Heterogeneous Investor Consideration, Mutual Fund Competition, and Fund Fees

Richard Grice   and   Ahmed Guecioueur (presenting)

INSEAD

Challenges in measuring & understanding competition

- Differentiated mutual funds compete (Kostovetsky and Warner 2020)
- We lack retail investor choice data covering the competitive landscape
- Measuring fund similarity from observable attributes is an assumption by the econometrician – what matters is investors' perceived similarity
- Should also take into account the substantial heterogeneity among investors, wherever it stems from (Hortaçsu and Syverson 2004; Betermier, Calvet, and Sodini 2017; Balasubramaniam et al. 2022)

Key insight

- Before making their final choices, investors will tend to consider a subset of all available alternatives (Merton 1987; Honka, Hortaçsu, and Vitorino 2017; Chava, Kim, and Weagley 2022)
- We measure investors' consideration sets, and show (theoretically & empirically) how to extract a measure of the intensity of competition between funds ⇒ predictions of fund fee dispersion
  - Intuition: investors consider competing funds prior to allocating
- Analyzing determinants of investor consideration sheds light on which attributes funds really compete on, and for which investor groups
- Approach can be applied to measuring competition between other types of financial intermediaries targeting investors/savers/borrowers

Fund prospectus downloads from SEC EDGAR website

- We measure individual investors' consideration sets based on their prospectus acquisition decisions on SEC EDGAR, from 2006-2016
  - Can identify same individual downloading multiple prospectuses
  - Lee, Ma, and Wang (2015), Chen et al. (2020), and others exploit same website usage to study info. acquisition about listed firms

Figure 1. Number of unique fund companies (LHS) and individuals who downloaded prospectuses (RHS) in the dataset. Prospectus filings: N-1A, 485APOS, 485BPOS.
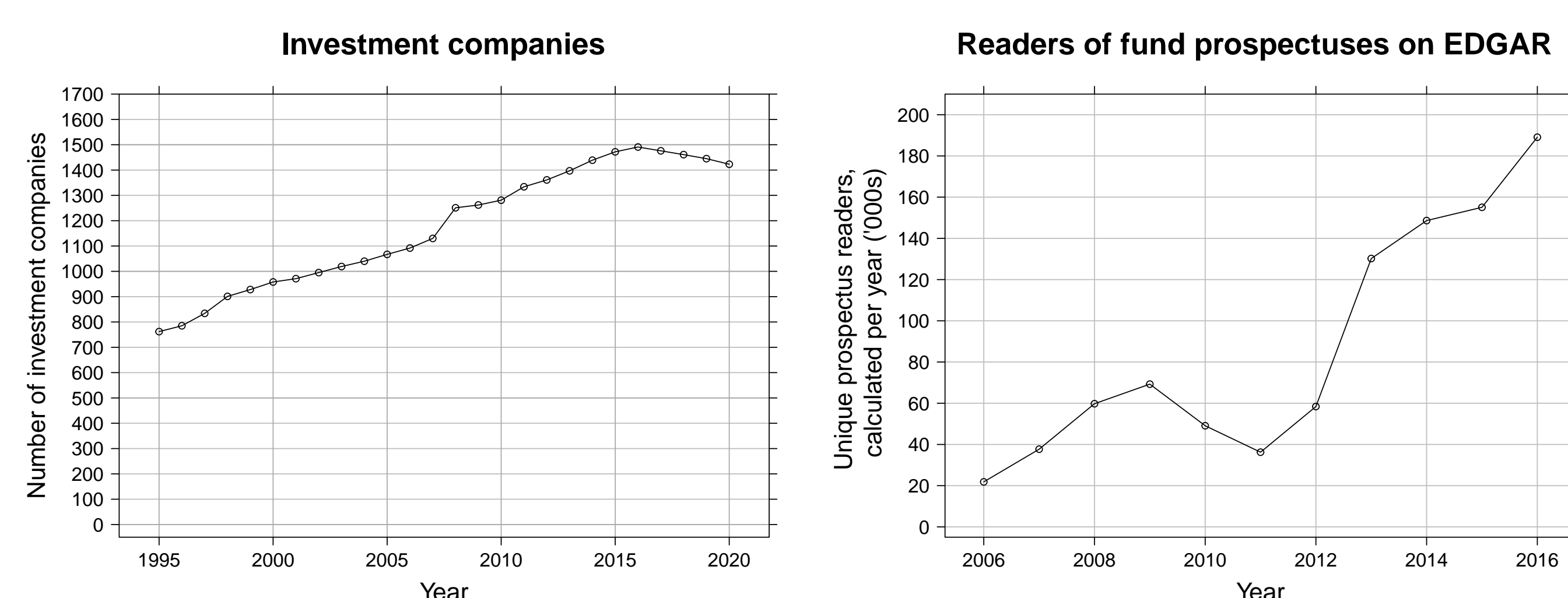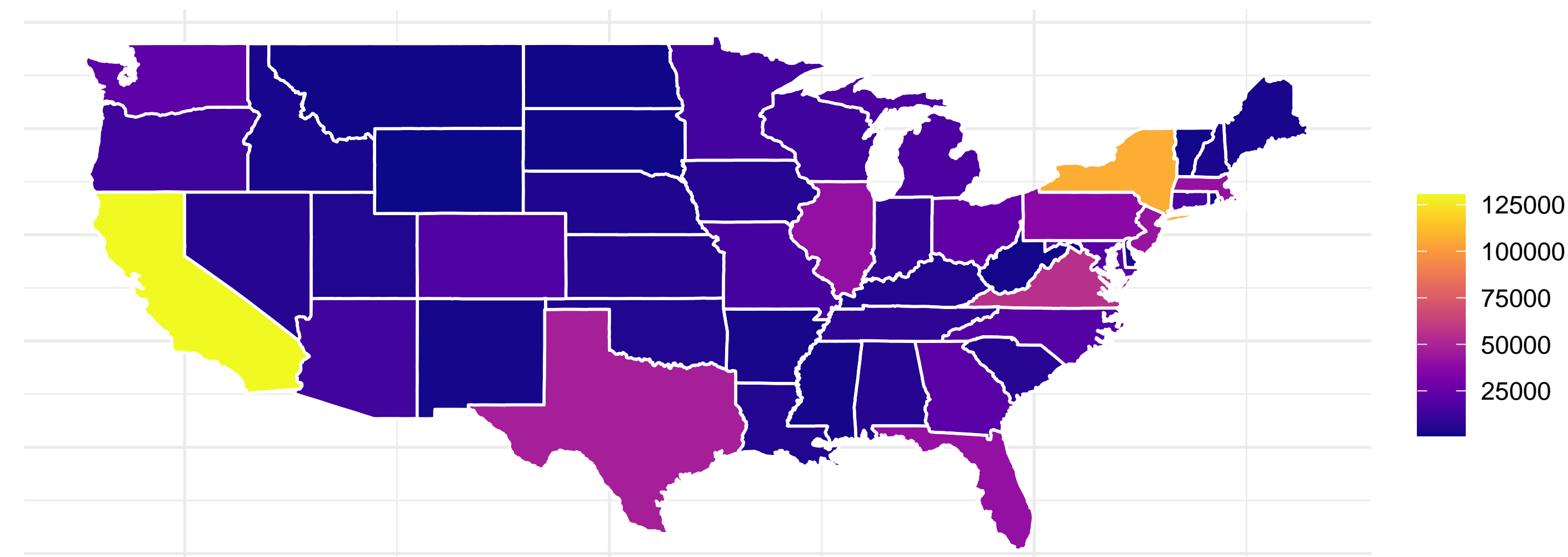

Figure 2. State-level counts of unique prospectus downloaders over full sample. Correlation between reader counts and the total population is 0.89 at state level (0.73 at county level).

Investor consideration is limited & heterogeneous

Figure 3. Distribution of investor consideration set size (LHS) and probability of membership in a consideration set (RHS). Both y-axes are in log-scale.
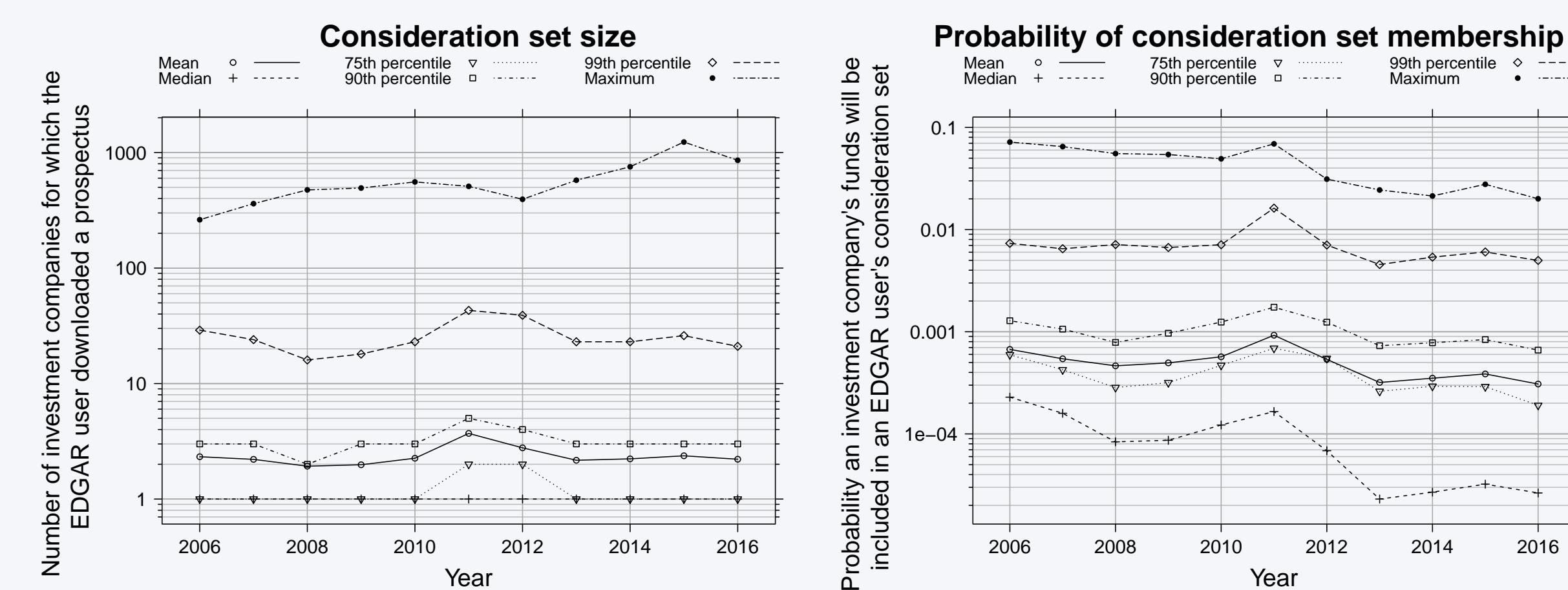
Formalizing link between consideration & competition

- We use an analytical model to show that limited & heterogeneous investor consideration induces varying degrees of local competitive intensity between funds, thus resulting in fee dispersion in equilibrium
- Demand side consists of mass of investors who
  - consider only a heterogeneous subset of all available funds
  - each solve a portfolio choice problem to allocate within that set
  - taking risk, return & fees into account
- Supply side consists of countable mutual funds who
  - take the consideration-moderated investor demand as given ⇒ network structure of competition
  - set fees accordingly ⇒ play a game over the network
  - keep mandates fixed during the game
- Equilibrium:
  - Unique Nash Equilibrium
  - Fund fees are dispersed & non-zero, with a closed-form solution

Figure 4. Intuition of consideration sets (on the demand-side) in aggregate inducing a competition network (on the supply-side) in our model of the mutual fund industry.
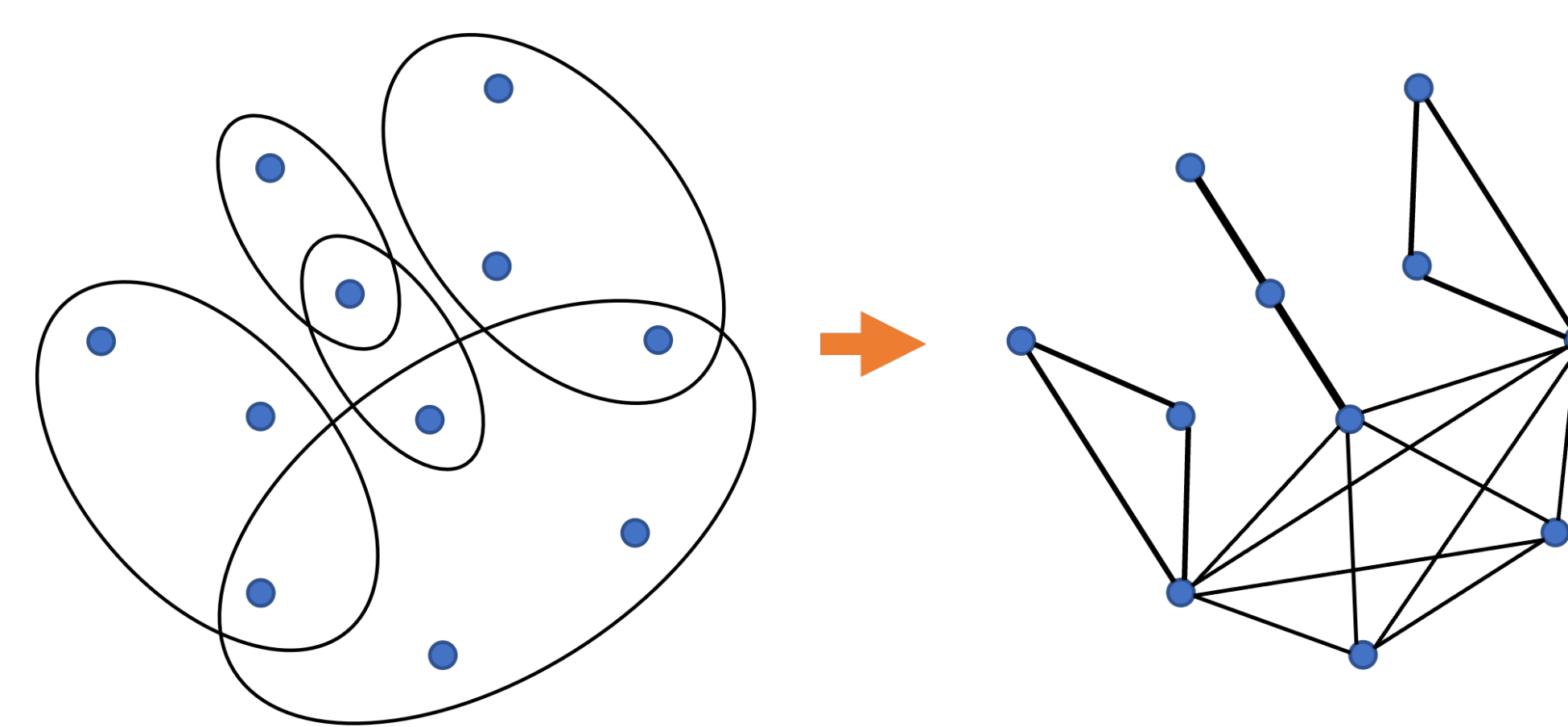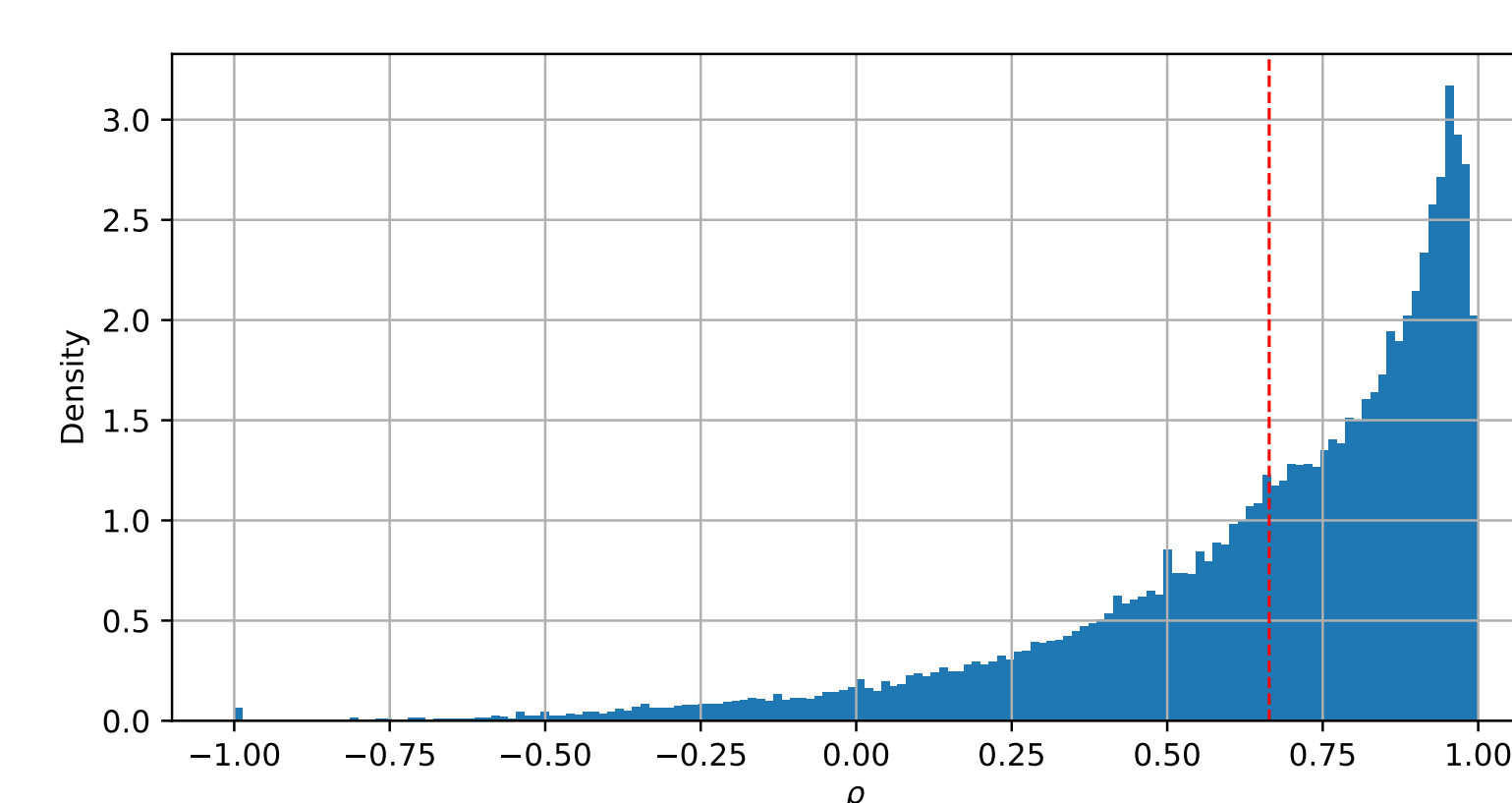

Figure 5. Within-consideration set average return correlations. 94% of values are in the range (0, 1), indicating that investors consider (imperfect) substitutes, not complements.

Calibrating the model & testing its predicted fees

Figure 6. Mutual fund total fees over time: percentiles (LHS) & dispersion (RHS), both aggregated to investment company level for consistency with SEC filings.
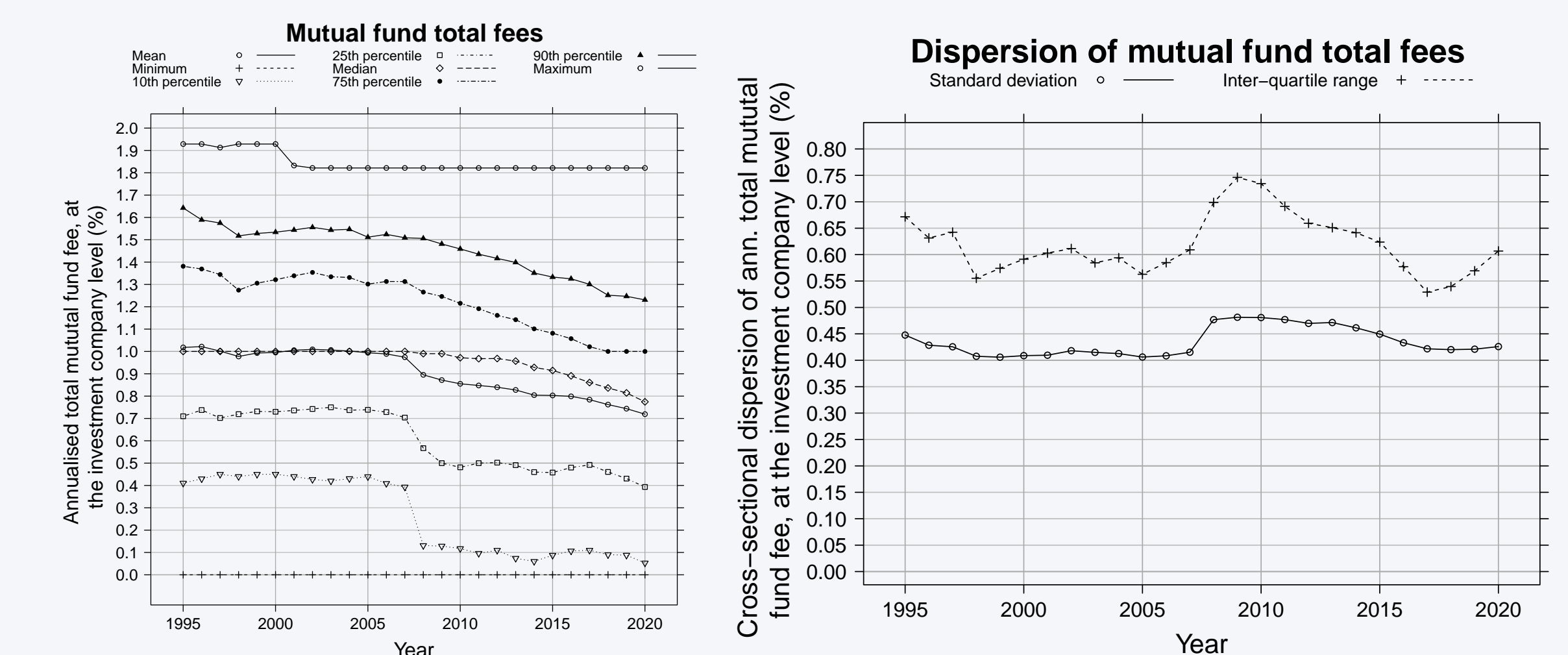
- As shown above, fund fees remain dispersed to the present day
- If our approach is valid, we can use our measured consideration sets to calibrate the model ⇒ extract a whole predicted cross-section of equilibrium fees ⇒ compare observed vs. predicted fees
  - Model calibration does not require any fee information, just consideration sets and historical returns
- Upon calibrating (at investment company level), we find the model does indeed predict the cross-section of fees:

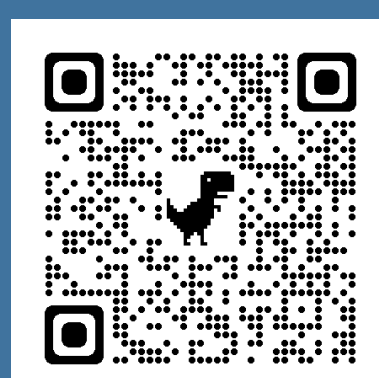| Dependent Variable:	f_{it}	
Model:	(1)	(2)
Variables		
$\hat{f}_{it}$	0.4242***	0.5406***
	(0.0839)	(0.0670)
(Intercept)	0.0075***	
	(0.0004)	
Fixed-effects		
Year		✓
Fit statistics		
Observations	13,404	13,404
R^2	0.04801	0.08312

Clustered (CIK & Year) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Determinants of individual consideration

- Consideration set size varies with proxies for financial sophistication
- Ongoing work to analyze the drivers of consideration at both
  - investment company level (i.e. the brand)
  - fund level (for equity-focussed funds)
- (Crucially, we use probability models that incorporate heterogeneity)

References

Balasubramaniam, Vimal, John Y Campbell, Tarun Ramadorai, and Benjamin Ranish. 2022. "Who owns what? A factor model for direct stockholding." *Journal of Finance* (forthcoming).

Betermier, Sebastien, Laurent E Calvet, and Paolo Sodini. 2017. "Who are the value and growth investors?" *Journal of Finance* 72 (1): 5–46.

Chava, Sudheer, Soohun Kim, and Daniel Weagley. 2022. "Revealed heuristics: Evidence from investment consultants' search behavior." *Review of Asset Pricing Studies* 12 (2): 543–592.

Chen, Huaizhi, Lauren Cohen, Umit Gurun, Dong Lou, and Christopher Malloy. 2020. "IQ from IP: Simplifying search in portfolio choice." *Journal of Financial Economics* 138 (1): 118–137.

Honka, Elisabeth, Ali Hortaçsu, and Maria Ana Vitorino. 2017. "Advertising, consumer awareness, and choice: Evidence from the US banking industry." *RAND Journal of Economics* 48 (3): 611–646.

Hortaçsu, Ali, and Chad Syverson. 2004. "Product differentiation, search costs, and competition in the mutual fund industry: A case study of S&P 500 index funds." *Quarterly Journal of Economics* 119 (2): 403–456.

Kostovetsky, Leonard, and Jerold B Warner. 2020. "Measuring innovation and product differentiation: Evidence from mutual funds." *Journal of Finance* 75 (2): 779–823.

Lee, Charles MC, Paul Ma, and Charles CY Wang. 2015. "Search-based peer firms: Aggregating investor perceptions through internet co-searches." *Journal of Financial Economics* 116 (2): 410–431.

Merton, Robert. 1987. "A Simple Model of Capital Market Equilibrium with Incomplete Information." *Journal of Finance* 42 (3): 483–510.