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Country Competitiveness Audit of the United States: Trade Policy, Trade Barriers, and the Airbus–Boeing Rivalry in Large Civil Aircraft

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Abstract:

Background: This article audits the competitiveness of the United States with a focus on trade policy toward large civil aircraft, using the rivalry between Airbus and Boeing as the focal case.

Purpose: To audit U.S. competitiveness regarding large civil aircraft trade policy and provide policy recommendations for industry and trade.

Method: Combines verified peer-reviewed evidence, country data for 2016 and 2017, and an illustrative partial-equilibrium model of tariffs, quotas, and subsidies.

Result: In the model, a 10% tariff lowers net national welfare by US$288 million per year, while a subsidy of US$10 million per aircraft costs US$250 million net and displaces 50 imported aircraft; additionally, the audit finds that the United States ranked third among 61 economies in the 2016 World Competitiveness Yearbook, remained the leading destination for foreign direct investment (FDI), and kept its aerospace market open apart from subsidy conflicts.

Result: The audit finds that the United States ranked third among 61 economies in the 2016 World Competitiveness Yearbook, remained the leading destination for foreign direct investment, and kept its aerospace market open apart from subsidy conflicts. The recommendations favor disciplined and transparent support for industry, stable trade-agreement rules, and zone policies that reduce duty burdens on imported inputs.

Contribution: Provides a data- and model-driven audit of U.S. competitiveness and recommends disciplined and transparent support for industry, stable trade-agreement rules, and zone policies that reduce duty burdens on imported inputs.

Keywords: country competitiveness; trade policy; aerospace; Airbus; Boeing; subsidies; foreign direct investment.

INTRODUCTION

Country competitiveness audits ask whether an economy offers firms and consumers an environment in which trade, investment, and productivity growth can flourish. For the United States the question is complicated, because the country is both a very large importer and a leading exporter of high-technology goods. Civil aircraft illustrate the tension well, since two firms, Airbus and Boeing, supply most large jetliners and their governments have long been accused of supporting them (Irwin & Pavcnik, 2004; Neven & Seabright, 1995). This article presents an audit of the US market that is

built on verified scholarly sources and explicit calculations. Its aim is to judge how US trade policy shapes competitiveness for a foreign multinational such as Airbus, for the aerospace industry, and for consumers.

Four questions guide the audit. First, how do US trade policies and trade barriers affect Airbus, the aerospace industry, and air-travel consumers? Second, how would changes in tariffs, quotas, and subsidies alter prices, quantities, and welfare in a simple model of the aircraft market? Third, what advantages and disadvantages do US trade agreements and foreign trade zones create for the sector? Fourth, how competitive is the US market as an investment destination, and how competitive is its aerospace industry?

The analysis covers the market structure, trade policy, barriers, calculations, agreements, and competitiveness results required for a full country audit. Evidence is drawn from 27 peer-reviewed articles and three institutional sources, and every numerical claim is tied to a cited source or to the model parameters in Table 2. The reference period is 2016 and 2017, and a later section summarizes the developments that followed. Section 2 reviews the theory and Section 3 explains the method and data. Sections 4 to 8 describe the economy, the aerospace market, and policy barriers, while Sections 9 to 15 present the calculations, agreements, competitiveness results, and recommendations.

THEORETICAL BACKGROUND

Classical trade theory predicts gains from specialization, but aircraft markets are dominated by scale economies and a handful of firms. Krugman (1979) showed that increasing returns and product differentiation generate trade even when countries have identical endowments. Melitz (2003) added that exposure to trade reallocates output toward more productive firms and forces the least productive to exit. Benkard (2004) found that high concentration and pricing below static marginal cost in wide-body aircraft are consistent with learning and entry costs. Together these studies explain why a market with two large producers can still deliver competitive outcomes.

When firms earn rents, governments may be tempted to shift profits toward domestic producers. Brander and Spencer (1985) demonstrated that an export subsidy can raise a domestic firm's market share and profit, although mutual subsidization leaves both countries jointly worse off. Eaton and Grossman (1986) showed that the best intervention depends on firm conduct, with subsidies often indicated under Cournot

behavior and taxes under Bertrand behavior. Neven and Seabright (1995) estimated that Airbus entry lowered airliner prices by only 3.5% on average while reducing Boeing's profits by more than US$100 billion. These findings imply that subsidies in this sector redistribute rents internationally and offer consumers only modest gains.

Trade policy credibility also matters for competitiveness. Handley and Limão (2017) found that China's WTO accession reduced the US threat of a trade war, which lowered US prices and raised consumer income by an amount equivalent to a 13-percentage-point permanent tariff cut. Rose (2004) cautioned, however, that gravity estimates show little evidence that GATT/WTO members trade differently from nonmembers. This debate suggests that agreements matter mostly through predictability and enforcement rather than through membership alone. Aspinwall (2009) similarly argued that NAFTA set in motion new forms of political organization and domestic adjustment despite its low level of institutionalization.

Modern production is organized in global value chains, which changes how tariffs and trade zones work. Hummels et al. (2001) estimated that vertical specialization accounted for 21% of the exports of 14 countries in 1990, and that its growth explained about 30% of export growth. Baldwin and Lopez-Gonzalez (2015) described supply-chain trade as one of the most momentous global economic changes of recent decades. Johnson and Noguera (2012) showed that value-added measures can shrink bilateral imbalances, with the US–China imbalance in 2004 about 30% to 40% smaller. Because components cross borders repeatedly, duties and delays on inputs raise costs by more than the headline tariff suggests.

Competitiveness itself is a contested concept. Krugman (1994) argued that nations do not compete like corporations and that national performance mainly reflects domestic productivity. Aiginger and Vogel (2015) responded by defining competitiveness as the ability to deliver Beyond GDP goals and by contrasting low-road cost strategies with high-road strategies built on skills and innovation. In the foreign investment literature, Dunning (1988) framed location advantages as one of the conditions for multinational activity, and Blonigen (2005) reviewed how market size, trade protection, and taxes shape investment flows. Javorcik (2004) added firm-level evidence from Lithuania that foreign investment can raise domestic productivity through links to local suppliers.

METHOD

The audit combines a structured review of verified literature, a descriptive assessment of the US economy, and a partial-equilibrium simulation. The review covered peer-reviewed economics and business journals, and each reference was checked against its publisher or index record for volume, pages, and DOI. Country statistics come from the Central Intelligence Agency (2017), the IMD World Competitiveness Center (2016), and the Department of Commerce report by Telles (2016). The simulation treats the United States as a small buyer of large civil aircraft, so that the world price is unaffected by US policy. Figure 1 summarizes the analytical framework.

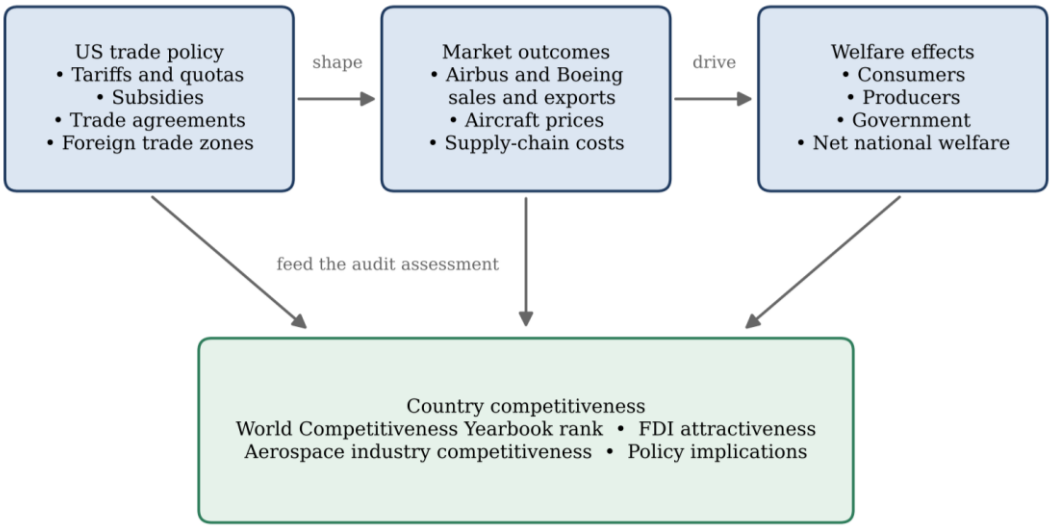

Figure 1. *Analytical Framework of the Country Competitiveness Audit* (Source by the author).

Table 2. Parameters of the Illustrative Model.

Parameter	Value
Domestic demand	$Q_d = 600 - 4P$
Domestic supply	$Q_s = -300 + 5P$
World price (P_w)	US$80 million per aircraft
Free-trade outcome	Consumption 280; production 100; imports 180 aircraft per year
Autarky price	US$100 million per aircraft
Tariff scenario	10% ad valorem; domestic price P_t = US$88 million
Quota scenario	Imports limited to 108 aircraft per year
Subsidy scenario	US$10 million per aircraft produced (s)

Note: Prices are in US$ million per aircraft; quantities are aircraft per year. Parameters are illustrative assumptions.

Table 2 lists the illustrative parameters, which are chosen for clarity and are not estimates of the real market. Demand is linear in price, supply is linear and upward sloping, and the free-trade world price is US$80 million per aircraft. Each policy is applied

to this baseline, and consumer surplus, producer surplus, government revenue, and net national welfare are computed from areas under the curves. The model ignores product differentiation, dynamic learning, and strategic responses, so its results indicate direction and relative size rather than precise magnitudes.

RESULT

Country Overview

The United States is the largest economy at market exchange rates and, according to the Central Intelligence Agency (2017), slipped to second place behind China in purchasing-power terms in 2014. Its GDP in 2016 was estimated at US$18.56 trillion in purchasing-power terms. Services generated 79.5% of output, industry 19.4%, and agriculture 1.1%. The country is a founding member of the World Trade Organization and a party to NAFTA, which is among the largest free trade areas in the world (Caliendo & Parro, 2015). Its position is therefore first at market exchange rates and second in purchasing-power terms.

Openness matters for aerospace because the industry depends on imported inputs and on access to foreign buyers. The principal export partners of the United States include Canada, Mexico, China, and Japan, which shows how regional agreements and Asian supply chains both shape its trade (Central Intelligence Agency, 2017). Table 1 summarizes the indicators used in this audit. Autor et al. (2013) documented that rising import competition from China reduced local manufacturing employment and raised transfer payments in exposed US labor markets. Such adjustment costs explain why openness remains politically contested even when aggregate gains are positive.

Table 1. Key Indicators Used in the Audit.

Indicator	Value	Source
GDP, purchasing-power parity (2016)	US$18.56 trillion	Central Intelligence Agency (2017)
GDP by sector (2016)	Services 79.5%; industry 19.4%; agriculture 1.1%	Central Intelligence Agency (2017)
World Competitiveness Yearbook rank (2016)	3rd of 61 economies (1st in 2015)	IMD World Competitiveness Center (2016)
FDI inflows (2015)	US$348 billion (2014: US$172 billion; 2013: US$201 billion)	Telles (2016)
Inward FDI stock (2014, historical cost)	US$2.9 trillion	Telles (2016)

Note: Indicators reflect the 2016–2017 reference period of the audit.

The Aerospace Industry and Airbus

Large civil aircraft form a global duopoly in which Airbus and Boeing supply most orders for wide-body and narrow-body jets. Irwin and Pavcnik (2004) estimated a demand system for wide-body aircraft and used it to evaluate two US–EU trade disputes. Their results suggest that aircraft prices rose about 3.7% after the 1992 US–EU agreement that limited subsidies, which is consistent with a 5% increase in marginal costs. They also simulated that the Airbus A380 could cut the Boeing 747's share of the long-range wide-body segment by up to 14.8 percentage points. These estimates show that policy changes and product launches can move prices and market shares in a market with only two sellers.

Airbus began as a European consortium that received substantial financial assistance from governments in the early 1970s (Irwin & Pavcnik, 2004). It is now a global company headquartered in Toulouse, France. The name Airbus Industrie refers to the consortium era, so this article uses Airbus for the present-day firm. Neven and Seabright (1995) estimated that Airbus earned profits of roughly US$50 billion over five decades, a rate of return between 6% and 11%. They concluded that the consumer-surplus case for subsidizing Airbus was only weakly supported, because McDonnell Douglas was already challenging Boeing.

Aircraft production also depends on dispersed supply networks, so trade policy affects both final sales and component flows. Hummels et al. (2001) and Baldwin and Lopez-Gonzalez (2015) show that cross-border production sharing has grown rapidly and now shapes industrial competitiveness. For the United States this means that tariffs or local-content rules aimed at foreign aircraft can raise costs for domestic assemblers that import parts. Benkard (2004) adds that steep learning curves and high entry costs make aircraft a market in which early volume advantages persist. Policy that shifts volume between producers therefore has effects that outlast the policy itself.

Trade Policies and Their Effects

For more than a decade US trade policy toward its largest partners has rested on stable, rule-based access, exemplified by the permanent normal trade relations granted to China after its 2001 WTO accession (Handley & Limão, 2017). That stability reduced the threat of tariff escalation and lowered prices for US consumers. The 2017 administration signaled a shift toward protecting domestic industry and renegotiating

existing agreements, which many observers read as a move toward protectionism. The tariff actions of 2018 confirmed the shift, as US import tariffs rose and major partners retaliated (Fajgelbaum et al., 2020). The audit therefore treats the 2016–2017 policy stance as a baseline that was later revised.

For Airbus, the effects of French and EU trade policy differ from the effects of US policy. Airbus sells into a European market that is largely open to its products, and its home governments have supported it since its founding (Neven & Seabright, 1995). The firm may face higher short-term costs from EU environmental and social requirements, although these may prove beneficial in the long term. Aiginger and Vogel (2015) support the latter view by arguing that ecological ambition and social investment are enablers of competitiveness rather than mere costs. EU support for Airbus is the mirror image of US support for Boeing, which keeps the subsidy dispute reciprocal.

US trade policy has only a small direct effect on Airbus. Tariffs play a minor role in civil aircraft, which is why the policy conflict has centered on subsidies rather than duties (Irwin & Pavcnik, 2004; Neven & Seabright, 1995). The main negative effect is the state and local support that benefits Boeing, which is discussed in Section 7. Consumers benefit from competition between the two producers because it keeps prices lower and gives carriers more choice of airframes. Neven and Seabright (1995) nevertheless caution that the price effect of Airbus entry was modest, at about 3.5% on average.

Trade Barriers

The United States, as a founding member of the WTO, has reduced most of its trade barriers, and the literature on civil aircraft focuses on subsidies rather than duties (Irwin & Pavcnik, 2004; Neven & Seabright, 1995). The audit therefore treats tariffs and quotas as negligible in the current aircraft market and analyzes them only as hypothetical policy scenarios in Section 9. Rose (2004) warns that the effect of GATT/WTO membership on trade is harder to document than often assumed, which is a reason for caution about claims of sweeping liberalization. Subsidies, by contrast, have been documented and litigated for decades. The principal barrier affecting Airbus is therefore government support for its rival Boeing.

In November 2013 the State of Washington enacted Engrossed Substitute Senate Bill 5952, which amended and extended aerospace tax incentives in order to secure production of the Boeing 777X (Buzard & Delimatsis, 2019). Buzard and Delimatsis

(2019) report that the package offered over US$8 billion in tax breaks, which some regard as the largest incentives package ever offered. The European Union challenged the measures at the WTO, arguing that conditions tied to siting 777X production in Washington made them prohibited import-substitution subsidies. The 2013 law also extended tax measures first established in 2003 that the EU had already challenged in an earlier dispute (Buzard & Delimatsis, 2019). These facts confirm that the Washington package is a documented barrier and not merely an allegation.

The European Union argued that the measure breached the Subsidies and Countervailing Measures Agreement, and the Appellate Body later allowed the subsidies to Boeing while consolidating the legal standard for import-substitution subsidies (Buzard & Delimatsis, 2019). Buzard and Delimatsis (2019) argue that the ruling unnecessarily blurred the distinction between contingency in law and contingency in fact, which may leave little legal space for future de facto claims. The audit therefore concludes that the barrier remains economically relevant but is now legally tolerated. Brander and Spencer (1985) imply that such tolerance invites reciprocal subsidies that leave both sides worse off. Airbus is also exposed to EU-side support disputes, so neither party holds a clean legal position.

Implications for Airbus, the Aerospace Industry, and Consumers

Boeing and Airbus compete directly across most segments, so support given to one firm affects the other. Irwin and Pavcnik (2004) found that restraining subsidies raised aircraft prices, which implies that subsidies lower the prices paid by airlines. Subsidies to Boeing therefore reduce costs to carriers while reducing Airbus exports and raising Boeing's. Airbus is also the subject of WTO cases over EU support, so the subsidy conflict is reciprocal (Neven & Seabright, 1995). The evidence reviewed here supports the conclusion that both sides receive support, but it does not establish which side's support is larger.

For the aerospace industry as a whole, subsidies that lower Boeing's costs spill over to its US suppliers, while foreign suppliers tied to Airbus lose volume. Benkard (2004) found that learning and entry costs generate persistent pricing below marginal cost, so early volume gains can lock in cost advantages. Brander and Spencer (1985) show that subsidies change the starting conditions of the rivalry and can raise the subsidized firm's market share. In a duopoly with steep learning curves, a small subsidy can

therefore have disproportionate long-run effects. This logic supports concern about the Washington package even though its short-run price effect on consumers is modest.

For consumers, the net effect is positive but smaller than headline price changes suggest. Lower aircraft costs reduce fares over time, and competition between two producers widens the variety of airframes available to airlines. Neven and Seabright (1995) estimated that Airbus entry lowered prices by only 3.5% on average, which bounds the consumer gain from any single subsidy. Irwin and Pavcnik (2004) report a price increase of about 3.7% when subsidies were restrained, which is similar in size. Taken together, these estimates suggest that consumer welfare effects exist but are small relative to the rents at stake for producers.

DISCUSSION

Recalculating Parameters: Tariffs, Quotas, and Subsidies

The model uses the parameters in Table 2 to show how three instruments change welfare in the US market for large civil aircraft. Under free trade the United States buys 280 aircraft, produces 100, and imports 180 at the world price of US$80 million. Welfare changes are reported in US$ million per year, and every instrument is evaluated against this free-trade baseline. Table 3 reports the results for all scenarios.

Tariffs

Figure 2 shows the effect of a 10% ad valorem tariff, which raises the domestic price from US$80 million to US$88 million per aircraft. Domestic production rises from 100 to 140 aircraft, consumption falls from 280 to 248, and imports fall from 180 to 108. Producers gain area a, or US$960 million, while consumers lose areas a, b, c, and d, or US$2,112 million. The government collects area c, or US$864 million, so net national welfare falls by the deadweight loss of areas b and d, which equals US$288 million. Because the gains to producers and the government are smaller than the consumer loss, the tariff reduces national welfare even before any foreign retaliation.

The assumption that the domestic price rises by the full tariff is realistic. Amiti et al. (2019) found complete pass-through of the 2018 tariffs into US import prices, and Fajgelbaum et al. (2020) estimated that losses to US consumers and firms that buy imports reached US$51 billion, or 0.27% of GDP. After accounting for tariff revenue and gains to domestic producers, the aggregate real income loss was US$7.2 billion, or 0.04% of GDP (Fajgelbaum et al., 2020). Amiti et al. (2019) further estimated a reduction in

aggregate US real income of US$1.4 billion per month by the end of 2018. Retaliation, which the model omits, would add further losses for exporters (Fajgelbaum et al., 2020).

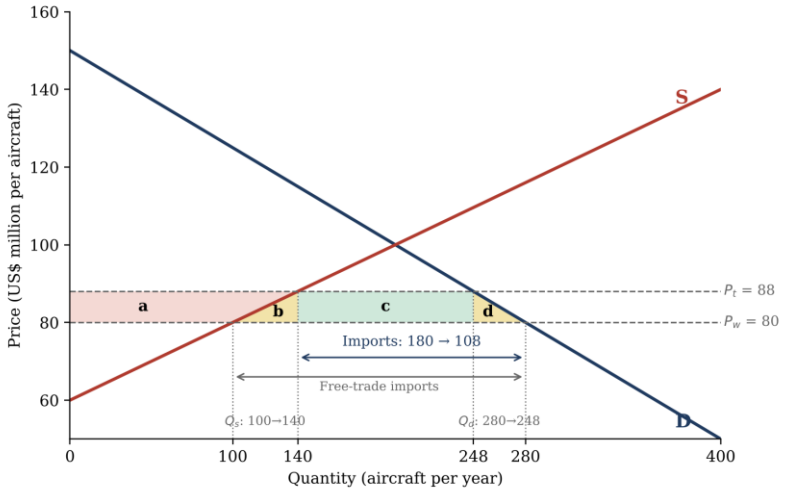

Figure 2. *Effect of a 10% Import Tariff on the US Market for Large Civil Aircraft.*
Note: Areas: a = producer gain; b and d = deadweight loss; c = tariff revenue. Consumer loss = a + b + c + d.

Quotas

Figure 3 shows an import quota of 108 aircraft, which restricts imports to the level reached under the 10% tariff and therefore produces the same domestic price of US$88 million. Producers again gain US$960 million, and consumers again lose US$2,112 million. Area c, worth US$864 million, becomes quota rent that accrues to whoever holds the import licenses. If the government sells the licenses, the rent behaves like tariff revenue and the national loss is US$288 million, but if foreign exporters hold them, the national loss rises to US$1,152 million. In this sense a quota is never better than an equivalent tariff for the importing country.

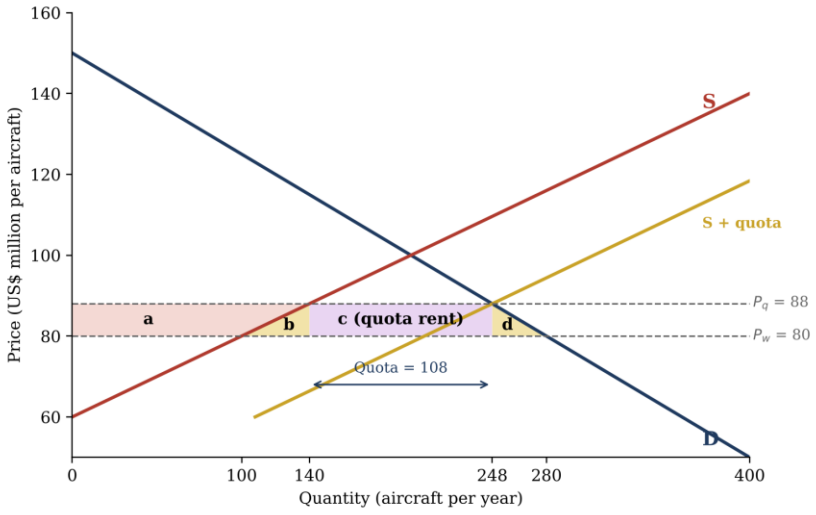

Figure 3. *Effect of an Import Quota on the US Market for Large Civil Aircraft*
Note. Area c is quota rent; its owner determines the size of the national loss.

Subsidies

Figure 4 depicts a production subsidy of US$10 million per aircraft, which lowers Boeing's effective cost and shifts domestic supply downward. At the unchanged world price, domestic output rises from 100 to 150 aircraft, consumption stays at 280, and imports fall from 180 to 130. Producers gain areas a and b, worth US$1,250 million, but the government pays US$1,500 million, so net national welfare falls by area e, or US$250 million. Consumers are unaffected in this small-country case because the price stays at US$80 million. Airbus loses 50 aircraft of sales in the US market, which equals US$4,000 million at the world price.

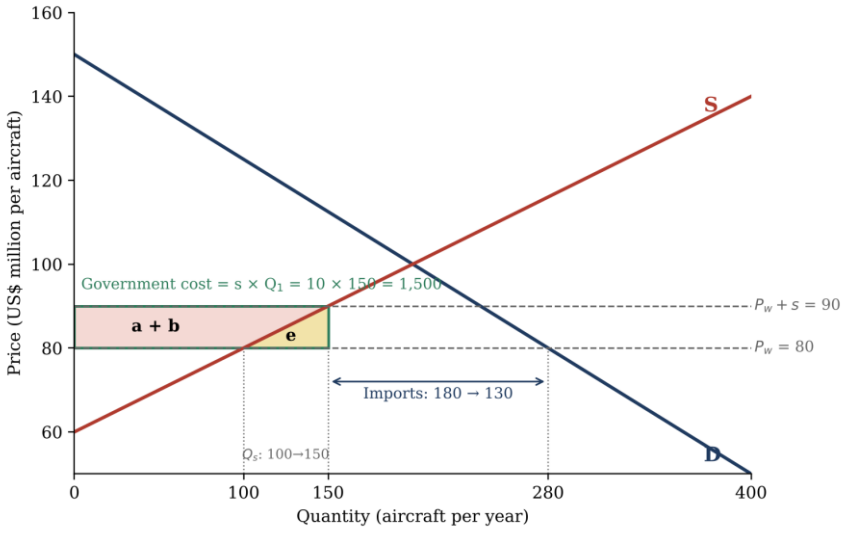

Figure 4. *Effect of a Production Subsidy on the US Market for Large Civil Aircraft.*
Note. Areas a + b = producer gain; e = deadweight loss; the outlined rectangle is the cost to the government.

A large-country case is also possible, in which the subsidy lets Boeing begin exporting and lowers the world price. In the present model, domestic output would equal domestic demand at a subsidy of US$36 million per aircraft, beyond which Boeing would export from its US base. At that point third-country markets also matter, and the theory of Brander and Spencer (1985) suggests that rival subsidies would likely follow. Eaton and Grossman (1986) add that whether a subsidy is optimal depends on firm conduct, with taxes preferable under Bertrand competition. The calculation therefore shows the cost of subsidy-led import substitution and does not make a case for extending it.

Comparison

Table 3 and Figure 5 compare the three instruments. The tariff and quota impose identical consumer losses and producer gains, but they differ in who receives the rent

and in the size of the net national loss. The subsidy leaves consumers unharmed but costs taxpayers more than producers gain. Imports fall by 72 aircraft under the tariff and quota and by 50 under the subsidy, so all three instruments reduce Airbus's US sales. The ranking by net national loss depends on rent allocation, which is why a quota with foreign-held licenses is the least efficient instrument.

Table 3. *Welfare Effects of Tariff, Quota, and Subsidy in the Illustrative Model.*

Scenario	Price	Output	Imports	Consumers	Producers	Government	Net
Free trade	80	100	180	–	–	–	–
10% tariff	88	140	108	−2,112	+960	+864	−288
Quota of 108 (foreign licenses)	88	140	108	−2,112	+960	0	−1,152
Subsidy of 10 per aircraft	80	150	130	0	+1,250	−1,500	−250

Note: Prices in US$ million per aircraft; output and imports in aircraft per year; welfare in US$ million per year. If quota licenses are held domestically, government revenue is +864 and the net effect is −288.

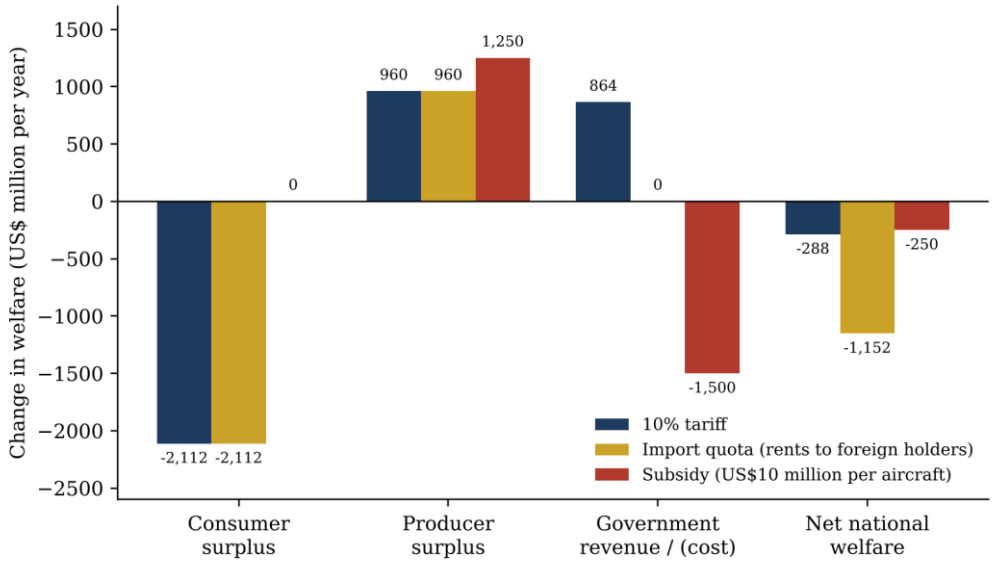

Figure 5. *Welfare Effects by Policy Instrument.*
Note: Values are US$ million per year, computed from the parameters in Table 2.

US Trade Agreements and Foreign Trade Zones

NAFTA is the clearest case of how US agreements reshape competitiveness. Caliendo and Parro (2015) estimated that NAFTA tariff reductions raised intra-bloc trade by 41% for the United States and raised US welfare by 0.08%, compared with 1.31% for Mexico. Romalis (2007) found a substantial effect on trade volumes but only a modest effect on prices and welfare, partly because the agreement displaced imports from nonmember countries. These results imply that the agreement mattered mostly through

supply-chain integration and trade diversion rather than large aggregate welfare gains. For aerospace, integrated North American supplier networks are therefore a benefit, though a modest one.

The distributional costs of agreements are real. Hakobyan and McLaren (2016) found that NAFTA sharply lowered wage growth for blue-collar workers in the most affected industries and localities, with effects much larger than aggregate welfare estimates. Autor et al. (2013) document similar local damage from import competition more broadly. Aerospace suppliers in exposed regions would face the same adjustment pressures during any renegotiation. Aspinwall (2009) adds that agreements trigger domestic political adjustment, so reforms carry political as well as economic risks.

Environmental provisions and regulatory differences also matter. Copeland and Taylor (2004) review theory and evidence on whether differences in environmental policy shape trade and investment flows, including the pollution haven hypothesis. It is sometimes argued that US standards are less stringent than those of Europe and some Asian countries and therefore lower production costs. The literature reviewed here does not establish that claim, so the audit treats it as an open empirical question. The more robust benefit for aerospace is lower duty costs on intermediate inputs, because vertically specialized production repeats trade costs at every border crossing (Hummels et al., 2001).

Table 4. Advantages and Disadvantages of Trade Agreements and Foreign Trade Zones for Aerospace.

Instrument	Advantages	Disadvantages
WTO and multilateral rules	Predictable market access and a legal channel for disputes (Buzard & Delimatsis, 2019; Handley & Limão, 2017)	Evidence of a systematic trade effect is contested (Rose, 2004); litigation is slow
NAFTA and regional agreements	Integrated supply chains and modest welfare gains (Caliendo & Parro, 2015; Romalis, 2007)	Concentrated wage losses and political adjustment (Hakobyan & McLaren, 2016; Aspinwall, 2009)
Foreign trade zones	Duty relief on imported inputs and support for assembly and investment (Hummels et al., 2001; Wang, 2013)	Smaller benefits and larger distortions for later zones (Wang, 2013)

Note: Evidence on zones is drawn from studies of special economic zones.

Foreign trade zones are designated sites treated as outside the customs territory for duty purposes, so that duties are paid only when goods enter US commerce. This design suits aerospace assemblers who import components, because duties are deferred or avoided on inputs and on re-exported output. Wang (2013) found that special

economic zones in China increased foreign direct investment, not merely through firm relocation, and did not crowd out domestic investment. The same study found that benefits were smaller and distortions larger for zones created later, which warns against indiscriminate proliferation of zones. The audit therefore judges US foreign trade zones to be useful for assemblers but dependent on careful design and limited duplication.

US Competitiveness

The United States ranked third among 61 economies in the 2016 World Competitiveness Yearbook, after China Hong Kong and Switzerland (IMD World Competitiveness Center, 2016). It had held first place for the previous three years, so the decline attracted considerable attention. Krugman (1994) would caution against reading such rankings as a national scorecard, since national performance rests mainly on productivity. Aiginger and Vogel (2015) would add that rankings of cost and structure should be complemented by outcome measures. The audit therefore uses the ranking as one indicator among several, together with investment data.

Foreign direct investment provides a second indicator. Inflows reached a record US$348 billion in 2015, up from US$172 billion in 2014 and US$201 billion in 2013, as Figure 6 shows (Telles, 2016). The stock of inward FDI was US$2.9 trillion on a historical-cost basis in 2014, which made the United States the largest recipient of global FDI (Telles, 2016). The report identified advanced economies, led by the United Kingdom, Japan, and Germany, as the largest sources of this investment (Telles, 2016). These figures are the 2016 vintage and may have been revised in later releases.

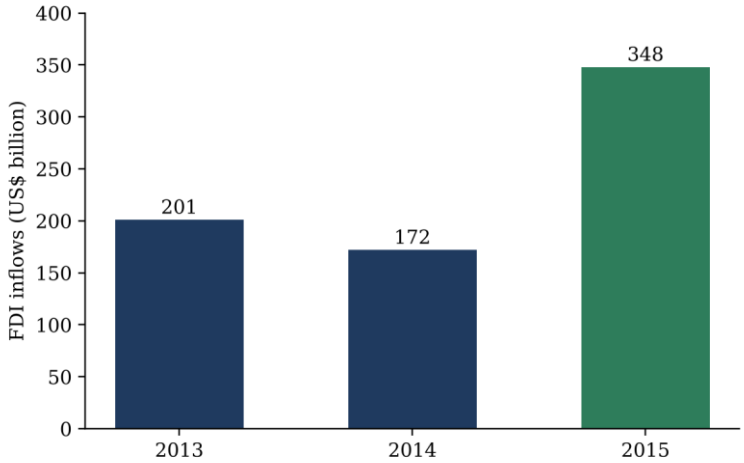

Figure 6. Inward Foreign Direct Investment Flows to the United States, 2013–2015.
Note: Data from Telles (2016).

Theory helps interpret why investment flows to the United States. Dunning (1988) emphasized location advantages, and Blonigen (2005) reviewed evidence that market size, trade policy, and taxes influence FDI. Javorcik (2004) found productivity spillovers through contacts between foreign affiliates and local suppliers, which is relevant for aerospace supply chains. Handley and Limão (2017) imply that policy stability is itself a location advantage, so renegotiation risk could weaken the US position. The audit concludes that the US market remains highly attractive, but its advantage depends on predictable trade rules.

Competitiveness of the US Aerospace Industry

The US aerospace market is highly competitive in the sense that it is open to foreign suppliers and populated by two global producers. Benkard (2004) found that the unconstrained equilibrium in wide-body aircraft is quite efficient from a social perspective, providing only about 10% less welfare on average than a social planner would obtain. He also found that an anti-trust concentration restriction would reduce welfare. The main restriction on competition identified in this audit is subsidy support for Boeing, which Airbus matches with EU support. These findings suggest that further trade barriers would likely harm consumers more than they would help producers.

Competitive strength also depends on supply-chain access and productivity. Melitz (2003) shows that exposure to trade raises industry productivity by reallocating output to more productive firms. Hummels et al. (2001) show that imported inputs are a growing part of exports, so open input markets support export competitiveness. For aerospace this means that tariffs on components could weaken US assemblers as much as they protect them. The audit therefore rates the sector's competitiveness as high, with subsidy rivalry as the principal risk.

Post-2017 Developments and Limitations

Several developments since 2017 change parts of the assessment. The Appellate Body allowed the Washington State measure that the EU had challenged, as discussed in Section 7 (Buzard & Delimatsis, 2019). US import tariffs rose in 2018 and partners retaliated, and the evidence suggests that tariffs passed fully into import prices (Amiti et al., 2019; Fajgelbaum et al., 2020). NAFTA was later replaced by a new agreement, which underscores the renegotiation risk that Handley and Limão (2017) associate with policy

uncertainty. Readers should consult current official data before applying the 2016–2017 indicators to present decisions.

The audit has several limitations. The simulation uses illustrative linear curves and a small-country assumption, so it cannot capture product differentiation, dynamic learning, or strategic responses. The institutional statements about foreign trade zones and agreements rest on general descriptions rather than on a complete legal review. The reference period is 2016 and 2017, and several indicators have since been revised or superseded. Future work should estimate a structural model of the aircraft market that incorporates subsidies, as in Benkard (2004) and Irwin and Pavcnik (2004).

Recommendations

Policy makers in France, the EU, and the United States should maintain liberal trade policies and avoid new trade barriers on civil aircraft. The simulations show that tariffs and quotas impose net losses on the United States and that a subsidy costs taxpayers more than it yields to producers. Brander and Spencer (1985) show that mutual subsidization leaves both countries worse off, which supports negotiated limits on support. Irwin and Pavcnik (2004) found that the 1992 agreement limiting subsidies raised prices, so any new disciplines should be designed with consumer effects in mind. A transparent and enforceable agreement on subsidies is therefore preferable to litigation alone.

Airbus should continue to expand its US presence through innovation and by serving gaps in carriers' capacity needs. It should also monitor policy uncertainty, because renegotiation of agreements affects costs and investment decisions (Handley & Limão, 2017). Closer integration with US suppliers and zone arrangements can limit exposure to tariff changes by reducing duty burdens on inputs (Hummels et al., 2001; Wang, 2013). Investments in the United States would also benefit from the spillover channels documented by Javorcik (2004). These actions use the strengths of an open market rather than depending on protection.

US policy makers should protect the attractiveness of the market for foreign investment by keeping trade rules predictable. Blonigen (2005) and Dunning (1988) both imply that location advantages depend on policy and institutions, not only on market size. Adjustment assistance for regions harmed by trade is also warranted, given the local wage losses documented by Hakobyan and McLaren (2016) and Autor et al. (2013). Zone

policy should be designed to avoid duplication and distortion (Wang, 2013). Finally, future audits should update the indicators in Table 1 with current data before drawing conclusions.

CONCLUSION

This audit finds that the United States remains a highly competitive market for foreign aerospace firms, with open access, strong investment inflows, and a third-place ranking in the 2016 yearbook. The principal barrier is government support for Boeing, notably the Washington State tax package, which the Appellate Body ultimately allowed. The illustrative calculations show that tariffs, quotas, and subsidies each reduce US net welfare and displace Airbus sales. Consumer gains from subsidies are small, while taxpayer costs exceed producer gains. These results support a policy of open markets combined with disciplined and transparent support for industry.

The audit corrects common misstatements about the size of the US economy and the legal status of the Washington State subsidies, and it grounds its conclusions in verified peer-reviewed evidence. It also adds explicit calculations, figures, and tables that make the policy trade-offs visible. Future research should extend the analysis to current data and to a structural model of the aircraft market. Such work would test whether conclusions drawn from the 2016–2017 evidence remain valid in a period of renewed tariff conflict.

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