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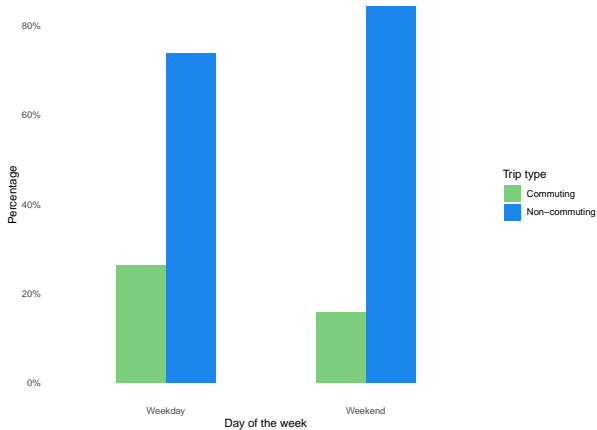# Residential Sorting and Access to Consumption

Sisi Zhou

Purdue University
Department of Economics

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Figure: Percentage of trips by day of the week

- Majority of trips made by households are non-commuting trips.

Policies that enhance households' access to consumption amenities

"... GO TO 2040 addresses the need to plan more effectively for the livability of communities ..."

"... More than nine percent (730,866) of our region's population is located in "food deserts" that lack access to nearby stores with fresh, nutritious food. Most often, food deserts exist in low-income, minority urban, and suburban neighborhoods..."

"... Fresh Food Fund to increase fresh food access and stimulate supermarket and grocery store development in underserved areas ..."

This Paper

- This paper examines the impact of urban policies enhancing household's access to consumption amenities on housing prices, residential sorting, welfare distribution, and income inequality.

- Increase consumption accessibility and nearby residents' welfare

$\Updownarrow$

Households move in, housing prices increase, low-income households relocate away

- Develop and estimate a residential sorting model with rich household's preference heterogeneity, where consumption access is treated as a crucial channel for housing choice.

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Model Setup: Two-Stage Residential Sorting Model

Consumption Demand
Conditional on residential location, choose the locations of consumption

Recover preference parameters for consumption

Construct expected consumption access

Housing Demand
Choose residential location based on housing attributes and expected consumption access

Housing Supply
Heterogeneous elasticity of housing supply

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Related Literature

1. Urban Consumption
   - Couture (2016), Agarwal et al. (2017), Davis et al. (2019)

   → This paper constructs a novel dataset by combining the travel survey data and user-generated content from Google Maps.

2. Residential Sorting
   - Recent literature emphasizes the role of commuting costs in shaping residential location decisions: Gu et al. (2024), Barwick et al. (2024)

   → This paper endogenizes non-commuting trips (choice of consumption) as an endogenous channel for making the residential decision.

3. Urban Policy
   - Literature has evaluated the urban policy related to transportation, housing regulation, land-use regulations, etc.: Gu et al. (2021), Gyourko and Molloy (2015), Quigley and Raphael (2005). However, limited research has been conducted on evaluating the equilibrium effects of policies related to consumption amenities.

   → This paper evaluates policies that enhance households' access to consumption amenities under the residential sorting framework with heterogeneous household preference.

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1. Households gain positive utility from access to grocery stores and restaurants.
2. Counterfactual Simulation: building new grocery stores in underserved areas
   - The average housing price within a 0.5-mile radius of new grocery stores increases, but decrease between 0.5 mile to 2 mile from the stores.

   - The average household income increase by \$7061.58 and \$34950.70 within 0.5 miles of new budget stores and premium stores, respectively.

   - Current low-income households move away from the new grocery store, but they still experience welfare gains from improved access to grocery.

   - The introduction of new grocery stores in the underserved area drives the relocation of households and decrease the city-wide income disparity.

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1. Chicago CMAP My Daily Travel Survey
2. Google Maps Places
3. Infutor Data

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Housing Demand

$$\max_{j \in J_i} U_{ij} = \alpha_i p_j + \mathbf{X}_j \boldsymbol{\beta}_i + \sum_s \phi_{is} EV_{ijs} + \xi_j + \varepsilon_{ij} \tag{1}$$

Housing Supply

We assume heterogeneous elasticity for housing supply. The aggregate housing supply in block j is specified as

$$ln(S_j) = c + \rho_j ln(p_j) \tag{2}$$

1% increase in housing price p_j is associated with ρ_j % increase in housing supply.

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Choice of Consumption

$$\max_{m \in M_i} U_{ijm} = \mathbf{w}_{im}\boldsymbol{\eta} + \lambda\,\tau_{ijm} + \nu_{ijm} \tag{3}$$

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Estimation of Consumption Preference

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