

Are You Like Me? Challenges in Developing Comparison Groups for Information Feedback Programs

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Comparison Groups in Behavior Programs

- Why we need them
- Who is in them
- How to make them truly comparable and credible
- Our approach: hierarchical cohorts

The Challenge of Selecting Comparison Groups

- Little public discussion of how comparison groups are constructed, yet:
 - ▶ Computationally intensive
 - ▶ Most likely source of customer complaints
- Comparable = similar on all characteristics that can influence energy use
- Data availability

The SCE Feedback Program

- Feedback reports with a twist: educate high usage customers on effects of tiered pricing
- Requires 3 groups:
 - ▶ Treatment group
 - ▶ Control group
 - ▶ Comparison group
- Control group \neq comparison group

The Comparison Group Development

Objectives

- Identify and group similar customers into cohorts so Tier 4 customers can be compared with lower usage customers with similar, non-energy characteristics
- Make the matches “believable” to treatment customers
- Design fixed cohorts with at least 30 non-tier 4 customers
- Every Tier 4 customer is in a cohort

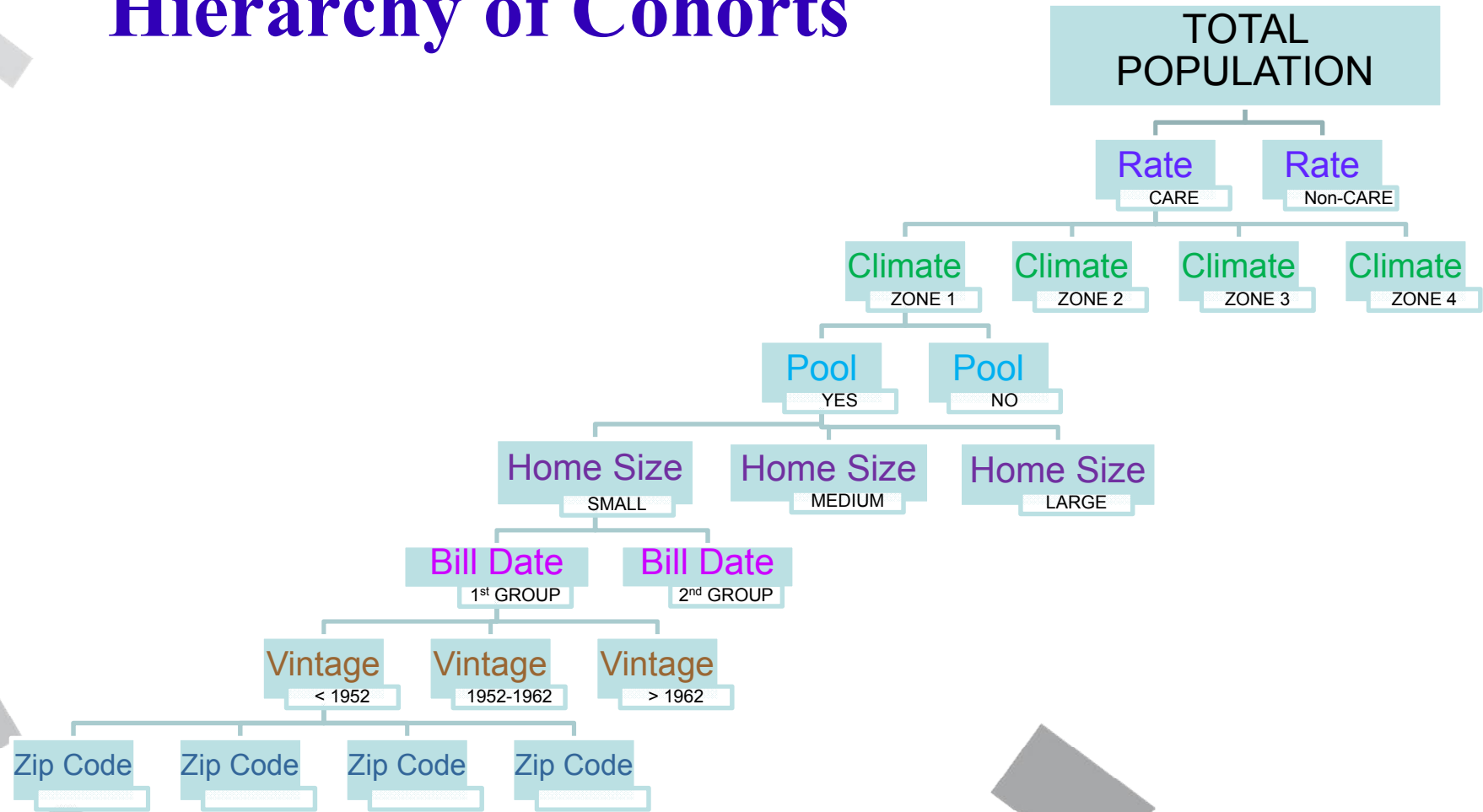
Finding Data to Define “Similar”

- Limited data collected and maintained by utility on home and household characteristics
 - ▶ Climate zone
 - ▶ Low-income rate qualification
 - ▶ Zip code
 - ▶ Energy usage history
- Must rely on outside data for key characteristics
 - ▶ Home size, vintage, and value
 - ▶ Presence of swimming pool
- Neither capture all key factors but suffice

Cohort Selection Characteristics

- Group customers that were as similar as possible in ways that influence energy use, without including energy use to define the cohorts
- Selection and hierarchy of six key attributes
 1. Low income rate status (yes/no)
 2. Climate zone (4 zones)
 3. Whether or not the home has a swimming pool
 4. Home size (3 groups)
 5. An indicator for whether the customer's billing month ends in the first or second half of the calendar month (so that bill comparisons cover about the same days)
 6. Home vintage (3 groups)
 7. Zip code—as possible and needed

Hierarchy of Cohorts

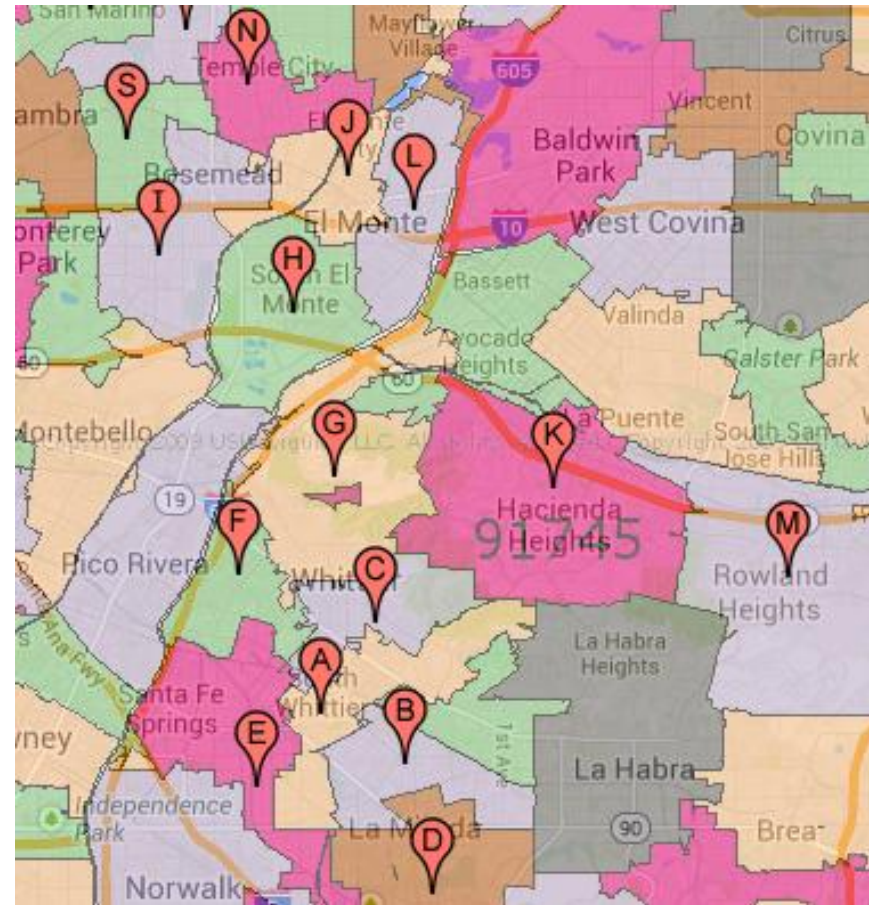


Keeping “Similar” Meaningful

Zip Code Aggregation

For zip codes with < 30 comparison group customers:

- Zip code candidates were combined in the order shown
- Until the aggregated group had enough comparison group customers



Constructing the Cohorts

- Initially had ~4K high usage customers without a “similar” lower usage comparison cohort

Combining some vintages and zip codes



Accommodated about half of these stranded cases while maintaining integrity of cohort design and sufficient population for sample

Final Comparison Group

- Ultimately developed 1,630 cohorts for 215,890 Tier 4 customers
 - ▶ Tier 4 and comparison customers match on all top five characteristics; most also match on vintage and zip code
 - ▶ Maintains sufficient Tier 4 population for sampling
- Treatment and Comparison customers can be “migrated” for each report if their conditions change

Conclusions and Recommendations

- Hierarchical cohorting works!
(only 3 opt-out requests of 80K+ participants)
- Keeping the cohorts relevant does require maintenance

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