

DO COLLEGE ADMISSIONS CRITERIA MATTER? EVIDENCE FROM DISCRETIONARY VS. GRADE-BASED ADMISSION POLICIES

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Does college selection criteria matter for student composition?



- How should colleges best select students? Two common selection modes have emerged.
- Some colleges select exclusively on the basis of academic performance; Others use a combination of academic performance & demonstrated non-academic ability.
 - Non-academic considerations may include whether a student possesses certain special skills or talents or whether student has an outstanding record of extracurricular activities.
- Most higher education systems rely heavily on academic performance for selection.
 - China (Gaokao), France (Baccalaureate), Japan (Center Test), South Korea (Suneung)

- Admissions with consideration for non-academic qualities (holistic admissions) are less prevalent globally & practiced commonly only in a few countries, notably U.S, U.K, Canada.
 - In U.S., common for colleges to select based on an array of materials – recommendation letters, personal statements, extracurricular activity.
 - Not all colleges practice “holistic admissions”. Those that do tend to be more selective & well-resourced (Gentsch 2016).
- Does college selection method matter?
 - Does selecting based on a broader array of applicant attributes allow colleges to better pick up individuals who will be more successful in the labor market?

MOTIVATION

- Despite importance of question, few existing studies.
 - Most correlational; simple comparisons between students admitted through different regimes.
 - Done narrowly in the context of medical school (Urlings-Strop et al. 2013; Grabowski 2018) & engineering program admissions (Hilliger et al. 2018).
 - Find use of holistic review is associated with greater diversity in student composition (Grabowski 2018).
 - Find students admitted through holistic review perform just as well or better in college (Urlings-Strop et al. 2013; Hilliger et al. 2018).
- No study which examines whether holistic admissions practices vs grades-based admissions practices leads to different types of students being selected & whether this selection matters for subsequent educational choices & labor market outcomes.

MOTIVATION

- Exploit feature of the admissions system of Singapore's largest public university to provide answers.
- Admission to NUS was based exclusively on academic performance. However, since 2004, NUS sets aside a small share of places (up to 10%) for admission on the basis of a holistic set of aptitudes beyond academic achievement.
 - Through the “discretionary admissions” (DA) scheme, applicants who do not meet the usual academic cutoff requirements for regular admission might still be able to gain admission if they are able to demonstrate that they “*possess certain traits or achievements, including ability and interest, work experience, leadership, community service or exceptional talent, subject to a minimum level of academic competence*”
 - Students admitted through DA are those who miss the cutoff narrowly for regular admission.
 - Students are unaware of the admissions cutoffs when they apply to NUS.

PREVIEW

- Compare students admitted through DA (those who narrowly missed the cutoff but who were able to demonstrate having certain non-academic skills) to students admitted through regular admission.
- Pay attention to students in the first decile of regular admission.
 - while DA students enter with lower academic achievement scores, they do better than expected eventually, faring similarly in terms of GPA, and are more likely to be involved in optional academic & non-academic activities.
 - DA students receive substantially higher labor market earnings after graduation.
- Suggest that admissions policies that consider non-academic achievements can allow colleges to pick up students with certain non-academic skills who would subsequently be more successful in the labor market.

INSTITUTIONAL BACKGROUND



- NUS - Singapore's largest public university.
- Until 2004, admission was based exclusively on academic performance.
- Admission is based on performance on a standardized national school leaving exam.
- Each applicant's achievement on this exam is converted to a numerical score known as the university admission score (UAS).
- Each year, NUS sets a UAS cutoff for each of its faculties prior to the admission exercise.
- Cutoffs are based on targeted intake and expected demand from students.
- Students are unaware of these cutoffs when they apply to NUS.
- Applicants whose UAS are above the cutoff are automatically offered admission, while those with UAS below cutoff are denied.

INSTITUTIONAL BACKGROUND

- In 2004, NUS introduced the DA scheme to allow up to 10% of each cohort to be admitted based on non-academic considerations.
- Under DA, students who did not meet the regular cutoff requirements can be considered if they could demonstrate possessing certain non-academic achievements.
 - E.g. representing Singapore in arts/sports, active participation in community service, leadership positions in extracurricular activities.
- Applicants who wish to be considered for DA must provide details of their skills in the admission application form & provide documentation.
- Students do not get to choose which track they are applying for – only students who do not make it through the regular grades-based admission process are considered for the discretionary-based track that admits based on academic & non-academic achievements.

DATA

- Sample consists of enrolled students, admitted between 2009-2013.
- 3 sources
 - University admin records: application, admission details, individual characteristics, university performance, participation in university activities
 - Graduate employment survey (GES): labor force status, monthly income, 6 months after graduation
 - Admin tax records: annual income of graduates for up to 3 years after graduation
- On average, across all years, 7% of admissions came through DA.

EMPIRICAL STRATEGY

- How will student composition change if a college selects its students holistically instead of solely based on academic performance?
- Challenging to answer because of selection.
- Ideal experiment involves randomly assigning various admission regimes to colleges and then comparing outcomes.
- Given lack of such exogenous policy variation, we try to approximate this by comparing students close to the threshold of admissions through the 2 different admission tracks at NUS.
- Because students have imperfect control over which side of the admissions threshold they end up, by comparing students on both sides of the threshold, this allows us to compare students with similar observable academic ability & background characteristics who enter NUS via different admission tracks.

EMPIRICAL STRATEGY

- Setup resembles, but is *not*, an RDD.
- Individuals to the left & right of the cutoff are enrolled, and the hypothesis is that they differ in terms of unobservable characteristics.
- Students to the left – DA students – should not have been admitted but found their way in because they could demonstrate having certain desirable non-academic skills.
- Treatment effect we seek to estimate is the extent & nature of selection on non-academic skills induced by the admission strategy – what it implies for educational choices/outcomes & how it is rewarded in the labor market.

$$Y_i = \alpha + \beta_{DA}DA_i + \sum_{d=2}^{10} \beta_q RegAdmit^d + \mathbf{X}_i' \delta + \varepsilon_i$$

Y_i : outcome of interest for individual i

DA_i : dummy for students admitted to NUS via DA

$RegAdmit^d$: regular admission students grouped into 10 deciles based on UAS.

$RegAdmit^d$ is a dummy for regular admission students in each decile. The reference category is students in the bottom 10 percent of the UAS distribution.

\mathbf{X}_i : fixed effects for faculty, admission year, application year, entry route

-COI: β_{DA} , captures how the outcome of interest differs among DA students & students in first decile of regular admission.

-Because DA & first decile students exhibit similar levels of incoming academic ability, one interpretation is that β_{DA} captures the effects due to non-academic skills.

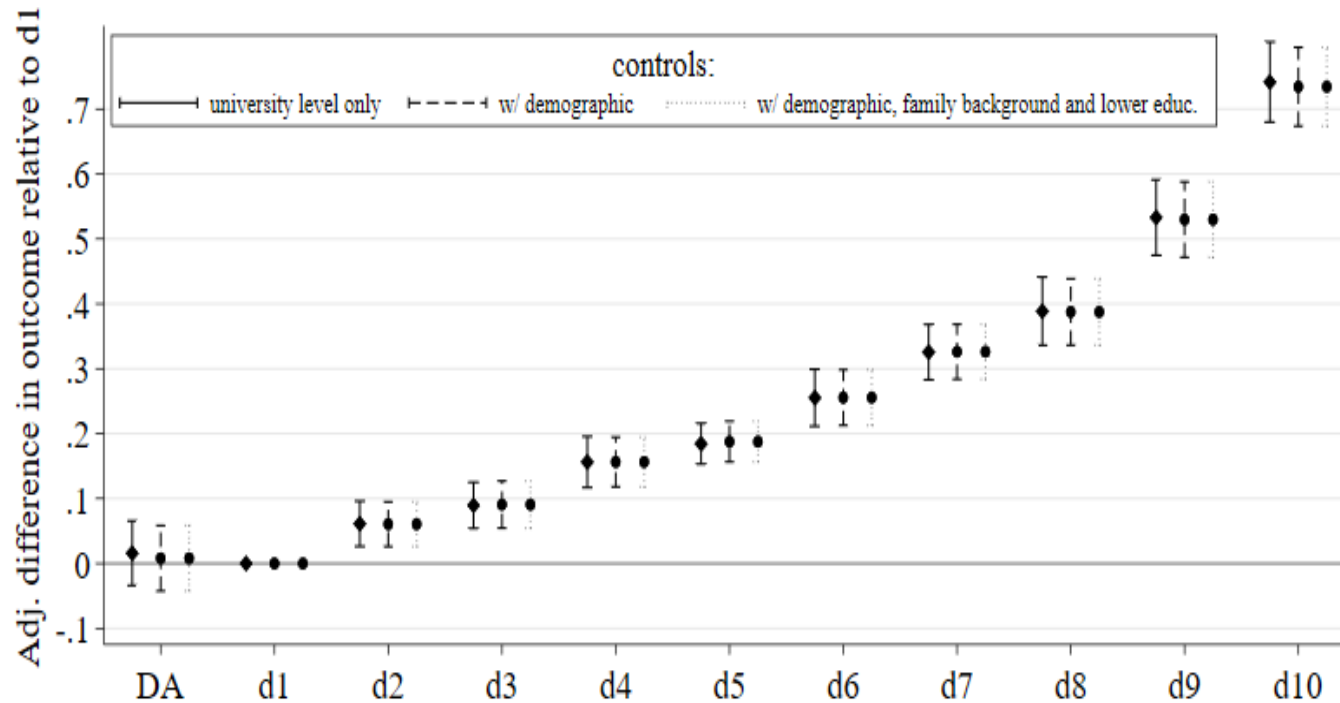
-In additional specifications, we test, & subsequently reject the alternative possibility that β_{DA} is driven by differential selection on the basis of demographic characteristics, family background, & adolescent academic achievement.

$$Y_i = \alpha + \beta_{DA} DA_i + \sum_{d=2}^{10} \beta_q RegAdmit^d + \mathbf{X}_i' \delta + \varepsilon_i$$

- Outcomes of interest:
 - Final GPA (aka CAP)
 - Propensity to graduate with an honors degree
 - Propensity to enrol in a minor/second major program
 - Propensity to participate in optional college activities (overseas program & residential college program)
 - Real earnings, propensity to be in employment, propensity to be in full-time employment, 6 months after graduation
 - Real earnings 2 & 3 years after graduation
- SE clustered at the applicant pool level

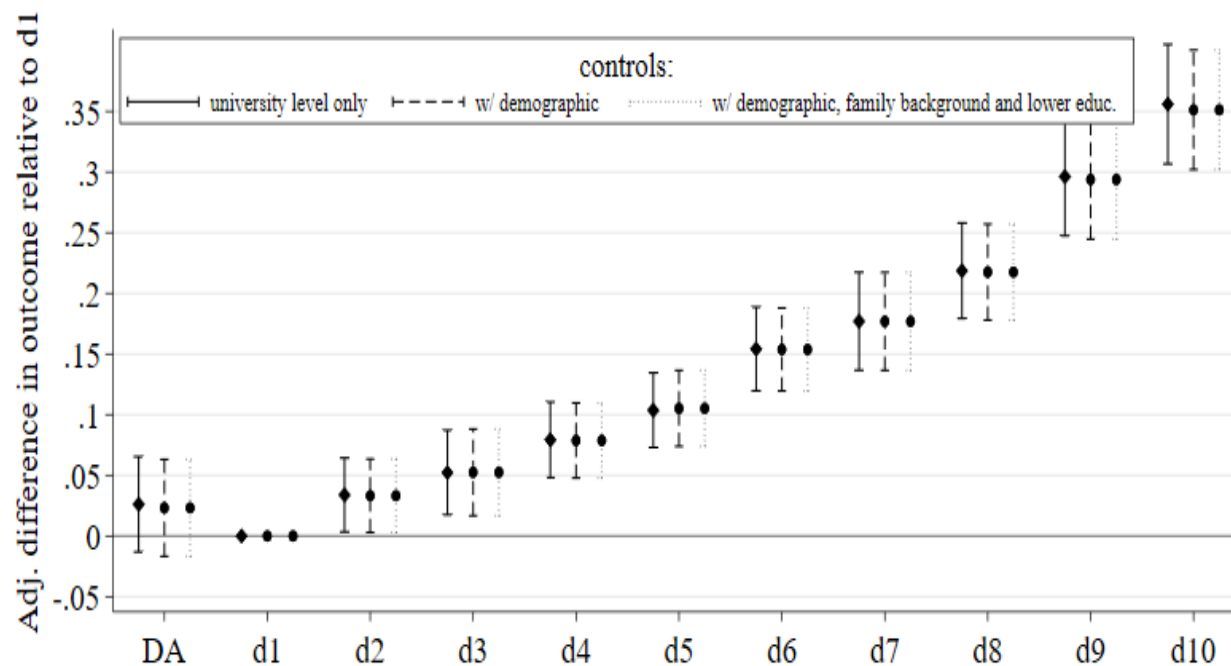
RESULTS: ACADEMIC OUTCOMES

Final CAP



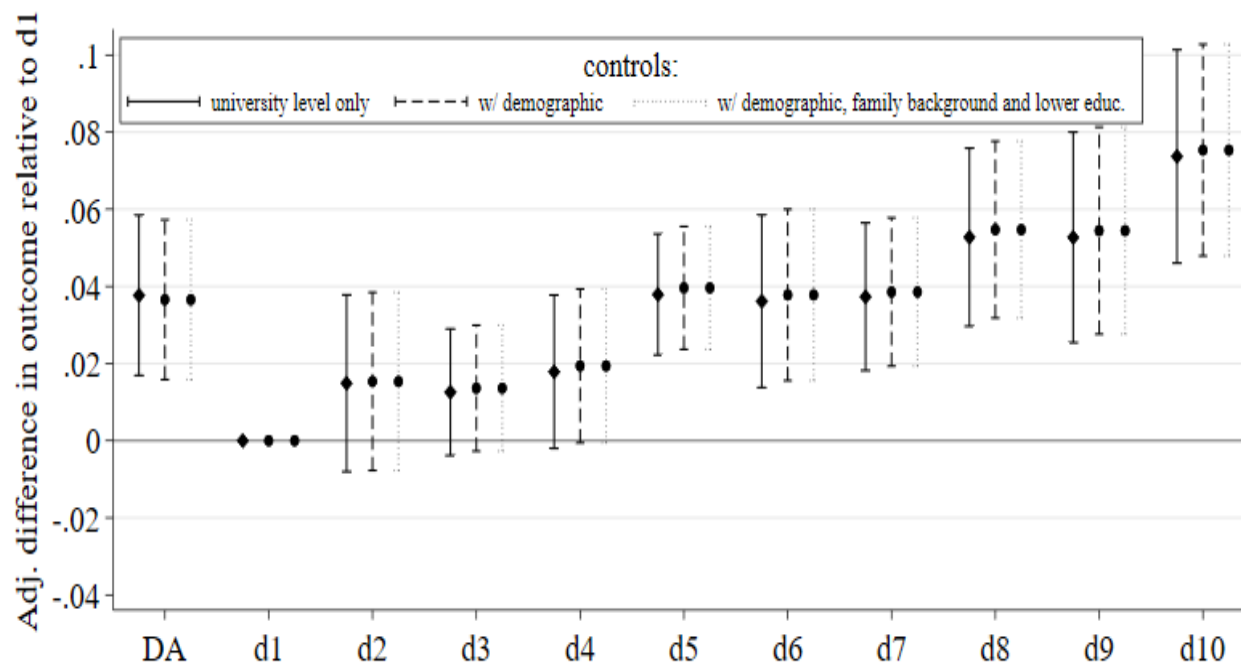
RESULTS: ACADEMIC OUTCOMES

Awarded an Honors Degree (1=yes)



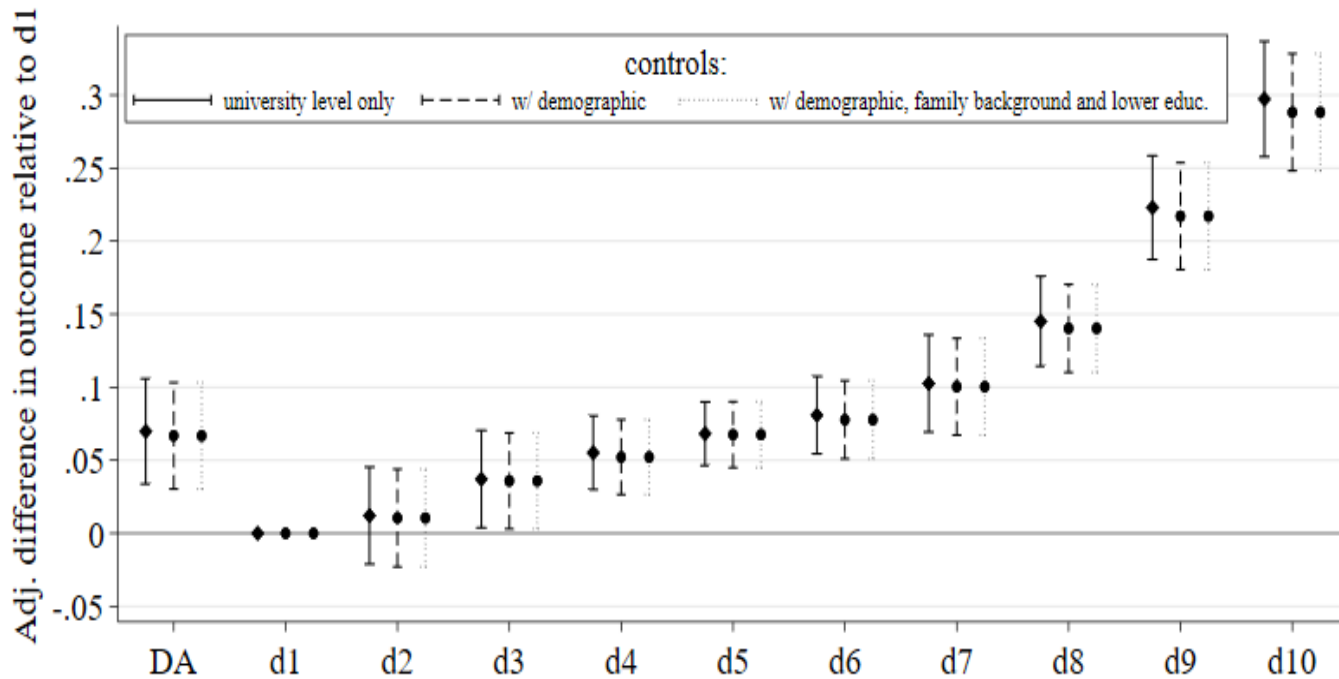
RESULTS: ACADEMIC OUTCOMES

Enrolled in a Minor or a Second Major Program (1=yes)



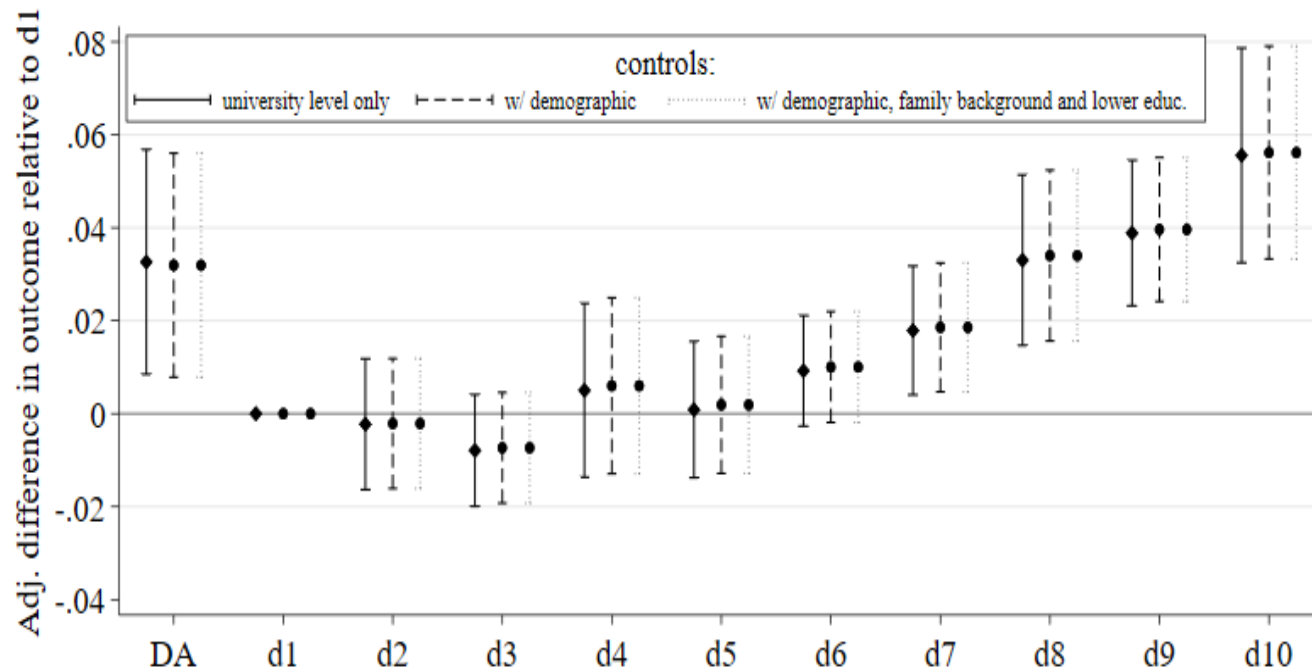
RESULTS: PARTICIPATION IN OPTIONAL COLLEGE ACTIVITIES

Has Done any Outbound Program (1=yes)



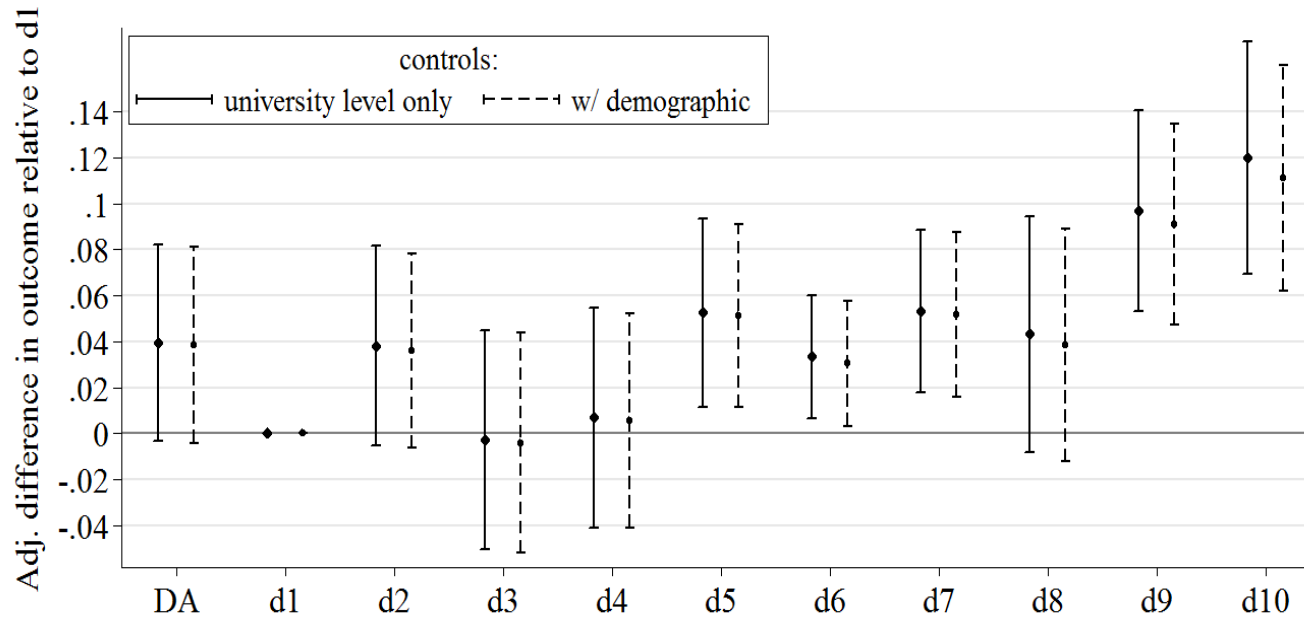
RESULTS: PARTICIPATION IN OPTIONAL COLLEGE ACTIVITIES

Enrolled in a Residential College Program (1=yes)



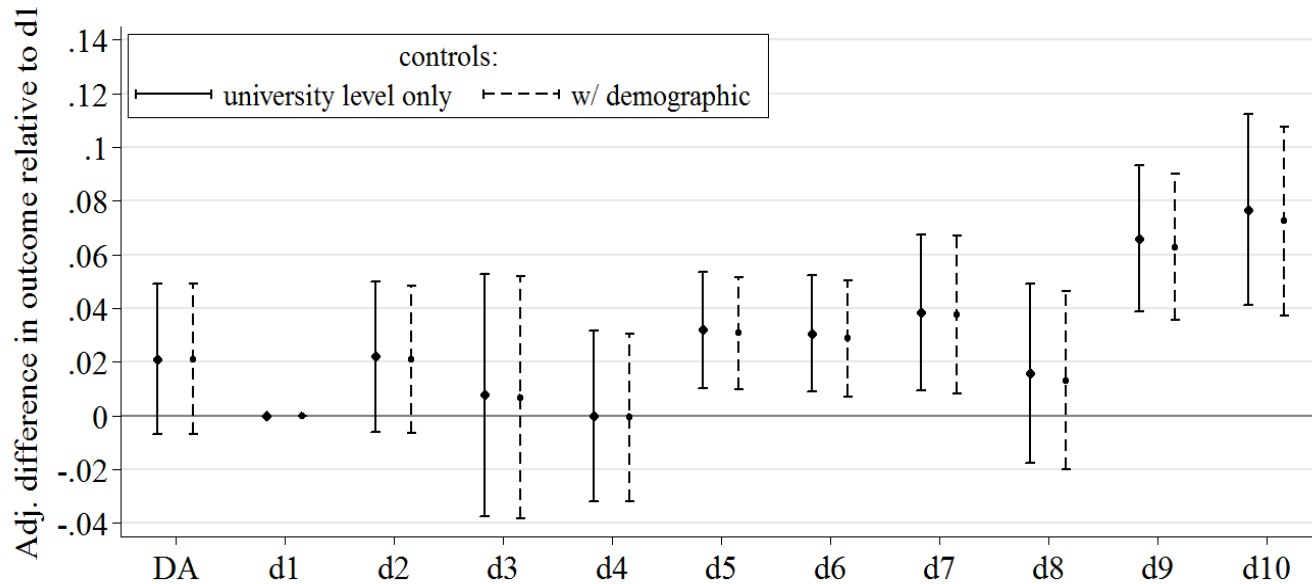
RESULTS: LABOR MARKET OUTCOMES

Has Full-Time Permanent Job within 6 Months from Graduation (1=yes)



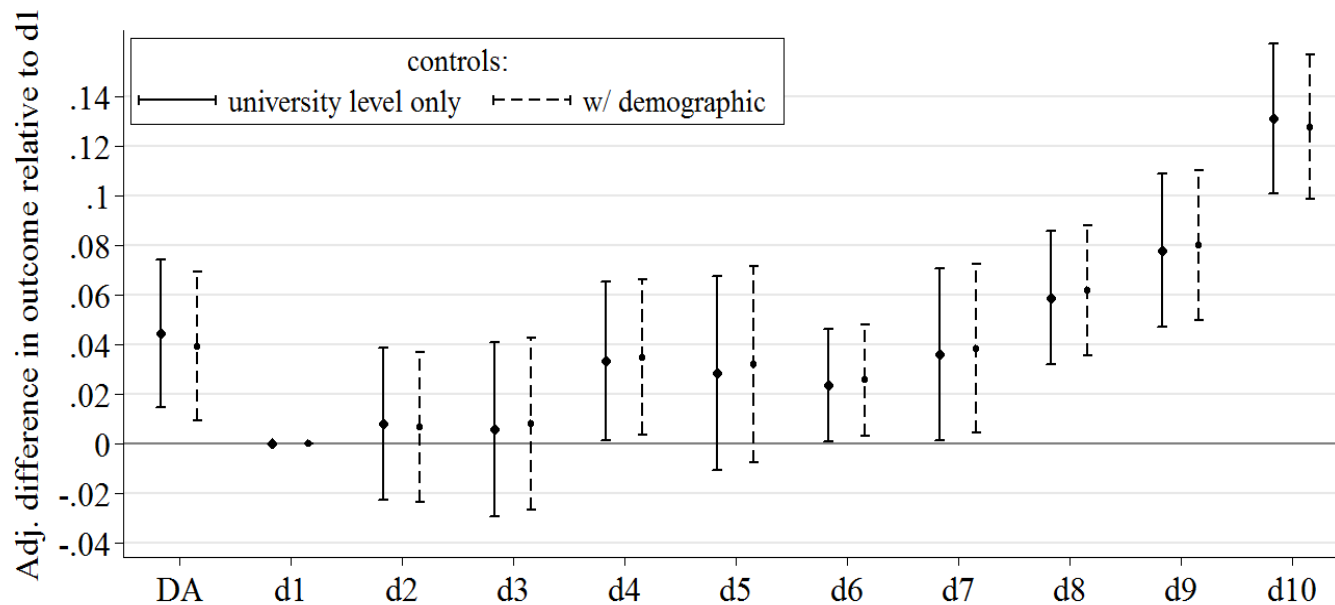
RESULTS: LABOR MARKET OUTCOMES

Has Job within 6 Months from Graduation (1=yes)



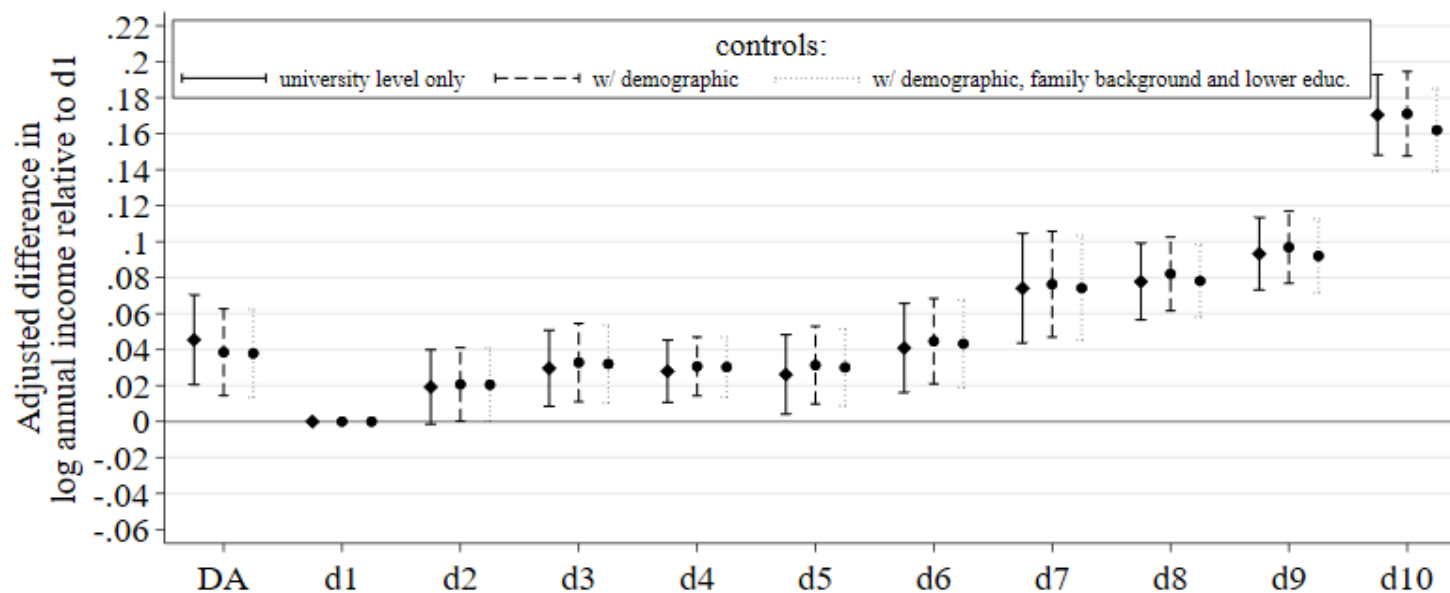
RESULTS: LABOR MARKET OUTCOMES

Log Gross Monthly Salary 6 Months After Graduation



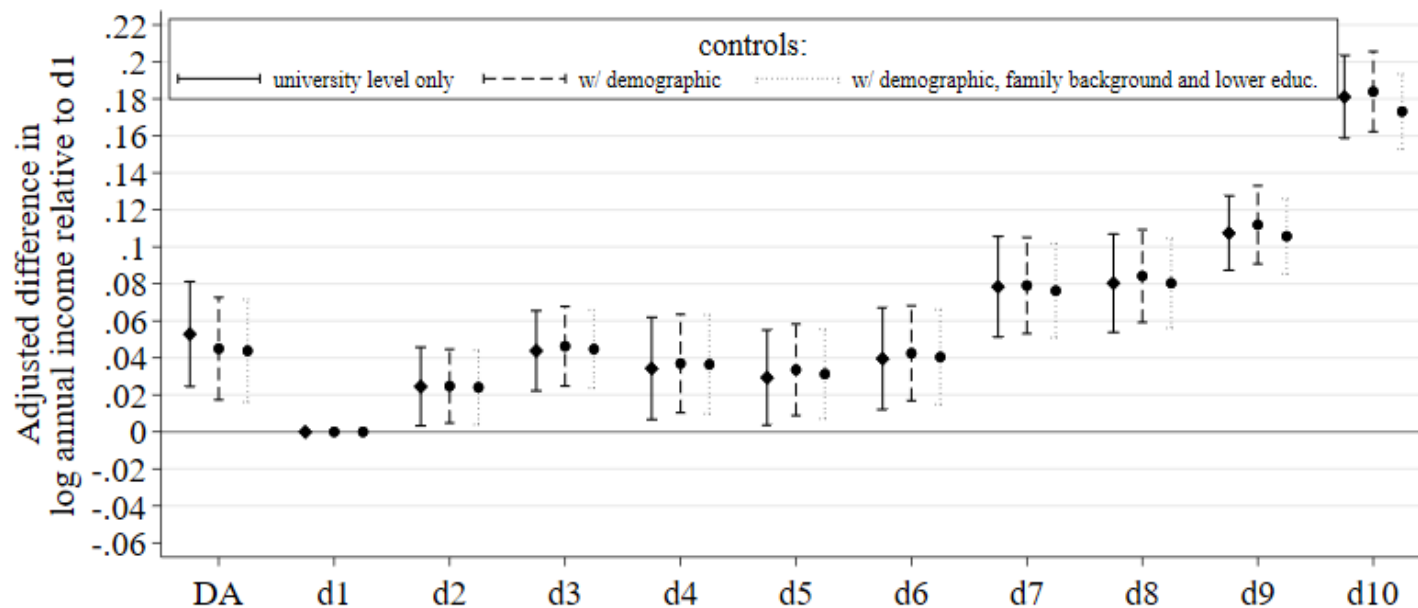
RESULTS: LABOR MARKET OUTCOMES

Log Annual Income 2 Years after Graduation



RESULTS: LABOR MARKET OUTCOMES

Log Annual Income 3 Years after Graduation



CONCLUSION

- Would colleges pick up different types of students if admissions were based on a more holistic set of considerations rather than solely based on academic achievement?
- Exploit a unique feature of the admissions system at NUS that has 2 admissions tracks to answer this.
- Despite the fact that UAS strongly predicts university GPA & labor market performance, we find that DA students do not do worse on university & labor market performance.
- Results suggest that admissions policies which focus on a holistic evaluation of students could potentially allow colleges to better select individuals who would be most successful in the labor market.
- Higher non-academic skills possessed by students in the DA group is rewarded in the labor market.