

The impact of loyalty card discounts and point-of-sale information on vegetable sales

An interrupted time series analysis of price signals in a nationwide supermarket chain

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The objective

The primary aim was to test the hypothesis that decreasing the price of selected vegetables for loyalty card holders would increase the total weight of these products purchased. The study also explored whether the magnitude of this change varied based on regional location, store size, or area-level deprivation.



The intervention

The intervention combined price discounts with visual 'nudges' across all stores nationwide:

This was a price discount and point-of-sale information intervention implemented across a core range of produce:

Member-only pricing: Loyalty card holders were offered discounted prices on a range of products, with the analysis restricted to 35 vegetable product lines.

Point-of-sale information: The discounted prices were highlighted to shoppers with point-of-sale information at the shelf edge.

Hypothesised behaviour: The intervention could increase purchases of discounted vegetables for card holders, decrease purchases of non-discounted vegetables, or increase loyalty card uptake.

Study setting & methodology

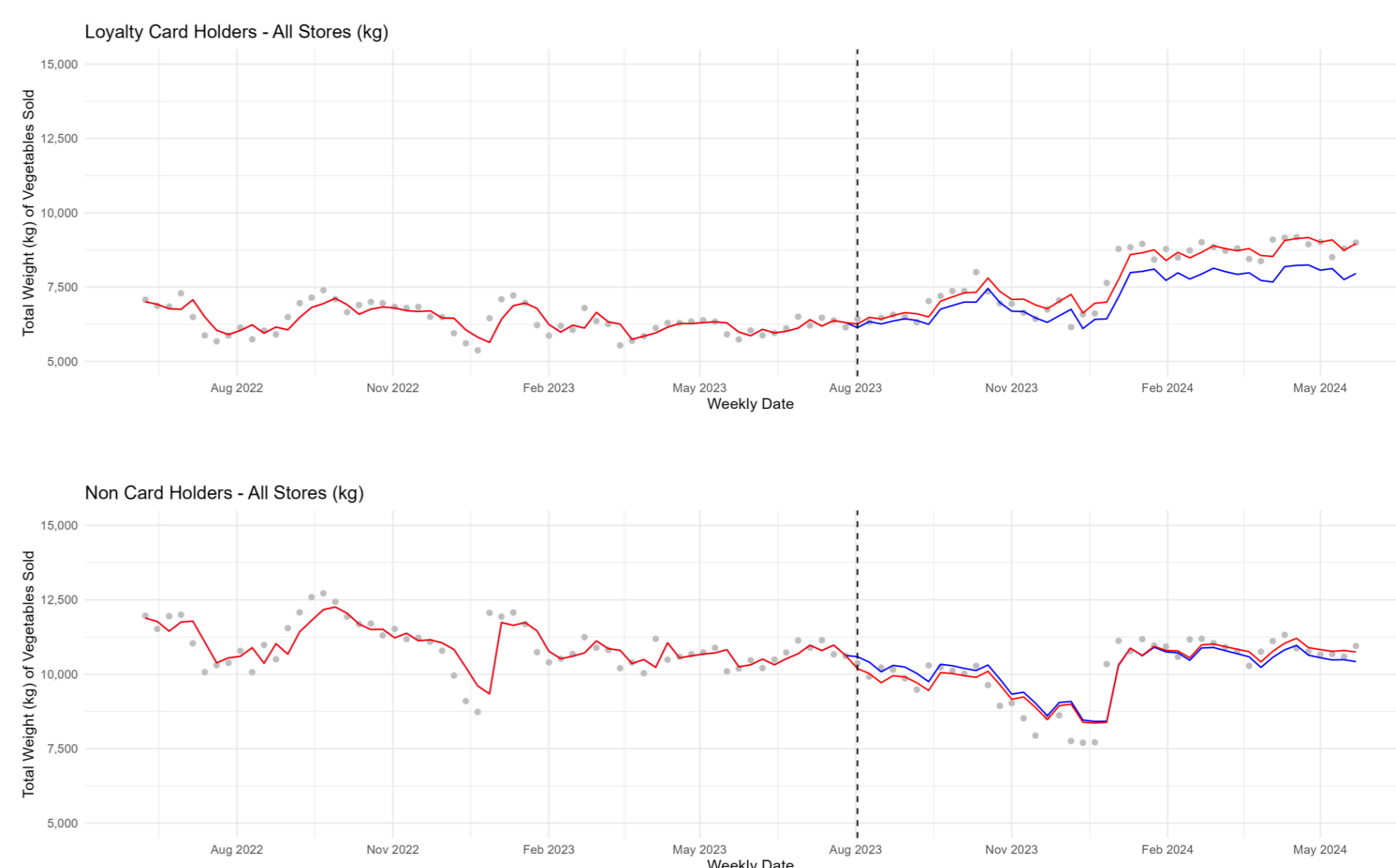
- **Location:** 90 supermarkets across England, stratified by store size, area-level deprivation (IMD quintile), and region.
- **Target population:** Supermarket shoppers.
- **Design:** A store-level interrupted time series (ITS) analysis comparing pre-intervention data (June 2022 – August 2023) to the implementation period (up to June 2024).
- **Control conditions:** Sales from non-loyalty card holders were used as a negative control.
- **Data sources:** Store-level weekly aggregated sales data for the 35 vegetable product lines.

Key findings

The intervention demonstrated a sustained increase in the volume of vegetables purchased by loyalty card holders over time.

Outcome measure	Result (Intervention effect)
Vegetable purchases (6 months)	9% increase in weight sold (95% CI: 7% - 10%).
Immediate step change	No significant difference immediately after introduction.
Control group purchases	No change in purchases for non-loyalty card holders.
Socio-economic/ Regional variation	No evidence that effect size varied by IMD or region.

The total weight of vegetables (kg) purchased by customers with and without a loyalty card, compared to a hypothetical scenario where the price discounts were never introduced.



Scientific & policy implications

Price signals: This research shows that price discounts on vegetables generate increases in purchases, even when delivered in a 'noisy' setting with many changes in prices of other foods. This adds to the knowledge that reducing the price of vegetables can significantly increase their purchasing in real-world environments.

Universal benefit: A key finding is that the increased purchases occurred across all levels of deprivation and regions of England. This suggests that the intervention could be far-reaching with positive health benefits for all.

Volatile markets: The results imply that vegetable subsidies would be an effective measure to increase purchases even in today's highly volatile market setting.

Limitations and unanswered questions: While vegetable purchases increased, it is not known whether this was produced by the price discount, point-of-sale information, or both. Additionally, the lack of data on other food categories means we do not know how these price decreases for vegetables may impact on sales of other food categories through substitution effects.

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