# IAME Conference 2025

# Assessing the Economic Impact of Forced Shipping Market Fragmentation - A Two-Market Equilibrium Analysis of Panamax Bulk Carriers

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# Summary of Presentation

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# Background

- **Growing U.S. Intervention in Maritime Policy**: Recent proposals (Executive Order, USTR Action, SHIPS for America Act)aim to reduce reliance on Chinese maritime capabilities.

- **Targeting Chinese Shipbuilding and Shipping:** Measures include significant penalties(port fees) on Chinese-built or operated vessels, moving beyond simple subsidies for domestic industries.

- **The Core Threat: Forced Market Fragmentation:** These policies could effectively split the current single, global shipping market into distinct, competing blocs.

- **From Theory to Reality:** What was a hypothetical risk is now becoming a concrete policy direction, demanding quantitative impact analysis.

# Research Objective - Quantifying the Cost of Fragmentation

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- **Known Inefficiencies:** It is generally understood that market fragmentation can reduce economies of scale, hamper optimal fleet allocation, and potentially raise charter rates.

- **The Need for Quantification:** While the negative effects are known in theory, there is a need to provide concrete, data-driven estimates of the potential economic ramifications.

- **Our Goal:** To apply a partial equilibrium model to quantify the impact of a forced market split on charter rates and their volatility for Panamax bulk carriers.

- **Bridging Academia and Practice:** We aim to translate a practitioner's concern into an academic framework to inform the policy debate.

# Modeling a Fragmented Market Structure

- **Focus on Panamax Bulkers:** Chosen for their relatively simple business structure.

- **A Deliberately Extreme Scenario:** We model two separate, mutually exclusive fleets to analyze the clearest potential impact.
  - **China Block Fleet:** Serves China, Russia, Iran.
  - **Western Block Fleet:** Serves U.S., Canada, Australia, Japan, EU.

- **Three Cargo Segments:**
  - **China-Block Cargo:** Cargo to/from the China Block.
  - **Western-Block Cargo:** Cargo to/from the Western Block.
  - **"ROW" (Rest of World) Cargo:** "Arbitrage cargo" that can be carried by either fleet, **connecting the two markets.**

Note: the country groupings are an intentional, extreme simplification to get a clear analytical result, **not a reflection of a specific proposed regulation**.

# Our Approach - A Partial Equilibrium Framework

- **Charter Rate Function:** We model charter rates as a logarithmic function of the supply-demand ratio ($Q/S_f$), reflecting classic maritime economics principles.

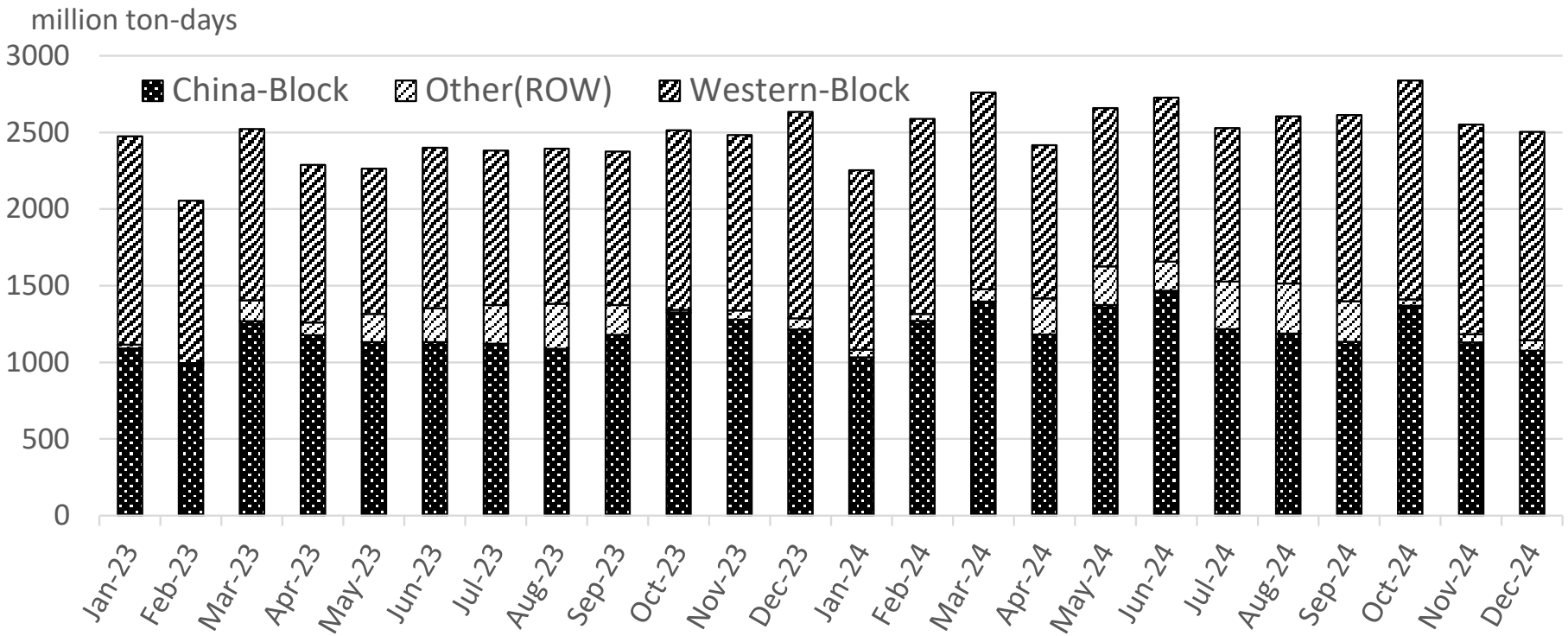
- **Why Not Deadweight Loss?:** This traditional measure is ill-suited for shipping markets where both supply and demand are largely fixed in the short term.

- **Introducing the "Cost Impact" Metric**:
  - We propose a more intuitive measure: the weighted average of the absolute deviation of charter rates in each sub-market from the unified market baseline ($F_0$).
  - This directly captures the monetary "pain" of fragmentation for market participants.

- **Optimization:** We allocate the total fleet ($S_1$,$S_2$) between the two blocks to find the "best possible" outcome (minimized Cost Impact) under a forced split. The size of both fleet does not change during the analysis period.

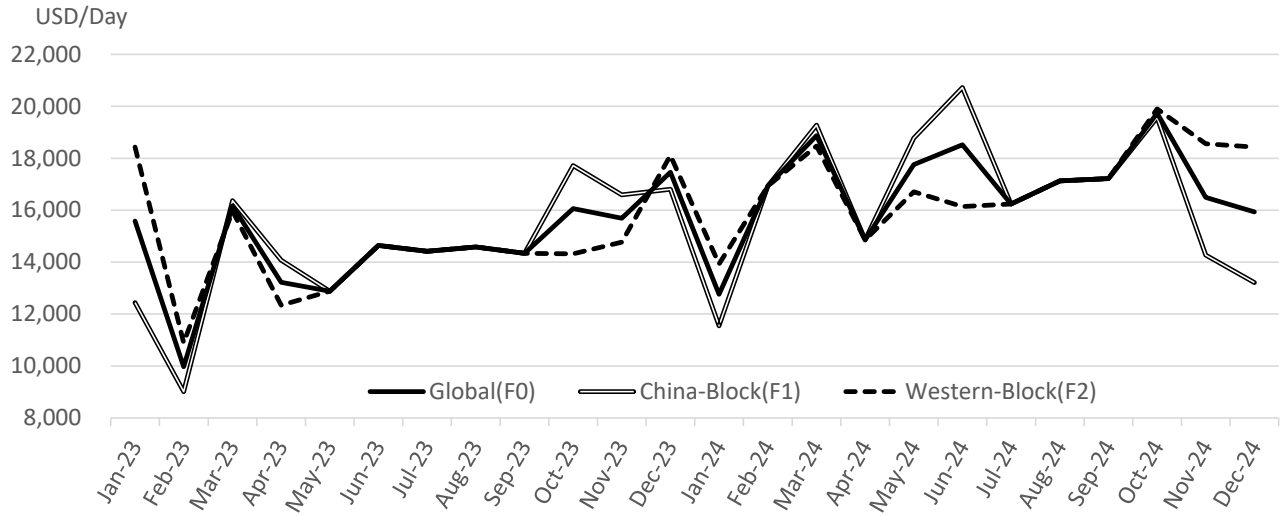
# Market Focus & Data

- **Analysis Period:** January 2023 to December 2024 (24 months).
- **Cargo Data:** We use actual ton-days data from S&P Connect, derived from AIS, to capture real-world cargo movements.
- **Fleet Data:** Total Panamax fleet capacity is taken from Clarksons Research at Jan. 2023.
- **Cargo Distribution:** China-Block: 48.3% / Western-Block: 45.6% / ROW: 6.1%



# Key Findings - Stability in Averages, Volatility in Reality

- **Similar Average Charter Rates:** The 24-month weighted average charter rate in the split market was almost identical to the unified market baseline (-0.2% difference).
  - ROW cargo arbitrage was effective in linking the markets over the long run.




- **But, Increased Monthly Volatility:**
  - **Global (Unified) Market SD:** 2,150 USD/day.
  - **Western Block SD:** 2,198 USD/day.
  - **China Block SD:** 2,681 USD/day (a ~25% increase).
- **Practical Implication:** Higher volatility requires higher risk premiums. In a fragmented market, participants will demand higher returns, likely pushing up charter rates in the medium term.

# Conclusion & Future Research

- **Conclusion:** Forced market fragmentation, even if it appears benign on average, introduces significant monthly volatility. This hidden risk can lead to higher financing costs and ultimately, higher charter rates, creating a net loss for the industry and society. The existence of even a small amount of "free" ROW cargo is critical for market stability.

- **Directions for Future Research:**
  - **Applying the Model to Real Policies:** The framework can be adapted to analyze specific, newly enacted US regulations targeting Chinese-built ships.
  - **Incorporating Other Volatility Shocks:** Extend the model to include block-specific disruptions like extreme weather or port congestion, which would likely amplify the negative effects of fragmentation.
  - **Expanding to Container Shipping:** Adapt the framework for container lines, the primary target of current U.S. policy concerns.

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