U6614
Lectures 7 & 8: Detroit Water Shutoffs
Policy Context and Data Overview

Research questions:

- Which populations are most affected by Detroit's water shutoffs?
- What are the associated health impacts?

Policy context

Water affordability is an acute problem in Detroit due to a number of factors – aging infrastructure, declining federal funding for water infrastructure, a 2013 municipal bankruptcy, declining economies of scale, and persistent and rising inequality and poverty. In particular, depopulation and white flight (to the suburbs) have resulted in a system of water distribution to fewer people over a more expansive geographic area, leading to extremely high per-unit costs.

One of the worst manifestations of unaffordable water is a shutoff – a disconnection of water service for non-payment. In theory, they help water utilities recover their costs by raising revenue collection through the threat of disconnection and not sending water that might not get paid for. However, they have adverse consequences for educational access, home values/foreclosures, mental and physical health, and sanitary conditions at both the individual and neighborhood level. Though municipal authorities have typically ignored advocates of income-based water pricing (to address the underlying affordability problem), Detroit has extended a moratorium on utility shutoffs across Michigan through 2021.

Data

In Week 7 we'll investigate which communities were most affected and when, using monthly *census tract-level* demographic data from the American Community Survey (ACS) and service interruptions (SI) microdata – i.e. shutoff records. In week 8, we will examine the association between shutoffs and public health outcomes at the *zip code-level* (joining zip-code level demographic data to data on public health records (hospitalizations and hospitalizations related to viral infections), as well as data from the US Department of Housing and Urban Development (HUD) on home vacancies.

Methods

We'll start with a cross-sectional exploration of the relationships between tract-level income, race and shutoffs, using data visualization techniques we've already used in other examples. We can do the same for health outcomes and shutoffs. Next we'll conduct a preliminary econometric analysis of the impacts of shutoffs on public health impacts*, exploiting variation in shutoffs over time within zip codes* and relying on fixed effects and other controls – we'll discuss how close this gets us to estimating arguably causal effects.

Why should we care?

Presenting quantitative evidence on the negative impacts of water shutoffs (and disparate impacts based on race) can help drive action and reform towards more equitable water access. This is particularly useful in the context of a city that has been historically slow in responding to an underlying affordability problem and stark racial disparities.