International Trade and Policy

WEEK 9 – Strategic Trade Policy and Global Oligopolies

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Agenda

- Part 1: Foundations of Strategic Trade Policy
- Part 2: Global Oligopolies & Game Theory
- Part 3: The Boeing-Airbus Case Study
- Part 4: Subsidies, R&D, and Open Economy Implications
- Part 5: WTO Rules and Subsidy Disputes
- Part 6: Conclusions & Policy Debates

What is Strategic Trade Policy?

- **Definition**: Government policies designed to shift economic rents from foreign to domestic firms in imperfectly competitive global markets.
- Key departure from traditional trade theory (comparative advantage).
- Focus on **oligopolistic** industries (high barriers, few firms, supernormal profits).

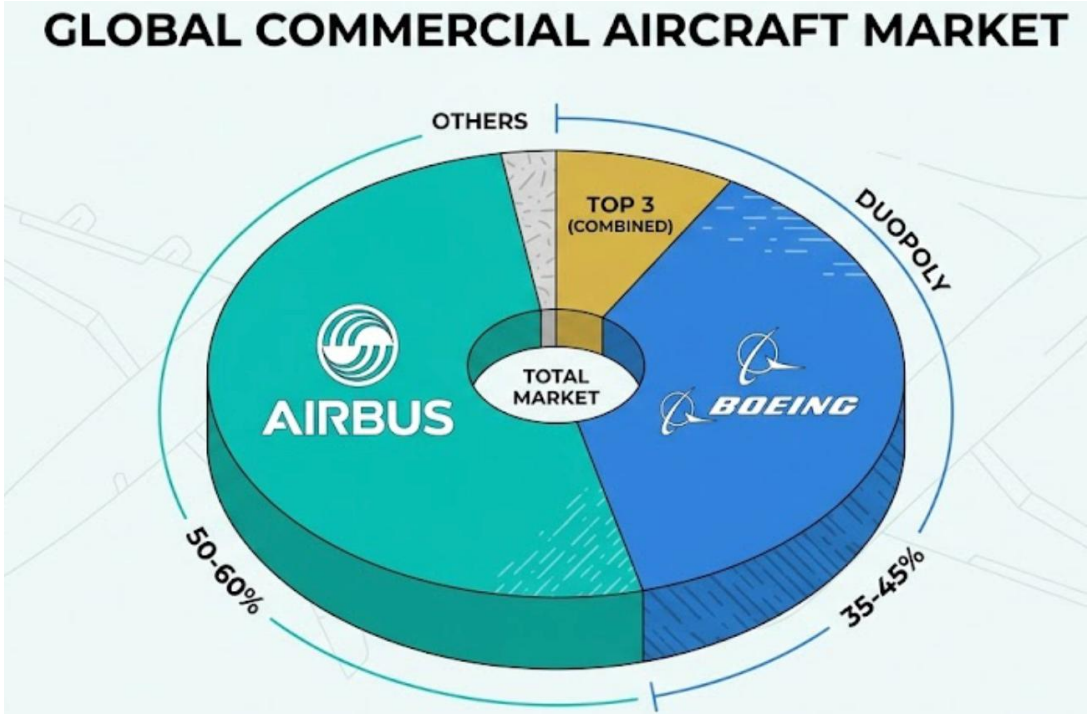
The Traditional View vs. Strategic View

Feature	Traditional (Smith/Ricardo)	Strategic (Brander & Spencer)
Market Structure	**Perfect Competition**: Many small firms, no one controls the price.	**Oligopoly**: A few giant firms dominate (e.g., Boeing vs. Airbus).
Core Assumption	Markets are self-correcting and inherently efficient.	Markets are imperfect; firms have "market power" and earn excess profits (rents).
Government Role	**Laissez-faire**: Hands-off approach; intervention causes "deadweight loss."	**Active Partner**: Intervention (subsidies) can shift profits from foreign firms to domestic ones.
Policy Goal	Maximize global efficiency and consumer surplus.	**Profit Shifting**: Capturing a larger slice of the global "profit pie."

Why Global Oligopolies Matter

- Industries: Aerospace, semiconductors, automobiles, pharmaceuticals.
- Characteristics:
  - ➢ High fixed costs & economies of scale.
  - ➢ Significant R&D intensity.
  - ➢ Strategic interdependence (firms react to rivals).

Figure 1. Global commercial aircraft market



Source: Created by the author

Key Economic Rents

- ✓**Definition**: Profits exceeding normal returns (above competitive level).
- ✓In oligopolies, rents exist due to barriers to entry.
- ✓Strategic trade policy aims to shift rents **from** foreign firms **to** domestic firms (and domestic taxpayers/workers).

Section 2: Game Theory Foundations

Strategic Interactions as a Game

- Players: Two firms (e.g., Boeing & Airbus) or two governments.
- Strategies: Produce high output, invest in R&D, set prices.
- Payoffs: Profits (rents).

SIMPLE 2x2 PAYOFF MATRIX

Payoff (Player 1, Player 2)

		Player 2	
		Strategy X	Strategy Y
Player 1	Action A	3, 2	0, 1
	Action B	1, 0	2, 3

Source: Created by the author

The Brander-Spencer Model (1985) – Third-Country Market

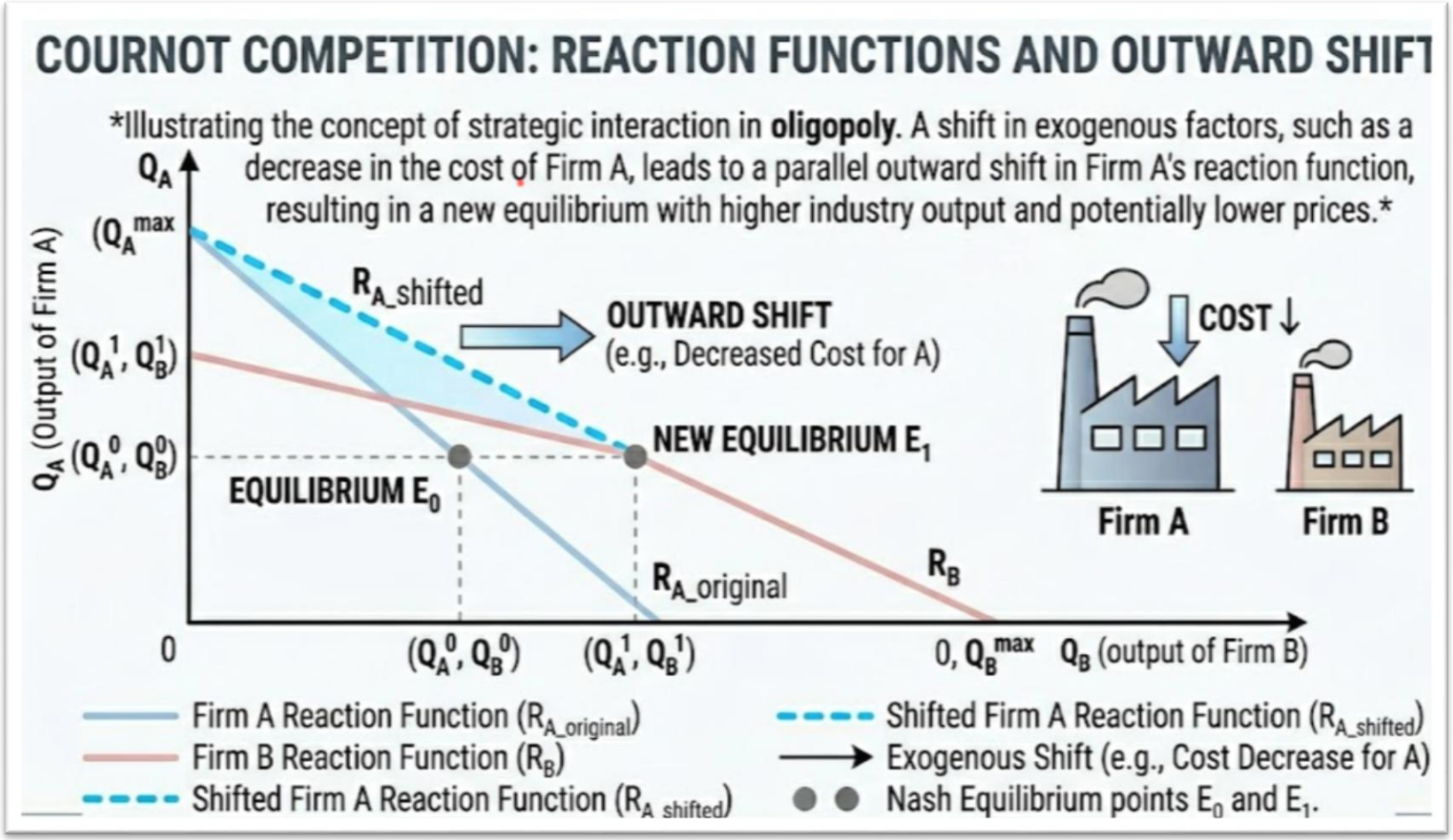


Figure 2: *Strategic Trade Subsidy and the Outward Shift of the Domestic Reaction Function in Cournot Duopoly*

Source: Created by the author

First-Mover Advantage & Credible Commitments

- Government acts as a strategic leader.
- Subsidy makes domestic firm's aggressive output strategy credible.
- Analogous to "puppy dog" (strategic retreat) vs. "top dog" (strategic aggression) – Fudenberg & Tirole.

Limitations of the Simple Model

- Requires government to commit before firms choose output.
- Assumes perfect information about demand and costs.
- Risk of retaliation (trade wars).
- Rent-seeking: Firms may lobby for subsidies without delivering rents.

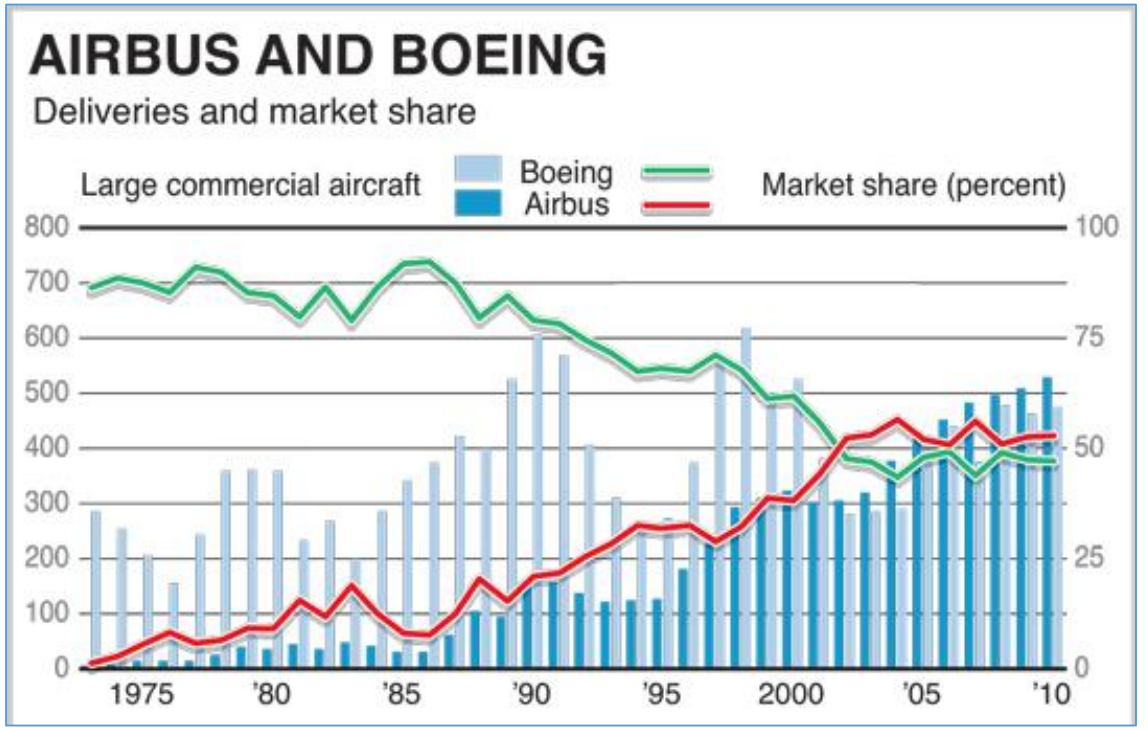
Summary of Theoretical Insights

- Subsidies can raise national welfare if:
  - Rents are large.
  - Rival does not retaliate effectively.
  - Domestic firm’s gains exceed subsidy cost.
- But: Globally, subsidies are beggar-thy-neighbour.

Section 3: The Boeing-Airbus Case Study
Introduction to the Duopoly

- Commercial aircraft: High fixed costs (~**$15B** for new airframe).
- High barriers to entry.
- Since **1990s**: A near-perfect duopoly (Boeing vs. Airbus).

Figure 3. Airbus and Boeing: Deliverables and market share



Source: Hobert Haupt, 2012

Early Years – Boeing Dominance

- 1950s-1970s: Boeing (US) dominant, with McDonnell Douglas.
- European governments wanted a challenger.
- 1970: Airbus Industrie founded as a consortium (France, Germany, Spain, UK).

Launch Aid – The First Major Subsidies

- European governments provided “launch aid” (repayable loans with low interest, long maturity).
- Total to Airbus (1970-2000): ~$15 billion (estimated subsidy element ~30-40%).
- Effect: Allowed Airbus to develop A300, A320, A330/340 families.

US Response – Indirect Subsidies

- Boeing benefits from:
  - NASA and Pentagon R&D spillovers (e.g., composite materials, aerodynamics).
  - Federal tax breaks (Foreign Sales Corporation, later various manufacturing deductions).
  - State-level incentives (Washington, South Carolina).
- US estimated value: ~$23 billion (1992-2000).

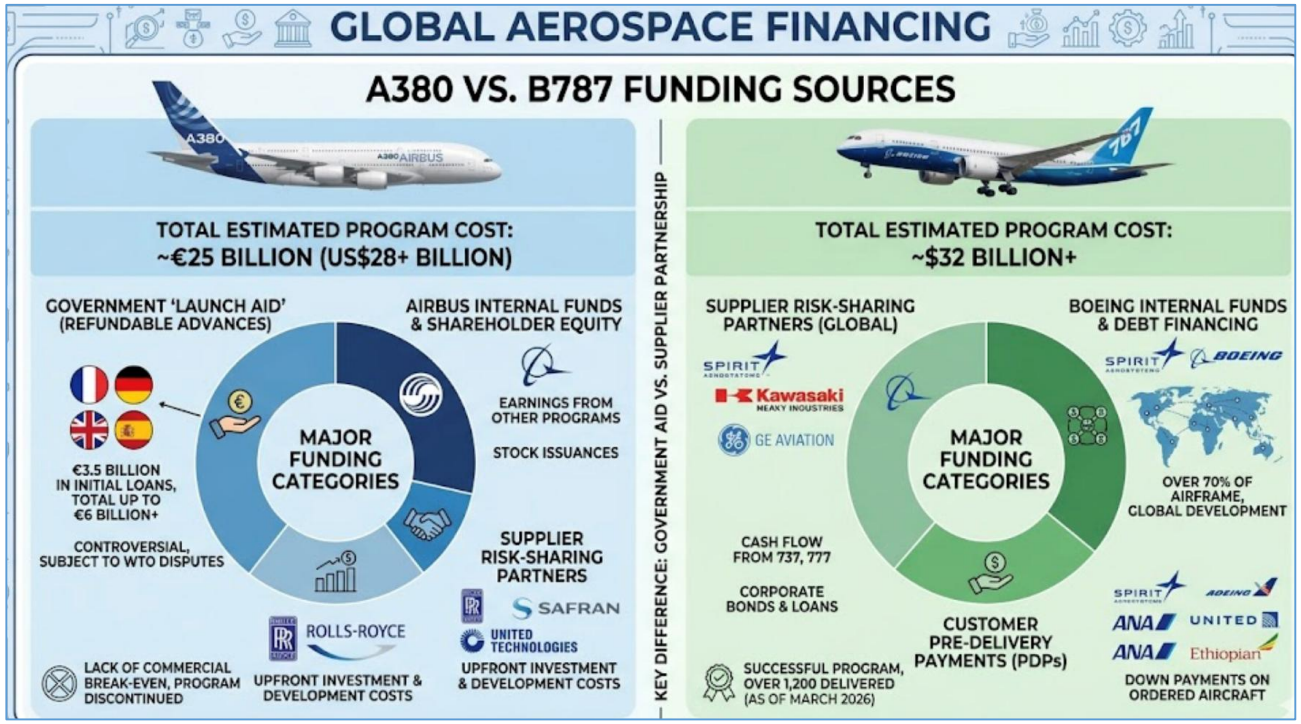
The 1992 Bilateral Agreement

- US-EU agreement to limit subsidies:
  - Launch aid capped at 33% of development cost.
  - Repayable with interest; maximum production-linked subsidies.
  - Limited indirect support (e.g., NASA).

Escalation – The Superjumbos (2000s)

- Airbus launches A380 (2000): $12B development, heavy launch aid.
- Boeing launches B787 Dreamliner (2004): tax breaks, state subsidies, R&D support.
- Each accuses the other of violating 1992 agreement.

Figure 4. Global Aerospace Financing

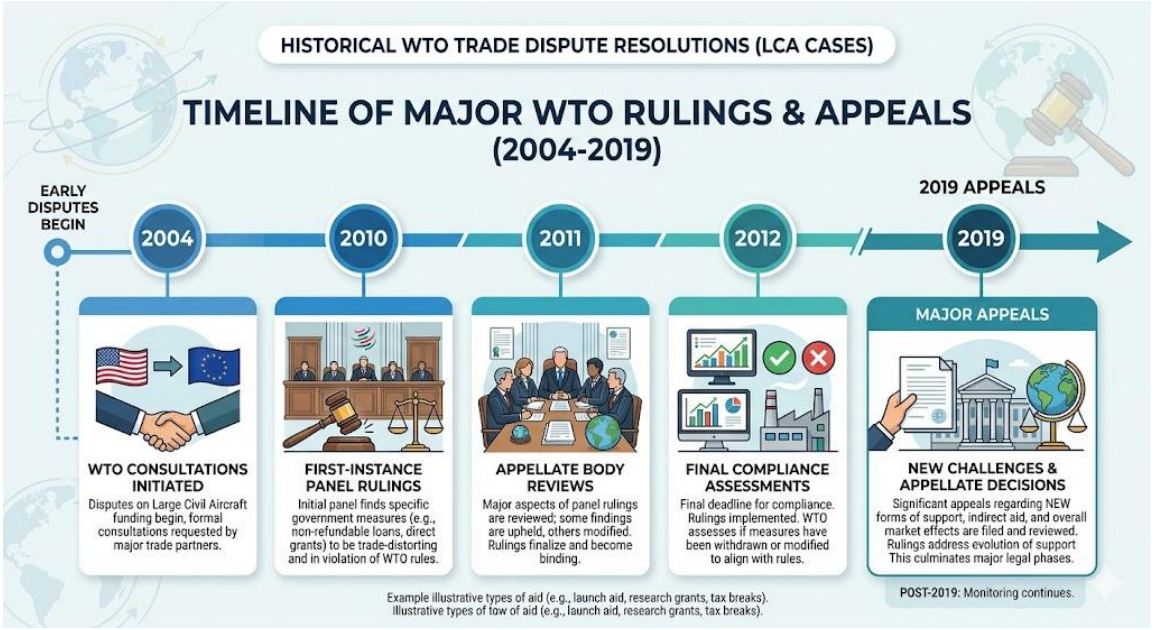


Source: Created by the author

WTO Litigation (2004-2019)

- US files WTO complaint (2004): EU launches aid illegal.
- EU files counter-complaint: US tax breaks and NASA subsidies illegal.

Figure 5. Timeline of WTO ruling



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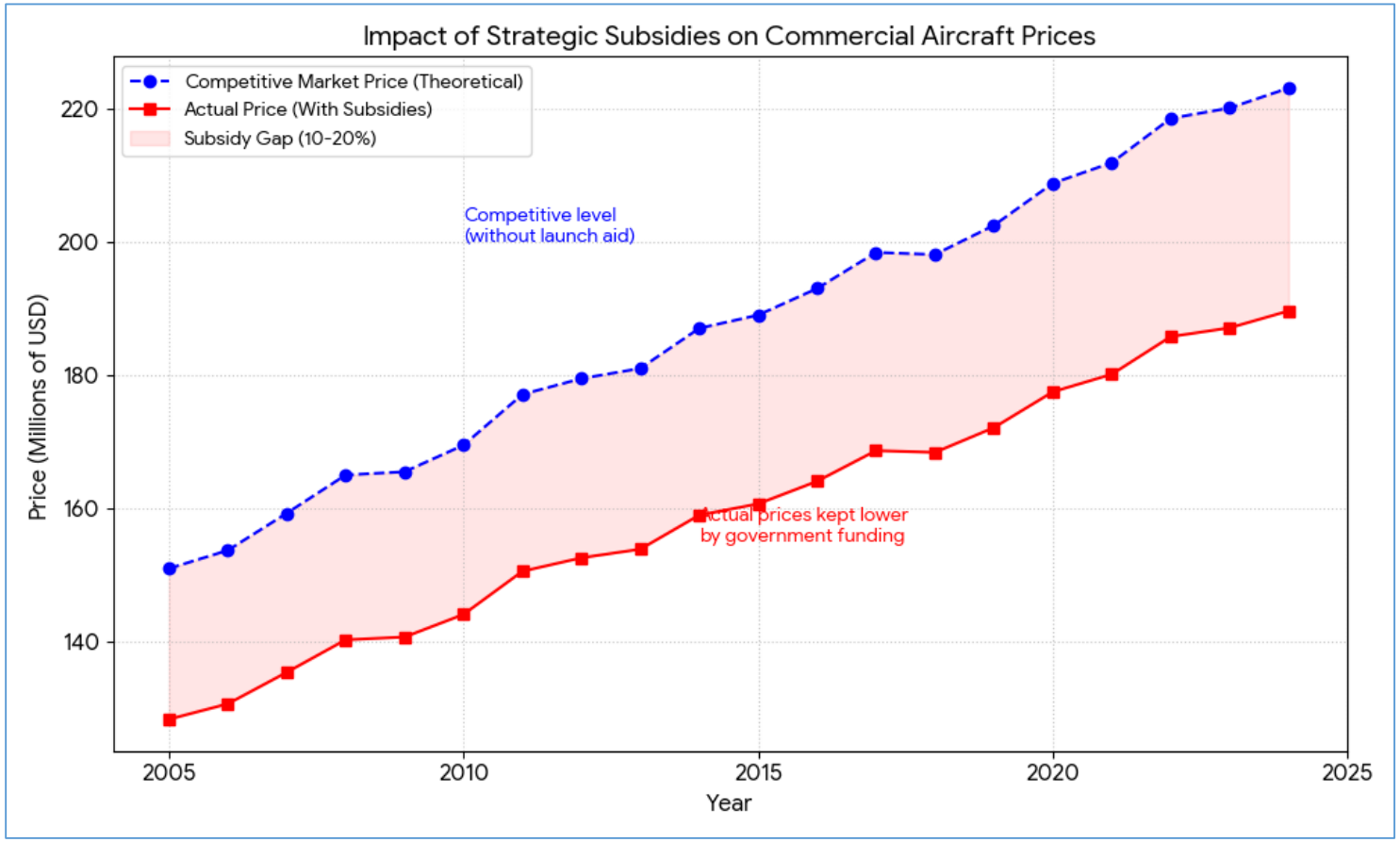
Key WTO Findings

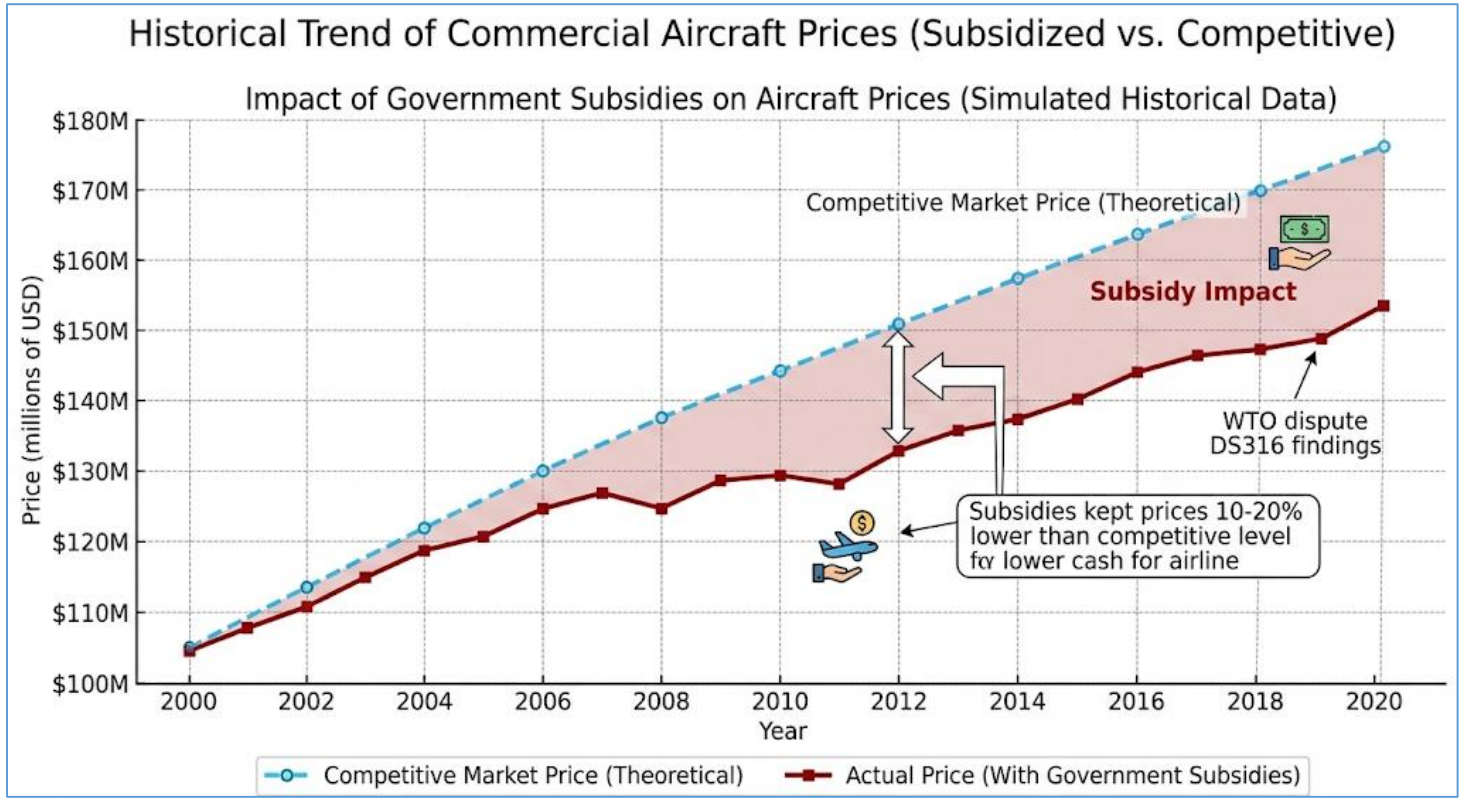
- **Against EU:** Launch aid for A350 and A380 were prohibited subsidies ($18B+).
- **Against US:** Washington State tax incentives ($5.7B), R&D spillovers, and defense contracts were illegal subsidies.
- Both authorized retaliatory tariffs (but settled in 2021).

Figure 6. Comparative Analysis of Subsidised vs Competitive Aircraft Pricing (2005–2025)



Data Basis: Simulated trends based on WTO Dispute Settlement findings (Cases DS316 and DS353) regarding the Boeing-Airbus subsidy conflict.

Figure 7. Economic Impact of the Subsidy War



Source: Compiled by the author based on price suppression data from Irwin and Pavcnik (2021) and findings of "serious prejudice" in WTO Disputes DS316 (Airbus) and DS353 (Boeing). Simulated trends assume a 10–20% deviation from competitive equilibrium consistent with WTO estimates of launch aid impact.

Lessons from Boeing-Airbus

- Strategic trade policy works in shifting rents but triggers retaliation.
- WTO system can manage but not eliminate subsidy competition.
- Multiple instruments: R&D subsidies, production subsidies, tax breaks, procurement policies.

Subsidies and R&D Policy in Open Economies Beyond Production Subsidies – R&D Subsidies

- R&D has positive spillovers (knowledge externalities).
- - In closed economy: Underinvestment in R&D → case for subsidy.
- - In open economy: R&D subsidy can also shift profits from foreign rivals (strategic effect).

Strategic R&D Policy (Spencer & Brander, 1983)

Two-stage game:

1. Governments choose R&D subsidies.
2. Firms choose R&D investment (cost reduction).
3. Firms compete in output market.

- R&D subsidy commitment makes domestic firm more efficient, commits to aggressive output.

R&D Spillovers and Policy

- If R&D spills over to foreign rival (knowledge leakage), domestic subsidy benefits foreign firm too.
- - Policy implication: Need intellectual property protection (IPR) or targeted subsidies to prevent leakage.

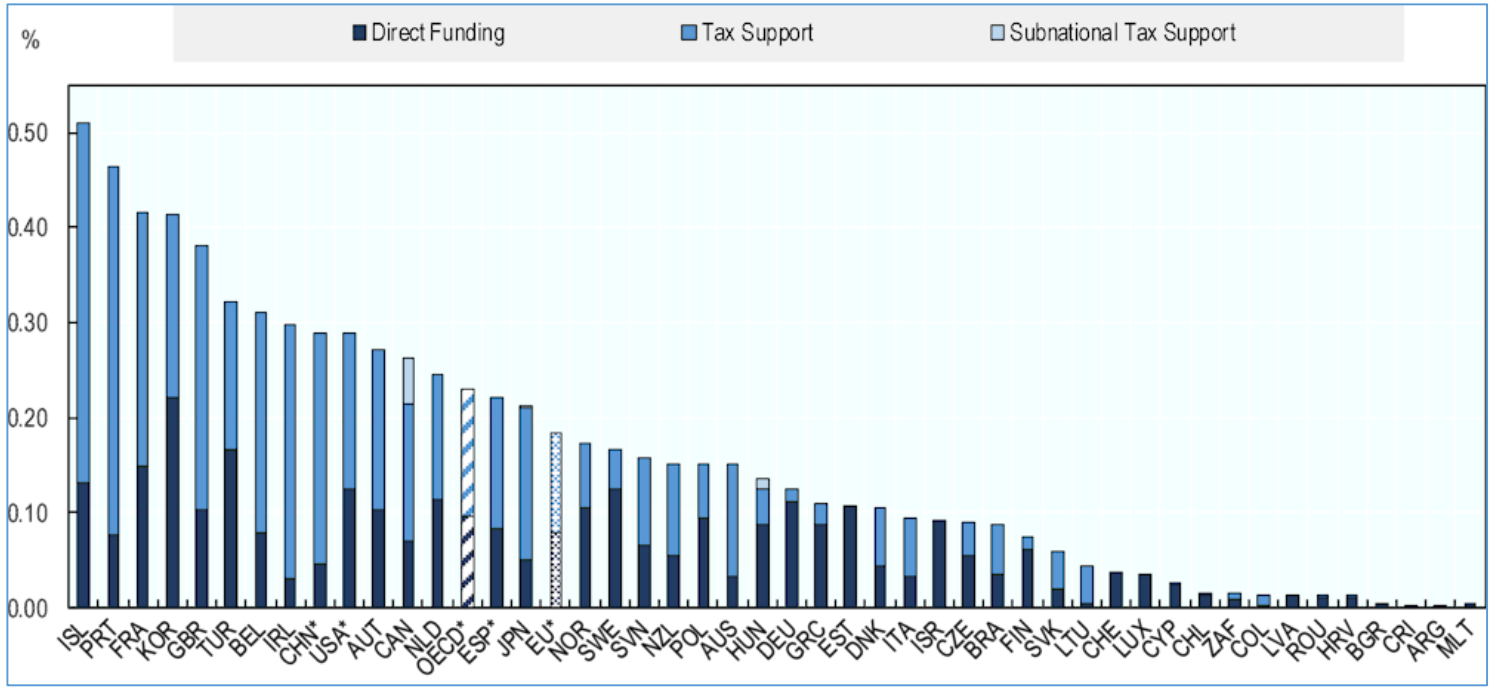
Examples of Strategic R&D Policy

- **Semiconductors**: EU Chips Act ($45B), US CHIPS Act ($52B) to compete with TSMC (Taiwan), Samsung (Korea).
- **Electric vehicles**: US Inflation Reduction Act (domestic content requirements), China's EV subsidies.
- **Pharmaceuticals**: Orphan drug credits, R&D tax credits

Open Economy Complications – Capital Mobility

- Multinational firms can shift production to the location with the lowest subsidies/taxes.
- Governments may engage in “subsidy competition” for FDI

Figure 8. Direct government funding and expenditure-based tax support for business R&D (BERD), 2023



Source: OECD (2025), R&D Tax Incentive Database, http://oe.cd/rdtax October 2025, (accessed in October 2025).

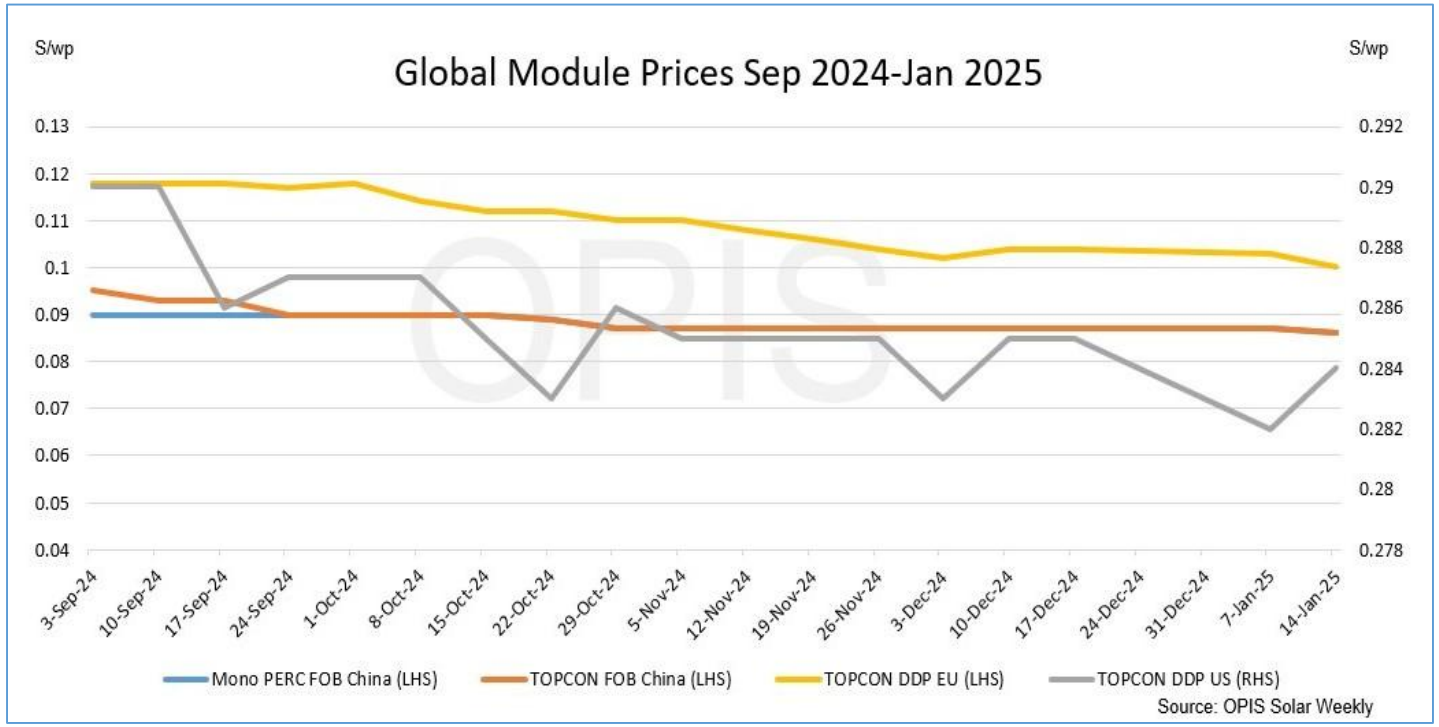
The Race to the Bottom vs. Strategic Targeting

- General subsidies to all industries → wasteful competition.
- - Strategic targeting: Only high-rent, oligopolistic industries (aircraft, chips, AI).
- - But: Political economy leads to “strategic” subsidies for agriculture, steel (low rents) → inefficiency

Case – Solar Panels (China vs. EU/US)

- China's massive production subsidies (loans, land, electricity) → global oversupply → price collapse.
- EU/US countervailing duties.
- Result: Rent-shifting succeeded (China >80% global market), but global welfare loss due to overcapacity.

Figure 9. Global Modules Priced, 2024-2025



Source: pv-magazine. (2025, January 17). *Global solar module prices mixed on varying demand expectations*. https://www.pv-magazine.com/2025/01/17/global-solar-module-prices-mixed-on-varying-demand-expectations/

Optimal Policy in Open Oligopolies

- No single best policy. Depends on:

  - Degree of competition.

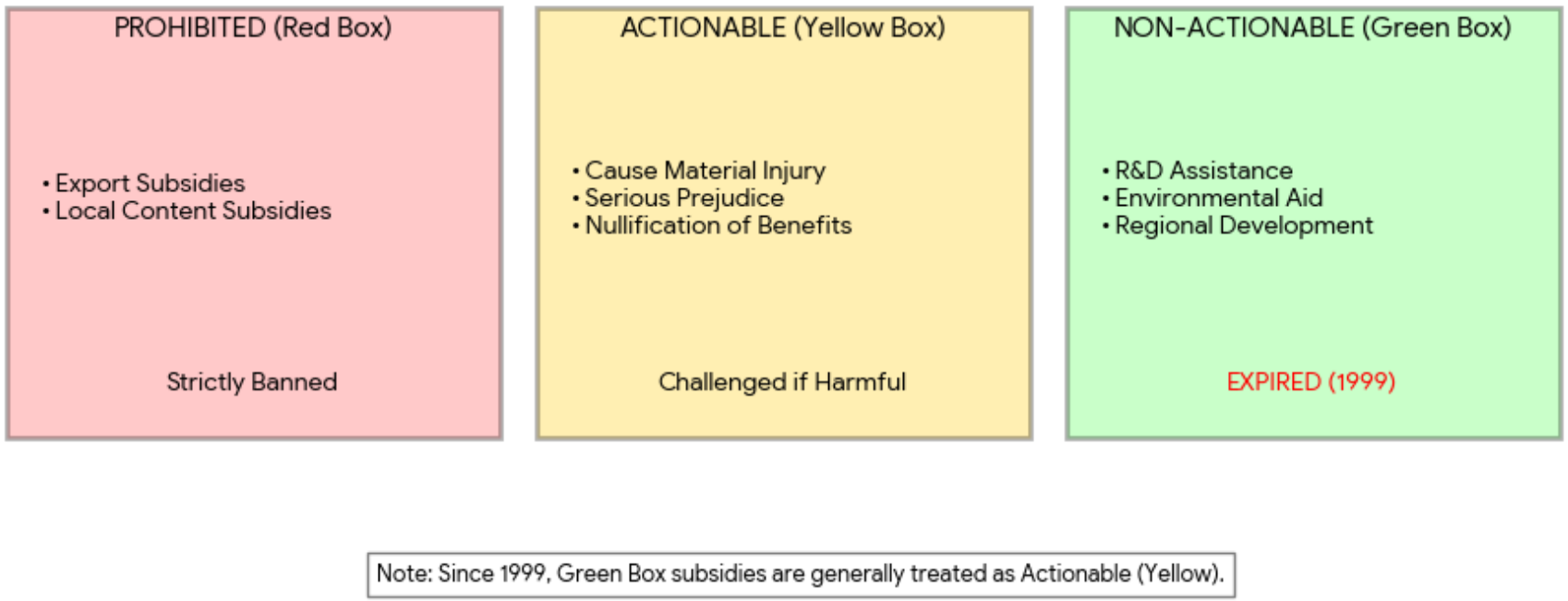
  - Cross-country spillovers.

  - Ability to tax foreign profits.

- - General principle: Production subsidies > R&D subsidies > Investment subsidies (depending on spillovers).

Section 5: WTO and Subsidy Disputes

WTO Subsidies and Countervailing Measures Agreement



Source: Created by the author

How to Challenge a Subsidy at WTO

- **Routes**:

  1. Multilateral dispute settlement (state-to-state).

  2. Unilateral countervailing duty (CVD) investigation (must show injury).

Major Subsidy Disputes (post-2000)

Boeing-Airbus (DS316, DS353)

- Civil aircraft (Bombardier vs. Boeing – CSeries)
- Large civil aircraft (A380)
- Renewable energy (China – wind/solar equipment)
- Digital services taxes (not subsidies but related)

The Problem of “Informal” Subsidies

Not all subsidies are direct cash grants.

- Examples found illegal:
  - Below-market loans (Airbus).
  - Tax exemptions contingent on exports (FSC).
  - State-owned bank lending at non-commercial rates (China).
- Difficult to prove “specificity” (i.e., subsidy targeted to a firm/industry).

WTO Reform and Subsidies

Current challenges:

- Industrial policy resurgence (US CHIPS, EU Green Deal, China Made 2025).

- Appellate Body non-functional (since 2019).

- Proposals: Expand prohibited list (subsidies to overcapacity), new rules for state-owned enterprises.

Effectiveness of WTO in Managing Subsidy Wars

Pros:

Provides a legal framework, transparency, and limits on retaliation.

Cons:

Slow (5-10 years), weak remedies (retaliation harms both sides), cannot stop domestic political pressures for subsidies.

Verdict:

WTO reduces but does not eliminate strategic trade policy.

Section 6: Conclusions & Policy Debates

Conditions:

- High concentration (duopoly/oligopoly).
- Significant scale economies.
- Large initial rents.
- Low risk of retaliation or retaliation is ineffective.
- Credible government commitment (no rent capture).

The Case Against Strategic Trade Policy

Information requirements (governments seldom know true rent/payoff matrix).

- Retaliation leads to trade wars (negative sum).

- Domestic political capture (lobbying for subsidies in non-strategic industries).

- Global welfare loss due to resource misallocation.

The Future – Strategic Competition vs. Rules-Based System

Rise of "***geoeconomics***": Subsidies as tools of great power competition (US-China, US-EU).

- Will WTO rules survive?

- Possible equilibrium: Subsidies for green tech, AI, semiconductors – but constrained by fear of retaliation.

Key Takeaways

Strategic trade policy can shift rents in global oligopolies.

- Boeing-Airbus: Classic case of subsidy war that yielded mixed results.

- R&D subsidies are powerful but spillovers complicate policy.

- WTO provides a weak but useful disciplining mechanism.

- Policy debate remains unresolved: efficiency vs. strategic advantage.

Discussion Questions

1. Should the US subsidize Intel to compete with TSMC (*Taiwan Semiconductor Manufacturing Company Limited*)? Why or why not?

2. Was the EU's launch aid for Airbus a success despite WTO losses?

3. Can the WTO survive the new era of industrial policy?

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Thank you!