Targeting COVID-19 Aid with Mobile Phone Data and Machine Learning

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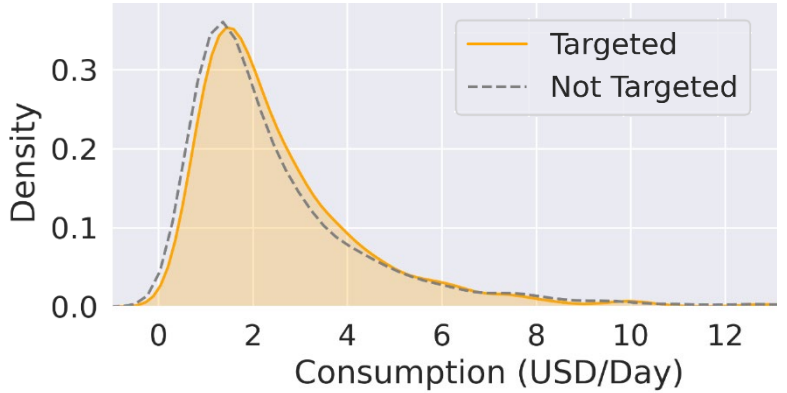
The challenge of program targeting

Hundreds of targeted social protections launched in response to COVID-19

- The **targeting** of such programs is a major source of program inefficiency
  - Coady et al. (2004), Brown et al. (2018), Hanna and Olken (2018)
- Particularly in the middle of a pandemic, which complicates data collection

Example: Togo's flagship anti-poverty program ("Novissi")

- 100% digital: people register via USSD, paid $15/month via mobile money
- Eligibility based on home location and occupation
  - As recorded in Togo's voter registry database
- **Beneficiaries are no poorer than non-beneficiaries**: →
  - (Figure based on nationally-representative household survey collected by Togolese gov't in 2018-19, *N*=4,320)



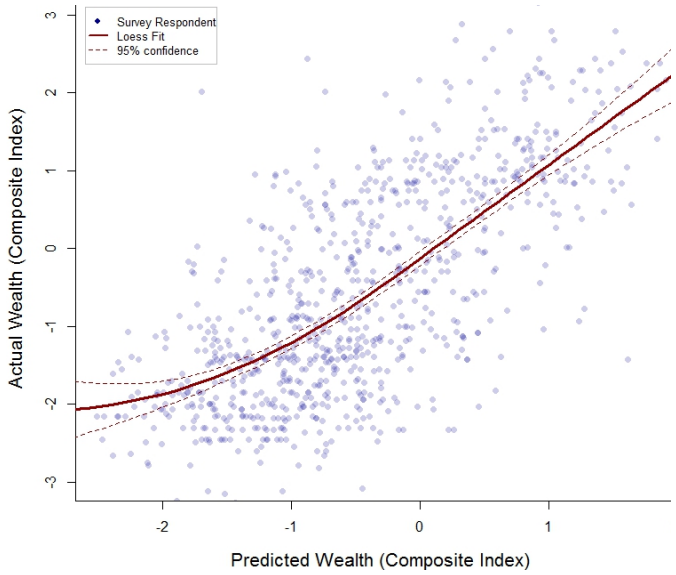
Targeting with ML + phone data

Our question: *Can targeting be improved with non-traditional data (+ML)?*

- Prior work indicates patterns of phone use are predictive of wealth (Blumenstock et al 2015)
- Intuition: Wealthy people use their phones differently

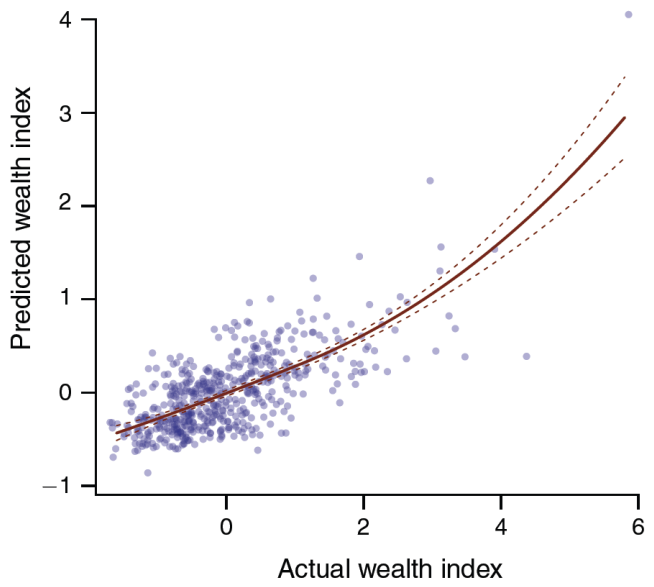
Rwanda 2009

Phone survey; N=856; R^2=0.46



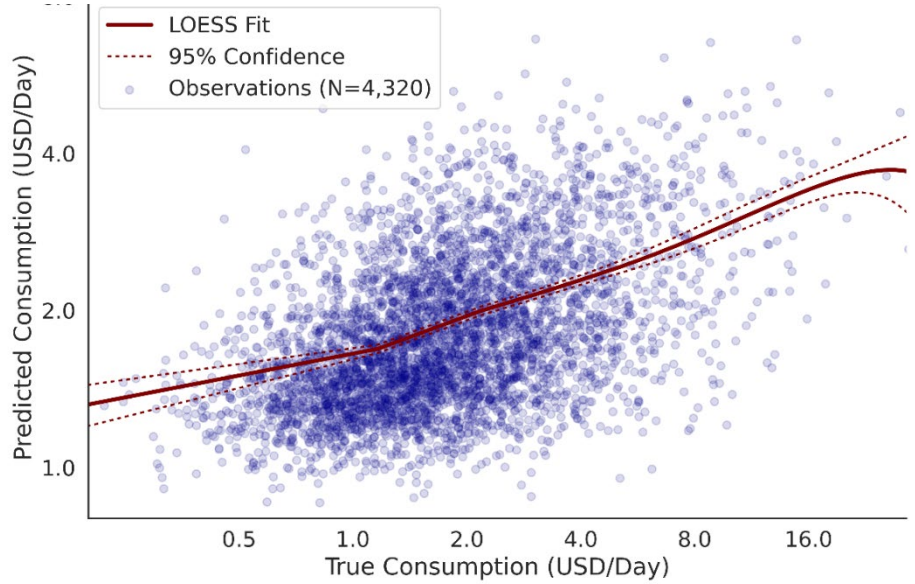
Afghanistan 2015

In-person survey; N=1,234; R^2=0.41



Togo 2018

Consumption survey; N=4,320; R^2=0.22



Preview of Results

Targeting with phone-based PMT improves targeting accuracy

- Togolese gov't is expanding benefits to ~60k individuals in poorest rural cantons
- We simulate targeting outcomes according to three feasible mechanisms, based on "ground truth" poverty data collected in September 2020 phone survey (*N*=9,484)

Current expansion in Togo based on this approach (evaluation planned for 2021)