

Analysis on the Flow-Capturing Store Location Problem

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ABSTRACT

It is always assumed in the facility location theory that demand usually exerts on nodes of network under study. However, there are cases where demand exerts on flow/link of network, such as auto teller machine, convenient store, and gas station. The corresponding location problem was called flow-capturing location problem. Store location decision problem has been studied for decades. In this research, store location decision problem under flow-capturing environment is considered. There are several different decision objectives, which should be considered in the flow-capturing store location problem. In real life, customers always visit stores of different types in one trip. This contradicts with the assumption of the original flow-capturing problem. In addition, the competitiveness among stores already located and to be located are recognized and analyzed. For the above three types of problems, mathematical models and heuristic algorithms are developed respectively. Some analysis regarding the sensitivity of parameters in the original literature is performed. A derivation that leads to the reduction of the solution space is also provided. Examples from textbook and real problem adopted from local city are used for the illustrative purpose.

Keywords : Store Location, Flow Capturing Location Problem

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