

An Analysis of the Airbus-Boeing Dispute From the Perspective of the WTO Process

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ABSTRACT

The longstanding trade dispute between Boeing (US) and Airbus (EU) over government subsidies has increased in intensity over the past few years, with both parties filing complaints at the World Trade Organization (WTO) in May 2005. The aim of this paper is to analyze this dispute and its implications by reviewing the general characteristics of the large civil aircraft (LCA) industry and the particular legal roots of this dispute. The paper focuses on recent developments in terms of the WTO process. The main argument of this paper is that the WTO process is unlikely to produce a feasible and effective solution to the dispute. This is due to the characteristics of the LCA industry, complicated relations between the main producers and their governments, the historical roots of the dispute and the legacy of international arrangements on subsidies for the industry, and most importantly, the current structure of the WTO system.

Key Words: Trade policy, aircraft industry, subsidies, WTO.

1. INTRODUCTION

One of the key trade disputes between the United States (US) and European Union (EU) arises from the rivalry between Boeing and Airbus in the highly competitive large civil aircraft (LCA) industry. After intensifying in the late 1970s and early 1990s, the dispute over government subsidies paid to their respective commercial airplane companies has again escalated since 2004. This time, however, the stakes are much higher since both the US and EU filed complaints at the World Trade Organization (WTO) Dispute Settlement Body (DSB). On 30 May 2005, the Office of the US Trade Representative (USTR) requested the establishment of a panel of the WTO DSB to move forward with a trade dispute case against the EU. The EU responded on 31 May 2005 by filing its own case against the US. This is a complicated case, and both sides have very long-held claims and arguments as to why the other side has been breaking WTO rules.

The Airbus-Boeing conflict has followed a familiar path of trade disagreements between the EU and US, with each side symmetrically accusing its opponent of breaking the rules. There are three reasons for the significance of the current state of the dispute. First, the LCA industry is of critical importance to both parties in terms of its impact on technological development, trade balances, economic growth, well-paid employment, national prestige and national defense. Second, the dispute is a test of whether WTO mechanisms/rules can successfully manage a broad conflict between two

great trade powers concerning an industry that both parties consider to be strategic. Third, more importantly, from a long-term perspective, the dispute indicates “a fundamental tendency in global trade negotiations and world politics for economic globalization to reach its limits in the harsh realities of multi-polar power politics” (Weinstein, 2005).

The aim of this paper is to analyze the current trade dispute between Boeing and Airbus regarding government subsidies and its implications by reviewing the characteristics of the LCA industry and the legal roots of issue from a historical perspective. The paper focuses in particular on the role of the WTO process in recent developments in the dispute. The main argument of the paper is that the WTO process is unlikely to produce a feasible and effective solution to the dispute. This is due to the characteristics of the LCA industry, complicated relations between the main producers and their governments, the historical roots of the dispute including the legacy of international arrangements on subsidies for the industry and, most importantly, the current structure of the WTO system. The paper is organized as follows. Section 2 provides some background to the industry, addressing the economic roots of the dispute. Section 3 discusses the dispute’s history, focusing on its international legal basis. Section 4 analyzes the WTO process in relation to the provisions of multilateral agreements. Finally, after exploring the complexities of the issue in terms of domestic and international politics and economics, I consider the main predictions of how this dispute may play out, before arguing why

the WTO mechanism cannot produce an effective solution to the dispute.

2. INDUSTRY BACKGROUND

2.1. Civil Aircraft Industry Scope

The civil aircraft industry includes the production of large, medium, and small-sized civil aircraft, helicopters and aero-engines, as well as parts and components. It is mainly concentrated in the EU and US, with Canada, Japan, Brazil, Australia, South Korea and, more recently, China being the other players. The LCA industry (airplanes with more than 100 seats) represents more than 50% of the total turnover of the world civil aircraft industry (1), and is dominated by two manufacturers: Boeing (US) and Airbus (EU) (2). Therefore, the trade conflict between Boeing and Airbus exemplifies a struggle between firms competing in a duopolistic market structure, making the market success of each firm highly dependent on the price and output decisions of its sole competitor.

While aircraft manufacturing previously had a nationalistic character, being tied heavily to domestic military and strategic interests through defense contracts, in recent decades it has become increasingly globalized. Both Boeing and Airbus have built long supply chains in which they share many suppliers. For example, about half of a new Airbus is actually built in the US (3). This process has been called the 'systems integration' mode of production (MacPherson and Pritchard, 2004). In this mode, risk and costs are spread over a network of domestic and foreign partners. Thus, while the final product is assembled inside the US (or EU), major parts of the airframe are subcontracted out to foreign suppliers.

2.2. Unique Characteristics of the LCA Industry

The LCA industry is distinguished by five important features, which help explain why government influence is particularly pronounced in this industry (Heymann, 2007). These factors are also key to understanding the current dispute over subsidies.

Firstly, the industry has extremely high barriers to market entry, making it impossible for newcomers to compete successfully. The main reasons for this are the considerable economies of scale and scope in aircraft manufacturing and the huge capital requirements. The complexity of the final product is another market entry barrier because it requires huge research and development (R&D) spending, as well as modern engineering expertise. The colossal financing requirements also constitute a market exit barrier since, in the event of commercial failure leading to market exit, it would be very difficult to use the investments made (sunk costs) for alter-

native purposes (4). Thus, the origins of the long-running Boeing-Airbus dispute mainly lie in the economics of the development and manufacture of LCA.

Secondly, the LCA industry has long investment cycles. A very large number of aircraft need to be sold over many years to recover the colossal R&D and production costs. This results in 'high cluster risk' because the uncertainty surrounding the success or failure of developing new aircraft, combined with the large amounts of capital tied up, means that the existence of the entire company can be jeopardised by a single misstep (5).

Thirdly, although air transport as a whole is clearly a growth industry, aircraft orders follow pronounced cyclical patterns, including an extended period between order placement, manufacturing and delivery. These cycles are also at risk from external shocks, such as the Gulf War of the early 1990s and the 9/11 terrorist attacks that led to large-scale order cancellations.

Fourthly, the LCA global market has a duopolistic structure. However, despite the asymmetric distribution of power between the two main suppliers and their many customers, the granting of discounts on list prices by the aircraft makers is a standard sales promotion tool and a sign of stiff competition (a classical textbook case, such as Krugman and Obstfeld, 2006, chapter 11). This intense competition between Boeing and Airbus is also reflected in continuous improvements in the quality of aircraft, such as greater comfort, reduced fuel consumption and lower levels of pollutant emissions and noise.

Finally, the national security argument for nurturing and protecting aerospace companies has a long tradition in both regions. The LCA industry is characterized by close ties between its military and civil segments. This combination between military and civil aviation means that each company is of major strategic importance to its respective national government. Development contracts for the military side of the business can benefit civil operations, and military contracts also contribute to the aircraft makers' commercial success because they produce higher yields and are less cyclical.

2.3. (Dis)Similarities Between Airbus and Boeing

As already mentioned, the LCA industry is dominated by two manufacturers, Airbus (EU) and Boeing (US). A third major manufacturer, MacDonnell Douglas (US), was acquired by Boeing in 1997. Airbus's market share has steadily increased since the early 70s, reaching about 30% of the world market in the early 90s, and nearly 50% of all new LCA orders by the end of the 1990s. However, Boeing remains the market leader, with more than 60% of all LCAs in service today. As of September 2009, there were over 12,100 Boeing LCAs,

and over 5,600 Airbus LCAs in service (Airbus, 2009; Boeing, 2009).

At first glance, Boeing and Airbus are very similar companies. Although Boeing's 2008 revenues (\$60.9 billion) and payroll (around 159,000 employees) were larger than those of the European Aeronautic Defense and Space Company (EADS - Airbus parent's company), with revenues of EUR 43.3 billion and 118,000 employees, this was partly due to the greater significance of Boeing's military arm. Regarding LCAs, Airbus has been steadily gaining in strength. In 2008, Boeing's civil aircraft revenues were \$28 billion compared to Airbus's total of EUR 27.5 billion, and Airbus narrowly outperformed Boeing in terms of unit orders and deliveries in 2005 (for over 1,000 planes each) before taking a lead in 2007-2008 (Heymann, 2007). While Boeing's net order book fell from 1,389 in 2007 to 632 in 2008, Airbus's only decreased from 1,458 in 2007 to 900 in 2008. While Airbus increased LCA deliveries from 453 in 2007 to 483 in 2008, Boeing's deliveries fell from 441 in 2007 to 375 in 2008 (Airbus, 2009; Boeing, 2009) (6).

The product ranges of the two firms in the civil segment are very similar. Nearly every model available from one manufacturer has a direct rival made by the other. Many new jet projects are also responses to the competitor's products (currently Boeing's 787 versus Airbus's A350). Although the world's major airlines are customers of both aircraft makers, Boeing is traditionally preferred by US and Japanese airlines, while Airbus fares better in Europe, Western Asia and the Middle East.

Regarding the origins of the two companies, there are significant differences. William Boeing created his own company in 1916 at the beginning of the aviation age (for a detailed history of Boeing, see (Boeing, 2009)). From the beginning, Boeing was favored with federal contracts, mainly military ones. Since civil aviation was in its infancy in the first decades of the company's history, it was the major orders of military planes before and during World War II that essentially secured the company's commercial success. Entry into the jet-engine era was also smoothed by the linkage between the civil and military arms of Boeing. For example, the first commercially successful jet airplane, the 707 (first flight in 1957), was developed for both purposes. Above all, the 737 (first delivery in 1967) developed into a "blockbuster", and remains to this day the world's best-selling jet. While the development of the 747 (jumbo jet - first flight in 1969) presented Boeing with considerable financial and technical problems, it later developed into a high-margin product as it faced no competitors in its size class for decades (Heymann, 2007). Another milestone in Boeing's history was the acquisition of its competitor McDonnell Douglas in 1997 that created the present duopoly. It should be emphasized again that thro-

ughout its history, Boeing has derived considerable financial and technological benefits from orders placed by the Pentagon and NASA.

On the other side of Atlantic, the Airbus consortium was a political project from the beginning. It was launched in 1969 with generous public assistance from Germany, France, Spain, and the United Kingdom (UK). The objectives were to reduce Europe's dependence on the US manufactured LCAs, and to bolster the fragmented European aircraft industry. Public assistance was justified, so the Europeans argued, because Boeing had been nourished for decades by state funded military contracts that had fostered Boeing's civil aircraft production, as outlined above. The first Airbus model, the A300 (first delivery in 1974), focused on low fuel consumption and low noise levels as these had become particularly important factors for European airlines when deciding which planes to order. Airbus achieved its commercial breakthrough with the A320 family (first delivery in 1988), which helped it win more orders than its US rival for the first time in 2003 (Heymann, 2007; Airbus, 2009). In 2001, EADS and BAE Systems of the UK transferred all their Airbus-related assets into the newly incorporated company and became 80 percent and 20 percent owners of the company respectively, with the operating results of Airbus being fully consolidated in EADS balance sheets. Although there is a link between the military and civil arms at EADS/Airbus, the military wing of EADS is less significant than that of Boeing. As we shall see, this outline of the two firms helps to understand the two sides' differing views about the trade dispute.

3. THE LEGAL AND HISTORICAL ROOTS OF THE DISPUTE

Public support and subsidies are the most contentious issues in the LCA industry. Historically, there have been four main international legal arrangements to regulate LCA industry subsidies: (i) the 1978 OECD Consensus on Export Credits (specifically, the LCA Understanding), (ii) the 1979 GATT Agreement on Civil Aircraft, (iii) the 1992 EU-US Bilateral Agreement on Trade in LCAs, (iv) the 1994 WTO Agreement on Subsidies and Countervailing Measures (SCM). Currently, the LCA industry is mainly subject to the 1994 SCM Agreement, although more specific multilateral rules exist regarding forms of government support. This section chronologically summarizes these and other international arrangements to clarify the legal and historical roots of the dispute.

Until the late 1970s, the US enjoyed almost a de facto monopoly in the LCA industry, and Airbus only started competing effectively in the 1980s. From the beginning of the Airbus project, the US was concerned about European competition and the alleged subsidies paid by European govern-

ments towards the development of early Airbus models. This became a major legal issue, with the European side being equally concerned by subsidies accruing to US LCA manufacturers through NASA and defense programs.

3.1. The First Round of the Legal Battle

The legal battle began in 1975, while US aircraft manufacturers were still dominant. The first round concluded with the 1978 OECD Consensus on Export Credits (specifically, the LCA Industry Understanding) and the 1979 GATT Agreement on Civil Aircraft as part of the Tokyo Round. The OECD consensus set minimum terms for officially supported export credit. The GATT agreement eliminated aircraft tariffs, but made no attempt to abolish other public support; instead it simply preserved the rights of parties to invoke the GATT Code on Subsidies and Countervailing Measures (Hufbauer, 2007).

Currently, the 1979 GATT Agreement on Trade in Civil Aircraft (7) is one of two plurilateral agreements signed by 30 WTO members, including all major aircraft manufacturing countries except Brazil. It eliminates import duties on all non-military aircraft, as well as on all other products covered by the agreement (civil aircraft engines and their parts and components, all components and sub-assemblies of civil aircraft, and flight simulators and their parts and components) (WTO, 2009a). Later, Uruguay Round negotiations (1986-1994) also included aircraft. However, at the end of the negotiations, the US blocked the adoption of a new Civil Aircraft Agreement, although it was supported by all other negotiating parties. Thus, the 1979 Aircraft Agreement had been devised to operate in a GATT context. However, the introduction of the new WTO system in 1995 put some provisions of the 1979 agreement in doubt. For this reason, a process of technical rectification of the Aircraft Agreement is now under way to bring it into conformity with the WTO regime, although unfortunately it is not part of the WTO Doha Agenda.

3.2. The Second Round of the Legal Battle

The second round reflected mutual frustration over the extent of government support extended to the other side. Despite gaining rights to challenge this support under the 1979 Agreement, both Airbus and Boeing avoided using trade remedies for fear of disrupting commercial relations with their own customers and suppliers on both sides of the Atlantic (Hufbauer, 2007). Instead, the EU and the US started bilateral negotiations in the late 1980s to limit government subsidies to the LCA industry. Negotiations were concluded in 1992 with the signature of the EC-US Agreement on Trade

in LCAs (8) which focused on limiting both direct and indirect government support, rather than initiating countervailing duty or antidumping cases against the other country's practices.

On the one hand, this bilateral agreement puts a ceiling of 33% of the total development costs on the permissible level of direct government support for new aircraft programmes (Article 4). It establishes that such support, granted in the form of repayable royalty-based loans, should be repaid at an interest rate no less than the government cost of borrowing and within no more than 17 years. Basically, this restriction applies to the form of government support in use in Europe. On the other hand, the agreement establishes that indirect support (i.e. benefits provided for aeronautical applications of NASA or military programs) should be limited to 3% of the nation's LCA industry turnover (Article 5). This restriction primarily targets the support system in use in the US (MacPherson and Pritchard, 2004).

In order to verify compliance with the above restrictions, the agreement establishes that the parties must exchange transparency information about their respective support systems on a yearly basis. These bilateral consultations are also an occasion to discuss questions concerning the implementation of the agreement and any other issue of relevance to the LCA industry (Article 8). It should be noted that this exchange of transparency information highlighted an important divergence between the US and EU in the way they interpreted the indirect support discipline. In particular, the EU considered that US notification of indirect support to its LCA industry fell short of revealing the actual benefits derived from NASA programmes and military spin-offs (Hufbauer, 2007).

3.3. The Third Round of Legal Battle

Since the 1992 Agreement, Airbus has steadily increased its market share. While the majority (68%) of large commercial airliners currently in service worldwide were produced by Boeing, the share of new orders going to Airbus has risen significantly from just 30% in 1992. In particular, a rapid growth in orders after 2000 saw Airbus delivering more new aircraft than Boeing for the first time in 2003 (US-DOC, 2007). This growth in Airbus's share of the global aircraft market has Boeing and US policy makers to question the continued viability of previous compromises, notably regarding the major support European governments provided to the new Airbus A-380 and A-350 before the 2004 US Presidential election, including 'launch aid'.

Trade representatives from the EU and the US engaged in negotiations in the fall of 2004 in an attempt to modify the 1992 Agreement. However, those negotiations failed, and in

October 2004 the US withdrew from the 1992 Agreement (9), filing a complaint with the WTO alleging that European governments had violated the multilateral rules by providing illegal/actionable subsidies to Airbus. The EU responded quickly by filing its own complaint, charging that Boeing had received massive subsidies in violation of SCM and GATT 1994 provisions. Thus, in the third round of the legal battle, both sides went to the WTO with a view to seeking relief under the WTO SCM Agreement and Understanding on Rules and Procedures Governing the Settlement of Disputes (DSU).

Currently, WTO consultations have evolved into two dispute settlement panels, one for EU complaints about US federal and state subsidies to Boeing, specifically NASA contracts and Washington state tax breaks, and the other panel for US complaints against EU member state subsidies to Airbus, mainly concerning launch aid. Panel members were named in 2006 and opening complaints filed in 2007. In September 2009 there was media speculation that the confidential interim report of the US WTO challenge to EU support for Airbus would be released (10), although the full findings and details were not expected to be made available for several months. This report also needs to be read together with the interim report on the EU case against the US over aid to Boeing, as it only gives one side of the story (ICTSD, 2009).

Although the final panel decisions will be delivered until mid-2010, both decisions will almost certainly be appealed, and the WTO Appellate Body is unlikely to rule before 2012. To conduct this colossal litigation, each side has prepared documents running to thousands of pages. For instance, the EU complaint alone, filed in March 2007, consists of 91 volumes (Hufbauer, 2007).

It is clear that the legal conflict between the US and Europe over aircraft manufacturing subsidies has its roots in the major shift in the balance of competitive power in the industry. As outlined above, Boeing has been losing ground to Airbus for the past three decades, with the tipping point coming in 2003 when Airbus for the first time sold more planes than Boeing. Boeing's loss of competitive advantage and market share triggered lobbying efforts by the company to have US decision makers resort to the WTO. At the same time, Pavcnik (2002) has showed through an analysis based on 1969-1998 data that, while competition in the LCA industry has been increasing over time (Lerner index), a high market concentration has not declined (Herfindahl index). This suggests that Airbus's presence has strengthened competition and challenged US market dominance in the LCA market, which is consistent with of Boeing's and US policy makers' current response to Airbus.

4. ANALYZING THE WTO PROCESS

4.1. The WTO Agreement on Subsidies and Countervailing Measures (SCM)

The WTO SCM Agreement entered into force in 1995 as one of the Annex 1A Agreements of the WTO. It addresses multilateral restrictions regulating the provision of subsidies, and the use of countervailing measures to offset injury caused by subsidized imports (11). The agreement applies in full to subsidies for LCA industry. However, WTO members have also agreed that, if they believe other members are violating trade rules, including provisions of the SCM Agreement, then they will use the multilateral system of dispute settlement instead of taking unilateral action. In this regard, the Uruguay Round introduced a more structured process with clearly defined stages, specific procedures and timetables for resolving disputes (DSB Mechanism) (12).

The WTO SCM Agreement defines the term 'subsidy'. The definition contains three basic elements: (i) a financial contribution by a government or any public body within the territory of a member state, (ii) which confers a benefit, (iii) to a specific recipient or recipients. All three elements must be presented for a subsidy to be deemed to exist (for a detailed review of the legal issues surrounding the subsidy debate, Mavroidis, 2007:195-210; WTO, 2009a). For a time, some subsidies were permitted under WTO subsidy rules (for instance, certain types of R&D support), although other types of subsidies clearly violate WTO regulations, such as infrastructure and production subsidies. However, the former category of 'non-actionable' subsidies has expired, according to Article 31 of the SCM Agreement (Mavroidis, 2007).

Regarding the latter category, the current SCM Agreement creates two basic sub-categories of this group of subsidies: those that are prohibited (export subsidies, import substitution/local content oriented subsidies), and those that are actionable (i.e. subject to challenge in the WTO). All specific subsidies fall into one of these categories. Most subsidies in the Boeing-Airbus dispute fall into the "actionable" category. For instance, Pritchard and MacPherson (2004) identified 5 actionable and 1 prohibited WTO violations in US subsidies concerning the launch of the new Boeing 787.

4.2. Claims and Arguments in the US and EU's WTO Complaints

The US withdrew from the 1992 EC-US Agreement on 6 October 2004. The same day, the EU requested consultations with the US pursuant to Articles 4, 7 and 30 of the SCM Agreement, Article XXIII of the GATT 1994 and Article 4 of the DSU regarding subsidies granted to Boeing. On 12 October 2004, in case WT/DS316, the US requested formal WTO consultations with the EU regarding alleged subsidization of Airbus by the EU and certain member states. In an immediate

reaction, the EU decided to mirror US actions by initiating WTO dispute settlement procedures regarding a number of US measures, including federal and state subsidies in case WT/DS317. Both parties then submitted secondary complaints on the same issue: case WT/DS347 by the US, case WT/DS353 by the EU in January and July 2006 respectively (WTO, 2009b). Australia, Brazil, Canada, China, Japan and South Korea reserved their third-party rights in both cases.

Consultations, the first important step in the WTO process, started in Geneva on 5 November 2004. On 12 January 2005, the EU and the US agreed to suspend WTO action for 3 months pending negotiations to reach a new bilateral agreement on LCA subsidies. However, these negotiations stalled and finally collapsed in March 2005, with the US accusing the EU of failing to negotiate in good faith and of retreating from a preliminary agreement. The EU responded that Boeing's pressure on Washington had made the latter inflexible and unprepared to entertain a compromise in which launch aid would be scaled back. Following this failure to reach an agreement, on 31 May 2005 the US requested the establishment of a WTO panel; the EU submitted a similar request the same day (for full non-confidential texts of submissions: (USTR, 2009; EC, 2009a)).

The US cases (DS316 and DS347) alleged that measures taken by the European Commission (EC) and certain member states (France, Germany, Spain, and UK) were in reality subsidies that were inconsistent with their obligations under the SCM Agreement (Articles 3, 5 and 6) and GATT 1994 (Articles III:4 and XVI:1). The measures include the following: "the provision of financing for design and development to Airbus companies ("launch aid"); the provision of grants and government provided goods and services to develop, expand, and upgrade Airbus manufacturing sites for the development and production of the Airbus A380; the provision of loans on preferential terms; the assumption and forgiveness of debt resulting from launch and other LCA production and development financing; the provision of equity infusions and grants; the provision of research and development loans and grants in support of LCA development directly for the benefit of Airbus; and other measures involving a financial contribution to Airbus companies."

The subsidies in question included those relating to the entire family of Airbus products (A300 through the A380). The US emphasized that, with more than \$6 billion of support, the Airbus A380 is the most heavily subsidized aircraft in history. It also claimed that some EU governments had also made legally binding commitments to provide launch aid for the new Airbus A350 aircraft, even though Airbus had not yet repaid any of the financing it received for the A380. The US alleged that these subsidies made Airbus aircraft projects commercially feasible, and linked them to significant

price undercutting, price depression and lost sales for Boeing. The US further noted that certain launch aid provided for the A340 and A380 appeared to represent illegal export subsidies in contravention of certain provisions of Article 3 of the SCM Agreement (WTO, 2009b; USTR, 2009). In short, according to the US submission, the subsidies to Airbus were either 'actionable' because they caused 'adverse effects', or 'prohibited' because they were export-contingent, or both.

For its part, the EU challenged various US state subsidies benefiting Boeing (cases DS317 and DS353). According to the ECs' submission, these measures included certain legislation, regulations, statutory instruments and amendments to provide prohibited and actionable subsidies, grants, and other assistance to US LCA producers, particularly Boeing, contrary to certain provisions of Articles 3.1(a) and (b), 3.2, 5(a) and (c), and 6.3(a), (b) and (c) of the SCM Agreement and Article III:4 of GATT 1994. The measures cited in the EC complaint included the following: specified state and local subsidies for the production of the Boeing 787; specified NASA research and development subsidies; specified Department of Defense research and development subsidies; specified National Institute of Standards and Technology subsidies; FSC/ETI subsidies; research and experimentation tax credits; NASA procurement contracts, and other subsidies. The EC noted that the cited US, state, and local statutes, regulations, and administrative procedures were inconsistent with the SCM and GATT 1994 provisions referred to above. The EC further noted that the use of these measures caused adverse effects (i.e. serious prejudice or a threat of serious prejudice) to the interests of the EC, and material injury or threat of material injury to the EC LCA industry in a manner that violated US obligations under provisions of Articles 5 and 6 of the SCM Agreement (WTO, 2009b; EC, 2009b). Illustrative examples included a \$4 billion package in the State of Washington combining tax breaks, tax exemptions or tax credits and infrastructure projects for Boeing's exclusive benefit, and a \$900 million package in the State of Kansas in the form of tax breaks and subsidized bonds. In addition to federal tax breaks, the EC challenged the US system under which a large number of patents and other technologies were put at Boeing's disposal free of charge, including the transfer of patents to Boeing resulting from US government funded research held by US federal agencies. The EU estimated the benefits of such federal research programs to Boeing at around \$16.6 billion over the preceding two decades (EC, 2009b).

5. ASSESSMENTS

In view of each party's comprehensive and complex list of accusations based on the 'right' claims and 'strong' arguments, it came as no surprise to read the EU trade commissioner Peter Mandelson's statement in May 2005 that the

dispute between the two rivals would be the biggest, most difficult and most expensive in the GATT/WTO's history. Since October 2004, protracted procedures concerning the composition of the panels, and use of sensitive information related to the security provisions in GATT 1994 and Annex V of SCM Agreement have demonstrated the complexity of the cases and difficulties in establishing proof. Both parties calculate that total subsidies running into tens of billions of dollars have been unjustifiably pumped into the aircraft industry of their rival. The US accuses Airbus of receiving subsidies worth \$17 billion in launch loans alone over the past 35 years. Boeing complained that Airbus has received a total of \$15 billion in subsidies since 1992, and \$40 billion in aid since its inception. The EU counters that Boeing has enjoyed R&D subsidies worth \$23 billion in the past 13 years (Economist, 2005).

Given this situation, it seems more likely that eventually the parties will reach a negotiated (bilateral) settlement rather than a broad solution through the WTO process. The reasons for this are the high cost of WTO litigation for the firms/parties, the complexity of the subsidy issue, deficiencies in the current structure of the WTO system, and developments in the international LCA market. More broadly, the characteristics of the LCA industry and its two predominant firms, together with the historical background of the dispute, as discussed in the previous sections, also strongly support this conclusion. I consider these factors in more detail in the following sections.

5.1. The High Cost of WTO Litigation to Firms

Both rivals must be aware that it is unlikely that there will be a clear winner in this dispute, given the huge amounts of 'actionable' subsidies both sides have received. Two Pyrrhic victories are more likely. A significant danger to both parties is the real possibility that the WTO would rule that both complaints are valid (Herzstein, 2006; Heymann, 2007; Hufbauer, 2007; Garten, 2005). The result would be that both Boeing and Airbus would face higher costs of production, since the advantages that each acquired as a result of the current compromises would disappear. It should also not be forgotten that the dispute diverts significant financial resources and ties up human resources that both companies would probably prefer to focus on future LCA projects.

5.2. The Legacy of WTO Litigation on Subsidies to the LCA Industry

It is questionable whether subsidies would really be reduced following a WTO ruling. History shows that governments do not usually comply with WTO decisions in cases involving

large economic stakes and strong national interests (Herzstein, 2006; Mavroidis, 2007). It has become common for countries losing a case in the WTO to restructure their offending laws superficially and claim compliance. This forces the complaining country to go back to the WTO for a ruling that the compliance is not adequate, and then for an additional ruling authorizing it to impose trade sanctions against the violator (DSU, Article XXI and XXII).

There are also various precedents in the history of civil aviation disputes that raise more doubts. The GATT/WTO disputes between Canada and Brazil (13) over subsidies to their respective manufacturers of regional aircraft, Bombardier and Embraer (crucial example in the WTO case-law), demonstrates that the litigation process must go hand in hand with negotiations. In the Canada-Brazil battle, which has so far gone through three rounds of panel proceedings, both sides won, both sides lost, and neither side fully complied with the panel rulings. Canada and Brazil never used the legal decisions as a platform to reach a negotiated settlement. As a consequence, little changed in the way subsidies were administered. It seems likely that a similar fate awaits the US-EU battle (Hufbauer, 2007). Both Airbus and Boeing will be found to benefit from subsidies, though surely not in equal amounts, but both the US and the EU will find it commercially and politically difficult to apply countermeasures. At the end of the day, since no country will cease the use of subsidies in civil aviation, the only satisfactory outcome may be a new compromise shaped by WTO decisions as to the legality of various subsidies.

In an attempt to contain the conflict, both parties have pledged to remain united in their determination that this dispute shall not affect transatlantic cooperation on wider bilateral and multilateral trade issues. It is far from clear, however, that the US and EU will be able to make good on their pledge, especially if a WTO panel disadvantages one of the sides severely (Heymann, 2007).

5.3. Ill-Equipped WTO System for Settling the Dispute

Most analysts consider this case to be too complex to be solved by the WTO. In other words, the WTO system is ill-suited to resolving it. There is also a great danger of harm being done to the WTO itself. Neither the US nor the EU can have any interest in that.

Firstly, the challenges posed by this case far exceed the limited capacity and fragile authority of the WTO DSB (Mavroidis, 2007). The WTO panels and Appellate Body will not be able to render a decision that completely commands respect and compliance from the losing party, or both losing parties. Instead, the dispute will probably continue for years, crea-

ting disorder and confusion in the marketplace, and very likely leaving everyone worse off (Herzstein, 2006).

Secondly, the facts are too complex for the WTO panels. Seeking information to support their charges, the US and EU governments have exchanged thousands of pages of detailed questions. The EU's questions probe the contracts Boeing had over the past three decades with NASA, the Department of Defense, and the National Institute of Science and Technology, and the benefits that may have carried over to Boeing's civil aircraft. As Herzstein (2006) states, seeking evidence of government tax incentives to Boeing, the EU seeks details on its tax payments to Snohomish County, to the City of Everett, to Washington state, to Kansas and to the Federal Government. The EU also submitted questions to Japan, where major Boeing aircraft components are produced, and to 49 countries that have imported Boeing aircraft. The US questions work through decades of ordinances, laws, and decrees in Germany, France, Spain, the UK and the EU that may have benefited Airbus through funding, facilities, research, technology transfer or contracts (Herzstein, 2006).

The three-person WTO panel deciding the dispute has a maximum of nine months to absorb the mountain of evidence it will receive. It must decide not only what governmental benefits Airbus and Boeing received but also whether and how much those benefits supported their LCA production, as distinguished from their other activities. It must then decide an entirely separate question: whether the benefits caused 'serious prejudice' to the commerce of the complaining country.

In this respect, in the WTO, hard numbers will be of critical importance. The WTO rules say that there must be some measurable injury to competitors before government assistance can be called a subsidy. However, the WTO's rules and case-law are not sophisticated enough to provide adequate and linear guidance for the panel (Mavroidis, 2007). For example, WTO rules provide no clear guidance on whether technology gained through work on government contracts and then put to commercial use amounts to a subsidy or whether it is the sort of future competitive benefit any company gets by learning from its past projects (Herzstein, 2006).

5.4. Developments in the International Aircraft Industry

In the current globalized world, Boeing and Airbus have ceased to be 'pure' national champions (Hufbauer, 2007). In fact, as mentioned earlier, the new international division of labor means that aircraft makers are purchasing an increasing share of components from suppliers based in their competitor's country. Thus, even in the case of victory, WTO proceedings in the Boeing-Airbus dispute can indirectly

damage the victor's domestic industry. Furthermore, both companies have important clients on the other side of the Atlantic.

The realities of the marketplace are rapidly shifting in ways that call for a new civil aviation pact/multilateral rules. The globalization of aircraft manufacture has changed the structure of subsidies and more importantly the shape of rivalry. For example, since the 1990s, governments outside the EU or US, particularly Japan and China, have often channelled subsidies to their domestic component suppliers. In addition, Japan and China have long sought to combine their expertise acquired in the manufacture of aircraft components into a stronger military capability. China has publicly declared its intention to become a maker of civil aircraft alongside Boeing and Airbus.

Important segments of the aircraft industry are already migrating to Asia, attracted by the promise of subsidies and preferential purchase arrangements for the finished aircraft. In 2006, Boeing CEO, Jim McNerney, predicted that in the coming decades China would become a third airplane maker to rival his firm and Airbus (Hufbauer, 2007). This trend would likely prompt cooperation between the US and EU authorities to compete with a new third rival, putting their bilateral trade dispute into a new perspective.

6. CONCLUSION

This paper has outlined the LCA industry trade dispute between the US and EU, focusing on recent developments, particularly the WTO process. The dispute provides an interesting case study in terms of the unique characteristics of the industry, transatlantic trade relations and the effectiveness of WTO DSB and legal texts, including its case-law.

It appears that there is no clear-cut way to negotiate a feasible and effective solution to the dispute's current situation. Although both sides have always stressed that they would prefer a negotiated (bilateral) solution outside the WTO, currently the WTO panels are in operation, even if their reports have not yet been circulated. At first glance, seeking a decision from a neutral WTO panel might seem the best way to accomplish a solution, as with other current high profile transatlantic disputes like hormones (GMOs), bananas and steel safeguards. This paper, however, has argued that the WTO process is unlikely to produce a feasible and effective solution to this dispute, due to the unique characteristics of the LCA industry, the historical roots of the legal battle involving complicated relationships between the main producers and their governments, and the current structure of the WTO system.

Many experts, as mentioned in section 5, believe that eventually the cases will be settled outside the WTO DSB.

This could be critical given that the WTO panels are expected to find violations of its subsidy rules by both parties, thus leaving open the possibility of trade retaliations reaching billions of dollars. At the same time, the WTO is ill-suited to resolving this dispute because of its inability to enforce compliance with panel and appellate body decisions.

The elimination of subsidies is no more feasible in 2010 than it was in late 1970s or early 1990s. Due to the history, market structure and characteristics of the LCA industry, a feasible solution outside the WTO will have to rely on a compromise that imposes greater discipline on subsidies. This next compromise may require a major revision to the 1979 Civil Aircraft Agreement and/or, as Hufbauer (2007) suggests, a specific LCA industry department housed within the WTO system, including all the industry's important players. Of course, the proposed compromise will not be the last word in

solving disputes over subsidies or bring peace to a contentious industry because state influence in the aircraft industries of the US or EU will not decline in the near future. A compromise will only provide a second-best solution.

Given the current critical economic environment, regardless of whether a solution can be found outside the WTO or not, this dispute needs to be managed in a constructive manner and not allowed to spill over into other issues in the transatlantic economy. The objective of decision makers, for instance, should be to prevent a subsidy race in the aircraft industry or a trade war. The process and outcome of this dispute, said to be the biggest, most difficult and costly legal dispute in the history of the WTO, may have far reaching impacts on the WTO DSB and multilateral trade system.

END NOTES

1. The aero-engine industry is the second largest in terms of turnover. Major manufacturers are General Electric (US), Rolls Royce (UK), Pratt & Whitney (US), Snecma (F), MTU (D), BMW-Rolls-Royce (D), and the international consortia IAE and CFM.
2. For detailed statistical analysis for LCA industry: i) US view: Boeing (2009) and US Department of Commerce (US-DOC, 2007); ii) EU view: Eurostat (2006) and Airbus (2009).
3. The Boeing is a better example on this score. In the 1960s only 2% of the content of Boeing's 727 was non-American. By the mid-1990s this had grown to 30% in the 777, large parts of which are made in Japan. At least 70% of the latest Boeing model (the 787) will be built outside America, mostly in Japan (Economist, 2005).
4. Currently modern planes sell for between \$50 million and \$250 million, depending on whether they are 120-seaters or jumbos. Each new model involves taking huge technical risks concerning safety and efficiency. A new plane also requires enormous R&D spending before the first test flight. The Airbus A380 cost around \$12 billion even before its first test flight. The new Boeing 787 will probably cost at least \$10 billion to develop (Economist, 2005).
5. Once production starts, the learning curve is steep. Each doubling of production generally yields a cut of one-fifth in unit cost per plane. Consequently, it takes production of about 500-600 aircraft before a model starts to earn a profit. That would typically amount to around ten years of production. The industry demand in good years is around 700-800 planes but is spread across a wide range from short-haul, single-aisle models to long-range and jumbo aircraft (Economist, 2005). The combination of these factors explains why the industry has a tendency towards a natural monopoly. It also explains why a company such as Boeing, which has enjoyed over two-thirds of the market since the launch of the 747 over 30 years ago, does not rush to bring new models to market.
6. For detailed statistics about the LCA industry: i) US statistics: (US-DOC, 2009) and Boeing (2009), and ii) EU statistics: Airbus (2009).
7. For the full text, interpretation and application of the Agreement, see WTO (2003) and WTO (2009a).
8. For the full text and a guide, see <http://tcc.export.gov/Trade_Agreements/All_Trade_Agreements/exp_002816.asp>.
9. At this point, it is interesting that Pritchard et al. (2004) rightly predicted that, due to the proposed Boeing 787 development and production package proceeds, the U.S. might need to withdraw from the 1992 Agreement (p.62).
10. The timing and substance of panel procedures in WTO dispute cases is confidential. The parties therefore have not confirmed or commented on the issuance of an interim report so far (as of the end of September 2009). However, most news sources have reported that the WTO handed US and EU officials its 1,000-page confidential interim report of the US challenge to EU support for Airbus, with the ruling going against Airbus (New York Times, 4 September 2009; Financial Times, 3 September 2009).
11. For the full text of the Agreement on Subsidies and Countervailing Measures, see <http://wto.org/english/docs_e/legal_e/24-scm.pdf> and for its interpretation and application, see WTO (2009a).
12. For two excellent sources on the WTO DSU, see Mavroidis (2007) and WTO (2009a).
13. The main cases in the WTO DSU on the aircraft industry (mainly about subsidies) are Brazil-Aircraft (Complainant: Canada DS46), Canada-Aircraft Credits and Guarantees (Complainant: Brazil DS222), Canada-Aircraft (Complainant: Brazil DS70), Canada-Measures Affecting the Export of Civilian Aircraft (Complainant: Brazil DS71). For the summary of cases, see WTO (2009b).

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