

# Retail Store Placement Using Machine Learning and Spatial Analysis - CDRC Project



An ESRC Data Investment

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**Background :** This study focuses on "15-minute cities" and aims to identify ideal locations for convenience stores within a 15-minute radius. Analysis was conducted at the Local Super Output Area (LSOA) level, enhancing accessibility and convenience for residents, and promoting vibrant and sustainable urban environments.

## Aim

- Investigate the impact of real estate on the local retail market.
- Predict optimal locations for the placement of new convenience stores.
- Examine the relationship between population and retail growth at the LSOA level.
- Identify potential areas for future convenience store establishments.

## Data

- Store location
- Store opening and closing date
- New Housing development Locations
- Population and area of LSOA

## Key Values

Provide insights for retail businesses using simple techniques

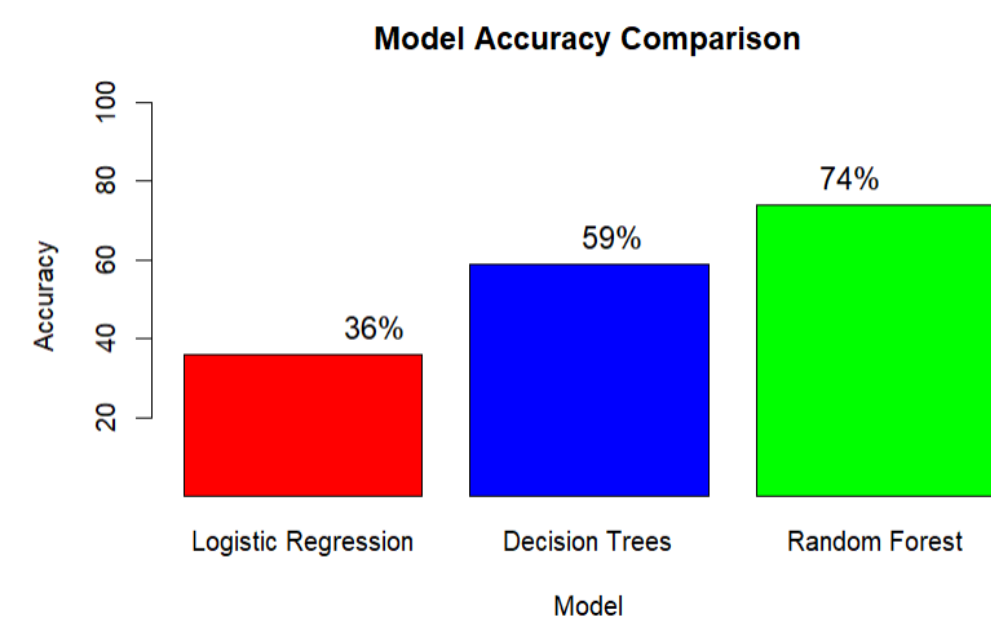
- Valuable insights into Greater Manchester's retail dynamics
- Demonstrated machine learning's potential in retail location forecasting.
- Designed for accessibility, small-scale retailers can use these methods effectively.

## Methods and Results

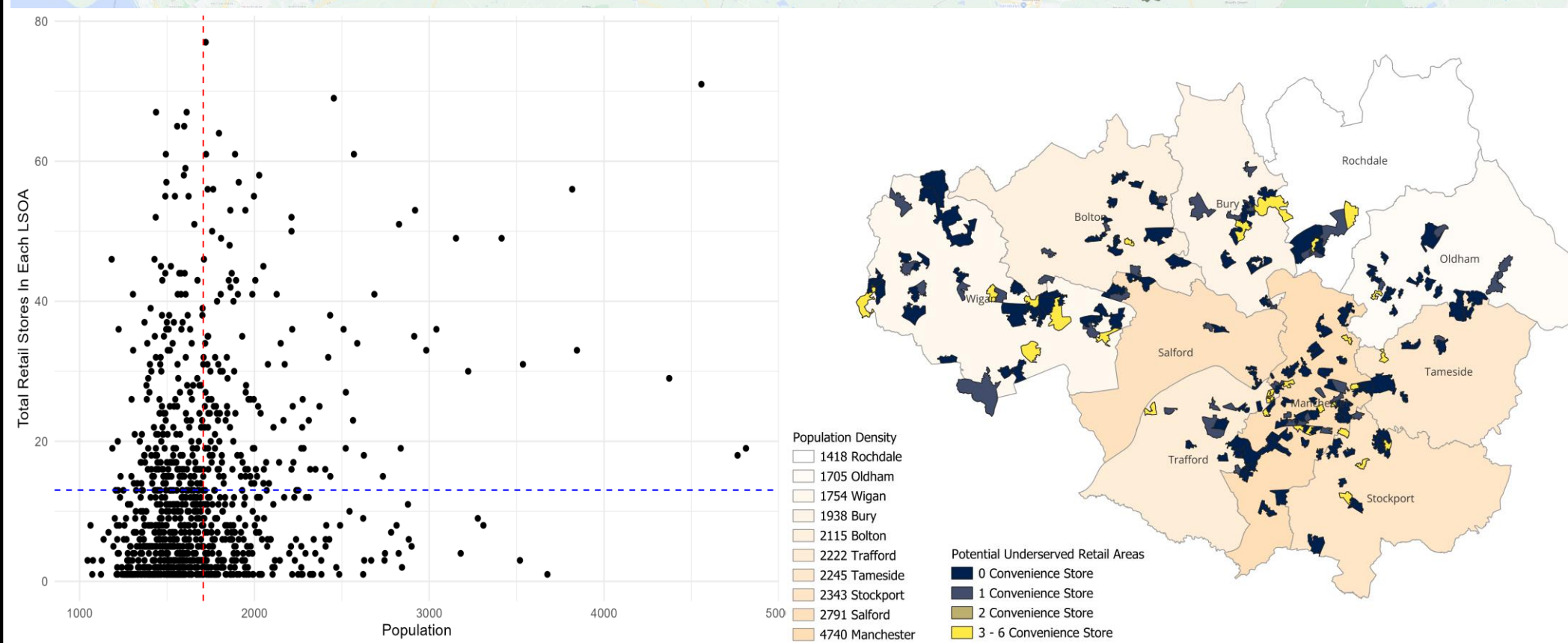
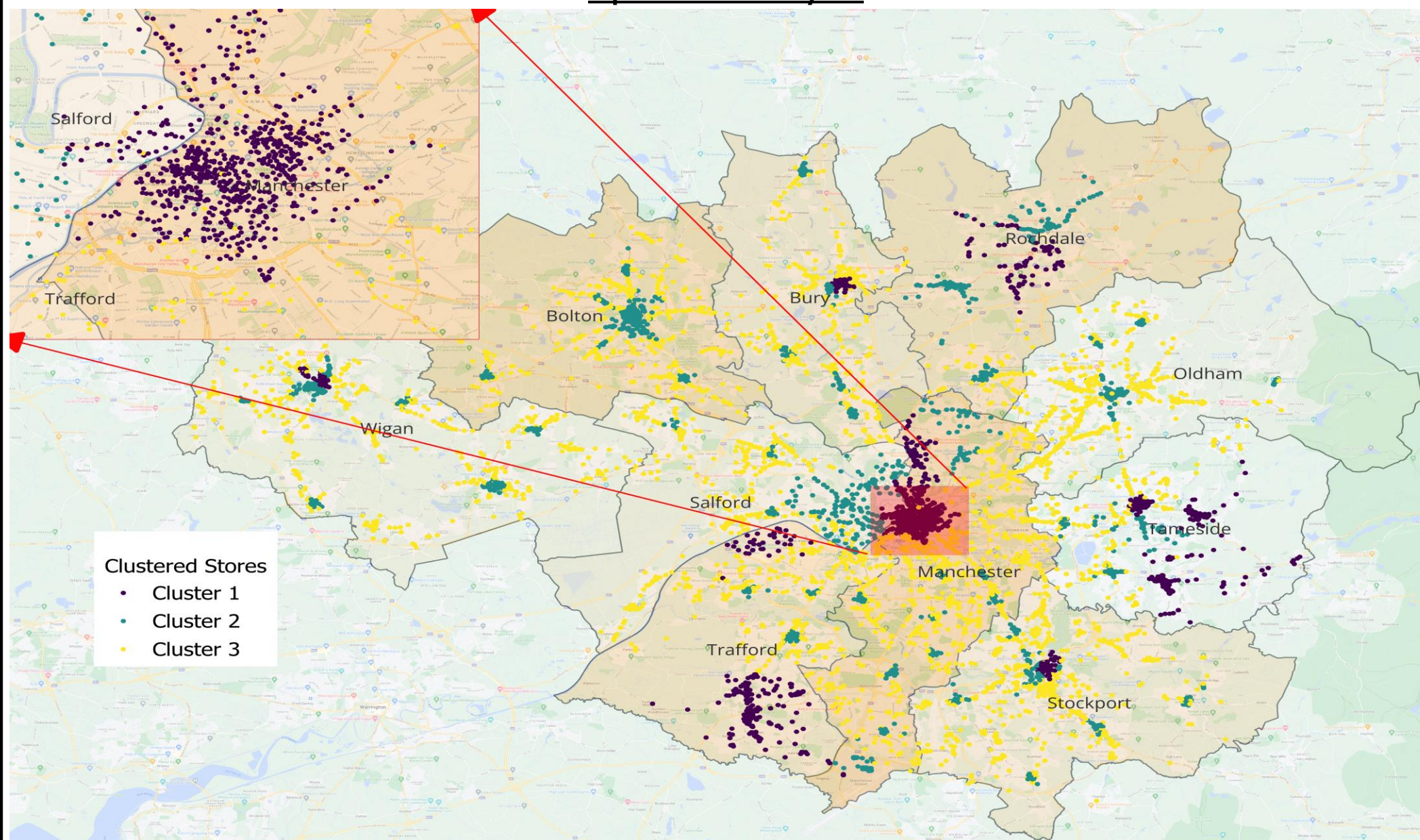
### Linear Regression



### Machine Learning



## Spatial Analysis



## Future Work

1. **Incorporate Income Data:** Add household income data to spot retail opportunities in underserved areas with distinct economic conditions.
2. **Evaluate Pop-to-Store Ratios:** Assess regions with high population-store ratios and lower incomes for potential store locations.
3. **Analyze Store Attrition:** Study store opening and closing trends to pinpoint oversaturated markets and untapped retail potential.