Boeringer Ingelheim
Project - Spiriva
Prescriptions Estimation

Executive Summary

This project has provided well-performed models to forecast the demand of a prescribing medicine called Spiriva on subnational level in the UK. Through the model building only based on the data in England, a general relationship to estimate prescriptions is aimed to be derived for the areas of Scotland, Wales and Northern Ireland.

Challenge Overview

Spiriva is developed and manufactured by Boehringer Ingelheim. As a manufacturer, the demand volume in retailing sector is hard to acquire, not to speak of doing relative forecasting. As a prescribing medicine, the prescription is a supplement indicator to retail market demand. However, as the prescriptions data is only available in England, the requirement to estimate according prescriptions in Scotland, Wales and Northern Ireland needs to be satisfied.

Problem

The objective of the project is to find desirable indicators to estimate prescriptions in the UK. Three candidate explanatory variables are selected both from time series perspective and cross-sectional perspective. They are SCM data, the number of COPD registers and the number of large national chains. These three possible predicted indicators are demonstrated to be possible to estimate prescriptions, though models backed up by them have different performance. The final result shows that SCM data is the best one to do the prescriptions forecasting, as it is appropriately updated and has a satisfying performance.

Results and Achievements

Though there still remains some future work on the improvement of the model building, some key results are derived from the research.

- SCM data is a desirable explanatory variable to estimate prescriptions on monthly basis and these two variables prove to trend together.
- The number of COPD registers can also build a high fitness model, yet from cross-sectional perspective.
- The number of large national chains is able to explain prescriptions to some extent, but compared with the stated two variables, it has a worse performance and limitation in the information system of Boehringer Ingelheim.