

A statistical analysis prepared for
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Smart Drive Challenge: Driving Less and Better



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Reagan Exec Summary

Metro Vancouver Regional District conducted a pilot program called the Smart Drive Challenge (SDC), which aimed to encourage more sustainable driving habits through driver feedback and training. This pilot program intended to develop an understanding of how driver feedback could be used to reduce greenhouse gas emissions in the region through both better driving habits and reduced reliance on automobiles.

The original goal of the program was to reduce fuel consumption among participants by 15 percent through a combination of an online training course and a feedback dashboard that provided daily reports on driving performance. The online training course focused on changes to driving behaviour, and reducing trips by exploring other modes of travel.

This study used three regression models: pooled ordinary least squares (OLS), fixed effects and first difference regression modelling techniques, on data collected via onboard data loggers during the SDC program. By using regression models, the effects directly attributable to the SDC can be quantified while accounting for confounding factors such as weather, fuel price and hours spent driving.

Based on the results of this study, participants in SDC saw an improvement in fuel efficiency between 4% and 9%, with little change in the distance driven. The regression models were able to account for adverse weather conditions, which occurred during portions of the SDC, with snow and ice impacting much of the Metro Vancouver region. Prolonged ice and snow is not often experienced in Metro Vancouver at elevations close to sea level and was shown to have an impact on driving behaviour.

Many of the external factors considered in this study showed no statistically significant impact on driving behaviour, with the exception of snow, which reduced driving distances by 14%. Oil prices did not have an effect on driving behaviour or trip length.