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Master Thesis

Do Pay-How-You-Drive insurance products influence automotive insurance claims data?

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Abstract

Pay-How-You-Drive insurance products are a recent motor insurance innovation, based on telematics technology which enables to monitor and measure individual driver behavior. This innovative approach bears the potential to disrupt the insurance industry by improving individual risk assessment and enhancing driver behavior. While experimental research suggests improved driver behavior under the monitoring of a telematics device there is scarce evidence from real-world settings and almost none of the impact of telematics on motor insurance claims data. Therefore, this thesis aims to examine if and how, monitoring of driver behavior does impact motor insurance claims data. This is approached by analyzing claims data from a Swiss full-service leasing provider who offers company car insurance, including a telematics option, and related claims handling to its customers. In this specific circumstance the decision for the telematics-based insurance product does not lie with the drivers but with their employers, thus, excluding potential biases due to self-selection. The effect of being monitored by a telematics device on number of claims and cost of claims is analyzed by applying a panel regression to the dataset. The dataset in panel format contains 3'695 claims filed in the years 2014 to 2020 coming from 1'410 unique drivers resulting in a total of 2'482 observations across the years. The analysis found significant evidence for the impact of telematics on the cost of claims. Depending on the different fixed effects which were included, the results suggest that drivers who are being monitored have approximately 40% ($p < 0.01$) lower cost of claims than drivers without a telematics device, on average. No significance could be found for the impact of telematics on the number of claims. Assuming that lower cost of claims could be a result of less severe accidents this might be indicative of better driving behavior. These findings are a first attempt to provide evidence of Pay-How-You-Drive on claims data which is of relevance to insurers as well as broader considerations, for example in regard to road safety.