

GPR 2015

Global Port Research Alliance Conference on “Port and Logistics Connectivity”

Academic Session F1: Port Policy

- ❖ **Date: 22 May 2015**
- ❖ **Time: 3:45pm – 5:15pm**
- ❖ **Venue: R1108, R Core (Shirley Chan Building), PolyU**

The maritime and aviation industries are of critical importance to the global economy. Despite the distinctive features observed in the maritime and aviation sectors, the two industries face a lot of common. This session aims to explore the policy related issues in the maritime and aviation sectors.

- The first study conducts a comparative review on research on the maritime and aviation industries, concentrating on such issues as market structure, firm competition and regulatory policies.
- The second study explores the potential impacts of High-Speed Rail (HSR) on airports’ efficiency. The aims of this study are: (1) examining the route-based impact of HSR operation on air carriers’ domestic available seats, and (2) exploring HSR’s impact on airports’ performance. The analyses conducted in this study show the relationship between HSR services and air traffic where the relationship between airport efficiency and share of domestic seat capacity affected by HSR has also been identified.
- The third study aims to introduce the background and the motivation of the Chinese VAT reform, and to explore the new trends and characteristics of the shipping industry in China (e.g., higher industry concentration, more rational fixed assets purchasing, deepening market work-dividing in shipping auxiliary business. Based on extensive field investigation and questionnaire survey, the authors ascertain the relationship between the VAT reform and the competitiveness of Chinese shipping industry.
- The fourth study discusses the influence of governance structure on the corporate performance of listed port companies in China. Governance structure is estimated by principle component analysis with selected indicators. With the estimation results, multiple regression analysis is adopted to examine the influence of governance structure on corporate performance.

Session Chair: Prof. Anming Zhang, The University of British Columbia

Title	Author(s)
Market Structure, Firm Competition and Regulatory Policies - A comparative review of research on the maritime and aviation industries	Xiaowen Fu (The University of Sydney), Kevin Li (Chung-Ang University), and Anming Zhang (University of British Columbia)
Efficiency Performance of Northeast Asian Airports: the Impact of High-Speed Rail Development	Hun-Koo Ha (Inha University), Yulai Wan (The Hong Kong Polytechnic University), Yuichiro Yoshida (National Graduate Institute for Policy Studies), and Anming Zhang (University of British Columbia)
A study on the Impact of VAT Reform on Chinese Shipping Industry	Shu Wu, and Dong Yang (China Waterborne Transportation Research Institute)
Port Management Model, Governance Structure and Corporate Performance: Evidence from Listed Port Companies in China	Bao Jiang, Jian Li , and Xiaofan Zhang (Ocean University of China)

GPRRA 2015

Global Port Research Alliance Conference on “Port and Logistics Connectivity”

Academic Session F2: Risk Management in Shipping and Port

- ❖ **Date: 22 May 2015**
- ❖ **Time: 3:45pm – 5:15pm**
- ❖ **Venue: R1109, R Core (Shirley Chan Building), PolyU**

Risk management in shipping and port is an important topic to explore. This session consists of four studies to examine resilience of port-hinterland transport networks, port security surcharges, and accidents in shipping and ports.

- The authors of the first study consider a system of port-hinterland logistics transportation network with multiple origin-destination (O-D) pairs. The authors review the concept of supply chain resilience, and measure resilience for the system of port-hinterland logistics transportation network in a quantitative way. This study also builds a model to examine the allocation of the existing resources to maximise the system resilience in the case of an unconventional event.
- The second study attempts to analyse the structure of port security fees in the light of the variety of port resource systems, funding and financing schemes, and tariff setting mechanisms. The author also discusses the interplay between free competition, distortion to market equilibrium, and the role of price regulation in the context of port and maritime security surcharges.
- The third study reviews the existing statistical methods for ship accident analysis, and provides a statistical summary of the current ship accidents. The authors also identify the major factors for general ship accidents, and provide a data collection method. The extended Cox’s proportional hazard approach is employed to analyse the contributing factors for the ‘duration’ between two ship accidents of a ship and ‘probability of recurring accidents’.
- The authors of the fourth study estimate the effect of the vessel speed reduction program (VSR) on marine accidents econometrically using U.S. panel data. Three U.S. ports (VSR has been implemented in the port of L.A, and port of Long Beach since 2001, port of San Diego, 2009) serve as reference while other ports are also included to compare the effects. The results provide policy makers with useful insights and tangible evidence on marine safety and vessel operation.

Session Chair: Prof. Nan Liu, Zhejiang University

Title	Author(s)
Measurement of resilience of port-hinterland transport networks under unconventional emergency events	Zixiang Gong, and Nan Liu (Zhejiang University)
Port Security Surcharges: Analysis of Cost Structure and Tariff Setting	Khalid Bichou (Imperial College London)
A Statistical Analysis on Recurring Accidents in Shipping	Meifeng Luo, and Sung-Ho Shin (The Hong Kong Polytechnic University)
The impact of vessel speed reduction on port accidents	Young-Tae Chang, and Hyosoo Park (Inha University)

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Global Port Research Alliance Conference on “Port and Logistics Connectivity”

Academic Session F3: Traffic Flow and Shipping Network

- ❖ **Date:** 22 May 2015
- ❖ **Time:** 3:45pm – 5:15pm
- ❖ **Venue:** R1206, R Core (Shirley Chan Building), PolyU

This session aims to examine traffic flow and shipping network from various perspectives. The first two studies develop models to examine the impact of scale economies in shipping networks, and the impact of liner shipping network perturbations, respectively. The third study deals with global freight flows and the fourth study uses a transport complex economy approach to examine the container ports.

- The first study proposes a new strategic global maritime network model that combines models for freight demand and service network design, going beyond single-company networks. The authors also explore various scenarios for possible future networks and assess impacts on ports within the Bremen-Le Havre range. The findings suggest that different structures such as hub/spoke networks and multiple port calls may dominate the network, depending on the preferences of the network users concerning transport times and costs.
- The second study proposes the application of optimisation techniques to develop a quantitative framework to assess the impacts of disruptive events on the liner shipping network. It also provides a categorisation of such network perturbations, differentiating between systemic and external, and proposes the application of a container assignment model that minimises the expected container routing costs in order to assess range of scenarios related to the consequences of seismic and conflict hazards affecting the Southeast Asia-to-Europe trade.
- The third study reports a novel model integrating various databases into a complete time-series port-level freight origin and destination (OD) database, performs freight flow assignments between foreign, investigates the total and commodity specific freight flows, and establishes a multiple regression model linking the freight flows and social-economic-demographic attributes at the country level to calibrating and forecasting of U.S. global flows. The patterns of U.S. freight flows are also explored and visualised by port, city, mega region, country, and continent.
- Ports function as transport nodes and routes that different regions and countries are connected into economic networks. This fourth study uses the approach of transport complex economy, defined as “an economy that emerges from the joint location of transport –related activities that have substantial links with one another”, to examine container ports.

Session Chair: Dr Panagiotis Angeloudis, Imperial College London

Title	Author(s)
Modelling the impact of scale economies in shipping networks on global container flows	Ronald Halim, Jan Kwakkel, and Lorant Tavasszy (Delft University of Technology)
Modelling the impact of liner shipping network perturbations on container cargo routing: Southeast Asia-to-Europe application	Pablo Achurra Gonzalez (Imperial College London), Matteo Novati (Steer Davies Gleave Ltd.), Roxane Foulser-Piggott (University of Cambridge), Daniel J. Graham (Imperial College London), Gary Bowman (University of Cambridge), Michael Bell (The University of Sydney), and Panagiotis Angeloudis (Imperial College London)
Visualizing and Analyzing the U.S. Global Port-Port Freight Flows Using Data Mining, Assignment Model, Multiple Regression, and GIS	Guoqiang Shen (The University of Oklahoma)
Transport Complex Economy: An application to top five container ports	Yee-Nam Ng, Venus Y.H. Lun, and Kee-Hung Lai (The Hong Kong Polytechnic University)

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Academic Session F4: Macro-economy and Shipping

- ❖ **Date: 22 May 2015**
- ❖ **Time: 3:45pm – 5:15pm**
- ❖ **Venue: R1106, R Core (Shirley Chan Building), PolyU**

This session aims to address issues in the shipping sector from the macro-economy perspective. The first study aims at characterising the business cycles in seaports and the speculation in dry shipping market. The second study identifies the determinants of iron ore dry bulk freight rates and the third study deals with critical success factors of international ship finance centre (ISFC).

- The first study examines the business cycles in Australian ports. Identifying the business cycles, their turning points, and their relation to the focal country economy can support planning and understanding the role of port activity in economic development. It can also help to better understand the current state of each economy and improve the forecasting capability of existing indicators. A measure of the output of the maritime transportation sector of specific ports, such as freight, might be even more valuable if it leads the other economic measures as it could then be used in forecasting those measures as well as macroeconomic cycles.
- The second study aims to identify the micro-determinants of dry bulk freight rates of the commodity of iron ore. In the determination of voyage freight rates, both of Two Stages Least Square Model and Heckman Model are employed to examine impacts of port infrastructure, cargo characteristics and iron ore market.
- The third study develops a measurement instrument containing dimensions in identifying and presenting the success factors that can critically and successfully lead a maritime city to become an International Ship Finance Center (ISFC). This study goes further to suggest recommendations regarding the areas of improvement and competition of Shanghai as an ISFC in the future. This study conducts questionnaire surveys followed by open-ended interviews to collect data concerning the perceived level of importance of critical success factors of ISFC and to obtain views on the future development of Shanghai as an ISFC from shipping executives in shipping finance respectively.

Session Chair: Prof. Petrus Choy, The Hong Kong Polytechnic University

Title	Author(s)
Characterizing the business cycle in seaports: Direction and timing of the relationship between the macroeconomy and shipping	Persa Paflioti, Efthymios Roumpis (University of the Aegean), Thomas Vitsounis (National ICT of Australia), Ioannis Tsamourgelis (University of the Aegean), and Michael Bell (The University of Sydney)
Determinants of Iron Ore Dry Bulk Freight Rates: Structural, Specific and Market Factors	Luca Cocconcelli, and Francesca Romana Medda (University College London)
A Study of Critical Success Factors of International Ship Finance Center and its Implication to Shanghai	Petrus Choy, Tsz Leung Yip, Kelvin Pang, and Emmy Eunha Lee (The Hong Kong Polytechnic University)