

# Optimal Search and Discovery

CEPR/JIE School on Applied Industrial Organisation

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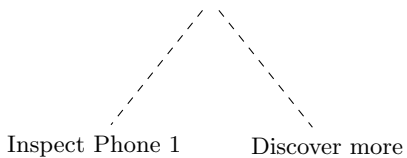
# Motivation/Background

- Consumers have limited information on available alternatives
  - ▶ First need to search for product information
- Resulting search frictions have been studied extensively
- Analysis relies on optimal search policies
  - ▶ No prior information: Stopping problem (e.g. McCall, 1970, *QJE*)
  - ▶ Partial information: Directed search (e.g. Weitzman, 1979, *ECTRA*)

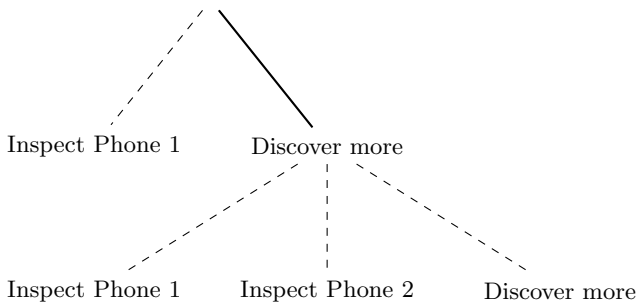
# This paper

- Introduces limited awareness in a sequential search problem
  - ▶ Consumer initially has partial information on *some* alternatives
  - ▶ Products that a consumer is not aware of cannot be inspected directly
- Consumer sequentially decides between:
  - ▶ Searching among products he is already aware of
  - ▶ Discovering more products
- Solves the resulting “search and discovery” problem

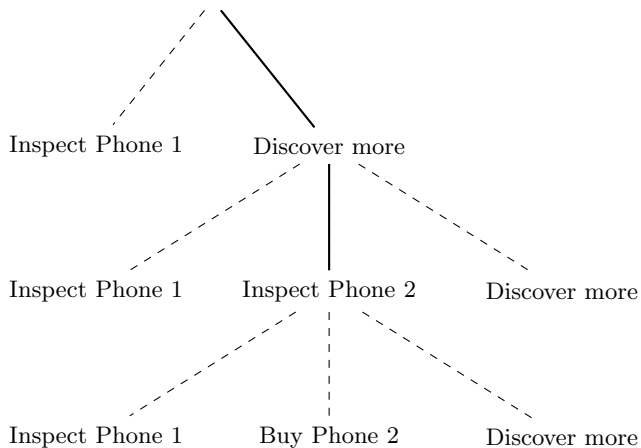
# Search and Discovery



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# Main Results

1. Optimal policy is fully characterized by tractable reservation values
2. A predetermined index fully specifies purchase outcomes:
  - ▶ Generalizes eventual purchase theorem of Choi, Dai and Kim (2018, *ECTRA*)
  - ▶ Provides tractable expression of a consumer's expected payoff

- Nests existing sequential search problems (e.g. Weitzman, 1979, *Econometrica*)
  - ▶ Random search
  - ▶ Directed search
- Ranking effects
  - ▶ Products discovered early are more likely to be bought



# Conclusion

- Limited awareness leads to a novel search problem
- Tractable optimal policy and aggregation results
- Results provide basis for future research

Thank you for your attention!