

Summary

Costs in port terminals

Classification and differentiation in the Norwegian national freight model.

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The project has evaluated the classification of ports used in the Norwegian national freight model (NGM). The present classification is used as the basis for cost differentiation for loading/unloading of ships. The project has used data from a previous project called Export at the Institute of Transport Economics to evaluate the productivity in the ports for different types and sizes of vessels. The analysis showed that the basis system for differentiation should be kept. For container vessels an extra class of ports is added. For container vessels, lolo break-bulk vessels and reefer vessels there are some minor reclassifications. For all kinds of vessels, some of the productivity assumptions in NGM's cost models are adjusted based on the findings in the project. For all ports, new and specific values for cargo fees are found. All results from the project are implemented in NGM.

The project evaluates the classification of ports in the Norwegian National freight model (NGM). The present classification in the model is only used for cost differentiation of ports.

For costs, we may split between what we have called classes of ports, and individual differences for the same cargo type. The classification is a way to achieve a base for potential differentiation of cost for loading and unloading, direct cost and time cost for the vessels. The present classification is to a large extent based on the methods applied for loading/unloading operations in the ports, split by different types and sizes of vessels. Individual differences are basically differences due to different cargo fees in various ports.

The project has evaluated the need for new classifications, gathered data for improved differentiation between ports, and updated the NGM's cost model and nodes input files.

The project has applied data from the Export project, to evaluate the productivity in ports covered by Statistics Norway's (SSB's) quarterly statistics. The analysis has given the following results:

- The system for classification is kept

Container vessels:

- A new class 4 is established and used for the port of Oslo.
- The ports Moss, Borg, Porsgrunn (Brevik), Drammen, Larvik, Kristiansand og Rana are classified as class 3.
- For other ports covered by SSB's statistics, most including up till Karmsund (see figure 5.2 in the report) are classified as class 2.
- All other ports are for container vessels classified as class 1.

Other vessels:

- For **break-bulk cargo**, Moss og Rana are reclassified to class 3 when using break-bulk lolo vessels, while the other ports covered by SSB's statistics remain in class 2. This is with the exception of Kirkenes that is reclassified to class 1.
- For **reefers** carrying fish and other thermo products, Ålesund, Hammerfest, Karmsund og Måløy are reclassified to class 3.
- All **wet- and dry bulk vessels** remain in class 2, the differentiation is taken care of by the productivity for different sizes of vessels.

For all ports, new values are found for the cargo fees for each cargo group. The results for the productivity changes are implemented in NGM's cost model and through this to the vehicle.txt input files. The changed classification of ports in addition to the new cargo fees are implemented in the nodes input files to NGM.