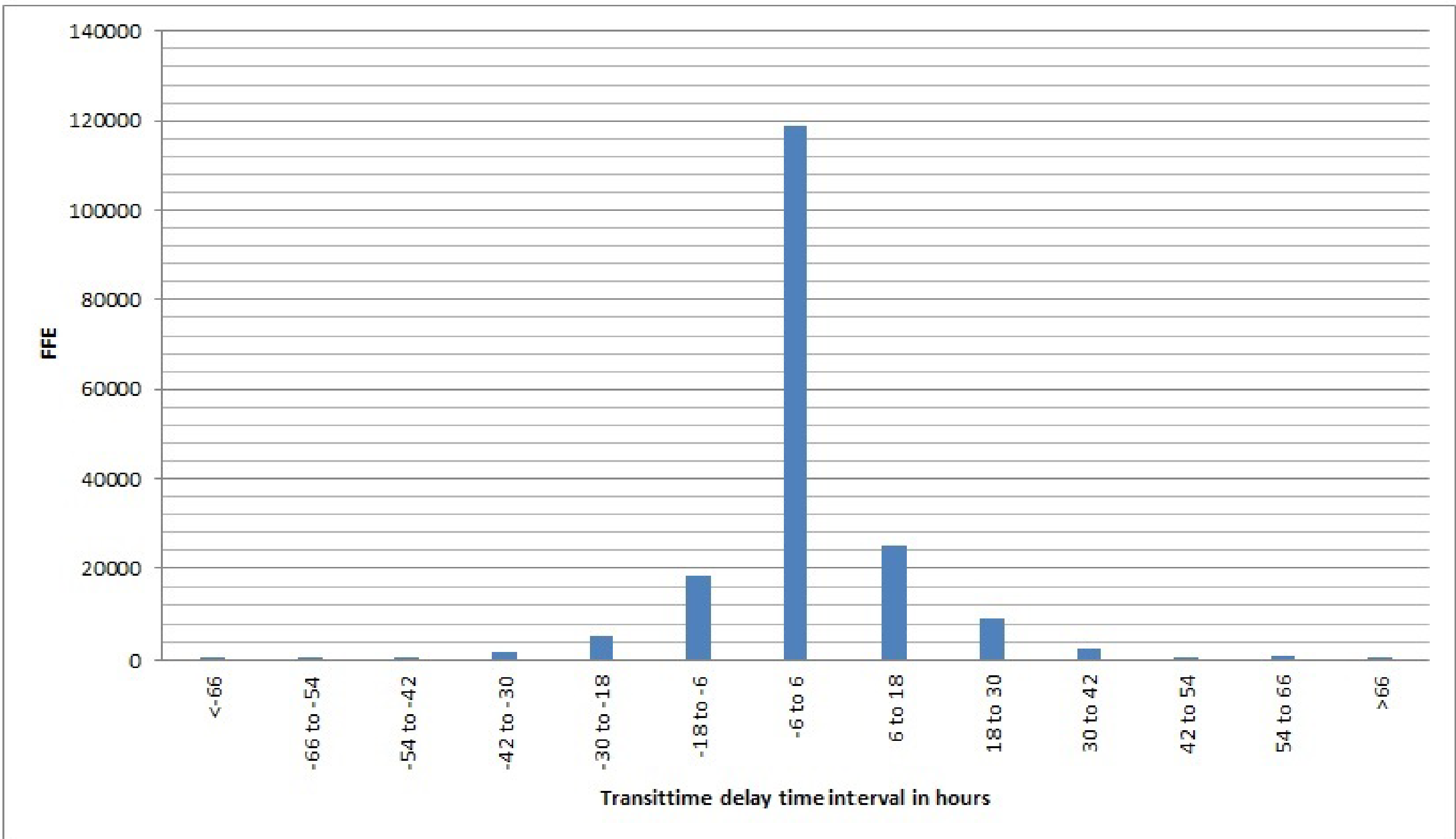
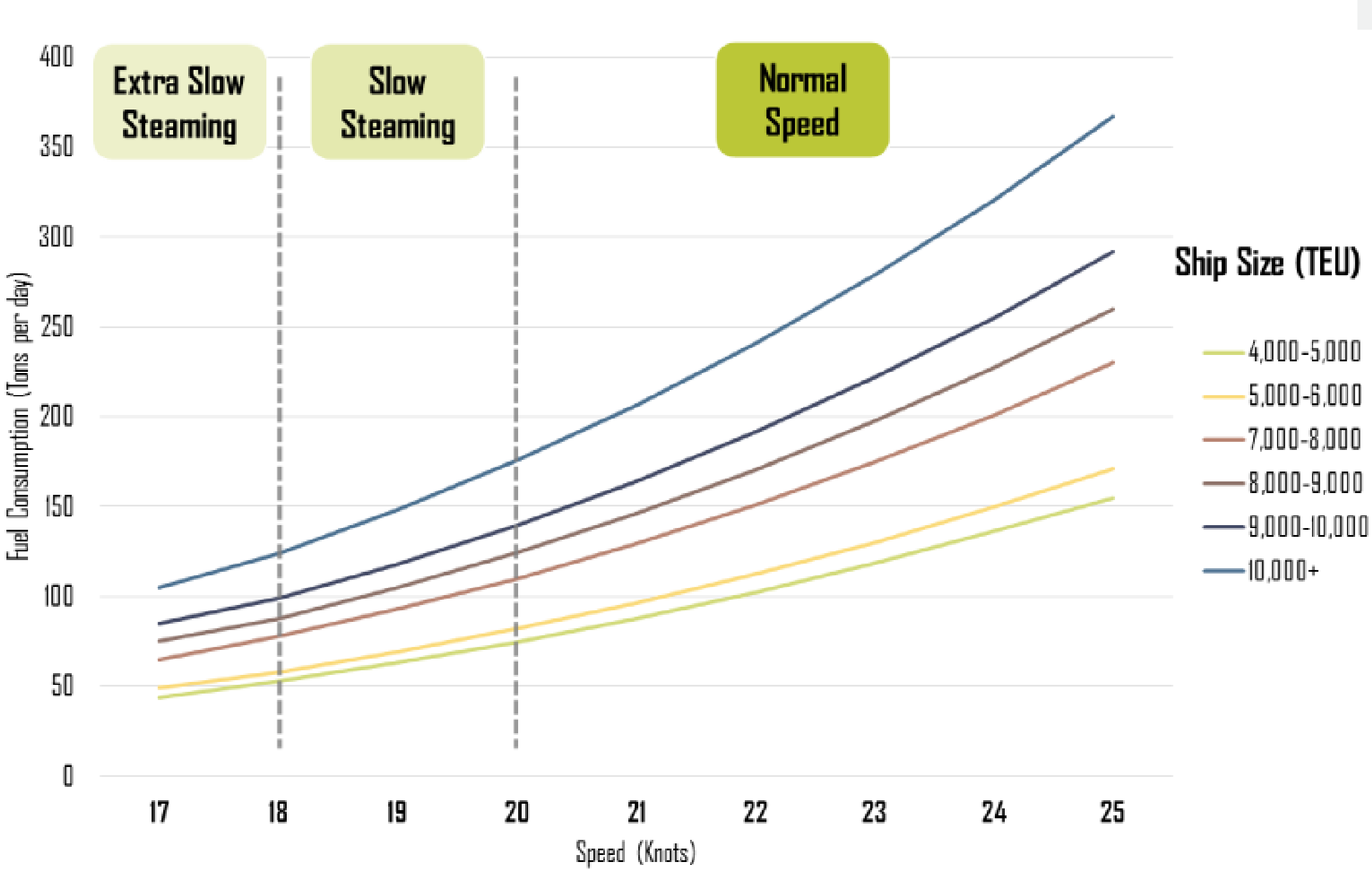


Pushing and poking arrival times in the name of energy-efficiency

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Speed optimization of an existing liner shipping network is solved by adjusting the port berth times. The objective is to minimize fuel consumption while retaining the transit times including the transhipment times.

Joint work with Line Blander Reinhardt, Mikkel M. Sigurd

Since the fuel consumption of a vessel grows cubically with the speed, substantial savings can be obtained by slow steaming. However, it is difficult to make the right trade-off between slow-steaming and customer delivery times. Therefore a holistic approach is used to adjust all arrival times in a liner shipping network, to minimize energy consumption while ensuring fast transportation times.

Computational experiments on real-size liner shipping networks are presented showing that fuels savings in the magnitude 2-10% can be obtained.

The work has been carried out in collaboration with Maersk Line and tested on realistic instances. In particular, several real-life constraints are taken into consideration to make the results operational.