Explaining the Too-Good-To-Be-True Puzzle in Two-Sided Matching

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Behavioral Market Design

- Market design is a fertile ground for digging out behavioral puzzles (Rees-Jones and Shorrer 2023).
- The GT/CS approaches are limited, we clearly need BE.

- Preference misrepresentation under the strategyproof Deferred Acceptance
  - Demonstrated in lab and field (Chen and Sonmez 2003, and many more, HRS 2021, and many more).
  - Classic explanations suck, behavioral explanations rule (HMRS 2017, DHR 2022, Meisner and von Wangenheim 2023, Meisner 2023, DGHR 2025, GHIT 2025)

Preference dynamics

- The classic matching literature assumes static preferences. Recent (indirect) evidence of preference dynamics:
  - Narita 2018: NYC families can reapply after getting first-round assignments, and data shows preference reversals.
  - GHK 2022: First-offer effect in German college admissions
  - Maisner and Shorrer (in preparation): GHK's effect spills over to similar colleges.

- This paper: **directly** observed preference dynamics, their effect on outcomes, and their relation to interviews.

The Too-good-to-be-true puzzle

> *"Most doctors in the [NRMP] match with one of their most preferred internship programs. However, surveys indicate doctors' preferences are similar, suggesting a puzzle: how can so many doctors match with their top choices when positions are scarce?"*
>
> (Echenique, González, Wilson, Yariv 2022)

- In a large market with uniform random preferences, expected assignment rank is $\log n$, and correlation in preferences should make this even worse.
- What is going on?

Leading explanations

- Market fragmentation, i.e., many small local markets (Rheingans-Yoo 2022)

- "Non-standard" reporting behavior that "predicts" the outcome and focuses on achievable partners
  - No magic involved! This just means participants misrepresent their preferences in a way that increases the rank of those partners they think they are likely to get.
  - In doing so, they may also change the outcome.

Pre-market interactions

> *"[The] patterns in the NRMP data may be an artifact of the interview process that precedes the match. Our study highlights the importance of understanding market interactions occurring before and after a matching clearinghouse, and casts doubts on analyses of clearinghouses that take reported preferences at face value."*
>
> (Echenique, González, Wilson, Yariv 2022)

- We will show (in a different market) evidence that interviews really shape preference reports in a way consistent with their theory.

Our setting


אזור מנהל — בדיקת דירוג עדיפויות
יש לגרור את שם המגמה שברצונך לדרג לריבוע האפור. ניתן לשנות את סדר דירוג המגמות ע"י גרירת מגמה מעל/מתחת למגמה אחרת בתוך הריבוע האפור.
הצג מגמות של: כל המוסדות
חיפוש:
דירוג עדיפויות
סה"כ מגמות שנבחרו: 5
1 מגמה חברתית - מסלול ישיר-ישיר (האוניברסיטה העברית בירושלים)
2 המגמה לפסיכולוגיה במערכת החינוך (אוניברסיטת בן-גוריון)
3 מגמה חברתית - מסלול רגיל (האוניברסיטה העברית בירושלים)
4 המגמה השיקומית (אוניברסיטת אריאל)
5 קלינית-ילד (אוניברסיטת בר-אילן)
שמור עדיפויות
חזרה
אוניברסיטת אריאל
המגמה הארגונית-חברתית-תעסוקתית
המגמה השיקומית
אוניברסיטת בן-גוריון
המגמה לפסיכולוגיה במערכת החינוך
המגמה לפסיכולוגיה חברתית
המגמה לפסיכולוגיה קלינית
המגמה לקוגניציה ומוח
אוניברסיטת בר-אילן
המגמה לקוגניציה, רגש ומוח (קר"מ)
חברתית-ארגונית
קלינית
קלינית-ילד
קלינית-שיקומית
אוניברסיטת חיפה
מסלול אישי בפסיכולוגיה חברתית
פסיכוביולוגיה
פסיכולוגיה התפתחותית
פסיכולוגיה קוגניטיבית וגורמי אנוש
פסיכולוגיה קלינית
פסיכולוגיה קלינית-חינוכית
פסיכולוגיה תעסוקתית-ארגונית
קלינית במסלול נוירופסיכולוגיה
תוכנית לימודים מחקרית בנוירוקוגניציה

Our setting

- The Israeli Psychology Master's Match (IPMM) has been in place from 2013.
  - ~1000 applicants, 50+ programs, ~15 institutions
  - Over-demand: in a typical year, ~650 students are matched
  - Uses (variant of) applicant-proposing DA. No restriction on length of Rank-Ordered List (ROL). Simple drag-and-drop interface for applicants.

- Applicants are being told that truthful reporting is weakly dominant. This advice relies on the assumption of applicants knowing their utility, and it not being conditional on anything but their own assignment.

IPMM standard timeline

Year before: BA, MITAM

February: Registration begins

April-May: Interviews

Early June: Registration closes and ranking period begins

Late June: Ranking period closes

October: Programs begin

IPMM 2020 timeline

Year before: BA, MITAM

February: Registration begins

March: COVID-19 outbreak

April-May: Interviews

Early June: Registration closes and ranking period begins

Late June: Ranking period closes

October: Programs begin

IPMM 2020 timeline

Year before: BA, MITAM

February: Registration begins
March: COVID-19 outbreak
Mid-March: Early ranking period begins (default ROL)
Early April: Early ranking period ends
April-May: Interviews
Early June: Registration closes and ranking period begins
Late June: Ranking period closes

October: Programs begin

Default ROLs

- The IPMM communicated to already-registered applicants that if they will not be able to submit ROLs in June, their default ROLs will be used instead.
- Completely voluntary, but 778 individuals (vast majority of registered applicants) submitted default ROLs.

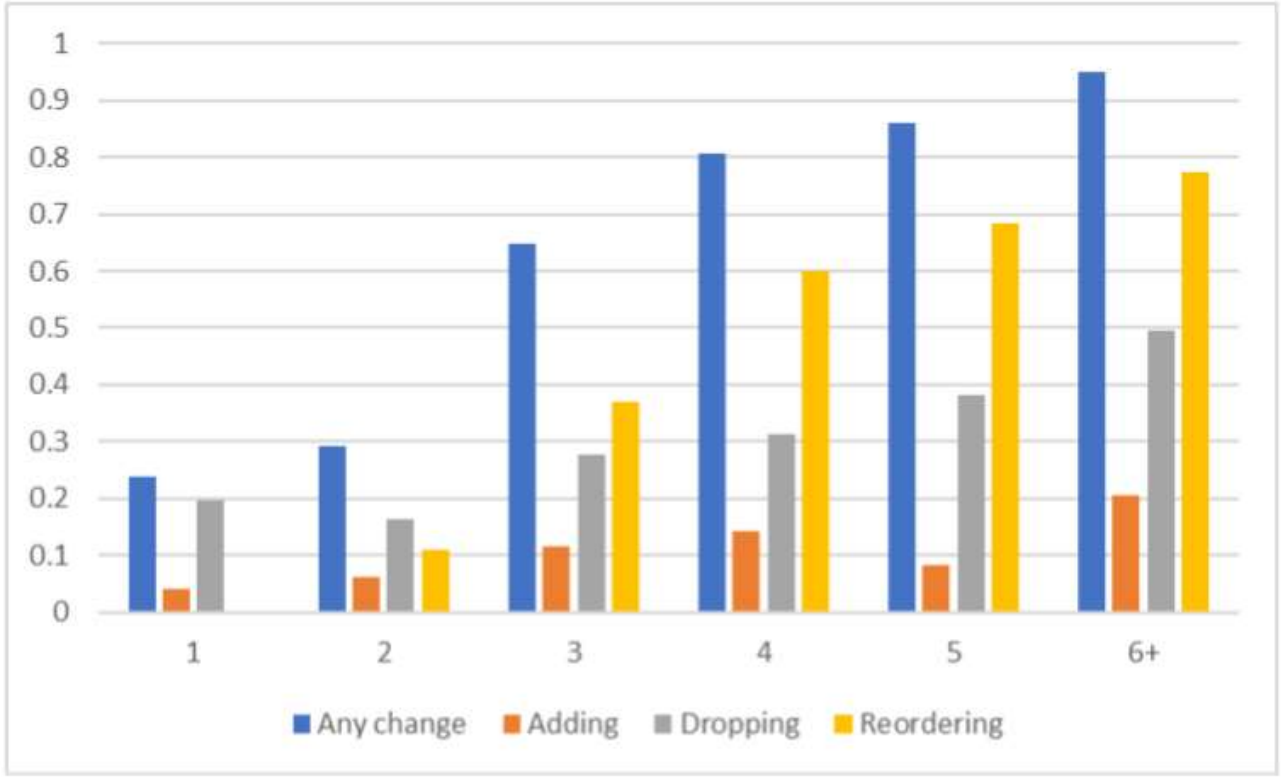
- A/B testing whether or not to present default ROLs during the "regular" ranking period.

Sample

- 778 applicants who chose to submit default ROL
  - (out of 957 total participants, late registrants included)
  - 78% female
  - Average default ROL length = 4.17
- Similar numbers in 2021 (785 with default ROL out of 1095 total, 77% female, average default ROL length 4.36).
- Self-reports of interviews in 2020 (survey), cross-validated with interviewing lists from departments
- Interview reporting system in 2021

Prevalence of changes to default ROL

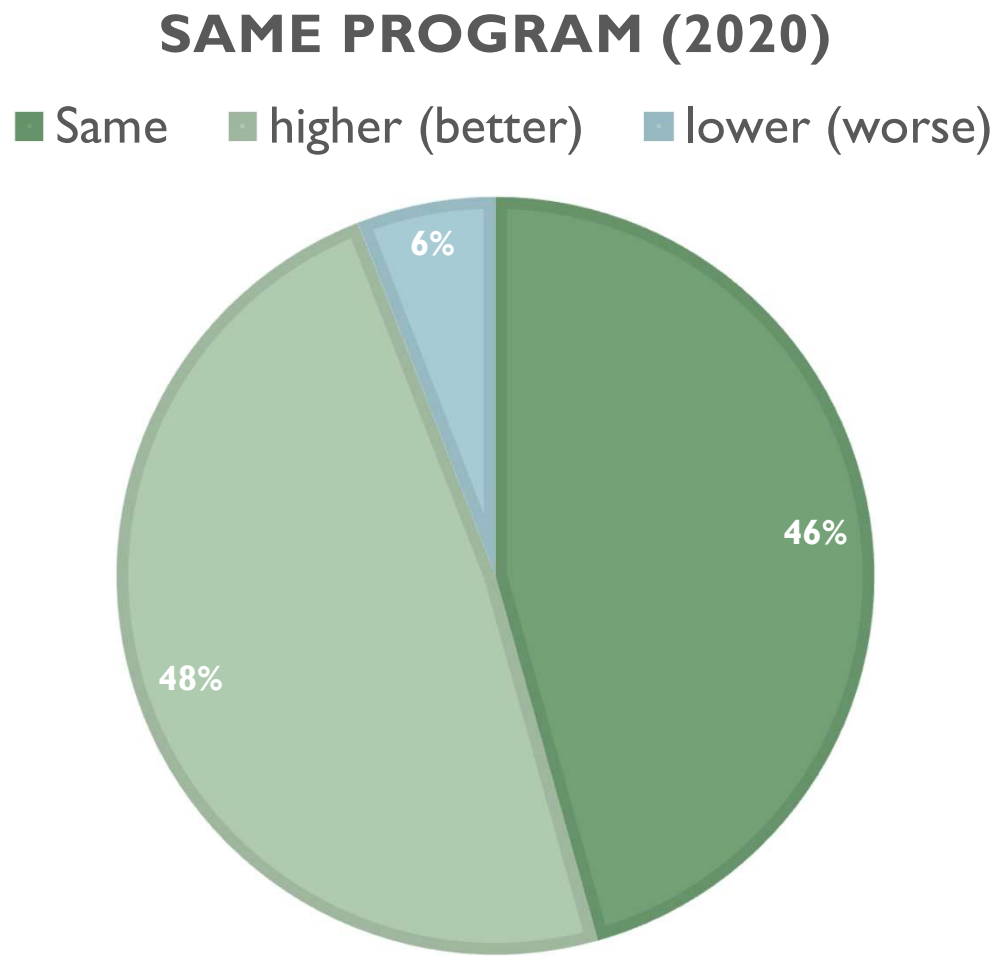
	2020		2021	
Any change	499	(64%)	576	(73%)
-Reordering	372	(48%)	381	(49%)
-Dropping	212	(27%)	305	(39%)
-Adding	111	(14%)	80	(10%)



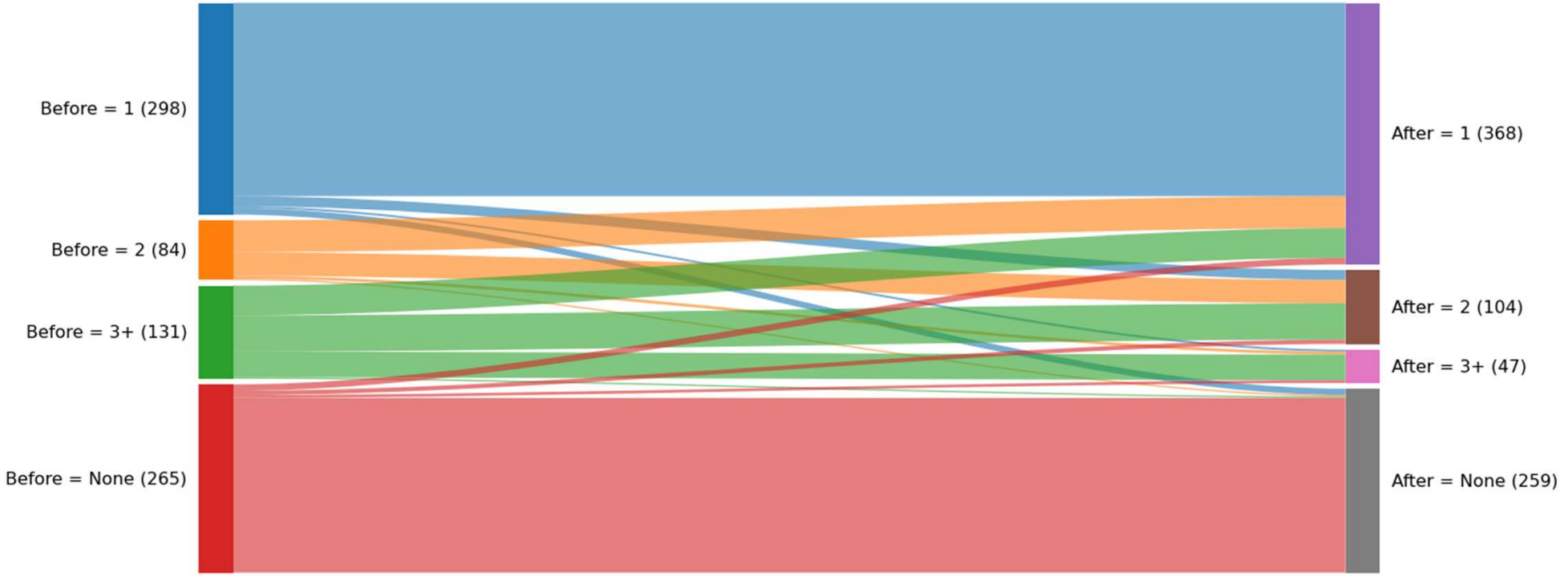
True preference to change ROL

	2020		2021	
	(1)	(2)	(3)	(4)
Default removed	0.043	0.044	0.271***	0.266***
	(0.036)	(0.029)	(0.030)	(0.030)
Constant	0.664***		0.599***	
	(0.026)		(0.025)	
Pair FE	NO	YES	NO	YES
# Obs.	651	651	785	785
R-squared	0.002	0.002	0.094	0.094

Direct effect on rank distribution



Aggregate effect on rank distribution



	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Agent's ROL	default	default	default	default	final	final	final	final
Others' ROLs	default	default	final	final	default	default	final	final
Rank by	default	final	default	final	default	final	default	final
2020	2.0	1.6	2.0	1.6	2.1	1.4	2.2	1.5
	(513)	(513)	(513)	(513)	(520)	(520)	(519)	(519)
2021	2.3	1.6	2.3	1.7	2.5	1.5	2.5	1.5
	(484)	(484)	(478)	(478)	(484)	(484)	(477)	(477)

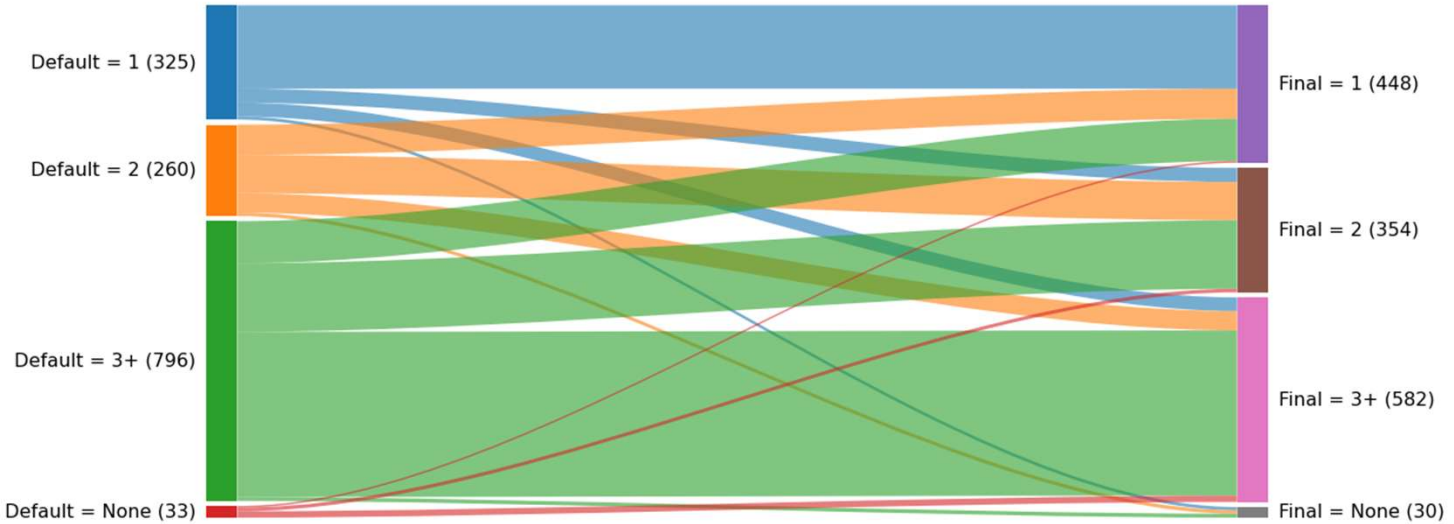
The effect on interviews on ROL

- Focusing on default ROLs with $A \succ B$, what is the fraction of final ROLs with $A \succ B$?

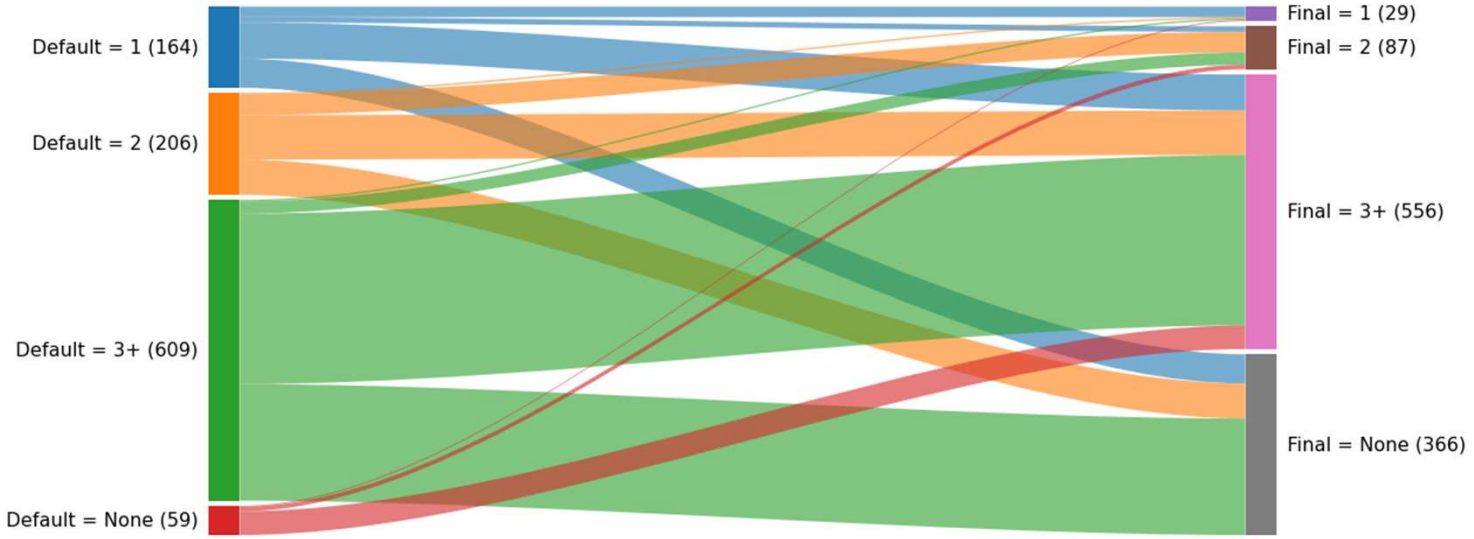
Interviews	A & B	Only A	Only B	Neither
2020	68% (2823)	**93% (1382)**	**22% (825)**	71% (1046)
2021	74% (2085)	**92% (1411)**	**15% (1416)**	77% (1050)

The effect on interviews on ROL

Interviewed



Not interviewed



Summary

- Unique design change allows directly observing preference dynamics, specifically before/after interviews.
- ~67% of applicants make changes to preferences.
- Changes increase the rank distribution. Increase mostly attributed to individual preference changes, and not to equilibrium effects.
- Whether or not interviewed affects how applicants rank the program (soft confirmation of DHR model).

- Invitation for behavioral economists to explore further!