The aviation tax as a climate policy instrument

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Outline

1. Air transport and emissions
2. Air transport demand
3. The aviation tax as a climate policy instrument

Air transport and emissions

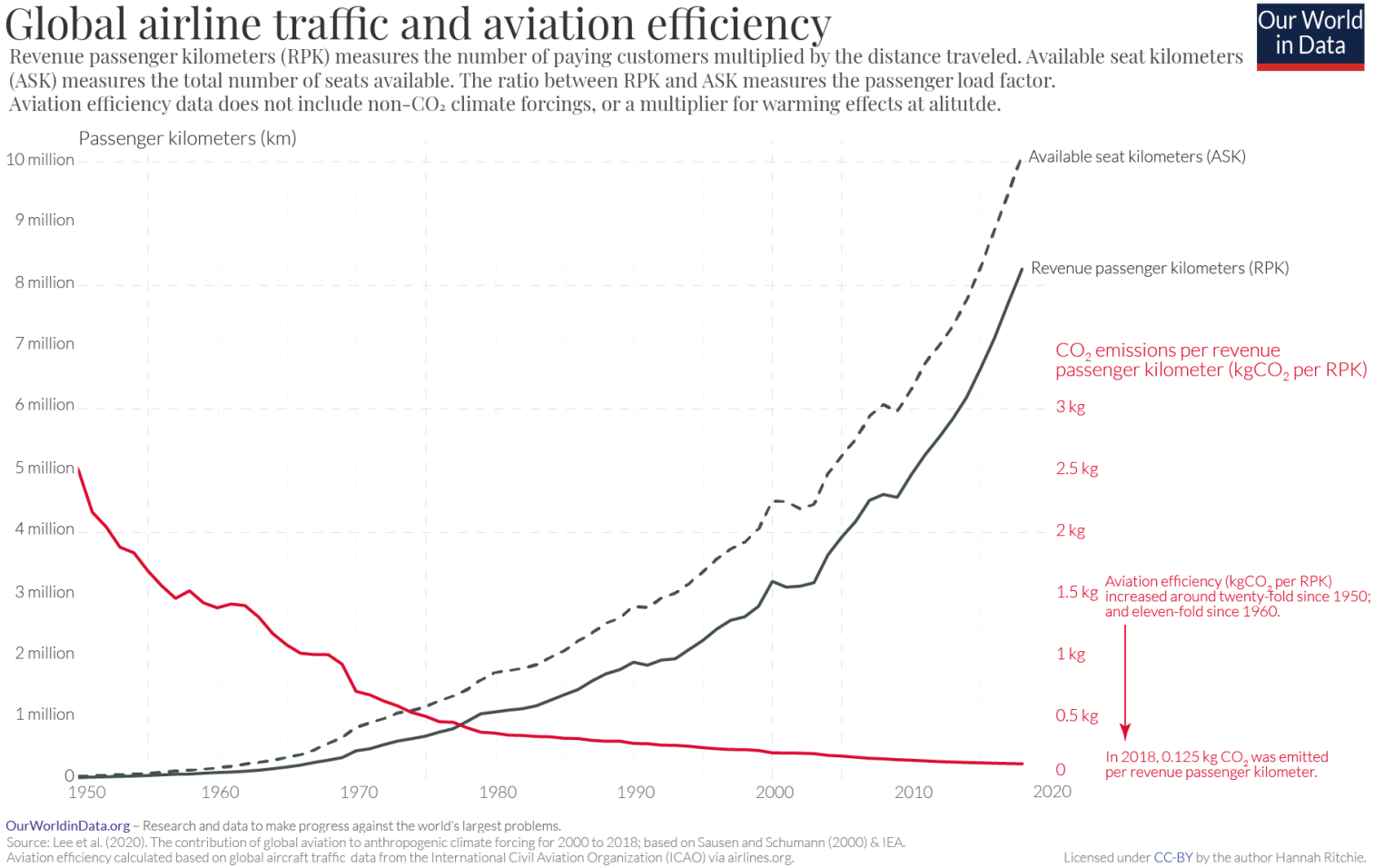

Figure: Source: ourworldindata.org

Air transport and emissions

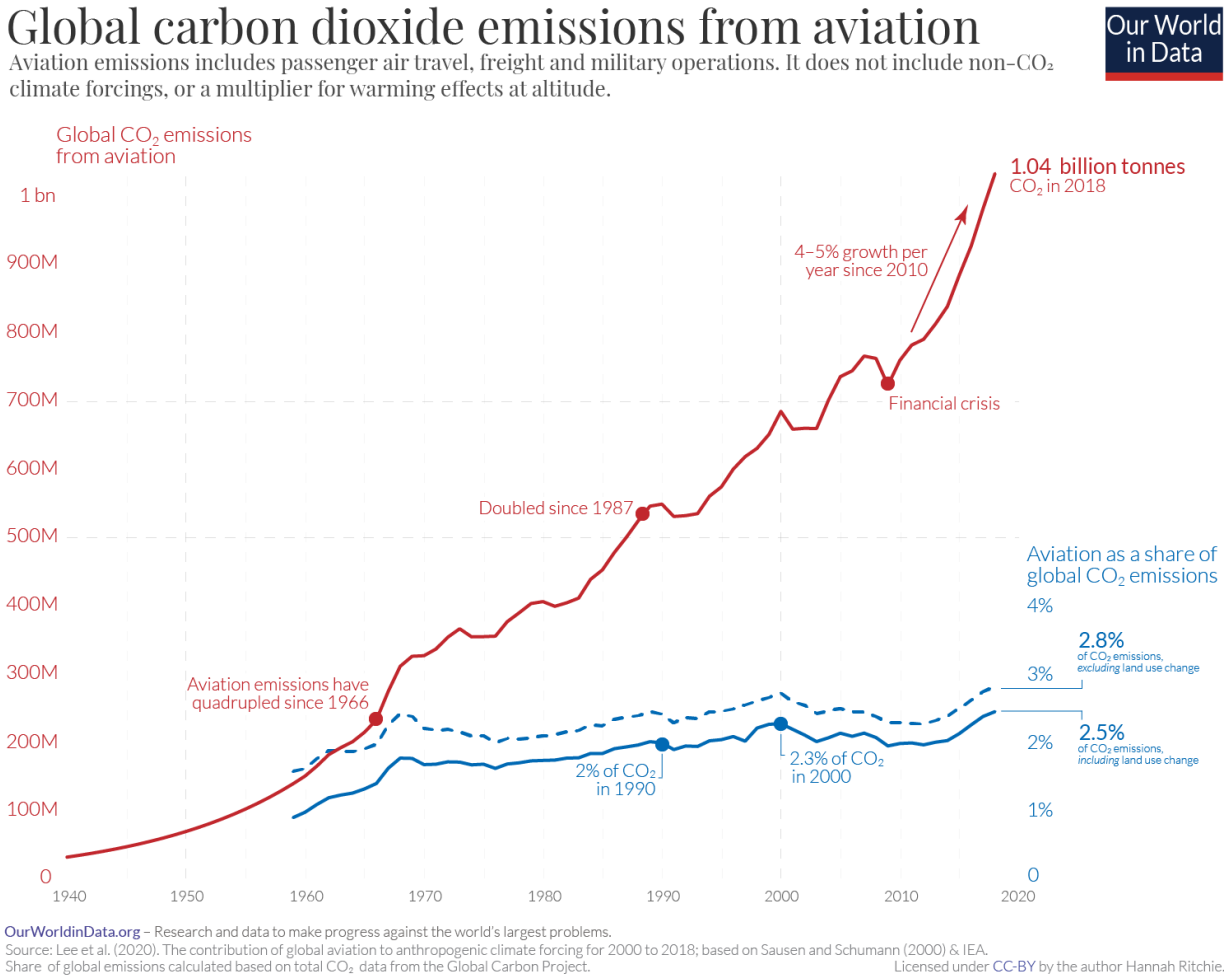

Figure: Source: ourworldindata.org

IPCC AR5 WG3: Mitigation of Climate Change

IPCC [2014]:

Since AR4, emissions in the global transport sector have grown in spite of more efficient vehicles and policies being adopted ***(robust evidence, high agreement)****.*
Road transport dominates overall emissions but aviation could play an increasingly important role in the future.

The emissions intensity of aviation could decline by around 50% in 2030 but the levelized costs of conserved carbon, although uncertain, are probably over USD 100 / tCO2eq. While it is expected that mitigation costs will decrease in the future, the magnitude of such reductions is uncertain. ***(limited evidence, low agreement)****.*

Air transport demand: distributional aspects

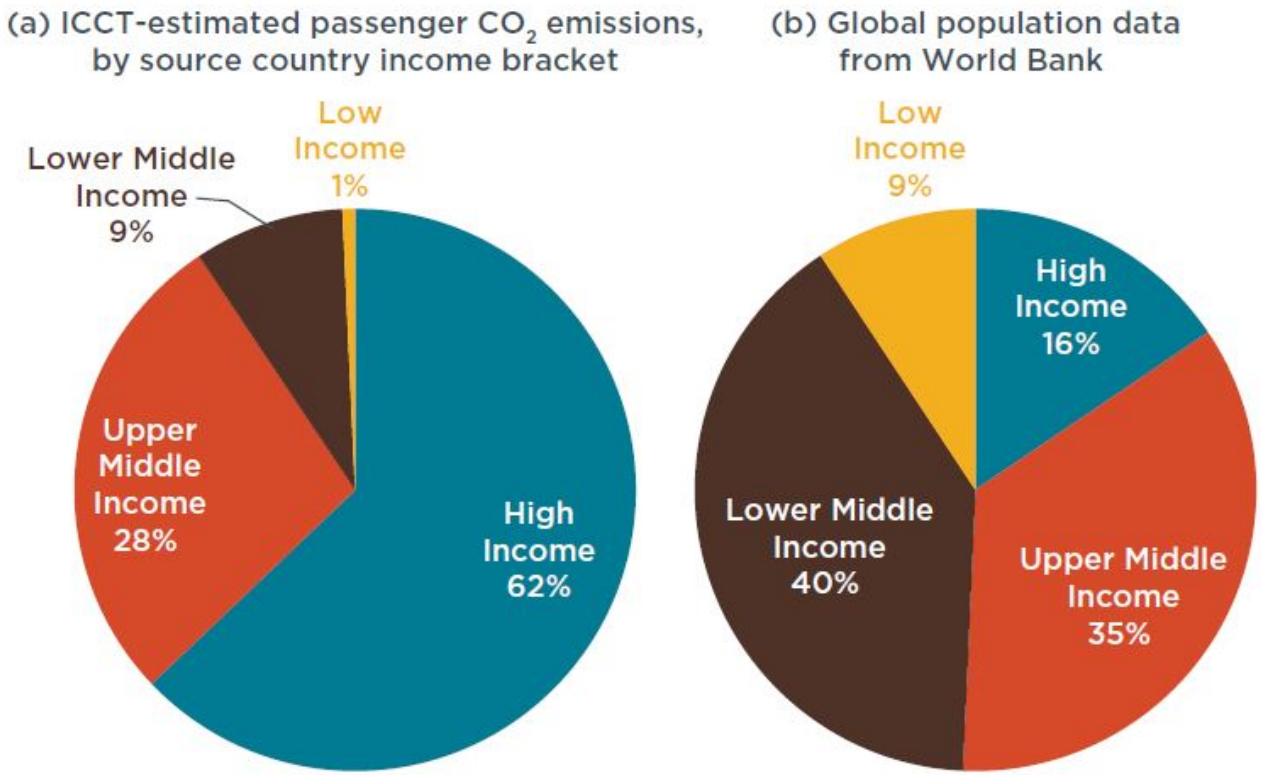

Figure 2. CO_2 emissions from passenger aviation operations and total population in 2018, by country income bracket (United Nations, 2019; World Bank, 2019)

Figure: Source: ICCT [2019]

Air transport demand: distributional aspects

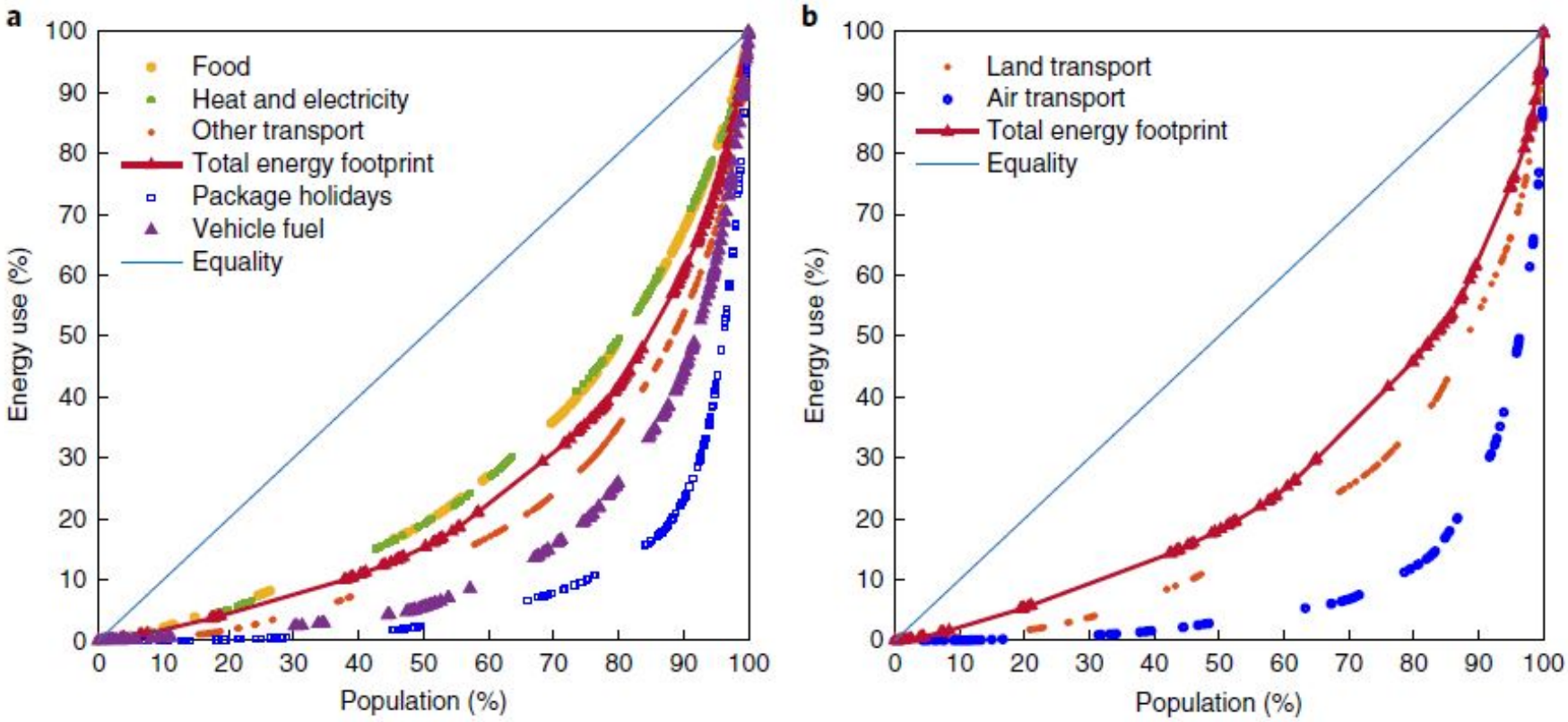

Figure: Lorenz curves showing the international inequality of energy footprints across all income classes in 86 countries for different consumption categories. Source: Oswald et al. [2020]

Air transport demand: distributional aspects

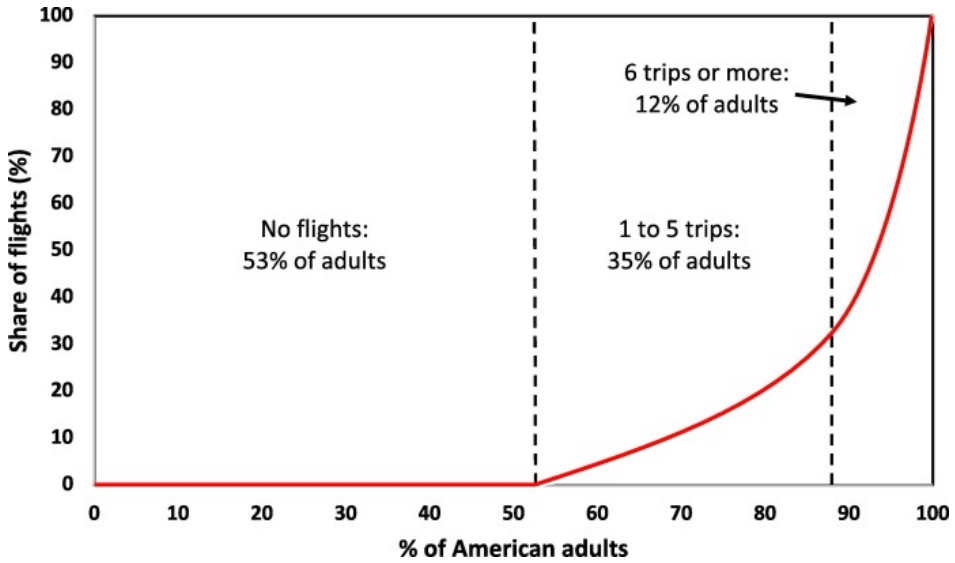

Figure: 2018 air transport demand distribution in the United States.
Source: Gössling and Humpe [2020]

- Banister [2019] reports that 54% of UK citizens did not fly between 2006-2012.
- $\sim$ 80% of the world population does not fly.

Travel purpose

Three main reasons for air travelling:

1. Business
2. Visiting friends or relatives
3. Leisure

(2) + (3) account for $\sim$ 85% of UK air travel [Banister, 2019].

Value of travel and 'Necessity of flight'

Table 3
Travel purpose and flight importance.

	Leisure	VFR	Education	Work	Home	Visa	Sports	Other
Very Important	51 (21.5%)	50 (37%)	60 (71.4%)	18 (28.1%)	11 (57.9%)	3 (37.5%)	1 (20%)	23 (65.7%)
Important	72 (30.4%)	20 (14.8%)	9 (10.7%)	13 (20.3%)	1 (5.3%)	3 (37.5%)	0	7 (20%)
Indifferent	58 (24.5%)	40 (29.6%)	4 (4.8%)	13 (20.3%)	4 (21.1%)	0	0	5 (14.3%)
Limited importance	41 (17.3%)	17 (12.6%)	1 (1.2%)	16 (25%)	1 (5.3%)	0	0	0
No importance at all	15 (6.3%)	8 (5.9%)	10 (11.9%)	4 (6.3%)	2 (10.5%)	2 (25%)	4 (80%)	0

- Gössling et al. [2019] assess ex-post personal views on the importance of specific flights among university students.
- Flying for social and for educational reasons is relatively price inelastic.
- Long-distance flights are more often considered 'very important'.

Social norms

IPCC [2014]:

*Another area that requires additional research is in the **behavioural economic analysis** of the implications of norms, biases, and social learning in decision making, and of the **relationship between transport and lifestyle**.*

- Social norm of flying (cheap) [Gössling et al., 2019].
- Mobility as "an obligation" (social capital) [Hares et al., 2010]
- Lack of personal responsibility among air travellers is a major barrier to behavioural change. Contributors to climate change are considered to be governments, businesses and other countries. [Hares et al., 2010]

What is a good aviation tax?

Criteria to evaluate the instrument:

- Environmental effectiveness
- Cost-efficiency
- Equity
- Feasibility

Environmental effectiveness

- Aviation tax can be seen as the main (only?) short-term policy instrument to decrease aviation emissions.
- Switzerland: the new tax of 30-120 CHF on outbound flights could mean up to -20% passengers and -11% emissions [Brülhart et al., 2020].
- No clear cause-effect relationship between flight tax and demand decrease in Norway ($\sim$ 9 CHF per flight) and Sweden ($\sim$ 6-42 CHF).
- Decarbonization of aviation is not a low hanging fruit, but an aviation tax can finance decarbonization in other sectors.

Equity

- Aviation tax as a progressive tax both at national and international level.
- Chancel and Piketty [2015]: *"Air transport may stand out as a relatively good marker of* ***high income*** *and* ***high CO2 emitting lifestyles****. [...] A global tax on air transport could thus have two interesting properties: it would reach high-income individuals and high emitters."*

Feasibility and acceptability

Figure: Source: Stiebel Eltron [2020].

"75% of Swiss people are in favor of increasing the CO2 tax according to the polluter pays principle, as the new CO2 law from Bern provides."

Feasibility and acceptability

TABLE 5

Best policy on air travel emissions (%)[41]

	GERMANY	FRANCE	ITALY	POLAND	CZECH REPUBLIC	SWEDEN	SPAIN	USA	UK
Do not change anything	5	6	5	13	11	12	7	17	9
Improve train and bus networks, making them cheaper and faster with more routes	42	47	58	50	49	47	59	38	41
Increase taxes on flights, but only for people who fly more than 3 times a year	14	14	12	12	13	13	11	18	23
Increase taxes on all flights	18	10	9	10	13	16	7	12	13
Ban flights within your country	14	14	3	4	4	3	5	2	6
Ban all flights	3	2	3	2	2	3	2	3	3

Figure: Source: Eichhorn et al. [2020].

- EU's ETS currently includes only domestic flights. USA and China protested to stop inclusion of non-EU flights.
- ICAO's carbon offsetting and reduction scheme for international aviation (CORSIA) aims at 'carbon neutral growth' from 2020.

Conclusions

- Currently air travelling is associated to high personal utility.
- A Swiss/European aviation tax is unlikely to discourage a high amount of air travellers. Any implementation at a global level seems unlikely at this stage.
- However, it is a progressive tax (high income, high emitters) which can finance other (less costly) abatement measures.
- As implemented in Switzerland, it does not capture the larger utility associated to long-distance travelling. The tax is proportionally smaller for intercontinental flights.
- Understanding social norms is key to achieve modal shift or travel reduction.

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Discussion time

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