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# FRBSF WEEKLY LETTER

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## Aerospace Downturn

The Twelfth Federal Reserve District, which includes nine western states, accounts for 44 percent of U.S. aerospace employment. And, like the nation, this District has seen employment in the sector drop 9 percent since reaching a peak in January of 1990. This translates to a loss of about 35,000 jobs in the Twelfth District.

The primary reason for this downturn is the end of the military buildup that lasted through most of the 1980s. Between fiscal year (FY) 1985, when the value of prime contract awards issued by the Department of Defense (DOD) peaked, and FY 1990, the latest year for which complete data are available, the value of these awards nationally fell 33 percent on an inflation-adjusted basis. The decline was even more dramatic in California and Washington, the West's most important states for aerospace production, reaching 35 percent in California and 41 percent in Washington.

While the aerospace industry has suffered from significant cuts in defense spending, it has found a bright spot in commercial aircraft. Despite the current recession, and a resulting slowdown in new orders, commercial aircraft producers have huge backlogs of orders. For example, at the end of the second quarter, Boeing had unfilled orders for 1,753 aircraft on its books, representing four years of production at current manufacturing rates. Although a few airlines have canceled deliveries of ordered planes due to their own financial problems, other carriers are stepping in to buy them. This suggests that Boeing probably can keep busy producing commercial aircraft for a few more years, even if the size of its backlog declines.

**Notice to our readers:** The *Weekly Letter* will appear on an abbreviated schedule during June, July, August, and December. To help you keep track of your subscription: • issues now contain a running index of the most current articles • issues are now both dated and numbered.

This *Letter* analyzes the current downturn in western aerospace activity and provides some historical perspective by describing previous aerospace downturns in California and Washington.

### California bears the brunt

The divergence between the commercial and defense sides of the aerospace business in the current environment helps explain why California has lost fully 33,000 of the 35,000 aerospace jobs lost in the District since January 1990. Thus, the percentage decline in aerospace jobs has been much larger in California, at 13 percent, than the 9 percent decline seen District-wide. Contract defense work is more important to California's aerospace industry than it is to Washington's. During each year of the 1980s, the average value of DOD prime contract awards received per aerospace worker was two and a half to four times larger for California than for Washington. For example, during FY 1982, Washington's aerospace industry received an average of \$37,600 in DOD prime contract awards for each aerospace worker, while in California the industry received an average of \$110,700 in contract awards for each worker. These figures suggest that aerospace producers in California were much more vulnerable to federal defense cutbacks than their counterparts in Washington were.

In addition, commercial aircraft production has fared better in Washington than in California during recent years, largely because of specific characteristics of the companies involved. Boeing, which dominates Washington's aerospace industry, is exceptionally secure financially.

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## THE WESTERN ECONOMY

*The Western Economy* is a quarterly review of economic conditions in the Twelfth Federal Reserve District. It is published in the *Weekly Letter* on the third Friday of February, May, August and November.

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Moreover, as its current \$3 billion expansion program in the Puget Sound area attests, Boeing is committed to maintaining much of its production capacity in Washington. In contrast, the companies that produce commercial aircraft in California are also heavily involved in defense contract work. They face financial pressures as their defense volumes shrink and as their profit margins bear intense scrutiny from Congress. As a result, these companies find it difficult to invest in designing new commercial aircraft, and they also face pressures to improve productivity among existing workers rather than hire additional workers. Furthermore, some companies with operations in California are cutting back on production in the state (both civilian and defense) and expanding their facilities elsewhere.

## Past aerospace cycles

Job losses in the aerospace industry are nothing new. This is the third sustained period of falling aerospace employment for the Twelfth District since 1971. The mid-1970s was a particularly painful period for western aerospace producers. The end of the war in Vietnam led to a reduction in defense spending, with the inflation-adjusted value of prime DOD contract awards down 9 percent between FYs 1972 and 1976. At the same time, the general recession reduced sales of civilian aircraft by 25 percent between 1974 and 1977. The combination of civilian and defense problems led both Washington and California to suffer sharp job losses in their aerospace industries, of 20 and 17 percent, respectively.

The aerospace downturn in the early 1980s was somewhat less severe, as national aerospace employment fell 7 percent between January 1981 and November 1983. But it hit commercial aircraft producers very hard. On an inflation-adjusted basis, the value of sales of civilian aircraft fell 54 percent between 1980 and 1984. Meanwhile, the defense buildup of the 1980s was beginning, insulating defense contract production from the recession. Indeed, the inflation-adjusted value of contract defense awards rose by 54 percent between FYs 1980 and 1984.

Largely because of the overwhelmingly commercial orientation of the downturn of the early 1980s, Washington suffered disproportionately more than California did. While California lost a relatively modest 6 percent of its aerospace manufacturing jobs between January 1981 and November 1983, aerospace employment in Washington plunged by 23 percent, making the early 1980s even harder on Washington's aerospace industry than the mid-1970s had been.

## Conclusions

This *Letter* has reviewed the performance of western aerospace industries during the current aerospace downturn, as well as other downturns during the past twenty years. This look at the evidence suggests that, so far, the job losses experienced by the industry in the current cycle have not been particularly severe by historical standards. A decline of 9 percent is certainly significant and worthy of concern, but at this point, it is still not as bad as the 10 percent decline in District aerospace unemployment seen in 1974–1976 or the 17 percent drop between 1981 and 1983.

Since the defense side of the business is in worse shape than the commercial side, California's industry is suffering significant job losses, while aerospace employment in Washington is relatively stable. Aerospace employment in Washington currently is only 1 percent below its January 1990 level, far better than the 20 to 23 percent declines Washington saw in the two earlier downturns. As long as Boeing's large stock of orders for commercial aircraft remains on the books, Washington should continue to avoid the worst of the aerospace industry's troubles.

In contrast, the impact of defense cutbacks may continue to be felt for some time in California. But it is worth keeping these developments in perspective. California's current weakness is broad-based, and probably closely associated with the national recession. As long as California's population continues to grow at rates well above the national average, the state's longer-term outlook remains relatively bright.

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Economist

## MONETARY POLICY OBJECTIVES FOR 1991

On July 16, Federal Reserve Board Chairman Alan Greenspan presented a mid-year report to the Congress on the Federal Reserve's monetary policy objectives for the remainder of 1991. The report reviews economic and financial developments in 1991 and presents the economic outlook heading into 1992. For single or multiple copies of the report, write to the Public Information Department, Federal Reserve Bank of San Francisco, P.O. Box 7702, San Francisco, CA 94120, or phone (415) 974-2246.

**DISTRICT INDICATORS**  
(Seasonally Adjusted)

	91Q2	91Q1	90Q4	90Q3	90Q2	90Q1	89Q4	89Q3	% CHANGE FROM:	
									91Q1	90Q2
<b>AGRICULTURE</b>										
U.S. CROP PRICES, 1985=100	116.8	114.1	113.8	117.0	118.1	118.5	115.0	113.3	2.37	-1.08
DISTRICT CROP PRICES, 1985=100	134.8	106.8	110.0	112.9	112.3	130.4	116.1	115.2	26.26	20.06
FARM CASH RECEIPTS, MILLION \$	N/A	2630.1	2424.1	2504.2	2457.1	2432.3	2534.2	2425.5	N/A	N/A
CATTLE ON FEED, 1985=100	94.1	93.3	85.6	87.8	89.9	90.0	91.2	92.4	0.83	4.58
CATTLE PRICES, CALIFORNIA, \$/CWT.	62.8	64.5	63.9	65.9	66.6	63.6	62.4	62.7	-2.61	-5.68
<b>FORESTRY</b>										
LUMBER PRODUCTION, MILLIONS BOARD FEET	1522.6	1397.3	1347.0	1550.9	1654.3	1751.9	1795.0	1787.9	8.97	-7.96
NORTHWEST LUMBER INVENTORY, MIL. BOARD FEET	2322.9	2361.4	2325.1	2493.3	2620.7	2604.2	2533.6	2532.0	-1.63	-11.36
U.S. LUMBER PRICES, 1986=100	139.3	112.7	120.0	130.6	132.3	129.6	128.0	124.1	23.60	5.31
<b>ENERGY</b>										
SPOT PRICE OF OIL, \$/BARREL	20.8	22.1	32.1	26.2	17.8	21.8	20.3	19.3	-6.00	17.02
U.S. RIG COUNT	909.8	980.7	1084.1	994.1	1038.2	921.7	1002.3	878.2	-7.23	-12.37
DISTRICT RIG COUNT	82.5	75.8	73.6	74.4	72.8	56.8	69.2	73.4	8.75	13.20
FUEL MINING EMPLOYMENT, 1985=100	73.3	75.5	73.8	73.9	73.9	75.5	75.2	75.8	-2.92	-0.78
U.S. SEISMIC CREW COUNT	110.2	117.9	120.2	122.3	128.4	127.2	128.5	129.8	-6.51	-14.14
<b>MINING</b>										
MINERAL PRICES, 1986=100	109.4	107.6	111.9	129.7	127.6	123.7	125.4	128.3	1.60	-14.27
METAL MINING EMPLOYMENT, 1985=100	185.3	192.9	198.0	197.4	199.2	196.6	193.9	190.8	-3.94	-6.97
<b>CONSTRUCTION</b>										
NONRESIDENTIAL AWARDS	1499.6	1521.7	1411.4	1557.5	1585.5	1726.2	1469.9	1655.5	-1.45	-5.42
RESIDENTIAL PERMITS	20675	17576	18219	22860	26468	31871	32866	30774	17.63	-21.89
WESTERN HOUSING STARTS, THOUSANDS	26.0	15.6	18.6	29.1	31.2	30.7	29.3	35.2	66.31	-16.67
CONSTRUCTION EMPLOYMENT, THOUSANDS	1019.0	1041.7	1043.0	1058.2	1068.5	1066.8	1044.5	1018.6	-2.18	-4.63
<b>MANUFACTURING</b>										
WAGES, CALIFORNIA, \$/HOUR	11.8	11.8	11.7	11.6	11.4	11.3	11.3	11.2	0.14	2.97
EMPLOYMENT, THOUSANDS	3036.7	3081.4	3097.7	3124.8	3143.6	3158.3	3160.4	3164.4	-1.45	-3.40
DURABLES, 1985=100	97.0	98.4	99.7	101.3	102.2	103.0	103.6	104.0	-1.48	-5.15
CONSTRUCTION DURABLES, 1985=100	100.9	103.2	104.3	108.0	110.1	112.0	112.5	113.1	-2.16	-8.33
AEROSPACE, 1985=100	108.3	110.8	113.1	115.3	117.7	118.3	117.5	116.3	-2.26	-8.01
ELECTRONICS, 1985=100	91.2	92.2	92.4	92.7	93.1	93.8	93.9	94.0	-1.09	-2.01
SEMICONDUCTOR ORDERS, MILLIONS \$, NOT S.A.	1372.4	1247.3	1151.4	1192.2	1309.7	1227.7	1197.9	1166.3	10.04	4.79
WHLS/RETAIL TRADE EMPLOYMENT, THOUSANDS	4810.7	4836.9	4823.7	4827.2	4805.6	4773.0	4752.6	4723.6	-0.54	0.11
RETAIL SALES, PACIFIC DISTRICT, MIL. \$	25179	24412	25138	25195	24979	24720	23992	23883	3.14	0.80
<b>SERVICES EMPLOYMENT, THOUSANDS</b>										
HEALTH CARE, 1985=100	129.2	128.4	127.6	125.7	124.1	122.7	122.0	120.3	0.64	4.15
BUSINESS SERVICES, 1985=100	119.2	118.6	115.7	115.7	116.1	115.0	111.7	110.0	0.55	2.75
HOTEL, 1985=100	137.6	138.2	139.7	136.3	135.0	133.4	131.9	129.4	-0.42	1.97
RECREATION, 1985=100	140.5	141.0	142.0	138.1	135.8	133.1	135.8	130.7	-0.36	3.47
<b>FINANCE, INSUR. AND REAL ESTATE EMPLOYMENT</b>										
	1271.9	1274.5	1270.2	1269.7	1264.6	1256.2	1250.8	1242.2	-0.20	0.58
<b>GOVERNMENT EMPLOYMENT, THOUSANDS</b>										
FEDERAL GOVERNMENT	615.2	619.8	616.7	636.4	655.0	629.0	624.6	624.2	-0.74	-6.07
STATE AND LOCAL	2879.1	2860.7	2833.1	2825.9	2777.9	2755.8	2724.0	2694.6	0.64	3.64

Data are weighted aggregates of available 12th District state data and are expressed as monthly rates unless otherwise noted. District indicator data are constructed by FRBSF research staff from public and industry sources.

Opinions expressed in this newsletter do not necessarily reflect the views of the management of the Federal Reserve Bank of San Francisco, or of the Board of Governors of the Federal Reserve System. Editorial comments may be addressed to the editor (Judith Goff) or to the author. . . . Free copies of Federal Reserve publications can be obtained from the Public Information Department, Federal Reserve Bank of San Francisco, P.O. Box 7702, San Francisco 94120. Phone (415) 974-2246.

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### PERSONAL INCOME ANNUALIZED PERCENT GROWTH RATES

	91q1	90q4	90q3	90q2	90q1	ANNUAL GROWTH		
						1991*	1990	1989
ALASKA	7.4	6.0	6.0	9.7	7.7	7.4	7.3	11.9
ARIZONA	4.5	3.0	7.4	5.7	7.6	4.5	5.9	7.2
CALIFORNIA	1.2	5.3	6.4	4.5	14.9	1.2	7.7	6.7
HAWAII	1.3	8.0	11.3	9.1	9.6	1.3	9.5	11.0
IDAHO	0.3	11.3	0.4	5.2	18.2	0.3	8.6	8.7
NEVADA	3.0	5.2	12.9	7.3	11.3	3.0	9.1	13.3
OREGON	1.9	6.3	6.2	8.2	8.5	1.9	7.3	9.1
UTAH	5.2	7.1	8.5	8.9	9.3	5.2	8.4	8.1
WASHINGTON	1.0	8.0	7.7	5.2	12.9	1.0	8.4	10.3
12TH DISTRICT	1.6	5.7	6.8	5.2	13.4	1.6	7.8	7.6
U.S.	1.2	4.1	5.2	5.6	9.9	1.2	6.2	6.7

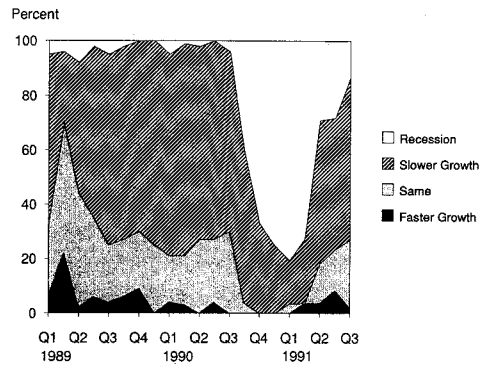
\* Year-to-date

### NON-AGRICULTURAL EMPLOYMENT ANNUALIZED PERCENT GROWTH RATES

	91q2	91q1	90q4	90q3	90q2	ANNUAL GROWTH		
						1991*	1990	1989
ALASKA	-0.1	7.6	-0.9	-2.7	7.9	3.8	3.6	5.4
ARIZONA	-0.3	1.9	0.8	4.9	4.1	0.8	2.7	2.4
CALIFORNIA	-1.5	0.5	-2.0	1.4	2.7	-0.5	1.1	3.3
HAWAII	0.2	0.5	3.3	1.3	6.1	0.4	3.1	6.4
IDAHO	-0.5	6.4	4.5	3.9	6.0	3.0	5.4	4.9
NEVADA	-3.9	0.4	6.6	7.6	4.2	-1.8	6.9	8.0
OREGON	-2.4	3.5	0.7	1.4	3.1	0.5	2.3	4.0
UTAH	2.8	4.3	5.5	2.3	5.1	3.5	4.3	5.0
WASHINGTON	-2.4	3.7	2.8	3.5	3.3	0.6	3.8	5.7
12TH DISTRICT	-1.4	1.5	-0.3	2.1	3.2	0.0	2.0	3.8
U.S.	-1.2	-2.3	-1.4	-0.2	1.9	-1.7	0.7	2.1

\* Year-to-date

### Twelfth District Business Sentiment Index\* GNP



\* The index is constructed from a survey of approximately 75 business leaders in the 12th Federal Reserve District.

### UNEMPLOYMENT RATES AVERAGE QUARTERLY DATA

	91q2	91q1	90q4	90q3	90q2	ANNUAL AVG.		
						1991*	1990	1989
ALASKA	7.3	7.4	7.0	6.6	6.9	7.4	6.9	6.7
ARIZONA	4.6	5.3	5.5	5.3	5.5	5.0	5.3	5.2
CALIFORNIA	7.8	7.4	6.5	5.6	5.3	7.6	5.6	5.1
HAWAII	2.6	2.6	2.7	2.7	2.5	2.6	2.8	2.5
IDAHO	6.4	6.1	6.2	6.0	6.0	6.2	5.9	5.1
NEVADA	5.9	5.6	5.7	4.9	4.9	5.8	5.0	5.0
OREGON	5.8	6.1	5.9	5.6	5.2	5.9	5.5	5.7
UTAH	4.6	4.3	4.3	4.2	4.4	4.4	4.3	4.7
WASHINGTON	6.3	6.2	5.3	4.4	4.6	6.2	4.9	6.2
12TH DISTRICT	6.9	6.7	6.1	5.3	5.1	6.8	5.4	5.2
U.S.	6.8	6.5	5.9	5.6	5.3	6.7	5.5	5.3

\* Year-to-date