INSIGHTS FROM RECENT ECONOMIC MODELING ON PORT ADAPTATION TO CLIMATE CHANGE EFFECTS



Laingo M. Randrianarisoa, Kun Wang and Anming Zhang

The chapter offers a review of existing theoretical modeling work that has been done on port adaptation to climate related disasters in order to provide an understanding of port adaptation decision making alongside the potential drivers of decision makers.

APPROACH:

The chapter reviews several papers on port adaptation, compares and contrasts their methodologies and findings so as to offer new conclusions on the subject matter.

MAIN FINDINGS:

- Existing theoretical studies have applied game theory and real options approaches to model the timing of port adaptation, disaster uncertainties, port market structure, and their effects on port adaptation.
- Port stakeholders are more likely to adopt climate change adaptation measures earlier and to greater extents when the probability of occurrence of disasters is high and when there exists competition between ports.
- Ports have an incentive to abstain from innovating climate change adaptation measures as they can benefit from following the examples of other leading ports at reduced costs.
- Public ports are likely to overinvest in climate change adaptation, although this is not necessarily to the benefit of the public, whereas private ports may be more efficient with their adaptation choices.

