

DRYPORT LOCATIONS

by

DATA-DRIVEN OPTIMISATION

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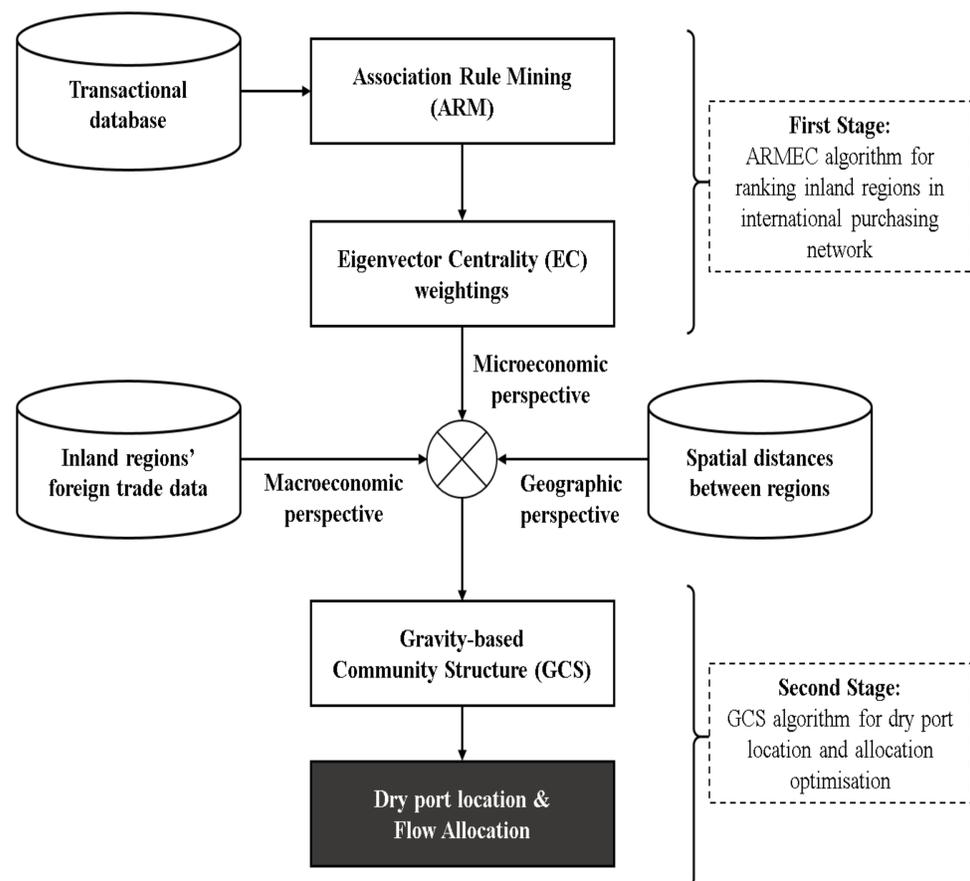
Background

- With the rapid development of globalization and international trade, intercontinental freight transport has experienced a fast-paced growth rate of 9.3% per year. Nevertheless, as container flows continue to rise steeply, many seaports have been confronted with the problem of severe congestion in terminals and bottlenecks in the inland transportation system.
- Under such circumstances, dry ports have been increasingly implemented as an effective logistics solution to sustain seaport competitiveness and improve the efficiency of the freight transportation chain as a whole.
- By definition, dry ports are inland intermodal terminals connected directly to one or several seaports by high-capacity transport modes, preferably railways, where shippers and carriers can drop off and/or pick up their containers directly as if going to seaports.
- In general, dry ports provide almost all services offered at a seaport, such as customs clearance, storage, tax payments, and other value-added logistics activities. By transferring these services to the hinterland, dry ports can help ease congestion at port terminals and increase inland accessibility.

RESEARCH AIM

- There is still an absence of an optimization method that can effectively provide practical solutions for the large-scale dry port location problem.
- Hence, our research aims to develop a data-driven optimization model that combines data mining and complex network theory to address the large-scale dryport location problem.

ARMEC-GCS Methodology



Model Validation

- In 2013, President Xi Jinping of China launched the Belt & Road Initiative (BRI) including numerous seaports and international train projects to enhance the infrastructure connectivity between Asia, Europe, and Africa, thereby boosting international trade.
- We apply our approach to optimize dryport locations for 309 cities in Mainland China under the context of BRI.
- The result shows that our approach is able to accurately identify 10 optimal locations of dryports, which are closely in line with the key BRI projects in reality.
- Hence, the validity and practicability of the AMREC-GCS is confirmed

