阪大OCEANS開設記念シンポジウム
「海運から見るグローバル・サプライチェーン」

大阪大学大学院国際公共政策研究科
川窪悦章

2025年7月9日(水)

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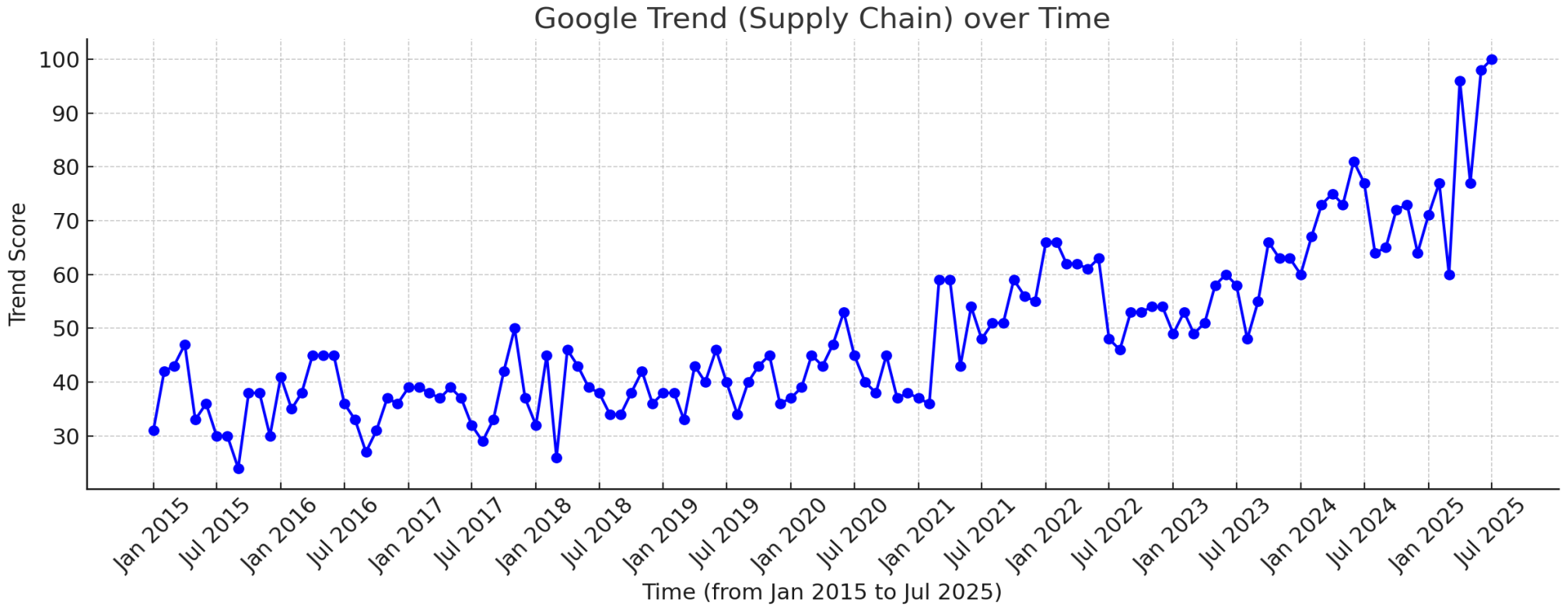
OSIPP 30 years

サプライチェーンの不確実性とリスク

- 近年はサプライチェーンの不確実性・リスクが高まっている。
  - Brexit, 米中対立、コロナ禍、ウクライナ侵攻 etc.



Source: https://trends.google.co.jp/trends?geo=&hl=ja

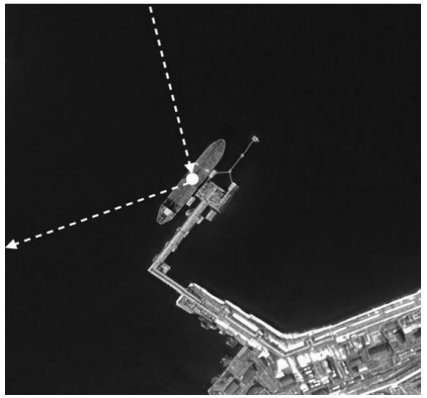
外航海運への依存と経済安全保障の課題

- 世界の国際貿易の8割超を外航海運が担う。
- 日本の食料・物資・エネルギー輸送の99%が船舶による（重量ベース）。

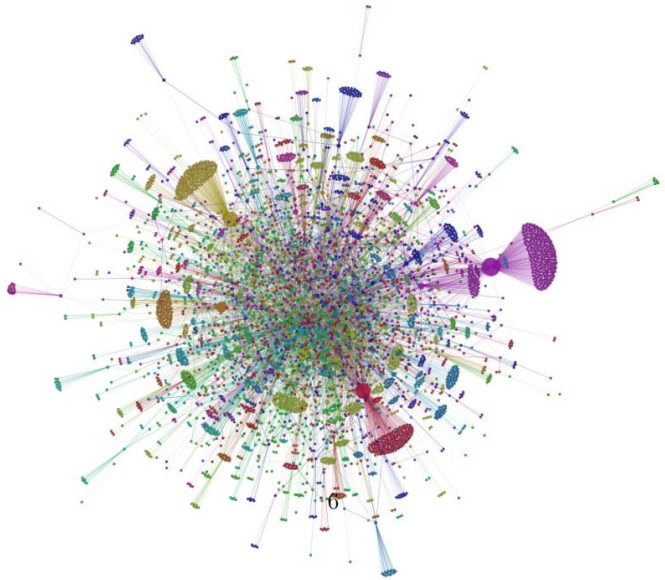
- 造船・舶用・海運サプライチェーンの強靭化は、**経済安全保障上の重要課題**の一つであり、どのような政策を実施すべきかを検討していく必要がある。

ビッグデータ×経済学

- AISデータ
- 貿易データ
- 取引データ、企業情報
- その他のデータ
  - 衛星画像データ
  - GHG排出量データ



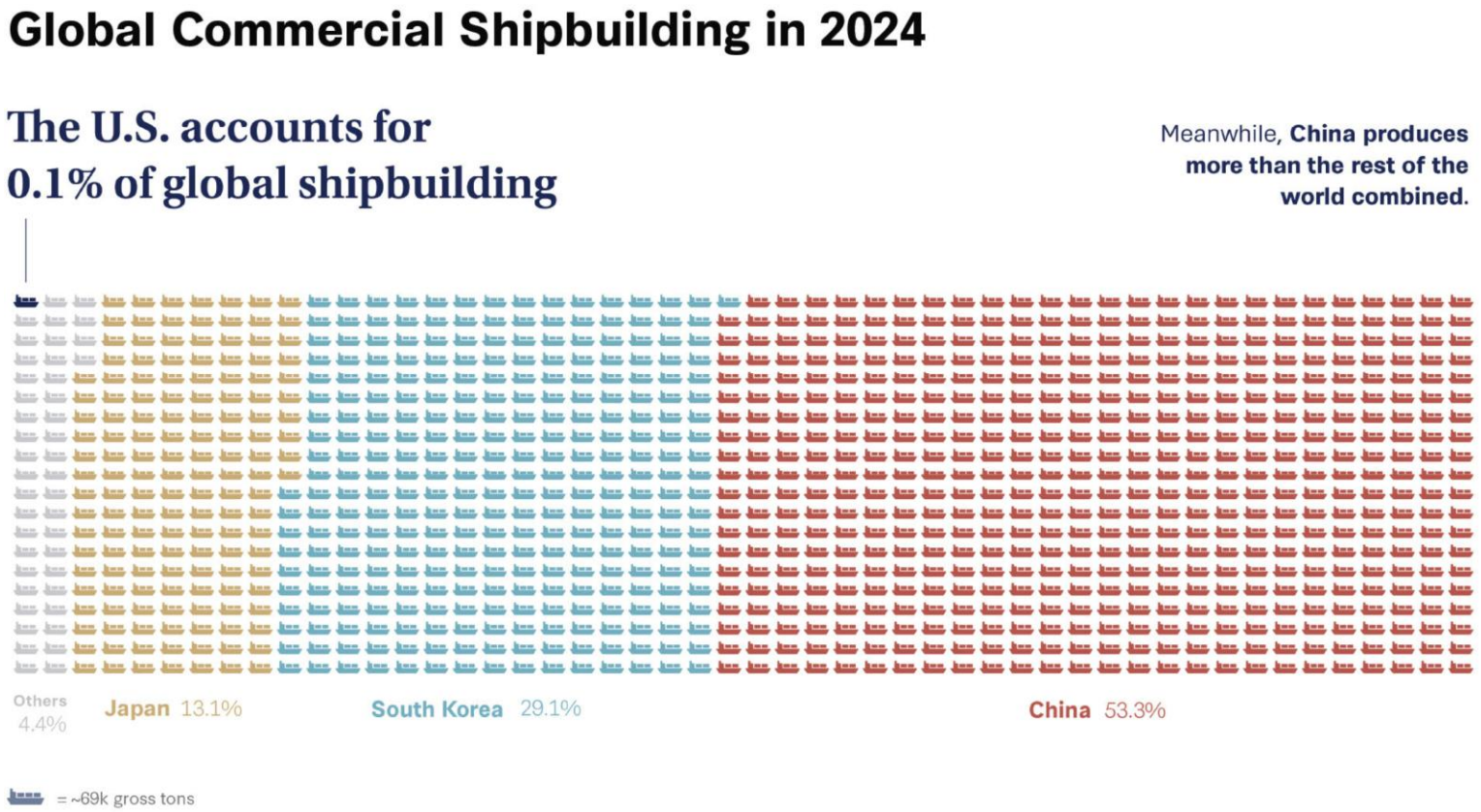
Source: Ferńandez-Villaverde et al. (2025)



Source: Bernard and Moxnes (2018)

テーマ1：造船

- 日中韓で造船における調達構造の推移を確認する。
  - EUおよび国内メーカーからの調達



Source: https://www.csis.org/analysis/identifying-pathways-us-shipbuilding-cooperation-northeast-asian-allies

テーマ1：造船

- 経済学における造船の研究は限られている。

Review of Economic Studies (2018) **85**, 1111–1158 doi:10.1093/restud/rdx050

Advance access publication 18 August 2017

Detection and Impact of Industrial Subsidies: The Case of Chinese Shipbuilding

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First version received June 2015; *Editorial decision May* 2017; *Accepted August* 2017 (*Eds.*)

This article provides a model-based empirical strategy to, (1) detect the presence and gauge the magnitude of government subsidies and (2) quantify their impact on production reallocation across countries, industry prices, costs and consumer surplus. I construct and estimate an industry model that allows for dynamic agents in both demand and supply and apply my strategy to world shipbuilding, a classic target of industrial policy. I find strong evidence consistent with China having intervened and reducing shipyard costs by 13–20%, corresponding to 1.5 to 4.5 billion US dollars, between 2006 and 2012. The subsidies led to substantial reallocation of ship production across the world, with Japan, in particular, losing significant market share. They also misaligned costs and production, while leading to minor surplus gains for shippers.

Key words: Industry dynamics, Government subsidies, China, Shipbuilding.

JEL Codes: L5, F13, F12, L6, L9

1. INTRODUCTION

In recent years, Chinese firms have extremely rapidly dominated a number of capital intensive industries, such as steel, auto parts, solar panels, and shipbuilding.[1] Government subsidies are often evoked as a possible contributing factor to China's expansion.[2] Yet, even though industrial subsidies have steered industrialization and growth in several countries throughout economic history (*e.g.* in East Asia), little is known about their quantitative impact on production reallocation across countries, industry prices, costs, and surplus. A significant challenge in this task is that government subsidies to industries are notoriously difficult to detect and measure; and in China even more so. Indeed, partly because international trade agreements prohibit direct and in-kind

1. The share of labour intensive products in Chinese exports fell from 37% to 14% between 2000 and 2010. On a monthly basis, in 2011 the U.S. imported advanced-technology products from China 560% more than it exported to China. In contrast, the monthly U.S.–China trade surplus in scrap (used as raw material) grew by 1187% between 2000 and 2010. (U.S.–China Economic and Security Review Commission, 2011).
2. "China is the workshop to the world. It is the global economy's most formidable exporter and its largest manufacturer. The explanations for its success [include the] seemingly endless supply of cheap labour [...] another reason for China's industrial dominance: subsidies" ("Perverse Advantage", *The Economist*, April 2013).

Review of Economic Studies (2025) **00**, 1–38 doi:10.1093/restud/rdaf011

Advance access publication 28 March 2025

Industrial Policy Implementation: Empirical Evidence from China's Shipbuilding Industry

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Industrial policies are widely used across the world. In practice, designing and implementing these policies is a complicated task. In this paper, we assess the long-term performance of different industrial policy instruments, which include production subsidies, investment subsidies, entry subsidies, and consolidation policies. To do so, we examine a recent industrial policy in China aiming to propel the country's shipbuilding industry to the largest globally. Using firm-level data from 1998 to 2014 and a dynamic model of firm entry, exit, investment, and production, we find that (i) the policy boosted China's domestic investment, entry, and international market share dramatically, but delivered low returns and led to fragmentation, idle capacity, as well as depressed world ship prices; (ii) the effectiveness of different policy instruments is mixed: production and investment subsidies can be justified by market share considerations, while entry subsidies are wasteful; (iii) counter-cyclical policies, firm-targeting, and shortening the intervention horizon can substantially reduce distortions. Our results highlight the critical role of firm heterogeneity, business cycles, and firms' cost structure in policy design. Finally, when exploring potential rationales, we find support for nonclassical considerations, such as reducing freight rates to boost Chinese trade.

Key words: Industrial policy, China, Investment, Dynamics, Shipbuilding

JEL codes: L1, L5, L6, O2

1. INTRODUCTION

Industrial policy has been widely used in both developed and developing countries. Examples include the U.S. and Europe after World War II, Japan in the 1950s and 1960s (Johnson 1982;

The editor in charge of this paper was Thomas Chaney.

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Industrial Policy: Lessons from Shipbuilding

Panle Jia Barwick, Myrto Kalouptsidi, and Nahim Bin Zahur

Industrial policy refers to a government agenda to shape industry structure by promoting certain industries or sectors. Although casual observation suggests that industrial policy can boost sectoral growth, researchers and policymakers have not yet mastered predicting or evaluating the efficacy of different types of government interventions, nor how to measure the overall short-run and long-run welfare effects. In this article, we focus on one particular example of industrial policy, which we believe serves as a revealing case study: government support for shipbuilding in general, and China's industrial policy to support shipbuilding in particular.

Shipbuilding has been historically a classic target of industrial policy, pursued by several countries that devised national programs for heavy industrialization, such as Japan in the 1950s and South Korea in the 1980s. Interestingly, shipbuilding has now entered industrial policy agendas in both the European Union (Folkman 2024) and the United States (Forooher 2024), with calls for reshoring shipbuilding production. We begin this essay with an overview of global production patterns in shipbuilding, and how these patterns have shifted in the last century or so. The rich and tumultuous history of shipbuilding presents puzzles and leaves us with open questions: Why have governments subsidized shipbuilding throughout history? This is not obvious at first glance: the global market for sales of newly built ships is about $120 billion annually, which by global standards is not large. Was industrial policy

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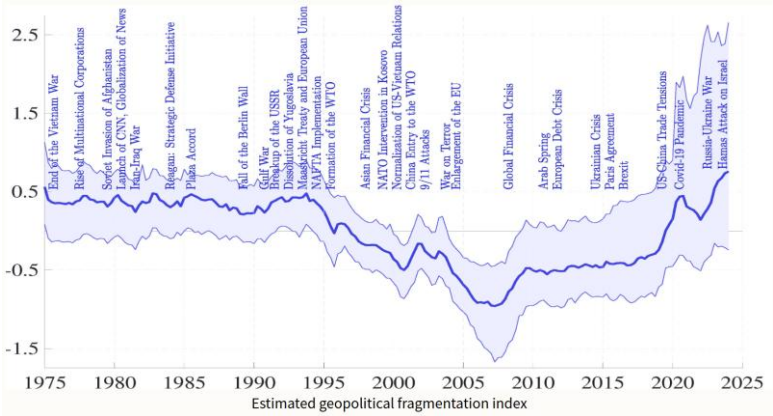
For supplementary materials such as appendices, datasets, and author disclosure statements, see the article page at https://doi.org/10.1257/jep.38.4.55.

テーマ2：サプライチェーン・ショック

- 米中対立、ウクライナ侵攻などの地政学的懸念や、激甚化する自然災害といったショックが、外航海運を通じてグローバル・サプライチェーン全体に与える影響を明らかにする。

- 参考文献
  - 米中対立: Fajgelbaum et al. (2024)
  - 地震: Kawakubo and Suzuki (2025)
  - 地政学的リスク: Ferńandez-Villaverde et al. (2025)



Note: Geopolitical Fragmentation Index
Source: Ferńandez-Villaverde et al. (2025)

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テーマ2：サプライチェーン・ショック

- 輸送コストの上昇が、消費者が直面する価格の上昇につながる。

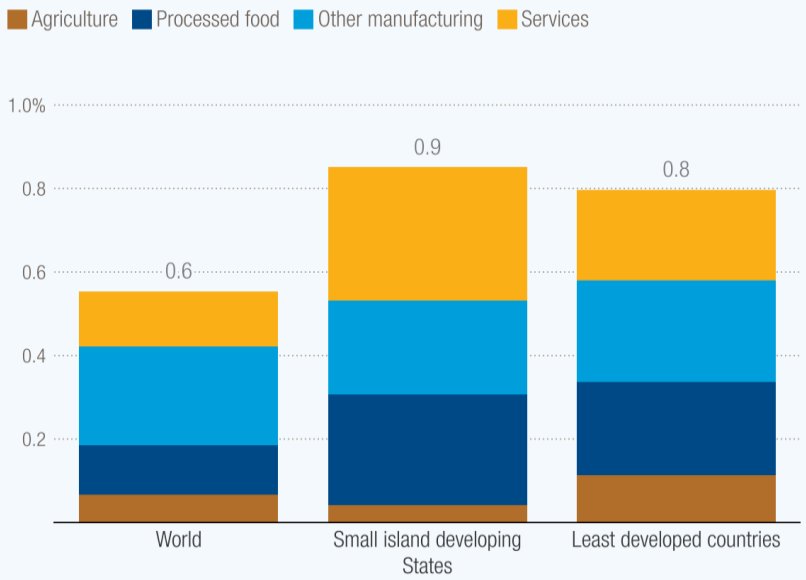
Freight rate hike: Shipping prices resurge amid Suez and Panama Canal disruptions

Comprehensive Index of the Shanghai Containerized Freight Index, October 2009–October 2024

Source: UN Trade and Development (UNCTAD), based on data provided by Clarksons Shipping Intelligence Network, 20 October 2024

Consumer prices: Impact of increased shipping rates due to Red Sea and Panama Canal disruptions

Impact of freight rate increases on the consumer price index and its breakdown, percentage change, October 2023–June 2024



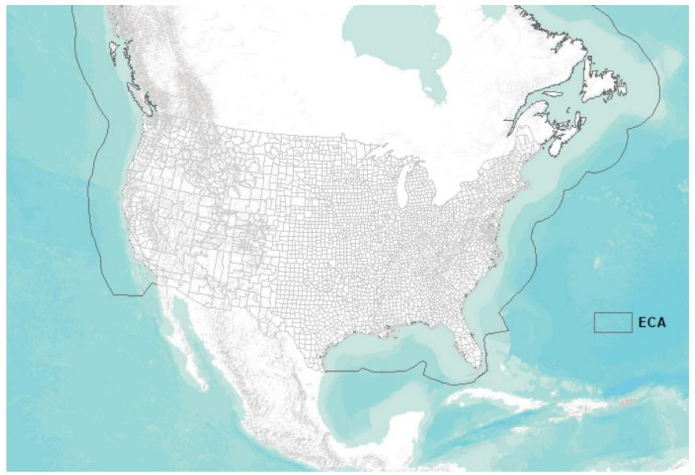
Source: UN Trade and Development (UNCTAD) calculations, based on the GTAP version 11 Data Base and other data provided by Clarksons Research, Shipping Intelligence Network and Maritech Services Limited, Sea.
Note: Median of the impact across economies in respective economic group. See the Review of Maritime Transport 2024 technical note 1 for the simulation methodology.

Source: https://unctad.org/news/high-freight-rates-strain-global-supply-chains-threaten-vulnerable-economies

テーマ3：外航海運と環境規制

- 気候変動対策として環境規制の強化が世界的に進展している。
- 2024年に導入されたEU-ETSなどに注目し、サプライチェーンの変化についてAISデータ等を用いた分析を実施する。

- 参考文献
  - US: Hansen-Lewis and Marcus (2025)



Note: Figure shows the regulated area for the North American Emission Control Area. Low sulfur fuel was required within the outlined boundary.

Source: Hansen-Lewis and Marcus (2025)

まとめ

- **グローバル・サプライチェーン**を取り巻く極めて不確実な状況を背景に、研究の重要性が高まっている。
- これまで経済学で十分に研究されていない、**造船・舶用・海運**の問題を本講座を通じて精査していく。

- さまざまなミクロデータを組み合わせて大規模な**データベース**を構築し、多角的な分析を行う。
- 成果物を論文として国際学術誌に出版するほか、政策立案につながるような橋渡しの役割を果たす。
- 特に、**経済安全保障上の重要課題**に関するエビデンスを提供する。