Essays on capacity utilization, vehicle choice, and networks in the trucking industry - DTU Orbit (29/12/2018)

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In recent years there has been a growing interest to understand the drivers and the limits of road freight demand in many countries. Behind this interest lies a strong desire to improve operational performance in road freight transport, which has remained stable for many years. A recent report for 13 European countries reveals that on about 30 per cent of all trips made, the trucks are empty, while the percentage of a truck’s carrying capacity filled with a cargo (that is, the load factor) remained stable at an average of 50 percent over the period 1990-2008 (European Environmental Agency, 2010). The overall objective of this PhD thesis is to provide economic analyses of some of the drivers and limits of road freight transport, and their implication on the trucking industry’s performance. It is composed of four self-contained chapters which can be read independently. Each chapter addresses this objective from various angles to provide economic perspectives and policy recommendations.

Chapter 1 sets the stage by reviewing studies on capacity utilization in road freight transport from the economics and engineering literature. It draws important lessons and sheds light on potential gains that can be achieved by combining the two strands of studies. Chapter 2 looks at two aspects of capacity utilization, namely the extent of empty running and the load factor. It shows that they are explained as a function of truck, haul and carrier characteristics. Chapter 3 analyzes how firms choose the optimal truck size and shipment size. Chapter 4 looks at the effect of fuel price on the operating characteristics of the trucking industry.

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