

# FRBSF ECONOMIC LETTER

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## Information Technology and Growth in the Twelfth District

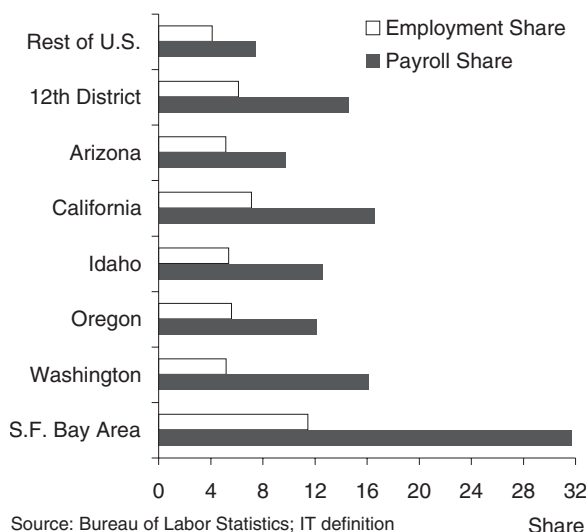
The Twelfth District includes the nine westernmost states and has some of the nation's leading technology centers. Over the past several years, robust growth among information technology (IT) firms has fueled gains in output, employment, and earnings and helped the District economy expand more rapidly than the rest of the nation. Recently, however, economic conditions among technology firms in the U.S. have weakened considerably, with many announcing earnings shortfalls and employment reductions. As a result, employment growth in the Twelfth District has slowed substantially, converging with that of the rest of the U.S. This *Economic Letter* reviews some of the recent trends in the IT sector and examines their effects on District employment growth. As the *Letter* shows, a key dimension of the current IT slump is the simultaneous decline of both the manufacturing and services sides of the sector.

### IT in the Twelfth District

Whether measured by the amount of venture capital invested, number of patents issued, dollar value of exports, or employment and payroll, the Twelfth District has many of the nation's top technology centers. Not surprisingly, then, developments in IT are of central importance to the District economy. Figure 1 displays employment and annual payroll in IT manufacturing and services as a share of total nonagricultural employment and payroll in 2000. The IT sector includes manufacturing and services firms producing computers and office equipment, consumer electronics, communications equipment, electronics components and accessories, semiconductors, industrial electronics, photonics, defense electronics, electro-medical equipment, communications services, and software and related components.

The figure shows that the share of employment associated with the IT sector is larger in the Twelfth District than in the rest of the U.S. IT accounts for about 6% of total nonagricultural employment in the District, compared to about 4% in the rest of the U.S. Measured by employment, the District is

**Figure 1**  
**Importance of IT sector**



Source: Bureau of Labor Statistics; IT definition from the American Electronics Association.

about 1.5 times as dependent on IT as the rest of the U.S.

The importance of technology to the District is even more apparent in the payroll shares (wages, salaries, and benefits), where relatively high salaries paid to IT workers boost its value to the economy. Nearly 15% of District nonagricultural payroll comes from the IT sector, compared to less than 8% in the rest of the U.S. Thus, measured by payroll, the IT sector is about twice as important in the Twelfth District as in the rest of the U.S.

Within the District, California, especially the San Francisco Bay Area, and Washington stand out as areas with very strong IT presences. About 7% of employment and 17% of nonagricultural payroll in California come from tech sectors; in the Bay Area, the shares are 11% and 32%, respectively. IT also is important in Washington, particularly as a contributor to payroll; Washington's tech sector





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## Index to Recent Issues of *FRBSF Economic Letter*

DATE	NUMBER	TITLE	AUTHOR
3/30	01-08	How Costly Are IMF Stabilization Programs?	Hutchison
4/6	01-09	What's Different about Banks—Still?	Marquis
4/13	01-10	Uncertainties in Projecting Federal Budget Surpluses	Lansing
4/20	01-11	Rising Price of Energy	Daly/Furlong
4/27	01-12	Modeling Credit Risk for Commercial Loans	Lopez
5/4	01-13	The Science (and Art) of Monetary Policy	Walsh
5/11	01-14	The Future of the New Economy	Jones
5/18	01-15	Japan's New Prime Minister and the Postal Savings System	Cargill/Yoshino
5/25	01-16	Monetary Policy and Exchange Rates in Small Open Economies	Dennis
6/1	01-17	The Stock Market: What a Difference a Year Makes	Kwan
6/15	01-18	Asset Prices, Exchange Rates, and Monetary Policy	Rudebusch
7/6	01-19	Update on the Economy	Parry
7/13	01-20	Fiscal Policy and Inflation	Daniel
7/20	01-21	Capital Controls and Exchange Rate Stability in Developing Countries	Glick/Hutchison
7/27	01-22	Productivity in Banking	Furlong
8/10	01-23	Federal Reserve Banks' Imputed Cost of Equity Capital	Lopez
8/24	01-24	Recent Research on Sticky Prices	Trehan
8/31	01-25	Capital Controls and Emerging Markets	Moreno
9/7	01-26	Transparency in Monetary Policy	Walsh
10/5	01-27	Natural Vacancy Rates in Commercial Real Estate Markets	Krainer
10/12	01-28	Unemployment and Productivity	Trehan
10/19	01-29	Has a Recession Already Started?	Rudebusch
10/26	01-30	Banking and the Business Cycle	Krainer
11/2	01-31	Quantitative Easing by the Bank of Japan	Spiegel