A program director’s perspective on recruitment and selection

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Disclosure statement

• Immediate past president of APPCN
• APPCN member program director
Matching Markets

Al Roth: “Matching markets are markets where you can’t just choose what you want, you also have to be chosen”

Who Gets What: The New Economics of Matchmaking and Market Design
Stanford Graduate School of Business:

https://www.youtube.com/watch?v=kj2fpM57Z7A
Matching Markets

- Jobs
- Marriage
- Medical residency
- Psychology internships
- Public School choice
- Kidney exchange
- Neuropsychology Postdoctoral Programs?

Decentralized

Centralized

???
Market Selection

• Decentralized
  • Open Market
  • No rules regarding offers and acceptances

• Centralized
  • Rules for making and accepting offers
  • Varying degrees of “closed system”
## Market Selection

<table>
<thead>
<tr>
<th>Decentralized</th>
<th>Centralized</th>
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</thead>
<tbody>
<tr>
<td>Freedom</td>
<td>Rules</td>
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<tr>
<td>Negotiation</td>
<td>Agreed timeline</td>
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<tr>
<td>Creeping offers</td>
<td>Better behavior</td>
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<tr>
<td>Exploding offers</td>
<td>Perceived less stress</td>
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<tr>
<td>Bottlenecks</td>
<td>Consider all alternatives</td>
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<tr>
<td>“Unraveling”</td>
<td>Restrictive</td>
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<td></td>
<td>Sense of uncertainty</td>
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<td></td>
<td>Need full participation</td>
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Centralized approaches

• Uniform notification dates (UND)
  • Stressful
  • Subject rule breaking

• Shared Calendar
  • Creeping offers and bottlenecks
  • Attempts to “game” the system

• Computer match
  • An imperfect solution?
How does the match work?

- **Deferred acceptance algorithm** Alvin E. Roth (http://www.nber.org/papers/w13225)
  An outcome of the game is a matching: \( \mu : M \cup W \rightarrow M \cup W \) such that \( w = \mu(m) \) if and only if \( \mu(w) = m \), and for all \( m \) and \( w \) either \( \mu(w) \) is in \( M \) or \( \mu(w) = w \), and either \( \mu(m) \) is in \( W \) or \( \mu(m) = m \). That is, an outcome matches agents on one side to agents on the other side, or to themselves, and if \( w \) is matched to \( m \), then \( m \) is matched to \( w \). A matching \( \mu \) is blocked by an individual \( k \) if \( k \) prefers being single to being matched with \( \mu(k) \), i.e. \( k > k \mu(k) \). A matching \( \mu \) is blocked by a pair of agents \((m,w)\) if they each prefer each other to the partner they receive at \( \mu \), i.e. \( w > m \mu(m) \) and \( m > w \mu(w) \). A matching \( \mu \) is stable if it isn't blocked by any individual or pair of agents.

- For the psychologists in the room:  
  [https://www.natmatch.com/appcnmat/aboutalg.html](https://www.natmatch.com/appcnmat/aboutalg.html)
Why the Computer Match?

• Applicants and programs can consider all of their options
• Rules prohibit pressure on applicants or programs to make a premature decision
• Match is based on the true and actual preferences of applicants and programs
• Produces stable matches: no applicant and program not matched with each other prefer each other to their assigned matches
Conclusion

• What’s best for the shared community and our specialty?
  • Better matches = better training = better future