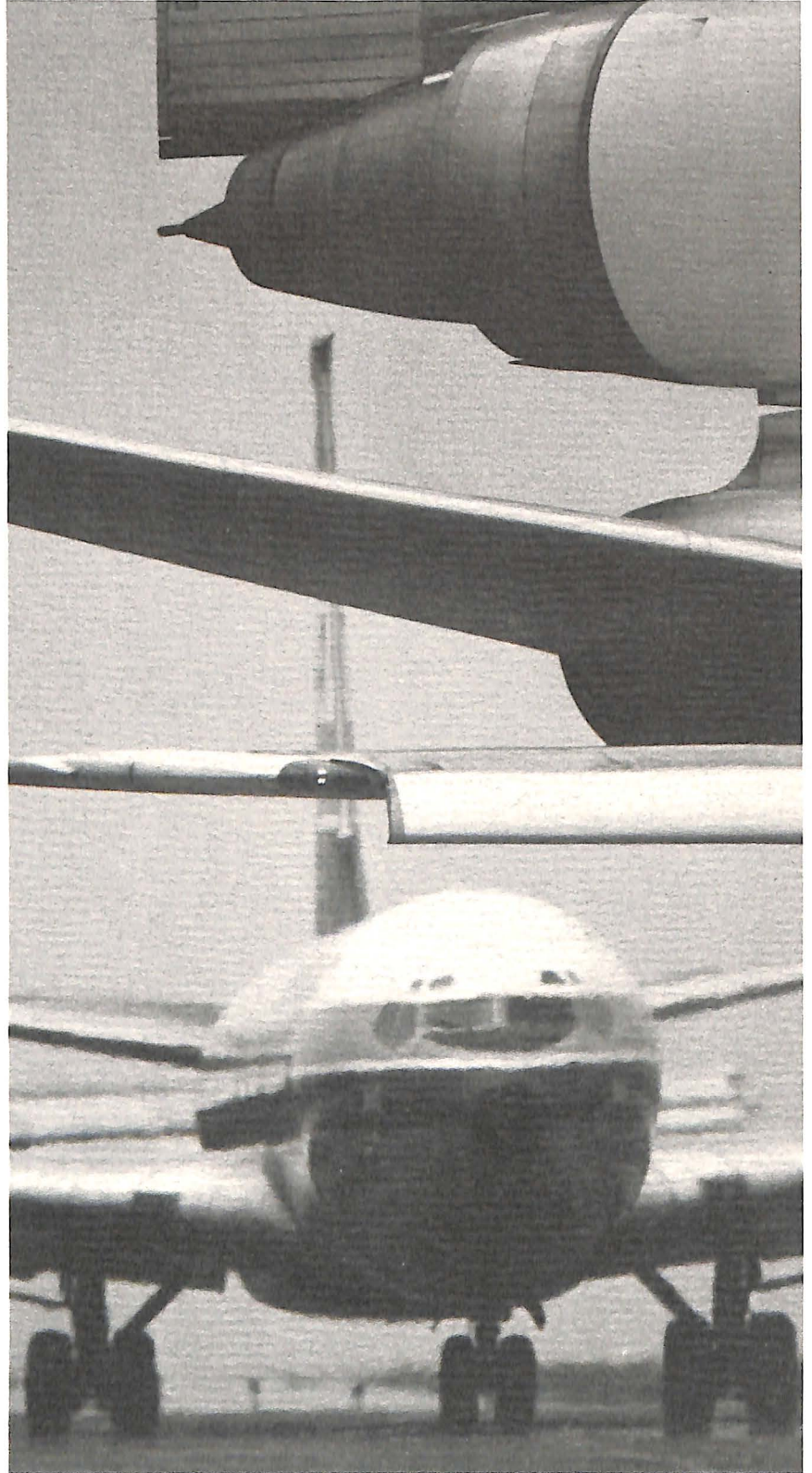




Does The United States Support Its Commercial Transport Manufacturers Like Europe Supports Airbus?

That's the European View... But There Is a Difference



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The commercial transport industry plays an important role in the U.S. economy—in addition to its contributions to national defense, it's a key link in the transportation system, and a leader in high technology. It is also a major U.S. exporter—with a positive trade balance.

The industry is sensitive to government policy decisions which affect every aspect of business from investment to export practices. Yet there are substantial differences between the U.S. government and the governments of other countries in their relationships with their commercial transport industries.

U.S. civil aircraft manufacturers are private companies competing in the marketplace without special government financial assistance or incentives. The U.S. government does not assume the costs of civil aircraft production. U.S. civil aircraft manufacturers receive no monetary assistance or incentives to gain entry in a market niche other than the tax or investment incentives available to all U.S. business. They do not receive research funding for commercially focused products or direct government funding for product development, production or marketing.

U.S. transport manufacturers invest their own money in commercial programs and assume the risk of failure. They finance product development, production and marketing from internal funds or by borrowing at market rates. They must make a sufficient profit to remain in business.

The debate over subsidies in the international commercial transport industry too often obscures the reality of how the U.S. industry functions. The truth is that governments don't all do things the same way. There is a difference between Airbus and U.S. commercial transport manufacturers. An honest examination of the issue of government supports in the commercial transport industry should distinguish between support that is general to all industries and support that is specific to aerospace. It should make the distinction between the military and commercial aspects of aircraft production—in the U.S., they are quite separate. It should recognize that there is a difference between intentional and direct assistance to an industry and support that occurs indirectly through attempting to meet fundamental government goals and objectives.

When Airbus claims that the U.S. commercial transport industry is heavily subsidized, it ignores the reality.

Let's move beyond rhetoric and focus on facts.





European View: U.S. Government Defense Contracts Are a Subsidy for Commercial Aircraft Manufacturers

Facts: More often than not, the confusion over subsidies centers on the U.S. government's funding of military research, development and production. This substantial government commitment to the military aircraft industry is no different than the commitment of the European governments to their defense industries.

While the U.S. government does assume the costs of military aircraft production, the same is not true for commercial aircraft production. In fact, the U.S. government goes to substantial lengths to see that its support of defense programs does not underwrite its commercial transport sector. The commercial aircraft industry is characterized by huge up-front costs at *company expense* which are recovered, if at all, after many years of sales.

View: U.S. Government Funding for Development of Military Tankers, Transports and Other Aircraft Has Subsidized Civil Manufacturers

Facts: Design, development and manufacture of the first U.S. prototype jetliner was funded privately by a U.S. manufacturer—Boeing. Boeing expected its prototype would meet Air Force jet tanker requirements and hoped civil and military transports could be co-produced. Civilian competition forced Boeing to alter the 707 from commonality with the military KC-135. Two separate and distinct production lines—one for a commercial airliner and one for a military aircraft—emerged from the *privately developed* prototype.

When U.S. companies give the go-ahead to a commercial aircraft program, they concentrate on civil market requirements and fund advanced development and production with their own money and private bank loans secured at their own risk. And when U.S. commercial transport manufacturers begin a new aircraft program, it is handled from a profit center completely separate from their military business.

It is often contended that a large part of Douglas, Lockheed and Boeing efforts, funded by the Department of Defense through the C-5 military transport competition, were directly transferrable to their wide-body commercial transport designs. In fact, the military and commercial aircraft had different missions, load factors, and performance goals. They had different design criteria and specifications on safety, reliability, life, and maintenance. Douglas's DC-10 and Lockheed's L-1011 were totally different designs and concepts from the C-5.

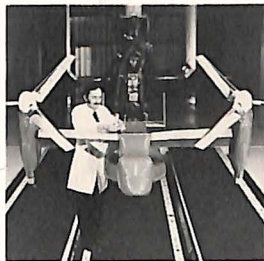
Today, fundamental differences in mission and design criteria continue to limit the commercial benefit from military aircraft design.

Claims that the U.S. government heavily subsidizes commercial development through reimbursement of IR&D and B&P (Independent Research & Development and Bid & Proposal) costs are inaccurate and reflect a poor understanding of the government's regulatory process. A certain amount of independent R&D funded by U.S. contractors may be recovered from the government if it is deemed applicable to military work as well as commercial effort—if it is "militarily relevant." U.S. law and procedures limit this recovery to a ceiling which is negotiated with each company. The process of abiding by these procedures is expensive to the company, the ceilings are adjustable, and the government holds the upper hand. IR&D/B&P recovery procedures apply separately to each component of a company: military and commercial business are treated separately. Recovery is not by payment but rather the expense is a cost-allowable component of overhead for government contracts.

For commercial aircraft producers, IR&D/B&P recovery on the basis of its applicability to military aircraft development is limited. Commercial program recovery for U.S. transport manufacturers is, on average, about 5 percent.

View: Government Military Aircraft Purchases Result In Increased Volume of Aircraft Production, Lowering Unit Costs on Commercial Programs

Facts: On the first U.S. civil and military jetliners, common production space and joint overhead allowed for some cost saving, just as Airbus claims, although less than a quarter of the aircraft parts were common between the two programs. Savings from commonality between military and civil aircraft production clearly does occur. But if military production contributes to commercial volume, it is equally true that commercial volume contributes to lower unit cost on government contracts. All of a contractor's business benefits from higher volume production runs, with commercial and government contracts sharing proportionally in the cost efficiencies. This is true for all aircraft manufacturers—foreign as well as U.S. It is not a distinct advantage for U.S. manufacturers.

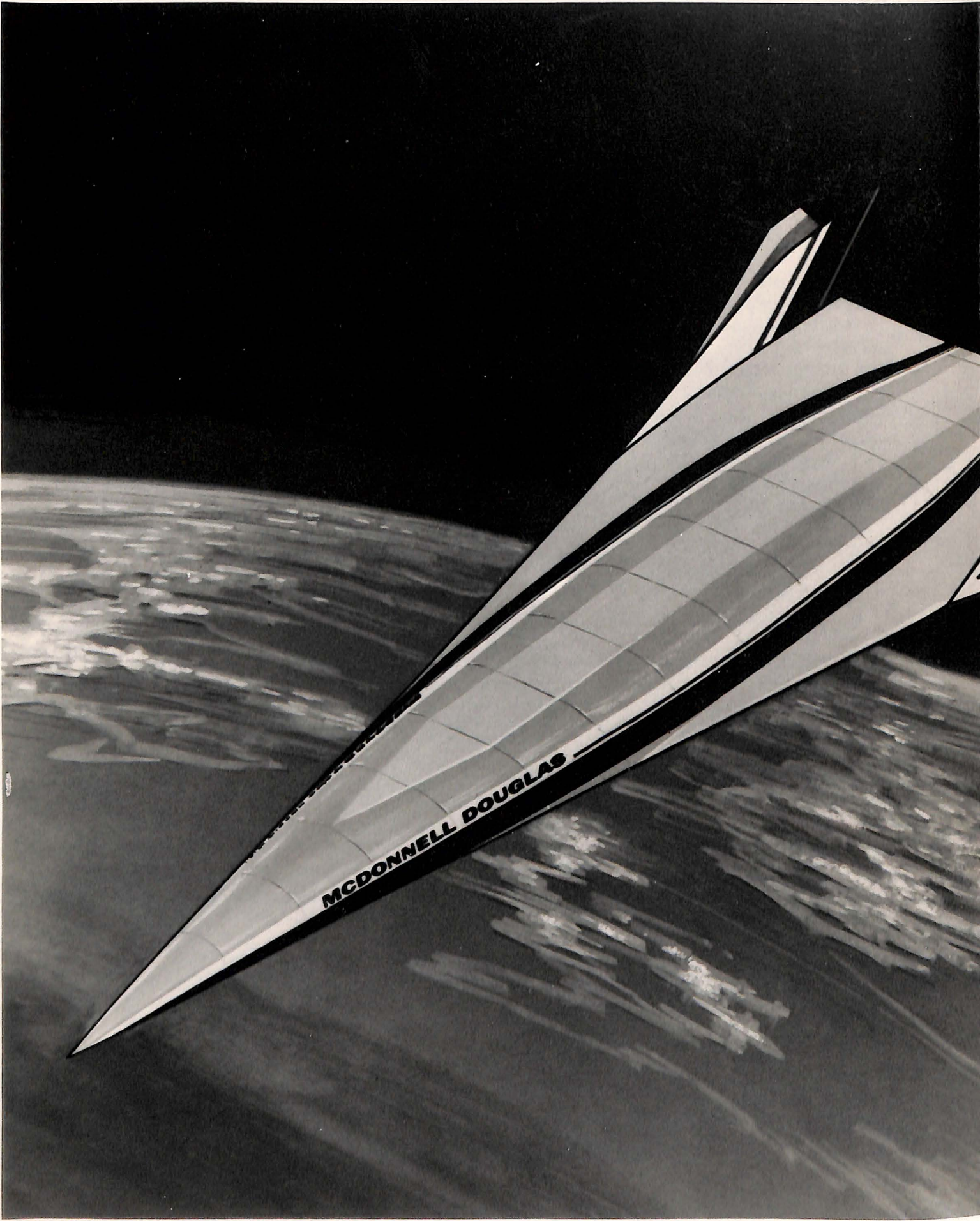


In reality, Boeing built its commercial business without a large proportion of revenues from military business. For the period from 1980 to 1985, government sales comprised 31 percent of Boeing's business and 64 percent of McDonnell Douglas's business, while government sales were 78 percent of total business for the three major partners in Airbus Industries—MBB, Aerospatiale and British Aerospace.

Military aircraft business does not appear so important to commercial success in the United States as Europeans claim. Most U.S. defense contractors have dropped out of the commercial aircraft business.

View: The Military Aircraft Industry and the Commercial Aircraft Business Share a Common Technology and Production Base, Resulting In Savings to U.S. Commercial Manufacturers

Facts: The military and commercial aircraft industries do share a common technology base. Lessons learned in the military side of the business are useful in the commercial business, but the nature and extent of the tie between the two is usually overstated. Although at one time major technology developments flowed largely from military to civil programs, today there is a greater divergence of military and civil aircraft technology. In military aircraft, the focus is on high performance. For commercial aircraft, the focus is safety, reliability, maintainability and economy over a lengthy product lifetime. Today, more often than not, technology is being transferred from commercial to military programs rather than the other way around. To the extent that the military and civil aircraft technology base is the same, it is also the same in the European countries and provides similar benefits to Airbus.





European View : NASA Aeronautics Funding and Department of Transportation Research Are a Substantial Subsidy to the U.S. Commercial Aviation Industry

Facts: Aeronautics R&T (Research and Technology) funding through the National Aeronautics and Space Administration (NASA) is a direct form of U.S. government assistance to aviation as a whole. NASA funds, directs and implements aeronautical R&T programs and supports military aeronautical technology demonstration programs. There are counterparts to NASA in Europe: ONERA in France, DFVLR in West Germany, and the DTI in Great Britain. Unlike the governments behind the Airbus consortium, which fund research for specific commercial projects, NASA supports only high risk basic and generic applied research. Private U.S. aircraft manufacturers invest their own funds in commercially-focused development projects.

NASA's work establishes a research and technology base, upon which private manufacturers must build to develop commercial projects. NASA's flight demonstrations are aimed at expanding performance frontiers. U.S. industry has to validate the technology during its own development phase. Generally, it is at least 10 years after the publication of NASA research results before work is applied in industry.

NASA's aeronautical research budget is largely absorbed by the government for research in its own laboratories. NASA also makes research contract awards to industry, universities and private research institutions. However, if manufacturers incorporate NASA-sponsored work in their own aircraft, they have to pay the government recovery costs. For example, while Douglas Aircraft and NASA worked together on the winglet program, Douglas will pay NASA a substantial amount for each DC-10 or MD-11 aircraft equipped with winglets. For U.S. aircraft manufacturers, NASA research contracts are not a free ride.

Over the last 10 years, Boeing's own expenditures on R&D were over 20 times the amount received from both NASA and DOD contracts.

It shouldn't be overlooked that foreign transport manufacturers, including Airbus, have benefited extensively from the availability of NASA basic and generic applied research. Recently, NASA has applied limited dissemination controls on selected research efforts for competitive reasons; these restrictions are usually for two years, and they apply to roughly 300 out of 1.8 million—less than 0.02 percent—NASA documents. For the most part, NASA disseminates its aeronautical research results freely. Even sensitive documents on military-related work are available to European manufacturers through inter-governmental agreement.



Because NASA research has been freely available to other countries, and because the time from research and technology demonstration to application is so lengthy, there is little advantage for U.S. manufacturers over foreign industry from most NASA effort.

In this case, the proof is in the application. Major engine improvements developed through NASA's Energy Efficient Engine (E3) technology work are being incorporated on the A320. The first full application of the E3 technology will likely appear in the Airbus program in the IAE-V2500 engine. Engine component improvements resulting from NASA work have been applied to engines on the A300 and A310. The French and Germans are using NASA-developed laminar flow control analysis methods. Airbus A310/320 digital cockpit systems are the most advanced in production and development, although evaluation of the systems was done by Boeing under contract to NASA. Composite work performed by NASA has been far more extensively applied by Airbus than by U.S. firms.

The U.S. government funds aviation system and safety research through the Department of Transportation—research which benefits producers of commercial aircraft worldwide by making flying safer, more convenient and comfortable and, ultimately, by stimulating the demand for new aircraft. The research is supported by the government to provide safety, efficiency and convenience for national and international travelers, and is available to other countries, too.

In the major European countries involved in commercial transport production—the United Kingdom, West Germany and France—the government funds the majority of civil aviation R&D. In addition, civil aviation R&D commands a greater percentage of total government R&D funds in the United Kingdom and France than it does in the United States. The United Kingdom directed approximately 3.2 percent of total R&D funding toward civil aviation R&D in 1979 and France 2.2 percent as opposed to only 1.6 percent in the United States.





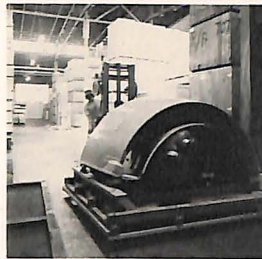


European View: The U.S. Government Has Provided Special Assistance to the Commercial Transport Industry Through Tax Incentives and Other Means

Facts: Every nation sets tax levels appropriate to its need to raise revenues without choking off incentive. Because of market failure and social needs, governments adjust tax systems to provide special relief or incentives. The U.S. Congress has enacted tax benefits such as the investment tax credit and accelerated depreciation methods to stimulate investments in productivity-improving capital assets. These policies are not aimed at any specific industry but are for all industries that qualify. The commercial transport industry and all other businesses with significant levels of fixed assets benefit.

The Foreign Sales Corporation provision of U.S. tax law, exempting from corporate tax a portion of the earnings generated by the sale or lease of export property, related services, and certain service exports, supports the export sales effort of all U.S. companies. This is accomplished in Europe by waiving the VAT (value added tax) on exported items, permitting a direct revenue increase to the manufacture. The U.S. R&D tax credit is designed to stimulate new research and development efforts. Both of these are incentives for all eligible industries and are not a support unique to the commercial aircraft industry. The R&D credit, in fact, has proved inequitable to the U.S. aircraft industry because it operates as an incentive only for increased research expenditures above a company's historic level of outlay. Most aircraft-related research programs are long-term, and allowing a credit only for incremental cost discriminates against long-term research activity; on a long-term program, the credit applies only to early program costs. The R&D credit is clearly not geared to the special needs of the U.S. aircraft industry.

All major industrial countries producing aircraft utilize the services of credit institutions to support sales in the international marketplace. International guidelines negotiated in the OECD have insured that official financing through national credit institutions is neutralized as a factor in sales competitions. The U.S. export credit agency is Export-Import Bank, a self-sustaining entity which, over the long run, does not utilize taxpayer funds. In addition, its assistance is available to other large capital goods industries as well as to aircraft manufacturers.



Other U.S. government activities have advanced civil aircraft manufacture worldwide. Government support of the U.S. airway system including airport development, air traffic control, airport operations, safety services, weather and navigational services benefits commercial aircraft producers by making flying safer, more convenient and comfortable and increasing the demand for new aircraft. Airway system improvements are not directly intended to benefit aircraft manufacturers but to provide safety, efficiency and convenience for travelers—national and international alike. Some U.S. government activities such as development of new performance and safety standards, procedures and regulations create a certain amount of unintentional product obsolescence which may lead to the requirement to purchase new and improved aircraft models. But, government's fundamental concern is the broad needs of commerce and transportation. In fact, a large share of U.S. aviation system improvements have been funded over the years not by the government but by a ticket tax levied on airline system users.

Conclusion: All Governments Provide Industry and Commerce with Some Kind of Support System

But There Is a Difference Between European Support of Airbus and the Market Environment of U.S. Transport Manufacturers

In the United States, unlike Europe, government intervention is absent in the early stages of commercial aircraft production. U.S. manufacturers must finance the enormous product development, production and marketing costs from internal funds or by borrowing at market rates. Among major aircraft producing nations, this is a unique situation. In the final analysis, U.S. firms either recover their investment or go out of business. Lockheed *did* go out of business.

In contrast, the national governments of the Airbus partners have directly funded commercial aircraft projects from research and technology through product development, production and marketing. Media estimates of direct government supports for Airbus total \$7 to \$12 billion. Experience with aircraft program cashflow needs indicates the level of funds required for the A300, A310 and A320 programs to be anywhere from \$12 to \$18 billion.

Although reported subsidies to Airbus apparently equal its revenues on airframes delivered to date, Airbus plans to launch two new aircraft models.

The London *Financial Times* said:

"The way ahead for both aircraft (the planned A330 and A340) depends entirely upon the cash support that will be forthcoming from the European governments that are the shareholders in Airbus Industrie ... none of the companies involved ... has the internal funds to cover the estimated \$4 billion cost of the prospective joint A330-A340 venture."

Alan Boyd, North American president of Airbus Industrie, recently stated:

"There is no question that Airbus survives because of its government allies. There is no question that Airbus would not be alive today except for the government support extended to these European aerospace companies."

U.S. commercial transport programs are founded on private capital and face commercial risk decisions. Although U.S. manufacturers hold strong market positions today, they can't—over the long-term—match programs with these levels of government support.



How does direct government support to aircraft programs affect the industry?

New program decisions — Government support enables “go ahead” decisions even when expectations of cost-recovery and profit achievement are unrealistic. Since WWII, U.S. commercial transport manufacturers have made 11 program “starts,” with 7,720 deliveries—an average of over 700 aircraft delivered per program. European producers have made 10 program starts in that time with 1,581 deliveries—an average of 158 aircraft per program. The number of aircraft a manufacturer must sell in order to recover costs and make a profit is driven by both development cost and price of the aircraft. Development cost is a function of whether the aircraft is largely new design and technology or is a derivative of an earlier model; aircraft price is driven by market competition. If an aircraft is introduced into a new market niche, without competition, it may be that relatively few sales would allow for cost recovery. If an aircraft is introduced into a market in competition with other models, the number of unit sales necessary would be much higher.

Timing of new programs — Government support affects the timing of aircraft launch through early production to the advantage of the firm receiving government support and the detriment of more commercially oriented firms. The timing of entry into the market is crucial to the financial success of a new aircraft model. Among the wide-body transports introduced by the early seventies—the L1011, B-747 and DC-10—the L1011 was widely claimed as technologically competitive, yet initial deliveries were too slow and Lockheed lost irrecoverable ground. Market entry is a matter of timing, but timing is critically affected by the ability to finance. The A300 was introduced before there was any significant market for such an airplane and it had only limited sales or orders from its inception in 1970 until 1978. Massive government support was necessary not only for the development of such a program, but to sustain factories with no orders.

Inventory buildup — Government production subsidies enable a firm to keep on producing, even when the customers aren’t buying. The presence of “white tails”—aircraft without a buyer—distorts the market for everyone else: they’re readily available to be sold or leased cheaply. Manufacturers who have to borrow money at market rates for production can’t produce unsold inventory.

Direct government support for product development, production and marketing distorts the market and hurts everyone. It's costly to subsidize. And over the long-term, efficient manufacturers who aren't subsidized will find they can't compete. No one wants to lose the tremendous asset of a commercial transport industry. What are the options? Subsidize into bankruptcy? Close markets? Neither alternative is a good one. Instead, let's stabilize the marketplace. Let's agree on the rules regarding government participation in the civil aircraft sector, and abide by them.



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