

# Who Pays?

## Personalization, Bossiness and the Cost of Fairness

2022 FAcctRec Workshop

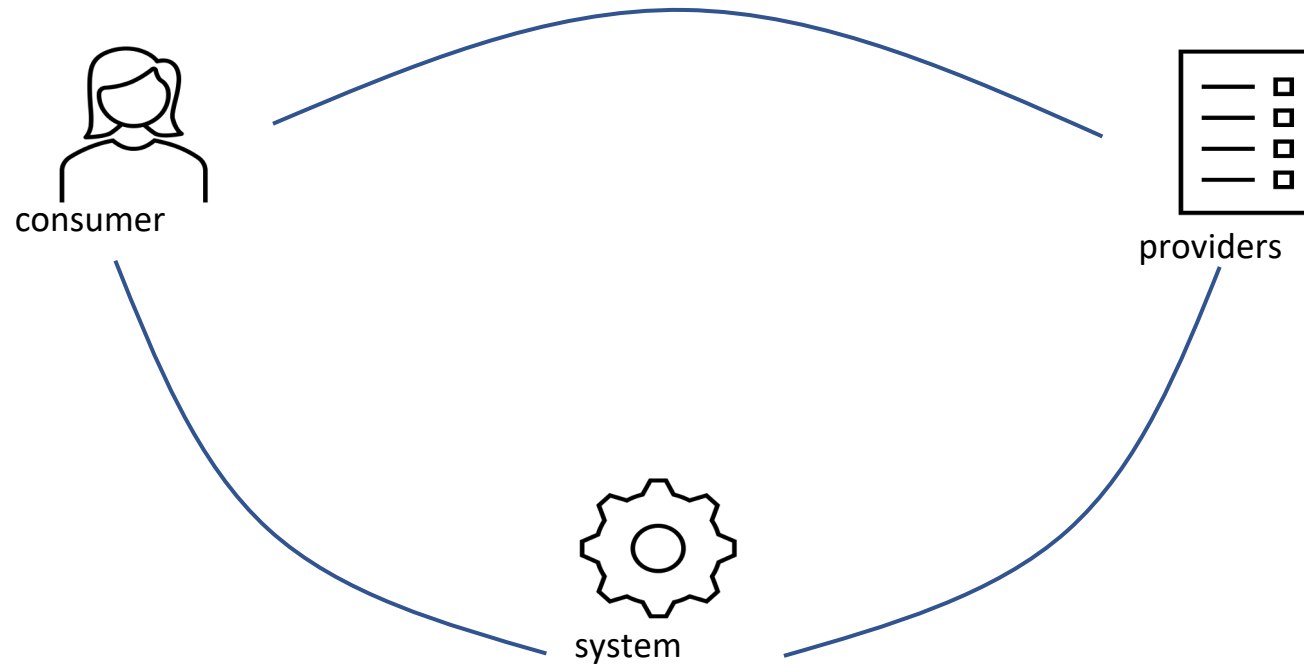
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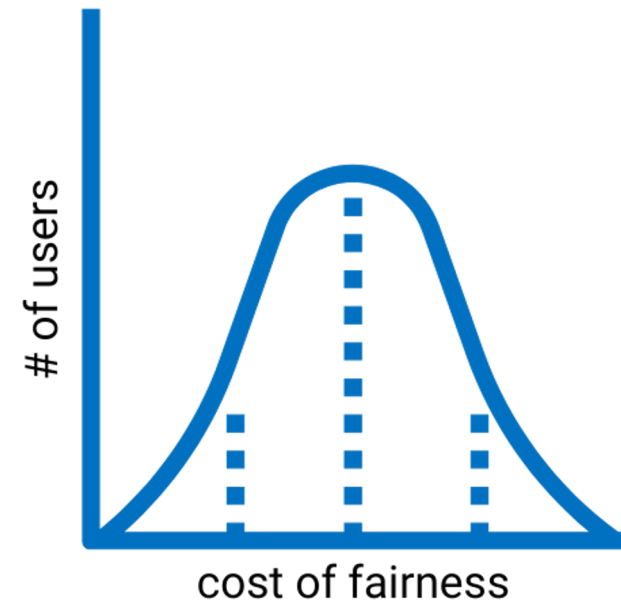
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In this paper, we look at the question of **consumer-side unfairness** arising as a consequence of **provider-side fairness** constraints

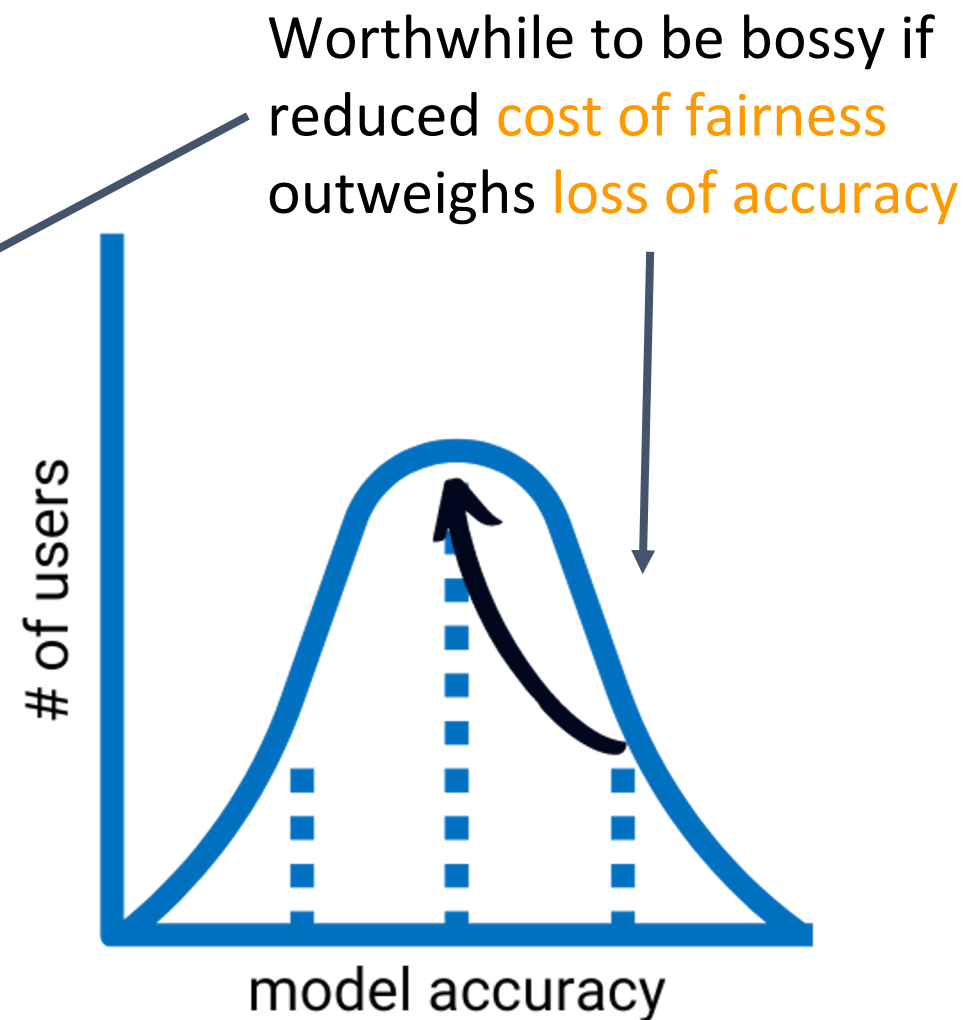
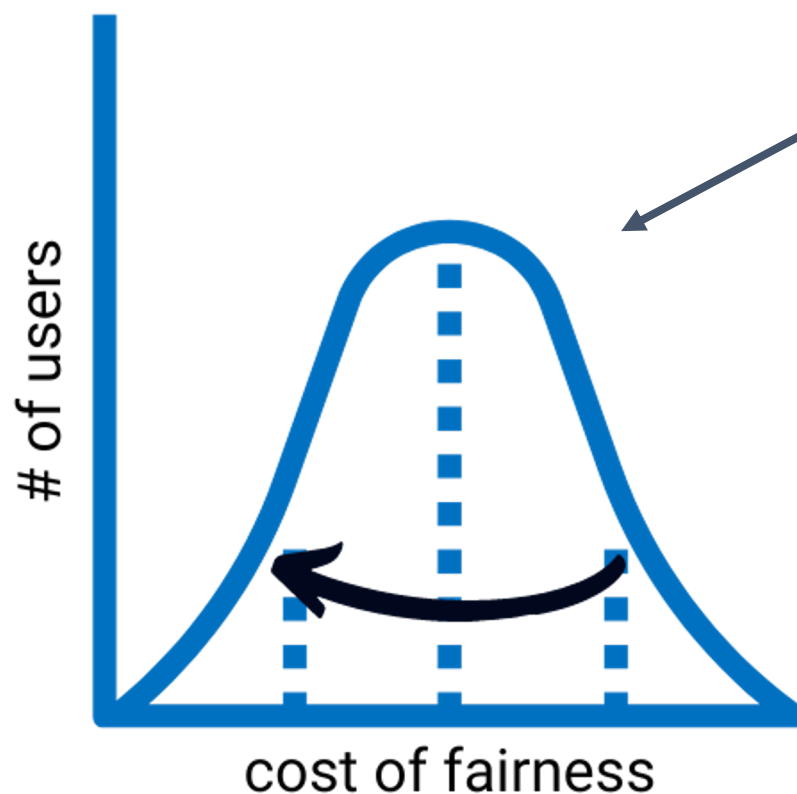


- **Cost of fairness [1]:**
  - users receive lower utility than they would in a system that is unconstrained by fairness objectives
- What is the **distribution** of this cost?



- **Bossiness [2]**
  - concept from social choice
  - users **manipulate their input** in a way that harms others without getting worse outcomes themselves
- **Recommendation Context**
  - the user's input is their user profile

# $\epsilon$ -Bossiness



- We want to consider this in the long-term aggregate fairness context
- **Example:** Microlending application with Kiva
- Refer to [3] for more details

Background

Bossiness

Context

**Approaches**

Further  
Research

## Drop Personalized Approach to Fairness

Lower accuracy / utility for users

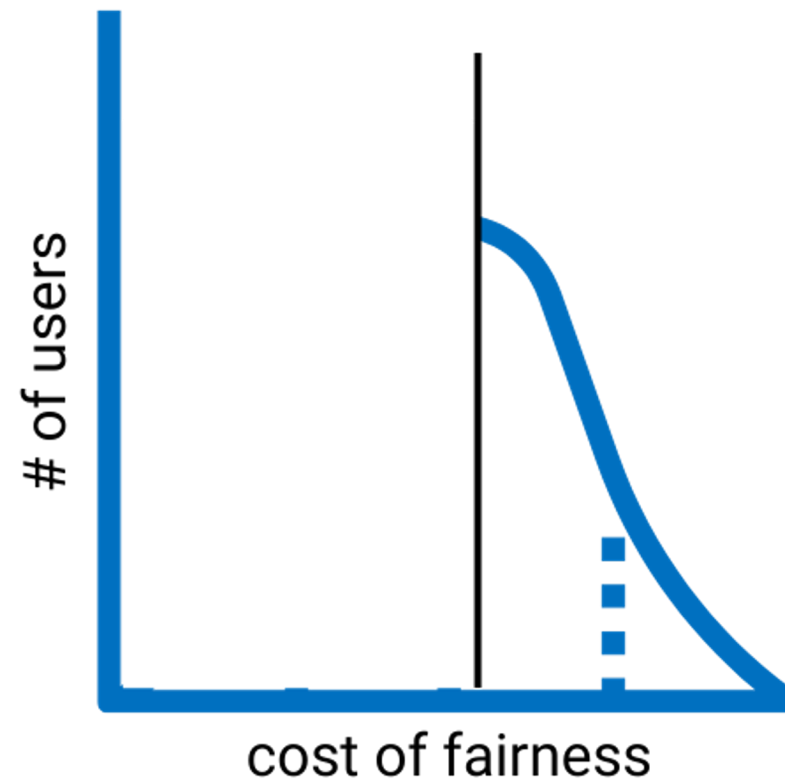
# of users

cost of fairness

Loses the benefit of a personalized approach to fairness.  
Particularly a problem for **multiple fairness dimensions**.

## Minimum Fairness Requirement [4]

Require some “cost of fairness” for all users

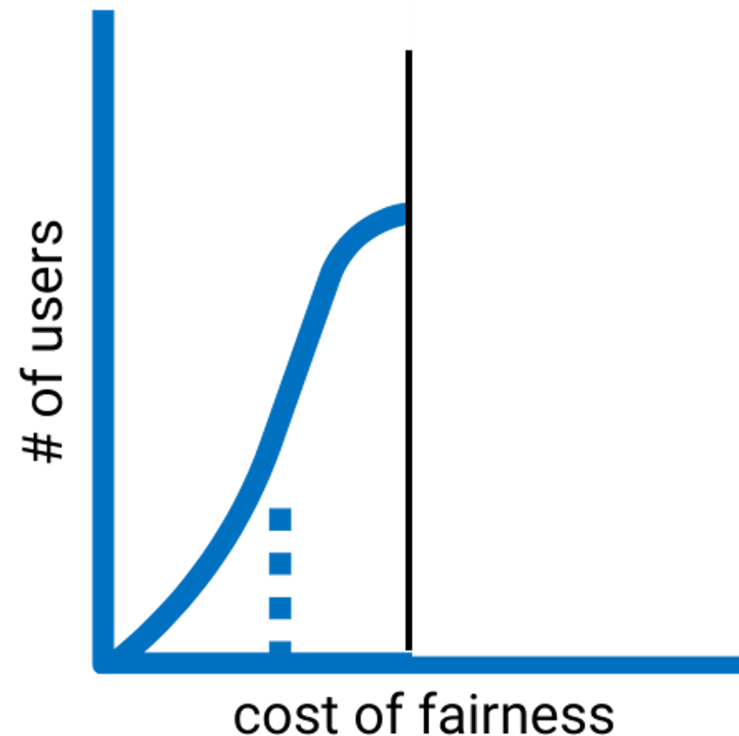


Users don't **gain as much** from a bossy strategy



## Maximum Cost of Fairness [5]

Prevent any given user from taking on much of the cost



No user has too much cost so **less incentive** for bossiness. Burden **can't be shifted** too much because of the upper bound.

# Study system vulnerabilities to bossy strategies and possible responses

- In the Kiva context, which might be more effective:
  - upper bound on the cost of fairness?
  - lower bound?
- Can we persuade users not to be bossy?

# Thank you

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