Introductions to electric vehicles in the commercial sector: A model based on the theory of planned behaviour - DTU Orbit (17/12/2018)

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Light and heavy duty commercial vehicles are a cause of concern in urban areas because of their cumulative stress on the system in terms of air pollution, congestion, and noise. This cumulative stress is expected to increase with the expected growth in commercial vehicle movements. While electric commercial vehicles (ECVs) may provide a possible technological solution, the research on the market penetration of ECVs is scarce. This study proposes a comprehensive framework for understanding the motivations and barriers of small and medium-size firms to the introduction of ECVs in commercial vehicle fleets. The framework is based on the Theory of Planned Behaviour (TPB), and it is modelled with a structural equation model with latent variables. The model is estimated on the basis of 1443 responses from a large-scale survey in Austria, Denmark, and Germany. The results establish a linkage between the ECV procurement intentions, the TPB constructs (i.e., positive attitudes and subjective norms towards ECVs, familiarity with ECVs and perceived operational ease) and their relative importance. It also provides information regarding the relationship between the TPB constructs and the characteristics of the fleet manager as the individual decision maker, the industrial sector and the fleet management and tour pattern. Last, it provides insights regarding the transferability of the revealed TPB-ECV procurement intentions across industrial sectors and across countries. (C) 2016 Elsevier Ltd. All rights reserved.

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