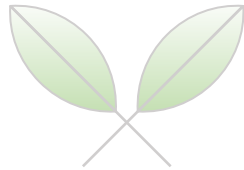# Store Refit Analysis

🎯 Project Aim

❑ To quantify the impact of a Store refit on our omni-channel proposition.

- *Is there an uplift in Sales associated with the Store and its surroundings for the different channels (In-Store, MPOS, C&C, HD)?*

💡 Key Learnings

☑ We have evidence to suggest refits *do* positively impact **In Store** revenues.

☒ However the same data suggests that the impact on HD, C&C revenue is negligible.
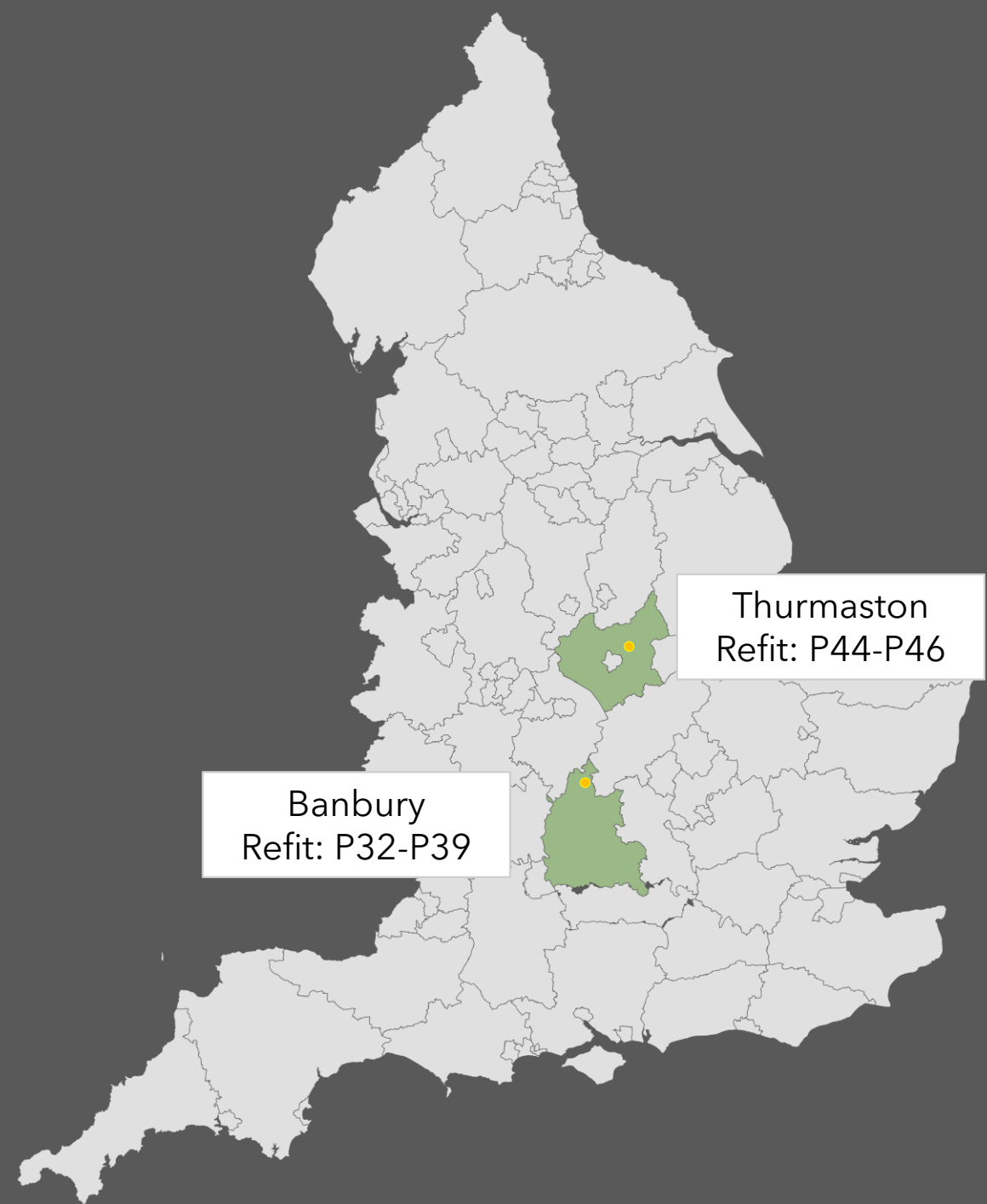
Data and Methodology

Regional Segment Analysis

Key Case Studies

Refitted Store	Banbury	Thurmaston
Store Number	635	380
Disruption From (FY.WK)	2021.032	2021.044
Open From (FY.WK)	2021.039	2021.046
Refit Type	Major Shop Floor Expansion	Minor Layout Restyle

Thurmaston
Refit: P44-P46

Banbury
Refit: P32-P39

Although we can see clear fluctuations in the weekly revenue from these stores, it is not immediately obvious what the effect of the refits has been. To understand whether this data implies an uplift, we can use statistical learning techniques.

Weekly Revenue via All Channels

— Banbury — Thurmaston — Refitting
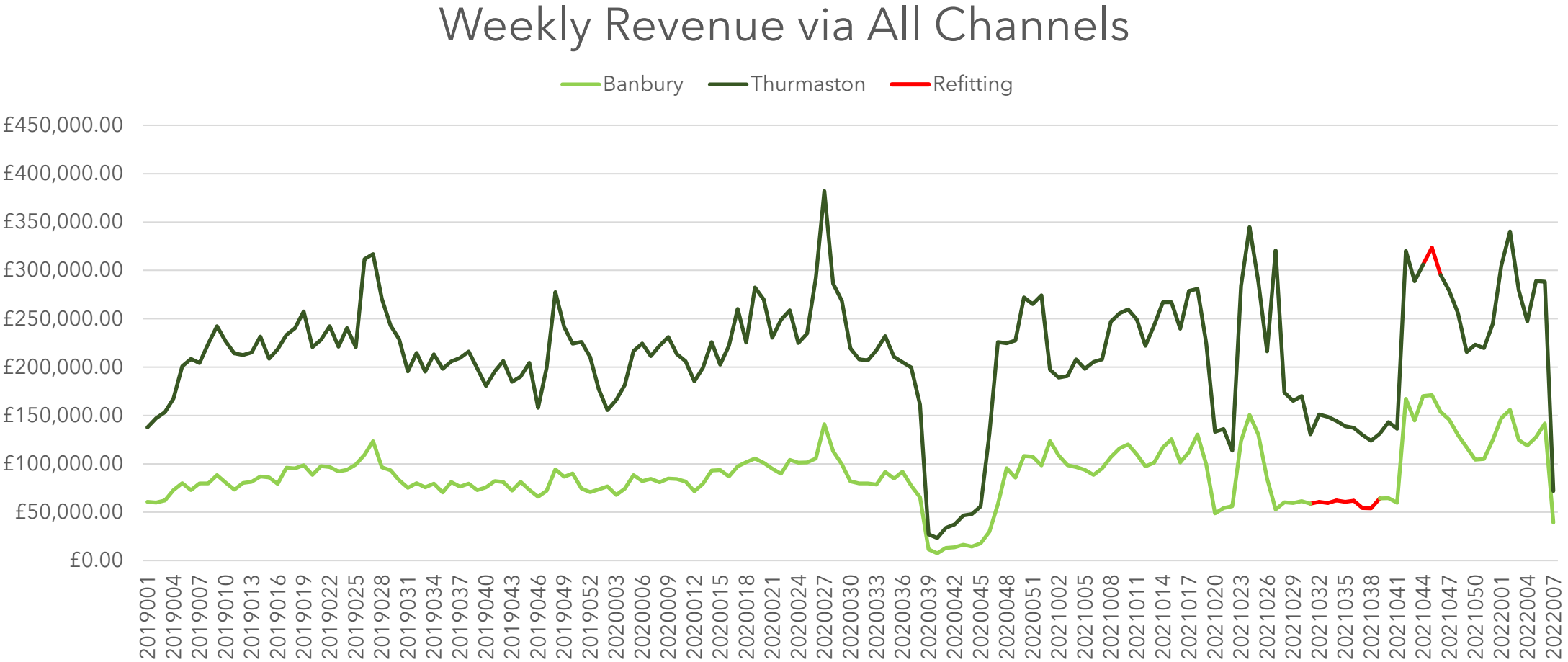
Methodology Outline

- To quantify the uplift, we compare the refitted stores' performances to other stores.

- To make sure our results are fair, it only makes sense to compare the refitted stores to other similar stores.

- To identify which stores are sufficiently similar, we use unsupervised learning to classify stores based on revenue data from the periods prior to each refit.

- Then we use the similar stores as covariate data to train a Causal Impact regression model.
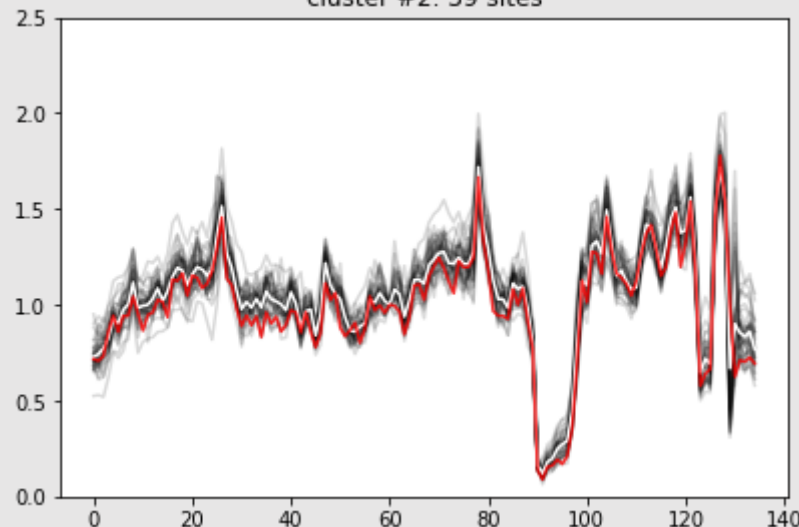
Methodology Overview

1. Classify pertinent covariate sites using unsupervised learning.
2. Calculate uplift effect using Bayesian causal inference.
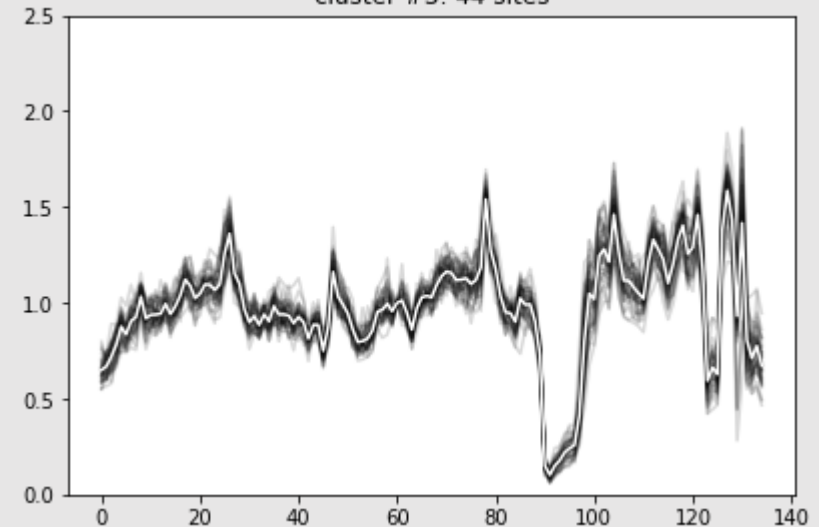
K-Means Clustering

Normalise Data of All Sites by Indexing at the Median Week

Use Elbow Method to Determine Sensible Number of Clusters
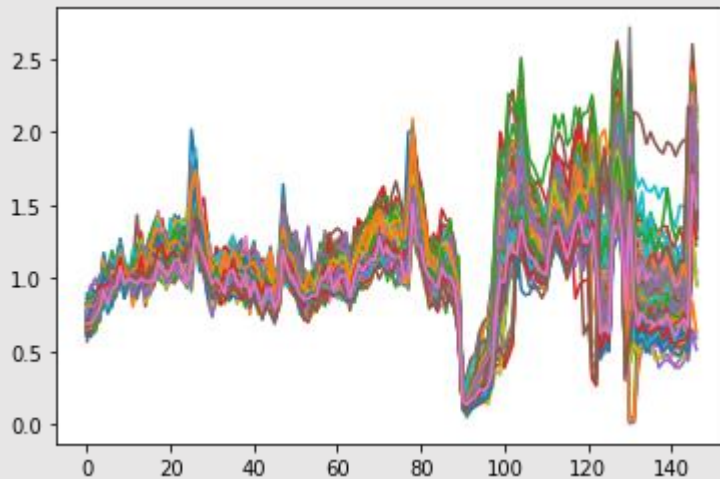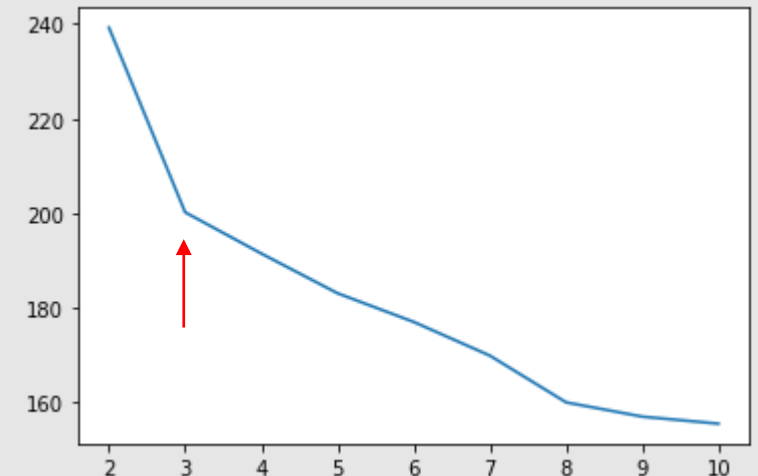
Find the sum of errors for clustering at different values of K.

Methodology Overview

1. Classify pertinent covariate sites using unsupervised learning.

2. Calculate uplift effect using Bayesian causal inference.

K-Means Clustering

Methodology Overview

1. Classify pertinent covariate sites using unsupervised learning.

2. Calculate uplift effect using Bayesian causal inference.
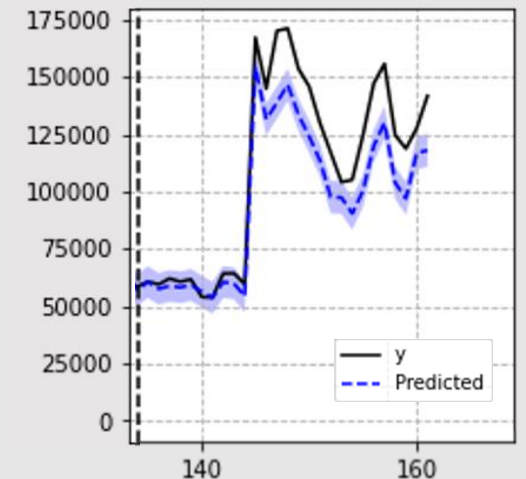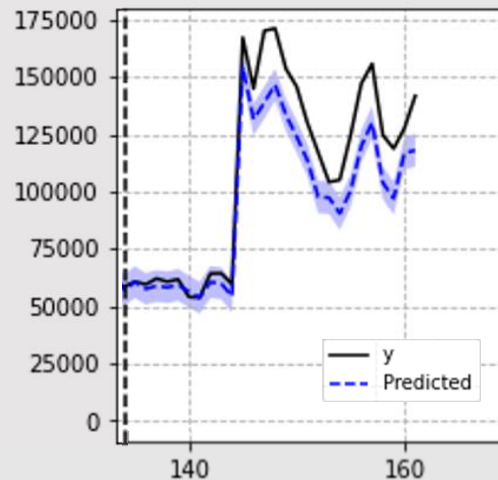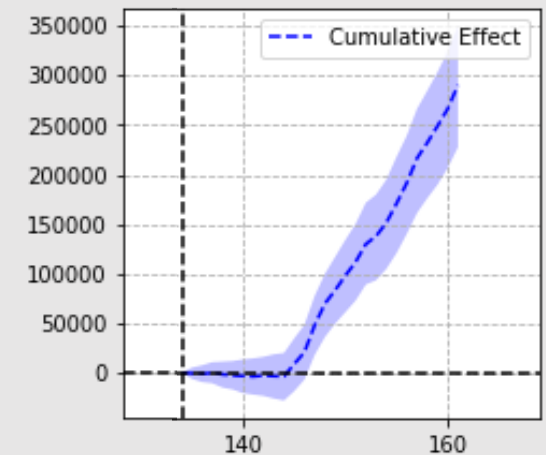

Bayesian Causal Inference
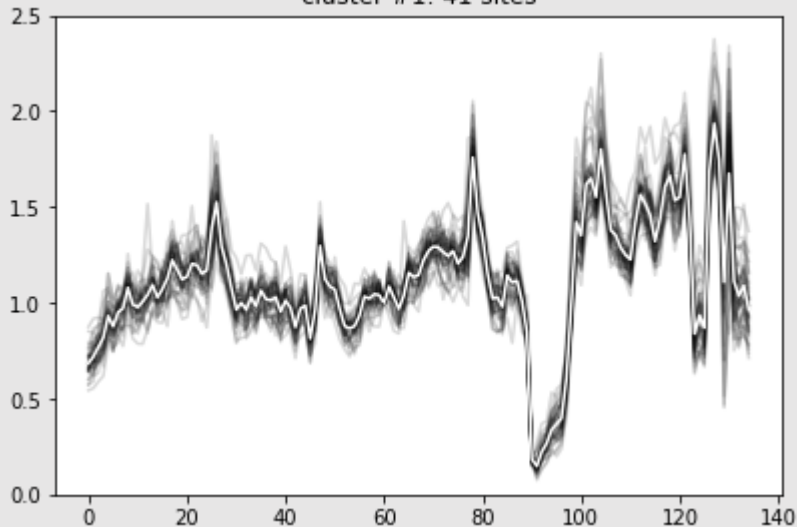
Largely Southern England
cluster #2: 39 sites
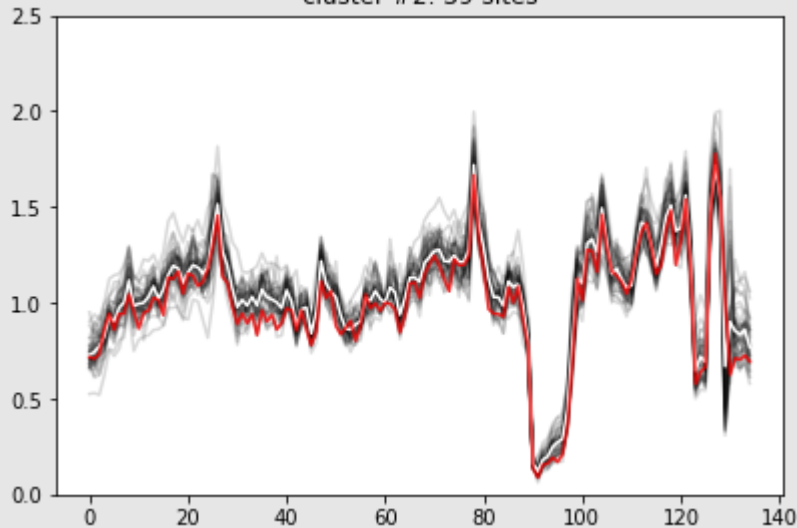
Select Covariates from Target Site's Cluster

Generate Counterfactual Forecast

Methodology Overview

1. Classify pertinent covariate sites using unsupervised learning.

2. Calculate uplift effect using Bayesian causal inference.

Analysis of Sales

via All Channels
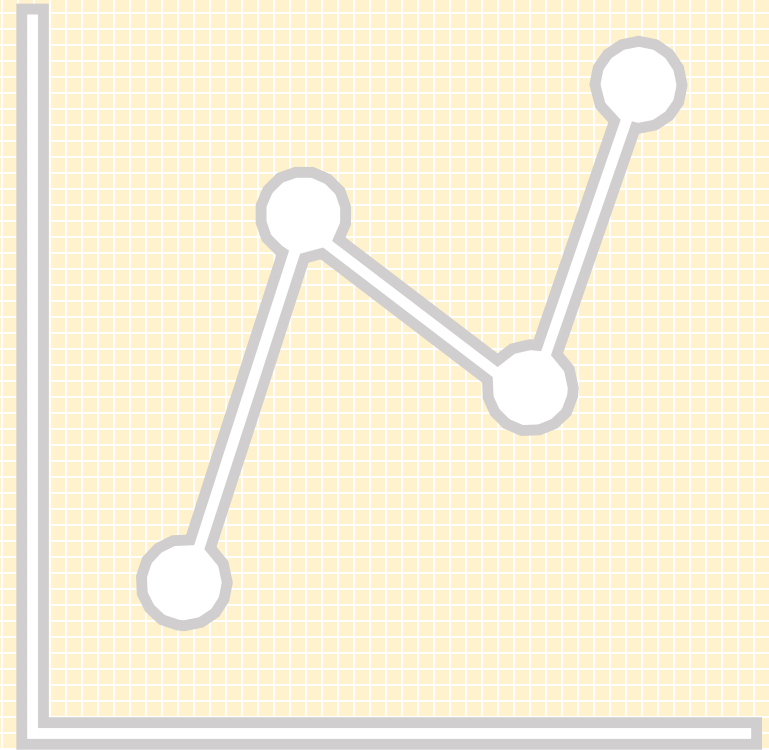
Banbury
Sales Revenue
via All Channels
FY19.001 - FY22.005

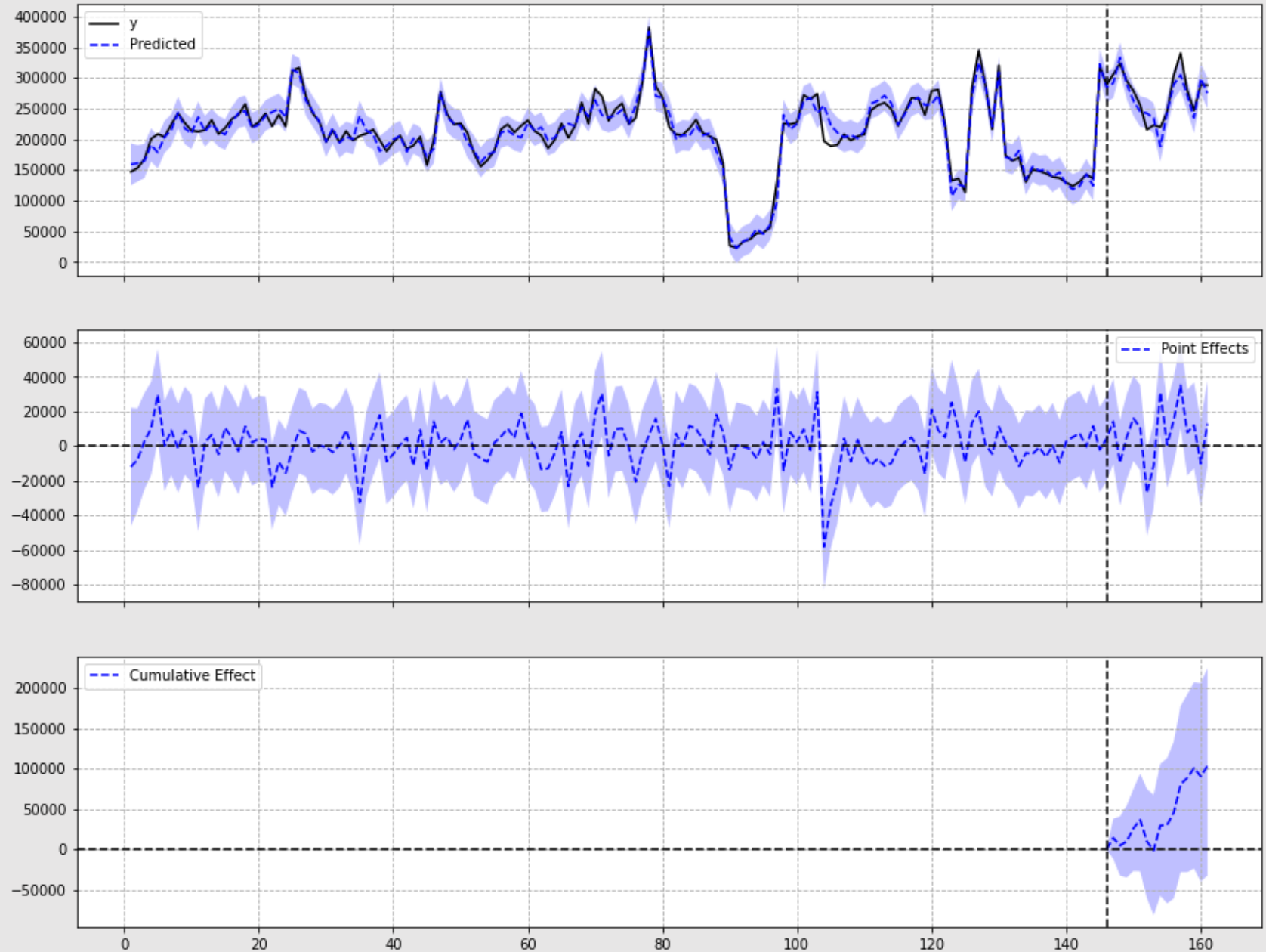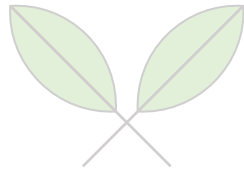Inferred Uplift
to date: **£356k**.
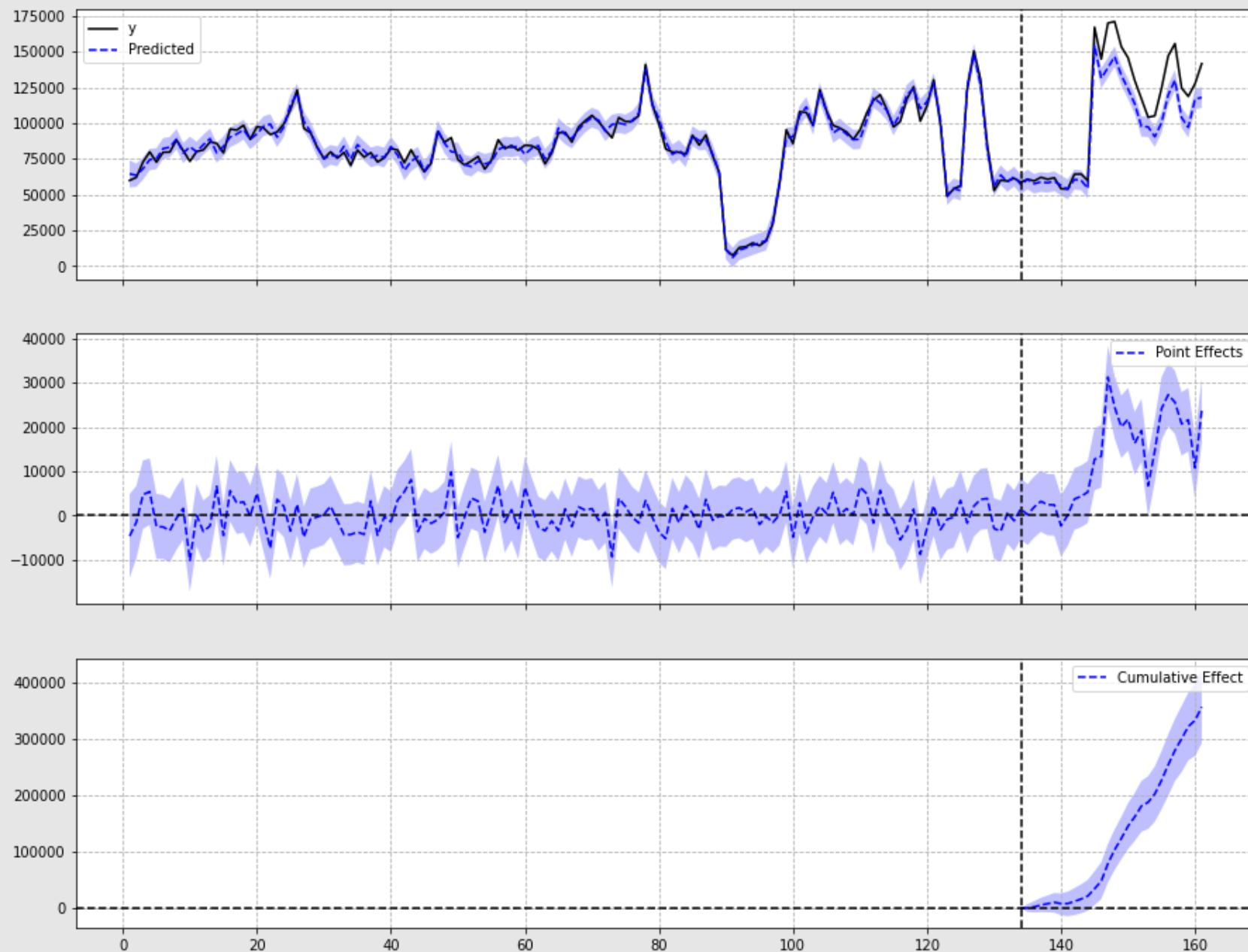
Thurmaston
Sales Revenue
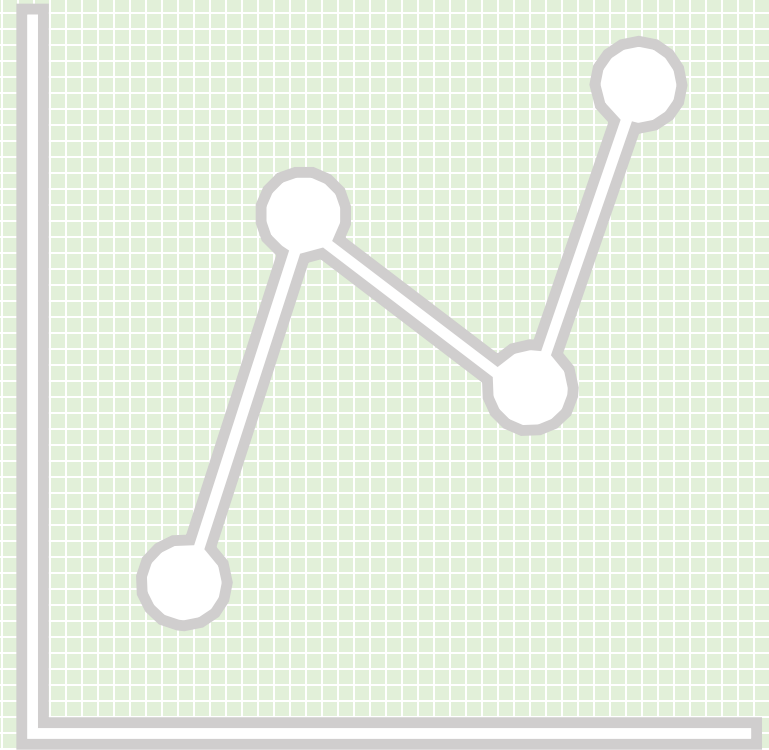via All Channels
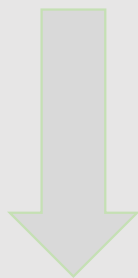
FY19.001 - FY22.005

Inferred Uplift
to date: **£103k**.
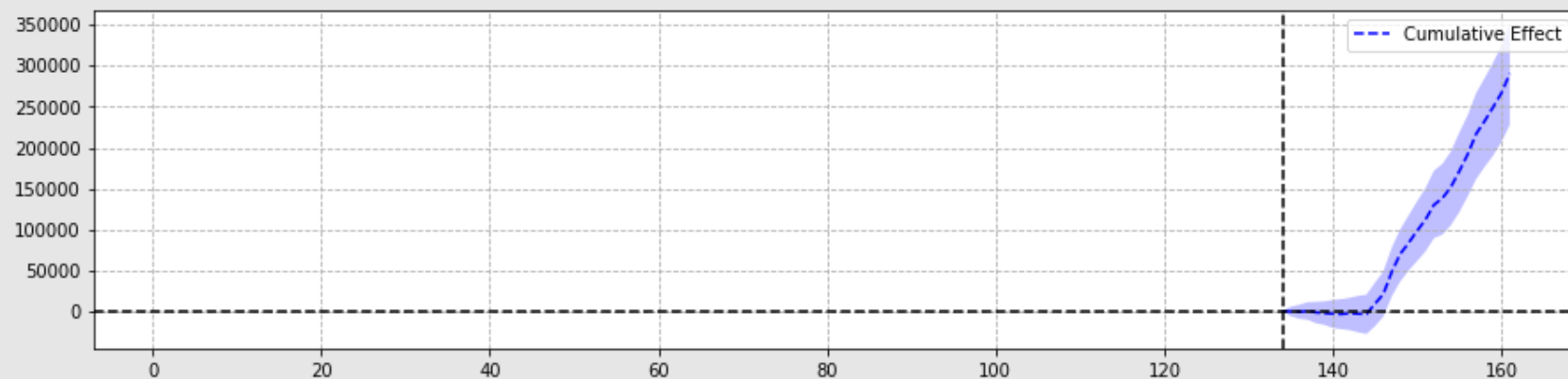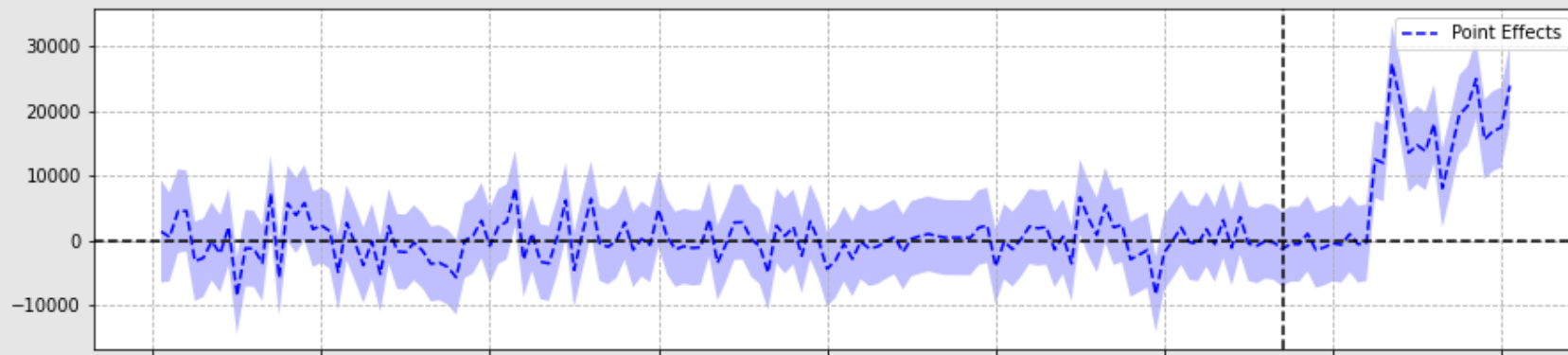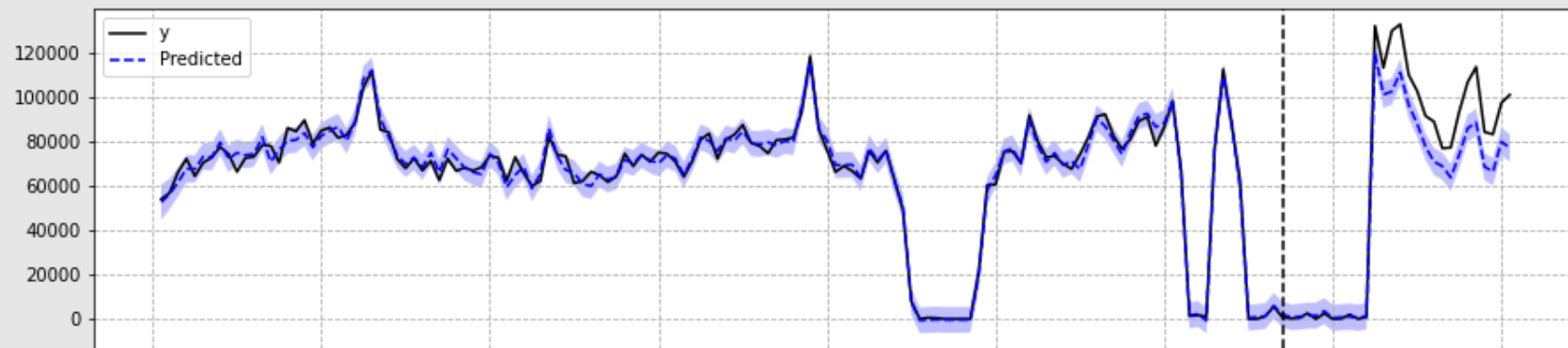
Analysis of Sales
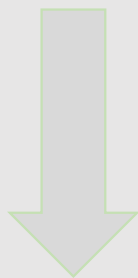
Individual Channels

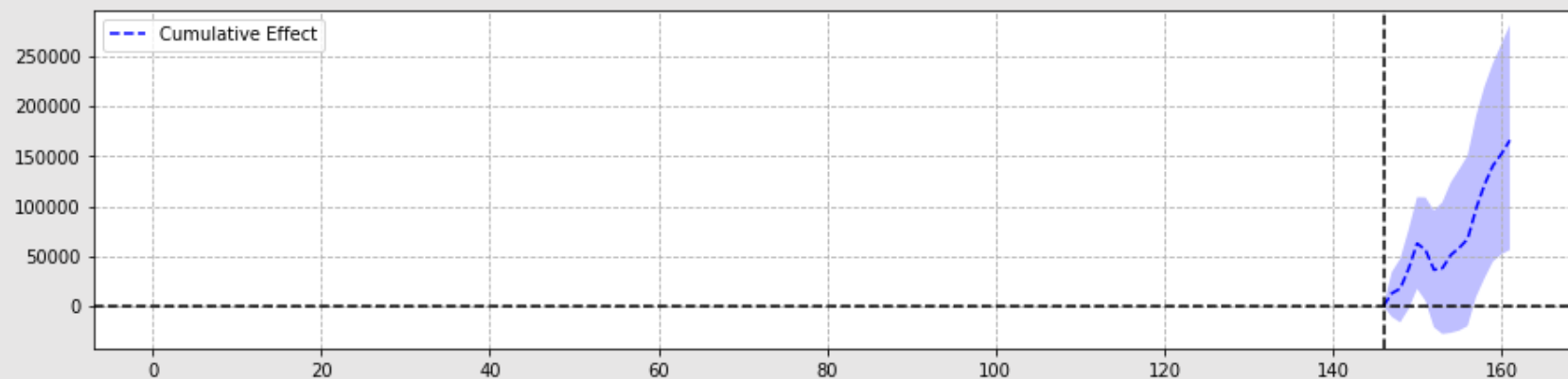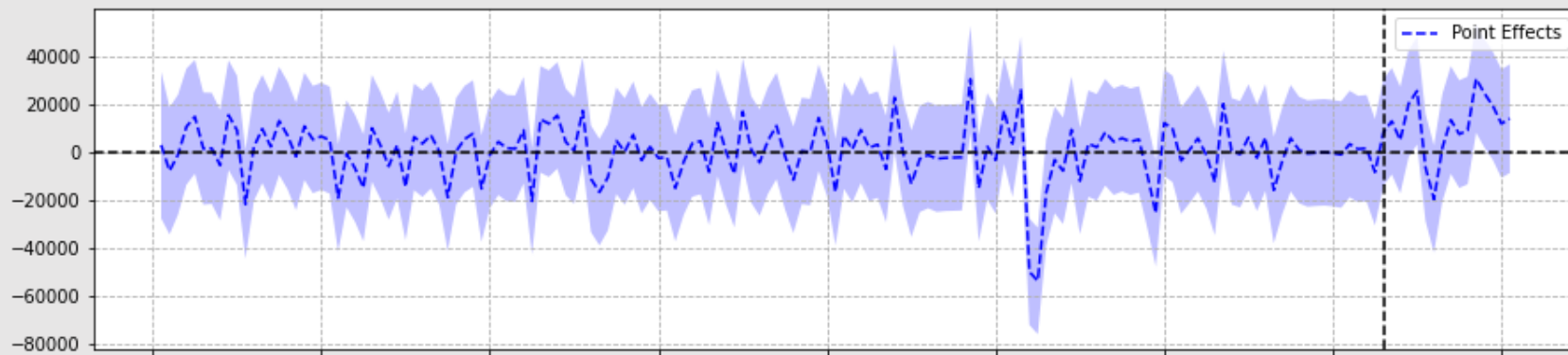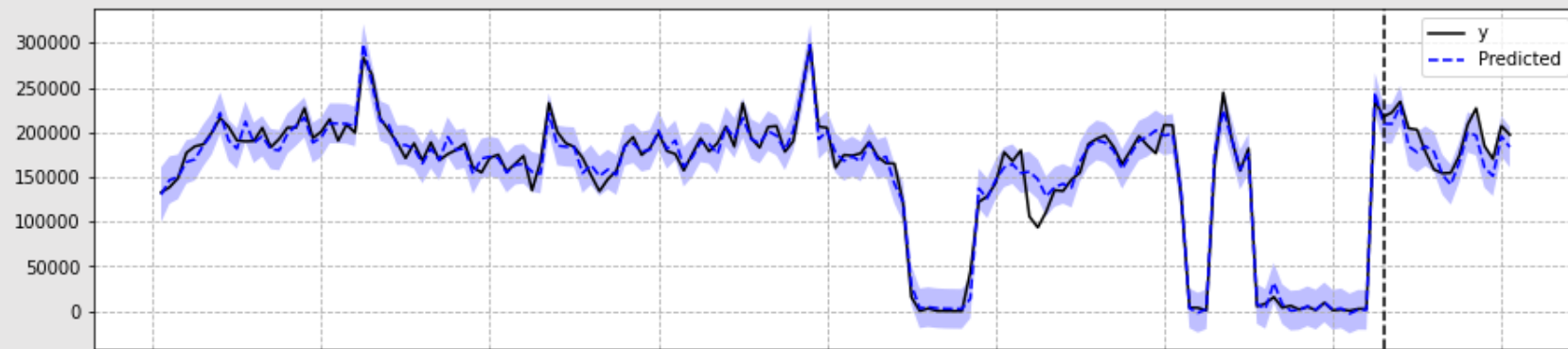Banbury
Sales Revenue
via **In Store**
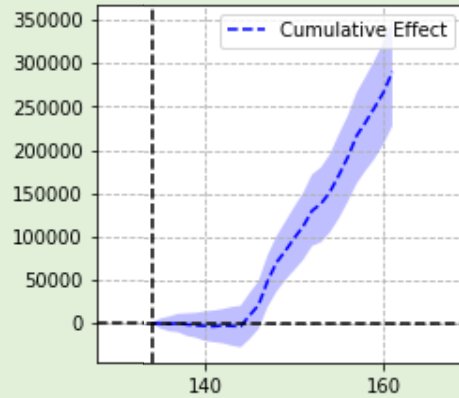
FY19.001 - FY22.005

Inferred Uplift
to date: **£291k**.

Thurmaston
Sales Revenue
via **In Store**

FY19.001 - FY22.005

Inferred Uplift
to date: **£166k**.

Banbury
Cumulative In Store Uplift

Thurmaston
Cumulative In Store Uplift

Uplift over **In Store** revenue **is** clearly expressed in this data.
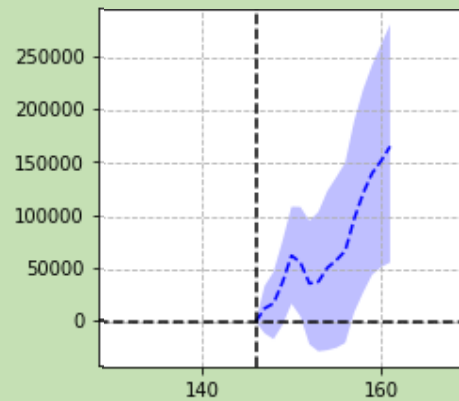
Banbury
Sales Revenue
via **HD**

FY19.001 - FY22.005

Inferred Uplift
to date: negligible.
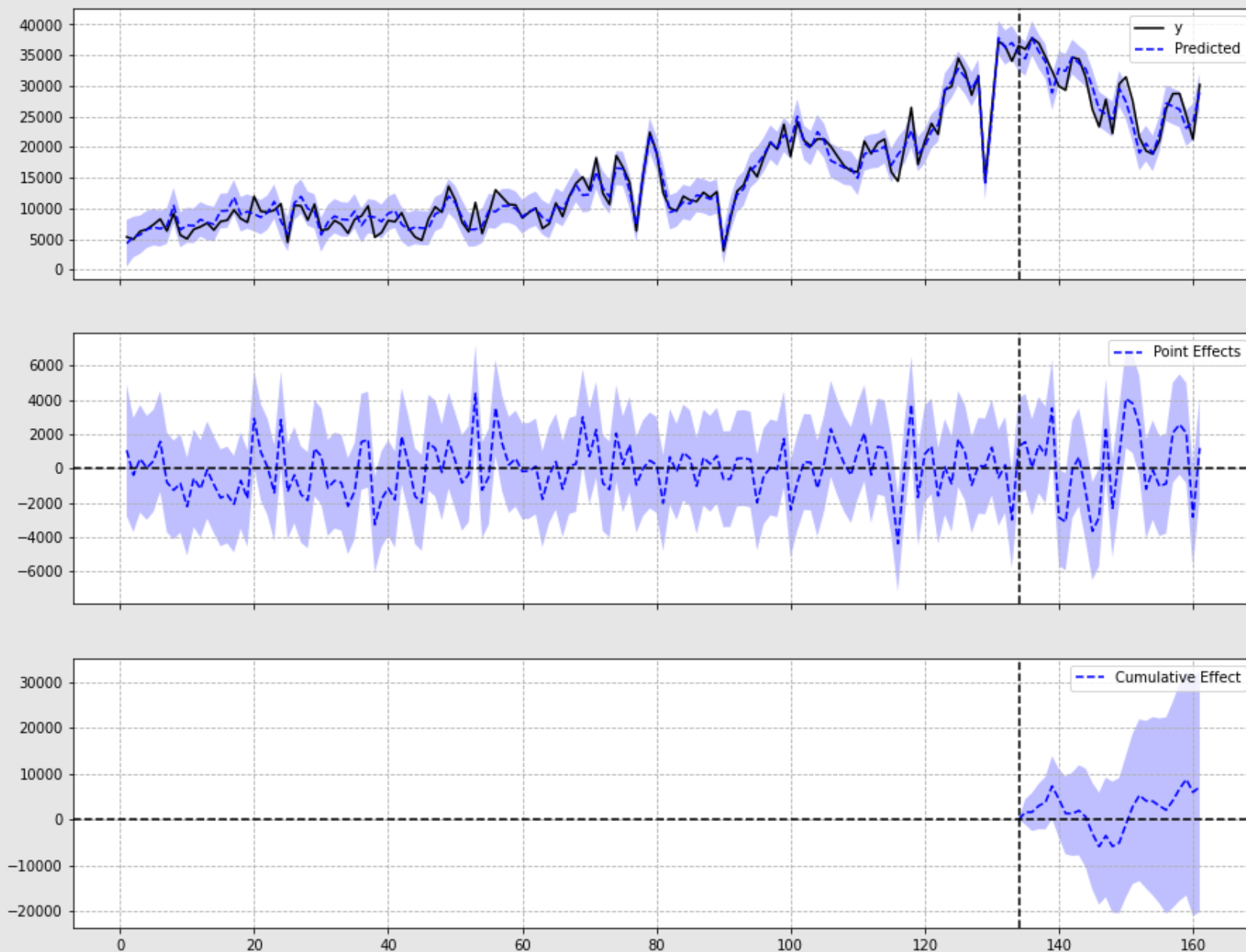
Thurmaston
Sales Revenue
via **HD**

FY19.001 - FY22.005

Inferred Uplift
to date: negligible.

Banbury
Cumulative HD Uplift

Thurmaston
Cumulative HD Uplift

Uplift over **HD** revenue is **not** clearly expressed in this data.
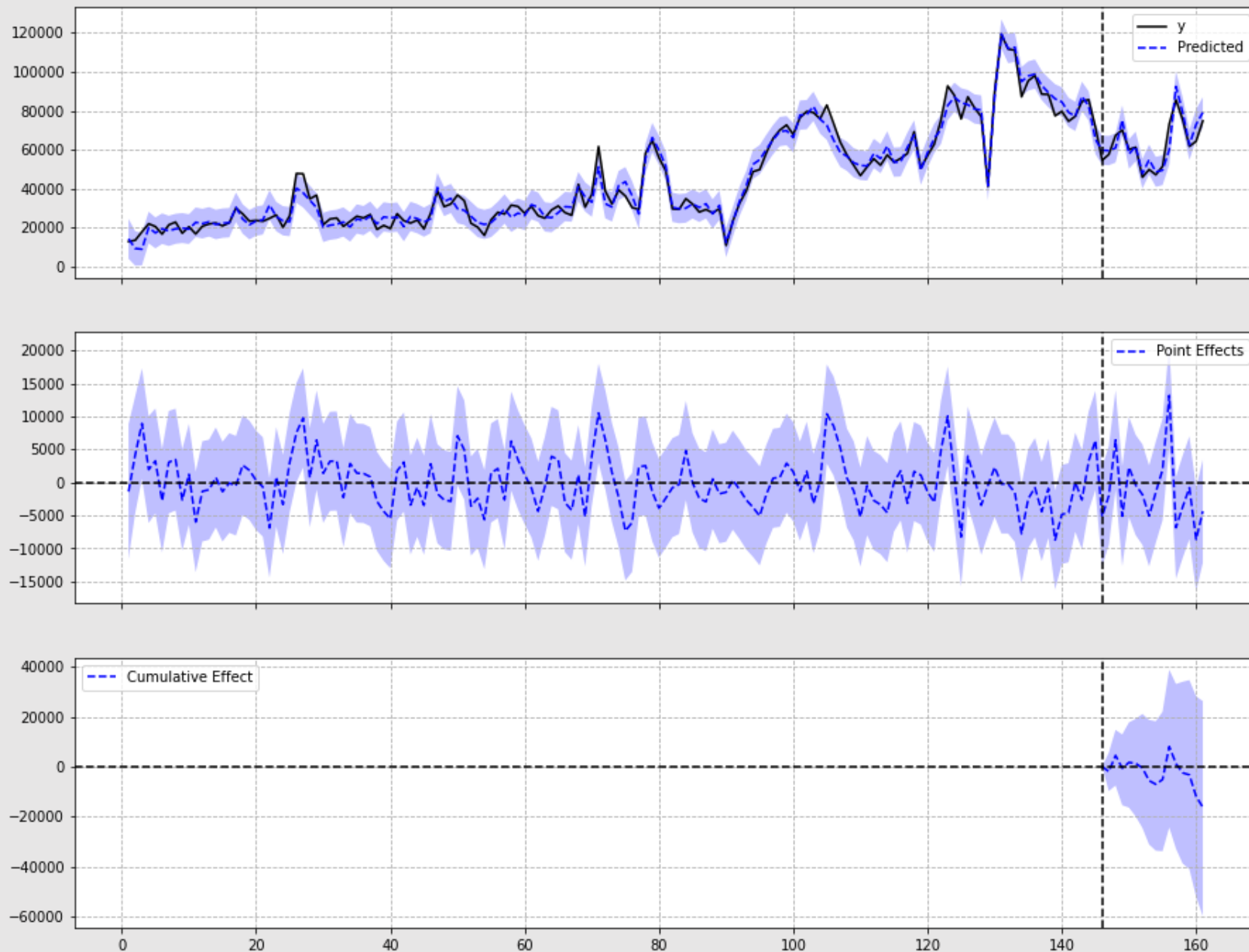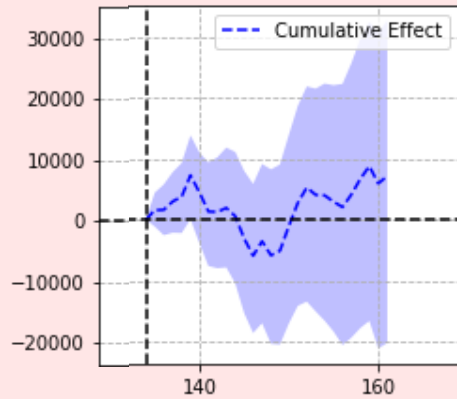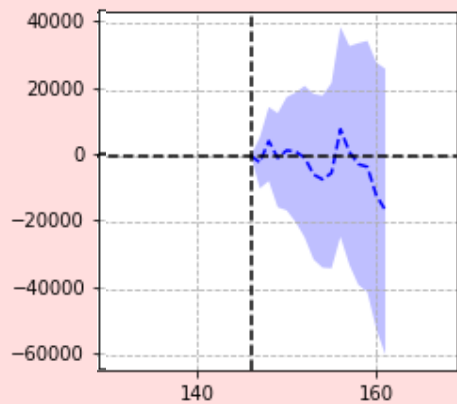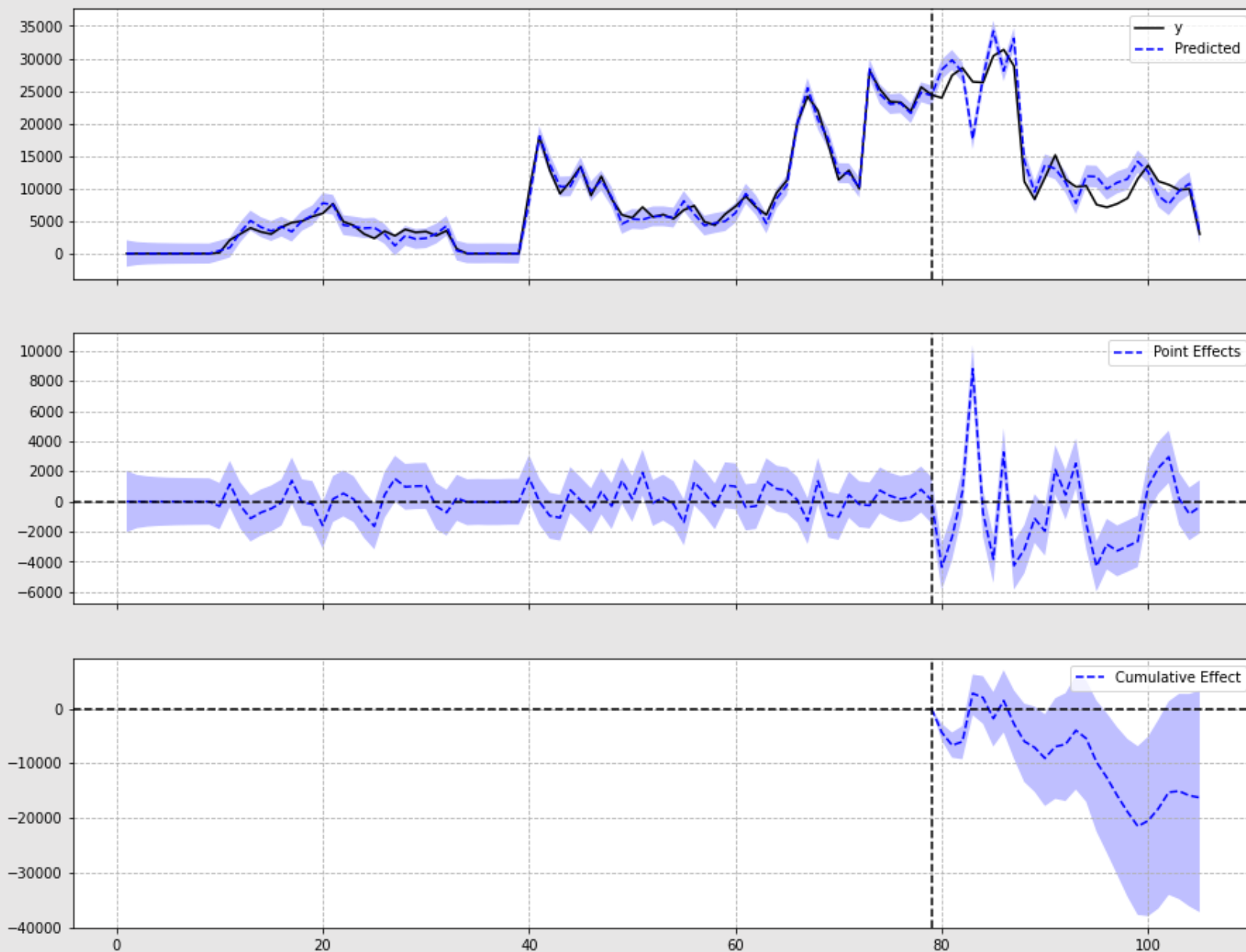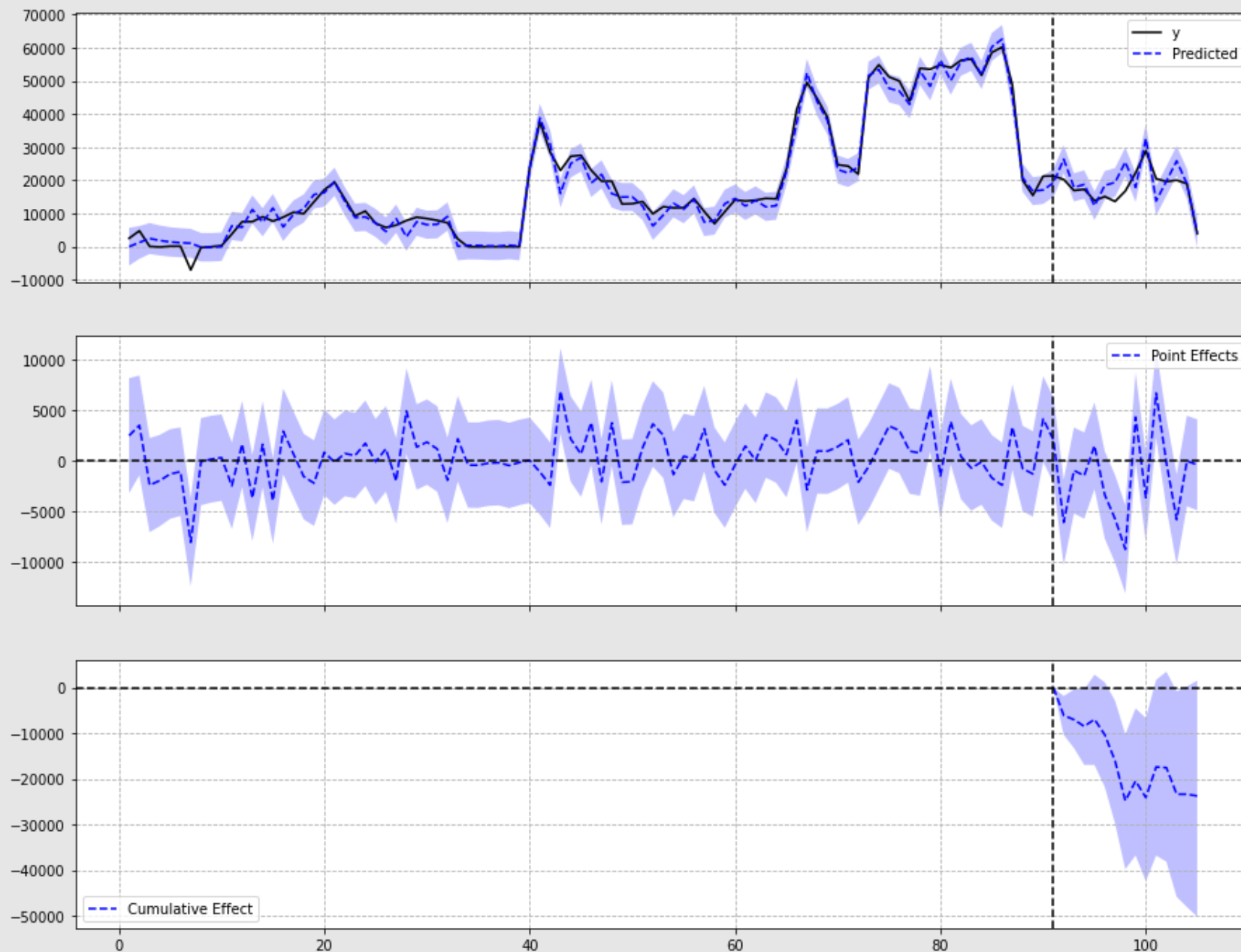
Banbury
Sales Revenue
via **CNC**

FY19.001 - FY22.005

Inferred Uplift
to date: negligible.

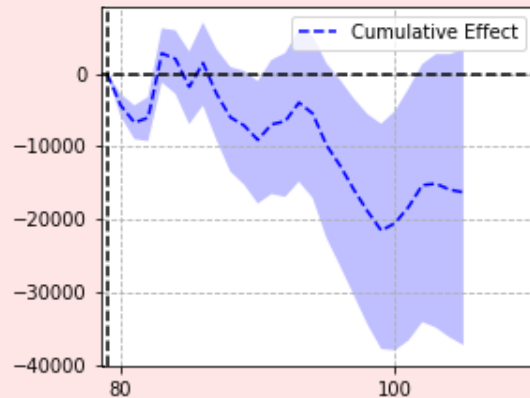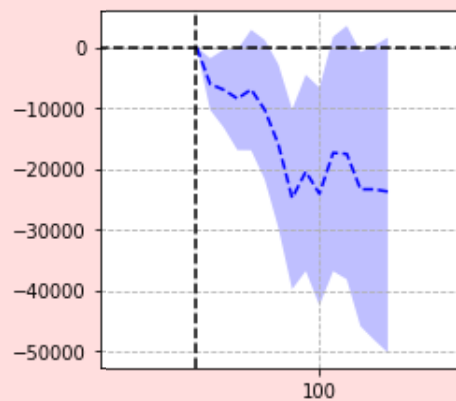Thurmaston
Sales Revenue
via **CNC**

FY19.001 - FY22.005

Inferred Uplift
to date: negligible.

Banbury
Cumulative CNC Uplift

Thurmaston
Cumulative CNC Uplift

Note:

Uplift over **CNC** revenue is **not** clearly expressed in this data.

Closing Observations

1. The effect of the refit on In Store revenues is clearly expressed in the data.

    The uplift for Banbury has been an increase in In Store revenue of approximately +**£18,000 per week**.

    The uplift for Thurmaston has been an increase in In Store revenue of approximately +**£11,000 per week**.

2. The effect of the refit on HD and CNC was negligible

Ideas for Further Investigation

1. A breakdown of the in store uplift.

   Did this uplift occur primarily due to increases in **average basket value**, **footfall** or some other KPI?

2. The duration of impact.

   For how long does the cumulative increase persist? Does it remain linear or does it eventually plateau?