



THE UNIVERSITY OF  
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DEPARTMENT OF STATISTICS

## Master's Thesis Presentation

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### Abstract

Digital freight brokerages serve as online platforms, facilitating connections between shippers and truck drivers through specialized digital apps. In this paper, we propose a novel contract design for digital freight platform, with a focus on resolving the issue of empty backhaul miles for drivers. We begin by characterizing driver equilibrium by maximizing the driver population potential function under the assumption that individual drivers are rational agents. Then, we model the contract design problem as a platform's profit maximization problem by setting the contract drivers' dispatch rate for different jobs as decision variables, while non-contract drivers create a market equilibrium. In the extended analysis, we conduct comparative statics to identify the set of shipping lanes and driver types that the platform should prioritize for expansion. Finally, our empirical analysis with US freight transportation data highlights the managerial implications of the model.