Eximbank Can Be Key To U.S. Aerospace Recovery

Throughout its 25-year history, the U.S. aerospace sector — one of this country's largest and most technologically advanced industries — has relied on its ability to constantly supercede existing levels of technological know-how and to sell more advanced technologies on the international market. This ability and the vital aerospace sector itself are now seriously threatened, unless U.S. government credit policy is overhauled to ensure sufficient credit flows to revitalize this and other industries. The key to reviving aerospace lies in the expansion of its high-technology exports. The best way to accomplish that is through vastly expanding the lending facilities of the Export-Import Bank, as outlined in a U.S. Labor Party memorandum to that effect.

With a labor force of over 420,000 workers and total employment of just under 900,000, the aerospace industry ranks as a leading sector of the U.S. economy. Even this is a far cry from the industry's peak sales years of 1967-68, when total employment topped 1.5 million. Since then, employment has plummetted by 40 percent, and total sales, which peaked in 1968 at over $35 billion, have been sliced to just under $22 billion in 1976 (in real dollar terms with 1972 100). No significant recovery is currently in sight.

The stagnation in aerospace sales (in constant dollars) over the 1971-1976 period would have seen a total rout but for the tripling in industry exports since 1966, from just over $2 billion annually through the early 1960s to over $6 billion in 1974-76. Exports now account for over 25 percent of total sales. Over this 10-year period the Eximbank has guaranteed some 15 percent of these exports, in the form of combined direct credits ($5.86 billion) and loan guarantees (an additional $1.5 billion). Contrary to public opinion, the bulk of these exports have not been military; some 75 percent, on the average, have been civilian, primarily commercial jet transports *see Graphs 1 and 2)*.

Skirting the Credit Problem

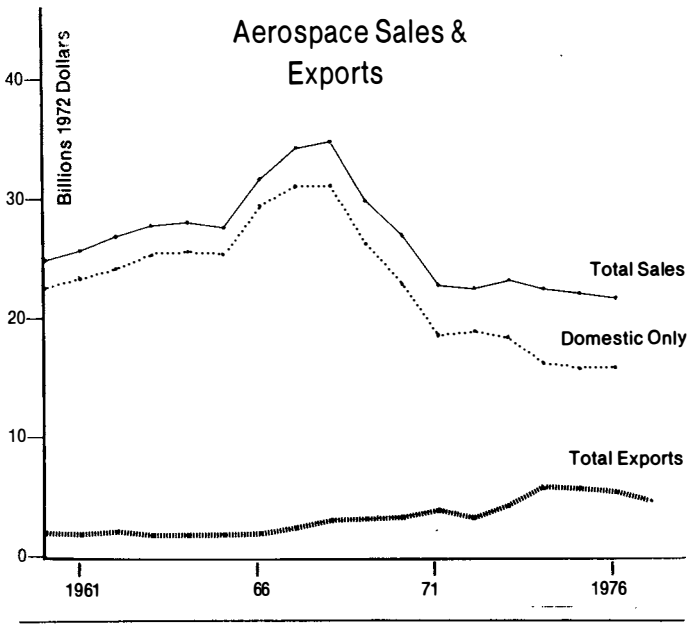
Some New York analysts are projecting a relatively rosy future for the industry, but Karl Harr, President of the Aerospace Industry Association (AIA) in Washington, more aptly termed 1978 a "crossroads" for aerospace. Harr's year-end review of the industry was quoted extensively in the December 26 *Seattle Times,* a newspaper which often reflects the interests and viewpoint of the Boeing Corporation.

While not specifically referencing the U.S. Labor Party's proposal for expansion of Eximbank credit facilities, the AIA president did pay particular attention in his year-end review to the necessity of eliminating "all tariff and nontariff barriers in international trade." One such barrier is the sheer cost of aerospace products: one medium-sized commercial transport, for example, such as a Boeing 727 or DC-9, carries a price tag in the $10 million range. The wide-body "jumbo" jets (Boeing 747, DC-10, Lockheed L-1011) go for some $35 million. With commercial airlines increasingly less able to lay out large downpayments, manufacturers have attempted to bypass the credit problem by setting up sales-financing subsidiaries, and looking to the formation of international consortia in order to spread the cost and risk of developing new lines of aircraft. Boeing, for example, has entered in negotiations with Alitalia and the Italian government for the assumption of 20 percent of the cost of its present development program, and the Japanese Civil Transport Development Corporation is expected to take over an additional 25 percent. McDonnell Douglas is similarly looking to the West Germans.

The scale of the credit problem can be seen in the higher threshold of sales needed to break even on more recent plane models. The Boeing 747, which cost some $1 billion to develop, will not have covered its development costs until sales reach about 400. Only 360 have been sold since the line came out a decade ago. The 747, and the competitive McDonnell Douglas DC-10, will undoubtedly prove profitable in the long run. The same projection cannot be made with confidence for Lockheed's L-1011 Tristar, which is not only still suffering a loss, but which has not even reached the rate of production (about 18 planes per year) required to cover overhead production costs.

The tremendous cost of research and development in this high-technology industry is the hidden weakness lurking behind any assessment made on the basis of

Graph 1



purely financial criteria. On the surface, it appears that there has been an improvement in the financial health of the industry over the 1970-1976 period, most notably seen in a steady decrease in the debt-equity ratio (from 2.2 to 1.75) and a slight increase in assets over liabilities. However, this has happened largely at the expense of investment in new plant and equipment, which has stagnated.

The industry's strategy for shoring up finances — exemplified in the extreme by the reorganization of Lockheed in 1974 — has been to bolster short-term liquidity at any cost. Holdings of cash and securities for the industry as a whole jumped 142 percent from roughly $700 million in 1970-1972, to over $1.7 billion in 1976; total net plant holdings barely edged up from $4.1 billion to $4.6 billion — in constant 1972 dollars, this represents an actual decline of $670 million. Some 80 percent of the industry's security holdings of $834 million — 38 percent of total liquid assets — would have to be devoured to restore the net value of existing plant to 1972 levels, to say nothing of the expansion or the development of qualitatively new types of facilities.

The industry is well aware of this problem. Harr called for a "depreciation policy appropriate to risk in a high-technology industry" and urged the modification of "the overpowering burden of heavy government regulation of industry" and an increase in government-funded research and development.

The role of government spending — and industrial credit policies — is critical to the aerospace industry, but "fat defense contracts" notwithstanding, it is a mixed blessing as presently structured. U.S. government outlays for procurement and for research, development, test and evaluation (RDT&E) account for about half of total U.S. aerospace sales, and have been essential in facilitating the development of even the commercial airliners. At the same time, government regulations put a ceiling on profits in the range of 3.5 percent of net sales after taxes, by far the lowest in the manufacturing and durable goods sectors where 5 percent is typical. Defense contracts do include hefty RDT&E components directly, but the bread-and-butter of industrial expansion, the ability to invest in new plant and processes, remains overall profit levels and, hence, sales.

Covering Up Collapsing Sales

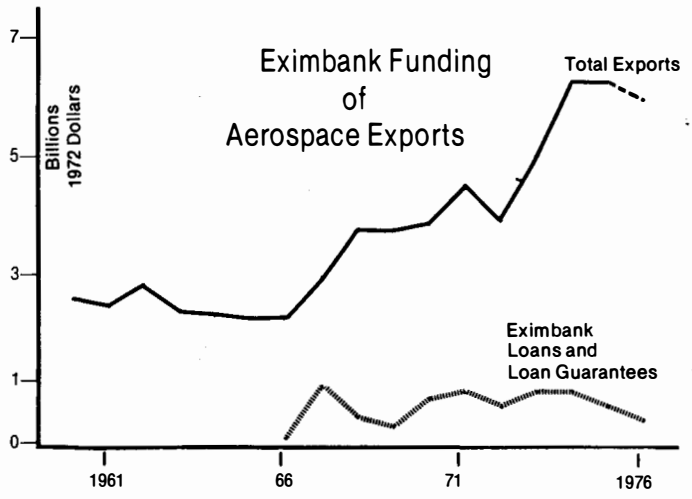
Aerospace sales have traced a unique pattern in the manufacturing sector generally. While auto manufacturers have to some extent relied on superficial styling changes in autos, the aerospace industry has grown by constantly developing entirely new product lines. In the process, it has developed capabilities for rapid and large-scale shift in production facilities and labor skills unmatched by any industry in the world. For example, aerospace has more machine tools — both manual and automatic — than the machine tool industry itself; also it has the largest concentration of scientists, engineers, and technicians of any industry.

A glance at *Graphs 2* and *3* will show that the overall rise (and fall) in aerospace sales over the past 25 years masks the constant coming on line of new products, each of which has bolstered sales as earlier products faded from the market. From its inception in World War II, when the industry really began in its present form, the mainstay was, of course, aircraft. A falloff in aircraft production lasting from 1958 to 1964 was masked by the rapid rise in missile production, which peaked under the Kennedy Administration. As missile production began to fall off in 1963, the space program was growing rapidly.

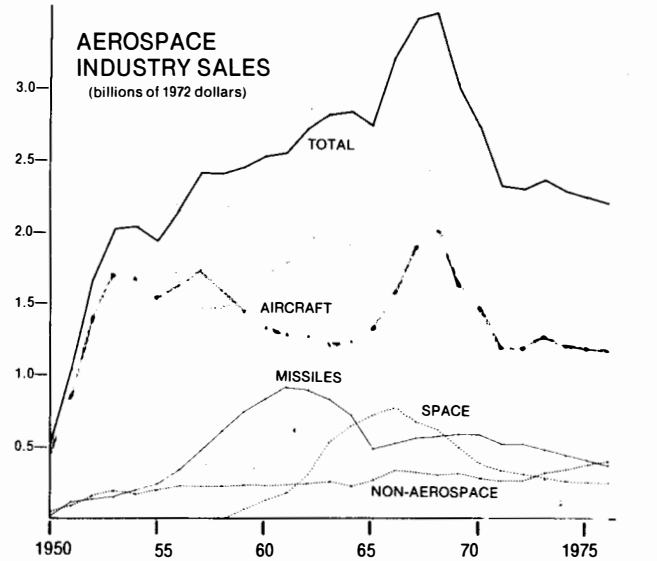
Thus the much-touted 1968 sales peak reflected, aside from Vietnam war-related military aircraft procurement, still-substantial sales of missile and space products and services. Since then all sectors have fallen off, and, with the exception of the "nonaerospace" category of aerospace company output, no new field of aerospace technology has emerged to fill the gap. What remains of aircraft production itself — still over half the industry's total sales — has been maintained largely by the export market (*see Graph 1*).

"Nonaerospace" services — which are a grab-bag of miscellaneous efforts — in 1976 amounted to one-sixth of the industry's total sales — or the second largest sales component after aircraft. It includes all sorts of diver-

Graph 2



Graph 3



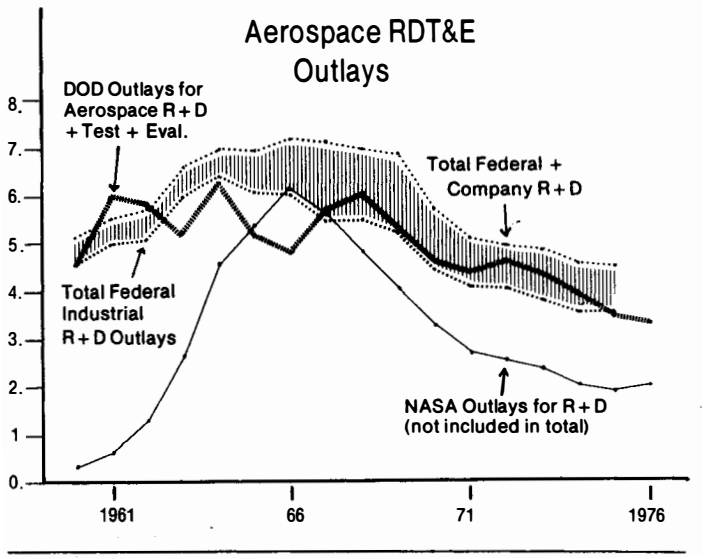
sified "sidelight" investments from surface transportation (e.g. Boeing's Vertol Division; Rohr Industries' production of the D.C. metro and the San Francisco BART system); turbine engines for nonaerospace applications, such as power generation stations and some European railroads; modular housing (Grumman); and a hodgepodge of energy-related projects, ranging from nuclear to solar panels and windmill vanes. McDonnell Douglas, for example, is a prime contractor for ERDA's pilot solar project in Barstow, California; while a giant windmill greets workers at Grumman's Long Island plant.

In short, the industry is keeping as many pots going as possible at a slow simmer, hoping that Washington will issue some kind of clear industrial policy direction.

A parallel strategy has been to scan the horizon for possible acquisitions as a cheap short-cut to bolstering production capacity, as well as an additional source of liquidity. Over any longer term period, however, without clear government commitment to the quality of industrial growth specified in the U.S. Labor Party's Eximbank proposal, there simply is no future for aerospace. Individual companies may survive relatively intact, even prosper, but only as a different species of industry that neither relies on technological advance nor contributes significantly to it.

An example of the relative slippage in U.S. aerospace capabilities is the recent introduction of the European "Airbus" short-haul jetliner to U.S. domestic routes. This aircraft, a joint production of German, French, Dutch, and Spanish companies, is an ideal fuel-efficient plane for high-density, short-range traffic, such as the New York-Chicago and New York-Florida routes; it has already been adopted by Eastern Airlines. The lesson to be learned in the Airbus case is not that "competition" with overseas manufacturers is hurting domestic industry — for one thing, 30 percent of the plane's cost is engines manufactured by General Electric — but that it was developed and marketed before Boeing and McDonnell Douglas even had their lines off the drawing boards.

Graph 4



U.S. manufacturers might try to sidestep the problem with complaints of heavy government subsidies to European airlines and aircraft manufacturers. In reality. U.S. efforts have been encouraged no less, if indirectly, by government policy. The problem is, in part, establishing that policy clearly and coherently.

From 1974 to 1976, total federal outlays for industrial research and development averaged just over $3.5 billion annually, compared with over $6 billion in 1963-66, and $4.5 billion in 1960. The cancelled B-1 bomber accounted for fully 12 percent of the total 1975 government and private aerospace sector Research and Development budget. The space program, despite the space shuttle, has also leveled off at just over $2 billion a year, down from a peak of $6 billion in 1966 and at its lowest level since 1962 *(see Graph 4)*.

New Research and Development efforts cannot be financed out of existing sales markets. In the past, the development costs for a new plane could be written off after the first 20-100 sold or offset by ongoing military production; but, with the advent of wide-bodied jets, the entire projected production run is necessary to absorb the original costs. Adding to the credit crunch, airlines can no longer finance production costs by "progress payments" on their orders. Boeing now demands 50 percent down in six-month installments starting two years *prior* to delivery for production of the 747 — a rate and level far in excess of prior patterns. Lockheed and McDonnell Douglas have not been able to obtain more than 35 percent in one 6-month prior payment.

Moreover, present airline prospects do not look good for financing new planes. While passenger-miles flown continue to increase, domestic operating revenues, of which some 85 percent is passenger fares (the remainder cargo, mail, and overweight), have fallen since 1974 in real dollar terms. After six years of extremely shaky business, from a net operating standpoint, 1977's apparent income boom owes a great deal not to air traffic, but to such irregular items as sales of old aircraft and interest income from nonairline subsidiaries. But one year's profits cannot finance a fleet. It is anybody's guess what effect an impending price-war in air travel may have on airline net revenues.

One proposal afoot in the Department of Transportation is to divert one-quarter of the present 8 percent federal tax on airline tickets, about $3 billion over the next ten years, toward the financing of new planes. This might do the trick for replacing existing capacity: many of the older planes in the fleet will have to be retired shortly, and airlines have been holding off on orders until the last moment. The question remains whether the industry will continue, in Harr's words, "to play its traditional role in the economic and national-security areas."

Commitment to High Technology Runs Deep

The critical determinant will be government action. Harr's comments are relatively strong for an industry ingrained with a fear of high-profile political statements ("We get stomped on if we make high-visibility" moves, said one AIA official), but as such, such remarks are inadequate. Presumably new military RDT&E and procurement, plus continuing overseas military sales, can continue to prop up a sizeable portion of the U.S. aero-

space industry. Guarantees for failing firms, such as the Lockheed salvage operation, can also conceivably take place when necessary. The real question, however, is not whether a particular firm remains afloat, but on what basis will the industry continue to exist?

The industry remains firmly committed to high-technology growth rather than paper profits, unlike other industrial representatives such as U.S. Steel's Edgar Speer, who declared that the purpose of U.S. Steel was to make profits, not steel. An example of this commitment is the maintenance of company-generated Research and Development outlays over the period from 1966 to the present when federal outlays slipped constantly downward. The company portion, which comprised 10 percent of total Research and Development in 1960 ($530 million out of $5.1 billion in 1972 dollars), in 1972 had grown to 21 percent of the total, or almost $900 million. As for the European Airbus, the common response of U.S industry representatives has not been to view it as competition, but simply to remark that it's a good plane!

Because of its dependence on government financing, whether direct development and production of military products or the associated advances made possible in civilian manufacture, the industry is presently dabbling in enterprises that offer no promise for future technological advance and, worse, represent actual sabotage of the high-technology backbone of the industry. Even ignoring side lines such as real estate or hotel ownerships, investments in solar energy, pollution control devices (Grumman), and other low-energy but labor-intensive operations are a growing feature of aerospace "assets". Until the present obstacles in government policy to actual high-technology output are removed, such as the stalling of nuclear plant construction, aerospace really has little choice.

In the meantime, the production that is continuing increasingly comes out of the hides of the work force. Skilled labor, such as the scientists and engineers capable of advancing the industry's production capabilities, remain idle (now at 67,400; down from 101,000 in 1968 when they represented nearly 27 percent of all Research and Development-engaged scientists and engineers). In 1972, when total aircraft production jumped from its 1971 low but total production workers employed in aircraft remained depressed, the work injury rate nearly doubled from a previous average of about 4.5 injuries per 100 man-years, to 8.0. With only a slight subsequent decline, it has remained there ever since. (Total aircraft production leapt to a post-1968 high over the 1973-1976 period due mainly to an increase in general aviation, or small private aircraft, rather than commercial orders. This comprises some 15,000 planes annually, compared with commercial production in the 2-350 range, though makes up only one-sixth of the dollar value of total aviation sales *(see Graph 5)*.

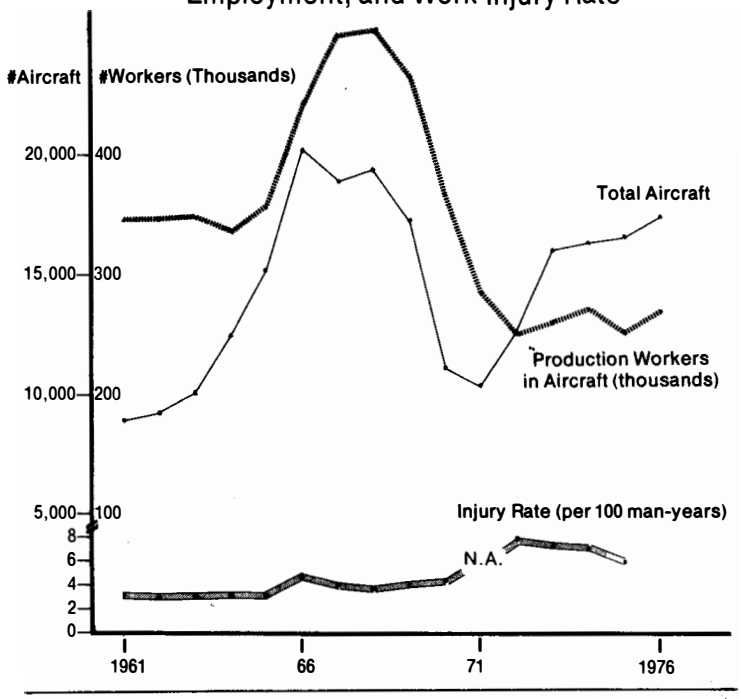
A final indication of the state of aerospace is the condition of subcontracting. Aerospace is a highly interlocked industry as a whole; large contracts are frequently subcontracted to the tune of 50 percent of the whole project. Boeing, for example, produces only one portion of the 747 fuselage; LTV's subsidiary Vaught Aerospace produces the tail and aft body, while Northrop turns out the main fuselage section and various other components. Engines and electronics are generally put in by other companies with appropriate specialized facilities, such as General Electric and United Technologies for engines; Northrop and others for guidance and control systems. This is the major production side. As for new development efforts, historically a major role has been played by a multitude of small companies, specializing in the development of some new technology which can then be adopted by the larger companies for mass production. These smaller firms have assumed a disproportionate share of the risk in RDT&E efforts, especially during high-inflation periods when they have less financial flexibility and sheer clout to modify original contracts. They also tend to operate on a much slimmer profit margin. In 1968, some 6,000 subcontractors were in business; through shifts to other work and bankruptcies, only 3,700 remain. Aside from the assumption of risk and the advantages of a larger scale division of labor (and consequent freedom for innovation), the subcontractors also provided a considerable portion of the Research and Development industrial facilities of the late 1960s and early 1970s — facilities which no longer exist in part.

Potential markets do exist that would not only revive the U.S. aerospace industry but would challenge its capabilities to the utmost, and not just through the deadend of military exports. Over the long term, a vastly expanded space program would beggar past efforts; that is, a program oriented toward the 21st-century exploration and colonization of other planets.

In the short term, expanded Eximbank financing would put to use the now-idled nuclear energy inputs from the aerospace industry. Associated infrastructural development of Third World nations would call on the ad-

Graph 5

U.S. Aircraft Production, Employment, and Work Injury Rate



vanced materials (e.g., aluminum and alloys) and industrial-engineering expertise of the industry for surface transport and port development, as well as an escalated demand for commercial aircraft production. Above all, what would be in demand is the flexibility and RDT&E capacities of the industry that exist nowhere else in the world in such concentration. The U.S. aerospace industry is more than a collection of plants that can produce this or that existing product. It is an integrated, high-technology-oriented complex that has built up a cooperative pool of the world's most highly skilled labor force and represents one of the foremost real assets of the world economy.

This is well known to the industry. the AIA president concluded his remarks by noting that "if the Administration and the Congress decide that the price is too high or that other, conflicting principles or priorities (e.g., energy stagnation, deindustrialization of the U.S.) take precedence, then...this country will be, perhaps irrevocably, on a path to a very different kind of role than it has known for the past 35 years, with all the attendant domestic and international consequences that will inevitably follow."

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