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Abstract title	Economic loss assessment of port logistics stagnation due to disasters -case study of 2014/15 U.S. west coast port disruption
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Abstract text	

INTRODUCTION: The progress of world container trade has advanced the global value chain development through reducing transport cost and lead time. This means that the world economy will be seriously damaged by the international trade disruption in ports due to various disasters. Against the above mentioned background, this study discusses on the negative economic impact caused by the stagnation of international container transport by reviewing the 2014/15 U.S. West Coast port disruption case.

METHODS: During the port disruption period, shippers could take three choices: accepting the disadvantage of confused port, shifting to an alternative route/transportation, and canceling the transport of the cargos. For the shippers using the West Coast ports, the additional transport lead time was estimated by combining LLI ship movement data and PIERS cargo shipment data. As to the shifting and canceling of transport, the container volumes were estimated by using X-13 ARIMA seasonal adjustment program, based on the US Trade statistics data and PIERS data. The economic direct losses of U.S. and related countries were assessed from the cargo value and freight charge, and indirect losses were evaluated by using GTAP model.

RESULTS: The serious decrease of efficiency of container terminal operations caused about two weeks of additional transport lead time from Japan to U.S. For avoiding the confused port, Japanese shippers, especially with respect to automakers, tended to choose air transport for substitution, while China, Korea and Taiwan shippers preferred East Coast shipping route to the air transportation. The direct loss of each country was assessed as: \$3.6 billion loss on U.S. economy and also \$1.4, \$1.1, \$0.7, and \$0.3 billion loss on economy of Japan, China, Korea, and Taiwan, respectively. These direct losses caused by the stagnation of international container trade infected their countries' economy, resulting in the decrease of their GDP.

CONCLUSIONS: It was revealed, in this study, that the port disruption may cause serious economic losses on related countries through disconnection of global value chain. In the 2014/15 U.S. West Coast case, although the disruption occurred in U.S., the economic loss infected many East Asian countries as well. This fact indicated that the impact of large-scale disaster spread through international container transport, and also that the improving disruption risk management in ports and container shipping is vital for global economy.

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