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Conflictive Climate Governance Architecture under the International Civil Aviation Organization (ICAO)

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Abstract: Studies estimate that between 2% to 3% of the global CO_2 emissions stem from the aviation sector, and these figures can almost double in the medium term if no mitigations actions are taken to curb emissions. The international climate regime, based on the United Nations Framework on Climate Change Convention (UNFCCC) and on the Kyoto Protocol, has transferred the negotiation mandate to address greenhouse gas (GHG) emissions from aviation to the International Civil Aviation Organization (ICAO). This article argues that the Kyoto mandate prompted an institutional interaction between the UNFCCC and ICAO that ultimately has resulted in a conflictive climate governance architecture. The conflict was derived from the clash between the two core guiding principles of these two institutions: on the one hand, the *Common but Differentiated Responsibilities* (CBDR) principle under the UNFCCC; on the other hand, the non-discrimination and equal and fair principles, enshrined in the ICAO Chicago Convention. In this context, a literature review and a broad analysis of primary sources from ICAO decisions are the main methods applied to draw the author's conclusions.

Keywords: conflictive climate governance; liberal environmentalism; ICAO; CORSIA.

Introduction

Air operations are intrinsically global and interconnected by their very natures, especially when one considers that most flights take place on international air space, where no state sovereignty prevails. Given its characteristics, the air transport has entailed, since its beginning, the establishment of mechanisms for cooperation among states aimed at setting up standards and harmonized practices on air navigation and aeronautical procedures. In this regard, the International Civil Aviation Organization (ICAO) was created by the Chicago Convention, precisely to promote the comprehensive adoption of the highest standards in matters related to safety, security, facilitation and economic development of the international civil aviation (Mackenzie 2010).

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Notwithstanding its far-reaching social and economic benefits, aviation activity is also a significant source of negative environmental impact. The sector contributes to approximately between 2% and 3% of the total human CO_2 emissions (IPCC 1999; ICAO 2016a; ATAG 2018).[1] According to the Intergovernmental Panel on Climate Change's (IPCC) projections (1999), the contribution from the air transport to the CO_2 global emissions could increase up to 5% by 2050, when compared to the 1990 baseline. Updated projections from ICAO (2022) show that CO_2 emissions from international aviation could reach up to 1500 $MtCO_2$ by 2050, if no mitigation actions were taken by the sector. Despite these figures, concerns on how to curb CO_2 emissions from the air transport were only inserted on ICAO's agenda in 1992, and mainly as a response to the international climate regime (Oberthür 2006; Romera 2018).

In general terms, the 1990s are a turning point in the recognition of the international community on the need to adopt an effective commitment to contain anthropogenic global warming. Not surprisingly, the United Nations Conference on Environment and Development, held in 1992, enshrined the concept of sustainable development and set the normative framework for the environmental agenda for the following decades. As a result, the main commitment signed by states was the United Nations Framework Convention on Climate Change (UNFCCC), a very broad multilateral treaty aimed at setting the conditions for achieving stabilization of global temperature. Nevertheless, the UNFCCC was broad enough not to assign any specific target on countries on how they should cut their emissions, an endeavour that would only be addressed five years later by the Kyoto Protocol.

If the UNFCCC was broad enough to not mention specific sectors such as international transport, Article 2(2) of the Kyoto Protocol filled this gap by stipulating that Annex I countries should seek to limit or reduce greenhouse gases (GHG) emissions not controlled by the Montreal Protocol for the use of bunker fuels.[2] More than determining that the international transport should also contribute to the global mitigation efforts, the Kyoto Protocol transferred the negotiation of an agreement to the two sectorial organizations – ICAO and the International Maritime Organization (IMO).

This article argues that the Kyoto mandate prompted an institutional interaction between the UNFCCC and ICAO that ultimately has resulted in a conflictive climate governance architecture. The conflict was derived from the clash between the two core guiding principles of these two institutions. On the one hand, the primary principle in the international climate regime under the UNFCCC is the *Common but Differentiated Responsibilities* (CBDR) principle. On the other hand, under ICAO, the prevalence is over the non-discrimination and equal and fair principles, which are enshrined in the Chicago Convention.

Therefore, the objective of this article is to analyse the development of the negotiation process that took place under ICAO regarding measures and policies aimed at reducing the GHG emissions from the international air transport sector. It seeks to understand the reasons why climate governance architecture under ICAO was highly conflictive in terms of its main guiding principles. In particular, this article aims at

analysing the main design elements of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA), under the concepts of global governance and liberal environmentalism.

In this context, a literature review on global governance and conflictive climate architecture, along with a broad analysis of primary sources from the main ICAO decisions that led to CORSIA are used as methods to draw the author's conclusions. The timeframe of this analysis is the development of the architecture of climate governance in ICAO from 1992, when the international climate regime was established under the UNFCCC framework, until 2016, when the agreement from the aviation sector was concluded with the adoption of the ICAO CORSIA Resolution A39-03.

The article is divided in three main parts. Firstly, the theoretical framework of analysis will be developed, on the ground of the concepts of global governance (Rosenau 2000; Biermann and Pattberg 2012) and liberal environmentalism (Bernstein 2002). These concepts shed some light on the climate architecture created in ICAO and help explain the conflictive governance that emerged from the institutional interaction between the UNFCCC and ICAO. The second part of the article analyses the negotiation process that led to CORSIA, and how the ultimate response from the aviation sector to the international climate regime may have reverted the logic of both the CBDR and the non-discrimination principles. And, finally, in the last part, the main conclusions are presented.

Theoretical framework for analysis

The problem of climate change as an Anthropogenic consequence is eminently a political issue that requires global solutions. At its core, there are power, morality and economic interests from different actors beyond the state that interact in non-traditional cooperation arrangements. The concept of global governance (Rosenau 2000; Biermann and Pattberg 2012) can shed some light on these new mechanisms and negotiation processes that take place at different levels, beyond national boundaries, and have the objective of solving common problems, through cooperation and articulation between different state and non-state actors.

In general terms, the concept of global governance refers to an international political system in which different actors – other than states – act through a variety of multilayered mechanisms of transnational rules. Central to the concept of global governance is the shift of agency from the state to a multitude of transnational powerful actors that create new political contexts (Rosenau 2000; Biermann 2007; Okereke et al. 2012; Inoue 2016). Also important were the emergence of new mechanisms of decision-making and rulemaking beyond the traditional international treaties and government-centred cooperation arrangements, as well as the proliferation of soft norms in the climate negotiations (Biermann and Pattberg 2012).

The authors of global governance concentrate their analyses on the multiplication of spheres of authority between various actors involved, beyond the traditional notion

of state actors. For some of these authors (Rosenau 2000; Dingwerth and Pattberg 2005; Green 2013), non-state actors also have a great influence on the international agenda and on the decision-making process. In fact, the influence of these actors is not limited to the territorial limits of their states, as they are, by their own natures, transnational. Green (2013), for instance, mentions the specific case of the Kyoto Protocol, which not only is a fundamental aspect of the climate regime, but has also been able to attract private actors whenever it provides economic instruments that work as positive incentives.

Another core characteristic of global governance is the emergence of new mechanisms of transnational rulemaking and rule-setting, including transnational regimes, public-private partnerships, and market-based arrangements (Biermann and Pattberg 2012; Pattberg 2012; Bäckstrand et al. 2012; Bulkeley et al. 2012). These mechanisms refer to a set of rules and decision-making procedures that are created and implemented mainly by non-state actors in common agreement with state actors, without the need of enforcement from state authority (Pattberg 2012). The liberal rationale that markets may need to respond to state failure, shaped by the functional need to supply better governance, relies on the basis of these new mechanisms (Bäckstrand et al. 2012).

Finally, global governance is also distinguished by new types of horizontal and vertical segmented interlinkages and clusters of rulemaking and rule-implementation (Zelli, Gupta and Van Asselt 2012; Busch, Gupta and Falkner 2012; Abbott et al. 2015). Policies and regulatory frameworks are often fragmented in two different, yet complementary, ways. Firstly, they are segmented vertically in subnational, national, international, and supranational structures of authority; secondly there is an overlapping horizontal system of policies and rules maintained by a varied group of actors (Biermann and Pattberg 2012). These novel arrangements are frequently praised as effective alternatives to traditional intergovernmental cooperation, which has failed in many cases to solve complex global problems, such as climate change. International organizations are, in some cases, used as intermediate to reach specific goals (Abbott et al. 2015).

The architecture of global governance is also characterized by different degrees of fragmentation, which is mainly a result of a patchwork of several institutional arrangements that are differentiated by their features, constituencies, scope and range (Biermann, Siebenhüner and Schreyögg 2009; Biermann and Pattberg 2012; Zelli et al. 2012). This fragmentation comprises not only organizations and international treaties, but also international regimes in a broader sense, including, therefore, principles, norms, and decision-making procedures (Biermann et al. 2010).

The fragmented characteristic of global governance does not imply a less harmonious normative understanding of global order though. Different levels of fragmentation may lead to different results of global governance, without necessarily assuming that one result is more effective than the other (Biermann, Siebenhüner and Schreyögg 2009). A fragmented architecture can have a better focus and a positive impact, fostering participation of laggard states to the negotiation process of specific commitments. Furthermore, it can broaden the participation and intensify the influence of non-state actors in the decision-making process.

Some authors (Asselt 2007; Zelli 2011) point out that, when it comes to the global environmental governance, the overlapping institutional arrangements and regimes may not only jeopardize the coherence of the system, but it could also lead to an open conflict between treaties and principles. This fragmentation can ultimately lead to a 'forum shopping' in which states may choose to engage in some institutions or regimes because they best suit their interests and preferences (Raustiala and Victor 2004; Zelli 2011). In the case of climate change, its intrinsic characteristic makes establishing a single legal and institutional framework more difficult, and thus it constitutes a case of institutions interaction (Oberthür and Gehring 2006).

Considering this inherent characteristic of international relations, the architecture of global governance may have different degrees of fragmentation, which may lead to integration, cooperation or conflict between regimes and institutions (Biermann et al. 2010). To the purpose of this article, the concept of conflictive governance (Biermann et al. 2009) will be used. In this case, institutions are mostly unrelated and have overlapping decision-making procedures. In addition, there is an open conflict between the principles, norms and rules that constitute the different international systems or regimes. Also, there are different memberships that are driven by actor coalitions that accept, or even advance, these conflicts. It is pivotal to have in mind the reason ICAO was given a mandate to deal with environmental and climate change concerns considering its original mandate to regulate technical aspects of civil aviation. The interests of actors other than states (i.e., industry) and power considerations of these actors, in this case, may be a central determinant for transferring the negotiations on mitigation actions of air transport from the international climate regime, centred on the UNFCCC, to the ICAO.

Another aspect worth considering is that the global environmental governance, particularly the climate governance, is embedded in norms and values that not only influence but, to some extent, determine its outcomes and define state and non-state actors' behaviour. In this regard, Bernstein (2002) developed the concept of liberal environmentalism, which the author considers as the overarching principle of the global environmental governance, especially under the UNFCCC and Kyoto framework. The basic idea is that the liberal economic order does not preclude environmental protection. On the contrary, environmental protection is also embedded in the liberal order and, as such, market mechanisms offer a primary response for state and non-state actors to achieve global environmental goals. Sustainable development is thus the underpinning concept behind the liberal environmentalism perspective (Bernstein 2002).

In fact, since the Kyoto Protocol, market mechanisms have been emphasized as viable solutions to reduce GHG emissions, assigning rights of emissions to stakeholders and creating a carbon market in which buyers and sellers act according to liberal principles. This framework ultimately enables emissions reductions where it is most efficient to be achieved, as long as market actors are constrained to adopt environmental behaviour. As will be explored later, CORSIA is a market-based solution, in which the price of carbon and the choice will be determined by the market itself. The conditions for any discussion on climate goals under ICAO were: (i) limiting the level of governmental interference and (ii) avoiding any restrictions on the economic growth of the industry. Although a

compromise of liberal environmentalism has ultimately allowed for an agreement under ICAO, providing a global solution that was more economically feasible and efficient, conflicts between the main principles of the international climate regime and the ICAO legal framework made this compromise somehow more difficult, establishing a conflictive climate governance architecture under ICAO negotiation process.

Analysis of the ICAO response to the international climate regime

The negotiation process that resulted in the adoption of CORSIA

The contribution of international civil aviation to anthropogenic climate change is not negligible. The intrinsic nature of the international air transport, though, has induced the international climate regime to delegate the allocation and the control of the GHG emissions derived from the use of bunker fuels. The ICAO was made responsible by the Kyoto Protocol for regulating the emissions from the aviation sector.

It is argued that the mandate provided by the international climate regime has triggered an institutional interaction between the UNFCCC and the ICAO that has ultimately created a conflictive climate governance architecture. The conflictive character of the climate governance architecture is derived mainly from the clash between the principles that oriented the international climate regime – the common but differentiated responsibilities (CBDR) – and the enshrined principles of the Chicago Convention – the non-discrimination and equal and fair treatment principles.

Another factor that influenced the negotiation process is that the traditional division between developed and developing countries, which is behind the logic of the CBDR, is not as simple when applied to the aviation sector. On the one hand, developing countries, whose air transport market is still maturing and will have high growth rates in the medium term, tried to transfer the negotiation dynamics of the UNFCCC to the ICAO. For them, some differentiation in the obligations was necessary, as airlines from developed countries are more consolidated in the market and, thus, have contributed to the global emissions for a longer period.

Developed countries, on the other hand, take on a more protectionist stance. Precisely because their airlines are more mature and will grow in a much slower pace in the next 20 years, they were not willing to reach an agreement that excluded obligations for developing countries. Therefore, those countries had strongly advocated for the non-discrimination principle to be taken fully into account in any agreement under the ICAO. Concerns related to the development of their airlines have influenced the interests of the state actors and the dynamics of the negotiation process.

Moreover, the stance adopted by the International Air Transport Association (IATA), which represents 290 airlines around the globe, may be an important indicator of the position taken by the industry. IATA has fiercely advocated for the establishment of a single global market-based measure to be adopted by the ICAO, opposing the creation of regional or national trading schemes that could increase transactional costs for the industry (Romera 2018). The International Coalition for Sustainable Aviation (ICSA),

in turn, is the only voice from the environmental groups in the ICAO and has been very active in the ICAO high-level meetings. The ICSA is a network of five NGOs,[3] all of them based either in Europe or in the United States. Therefore, there was no NGO representing environmental groups from developing countries in the ICAO climate discussions.

The period from 1992 to 2007 entails the transfer of the negotiation process from the UNFCCC and the Kyoto Protocol to the ICAO, in what can be called a 'forum shopping.' As there were divergences on how to allocate the emissions from the international transport due to its inherent interconnectedness, a choice was made to delegate the negotiation mandate to the ICAO, which added new dynamics and interests to the process. The logic of the climate regime was to coordinate efforts and provide an effective response for the increase in the global temperature. These concerns were not part of the ICAO agenda and, as a consequence, the main actors have acted based on the interests and the logic of the aviation sector. Therefore, in this first period, the ICAO acted as a guardian of the economic interests of the sector and, under the climate regime, did not propose an adequate and ambitious response to limit or reduce the GHG emissions from international aviation.

The laggard position of the ICAO may be explained by the prevalence of the principles enshrined in the Chicago Convention, namely the non-discrimination principle and equal treatment, over the mandate provided by the international climate regime. The policies of the Organization were directed to not impose any burden on the economic development of the sector (ICAO 1998). As the Kyoto Protocol was in jeopardy of not being adopted by the absence of the major emitter – the United States, it helped discussions under ICAO move in a much slower pace as well (ICAO 2004).

From 2007 to 2010, the conflictive architecture between the UNFCCC and the ICAO becomes more intense. As the ICAO was unable to fulfil the mandate provided by the Kyoto Protocol, the prospect of a post-Kyoto regime establishing mitigation goals for the aviation sector became a source of pressure for the ICAO. In this regard, the possibility that the ICAO could lose its prerogative to negotiate a climate agreement and the aviation sector could be part of a much more comprehensive response prompted a more incisive and active role from ICAO (ICAO 2009a).

In addition, two other factors were crucial for the ICAO moving forward on this agenda: (i) the possibility of a patchwork of different regional and fragmented responses for curbing emissions from the aviation sector (Domingos 2012; Gonçalves 2017; Romera 2018); and (ii) the early action taken by the industry, which voluntarily adopted more ambitious environmental goals (IATA 2007; ICAO 2009b; ICAO 2009c; ICAO 2009d). In fact, the response of the ICAO on the climate regime is subsidiary of the industry's stance on the matter. Nevertheless, the aspirational goals and commitments achieved under the ICAO were far from ambitious especially when compared to those goals proposed by the industry itself. At this point, the ICAO was able to adhere to only two of the three goals settled by the industry: the annual fuel efficiency goal of 2% until 2050 and the carbon neutral growth from 2020 onwards.[4]

From 2010 to 2016, ICAO finally prevailed as the primary organization to address the impact caused by the international air transport. As the Organization is a platform in which traditional actors (i.e., states) as well non-state actors (i.e., industry) have a

great influence, the ultimate response from the aviation sector to the global efforts of the international climate regime was market-oriented and may not have imposed significant burden upon the economic development of industry. The fact that emissions from aviation were not referred to in the Copenhagen Accord under the UNFCCC provided an opportunity for the ICAO to consolidate itself as the legitimate and primary forum to propose mitigation measures and reduction goals for the sector.

CORSIA was finally adopted in the 39th ICAO Assembly, in 2016 (ICAO 2016b). It was developed in close collaboration between the ICAO and the industry, as an attempt to reconcile the CBDR and the non-discrimination principles. Nevertheless, even if the conflictive climate governance architecture may have resulted in an apparent consensus, CORSIA may have been designed in such an inconsistent way that discrepancies and new conflicts may emerge in the future.

The key design elements of CORSIA

CORSIA was established by Resolution A39-03 to be a simple carbon offsetting scheme in which all the CO_2 emissions from international air transport above the agreed baseline will need to be offset through the purchase of emissions unit credits in the eligible carbon markets (ICAO 2016b). In other words, as the aviation sector has not developed enough internal measures to mitigate their own emissions, it will have to foster reduction of CO_2 emissions from other sectors in order to be able to continue to increase its economic growth. In the end, all increase in CO_2 emissions from the baseline will need to be offset by the direct purchase of carbon credits bought from carbon programs deemed eligible by ICAO. Therefore, CORSIA is a key mechanism to achieve the goal of carbon neutral growth from 2020 onwards settled by states under the ICAO. There are three main design elements that are central for the functioning of CORSIA, and these are an attempt to reconcile the principles of CBDR and non-discrimination.

The first element is related to the period of duration and the phases of implementation of the mechanism. CORSIA is intended to be a temporary mechanism, lasting at most until 2035, to help the industry achieve neutral carbon growth from 2020 onwards. It should only exist as long as there is not enough supply of sustainable alternative fuels for aviation that would bridge the gap between the projected increase of CO_2 emissions and the agreed baseline. Between 2021 and 2035, CORSIA will be implemented in three phases, the pilot phase from 2021 to 2023, the first and voluntary phase from 2024-2026 and the second and mandatory phase from 2027 to 2035. This so-called *phase-in approach*, in which there would be a differentiation between voluntary and mandatory phases, was an attempt to contemplate CBDR under the offsetting scheme.

In the pilot and first phases, participation in the scheme is voluntary (ICAO 2016b). In other words, states had to express their willingness to include the routes that have as origin or destination an airport in their territory to be part of the scheme. The list of volunteer states was not attached to the Assembly Resolution itself, as states agreed that decisions should be made on an *ad hoc* basis. In the second phase, participation is mandatory for all those states that have an individual share of international aviation activities,

measured in *Revenue Tonne Kilometres* (RTK) terms in the year of 2018, above 0.5% or whose cumulative share on the list of states from the highest to the lowest amount of RTKs reaches 90% of the global RTK.

By choosing for this phase-in approach, the idea was that countries would be differentiated by their respective capabilities, in an attempt to conciliate the CBDR principle under CORSIA. Developing countries whose participation in the total RTK was not so significative would have a longer timeframe to prepare themselves to join the scheme. Airlines from least developed countries with a small share of the global international aviation activity would be exempted from any obligation, unless their state had spontaneously volunteered. The tacit agreement may have been that only more mature markets from the developed countries and very fast-growing economies, namely China, would have to commit themselves in the first phases of CORSIA.

The basilar principle in the ICAO regime – non-discrimination and equal treatment – was inserted in the CORSIA design in the so-called *route-based approach*. Accordingly, the scope of CORSIA will be determined based on the routes that are part of the scheme. For a route to be under the scope of CORSIA, the countries from both points of the route – origin and destination – will need to have volunteered themselves for the scheme. Once a route is determined to have offsetting obligations, all airlines that operate that route, regardless of their nationality, will have to offset their emissions above the baseline (ICAO 2016b).

Once the range of routes that are under the scope of CORSIA is defined, comes the question of how the offsetting obligations will be distributed between ICAO member-states, which constitutes the third design element of the scheme. Two options were on the table during the negotiation process. The distribution of obligations could be made by a sectorial factor in which all the emissions growth above the baseline would be distributed between countries, and, ultimately, between their airlines based on their market share. In this sense, countries with larger and more consolidated airlines would have to pay more for their emissions (ICAO 2016b). The other option was to distribute the offsetting obligations considering the individual emissions growth factor of each airline. In this regard, airlines with higher rates of emissions would offset relatively more than airlines that grow in a slower pace. The individual factor also has the advantage of incentivizing the adoption of more efficient aircrafts and sustainable alternative fuels, as the lower the emissions of an airline, the less it will have to pay for its growth.

In the end, a dynamic approach was adopted, with the support of the industry (ICAO 2016b). According to the text adopted in Resolution A39-03, from 2021 to 2029, offsetting obligations will be distributed exclusively by the market share according to the sectorial growth factor. From 2029 onwards, though, an individual growth share will be increasingly added to the formula, which will be 20% between 2029-2031, and will reach at least 70% after 2032 (ICAO 2016b).

When only the sectorial growth factor is applied (which will be from 2021 to 2029), all the increase in the emissions above the baseline will be shared by the airlines according to the volume of their activities in the market. In other words, emissions will be allocated according to the market share of each airline. Therefore, more consolidated

airlines that have a larger share in the carbon storage will pay relatively more. Likewise, new airlines that usually have growth rates above the global growth rates will pay according to their participation in the market. The smaller their participation is, the less they pay. Conversely, the larger the airline, the more they pay. The sectorial growth factor allocates emissions in a much broader perspective as it considers the total contribution of all airlines for the current situation of the carbon emissions. Ultimately, it respects the basic principle that the polluter should pay for their emissions.

Nonetheless, when the individual growth factor is added to the formula, some relevant economic distortions will emerge. According to Coase (1960), emissions rights work as property rights, which are intended to internalize externalities when the gains of internalization outweigh the costs. Market-based measures, in this case, work as an effective way of transferring those property rights according to market rules with fewer governmental interference. In the CORSIA case, it can be considered that the baseline will not work only as a carbon storage, but it will also determine the CO_2 emissions rights of each stakeholder. Once those emissions rights are determined by the individual baseline based on their emissions up to 2020, those airlines with fewer rights to emit after this period will have to purchase more 'rights' in the carbon market, through emissions unit credits bought from those carbon programs deemed eligible under CORSIA.

In this context, it can be argued that those airlines that have grown more and, up to 2021, have acquired a larger share in the market will probably grow in a slower pace when compared to those airlines that are fast-growing and are still trying to consolidate themselves in the market. According to some projections (IATA 2016), airlines from Africa, Middle East, Asia, and, to a lesser extent, Latin America will grow relatively more than the more mature airlines from Europe and North America. Therefore, if those projections prove to be right, an airline from a developing country will have to offset more emissions than an airline from a developed country. More than that, in a same route, different airlines will incur in different offsetting obligations because of a discriminative treatment imposed by an ICAO regulation.

Finally, it remains uncertain how new entrants will be treated under CORSIA when the individual growth sector is added to the formula. If their baseline is considered as zero, this will mean that any growth in their operations will have to be entirely paid as it will certainly cause an increase in their CO_2 emissions. Even operating the most efficient aircraft and using large proportions of biofuels, a new operator is still consolidating itself in the market and expanding its operations, increasing the number of flights and routes. Depending on their business structure and on the level of price-elasticity of their demand, two situations may arise. If the price-elasticity of their demand is higher, or, in other words, if the potential consumers of their services are highly sensitive to any increase in the price, the new airline will have to internalize a major part of the costs related to their CO_2 offsetting requirements. Therefore, in order to offer fares that are competitive to attract consumers, the new airline may incur in some financial losses.

If the price-elasticity is less sensitive, the new airline will transfer a major part of those costs to its fare and thus consumers will pay more for the airline ticket of that new operator. However, this difference in the costs is not related to the operational and fuel

efficiency of this new airline. This new entrant can be more efficient, but it will be penalized for every growth in its emissions. A more consolidated airline, in turn, will be paying less not necessarily because it is more efficient, but because it was granted with greater rights to emit. In this case, it is likely that CORSIA will be a regulatory barrier for new airlines to operate in a very competitive market in which costs are important factors to determine the capacity of each stakeholder to keep their operations.

When the CORSIA was designed, it was also unclear which carbon markets would be accepted and deemed eligible. The ICAO Resolution that established CORSIA provided some guidelines on the emissions unit criteria, but without prejudging the eligibility of any specific program. In fact, even the emissions units generated from mechanisms established under the UNFCCC and the Paris Agreement would only be deemed eligible for use in CORSIA if they are aligned with decisions by the Council on eligible vintage and timeframe. In this regard, decisions on the eligible carbon units were delegated by the ICAO members states to the ICAO Council and technical bodies.

A preliminary analysis of the main design elements of CORSIA, as established in Resolution A39-03, suggests that some market distortions and unfair treatment may have been created in detriment to the airlines from developing and emerging countries. A long negotiation process, characterized by a conflictive interaction between ICAO and UNFCCC, in which the interests of the industry have highly determined the final result, may have created a reversion in the application of the two core principles – CBDR and non-discrimination. The extent to which CORSIA will have a major impact on a new airline's decision to enter the market or not is a question to be further explored by future research, for which an econometric model will offer some valuable tools of analysis.

Conclusion

CORSIA is the most recent, albeit not the only, response from the aviation sector to curb its CO_2 emissions and achieve the environmental goals settled by ICAO. It is not a perfect mechanism and surely it will not be enough to contain the overall anthropogenic increase of GHG concentrations in the upper atmosphere. However, it is an important step towards a more sustainable path for the development of international air transport. Perhaps in no other sector an agreement was reached with such a strong commitment from those players who will be, in fact, responsible for its implementation – the industry.

The Kyoto Protocol was the trigger mechanism for an institutional interaction between the UNFCCC and ICAO, which engendered a conflictive climate governance architecture under ICAO. Although membership of traditional actors is coincidental and both institutions are under the umbrella of the UN system, they serve very different mandates and operate under different guiding principles.

While ICAO is a technical organization created to solve coordination problems, UNFCCC is a result of a difficult consensus between states on how to cooperate to solve a problem that arises from a negative externality. Therefore, the different interests, dynamics and principles involving these two institutions help explain why an agreement was difficult to be reached. The CBDR and non-discrimination principles were not easily

reconciled, as countries in ICAO used each one of these principles as a symbol to represent the interests of their industries and to protect their own aviation market, creating, as a consequence, this conflictive architecture.

In this context, it can be argued that the ICAO is a strong international organization essentially driven by market concerns. Hence, when the ICAO was given the mandate to address GHG emissions stemming from international aviation, it was reluctant to incorporate the UNFCCC principles in the negotiation process. In the first decade of negotiations, not a single resolution mentioned the CBDR, whereas the non-discrimination principle was constantly reaffirmed. When the CBDR was finally inserted on the agenda, and the ICAO decided to adopt a global market-based mechanism, the question on how to reconcile both principles arose.

When the ICAO was called to act on environmental issues, it was not so prone to internalize the UNFCCC principles and rationale. As a result, an overt conflict of principles emerged from the institutional interaction between the ICAO and the UNFCCC, resulting in the recognition of the ICAO as the primary forum to discuss any measure to be taken by the aviation sector. As the ICAO is mainly driven by market concerns, state and non-state actors were able to establish new timing for the negotiation process, in the sense that discussions took more time to happen in the ICAO. The mandate provided by Kyoto was not immediately fulfilled by the ICAO.

CORSIA is the final attempt to reconcile the guiding principles of the UNFCCC and the ICAO. In its main design elements, the CBDR and the non-discrimination principle were inserted. Nevertheless, when fully implemented, CORSIA will likely entail some significant market distortions that will place the large part of the costs on the emerging and fast-growing markets. As it was designed, CORSIA will work as a mechanism that allocates emissions rights to countries and their airlines according to their market participation. The more consolidated airlines will be given a larger share of the emissions rights, while non-mature airlines that will probably grow in a faster pace will have to offset more of its emissions, as they have few rights to emit.

In this sense, an agreement was possible under the ICAO because a compromise was reached over a regulation on emissions that was the most cost-effective alternative, reducing the economic burden to the industry. The air transport industry was a key actor in the ICAO for the adoption of the most cost-efficient measure. More than that, the IATA was a fierce advocator that any measure should be multilateral and global in its scope as a means to avoid the fragmentation of the regulatory framework. In the end, no limits to the economic growth were imposed in the form of caps or traffic restrictions. Therefore, it can be argued that CORSIA is also a result of the prevalence of the environmental liberal consensus in the ICAO.

Notes

1 COVID-19 has had a major impact on international air traffic. According to the ICAO official data, in 2020, all-sector CO_2 worldwide emissions decreased by 4% compared with 2019, and the total worldwide emissions from aviation fell by nearly 50% in 2020 (ICAO 2022). Information available at: <https://www.icao.int/environmental-protection/LTAG/Documents/ICAO_LTAG_Report_AppendixS1.pdf>. Last access on 14 January 2023.

2 Bunker fuels are heavy, residual oil left over after gasoline, diesel and other light hydrocarbons are extracted from crude oil during the refining process. Bunker fuels are used by both aircraft and ships (Livebunkers 2023). Information available at: <https://livebunkers.com/what-bunker-ship-about-bunker-fuel-and-bunkering-procedure>. Last access on 10 October 2023.

3 ICSA is comprised by the Aviation Environment Federation (AEF), the International Council for Clean Transportation (ICCT), Transport and Environment (T&E), the Carbon Market Watch, the Environmental Defence Fund (EDF) and the Worldwide Fund for Nature (WWF).

4 In 2007, the international air transport industry adopted three environmental goals: (i) fuel efficiency improvement of 1.5% on average per year until 2020; (ii) carbon-neutral growth from 2020; and (iii) a net CO_2 emissions reduction of 50% by 2050, compared to 2005 levels.

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Arquitetura de governança climática conflituosa no âmbito da Organização da Aviação Civil Internacional (ICAO)

Resumo: Estudos estimam que entre 2% e 3% das emissões globais de CO_2 são provenientes do setor de aviação, e esses números podem quase dobrar em médio prazo se não forem tomadas medidas de mitigação para reduzir as emissões. O regime climático internacional, baseado na Convenção-Quadro das Nações Unidas sobre Mudança do Clima (UNFCCC) e no Protocolo de Kyoto, transferiu o mandato de negociação para tratar das emissões de gases de efeito estufa (GEE) da aviação para a Organização da Aviação Civil Internacional (ICAO). Este artigo argumenta que o mandato de Kyoto provocou uma interação institucional entre a UNFCCC e a ICAO que, em última análise, resultou em uma arquitetura de governança climática conflituosa. O conflito foi derivado do choque entre os dois princípios orientadores fundamentais dessas duas instituições: por um lado, o princípio de Responsabilidades Comuns, porém Diferenciadas (CBDR) da UNFCCC; por outro lado, os princípios de não discriminação e de igualdade e justiça, consagrados na Convenção de Chicago da ICAO. Nesse contexto, uma revisão da literatura e uma ampla análise de fontes primárias das decisões da OACI são os principais métodos aplicados para chegar às conclusões do autor.

Palavras-chave: governança climática conflituosa; ambientalismo liberal; ICAO; CORSIA.

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