

# AN OPTIMAL TRANSPORTATION PROBLEM WITH IMPORT/EXPORT TAXES ON THE BOUNDARY

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ABSTRACT. We analyze a mass transportation problem in a bounded domain in which there is the possibility of import/export mass across the boundary paying a tax fee in addition to the transport cost that is given by the Euclidean distance. We show a general duality argument and for the dual problem we find a Kantorovich potential as the limit as  $p \rightarrow \infty$  of solutions to  $p$ -Laplacian type problems with non linear boundary conditions. We show that this limit encodes all the relevant information for the problem, it provides the masses that are exported and imported from the boundary and also allows us the construction of an optimal transport plan.

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