Construction of high resolution maritime multi-regional input–output table for China's bay areas (BAY-MMRIOT)

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The Multi-Regional Marine Economy Input-Output Table (MMRIOT) serves as a powerful analytical tool for capturing the teleconnection between maritime and terrestrial economies in different regions, and assessing its supply chain impacts. China's bay areas—despite holding significant economic importance at both national and global levels—are not adequately represented in existing input-output tables for the marine economy, which lack critical detail on marine sector information at high spatial resolution, failing to capture the heterogeneity among cities within the bay. To fill this gap, we propose a framework based on partial survey data for compiling the Bay-MMRIOT, which covers major bay areas with 55 sectors (13 marine sectors and 42 non-marine sectors) and spans three years (2012, 2015, and 2017). We provide a detailed description of the database development methodology. The Bay-MMRIOT database aims to incorporate official and publicly available data from multi-sources. Based on this framework,, we utilize the Guangdong-Hong Kong-Macao Greater Bay Area (GBA) as a case study, analyzing the impact of GBA's marine economic development on the national economy's production activities along the supply chain. The results show that from 2012 to 2017, the marine economy of the GBA generated indirect output ranging from 0.67 to 0.92 times its direct output, and the total industry chain output across marine sectors exhibited significant heterogeneity. This framework offers a feasible approach for developing subregional-level marine economic trade analyses and provides a viable solution for studying subregional marine economic trade under limited data conditions