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A Proposal for a Mile-tax on Commercial Aviation in Spain

Communication | Editorial | Invited contribution | Perspective | Report | Review

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Abstract

The following communication uses Spain as a case study to survey how a mile-tax on short-distance flights could reduce CO_2 emissions in the commercial aviation sector by encouraging individuals to use alternative methods of transportation. The first part of the paper makes a case for action based on the foreseeable impact of climate change on Spain and evaluates the policies that have already been implemented. In doing so, the paper argues that there is room to increase taxation in the aviation sector because international agreements such as CORSIA and European Union Emission Trading Scheme (EU ETS) struggle to drive down the growing demand. The article then outlines the main aspects of the proposal and considers its potential impact along three dimensions: the environment, the economy and society. The paper therefore does not rigorously estimate the costs and benefits of the tax at an aggregate level but aims at showing how the tax could be applied and why could it be beneficial. Whilst Spain is used as a case study throughout the communication, the conclusions are not only relevant to this country but are valuable elsewhere.

Case for Action

Spain is a country that will suffer from climate change due to its geographic location and socio-economic characteristics [1]. An increase of just 1.5^{o}C in the mean global temperature would increase the likelihood of heat waves and reshape Spain's coastlines [2], reducing tourism in the Mediterranean littoral by 8% [3]. Under the 2030 European Energy and Climate Policy Framework, Spain has committed to reduce by 2030 its carbon emissions by 20% compared to 1990 [4].

However, the global targets will be missed unless measures are taken to address emissions in the transportation sector, and particularly in the aviation industry. While aviation currently accounts for 3.6% of total emissions and 13.4% of transport related emissions in Europe [5], emissions are growing at much higher than expected rates despite fuel efficiency improvements [6]. Indeed, international emissions in aviation could grow between 300 and 700% by 2050 [7]. International agreements such as the CORSIA scheme, which limits action to adopting fuel efficient technologies and implementing carbon offsetting projects,

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are not enough to reverse the trend [8]. A study from the European Commission showed that 87% of offsetting projects are not delivering the reductions they had been certified for [9].

At a national level, Spain should also play an important role in reducing aviation emissions: it is the tenth largest polluter [10] and its emissions have experienced a 5.3% annual increase over the past three years [11]. However, so far, the government's actions to reduce emissions in the aviation industry have been limited to complying with the European Union Emission Trading Scheme (EU ETS), which has allocated tradeable allowances to airlines operating flights in and between EU airports since 2012. Nevertheless, the inclusion of aviation emissions into the EU ETS has not yielded the expected results due to overallocation of allowances. Almost half of the allowances are given for free to airlines and the average cost of a permit is €20; implying just a €4 cost increase per flight [12]. As a result, the aviation industry has increased its emissions by 26.3% while other industries under the EU ETS have reduced theirs by 11.6% [12]. Moreover, the EU ETS will struggle to meet the 2°C target by itself [13] because it is vulnerable to both lobbying [14] and fluctuations in the price of the allowances due to changes in the macroeconomic conditions. [15].

Therefore, the scope of the CORSIA and EU ETS schemes is limited because both schemes fail to address the main factor driving aviation emissions: the increasing demand. Indeed, aviation traffic is forecasted to double in the next 15 years; partly driven by the sector's low prices [16]. In Spain, ticket prices have fallen by 13% since 2013 [17] and a study by Nilsson shows that up to 60% of the demand for low cost flights has no intrinsic motivation besides their low price [18]. The CORSIA and EU ETS schemes could therefore be complemented by increasing taxation on the aviation sector. Doing so would not only help drive down demand, but also account for the environmental costs of carbon emissions — costs which are not currently reflected on the final ticket price but paid for by society as a whole. Given that the establishment of an EU wide aviation tax would face many challenges [19], national governments should take the lead and immediately drive down aviation emissions through taxation. The remaining part of this communication will study how raising ticket prices through a mile-tax on aviation might change consumer behaviour and reduce the demand.

A Mile-tax on Aviation: Goals, Scope and Alternative Models

1) Goal: reducing emissions by reducing demand.

As a first step, the proposed policy should set as its goal to stabilise aviation demand by achieving zero net growth. Over the past three years, the demand for domestic aviation in Spain has increased on average by 9.6% [20]. If growth is expected to continue over the following years under the business-as-usual scenario, the present demand would have to be reduced by 10% in order to supress demand growth. Reducing the demand by 10% would also reduce CO_2 aviation emissions by 10% under the European Commission's taxation model [21].

2) Scope

In order to suppress demand growth, this communication proposes setting a ticket tax on short distance flights to equate flight prices to a level playing field with other transportation methods [13]. For instance, taking a morning train from Madrid to Barcelona on the 19th of February costs €76,25 on economy class while the cheapest flight available for the same trip costs €43 (data retrieved from SkyScanner and RENFE websites). Flights are cheaper even if compared to cars since the trip fuel would amount to around €47.[1]

Using the European Commission model for aviation taxes, the proposed tax would have to increase the price of flight tickets by 10% in order to achieve a 10% reduction in demand, assuming the demand is linear [21]. In fact, prices could be increased less than this since the European Commission's model proposes the tax is applied to all flights equally, while this policy only applies to short distance flights which have a higher elasticity of demand due to the readily available

[1] Assuming an average gasoline consumption 5.6l/km [22] and gasoline price equal to 1.29€/l [23].

alternative transportation options [21]. While it is true that a 10% tax does not equate the price of flights to other available transportation methods, its levelling effect could still be reinforced by setting the tax as a hypothecated tax. This means that the revenues obtained from the tax are reinvested in improving the transportation network by, for example, increasing the frequency of trains and subsidising ticket prices.

The mile-tax would only apply to flights covering a straight-line distance between airports less than 850km and for which the quickest alternative transport option lasts less than 5.5 times the duration of the flight (distance limit adopted from [24], see also Table 1). The tax would therefore apply to Spain's three most popular peninsular air routes (which together amount for almost 4.5 million passengers) and would also include international destinations such as Barcelona-Paris (2.5 million passengers). Nevertheless, routes such as Madrid-Lisbon would not be taxed due to the poor rail infrastructure: while a flight to Lisbon takes roughly an hour, the train takes more than 10 hours. The tax would also exclude flights between the peninsula and the Canary and Balearic Islands (as well as Ceuta and Melilla) in order not to hinder the economic development of these regions.

3) Alternative Models

Alternatively, there are other taxation models the Spanish government could implement in order to drive down carbon emissions. Since EU member states need to enter into bilateral agreements in order to tax aviation fuel on intra-EU flights [26], countries like the United Kingdom have instead introduced ticket taxes which target long-distance flights [27]. However, the UK Aviation Tax has failed to stop the increase in demand [28] because it acts as a revenue-raising charge with no behavioural impact due to the absence of realistic alternative transport options [29]. Another proposal that has recently gained traction in the British media is to place a tax on frequent fliers [30, 31]. Proponents of this policy argue that 70% of flights are taken by just 15% of the British population [32] and should therefore be taxed more. However, the above argument is distributional rather than environmental in nature. Indeed, a frequent flier tax is unlikely to reduce demand because frequent fliers are less likely to change their behaviour because they are wealthier and less price sensitive [30]. Therefore, higher taxation for frequent fliers could complement, but not substitute, a mile-tax on aviation.

Cost and Benefits: Impact Assessment on Different Sectors

1) Environmental Impact

The environmental impact of short-distance flights should not be underestimated: one passenger travelling between Madrid and Barcelona emits more than the average citizen of eight different countries in a given year [33]. For instance, CO_2 emissions could be reduced by 25,000 tons per year if only 10% of the users of the Madrid/Barcelona route used the train instead of the plane.[2] Moreover, short-distance flights are less carbon efficient than long-distance flights since their emissions per passenger and kilometre travelled can be up to 30% higher [35].

2) Economic Impact

The proposed tax increase would have a negative economic impact on the aviation industry. A 10% ticket tax could reduce employment and the value of the sector by 12% [21]. Moreover, since the tax would not be applied equally to all flights, it would hinder the competitive position of certain Spanish airlines such as Air Europa, Iberia Express, Air Nostrum or Binter Canarias which mostly operate domestic flights [36]. The tax could also threaten the economic viability of smaller airports. In particular, the airports of San Sebastián, Valladolid, Pamplona, Vitoria, Leon, Algeciras, Salamanca and Burgos could be affected since they rely heavily on national flights and have less than 300,000 passengers per month [37]. However, the above worries need to

[2] Assuming that the emissions difference from a passenger taking a train instead of a plane in the Madrid/Barcelona route is 98.1 Kg [34] and that 2,572,410 passengers took a flight between Madrid and Barcelona in 2019 [25].

Table 1: Flights affected by the proposed carbon tax according to the 5.5 time ratio discussed in text. Bold: flights that would not be taxed; italic: flights between islands. Data elaborated from [25].

	Plane (min)	Train/Ship (min)	Ratio	Number of Passengers	Distance (km)
Madrid – Barcelona	75	330	4.4	2,573,822	506.1
Barcelona – Paris	110	396	3.6	2,521,633	831.85
Madrid – Lisbon	**70**	**637**	**9.1**	**1,557,731**	**504**
Barcelona – Malaga	95	300	3.15	846,105	771.45
Barcelona – Sevilla	100	330	3.3	1,041,850	830
Barcelona – Granada	90	380	4.22	492,247	683.01
Barcelona – Bilbao	75	394	5.25	619,794	469
Madrid - Santiago de Compostela	74	311	4.20	715,461	487
Madrid – Asturias	70	306	4.37	548,114	372.94
Madrid – A Coruña	75	355	4.73	681,626	509.54
Madrid – Vigo	70	366	5.23	684,274	465.9
Madrid – Bilbao	60	304	5.06	836,144	323.19
Ibiza – Palma de Mallorca	*45*	*120*	*2.66*	*534,540*	*117.76*
Palma de Mallorca – Menorca	*40*	*120*	*3*	*387,267*	*131.93*
Tenerife – Las Palmas	*30*	*120*	*4*	*146,930*	*88.45*

be put in perspective: the average passenger in Spain only pays €2.57 in aviation taxes while the average passenger in the United Kingdom pays €40.04 [21]. There is therefore enough room to increase taxes on aviation.

A tax on aviation could as well reduce connectivity and negatively impact domestic tourism [38]. However, its potential impact is limited. While almost 87% of national journeys are carried out for leisure or to visit friends and family, only 5.2% of those journeys were flights [39]. Moreover, the Spanish rail network, being the second largest High Speed Network in the world [24] and having an occupancy rate of 87.23% [40], is in a very good position to absorb most of the passengers lost by the aviation industry. Several studies have shown that trains, and particularly high-speed trains, work well as substitutes for aviation over the distances covered by the proposed tax (between 400 and 800km) [24]. The effect could be further reinforced by subsidising train tickets using aviation fiscal revenues which would quadruple after the introduction of the tax [21]. In 2013, a decrease of the price of train tickets by 11% [24] led to an increase of the number of passengers by 9.6% [40] despite GDP falling by 0.8%.

3) Societal Impact

The psychological effect of taxation and its potential to change consumer behaviour should not be underestimated. Increased taxation on particular products can trigger behavioural spillovers; inducing changes in separate but related behaviours [41]. For instance, a simple 5p levy on plastic bags did not only drive down plastic bag usage by 90% in the England [42], but also increased the support for additional charges on plastic bottles and excessive packaging [41]. A mile-tax on short distance flights is therefore a simple, initial step which could have a foot-in-the-door effect [43] by increasing awareness about sustainable transport and increasing support for more drastic policies concerning traffic restrictions and international aviation.

Challenges and Feasibility of the proposal

The political context is now suitable to introduce new taxes on aviation. Aviation taxes also enjoy increasing public support [44] and the French [45] and German [46] governments have recently introduced new taxes at a national level. In Spain, a tax on aviation is likely to receive the approval of the parliamentary majority which supported the establishment of the new, progressist government in Spain [47]. However, further consideration should be given to the legal feasibility of the proposal. In 2009, the European Commission forced the Irish government to withdraw a tax which charged higher rates to flights departing from Dublin covering distances larger than 300km on

the basis that it provided unlawful state aid to domestic airlines [48]. However, the tax outlined in this proposal does not commit the same mistakes as the Irish tax since it does not measure distance from a particular airport and does not benefit national airlines over European airlines. Moreover, the above concerns could be easily resolved if the scope of the proposed tax was limited to domestic flights, as in the case of Italy, which applies different rates to domestic and EU flights [21].

Summary of the Opportunity

Given that international schemes such as the EU ETS and CORSIA are not enough to tackle aviation emissions, there is an increasing need for national governments to take action. This article has studied how introducing a 10% ticket tax increase on all flights shorter than 850km could help reverse this trend. Doing so would not only drive down demand and consequently carbon emissions but could also drive behavioural change towards more sustainable transport options as well as opening the door to further environmental restrictions. While it is still necessary to undertake a detailed cost-benefit analysis to estimate the full impact of the proposed policy on macroeconomic growth, the communication has argued that the impact on tourism would be minimal and that the Spanish rail network is in a good position to absorb the costs imposed by the policy on the aviation sector.

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Conflict of interest The Author declares no conflict of interest.