

Choosing Your Pond

Location Choices and Relative Income

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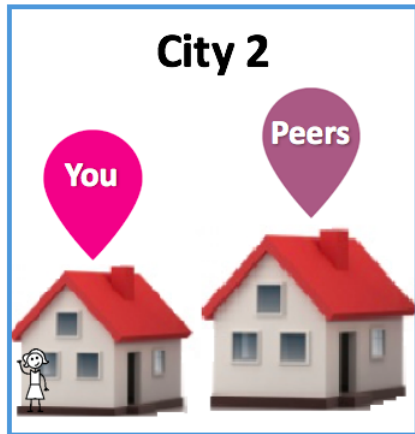
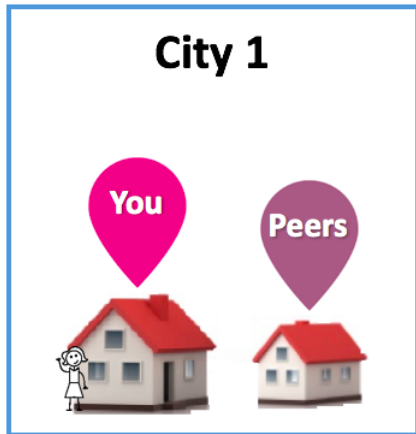
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Introduction

- ▶ Many models imply the utility from living in an area should depend on relative income.
 - ▶ For example: social status (Luttmer, 2005); dating (Fisman et al 2006).
- ▶ Incorporating relative income concerns is important.
 - ▶ Deeper understanding of human nature.
 - ▶ Policy and welfare implications.
- ▶ However, revealed-preference evidence remains elusive.
 - ▶ **Research Question:** when choosing where to live, do individuals care about their prospective relative income?

Ideal Choice Data



Our Approach

- ▶ Use the National Resident Matching Program (NRMP) as a natural laboratory.
 - ▶ Participants must choose between programs located in different cities.
 - ▶ They get paid the same nominal income everywhere.
 - ▶ Thus, they face significant trade-offs between cost of living and relative income.
- ▶ Convenient context (cf. Benjamin et al, 2014):
 - 1 One shot-decision.
 - 2 Identifiable choice set.
 - 3 Due to incentive-compatible mechanism, observe preferences directly.
 - 4 High-stakes choice to which students devote a lot of time and information.

Preview of Results

- ▶ Preview of Methods:
 - ▶ Survey 1,100 NRMP participants.
 - ▶ Use survey data to estimate preferences over cost of living and relative income.
 - ▶ Use information-provision experiment to generate exogenous variation in beliefs.
- ▶ Preview of Results:
 - ▶ Average individual prefers higher relative income.
 - ▶ Substantial heterogeneity between single and non-single individuals.

Related Literature

- ▶ **Subjective well-being** (e.g., Easterlin, 1974; Luttmer, 2005; Perez-Truglia, 2015).
- ▶ **Laboratory experiments** (e.g., Solnick and Hemenway, 1998; Kuziemko et al., 2014).
- ▶ **Misperceptions of income rank** (e.g., Cruces, Perez-Truglia, and Tetaz, 2013).
- ▶ **Information-provision experiments** (e.g., Wiswall and Zafar, 2011; Cullen and Perez-Truglia, 2018).

Outline

- 1 Research Design
- 2 Implementation
- 3 Results
- 4 Conclusions

Institutional Context: NRMP



ARTHUR

1. CITY



SUNNY

1. CITY
2. MERCY



JOSEPH

1. CITY
2. GENERAL
3. MERCY



LATHA

1. MERCY
2. CITY
3. GENERAL



DARRIUS

1. CITY
2. MERCY
3. GENERAL



MERCY (2 POSITIONS)

1. DARRIUS
2. JOSEPH



CITY (2 POSITIONS)

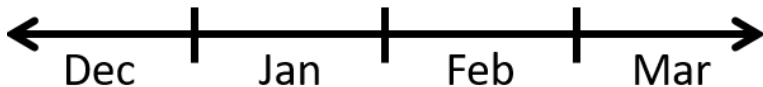
1. DARRIUS
2. ARTHUR
3. SUNNY
4. LATHA
5. JOSEPH



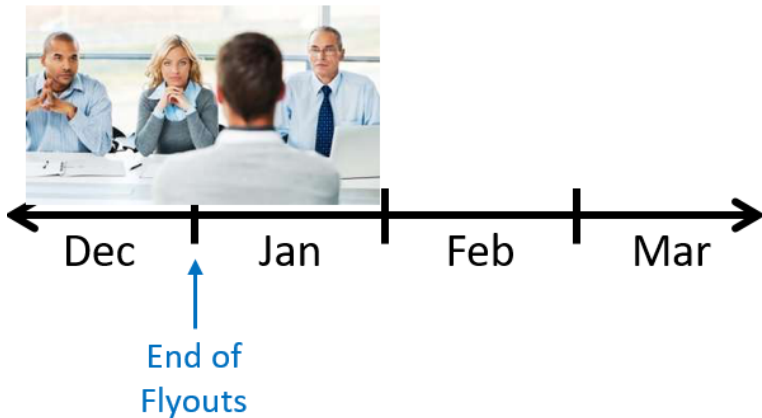
GENERAL (2 POSITIONS)

1. DARRIUS
2. ARTHUR
3. JOSEPH
4. LATHA

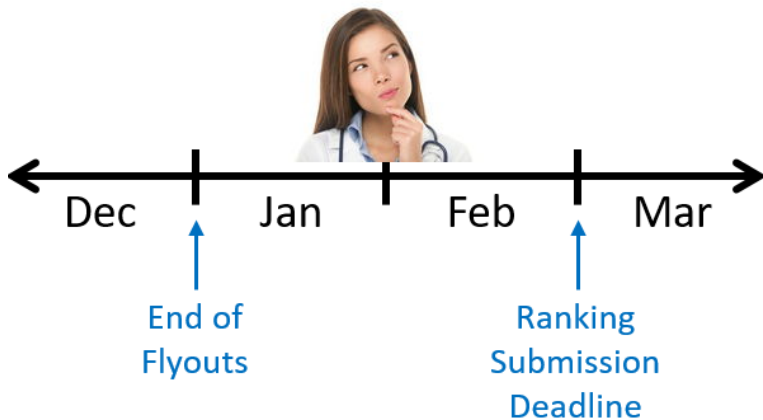
Institutional Context: Timeline



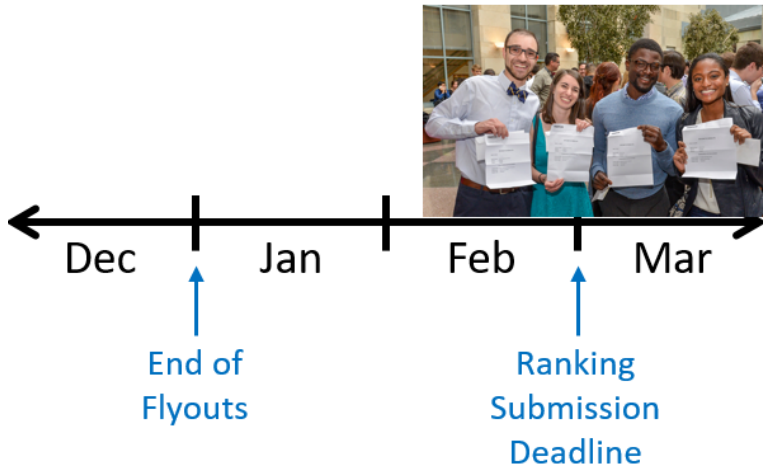
Institutional Context: NRMP Timeline



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Institutional Context: NRMP Timeline



Econometric Specification

- ▶ Define:
 - ▶ ER_j^i = Earnings Ranking in city j
 - ▶ COL_j^i = Cost of Living in city j
- ▶ Difference in attributes:
 - ▶ $ER_{1,2}^i = ER_1^i - ER_2^i$
 - ▶ $COL_{1,2}^i = COL_1^i - COL_2^i$

Econometric Specification

- ▶ Baseline Probit regression:

$$P(\text{Prog}_1 \succ_i \text{Prog}_2) = F(\beta^{ER} ER_{1,2}^i + \beta^{COL} COL_{1,2}^i + \theta X_{1,2}^i)$$

- ▶ β^{ER} : preference for relative income.
 - ▶ Hypothesis: $\beta^{ER} \leq 0$.
- ▶ β^{COL} : preference for absolute consumption.
 - ▶ Hypothesis: $\beta^{COL} < 0$.
- ▶ Note: $MRS_{ER,COL} = -\frac{\beta^{ER}}{\beta^{COL}}$

Research Design

- ▶ Our survey collects data on the key variables to estimate the Probit regression:
 - ▶ Perceptions about relative income and cost of living ($ER_{1,2}^i$ and $COL_{1,2}^i$)
 - ▶ Choice ($Prog_1 \succ_i Prog_2$).
- ▶ Additionally, survey generates exogenous variation with information-provision experiment.

Overview of Survey Design

1 Baseline Survey:

- ▶ Choice set

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- ▶ Prior Beliefs (Cost of Living & Earnings Rank)

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2 Follow-Up Survey:

- ▶ Final Ranking Choice

Overview of Survey Design

1 Baseline Survey:

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2 Follow-Up Survey:

- ▶ Final Ranking Choice
- ▶ Long-Term Beliefs

Survey Design: Information Experiment

- ▶ All respondents are shown feedback for ER and COL in both cities, but we flip a coin to randomize the source.
- ▶ Example: someone \$54,000 earnings in Champaign-Urbana, IL can be assigned to one of two messages:
 - ▶ In this city, you would be richer than **55.1%** of income earners (according to data from the Current Population Survey).
 - ▶ In this city, you would be richer than **60.3%** of income earners (according to data from the American Community Survey).

Outline

- ① Research Design
- ② **Implementation**
- ③ Results
- ④ Conclusions

Survey Deployment

- ▶ 27 out of 135 accredited U.S. medical schools accepted to participate.
- ▶ Surveys conducted online.
- ▶ Incentives to participate: \$10 Amazon gift card for baseline, \$5 for follow-up.
- ▶ 1,087 respondents to the baseline survey (90.6% completed the follow-up survey).

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Results: Preferences

- ▶ Baseline Specification:
 - ▶ Outcome Variable: Expected Choice ($Prog_1 \succ_i Prog_2$), from Baseline Survey.
 - ▶ All (experimental and non-experimental) variation in posterior beliefs ($ER_{1,2}^i$ and $COL_{1,2}^i$).

Baseline Results

	Probit (1)	MFX
β^{ER}	0.995* (0.539)	0.186* (0.100)
β^{COL}	-1.073** (0.485)	-0.201** (0.090)
Observations	1,080	

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- Prestige and career prospects 2x-3x as important.

Heterogeneity by Relationship Status

- ▶ Different mechanisms can drive preferences for relative income in different directions:
 - ▶ Evidence on different location preferences by relationship status in urban literature (e.g., Couture and Handbury 2015, Gautier et al. 2010)
 - ▶ Effects of relative income in Luttmer (2005) entirely driven by individuals who are married/cohabiting.
- ▶ Elicited relationship status a-la-Luttmer:
 - ▶ Single (35% of respondents)
 - ▶ Married (24%)
 - ▶ Long-term relationship (41%)

Heterogeneity by Relationship Status

	All (1)	Non-Single (2)	Single (3)
β^{ER}	0.995* (0.539)	2.236*** (0.669)	-1.538* (0.880)
β^{COL}	-1.073** (0.485)	-1.087 (0.663)	-1.058 (0.749)
Diff. P-value:			
ER		0.001 [0.030]	
COL		0.977 [0.977]	
Observations	1,080	698	382

Note: Multiple-testing q-values based on Benjamini and Yekutieli (2001) in brackets.

Additional Results

- ▶ Additional results reported in the paper:
 - ▶ Results unchanged when using control variables.
 - ▶ Similar experimental estimates (but less precisely estimated).
 - ▶ Persistent effects of experiment on beliefs and behavior.
 - ▶ Similar results using a different sample.

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Conclusions

- ▶ Evidence that individuals really care about relative income when deciding where to live.
- ▶ Methodological contribution to study relative concerns.
 - ▶ Revealed-preference evidence.
 - ▶ High-stakes, high-attention, and natural context.
 - ▶ Addresses causality through experiment.
- ▶ Avenues for future research:
 - ▶ Expand to other subject pools (e.g., MBAs, internal labor markets).
 - ▶ Disentangle mechanisms (e.g. dating vs. status).