

KPN Formulas

Retail Shops Case Study

Senior Data Scientist Assessment

Chris Comiskey

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Retail Shops Case Study

Revenue, Formulas, and Features

- Introduction
 - Data
 - Research questions
- Analysis
 - Approach
 - Results
- Conclusion
 - Takeaways
 - Next steps



Introduction

Shop Data

Formulas

- KPN, KPN XL, Telfort

Response

- Committed Revenue

Features

- no. residents, no. companies, no. retail shops
- Avg. house value, avg. house size

*None time-varying



Introduction

Research Questions

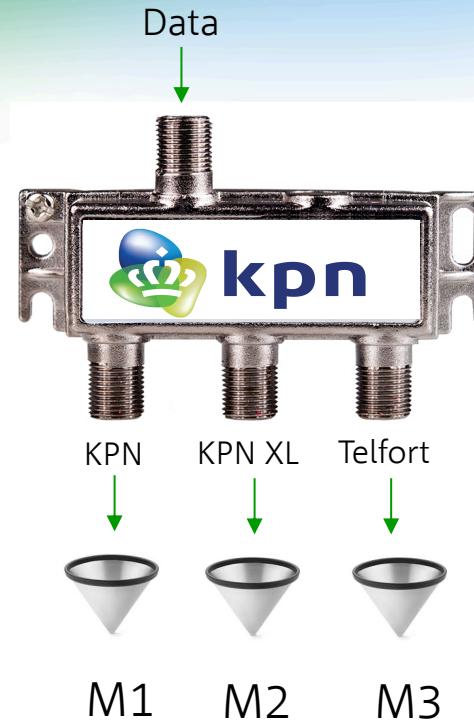
1. For each shop formula, which features meaningfully impact revenue?
2. Which Telfort shops should we convert to KPN? The € impact?
3. Which five KPN shops should we convert to KPN XL? The € impact?

Analysis Approach

Linear Regression

1. Sort by shop formula
2. Filter to meaningful features
3. Interpret Results

$$M_i: Avg_Rev_i = C_0 + C_{1,i}F_{1,i} + C_{2,i}F_{2,i} + \dots$$



Analysis Results

Model Overview

- 139 shops
- Statistically significant model
- 10 ‘significant’ features retained
- Model explains ~73% of variation in shop average revenue

Analysis Results

Important Features

KPN (95 shops)

- Shop average (coefficient = 7288, p-value = 0.00)
- Closet KPN shop in km (- 42, 0.01)
- Number of companies in area (- 0.05, 0.04)
- Number of residents in place of sale (0.005, 0.12)

Telfort (29 shops)

- Shop average (1790, 0.00)
- Number of retail shops in area (-0.30, 0.22)
- Number of residents in place of sale (0.008, 0.17)

KPN_XL (15 shops)

- Number of retail shops in area (2.00, 0.02)
- Number of companies in area (-0.36, 0.02)
- Average house value in area (35.58, 0.01)

Results

Shop Conversion: Telfort to KPN

1. Maastricht: €5916 increase
 2. Helmond: €5740 increase
 3. Breda: €5676 increase
 4. Almelo: €5569 increase
 5. Enschede: €5534 increase
- * Model predicts increased revenue for all shops

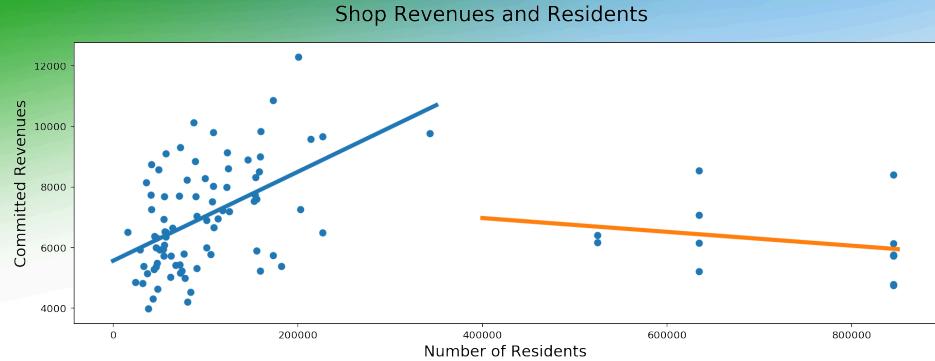
Results

Shop Conversion: KPN to KPN XL

1. Amersfoort: €1576 increase
2. Goes: €1012 increase
3. Havelte: €670 increase
4. Rotterdam (CL704): €578 increase
5. Arnhem (AH007): €562 increase

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Conclusion: Not so Fast



Concerns

- Association is not causation; e.g. surfing and ice cream
- Oversimplification: “confounding” variables; e.g. plants and First Law

Action/Recommendation

- Must be now: empirical option--convert highest grossing shops
- Future: model diagnostics, further analysis, conversations

Thanks! Questions?

