



Comparing Targeting Strategies for Maximizing Social Welfare with Limited Resources

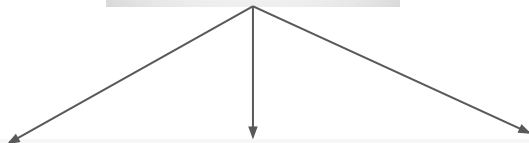
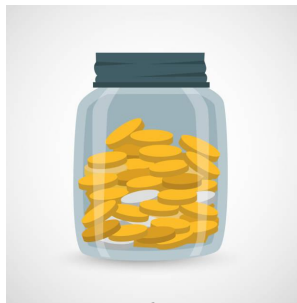
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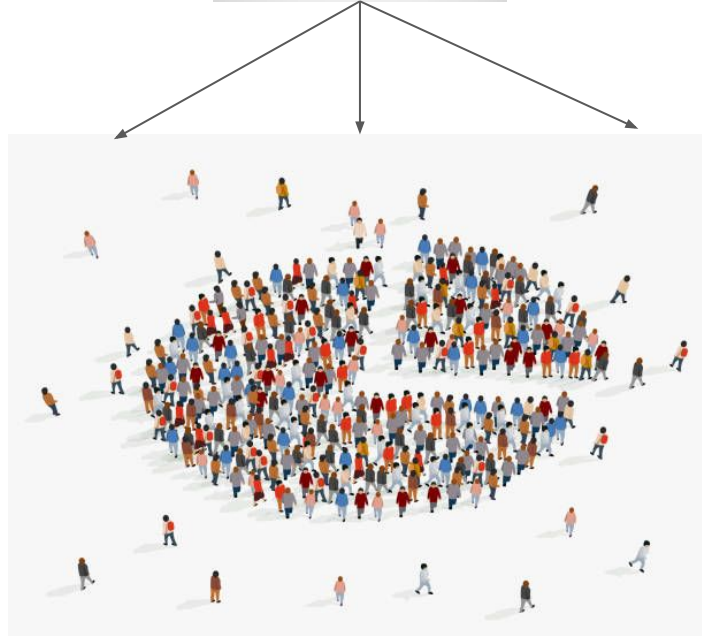
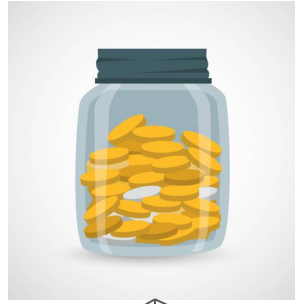


Limited Resource/
Fixed Treatment
Budget



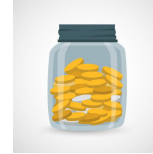
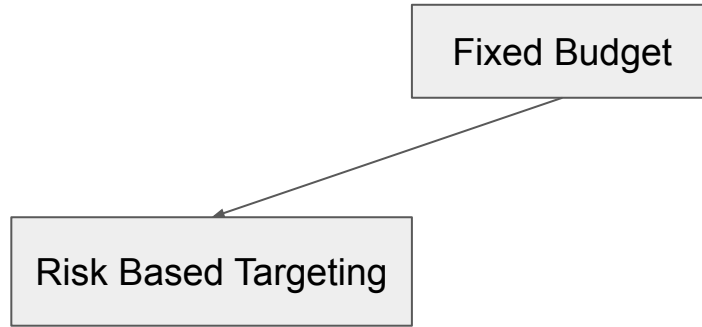
Population to allocate
the resource to





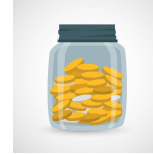
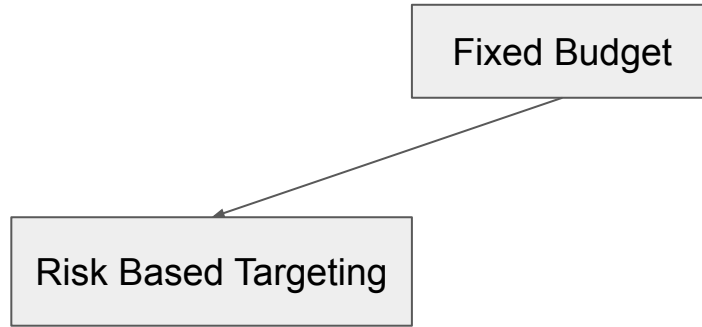
**How do you determine
who should receive the
treatment?**

How do you choose whom to treat?



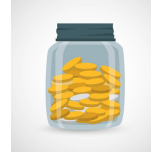
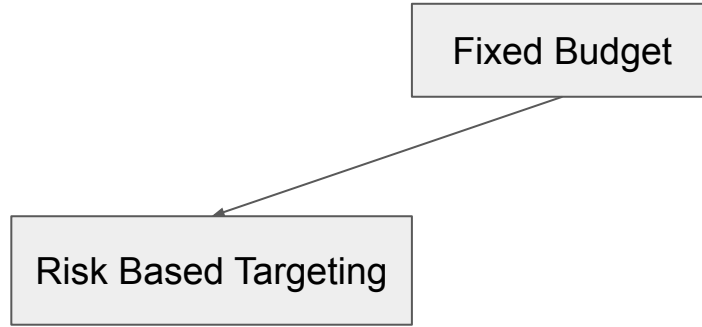
- Target 'high-risk' people

How do you choose whom to treat?



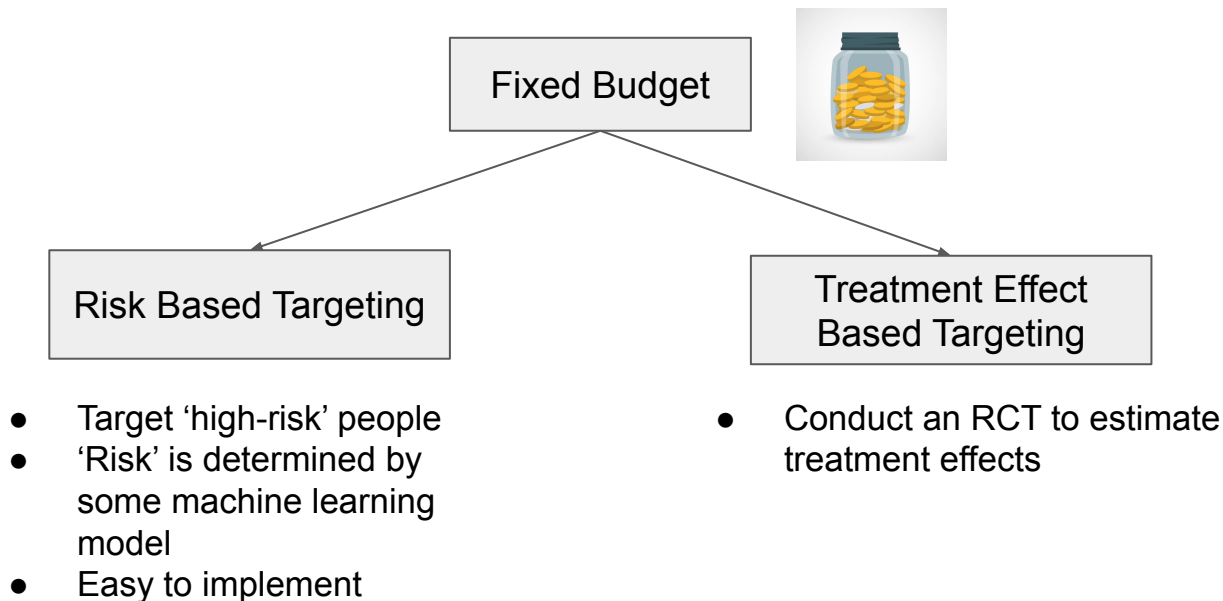
- Target 'high-risk' people
- 'Risk' is determined by some machine learning model

How do you choose whom to treat?

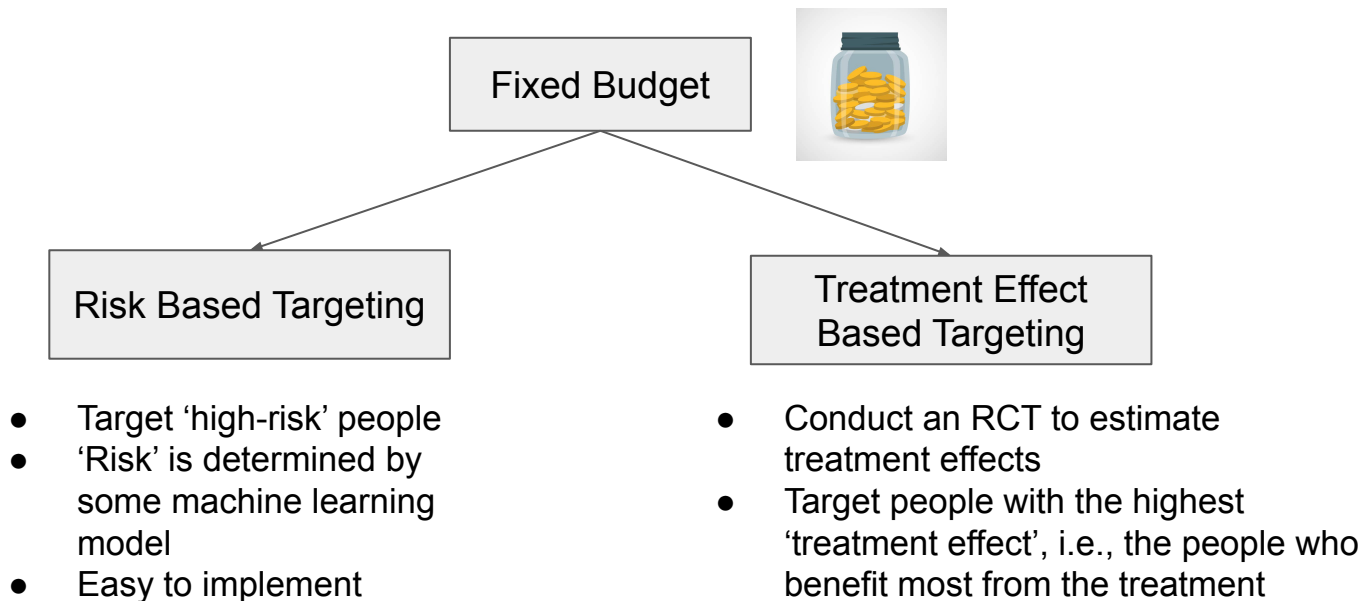


- Target 'high-risk' people
- 'Risk' is determined by some machine learning model
- Easy to implement

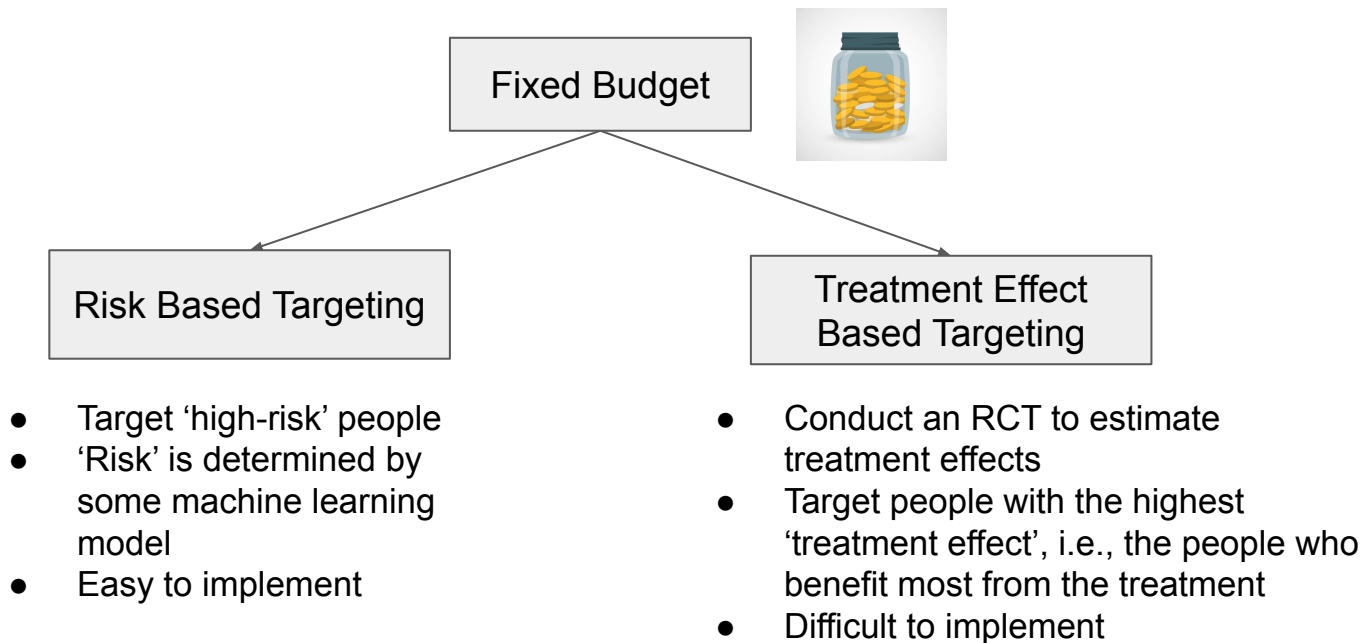
How do you choose whom to treat?



How do you choose whom to treat?



How do you choose whom to treat?



What if I can't conduct an RCT?

Conducting an RCT

- **takes time,**
- **can be unethical!**

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Is risk-based targeting now justified?

What if I can't conduct an RCT?

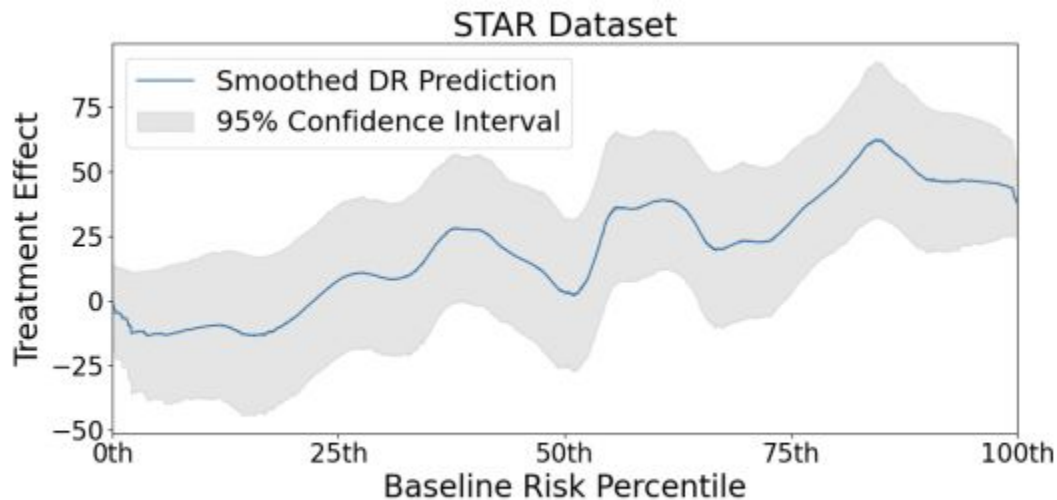
Conducting an RCT

- takes time,**
- can be unethical!**

Is risk-based targeting now justified?

In this study, we introduce varying levels of confounding into 5 real world RCTs (to simulate observational data), and compare risk based targeting to **biased** treatment effect based targeting under different policymaker welfare functions.

Treatment Effect Heterogeneity



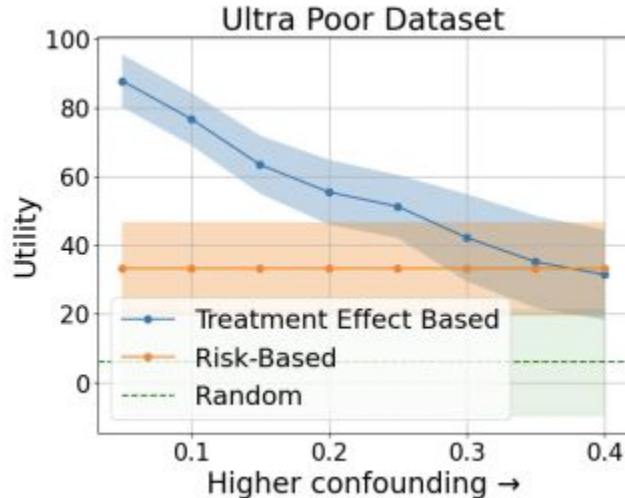
Key Findings

- 1) Real-world RCTs can contain insufficient data to learn reliable mappings from features to treatment effects, making it difficult to accurately predict who will benefit most from treatment.



Key Findings

2) If one is able to estimate treatment effects accurately at zero confounding, targeting based on biased treatment effect estimates from confounded data still outperforms risk-based targeting even at high levels of confounding!



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<https://iclr.cc/virtual/2025/poster/31240>