

Inter-City Networks: A Maritime Perspective

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Abstract :

Although more than 80% of world trade volumes occur by sea, and about 60% of world urban population is coastal, no previous research has been done on how cities are linked by maritime flows. Based on untapped shipping records and population data, we construct a global network with cities as nodes and inter-port vessel voyages as links. The first part of the analysis looks at the evolution of traffic concentration and port-city correlation since the late nineteenth century. While the largest cities kept concentrating traffic in a stable manner, the correlation gradually lost in significance. The latter trend, however, varied according to the type of location and the level of observation. The second part on the maritime connectivity of cities confirms the overwhelming importance of city size, but sheds more light on the shift of hub functions towards pivotal ports and from Atlantic to Asia-Pacific. A spatial interaction model shows that the network obeys gravitational properties, as larger cities connect more with each other, but less at distance.