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Title: Visualizing Energy Efficiency Information: Evidence from a Randomized Controlled Intervention

Abstract: Speaker: Dr. Maya Papineau, Carleton University or Dr. Nic Rivers, University of Ottawa In 2017, the City of Medicine Hat (the City) in Alberta, Canada set out to answer one question - can personalized information about potential energy savings and home heat loss nudge homeowners to participate in incentive programs and reduce consumption? Medicine Hat, with 63,000 residents, is one of only a handful of municipalities in the world that produces and distributes its own natural gas and electricity. This shared governance between the utility and municipality eliminates data sharing barriers faced by many public and private partnerships. Building on this multi-sectoral opportunity, the City partnered with Natural Resources Canada, academic partners from the University of Ottawa and Carleton University, and MyHEAT Inc. The partners set out to experimentally evaluate the effects of novel informational and behavioural nudging methods, building on growing literature that evaluates non-price demand-side interventions in energy markets. Four randomized groups were established, and the following descriptive norm treatments were presented to customers on utility bills in both the winter and fall of 2018:

1. Comparative consumption information, showing a graphical representation of the home's energy usage compared to homes similar in size and age within the city.
2. Personalized heat loss data, including an aerial thermal image and a rating comparing the home's heat loss to other in the neighbourhood and city. Data was provided by MyHEAT, an industry leader in mass-scale thermal data processing.
3. A combination of treatments one and two.
4. A control group receiving a standard utility bill. The academic partners were provided with daily consumption data for the roughly 20,000 households included in the analysis, spanning one year before to one year following the intervention.

Preliminary results suggest that the most effective treatment was personalized heat loss data, treatment two. This treatment resulted in a net savings of 5,117 GJ, a 1.7% impact on consumption equivalent to the annual natural gas consumption of 78 homes from within the treatment group of 4,700 homes. Full program results are expected in the spring of 2019.

Similar projects can be easily replicated in other utility settings. Interested utilities may specifically benefit from hearing about results and lessons learned when integrating personalized heat loss data. MyHEAT's technology helps homeowners visualize and compare areas of heat loss on public or private platforms and can be used to target the least efficient consumers.