Discussion

Electricity mergers and split incentives

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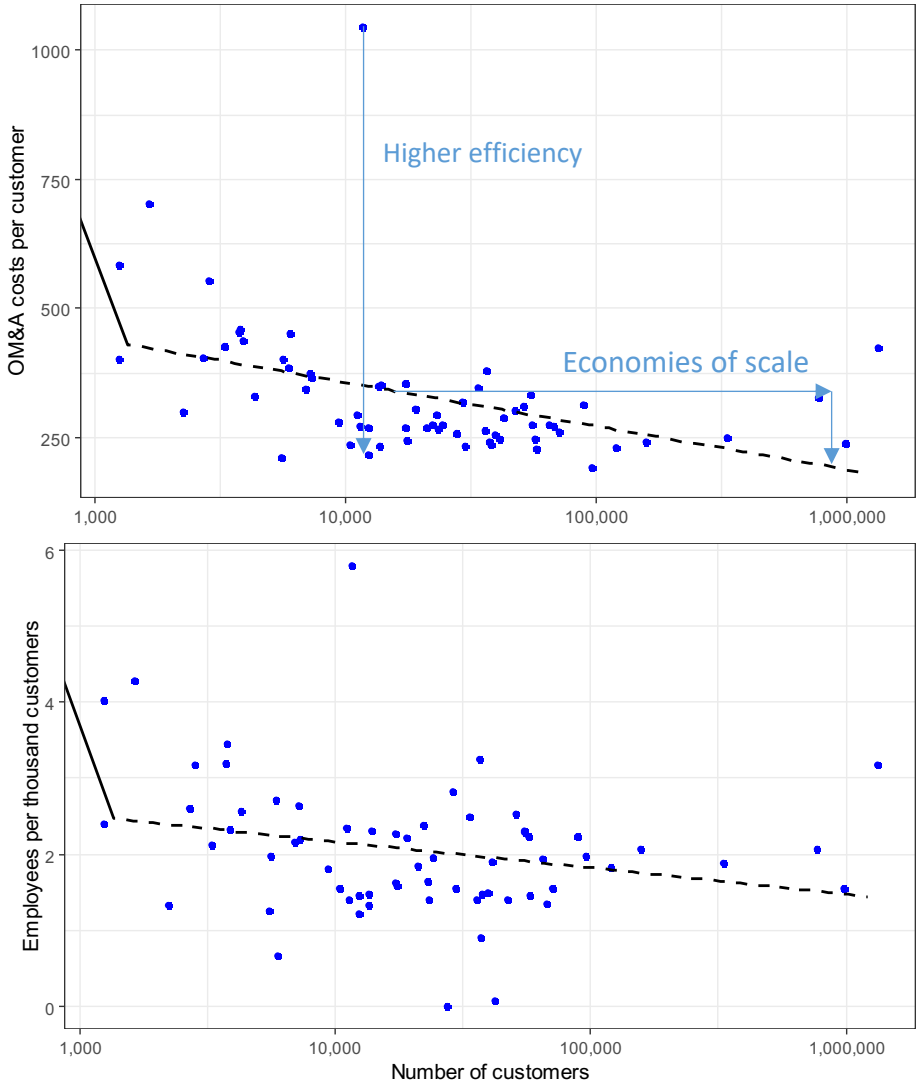
Incentivized mergers and cost efficiency: Evidence from the electricity distribution industry

Clark and Samano

Context

- There are currently about 70 LDC serving Ontario electricity customers.
  - Ontario has twice as many LDCs as all the remaining provinces combined.
- Large variety of sizes – from about 1,000 customers up to 1,000,000+
- Large variety in customer density – 10 to 71 customers/km of line
- Highly fragmented:
  - Some cities (Ottawa, Hamilton) are served by multiple LDCs
  - Some LDCs serve multiple cities, with intermediate areas served by other LDCs

Small LDCs are less efficient than large LDCs



- Higher Operation, Maintenance, Administration costs per customer
- More employees per customer
- Higher financing costs
- (Would have been nice to see more discussion on this point in the paper)
- There is a desire to consolidate the sector. Mergers may exhibit:
  - Economies of scale
  - Higher efficiency

Source: 2017 Yearbook of electricity distributors

The paper: estimate the impacts of policies to promote mergers

- Step 1: Estimate a cost function for the industry
- Step 2: Using the cost function, predict the profitability of each LDC as well as potential combinations of LDCs
- Step 3: If merged LDCs are more profitable then they merge

- Results:
  1. Proposed tax holiday is unlikely to stimulate many mergers
  2. Even a large merger subsidy (400%) doesn't induce much consolidation

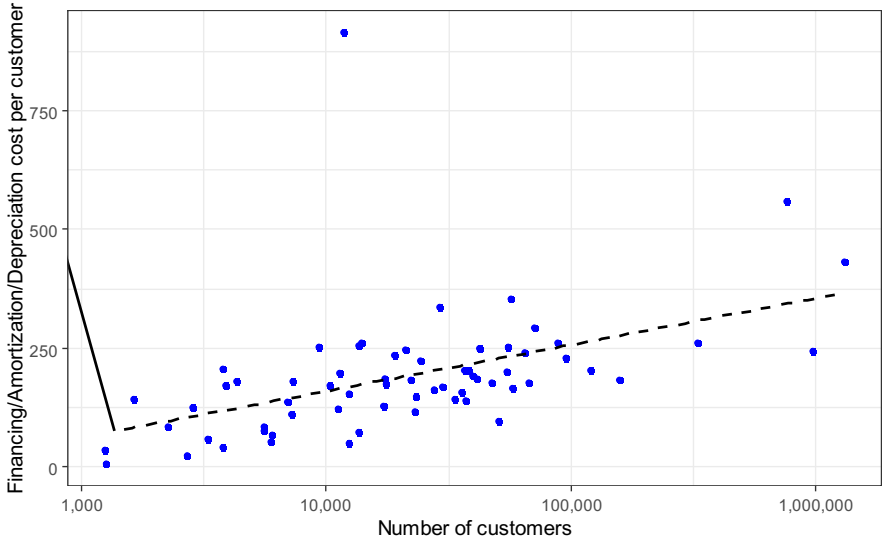
Comments
1. Estimation of cost function

- Cost function underlies predictions, so it's important to get right.
- Cost function is:

$$\log(C) = \theta_1 q + \theta_2 density + \cdots + \log(\xi)$$

Distribution cost Electricity sales Customers/line km Inefficiency

- Why does distribution cost vary with sales (rather than number of customers)?
- Does customer class matter?
- Why do we expect a log-linear functional form?
- Are there other covariates that influence costs? (Rugged terrain; non-contiguous service areas)
- Do different components of costs behave differently? (OM&A vs. financing)



Comments
2. Estimation of combined efficiency

- Predicting the profitability of a merged entity requires making a prediction of average costs (based on cost function) and making a prediction for efficiency.
- Assumption: "When firms merge, they combine their efficiency levels":

$$\text{efficiency}_{\text{merged firm}} = \alpha\ \text{efficiency}_1 + (1-\alpha)\text{efficiency}_2$$

- α is estimated through a "grid search" based on (very few) prior mergers
- Result: α =75% of merged firm efficiency comes from buyer. No weight accorded to firm size.
- Would be useful to conduct sensitivity analyses around this parameter
- There is a large range of inefficiency scores (1-4X). Is it possible that a portion of this reflects missing covariates?

Utilities included: Split incentives in commercial energy contracts

Jessoe, Papineau, and Rapson

Summary

- There are two key ways to reduce building energy consumption
  1. Invest in energy efficient durables (insulation, efficient appliances, etc.)
  2. Conserve energy (temperature control, windows)
- Different structures of electricity bills can affect incentives to undertake these measures

		Building ownership: Own	Building ownership: Rent
Electricity bill	Occupant pays	Incentives aligned	Ambiguous incentive to invest Incentive to conserve
	Occupant doesn't pay	No incentive to invest No incentive to conserve	Incentive to invest No incentive to conserve

- This study compares commercial renters on tenant-pay and owner-pay contracts
- It finds that large commercial companies on owner-pay contracts do not conserve energy
- It finds that this misaligned incentive results in substantial increase in electricity consumption

Comments
1. Selection into contract type

- The aim of the paper is to estimate the causal impact of changes in contract type on electricity consumption
- This is difficult, because owners and tenants jointly choose contract type. Owners/tenants who choose tenant-pay contracts are likely different than owners/tenants who choose owner-pay contracts.
- The paper uses quasi-random weather shifts to identify how tenants on different contract types respond to weather shocks.
- It also conditions on factors likely to affect contract type: building age, height, tenant sector, building type.
- Effect of contract type on $\frac{\partial E}{\partial T}$ is identified if selection of contract type conditional on covariates is quasi-random.
- In this context, it would be useful to think about *why* owners/tenants select different contract types. Is it quasi-random? Or is there some confounding factor (e.g., firms with high air conditioning demands choose owner pay contracts)?

Comments
2. Additional questions

- What role is the account time trend playing? Does removing it affect the results?
- Why is the bill length included as a covariate since the dependent variable measures per day electricity consumption?
- Can you say anything about how much rental payments change with tenant-pay contracts? Whether renters benefit from this type of contract?
- Many commercial tenants are long-term and do make changes to building structure (or request that owner makes changes). Would this affect your approach or just your framing?
- You assert that the 1st decile focus is not a result of “data mining”. How can you make this assertion more convincing? (perhaps interacting with a spline in consumption?)