

Constraints on Matching Markets Based on Moral Concerns

Abstract

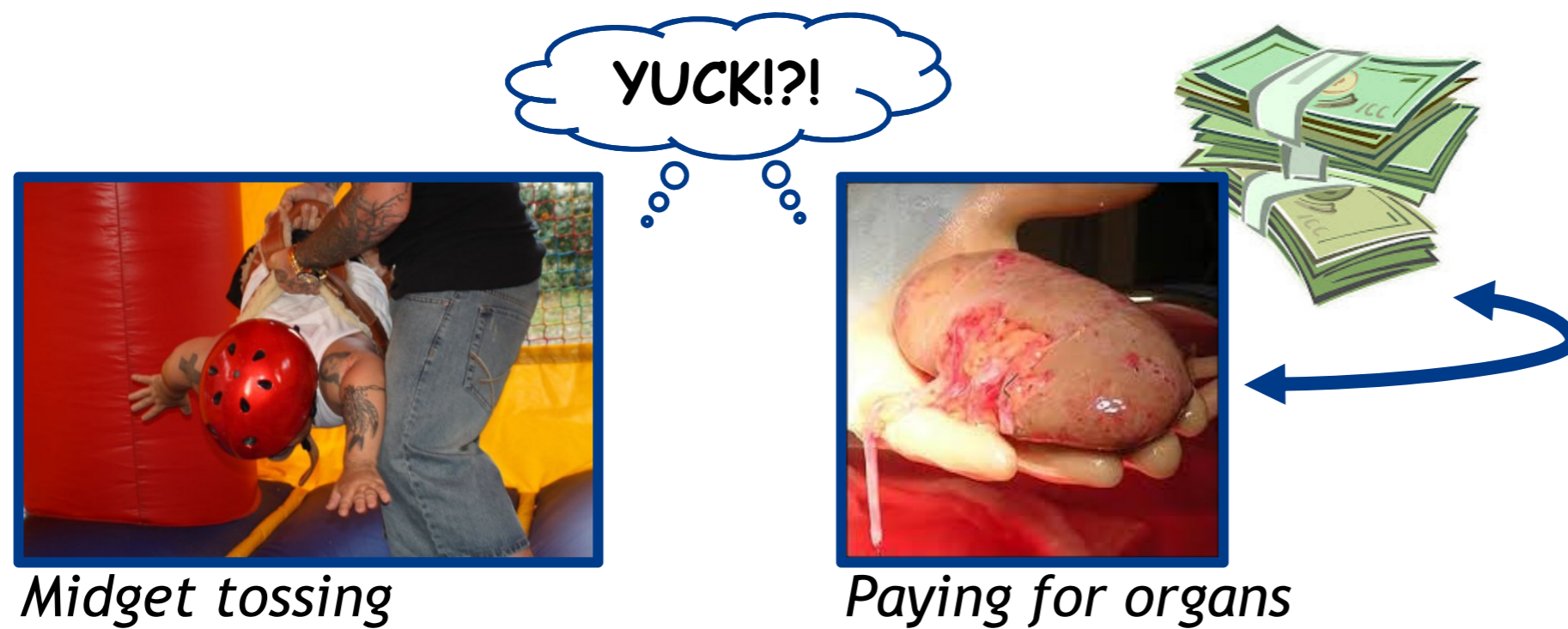
Various markets ban monetary transfers which leads to inefficiencies. In models of matching markets, absence of money is typically taken as an exogenous constraint reasoned by repugnance towards monetary payments. We endogenize this constraint by considering moral concerns, namely the desire to avoid discrimination with respect to financial wealth. The exclusion of discrimination implies restrictions on both the object distribution and the monetary transfers.

Inefficiencies in the market are then obtained as second best outcomes. More specifically, a setting of complete information demands the matching of the objects to be independent of cardinalities. Incomplete information requires the monetary transfers to be independent of preferences. If money can be used outside a matching procedure, even more restrictions are needed: the matching of the objects has to be other-preferences independent.

Motivation

Rather than taking repugnance as a constraint...

...understand underlying preferences and its implications for market design



“Why worry that we are moving toward a society in which everything is up for sale? For two reasons. One is about inequality, the other about corruption. [...] Where all good things are bought and sold, having money makes all the difference in the world.”
Michael Sandel, 2012

- Why preventing two persons from engaging in an activity?
- Roth, 2007: Repugnance as a constraint
- Shortcomings in reasoning
 - Motivation underlying repugnance diverse
 - Repugnance might depend on individual attitude

- Endogenizing absence of money by considering moral concerns underlying repugnance toward money
- Restrictions on mechanisms solely based on moral concern

Modeling Discrimination

Main idea

- Focusing on the desire of no discrimination: A change in wealth should not lead to different object assignment
- Change in wealth might impact willingness to pay in two ways
 - Appreciation changes
 - Marginal value of money changes
- We require “no discrimination” at least for the following impact
 - Appreciation constant
 - Marginal value of money decreases

Definition (Discrimination):
Let i be an agent whose willingness to pay changes from θ_i to θ_i' when gaining wealth and θ_i' is a distance increasing monotonic transfer of θ_i . φ discriminates with respect to financial wealth if θ_i leads to a different object assignment for agent i than θ_i' .

Model setting

- k indivisible objects and n agents $i \in I$
- Willingness to pay of agent i : $\theta_i \in \mathbb{R}_+^k$
- Mechanism $\varphi = (\sigma, m)$ performs matching σ and money assignment m

Distance increasing monotonic transfer

- θ_i and θ_i' have same ordinal ranking of objects
- Comparing any two objects the absolute difference in the willingness to pay is higher for θ_i' than for θ_i

Main Results

Discrimination-free assignments

1 Complete information

φ discrimination-free \leftrightarrow σ_i independent of cardinalities of θ_i

2 Incomplete information, best reply strategies (alt.: φ strategy-proof)

φ discrimination-free \leftrightarrow σ_i independent of cardinalities of θ_i and m_i independent of θ_i

- Under complete information monetary payments are not fully excluded
- Results imply that efficient mechanisms discriminate

Discrimination in pure matching mechanisms

3 Money used outside the allocation procedure to bribe another agent to lie about preferences

σ bribe-proof \leftrightarrow σ_i independent of θ_i

- Number of objects equals number of agents: bribe-proof mechanisms are constant
- Extensions: Lotteries, two-sided market, description of possible efficiency gains

Assuming nonbossiness of φ : Results transfers from φ_i to φ , θ_i to θ , σ_i to σ and m_i to m , respectively