

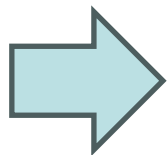
Comments:
JTTRI seminar
Global Aviation in the post-pandemic world

29 June 2023

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U Tokyo

Future Transport Research Initiatives (Oum, 2023)

- I. how transport network responds to changing supply sources (partly due to Ukraine war and US-China great tension)
- II. policy interventions to airline bailouts
- III. market structure in the post-pandemic regime
- IV. transport sector and climate change

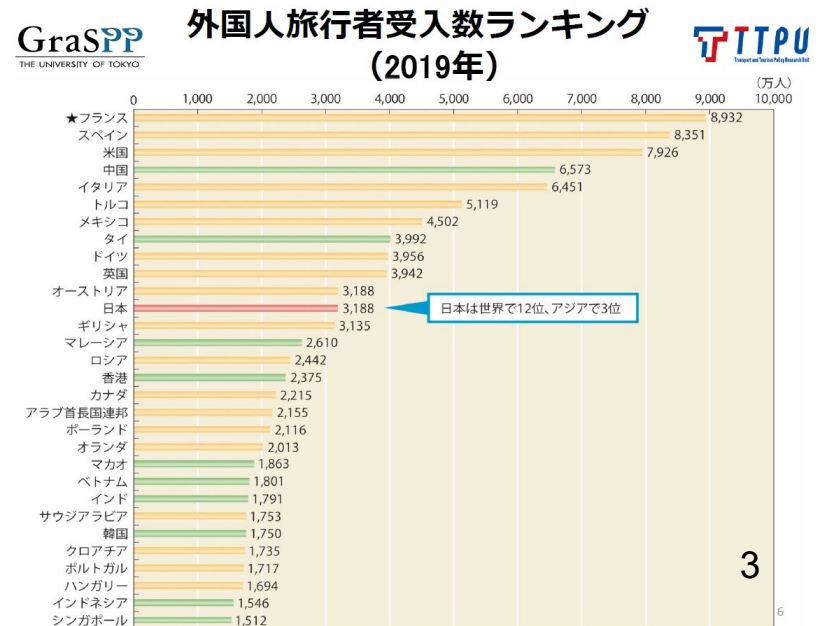
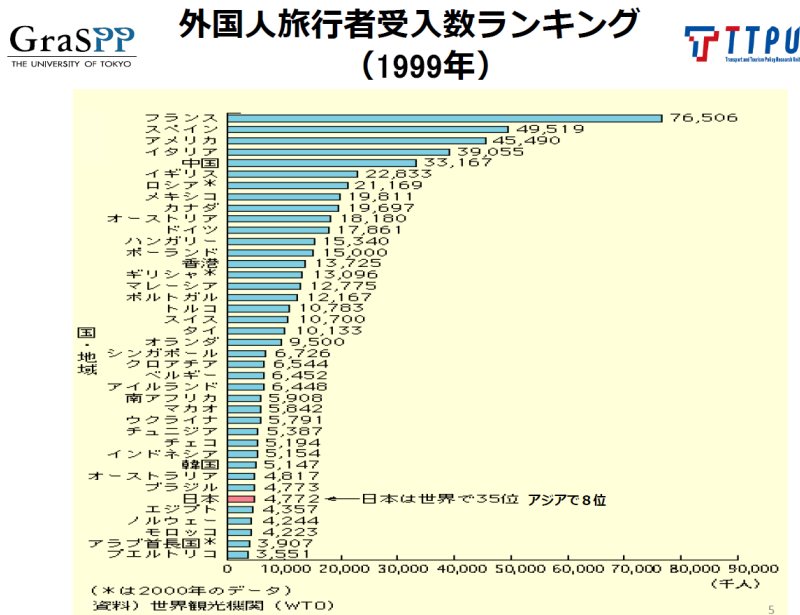


Need a global platform for policy making and technology certification

1. Evaluating demand

Tourism - A driving force

- Tourism holds substantial potential as a driving force for future economic growth in Japan. It is essential to recognize the interplay between air travel and tourism demand in capitalizing on this opportunity of regional GDP and wage growth.
 - In academic context, spatial equilibrium model would be an interesting avenue to reveal the impact of air transport.



Travel & Tourism Development Index 2021 (WEF)

Rank	Economy	Score ²	Change since 2019 ³		Diff. from TTDI Avg. (%)	Rank	Economy	Score ²	Change since 2019 ³		Diff. from TTDI Avg. (%)	Rank	Economy	Score ²	Change since 2019 ³		Diff. from TTDI Avg. (%)
			Rank	Score					Rank	Score					Rank	Score	
1	Japan	5.2	1	0.7%	31.8%	40	Mexico	4.3	-6	-1.2%	7.4%	79	Cambodia	3.6	3	1.1%	-9.2%
2	United States	5.2	-1	-1.0%	30.7%	41	Bulgaria	4.3	-2	-0.4%	7.3%	80	Tunisia	3.6	-3	-0.5%	-9.2%
3	Spain	5.2	2	0.0%	29.5%	42	Lithuania	4.3	3	0.6%	7.2%	81	Tanzania	3.6	5	2.6%	-10.2%
4	France	5.1	2	-0.2%	28.8%	43	Qatar	4.3	-2	-0.2%	7.0%	82	Cape Verde	3.6	1	1.4%	-10.2%
5	Germany	5.1	-1	-1.8%	27.3%	44	Georgia	4.3	3	1.4%	6.8%	83	Pakistan	3.6	6	2.9%	-10.2%
6	Switzerland	5.0	1	-2.1%	26.0%	45	Turkey	4.2	4	1.3%	6.4%	84	Mongolia	3.6	-8	-2.1%	-10.6%
7	Australia	5.0	1	-1.3%	25.6%	46	Croatia	4.2	-4	-0.6%	6.4%	85	Trinidad and Tobago	3.6	0	1.5%	-10.7%
8	United Kingdom	5.0	-5	-4.5%	24.8%	47	Israel	4.2	-7	-1.0%	6.2%	86	Kuwait	3.5	-7	-1.8%	-11.0%
9	Singapore	5.0	0	-1.4%	24.6%	48	Latvia	4.2	0	0.6%	5.9%	87	North Macedonia	3.5	-3	-0.3%	-12.1%
10	Italy	4.9	2	0.8%	23.9%	49	Brazil	4.2	3	2.3%	5.2%	88	Namibia	3.5	0	0.0%	-12.6%
11	Austria	4.9	0	0.4%	23.6%	50	Costa Rica	4.2	1	1.2%	4.5%	89	Rwanda	3.5	1	0.7%	-12.7%
12	China	4.9	3	2.3%	23.5%	51	Egypt	4.2	6	4.3%	4.4%	90	Kyrgyz Republic	3.4	3	1.9%	-13.9%
13	Canada	4.9	-3	-2.1%	22.9%	52	Vietnam	4.1	8	4.7%	4.1%	91	Bolivia	3.4	5	1.6%	-14.5%
14	Netherlands	4.9	0	0.2%	22.3%	53	Romania	4.1	-3	-0.7%	3.6%	92	Tajikistan	3.4	-1	-0.3%	-14.6%
15	Korea, Rep.	4.8	4	1.9%	21.4%	54	India	4.1	-8	-2.6%	3.6%	93	Lao PDR	3.4	1	0.7%	-15.0%
16	Portugal	4.8	-3	-2.1%	19.8%	55	Uruguay	4.1	6	3.6%	3.0%	94	Lebanon	3.4	-7	-3.1%	-15.1%
17	Denmark	4.7	-1	-1.5%	18.9%	56	Slovak Republic	4.1	-3	0.2%	2.9%	95	Bosnia and Herzegovina	3.4	-3	-0.7%	-15.2%
18	Finland	4.7	-1	-2.2%	17.3%	57	Bahrain	4.1	-2	1.0%	2.1%	96	El Salvador	3.3	2	1.7%	-16.1%
19	Hong Kong SAR	4.6	-1	-3.0%	16.3%	58	Colombia	4.0	4	2.3%	1.6%	97	Guatemala	3.3	-2	-0.6%	-16.1%
20	Sweden	4.6	1	-1.9%	16.0%	59	Argentina	4.0	-5	-1.2%	0.6%	98	Zambia	3.3	1	1.7%	-16.3%
21	Luxembourg	4.6	2	-0.5%	15.4%	60	Panama	4.0	-2	0.5%	0.3%	99	Paraguay	3.3	2	2.1%	-17.1%
22	Belgium	4.6	3	-0.6%	14.4%	61	Armenia	4.0	4	1.9%	-0.2%	100	Bangladesh	3.3	3	2.0%	-17.6%
23	Iceland	4.5	-1	-1.8%	14.2%	62	Mauritius	4.0	-6	-0.9%	-0.5%	101	Ghana	3.3	-1	0.9%	-17.6%
24	Ireland	4.5	-4	-3.9%	13.9%	63	Azerbaijan	4.0	-4	-0.3%	-0.6%	102	Nepal	3.3	0	1.8%	-17.8%
25	United Arab Emirates	4.5	1	0.7%	13.9%	64	Jordan	3.9	-1	-0.6%	-1.8%	103	Benin	3.2	3	4.0%	-18.7%
26	Czech Republic	4.5	1	0.3%	13.3%	65	Peru	3.9	4	2.1%	-2.1%	104	Nicaragua	3.2	-7	-2.0%	-19.1%
27	New Zealand	4.5	-3	-2.5%	12.6%	66	Kazakhstan	3.9	0	0.3%	-2.3%	105	Senegal	3.2	0	0.4%	-20.2%
28	Greece	4.5	0	0.2%	12.1%	67	Montenegro	3.9	-3	-0.7%	-2.6%	106	Honduras	3.1	-2	-2.1%	-21.5%
29	Estonia	4.4	2	-0.6%	10.7%	68	South Africa	3.8	0	-0.3%	-3.8%	107	Côte d'Ivoire	3.1	3	2.6%	-22.6%
30	Poland	4.4	3	0.8%	10.6%	69	Dominican Republic	3.8	3	2.6%	-3.9%	108	Venezuela	3.1	-1	-0.5%	-23.1%
31	Cyprus	4.4	-1	-0.8%	10.5%	70	Serbia	3.8	0	1.3%	-3.9%	109	Malawi	3.0	-1	0.2%	-24.0%
32	Indonesia	4.4	12	3.4%	10.3%	71	Morocco	3.8	-4	-2.1%	-4.8%	110	Nigeria	3.0	1	0.6%	-24.1%
33	Saudi Arabia	4.3	10	2.3%	9.3%	72	Albania	3.8	-1	1.0%	-5.0%	111	Lesotho	3.0	-2	-1.5%	-25.6%
34	Chile	4.3	4	0.9%	9.1%	73	Ecuador	3.8	1	1.0%	-5.7%	112	Cameroon	2.9	0	1.6%	-26.2%
35	Malta	4.3	-3	-1.9%	9.0%	74	Sri Lanka	3.7	1	1.4%	-6.0%	113	Angola	2.9	0	2.8%	-26.5%
36	Thailand	4.3	-1	0.2%	8.8%	75	Philippines	3.7	-2	0.1%	-6.3%	114	Sierra Leone	2.8	1	1.5%	-30.6%
37	Hungary	4.3	0	0.3%	8.7%	76	Botswana	3.7	2	3.0%	-6.6%	115	Mali	2.7	-1	-0.5%	-31.0%
38	Malaysia	4.3	-9	-3.0%	8.4%	77	Moldova	3.6	4	1.2%	-8.6%	116	Yemen	2.6	0	2.7%	-34.2%
39	Slovenia	4.3	-3	-0.7%	7.8%	78	Kenya	3.6	2	0.5%	-9.1%	117	Chad	2.5	0	1.3%	-37.5%

2. Supply Dynamics

Providing Values in the Post-Pandemic Era

- In a world increasingly relying on virtual and online interactions, the aviation industry must strive to provide added value to passenger experiences.
- This could include enhanced inflight services, personalized travel options, or seamless and entertaining airport experiences.

Consolidation and Alliances: Balancing Competitiveness

- Presumably, we may witness more industry consolidation and formation of alliances in the future.
- These strategic moves could aim to reduce operational costs and improve service quality.
- On the other hand, we must evaluate whether such strategies would result in any loss of competitiveness in the market.

3-1. market environments

- Effects of personnel shortage in pilots and mechanics
 - Shortage of pilots and mechanics is an ongoing challenge in the industry.
 - This shortage could lead to delays and operational inefficiencies.
- Accelerating towards Automation and AI
 - The industry is increasingly embracing automation and AI to overcome personnel shortages and increase efficiency (ref. Osaka Expo 2025)
 - AI-driven systems are being used for tasks ranging from baggage handling to predictive maintenance, face and iris recognitions.
- Value of resilience and economic security in infrastructure
 - The resilience of airports and aviation infrastructure is vital for economic security.
 - Airports, as part of national infrastructure, play a key role in maintaining economic stability and security.
- Effects of E-commerce and Logistics
 - The growth of e-commerce has driven an increase in air cargo demand.

3-2. Corroborating towards Decarbonization

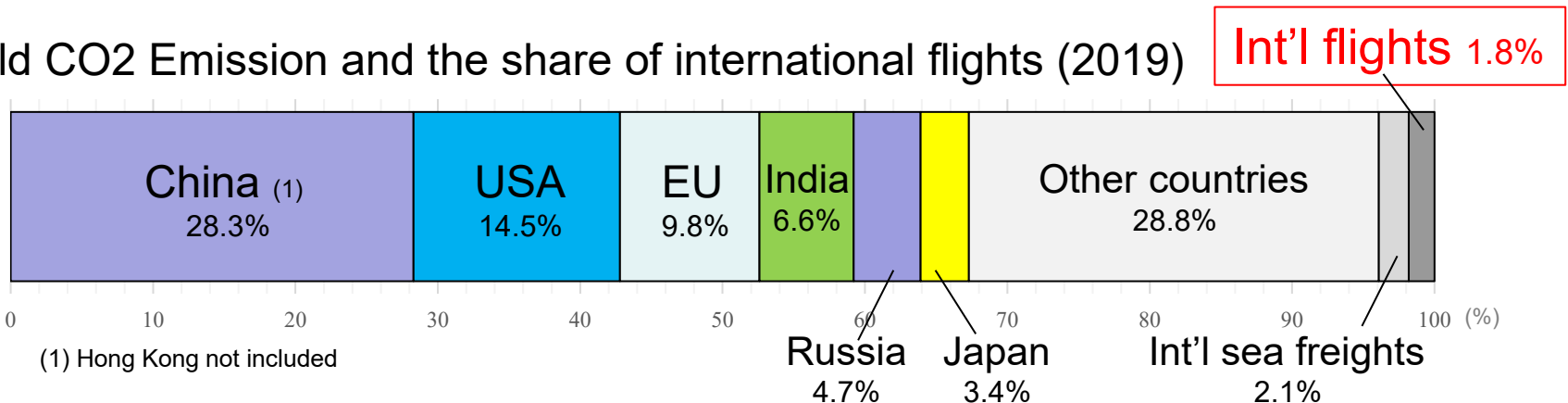
Analyzing the Efficiency of Sector-Specific Decarbonization

- In our shared endeavor to tackle global warming, it's crucial to examine the effectiveness of decarbonization strategies that are tailored to specific sector. How much significant impact could the targeted initiatives in the aviation sector make on our worldwide carbon reduction goals?

Understanding Effective Carbon Pricing

- A key aspect of this examination is to understand effective carbon prices. This understanding gives us insight into the economic implications of these strategies and how they could potentially deter carbon-heavy activities across industries.

World CO2 Emission and the share of international flights (2019)



3-3. Policy Aid

Balancing Government Aid and Corporate Autonomy

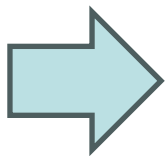
- In the context of the pandemic, there hasn't been comparable large-scale support for the aviation sector in Japan like in some foreign countries.
 - This may be due to a prevalent belief that government intervention impinge on corporate autonomy.
- As network shrinking and LCC on the verge of bankruptcy, it is interesting to ask how government assistance could help facilitate a transition back to normal compared with scenarios without it.

Financial Support for Airports

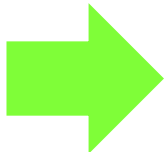
- Government loans to airports is another significant aspect of policy aid, playing a vital role in maintaining airport operations amidst the crisis and natural disaster.
- It is also said the role of airport extends beyond operational resilience, contributing significantly to the economic security of a region or nation.
 - Interesting to ask the interplay of resilience and security with airports.

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 **JTTRI** and  **ATRS** assume a lead role!