**BACKGROUND**

- The residential electricity retail choice market in Texas: consumers must choose their electricity retailer and contract. There is no default.
- 16 other states also have some form of retail choice. Texas is unique in having required monopoly utilities to exit the retail market.
- Retailers can compete on: prices, costs (negotiating with generators), customer service, and contract features.
- There are now over 40 retailers in Texas, up from about 10 between 2002 and 2010, and the state-run marketplace powerchoo.com usually features over 200 contracts.

**RESEARCH QUESTIONS**

1. How successfully do residential consumers choose cost-minimizing contracts?
2. Electricity retailers in Texas offer much more contract variety than in monopoly settings. But what is the degree of heterogeneity in consumer preferences across contract features?

**MOTIVATION**

- Why study the Texas retail choice market?
  - Electricity prices affect consumer welfare
  - 28% of U.S. emissions are from electricity generation, so there may be benefits from more frequent and accurate price signals
  - Contribute to the literatures on deregulation and consumer decision-making (e.g., Hortaçsu et al. 2017)

**DATA**

Random sample of 5,000 customers at Retailer A:
- Were customers at any point between January 2017 and August 2019
- Contract choices, monthly bills, and smart meter interval data

Retailer A contract database:
- Is a contract \( c_{n,t} \) in a customer’s choice set?
- Most customers have 40-50 Retailer A contracts in their choice set in each period
- If a contract ends, retailers switch customers onto another month-to-month contract

**MODEL**

Each consumer chooses the sequence of contracts \((c_{n,t})^T_{t=1}\) to minimize the expected discounted sum of bills:

\[
\min_{(c_{n,t})^T_{t=1}} \sum_{t=1}^{T} \beta^t c_{n,t}(q_t) \quad \text{such that:}
\]

1. \( c_{n,t+1} = c_{n,t} \) if \( c_{n,t} \) ends in period \( t \) or later;
2. \( c_{n,t} \in \{c_{n,t} : t = t, n \in N_t\} \) if otherwise,
- where subscript \( n \) denotes contract type (brand-duration), and \( t \) denotes the period
- \( q_t \) is the consumer’s electricity consumption in period \( t \)

**RESULTS**

Table 1:

<table>
<thead>
<tr>
<th></th>
<th>(1) Ex post optimal, ( \beta=1 )</th>
<th>(2) Ex post optimal, ( \beta=0.95 )</th>
<th>(3) Imperfect information optimal, ( \beta=1 )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean monthly savings</td>
<td>$33* ($16.47)</td>
<td>$33* ($16.47)</td>
<td>$32* ($15.98)</td>
</tr>
<tr>
<td>Mean discounted savings (at a monthly rate)</td>
<td>$32</td>
<td>$32</td>
<td>$31</td>
</tr>
<tr>
<td>Share of invoices that are strictly dominated</td>
<td>75%</td>
<td>75%</td>
<td>75%</td>
</tr>
<tr>
<td>Share of customers for whom all invoices are strictly dominated</td>
<td>32%</td>
<td>32%</td>
<td>34%</td>
</tr>
</tbody>
</table>

Figure 2: (1) Blue bars indicate consumers’ actual contract choices, while green bars indicate model estimates of their ex post cost-minimizing contracts. (2) These results assume consumers had perfect information, which is equivalent to the ex post analysis. I also assume no discounting of the future. (3) Bars are not mutually exclusive because contracts may have multiple features and consumers may have been with Retailer A long enough to select multiple successive contracts. (4) The percentage labels on each bar indicate the share of consumers experiencing each contract characteristic.

**CONCLUSIONS**

- Policies that enable concise services or otherwise reduce search costs could improve welfare and increase time-varying rate adoption
- Consumers in monopoly settings may be constrained in expressing their contract preferences

**FUTURE WORK**

- Model supply-side and equilibrium response. Seek to better explain the high number of retailers and contracts