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The International Air Cargo Cartel

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1. Introduction

From late 1999 to 2006, over 20 airlines around the world colluded on the setting and implementation of fuel and other surcharges for international air cargo services.[1] The events leading up to this cartel can be dated back to August 1997, when the International Air Transport Association (IATA), a trade group for airlines, adopted a draft resolution that would have established a mechanism that linked a fuel surcharge to a fuel price index. While the draft resolution never officially took effect, IATA published and updated the index value until March 2000 when the U.S. Department of Transportation refused IATA's application for approval and antitrust immunity for the resolution. After IATA abandoned the index, one of the airlines, Lufthansa, began to publish a fuel price index that was identical to the IATA index. Meanwhile, starting from late 1999, a group of airlines communicated with each other regarding the fuel surcharge. Executives of these airlines regularly contacted each other to coordinate on the application and modification of the fuel surcharge mechanism as well as on changes to fuel surcharge rates. Over time, more airlines joined the group. After the 9/11 terrorist attacks in 2001, coordination among airlines was expanded to include the introduction and implementation of a security surcharge, ostensibly to cover increased costs due to enhanced security measures and higher insurance premiums for cargo shipments. The cartel was ended in February 2006 when competition authorities in the US and EU simultaneously raided the offices of major airlines.

For their roles in the cartel, the airlines were forced to pay fines in the US, EU, and several countries in other parts of the world.[2] In the US, the fines on the airlines totaled $1.8 billion.[3] With the most recent decision by the EU's General Court, the total amount of EU fines stood at €740 million.[4] Moreover, 21 airline executives were charged by the U.S. Department of

[1] European Commission (2010) and U.S. Department of Justice (2008b).
[2] These other countries include Australia, Canada, South Korea, New Zealand, and South Africa (US District Court 2014, p. 10).
[3] U.S. Department of Justice (2020).
[4] This total amount consists of the fine on Qantas imposed by the European Commission in 2010 (€8.88 million) and the fines on the other 11 companies after the adjustments in the 2022 judgement by the General Court (€730.87 million). After the European Commission's first decision on this case in November 2010, 11 of the 12 companies subject to the decision challenged it before the EU's General Court. In December 2015, the General Court annulled the Commission's decision against the 11 companies. In response, the Commission adopted a new decision and re-established the fines on these companies in March 2017 (European Commission 2017a). The 11 companies again filed an application challenging the decision, on which the General Court issued a judgement in March 2022 (Court

Justice, and eight of them were sentenced to serve prison time.[5] Many airlines also paid damages to purchasers of air cargo services following class action suits in several countries including the US, UK, and Canada. In the US alone, settlements from class action suits totaled $1.2 billion.[6]

This cartel has a number of interesting features, of which the most fascinating is that the airlines colluded on only one component of the full price for air cargo services: surcharges. The other (and usually larger) price component, the freight rate, continued to be set independently by the airlines. Since what matters to a customer should be the sum of the freight rate and surcharges, colluding on surcharges without fixing the freight rate would seem futile for raising the total price because the higher surcharges could simply be offset by lower freight rates as airlines compete for customers. This preliminary assessment then raises the question whether this cartel could have had any significant impact on the actual price paid for international cargo services.

In this case study, I review the history and operation of the international air cargo cartel.[7] Moreover, I discuss theories that shed light on the price effects of this cartel. In particular, the theoretical analyses by Chen (2017, 2022) demonstrate that colluding on surcharges without coordination on base prices can be an effective way of raising the full price of a product. This anti-competitive effect is driven by the division of pricing authority between the head office and a firm's local offices. By delegating the decision on base prices to each local office and tying the latter's performance measure to only this price component, a firm weakens the local office's incentive to reduce base price in response to an increase in surcharge. This gives the firm a way to raise the full price *via* a higher surcharge. In the absence of coordination on surcharges, however, the head office of each firm still has the incentive to undercut its rivals through a lower surcharge. By colluding on surcharges, the firms eliminate the competition on surcharges among the head offices, thus achieving a higher level of full prices.

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of Justice of the European Union 2022). Qantas was the only company that did not appeal the 2010 decision (European Commission 2017a).

[5] U.S. Department of Justice (2020).

[6] Hausfeld (2016).

[7] This review draws information from the public records about the cartel, including the decisions by the European Commission (2010, 2017b), the Federal Court of Australian (2014) and the U.S. District Court (2014). While I had additional knowledge about this cartel from my own work as an economics expert for a Canadian government agency during 2012-2015, I am not able to share much of this knowledge due to confidentiality. Nevertheless, it helped the development of the views expressed here.

The remainder of this paper is organized as follows. After some relevant background information about international air cargo services is presented in section 2, the history and operation of the international air cargo cartel is reviewed in section 3. I then offer my observations about the interesting features of this cartel in section 4 and discuss the theories of its anticompetitive effects in section 5. Section 6 concludes.

2. International Air Cargo Services

International air cargo services involve the transportation of industrial and consumer products by air across national borders. These services are provided by airlines (carriers) from an airport of origin to an airport of destination using the cargo hold (also known as the bellyhold) of passenger aircrafts or dedicated air freighter aircrafts. The direct purchasers of air cargo services are usually freight forwarders.[8] They act on behalf of shippers, who are the actual importers or exporters of the goods to be transported. Typically, an air cargo carrier is responsible for transporting the freight between the origin and destination airports while the purchaser of such services is responsible for the ground transportation of the cargo from the shipper to the origin airport and from the destination airport to the ultimate recipient.

An airline offers international air cargo services through its local cargo sales offices at individual airports. In locations where the airline's cargo business volume is too small to justify dedicated cargo sales offices, the airline may appoint General Sales Agents (GSAs) or General Sales and Service Agents (GSSAs) to perform the airline's sales and marketing function.[9] An airline's local sales office or GSA at an airport is the point of contact for freight forwarders who need to ship goods from the airport.[10] An important task performed by a local sales office or GSA is the negotiation of freight rates with freight forwarders.[11] These negotiated freight rates may be for shipments during a period of time (typically one traffic season which is six months), or for just one particular shipment (the "spot rates").[12]

[8] European Commission (2017b, para 14).
[9] Federal Court of Australia (2014, para 103). A GSSA differs from a GSA in that it also performs ground handling services in addition to sales and marketing. Henceforth I will combine GSAs and GSSAs and refer to them collectively as GSAs.
[10] Federal Court of Australia (2014, para 107).
[11] European Commission (2017b, para 17).
[12] European Commission (2017b, para 17) and Federal Court of Australia (2014, para 98).

Note that the freight rate is only one component of the price for the carriage of freight. During the period of the international air cargo cartel, the price was the freight rate plus applicable surcharges (*e.g.*, fuel surcharge). The surcharges were set by the airlines' management and were not negotiable.[13] In other words, while a local cargo sales office or GSA did not have the authority to alter the surcharges, it had flexibility in negotiating freight rates with individual freight forwarders. It therefore did have considerable discretion over the total final prices that freight forwarders paid.

The price of carrying freight by air for each route is normally expressed in terms of per kilogram of "chargeable weight" of a shipment. The chargeable weight is the higher of the actual weight in kilograms or the volumetric weight calculated using a formula that accounts for volume of low-density cargo.[14]

3. History and Operation of the Cartel

The events leading up to the international air cargo cartel can be dated back to August 1997, when IATA adopted a draft resolution that would have established a mechanism linking the fuel surcharge rate to a fuel price index. Recognizing that fuel costs represented a significant portion of airlines' operating costs, IATA had been monitoring the price of aviation fuel beginning in 1990.[15] As the fuel price increased substantially in the 18 months leading up to January 1997, the Cargo Tariff Coordinating Conferences (one of the IATA's working committees) organized a meeting in Geneva that led to a proposed resolution known as "Resolution 116ss".[16] After some refinements, Resolution 116ss was passed by mail vote in August 1997.[17]

Resolution 116ss established a fuel price index to be used as the basis for the setting and adjustments of fuel surcharge by member airlines. Specifically, the index was based on the average weekly spot prices of aviation fuel from published oil industry sources, with the average fuel price in June 1996 assigned a value of 100. The rate of fuel surcharge was then tied to three threshold values of the fuel price index: 110, 130, and 150. If the index value exceeded 130 for a period of two consecutive weeks, IATA members were advised to implement a fuel surcharge of

[13] European Commission (2017b, para 17) and U.S. District Court (2014, p. 72).
[14] Federal Court of Australia (2014, para 51) and European Commission (2017b, para 17).
[15] Federal Court of Australia (2014, para 493).
[16] Federal Court of Australia (2014, para 494).
[17] Federal Court of Australia (2014, para 495).

$0.10 per kilogram (or its equivalent in local currency). If the index then fell below 110 for two consecutive weeks, the surcharge would be suspended. If it rose above 150 for two consecutive weeks, IATA would convene a special meeting of the Cargo Tariff Coordinating Conferences to review the amount of fuel surcharge.[18]

However, Resolution 116ss never went into effect because it did not receive regulatory approval in the US and several other countries.[19] Nevertheless, IATA routinely published and updated the fuel index value until March 2000, when the U.S. Department of Transportation (DOT) refused IATA's application for approval and antitrust immunity for the resolution.[20] When informing its members of the DOT's decision, IATA warned them of potential antitrust liability associated with the use of the IATA index: "If the carriers were to coordinate pricing by reference to the Index, whether pursuant to this disapproved Resolution or simply through de facto parallel pricing actions, this could be regarded as an illegal conspiracy in violation of applicable Competition laws…"[21]

After IATA abandoned the index, one of the major air cargo carriers, Lufthansa, began to publish its own fuel price index on its publicly available website. This "Lufthansa Index" was identical to the IATA index, with the same threshold values and the same two-week lag for any adjustment of the surcharge.[22] The Lufthansa Index is notable because it was used subsequently by not only Lufthansa but other airlines to determine the timing and the fuel surcharge rate.[23] Even in instances where some airlines developed their own fuel price indices, they were modelled after the Lufthansa Index.[24] As a result, there was little difference between the various fuel surcharge mechanisms used by the airlines.[25]

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[18] U.S. District Court (2014, p. 5) and European Commission (2017b, para 114).
[19] Federal Court of Australia (2014, para 497).
[20] Federal Court of Australia (2014, para 497). The DOT rejected IATA's application on the basis that "[t]he uniform, industry-wide index mechanism proposed here appears fundamentally flawed and unfair to shippers and other users of cargo air transportation" (as quoted in U.S. District Court 2014, p. 6). To be more specific, the DOT's objections to the index mechanism included its failure to readjust as quickly when prices moved down and its failure to take into account the airlines fuel hedging programmes (Federal Court of Australia 2014, para 501).
[21] As quoted in U.S. District Court (2014, p. 6).
[22] Federal Court of Australia (2014, para 12). Lufthansa initially sought IATA's permission to publish the IATA index at Lufthansa's website, but IATA refused. Subsequently, Lufthansa published the same index but renamed it as the "Lufthansa Index" (U.S. District Court 2014, p. 5).
[23] U.S. District Court (2014, p. 7).
[24] U.S. District Court (2014, p. 7).
[25] European Commission (2017b, para 115).

The air cargo cartel essentially involved the coordination among the airlines on the setting and implementation of fuel and other surcharges for international air cargo services. Evidence shows that such coordination started from at least December 1999.[26] At that time, the IATA index had exceeded 130 for two consecutive weeks, which was the trigger for the imposition of fuel surcharge in Resolution 116ss.[27] Even though Resolution 116ss was never declared effective, a group of airlines contacted each other to discuss whether and how fuel surcharge should be implemented.[28] These discussions were followed by the introduction of a fuel surcharge of $0.10/kg (or its local currency equivalent) by a number of airlines, including Air France, Lufthansa, Cargolux, Korean Air, and Air Canada.[29]

Table 1. The Lufthansa Mechanism: Revised in January 2002

Level	Fuel Surcharge Rate	Lufthansa Index Value	
		Implementation/Increase	Suspension/Decrease
1	EUR/USD 0.05/kg	115	110
2	EUR/USD 0.10/kg	135	120
3	EUR/USD 0.15/kg	165	145
4	EUR/USD 0.20/kg	190	170

Source: Federal Court of Australia (2014, para 504).

After the introduction of a fuel surcharge, the airlines continued to contact each other regularly to coordinate on the application and modification of the fuel surcharge mechanism as well as on changes to the fuel surcharge rate. Over time, more airlines joined the group.[30] As the aviation fuel prices rose and fell in the ensuing years, the airlines adjusted the fuel surcharge rate in line with the Lufthansa Index (or other similar indices).[31] For its part, Lufthansa revised its

[26] European Commission (2017b, para 703). While not ruling out the possibility that some airlines communicated about fuel surcharges between August 1997 (when Resolution 116ss was passed) and December 1999, I would note that no airlines introduced a fuel surcharge during this period.
[27] Federal Court of Australia (2014, para 498).
[28] To be clear, these discussions were not under the auspices of IATA. While the IATA index was used by the airlines to coordinate fuel surcharges from December 1999 to March 2000, IATA itself did not participate in the cartel activities. In early December 1999, a number of airlines contacted IATA about fuel surcharges but each was advised by IATA that Resolution 116ss was not effective (Federal Court of Australia 2014, para 499).
[29] Federal Court of Australia (2014, para 500) and U.S. District Court (2014, p. 5).
[30] European Commission (2017b, para 2).
[31] See section 4.3 of European Commission (2017b) for a detailed discussion of the airlines' activities in coordinating the adjustments of fuel surcharge rates between 2000 and 2006.

mechanism for the determination of the fuel surcharge rate several times by adding and adjusting the threshold values of the index that would trigger an increase or decrease of fuel surcharges. In January 2002, for instance, Lufthansa announced a revised mechanism as shown in Table 1. This mechanism specified four levels for the fuel surcharge rate, ranging from €/$0.05/kg to €/$0.20/kg, along with the trigger points for the implementation and suspension of each level. For example, the Level 2 fuel surcharge rate (€/$0.10/kg) would be applied if the value of Lufthansa Index exceeded 135 (but was below 165) for two consecutive weeks, and it would be removed (and replaced by the Level 1 fuel surcharge rate) if the index value fell below 120 (but was above 110) for two consecutive weeks. Note that this revised mechanism involved more levels for the fuel surcharge rate and different trigger points than the initial Lufthansa mechanism (which was copied from the IATA mechanism described in Resolution 116ss).

As alluded to above, airlines coordinated fuel surcharge rates through bilateral and multilateral contacts. These communications were conducted by telephone, email, fax, and in-person meetings.[32] The meetings could be between executives of just two airlines, in small groups of them, and in some instances in large forums.[33] For example, the Cargo Sub-Committee of the Board of Airline Representatives (BAR) in Hong Kong held repeated meetings to coordinate fuel surcharge rates.[34]

The objective of the cartel was to ensure that airlines throughout the world adopted the same fuel surcharge rate (adjusted for local currencies) at about the same time.[35] Accordingly, the cartel needed to coordinate two dimensions: the fuel surcharge rate and the timing of its implementation. This was a challenging task considering the large number of airlines and cargo routes around the world. The cartel accomplished it *via* a complex network of contacts among airline executives at the headquarters and in individual countries or regions.[36] There were some

[32] U.S. District Court (2014, p. 7) and European Commission (2017b, para 704).
[33] European Commission (2017b, para 111).
[34] Federal Court of Australia (2014, paras 508-509).
[35] European Commission (2017b, para 109).
[36] European Commission (2017b, para 704). We can get a sense about the managerial levels of airline executives who participated in the cartel activities from the list of individuals who served jail sentences in the U.S. For example, Keith Packer was Commercial General Manager for British Airways World Cargo (U.S. Department of Justice 2008c), Maria Christina Ullings was Senior Vice President of Cargo Sales and Marketing of Martinair Cargo (U.S. Department of Justice 2020), Bruce McCaffrey was Qantas Airways' Vice President of Freight for the Americas (U.S. Department of Justice 2008a), and Timothy Pfeil was SAS Cargo's Area Director of Sales for North America (U.S. District Court 2008).

idiosyncrasies in the operation of this cartel network in different parts of the world.[37] But generally speaking executives at the headquarters were involved in the coordination on the fuel surcharge mechanism and the setting of fuel surcharge rates, while lower level executives coordinated on the timing of the adoption of the rate set by the headquarters as well as monitoring other airlines for compliance with the agreement.

Notably, however, the local sales offices and GSAs of the airlines at individual airports were not involved in the decisions regarding the rate and timing of fuel surcharge. They had no authority to alter the fuel surcharge when they dealt with freight forwarders, though they had flexibility to adjust freight rates. Generally speaking, the airlines were not accused of fixing the freight rates during this period.[38] Indeed, the local sales organizations of different airlines continued to compete for customers by offering discounts off freight rates even while the executives at higher levels colluded on fuel surcharges. Consistent with this division of rate-setting power, the performance of local sales offices was usually evaluated based on the freight revenues they generated but not on surcharge revenues.

After the 9/11 terrorist attacks in 2001, air cargo carriers in addition introduced the security surcharge (also known as insurance and security surcharge) ostensibly to cover increased costs due to enhanced security measures and higher insurance premiums for cargo shipments.[39] As in the case of the fuel surcharge, the airlines discussed and coordinated on the introduction of the security surcharge. Their discussions covered various dimensions, including whether and when to introduce the surcharge, in what form, and at what rate.[40] After the surcharge was introduced in October 2001, the airlines continued their coordination on the security (and fuel) surcharge rate until the cartel broke down in 2006.[41]

[37] In Hong Kong, for example, an airline's fuel surcharge rate had to be approved by the local regulator, the Hong Kong Civil Aviation Department (Federal Court of Australia 2014, para 447). The Hong Kong BAR Cargo Sub-Committee organized meetings to determine the fuel surcharge rates that would be submitted to the regulator for approval in joint applications by all cargo carriers (Federal Court of Australia 2014, paras 508-511). But this was not the case in most other parts of the world where contacts among airline executives regarding fuel surcharge were more *ad hoc*.

[38] An exception is the Indonesian airline Garuda which allegedly colluded with several airlines on freight rates for outbound routes to Sydney and Perth in Australia in 2001 (Federal Court of Australia 2014, paras 1149-1155).

[39] Federal Court of Australia (2014, para 2) and European Commission (2017b, para 577).

[40] European Commission (2017b, para 579).

[41] European Commission (2017b, para 579).

In December 2005, the international air cargo cartel had caught the attention of competition authorities after Lufthansa submitted a leniency application.[42] In February 2006, competition authorities in the US and EU simultaneously raided the offices of major airlines, including British Airways, Air France-KLM, Cargolux, SAS, Cathay Pacific Airways, Japan Airlines International, LAN Airlines, and Singapore Airlines.[43] This event marked the end of the cartel.[44]

4. Notable Features of the Cartel

The collusion over air cargo surcharges is a very interesting case study of cartel operations for at least four notable features.

1) Collusion on one component of the full price

Perhaps the most interesting feature of this cartel is that the airlines colluded only on surcharges. Generally speaking, the cartel imposed no restrictions on the airlines' freedom to set their own freight rates. During the cartel period, the local sales offices and GSAs of these airlines continued to compete for customers by offering discounts off freight rates. This collusive practice naturally raises a question about its effectiveness in pushing up the full price of air cargo services since higher surcharges achieved through collusion could simply have been offset by lower freight rates as the airlines competed for customers.[45] This central question regarding the cartel's impact will be explored in the next section.

2) Collusion on a simple variable

[42] European Commission (2017b, para 77). Lufthansa's in-house legal team became aware of the air cargo cartel after the company implemented a competition law compliance programme in 2004. Some employees came forward and disclosed information about price-fixing activities in air cargo operations to their compliance officers. After an internal investigation revealed that the activities were widespread throughout the company, Lufthansa decided to seek amnesty in December 2005 (Bergman and Sokol 2015, p. 310).
[43] European Commission (2017b, para 79).
[44] It is interesting to note that the dissolution of this cartel did not necessarily lead to lower fuel surcharges. Turner (2022) finds that post-cartel fuel surcharge rates closely resemble those implied by the Lufthansa methodology. He concludes that cartel detection caused a switch from explicit to tacit collusion, but not a reduction in prices.
[45] Indeed, several airlines made this type of arguments in their defence against antitrust damages claims. See U.S. District Court (2014, p. 73).

Another notable aspect of the fuel surcharge is that the rate was on a per kilogram basis and was, generally, independent of the distance of shipments.[46] It means, for example, the amount of fuel surcharge charged on a shipment from New York to Paris was the same as that on a shipment of the same (chargeable) weight from New York to Tokyo.

This feature of the cartel is noteworthy because the fuel surcharge was supposed to help the airlines recoup the lost profits due to higher costs of aviation fuel. Yet the revenue generated by such a fuel surcharge would not have been proportional to the increases in fuel costs because it did not depend on the distance of shipments. As such, the fuel surcharge was not an effective scheme for the recoupment of increased fuel costs. While this feature raises questions about the claimed benign purpose of the surcharges for the recovery of exceptional cost, one might also wonder whether the cartel had colluded on a poorly-designed variable.

However, in spite of these remarkable features, this simple flat rate had merit for the airlines because, in my opinion, its simplicity substantially reduced the costs of coordination among them. A distance-dependent surcharge scheme would have entailed a myriad of rates for the thousands of different cargo routes around the world, and the resulting complexity would have made it more difficult for the cartel members to reach an agreement and to monitor each other's compliance with the agreement.[47] In contrast, a single surcharge rate (adjusting for local currency exchange rates) appears to have been much simpler for the airlines to negotiate and implement on a global scale. While it is true that the flat fuel surcharge rate was a less precise instrument for recouping fuel costs, my belief is that the real goal of the cartel was to increase

[46] One exception was the outbound fuel surcharge rate from Hong Kong, where the airlines implemented two different fuel surcharge rates, one rate for intra-Asia shipments and the other rate for "long-haul" shipments to the rest of the world (Federal Court of Australia, paras 523-547).

[47] To be more specific, if the airlines had chosen to collude on a surcharge rate on the basis of $x per kilogram and *per kilometer*, it would have been more difficult for an airline to estimate the additional revenue to be generated by the surcharge because it would have had to take into account the distance of different routes and the volume of cargo for each route. This, along with differences in airlines' network structure, would have made it harder for them to reach an agreement on the rate. Moreover, it is standard practice in this industry to quote prices in terms of origin-destination pair (*e.g.*, from New York to Frankfurt) rather than per kilometer. To implement a cartel agreement on a per-kilometer surcharge rate, each airline would have had to convert it into a rate for each origin-destination pair so that the surcharge rate and freight rate were expressed on the same basis. With thousands of cargo routes around the world, this would have made it more difficult for the cartel to detect undercutting of the collusive fuel surcharge rate.

the airlines' revenues (and hence profits) and rising fuel prices were an opportunistic cover for the introduction of the surcharge.[48]

3) Index as a facilitating device

A third interesting feature of this cartel is the use of the Lufthansa Index to coordinate on the fuel surcharge rate. Recall that this index was the core element of a mechanism that specified a target level of the fuel surcharge rate as a function of changes in the price of aviation fuel. For example, the Lufthansa mechanism announced in January 2002 (reproduced in Table 1) had a fuel surcharge rate of €/$0.10/kg to be applied if the value of Lufthansa Index exceeded 135 (but was below 165) for two consecutive weeks, and it would be removed (and replaced by a lower rate of €/$0.05/kg) if the index value fell below 120 (but was above 110) for two consecutive weeks.

It should be noted that the airlines did not automatically adopt the fuel surcharge rates as prescribed by the Lufthansa mechanism. Rather, they used the index value as a signal for initiating another round of communication and coordination. Specifically, when the index value was approaching a trigger point for rate adjustment, airline executives would contact each other to discuss their intentions and plans for implementing the anticipated rate change. These discussions, in turn, ensured that the rate specified in the Lufthansa mechanism would be adopted in a coordinated way. Therefore, the Lufthansa mechanism did not dictate the airlines' actions on fuel surcharge rates, but it did facilitate their coordination by providing an anchor for their expectations about the timing and the amount of rate adjustment to be implemented.[49]

One interesting detail about the Lufthansa Index and its predecessor - the IATA fuel price index - is that it was tied to the spot prices of aviation fuel. But the spot prices were not necessarily the prices at which the airlines purchased their fuel. Since most airlines had long-

[48] My belief is based on the observation that the choice of the initial fuel surcharge rate in IATA's Resolution 116ss was not founded on any serious analysis of the actual cost impact of higher fuel prices, and that the implementation of this rate and the subsequent rate adjustments were tied to the value of the Lufthansa Index (or similar indices) which, as I will explain below, did not reflect the actual unit cost of fuel incurred by the airlines.

[49] For example, the index value had exceeded 135 for two weeks by September 5, 2002 (Federal Court of Australia 2014, para 631). Since this was the trigger point for the fuel surcharge rate to be raised to €/$0.10/kg, it promoted discussions among the airlines about the timing of a rate increase. As detailed in European Commission (2017b, paras 245-257), these discussions facilitated the implementation of the higher surcharge rate by the airlines in late September and early October 2002.

term fuel contracts and employed hedging to manage their fuel costs,[50] the value of the Lufthansa Index did not typically reflect the actual unit cost of fuel incurred by the airlines. Consequently, the fuel surcharge revenues generated by this mechanism need not have born a close relationship to the airlines' actual costs of fuel.

4) Complex web of contacts

While illicit communication among competitors is a typical component of cartel operations, the international air cargo cartel is notable in the complexity of its network of contacts. These contacts involved airline executives at different corporate levels and in different parts of the world.[51] While, in some instances, coordination was centralized through a multilateral forum,[52] for the most part it was done through bilateral contacts, with executives of different airlines regularly contacting each other to discuss their intentions and plans, share information, and urge compliance with an agreed course of action.[53] With more than 20 airlines participating, this complex web of bilateral contacts supported decentralized coordination.

On the surface, this complexity may appear inefficient for a cartel. But it worked for this cartel because of the particular characteristic of the international air cargo business that cooperations among airlines are needed as part of their normal operations. This need exists because no airline has a large enough network to reach all major cargo destinations in the world.[54] To expand their network coverage and improve their schedule, it is common for airlines to enter into interlining agreements with each other.[55] The interlining agreements and other cooperations among the airlines created an environment where airline executives communicated regularly with each other about operational issues. It is perhaps not surprising then that the same channels of communications were used by the airlines to coordinate their actions on surcharges.

[50] Wilke and Michaels (2006).
[51] European Commission (2017b, para 107).
[52] For example, the Cargo Sub-Committee of BAR in Hong Kong organized meetings to coordinate their members' actions on surcharges (Federal Court of Australia 2014, paras 508-509).
[53] European Commission (2017b, paras 109 and 706).
[54] European Commission (2017b, para 16).
[55] Interlining occurs when the freight of one airline is carried using the capacity of a different airline (Federal Court of Australia 2014, para 84).

The difference, of course, is that coordination on prices among competitors is illegal, a fact to which some participants in the air cargo cartel seemed to pay little attention.[56]

5. Anticompetitive Effects of the Cartel

The arguably most interesting feature of this cartel is that the airlines colluded on only one component of the full price for cargo services. Through the lens of the standard theory of collusion, it is not obvious that such collusion could have any significant impact on the full price (freight rate plus surcharges) because supracompetitive surcharges could simply be offset by a lower freight rate as the airlines compete for a customer's business. In this section, I address this issue by discussing theories about the possible anti-competitive effects of collusion on surcharge.

Before I present these theories, I would note that in many countries it is not necessary for the competition authorities to show actual anti-competitive effects in order to convict a cartel. In the United States, for example, agreements among competitors to fix any prices are *per se* illegal.[57] In the European Union, there is no need to consider the actual effects of a cartel agreement when the object of the agreement is proven to be anti-competitive.[58] Consequently, in their legal proceedings against the international air cargo cartel, there was very little analysis on the actual or likely anti-competitive effects of the collusion. Indeed, in its decisions on this case, the European Commission stated that it made no assessment of the cartel's anti-competitive effects.[59]

A number of academics, however, have proposed theories that help shed some light on the likely effects of this cartel. Of particular relevance are two theories developed by Chen (2017, 2022).[60] Relevant to the air cargo cartel, these theories explain how it can be profitable for

[56] Keith Packer, one of the executives who served jail time for their roles in the international air cargo cartel, attended competition law training in October 2004, in the midst of the cartel (Larson 2010). But the training had no apparent impact on him as he continued to participate in price-fixing activities afterwards. In an article after his release from jail, Packer observed, "competition law training was typically delivered to large commercial audiences by inhouse or external legal teams via PowerPoint presentations of the law itself with some actual case studies to try to make it more relevant. Compliance can be a very dry, boring subject for commercial executives who view the training as very much a 'tick the box' exercise and easily let their minds drift to their many other priorities during the presentations" (Packer 2011).
[57] Federal Trade Commission and U.S. Department of Justice (2010).
[58] European Commission (2017b, para 917)
[59] European Commission (2017b, para 917).
[60] Other theories demonstrating that collusion on surcharges has anti-competitive effects include Garrod (2006) and Ross and Shadarevian (2021). These theories however do not offer an explanation for why firms would collude on surcharges but not on base prices. Instead, they assume that firms collude on base prices. Therefore, these theories

firms to collude on surcharges while competing on base price, and showing effect on final prices that their customers pay.

While there are some differences in the two models analyzed in Chen (2017, 2022), they share a common element by taking account of a firms' internal pricing hierarchy. In both models, the full price of a product consists of two components: a base price and a surcharge. Consistent with the practices in the air cargo industry, it is assumed the surcharge is decided by a firms' head office, while the base price is set at a firm's local office. By itself, this division of pricing authority within the firm does not necessarily imply a higher full price. If the head office and the local office are incentivized to maximize the same objective (such as profit), both will want to achieve the same full price that maximizes it. In such a situation, the local office would respond to a higher surcharge by reducing the base price by an equal amount, leaving the full price unchanged. By that argument, collusion on surcharges without coordination on base prices would have no effect on equilibrium full prices.

This is where another feature in these models becomes important: the local office is incentivized to maximize a different objective than that of the head office. Specifically, the head office has the standard objective of maximizing the firm's profit, but the local office is incentivized to maximize the (net) revenue generated by the price component it controls which is the base price. This feature is consistent with the practice in the air cargo industry that the performance of local sales offices is usually evaluated based on the freight revenues they generate but not on the surcharge revenues.

Chen (2017, 2022) demonstrates that with such an incentive contract for the local office, a larger surcharge will lead to a higher full price. The contract weakens the local office's incentive to reduce the base price in response to a larger surcharge because its performance measure is tied to only the revenue generated by the base price. Consequently, even though the base price may still fall in response to a rise in surcharge, the decrease in base price does not

do not explain how it can be profitable for firms to collude on surcharges while competing on base prices, which is an important characteristic of the international air cargo cartel.

completely offset the increase in surcharge.[61] This property enables the head office of a firm to influence the full price *via* the surcharge it sets.

However, when firms compete with each other, each firm faces the usual incentive to undercut its rival. While the incentive contract restrains a local office's temptation to reduce the base price, the head office of each firm still has the incentive to cut its surcharge to attract customers from its rivals. By colluding on surcharges, on the other hand, the firms eliminate the competition on surcharges among the head offices, thus raising the full prices *via* supracompetitive surcharges.

The models in Chen (2017, 2022) differ in the exact mechanisms used by firms to set base prices. In Chen (2017), a local office negotiates a base price with each buyer individually, while in Chen (2022), a local office sets a uniform base price that all buyers take as given. This difference in pricing mechanism has a quantitative impact on the level of full prices achieved by collusion on surcharges. In the case where the base price is determined through bilateral bargaining, collusion on only surcharges leads to higher full prices than if firms collude on full prices. In the case where each local office sets a uniform base price, collusion on only surcharges achieves the same level of full prices as collusion on full prices. Therefore, collusion on only surcharges is as harmful to buyers as collusion on full prices when the base price is uniform (Chen, 2022), and it is actually more harmful than collusion on full prices when the base price is negotiated (Chen, 2017).

Note that the way base prices are set in Chen (2017) is consistent with the practice in the air cargo industry that freight rates are often negotiated between airlines' local sales offices and their customers. This suggests that surcharge-fixing by the international air cargo cartel was likely more harmful than if the airlines had colluded on freight rates without imposing the

[61] To understand the intuition behind this result, consider the familiar trade-off a firm faces when raising the (full) price of a product. On the one hand, a higher price enables a firm to earn a larger profit margin on each unit sold. On the other hand, a higher price reduces the units sold and the firm forgoes the profit it could have earned on the lost units. The firm's profit-maximizing price is the one that balances these two effects. Note that this price does not depend on whether or how the price is divided between a surcharge and a base price. For this reason, if the local office is incentivized to maximize profit, it will want to keep the full price at the profit-maximizing level, and it can achieve this by reducing the base price to exactly offset an increase in surcharge. However, if the local office's performance is tied to only the revenue generated by the base price, it will no longer be concerned about the reduction in surcharge revenue caused by the lost sales due to a higher full price. Consequently, it will not lower the base price to the point of completely offsetting the increase in surcharge. Thus, with such an incentive contract a higher surcharge leads to a higher full price.

surcharges. It is worth noting that the amount of restitution awarded by courts to customers indicates that the magnitude of anticompetitive harm was substantial. For example, direct purchasers of international air cargo services in the US obtained $1.2 billion in settlements with more than 30 airlines. These settlements represented from 2% to more than 10% of these airlines' sales to and from the US during the relevant period.[62]

6. Conclusion

Several features of the international air cargo conspiracy make it an interesting case study of cartels. They include the choice of a simple variable to collude on, the use of a price index as a facilitating device, and the reliance on a complex web of contacts by which cartel members communicated and coordinated. Most interesting of all is that the airlines colluded on only one price component - surcharges – and not on other components – specifically, freight rates. Such a collusive practice seems poorly designed because, as airlines compete for customers, supracompetitive surcharges could have been offset by lower freight rates. However, a careful analysis of this cartel suggests otherwise. Given the airlines' actual practices for the setting of surcharges and freight rates, colluding on surcharges without coordinating on base prices could be an effective way of raising the full price. Essentially, the local offices did not have the authority, nor incentives to fully off-set the surcharges with lower base prices. In fact, the simplicity of coordinating on a fuel surcharge and the use of a fuel price index showed ingenuity in the collusive scheme implemented by the international air cargo cartel.

[62] Hausfeld (2016).

References

Bergman, Howard and D. Daniel Sokol (2015) "The Air Cargo Cartel: Lessons for Compliance," in Caron Beaton-Wells and Christopher Tran (eds.), *Anti-Cartel Enforcement in a Contemporary Age: Leniency Religion*, London, Bloomsbury Publishing

Chen, Zhiqi (2017) "Colluding on Surcharges," unpublished manuscript, Carleton University

Chen, Zhiqi (2022) "A Theory of Partitioned Pricing," Carleton Economics Working Papers, 22-02.

Court of Justice of the European Union (2022) "Cartel on the Airfreight Market: The General Court Rules on Actions Brought by Multiple Airlines," Press Release No 53/22, Luxembourg, March 30, 2022

European Commission (2010) "Commission Decision of 9.11.2010 Relating to a Proceeding under Article 101 of the Treaty on the Functioning of the European Union, Article 53 of the EEA Agreement and Article 8 of the Agreement between the European Community and the Swiss Confederation on Air Transport, Case COMP/39258 – Airfreight," Brussels, November 9, 2010

European Commission (2017a) "Antitrust: Commission Re-adopts Decision and Fines Air Cargo Carriers €776 Million for Price-Fixing Cartel," European Commission Press release, Brussels, March 17, 2017

European Commission (2017b) "Commission Decision of 17.3.2017 Relating to a Proceeding under Article 101 of the Treaty on the Functioning of the European Union, Article 53 of the EEA Agreement and Article 8 of the Agreement between the European Community and the Swiss Confederation on Air Transport, AT.39258 – Airfreight," Brussels, March 17, 2017

Federal Court of Australia (2014) Australian Competition and Consumer Commission v Air New Zealand Limited [2014] FCA 1157, October 31, 2014

Federal Trade Commission and US Department of Justice (2010) *Antitrust Guidelines for Collaborations Among Competitors*, April 2000

Garrod, Luke (2006) "Surcharging as a Facilitating Practice," Centre for Competition Policy Working Paper 06-17, University of East Anglia

Hausfeld (2016) "Hausfeld Announces Final Settlement in Decade-Long Air Cargo Price Fixing Litigation," Globe Newswire, May 19, 2016

Larson, Erik (2010) "Ex-BA Executive Shares Prison Tales to Sway Violators," Bloomberg, Oct 22, 2010

Packer, Keith (2011) "A Cautionary Tale: How a Competition Law Breach Led to a Jail Term for One BA Exec," Legalweek.com, September 22, 2011

Ross, Thomas W. and Vartan Shadarevian (2021) "Partitioned Pricing and Collusion," unpublished manuscript, University of British Columbia

Turner, Douglas C. (2022) "The Impact of Cartel Dissolution on Prices: Evidence from the Air Cargo Cartel," unpublished manuscript, available at SSRN: https://ssrn.com/abstract=4114672

U.S. Department of Justice (2008a) "Former Qantas Airline Executive Agrees to Plead Guilty to Participating in Price-Fixing Conspiracy on Air Cargo Shipments," United States Department of Justice news release, May 8, 2008

U.S. Department of Justice (2008b) "Major International Airlines Agree to Plead Guilty and Pay Criminal Fines Totaling More Than $500 Million for Fixing Prices on Air Cargo Rates," United States Department of Justice news release, June 26, 2008

U.S. Department of Justice (2008c) "Former British Airways Executive Agrees to Plead Guilty to Participating in Price-Fixing Conspiracy on Air Cargo Shipments," United States Department of Justice news release, September 30, 2008

U.S. Department of Justice (2020) "Extradited Former Air Cargo Executive Pleads Guilty for Participating in a Worldwide Price-Fixing Conspiracy," United States Department of Justice news release, January 23, 2020

U.S. District Court (2008) Plea Agreement, *United States of America v. Timothy Pfeil*, 08-cr-227-JDB, United States District Court for the District of Columbia, August 29, 2008

U.S. District Court (2014) *In re Air Cargo Shipping Services Antitrust Litigation*, 06-MD-1175 (JG)(VVP), United States District Court Eastern District of New York, October 15, 2014

Wilke, John R. and Daniel Michaels (2006) "Lufthansa to Co-Operate in Air-Cargo Investigation," *The Globe and Mail*, March 8, 2006, B.13