primary or secondary public schools.

Column 1 replicates the primary result from Table 5 for comparison. Columns 2 and 3 introduce interaction terms between the foreign roommate treatment and indicators for students from areas with a lower share of foreign-born residents (below the 28% sample median) and a low proportion of ELL students (below the 23% sample median), respectively. Both interaction terms yield negative coefficients, while the main effect of having a foreign roommate remains positive and larger in magnitude. This pattern suggests that the estimated effect of foreign roommates is more pronounced for students from areas with higher concentrations of foreign-born individuals or ELL students. While the interaction terms themselves are not statistically significant, the F-statistics for the sum of the main effect and interaction term indicate that the overall effect of foreign roommates is not statistically different from zero for students from areas with lower foreign-born or ELL representation. This finding implies that prior exposure to foreign-born populations may exacerbate the influence of foreign roommates on students' STEM major choices.

Overall, the findings in Table 13 suggest that diversity in nationality within a student's ZIP code area influences the heterogeneous treatment effect of exposure to foreign roommates on domestic students' STEM major choices. This effect may operate through channels such as shifts in beliefs or social behaviors in response to prior exposure to diverse peer groups.

[Table 13 about here.]

6 Conclusion

This study sheds light on the causal impact of foreign roommates on the academic trajectories of domestic students in higher education. Utilizing the quasi-random assignment of roommates at a large U.S. public university, I find that male domestic students assigned to live with foreign roommates are significantly more likely to pursue and graduate with a STEM degree. This positive effect is concentrated among those who initially declared a STEM major, suggesting that foreign roommates reinforce existing interests rather than at-

tract new entrants into STEM fields. In contrast, female students do not experience a similar boost, highlighting a gender disparity in how foreign peers influence academic choices. Additional analysis reveals that male students from areas with higher proportions of foreign-born residents exhibit a larger response to foreign roommates, suggesting that prior exposure to diverse populations may condition students' receptivity to peer influences in college. Combined with the minimal impact found on GPA and overall graduation rates, my results suggest that the influence of foreign roommates is more pronounced in shaping academic interests rather than affecting overall academic performance. The reduction in time to graduation for male students further implies that foreign roommates may contribute to increased efficiency in academic progress, possibly through shared study habits or motivational factors.

These findings contribute to the literature on peer effects and diversity in education by illustrating that the presence of international students can have nuanced effects on domestic students' academic outcomes. The positive influence on male students underscores the potential benefits of a diverse residential environment in promoting persistence in critical fields like STEM. However, the absence of a similar effect for female students indicates that these benefits are not uniformly distributed, potentially exacerbating existing gender gaps in STEM education.

I design a series of surveys to measure students' experiences, beliefs, and attitudes toward interacting with a diverse peer group. As a first step, the pilot survey targets incoming domestic students residing in on-campus housing and was conducted between September 23 and 30, 2024. The survey focuses on newly admitted U.S. citizens who had not selected preferred roommates, ensuring consistency with the study's quasi-random assignment framework. Details of the pilot survey are provided in Appendix C. Of the 498 students randomly invited to participate, 229 completed the survey, yielding a decent response rate of 45.98%. The pilot survey, along with future baseline and follow-up surveys, collects detailed information on students' backgrounds, prior experiences with diversity, and their attitudes toward foreign peers as well as a diverse environment on campus. The demographic profile of the

respondents closely resembles that of the eligible student population, suggesting the sample is representative. The upcoming rounds of surveys, conducted after the pilot, will allow for a comparison of students' baseline attitudes with their post-experience measures at the end of the first year. This comparison aims to identify the factors that mediate the influence of foreign roommates on various outcomes. These findings will provide preliminary insights into how exposure to foreign roommates affects students' broader experiences, laying the groundwork for future research into the underlying mechanisms.

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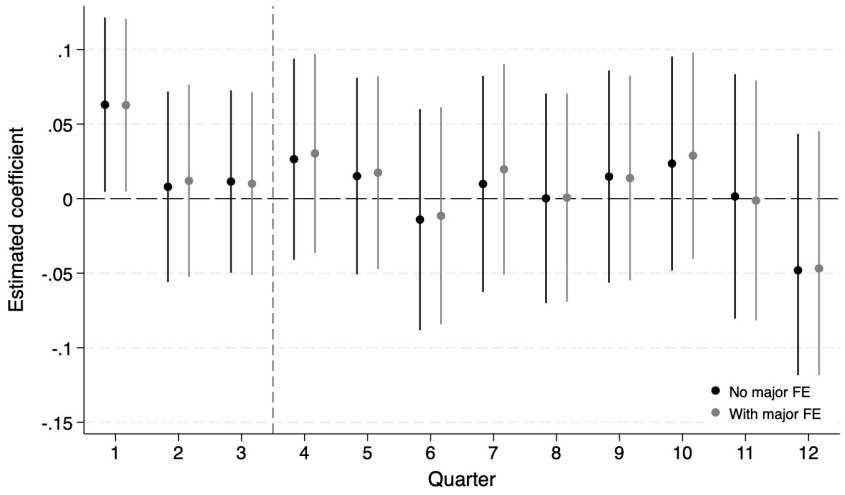
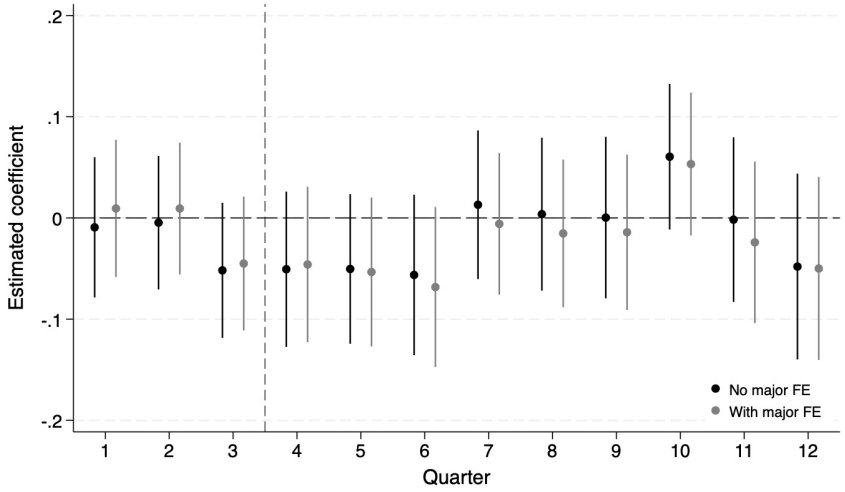


(a) Male students



(b) Female students

Figure 1: Effect of Foreign Roommates on GPA by Gender

Notes: Please refer to Table 5 for details about sample sizes. Black markers represent the baseline estimates without major fixed effects. Gray markers include major fixed effects to control for GPA differences across fields of study. Dots and solid line segments reflect the point estimates and 95% onficence intervals. Dashed line indicates the treatment period (freshman year) during which students live with their foreign roommates.

Table 1: Sample Descriptive Statistics

	All Students		Housing Sample	
	(1) Domestic Students	(2) Foreign Students	(3) Domestic Students	(4) Foreign Roommates
Female	0.550	0.453	0.523	0.409
	(0.498)	(0.498)	(0.500)	(0.492)
Age	17.860	18.353	17.862	18.196
	(0.443)	(0.805)	(0.436)	(0.709)
Asian	0.432	0.944	0.369	0.919
	(0.495)	(0.230)	(0.483)	(0.274)
Black	0.032	0.001	0.032	0.001
	(0.176)	(0.027)	(0.176)	(0.035)
Hispanic	0.335	0.003	0.366	0.006
	(0.472)	(0.053)	(0.482)	(0.077)
SAT Total	83.137	87.774	82.805	88.158
	(14.512)	(9.284)	(14.817)	(9.021)
SAT Math	81.836	95.837	81.397	95.868
	(16.603)	(5.816)	(16.974)	(6.300)
STEM at admission	0.529	0.373	0.515	0.416
	(0.499)	(0.484)	(0.500)	(0.493)
STEM at admission (excluding Pre-Med)	0.251	0.311	0.271	0.336
	(0.434)	(0.463)	(0.445)	(0.473)
Observations	22318	5318	8239	836

Notes: Column 1 reports descriptive statistics for all domestic students (with U.S. citizenship) across five cohorts (2014-2018). Column 2 reports the same statistics for all international students (defined as holding a foreign passport with a student visa). Columns 3 and 4 restrict to the housing residents without listed preferred roommates, and report the statistics for domestic students and their assigned foreign roommates, respectively.

Table 2: Sample Descriptive Statistics for Housing Residents

	(1) Domestic Students	(2) Foreign Roommates
First-year GPA	3.067	3.157
	(0.557)	(0.587)
Graduation	0.857	0.844
	(0.350)	(0.363)
Time to degree	12.040	11.516
	(1.318)	(1.501)
STEM degree	0.441	0.462
	(0.497)	(0.499)
STEM degree (no Premed)	0.261	0.398
	(0.439)	(0.490)
Social science degree	0.349	0.398
	(0.477)	(0.490)
Observations	8239	836

Notes: Column 1 reports descriptive statistics for domestic residents in the housing sample (with U.S. citizenship) across five cohorts (2014-2018). Column 2 reports the same statistics for all foreign roommates (defined as holding a foreign passport with a student visa) assigned to domestic students. All GPA and time to degree measures are conditional on remaining in the sample until certain points.

Table 3: Descriptive Statistics for Male Students

	Full sample	Domestic only	Foreign roommates	Difference		
	(1) Mean (S.D.)	(2) Mean (S.D.)	(3) Mean (S.D.)	(4)	(5)	(6)
Black	0.026 (0.160)	0.026 (0.159)	0.028 (0.164)	0.001	0.002	0.002
				(0.008)	(0.008)	(0.008)
Asian	0.396 (0.489)	0.394 (0.489)	0.409 (0.492)	0.015	0.018	0.026
				(0.024)	(0.024)	(0.024)
Hispanic	0.314 (0.464)	0.319 (0.466)	0.283 (0.451)	-0.036	-0.035	-0.031
				(0.022)	(0.022)	(0.021)
From CA	0.959 (0.198)	0.961 (0.195)	0.951 (0.216)	-0.010	-0.011	-0.007
				(0.010)	(0.010)	(0.010)
SAT Total	85.980 (13.252)	85.915 (13.303)	86.418 (12.908)	0.504	0.403	0.831
				(0.629)	(0.633)	(0.570)
HS GPA	3.985 (0.252)	3.986 (0.252)	3.979 (0.252)	-0.006	-0.007	0.002
				(0.012)	(0.012)	(0.012)
Private HS	0.091 (0.287)	0.091 (0.288)	0.088 (0.284)	-0.003	-0.002	-0.010
				(0.013)	(0.013)	(0.014)
STEM at admission	0.585 (0.493)	0.588 (0.492)	0.566 (0.496)	-0.022	-0.028	-0.009
				(0.025)	(0.025)	(0.020)
Room Pref.						X
Cohort FE					X	X
Observations	3930	3421	509			

Notes: The sample includes 3,930 male domestic students from five undergraduate cohorts (2014-2018). Room and theme preferences include a dummy for each preference (room type, themes, etc) students indicate when filling out their housing application as well as their interactions with a dummy variable indicating whether students think the preference is important. Please refer to Appendix A1 for detailed housing options. Columns 5 and 6 report the estimated difference between students with and without foreign roommates. Robust standard errors are clustered at room level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 4: Descriptive Statistics for Female Students

	Full sample	Domestic only	Foreign roommates	Difference		
	(1) Mean (S.D.)	(2) Mean (S.D.)	(3) Mean (S.D.)	(4)	(5)	(6)
Black	0.038 (0.190)	0.038 (0.191)	0.036 (0.186)	-0.002	-0.003	-0.002
				(0.010)	(0.010)	(0.011)
Asian	0.344 (0.475)	0.338 (0.473)	0.407 (0.492)	0.068*	0.074**	0.036
				(0.027)	(0.027)	(0.027)
Hispanic	0.413 (0.492)	0.417 (0.493)	0.376 (0.485)	-0.040	-0.044	-0.009
				(0.027)	(0.027)	(0.025)
From CA	0.959 (0.199)	0.959 (0.199)	0.959 (0.199)	0.000	0.001	0.003
				(0.012)	(0.012)	(0.012)
SAT Total	79.909 (15.559)	79.857 (15.649)	80.473 (14.558)	0.615	0.767	0.039
				(0.828)	(0.838)	(0.780)
HS GPA	4.006 (0.243)	4.006 (0.244)	4.009 (0.234)	0.003	0.004	0.007
				(0.013)	(0.013)	(0.013)
Private HS	0.090 (0.286)	0.091 (0.288)	0.074 (0.262)	-0.017	-0.018	-0.017
				(0.015)	(0.015)	(0.015)
STEM at admission	0.451 (0.498)	0.454 (0.498)	0.418 (0.494)	-0.037	-0.040	-0.002
				(0.028)	(0.028)	(0.023)
Room Pref.						X
Cohort FE					X	X
Observations	4309	3945	364			

Notes: The sample includes 4,309 female domestic students from five undergraduate cohorts (2014-2018). Room and theme preferences include a dummy for each preference (room type, themes, etc) students indicate when filling out their housing application as well as their interactions with a dummy variable indicating whether students think the preference is important. Please refer to Appendix A1 for detailed housing options. Columns 5 and 6 report the estimated difference between students with and without foreign roommates. Robust standard errors are clustered at room level. *** p<0.01, ** p<0.05, * p<0.1.

Table 5: Impact of Foreign Roommates on STEM Majors

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: STEM after the first year						
Foreign roommates	0.013	0.013	0.013	0.035*	0.035**	0.034**
	(0.015)	(0.011)	(0.011)	(0.021)	(0.015)	(0.015)
Foreign RM * female				-0.051*	-0.051**	-0.050**
				(0.031)	(0.023)	(0.023)
Prob>F: Female				0.470	0.346	0.362
Dependent Mean	0.487	0.487	0.487	0.487	0.487	0.487
Dependent SD	0.500	0.500	0.500	0.500	0.500	0.500
R-squared	0.348	0.668	0.671	0.348	0.669	0.671
Observations	8239	8239	8239	8239	8239	8239
Panel B: STEM degree						
Foreign roommates	0.010	0.006	0.007	0.041*	0.035*	0.037*
	(0.016)	(0.015)	(0.015)	(0.022)	(0.021)	(0.021)
Foreign RM * female				-0.071**	-0.069**	-0.070**
				(0.032)	(0.030)	(0.029)
Cohort FE	X	X	X	X	X	X
Housing Preferences	X	X	X	X	X	X
Individual Controls		X	X		X	X
Room controls			X			X
Prob>F: Female				0.197	0.108	0.120
Dependent Mean	0.441	0.441	0.441	0.441	0.441	0.441
Dependent SD	0.497	0.497	0.497	0.497	0.497	0.497
R-squared	0.278	0.392	0.398	0.279	0.393	0.399
Observations	8239	8239	8239	8239	8239	8239

Notes: The sample includes 8,239 first-year undergraduate housing residents from 5 consecutive cohorts, 2014-2018. Among them, 4,309 are female and 3,930 are male. *Foreign roommates* is equal to one if a student is assigned any foreign roommates (otherwise zero). Room and theme preferences include a dummy for each preference (room type and themes) students indicate when filling out their housing application (details in Appendix A1). Individual controls include covariates shown in Tables 3 and 4. High school GPA is converted as a dummy for each range (in UC scale; 1-3.5, 3.5-3.8, 3.8-4, 4-4.2, 4.2-5). Robust standard errors are clustered at room-cohort level. *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Impact of Foreign Roommates on STEM Majors

	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: STEM at admission (Dependent var: STEM after 1st year)						
Foreign roommates	0.019	0.013	0.011	0.045**	0.041**	0.039**
	(0.017)	(0.017)	(0.017)	(0.019)	(0.018)	(0.019)
Foreign RM * female				-0.077*	-0.081**	-0.080**
				(0.040)	(0.038)	(0.039)
Prob>F: Female				0.356	0.235	0.231
Dependent Mean	0.867	0.867	0.867	0.867	0.867	0.867
Dependent SD	0.339	0.339	0.339	0.339	0.339	0.339
R-squared	0.127	0.175	0.188	0.128	0.176	0.189
Observations	4231	4231	4231	4231	4231	4231
Panel B: Non-STEM at admission (Dependent var: STEM after 1st year)						
Foreign roommates	0.011	0.008	0.011	0.027	0.021	0.024
	(0.016)	(0.015)	(0.015)	(0.026)	(0.026)	(0.026)
Foreign RM * female				-0.031	-0.026	-0.026
				(0.031)	(0.031)	(0.030)
Cohort FE	X	X	X	X	X	X
Housing Preferences	X	X	X	X	X	X
Individual Controls		X	X		X	X
Room controls			X			X
Prob>F: Female				0.796	0.754	0.928
Dependent Mean	0.083	0.083	0.083	0.083	0.083	0.083
Dependent SD	0.276	0.276	0.276	0.276	0.276	0.276
R-squared	0.215	0.248	0.265	0.216	0.248	0.265
Observations	3987	3987	3987	3987	3987	3987

Notes: Please refer to Table 5 for details about sample sizes. *Foreign roommates* is equal to one if a student is assigned any foreign roommates (otherwise zero). Room and theme preferences include a dummy for each preference (room type and themes) students indicate when filling out their housing application (details in Appendix A1). Individual controls include covariates shown in Tables 3 and 4. High school GPA is converted as a dummy for each range (in UC scale; 1-3.5, 3.5-3.8, 3.8-4, 4-4.2, 4.2-5). Robust standard errors are clustered at room-cohort level. *** p<0.01, ** p<0.05, * p<0.1.

Table 7: Impact of Foreign Roommates on GPA

	First quarter			First year			Second year		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Foreign roommates	0.083**	0.056*	0.057*	0.036	0.012	0.012	0.005	-0.012	-0.010
	(0.033)	(0.030)	(0.031)	(0.028)	(0.025)	(0.026)	(0.029)	(0.028)	(0.028)
Foreign RM * female	-0.091*	-0.078*	-0.083*	-0.058	-0.044	-0.050	-0.061	-0.048	-0.051
	(0.051)	(0.047)	(0.047)	(0.040)	(0.036)	(0.036)	(0.043)	(0.040)	(0.040)
Cohort FE	X	X	X	X	X	X	X	X	X
Housing Preferences	X	X	X	X	X	X	X	X	X
Individual Controls		X	X		X	X		X	X
Room controls			X			X			X
Prob>F: Female	0.828	0.551	0.474	0.450	0.207	0.146	0.074	0.042	0.039
Dependent Mean	3.052	3.052	3.052	3.067	3.067	3.067	3.111	3.111	3.111
Dependent SD	0.714	0.714	0.714	0.557	0.557	0.557	0.574	0.574	0.574
R-squared	0.137	0.305	0.312	0.145	0.337	0.342	0.155	0.264	0.272
Observations	8230	8230	8230	8213	8213	8213	7757	7757	7757

Notes: Please refer to Table 5 for details about sample sizes. *Foreign roommates* is equal to one if a student is assigned any foreign roommates (otherwise zero). Room and theme preferences include a dummy for each preference (room type and themes) students indicate when filling out their housing application (details in Appendix A1). Individual controls include covariates shown in Tables 3 and 4. High school GPA is converted as a dummy for each range (in UC scale; 1-3.5, 3.5-3.8, 3.8-4, 4-4.2, 4.2-5). Robust standard errors are clustered at room-cohort level. *** p<0.01, ** p<0.05, * p<0.1.

Table 8: Impact of Foreign Roommates on Graduation

	Graduation			Time to declare			Time to degree		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Foreign roommates	0.028	0.024	0.023	-0.036	-0.042	-0.069	-0.187**	-0.170**	-0.157**
	(0.018)	(0.017)	(0.017)	(0.098)	(0.080)	(0.081)	(0.076)	(0.075)	(0.076)
Foreign RM * female	-0.032	-0.032	-0.032	0.276*	0.275**	0.281**	0.218**	0.203**	0.195*
	(0.026)	(0.025)	(0.025)	(0.156)	(0.134)	(0.133)	(0.101)	(0.100)	(0.100)
Cohort FE	X	X	X	X	X	X	X	X	X
Housing Preferences	X	X	X	X	X	X	X	X	X
Individual Controls		X	X		X	X		X	X
Room controls			X			X			X
Prob>F: Female	0.850	0.676	0.631	0.047	0.030	0.047	0.644	0.622	0.567
Dependent Mean	0.857	0.857	0.857	1.204	1.204	1.204	12.041	12.041	12.041
Dependent SD	0.350	0.350	0.350	2.133	2.133	2.133	1.318	1.318	1.318
R-squared	0.077	0.112	0.122	0.186	0.392	0.399	0.110	0.142	0.150
Observations	8239	8239	8239	8239	8239	8239	7056	7056	7056

Notes: Please refer to Table 5 for details about sample sizes. *Foreign roommates* is equal to one if a student is assigned any foreign roommates (otherwise zero). *Graduation* is defined as a dummy variable equal to 1 if a student graduate within 6 years of matriculation, and 0 otherwise. *Time to declare* refers to the number of terms (quarters) it takes for students to determine a major of specilization (0 if choosing a major at matriculation). *Time to degree* measures the total number of enrolled terms before a degree is awarded. Room and theme preferences include a dummy for each preference (room type and themes) students indicate when filling out their housing application (details in Appendix A1). Individual controls include covariates shown in Tables 3 and 4. High school GPA is converted as a dummy for each range (in UC scale; 1-3.5, 3.5-3.8, 3.8-4, 4-4.2, 4.2-5). Robust standard errors are clustered at room-cohort level. *** p<0.01, ** p<0.05, * p<0.1.

Table 9: Robustness Checks

	(1) Baseline	(2) Room controls	(3) % Foreign RM	(4) Asian RM	(5) % Foreign RM in building
Panel A: STEM first year					
Foreign roommates	0.036**	0.034**		0.038**	0.036**
	(0.015)	(0.015)		(0.015)	(0.015)
Foreign RM * female	-0.052**	-0.050**		-0.057**	-0.050**
	(0.023)	(0.023)		(0.023)	(0.023)
% of foreign roommates			0.035**		
			(0.017)		
% foreign * female			-0.053**		
			(0.025)		
Asian Roommate				0.007	
				(0.011)	
Asian RM * female				-0.015	
				(0.014)	
% of foreign students in the building					-0.019
					(0.115)
% building foreign * female					-0.160
					(0.160)
Dependent Mean	0.487	0.487	0.487	0.487	0.487
Dependent SD	0.500	0.500	0.500	0.500	0.500
R-squared	0.668	0.670	0.668	0.668	0.668
Observations	8239	8239	8239	8239	8239
Panel B: Time to degree					
Foreign roommates	-0.171**	-0.158**		-0.174**	-0.170**
	(0.075)	(0.076)		(0.077)	(0.075)
Foreign RM * female	0.204**	0.196*		0.202**	0.207**
	(0.100)	(0.100)		(0.102)	(0.099)
% of foreign roommates			-0.204**		
			(0.087)		
% foreign * female			0.227**		
			(0.114)		
Asian Roommate				-0.007	
				(0.049)	
Asian RM * female				-0.006	
				(0.066)	
% of foreign students in the building					-0.123
					(0.539)
% building foreign * female					-0.331
					(0.728)
Cohort FE	X	X	X	X	X
Housing Preferences	X	X	X	X	X
Individual Controls	X	X	X	X	X
Room controls		X			
Dependent Mean	12.041	12.041	12.041	12.041	12.041
Dependent SD	1.318	1.318	1.318	1.318	1.318
R-squared	0.141	0.149	0.141	0.141	0.141
Observations	7056	7056	7056	7056	7056

Notes: Please refer to Table 5 for details about sample sizes. *Foreign roommates* is equal to one if a student is assigned any foreign roommates (otherwise zero). Room and theme preferences include a dummy for each preference (room type and themes) students indicate when filling out their housing application (details in Appendix A1). Individual controls include covariates shown in Tables 3 and 4. High school GPA is converted as a dummy for each range (in UC scale; 1-3.5, 3.5-3.8, 3.8-4, 4-4.2, 4.2-5). Robust standard errors are clustered at room-cohort level. *** p<0.01, ** p<0.05, * p<0.1.

Table 10: Descriptive Statistics for Male Students: Average Characteristics of Roommates

	Full sample	Domestic only	Foreign roommates	Difference		
	(1) Mean (S.D.)	(2) Mean (S.D.)	(3) Mean (S.D.)	(4)	(5)	(6)
Roommate mean: SAT Total	85.980 (12.129)	85.737 (12.496)	87.620 (9.128)	1.883***	1.841***	1.763***
				(0.497)	(0.473)	(0.490)
Roommate mean: SAT ERW	81.452 (14.223)	82.493 (14.016)	74.443 (13.622)	-8.050***	-8.108***	-8.145***
				(0.689)	(0.672)	(0.691)
Roommate mean: SAT Math	87.356 (12.977)	86.298 (13.300)	94.476 (7.291)	8.177***	8.125***	8.038***
				(0.433)	(0.422)	(0.454)
Roommate mean: STEM at admission	0.569 (0.459)	0.581 (0.458)	0.493 (0.456)	-0.087***	-0.086***	-0.085***
				(0.024)	(0.022)	(0.022)
Roommate mean: STEM excl. Pre-Med	0.402 (0.456)	0.398 (0.457)	0.428 (0.447)	0.029	0.025	0.021
				(0.023)	(0.022)	(0.022)
Room Pref.					X	X
Theme Pref.						X
Cohort FE					X	X
Covariates					X	X
Observations	3930	3421	509			

Notes: The sample includes 3,930 male domestic students from five undergraduate cohorts (2014-2018). All SAT measures are in percentiles (0-100) calculated based on a nationally representative sample. Room and theme preferences include a dummy for each preference (room type, themes, etc) students indicate when filling out their housing application as well as their interactions with a dummy variable indicating whether students think the preference is important. Please refer to Appendix A1 for detailed housing options. Columns 5 and 6 report the estimated difference between students with and without foreign roommates. Robust standard errors are clustered at room level. *** $p<0.01$, ** $p<0.05$, * $p<0.1$.

Table 11: Descriptive Statistics for Female Students: Average Characteristics of Roommates

	Full sample	Domestic only	Foreign roommates	Difference		
	(1) Mean (S.D.)	(2) Mean (S.D.)	(3) Mean (S.D.)	(4)	(5)	(6)
Roommate mean: SAT Total	80.515 (14.332)	79.911 (14.598)	87.060 (8.684)	7.149***	7.022***	6.941***
				(0.542)	(0.543)	(0.577)
Roommate mean: SAT ERW	79.121 (14.742)	79.435 (14.815)	75.716 (13.490)	-3.719***	-3.972***	-3.887***
				(0.784)	(0.786)	(0.805)
Roommate mean: SAT Math	78.493 (16.941)	77.124 (16.905)	93.321 (7.773)	16.197***	16.174***	15.941***
				(0.531)	(0.544)	(0.600)
Roommate mean: STEM at admission	0.450 (0.464)	0.458 (0.465)	0.371 (0.444)	-0.086***	-0.083***	-0.074**
				(0.026)	(0.024)	(0.025)
Roommate mean: STEM excl. Pre-Med	0.153 (0.337)	0.148 (0.332)	0.216 (0.384)	0.068**	0.058**	0.055*
				(0.022)	(0.022)	(0.022)
Room Pref.					X	X
Theme Pref.						X
Cohort FE					X	X
Covariates					X	X
Observations	4309	3945	364			

Notes: The sample includes 4,309 female domestic students from five undergraduate cohorts (2014-2018). All SAT measures are in percentiles (0-100) calculated based on a nationally representative sample. Room and theme preferences include a dummy for each preference (room type, themes, etc) students indicate when filling out their housing application as well as their interactions with a dummy variable indicating whether students think the preference is important. Please refer to Appendix A1 for detailed housing options. Columns 5 and 6 report the estimated difference between students with and without foreign roommates. Robust standard errors are clustered at room level. *** p<0.01, ** p<0.05, * p<0.1.

Table 12: Impact of Foreign Roommates on Housing Application in the Following Academic Year

	(1) Apply second-year housing	(2) Choose current roommate	(3) Apply & choose current roommate
Foreign roommates	0.017	-0.115	-0.001
	(0.015)	(0.072)	(0.005)
Foreign RM * female	-0.037	-0.002	-0.010
	(0.025)	(0.097)	(0.008)
Cohort FE	X	X	X
Housing Preferences	X	X	X
Individual Controls	X	X	X
Prob>F: Female	0.284	0.069	0.099
Dependent Mean	0.123	0.128	0.016
Dependent SD	0.329	0.334	0.124
R-squared	0.103	0.356	0.060
Observations	8239	984	8239

Notes: Please refer to Table 5 for details on sample sizes. *Foreign roommates* is equal to 1 if a student is assigned any foreign roommates (otherwise 0). The room and theme preferences include a dummy for each preference (room type and themes) that students indicate when filling out their housing application. *Applied again* is equal to 1 if the student applied for on-campus housing for the second year, and 0 otherwise. *Current roommates (cond.)* indicates whether the student chose their first-year roommates as preferred roommates in their second-year housing application, conditional on applying. *Current roommates (uncond.)* is 0 for those who did not apply for housing after the first year. Robust standard errors are clustered at the room level. *** p<0.01, ** p<0.05, * p<0.1.

Table 13: Impact of Foreign Roommates on STEM: Male Domestic Students

	(1)	(2)	(3)
Dependent variable: STEM first year			
Foreign roommates	0.033**	0.043**	0.044**
	(0.015)	(0.022)	(0.021)
Foreign roommates * % foreign-born 28%		-0.021	
		(0.029)	
% foreign-born 28%		0.004	
		(0.012)	
Foreign roommates * % English learners 23%			-0.021
			(0.027)
% English learners 23%			0.010
			(0.011)
Prob>F: Interaction		0.253	0.241
Dependent Mean	0.568	0.568	0.568
R-squared	0.635	0.635	0.635
Observations	3930	3930	3930

Notes: Please refer to Table 5 for details on sample sizes. *Foreign roommates* is equal to 1 if a student is assigned any foreign roommates (otherwise 0). The room and theme preferences include a dummy for each preference (room type and themes) that students indicate when filling out their housing application. *Applied again* is equal to 1 if the student applied for on-campus housing for the second year, and 0 otherwise. *Current roommates (cond.)* indicates whether the student chose their first-year roommates as preferred roommates in their second-year housing application, conditional on applying. *Current roommates (uncond.)* is 0 for those who did not apply for housing after the first year. Robust standard errors are clustered at the room level. *** p<0.01, ** p<0.05, * p<0.1.

A Housing Application

A.1 Housing Preference Form

Occupancy Preferences

Community A

(i) Which gender occupancy would you prefer if placed in Community A?

- Single gender, female hall
- Mixed gender hall, with single gender suite and bathroom
- Mixed gender hall, with mixed gender suite and single gender bathroom
- Gender inclusive hall (You may request a roommate of any gender; bathrooms are gender inclusive)

(ii) Which Community A room occupancy type do you prefer?

- Single (limited availability)
- Double
- Triple
- Quad/adjoined double

(iii) Please select three theme preferences within Community A:

1st Choice: _____

2nd Choice: _____

3rd Choice: _____

Community B

(i) Which gender occupancy would you prefer if placed in Community B?

- Single gender suite, single gender bathroom in a mixed gender hall (2-3 level building)
- Single gender room pairs sharing a single gender bathroom on a mixed gender floor (6-level building)
- No preference

(ii) Which Community B room occupancy type do you prefer?

- Single (2-3 level building)
- Double (2-3 level building)
- Triple (2-3 level buildings)
- Tower quad (6 level buildings)

(iii) Please select three theme preferences within Community B:

1st Choice: _____

2nd Choice: _____

3rd Choice: _____

Additional Preferences

(i) Which placement criteria is most important to you?

- Gender occupancy (e.g., all female, all male, or mixed gender suites, floors, or hall)
- Room type (single, double, triple, quad)
- Theme hall

(ii) Which residence hall community do you prefer?

- Community A
- Community B
- Either community

(iii) Do you have a desired roommate preference?

- Yes
- No

If yes, please indicate the IDs of desired roommate(s):

Roommate ID 1: _____

Roommate ID 2: _____

Roommate ID 3: _____

Sleep Habits and Smoking Preferences

(i) Do you smoke or use tobacco products?

- Yes
- No

(ii) Are you willing to live with someone who smokes or uses tobacco products?

- Yes
- No

(iii) Please describe your sleep habits:

- I usually go to sleep...

  - Between 9:00 PM - 11:00 PM
  - Between 11:00 PM - 1:00 AM
  - After 1:00 AM
- I usually wake up...
  - Before 8:00 AM
  - Between 8:00 AM - 10:00 AM
  - After 10:00 AM

B Majors

Table B.1: STEM Majors

Major name	Admission	Degree
Biological Sciences	679	1266
Computer Science	649	450
Mechanical Engineering	274	209
Public Health Sciences	264	181
Biomedical Engineering	156	177
Civil Engineering	132	157
Pharmaceutical Sciences	111	226
Computer Science and Engineering	106	219
Chemistry	106	141
Computer Engineering	101	173
Informatics	100	9
Aerospace Engineering	99	128
Mathematics	93	136
Electrical Engineering	92	119
Chemical Engineering	80	85
Computer Game Science	75	98
Earth System Science	68	29
Nursing Science	58	50
Physics	50	81
Software Engineering	49	35
Materials Science Engineering	36	40
Environmental Science	31	30
Environmental Science and Policy	26	5
Environmental Engineering	24	62
Data Science	21	11
Biology/Education	20	44
Applied Physics	20	21
Ecology and Evolutionary Biology	19	24
Biomedical Engineering: Premed	11	42
Total	3550	4248

The "Admission" column shows the number of students who declared this major upon admission. "Degree" refers to the number of students who completed and were awarded a degree in this major at graduation. Note that the total for degrees is larger than the total for admissions, as (1) students are not required to declare a major when admitted and can remain "undeclared" until their third year, and (2) students can graduate with up to 3 degrees.

C Survey

The pilot survey of incoming students was conducted between September 23 and September 30 when students started moving into their on-campus housing. Eligibility criteria included: (1) newly admitted students for the 2024 cohort, (2) U.S. citizens at the time of the survey,

Table B.2: Non-STEM Majors

Major name	**Admission**	**Degree**
Criminology, Law and Society	460	219
Psychology and Social Behavior	429	237
Business Economics	401	196
Education Sciences	369	50
Political Science	367	145
Public Health Policy	282	14
Business Administration	258	244
Sociology	228	59
Psychology	207	160
Economics	152	54
International Studies	128	50
Film and Media Studies	106	52
English	103	91
Urban Studies	86	4
Anthropology	73	25
Social Ecology	69	9
History	65	37
Art	65	37
Drama	57	79
Literary Journalism	34	22
Social Policy and Public Service	32	12
Business Information Management	32	31
Chicano/Latino Studies	32	5
Quantitative Economics	30	14
Spanish	27	12
Philosophy	25	16
Cognitive Sciences	24	48
Dance	24	72
Art History	15	3
Music	11	44
Gender and Sexuality Studies	11	2
Global Cultures	7	6
Korean Literature and Culture	6	4
Comparative Literature	6	5
Asian American Studies	5	1
Classics	4	2
Japanese Language and Literature	4	4
Religious Studies	3	1
East Asian Cultures	2	3
European Studies	2	2
French	2	3
Total	4243	2074

The "Admission" column shows the number of students who declared this major upon admission. "Degree" refers to the number of students who completed and were awarded a degree in this major at graduation. Note that the total for degrees is larger than the total for admissions, as (1) students are not required to declare a major when admitted and can remain "undeclared" until their third year, and (2) students can graduate with up to 3 degrees.

(3) students who applied for and were assigned on-campus housing prior to the start of the fall quarter, and (4) students who did not select preferred roommates in their housing applications. I restricted the sample to those who did not choose roommates to align with my

primary analysis, where room assignments are quasi-random for students without preferred roommate selections.

From the 1,557 eligible students, I obtained email addresses from the housing office and randomly invited 498 students to participate in the survey. The sample was divided evenly into three groups, with each group offered a different incentive amount: \$5, \$10, and \$15, with 166 students in each group.

Table C.1 reports the number of students assigned to each incentive group, the number who started and completed the survey, and the completion and drop-out rates for each incentive level. The results indicate that higher incentive amounts are associated with higher response rates. For example, students offered \$15 had the highest completion rate (51.2%), while those offered \$5 had the lowest (36.1%). Overall, the completion rate across all incentive groups was 45.98%, with a drop-out rate of 9.13%.

Table C.2 provides descriptive statistics on student characteristics across three groups: all eligible students, those invited to participate, and those who completed the survey. The characteristics include variables such as age, gender, housing preferences, and willingness to live with a smoker. Column (4) shows the difference between survey completers and all eligible students, with statistically significant differences indicated. Although there is a notable difference in room occupancy rates and participation in housing themes between survey respondents and non-respondents, most of demographics and housing options are pretty close between samples, confirming that the sample of survey respondents are reasonbly representative.

Finally, Table C.3 summarizes the demographic profile of the 229 students who completed the survey. The table includes proportions for racial and ethnic groups, as well as other background characteristics such as whether students attended a private high school or have international travel experience. 45.9% of survey respondents identified as Asian, and 86% were from California. These statistics match pretty well with overall student demographics data at this university.

C.1 Summary of the survey

Table C.1: Incentive and Response Rate

	Response status				
Incentive amount ($)	Assigned	Started	Completed	Completion rate	Drop-out rate
5	166	66	60	36.14%	9.09%
10	166	93	84	50.60%	9.68%
15	166	93	85	51.20%	8.60%
Total	498	252	229	45.98%	9.13%

Notes: This table presents the incentive amounts ($5, $10, $15) provided to survey participants and their corresponding response statuses. There are a total of 1,557 students eligible for the survey. Please refer to Appendix C for the eligiblility and sample selection. The "Assigned" column indicates the number of participants randomly assigned to each incentive level. The "Started" column shows how many participants began the survey, while the "Completed" column displays the number of participants who completed all the questions. The "Completion rate" is the percentage of participants who completed the survey out of those who were assigned, while the "Drop-out rate" is the percentage of participants who started but did not complete the survey. The total row aggregates the figures across all incentive levels.

Table C.2: Characteristics of Eligible, Invited, and Participating Students

	(1) All eligible students	(2) Email sent	(3) Survey completed	(4) (3)-(1)
Age	17.830	17.837	17.847	0.020
	(0.440)	(0.453)	(0.476)	(0.032)
Female	0.503	0.520	0.537	0.040
	(0.500)	(0.500)	(0.500)	(0.036)
Preferred single room	0.141	0.135	0.148	0.008
	(0.348)	(0.342)	(0.356)	(0.025)
Willing to live with smoker	0.116	0.114	0.109	-0.008
	(0.321)	(0.319)	(0.313)	(0.023)
Factor importance				
Gender of roommate(s)	0.128	0.137	0.135	0.009
	(0.334)	(0.344)	(0.343)	(0.024)
Room occupancy	0.807	0.771	0.742	-0.075**
	(0.395)	(0.421)	(0.438)	(0.028)
Housing theme	0.066	0.092	0.122	0.067***
	(0.248)	(0.290)	(0.328)	(0.018)
Observations	1557	498	229	

This table compares the characteristics of three groups: all eligible students, those who were sent an email, and those who completed the survey. Column (1) shows the summary statistics for all eligible students, column (2) presents statistics for students who received an email, and column (3) reports characteristics of those who completed the survey. Column (4) provides the difference between survey completers and all eligible students, highlighting any statistically significant differences with ** and *** indicating significance at the 5% and 1% levels, respectively. Age is reported in May when students fill out their housing application. "Factor importance" refers to the question asking the factor students think is most important regarding their future housing assignment.

Table C.3: Demographics and Experiences of Survey Respondents

	Mean (S.D.)
White	0.306
	(0.462)
Black	0.031
	(0.173)
Asian	0.459
	(0.499)
Hispanic	0.323
	(0.469)
From CA	0.860
	(0.347)
Private high school	0.131
	(0.338)
International travels	0.786
	(0.411)
Lived with peers	0.183
	(0.388)
Observations	229

This table presents the demographic characteristics of the 229 students who completed the survey. It includes proportions for race (White, Black, Asian) and ethnicity (Hispanic), whether the students are from a high school in California, attended a private high school, have international travel experience outside of the U.S., and whether they lived with peers of similar ages before college. The standard deviations are provided in parentheses.