

the Southwest ECONOMY

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Defense Spending Cuts and Southwestern Industry: A Look at Our Vulnerability

President George Bush's proposal for the 1992 federal budget cuts defense purchases by almost \$5 billion. The prospect of a smaller defense budget raises concern about the concentration of defense-dependent industries in the Southwest. While all industries depend on defense purchases to some degree, some industries, such as ordnance or aircraft manufacturing, are more than 10 times as dependent on defense purchases as the national average. By examining the role that strongly defense-dependent industries play in the economies of the 15 largest metropolitan areas of the Southwest, the author finds that exposure to defense-purchasing cuts is above the national average in Fort Worth, Tulsa, Dallas, New Orleans and Oklahoma City.

Defense-Dependent Industries

Cuts in defense purchases will affect not only industries that produce defense goods and services but also industries that produce component parts and industries that produce consumer goods and services for the employees of the other two categories. Therefore, the author uses an input-output model, which describes historical relationships among industries in the United States, to estimate each industry's

dependence on defense purchases.¹

The author measures the degree of defense dependence for each industry by the effect on employment in each industry of a uniform, 10-percent reduction in real defense purchasing. Clearly, the actual cut in defense purchasing will be neither uniform nor exactly 10 percent, but this approach generates a benchmark estimate of the relationship between purchasing cuts and industry employment. Industries that would lose relatively large shares of their employment to a uniform cut in defense purchases are strongly defense-dependent, while industries that would lose relatively small shares of their employment are weakly defense-dependent.

The input-output approach yields a more reliable picture of defense-dependence than would an analysis of defense contracts for several reasons. Contract data are notoriously misleading because they indicate only the firms that win contracts, not the locations of the manufacturing plants. For example, the contract data can indicate that a company in St. Louis has won a contract, even though the actual work affects Fort Worth. Further,

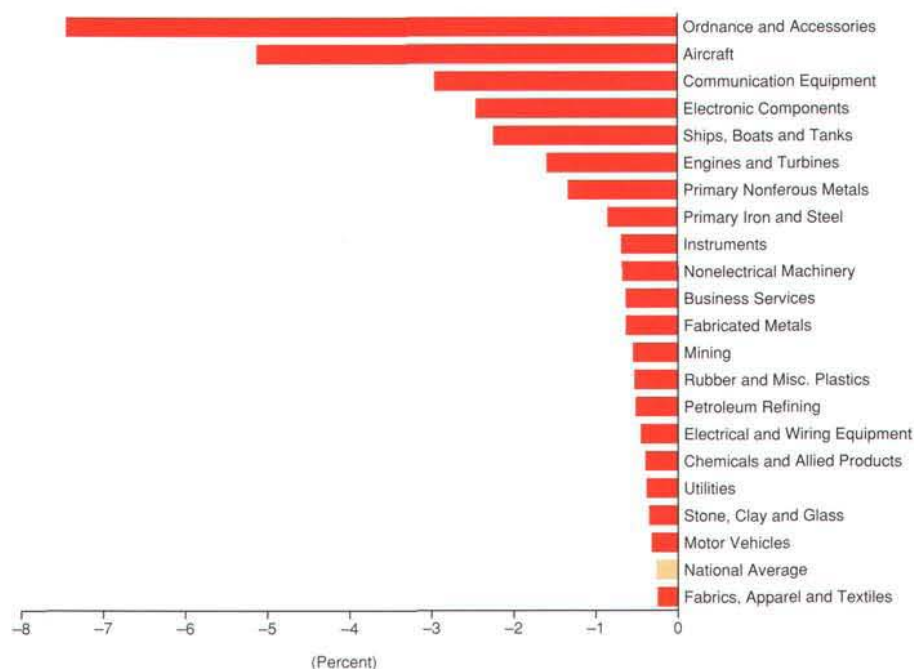
I N S I D E

Economic Commentary

Agricultural Free Trade
and the Southwest

“Because of the interrelationships among industries, all industries are defense-dependent to some degree.”

Chart 1
Employment Losses from a 10-Percent Cut in Defense Purchases for Selected Industries



contract data do not provide information on subcontracting or other indirect effects. Indirect effects represent half the employment impact of any cuts. Finally, as defense contractors lose their military customers, many will try to pick up business in civilian aspects of their industry. For example, if a firm in the electronics industry loses a defense contract, other electronics firms may lose business to the increased competition for civilian customers. Therefore, job losses from cuts in defense purchasing affect all firms in an industry.

Not surprisingly, the industries that are most defense-dependent produce arms and ammunition. The ordnance industry would lose almost 7.5 percent of its employment if defense purchases were cut by a uniform 10 percent. Aircraft manufacturing is also strongly defense-dependent. On average, aircraft manufacturers would lose slightly more than 5 percent of their employment if defense purchases fell by a uniform 10 percent. Other strongly dependent industries manufacture communication equipment, elec-

tronic components, ships and tanks. These industries are almost 10 times as defense-dependent as the average of all other industries. Chart 1 illustrates the percentage job losses for selected industries.

Industries that supply the most dependent industries are moderately dependent on defense purchasing. Manufacturers of engines and turbines—suppliers to the aircraft, ship and tank industries—would lose 1.6 percent of their employment if defense purchasing fell by a uniform 10 percent. Steel and iron manufacturers would lose 0.86

Chart 2
Employment Composition of the Average U.S. Metropolitan Area

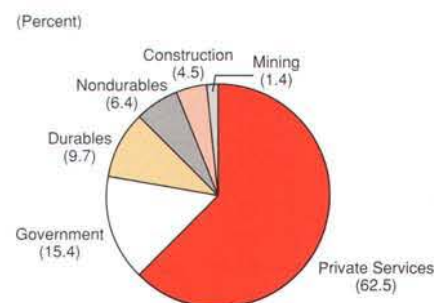
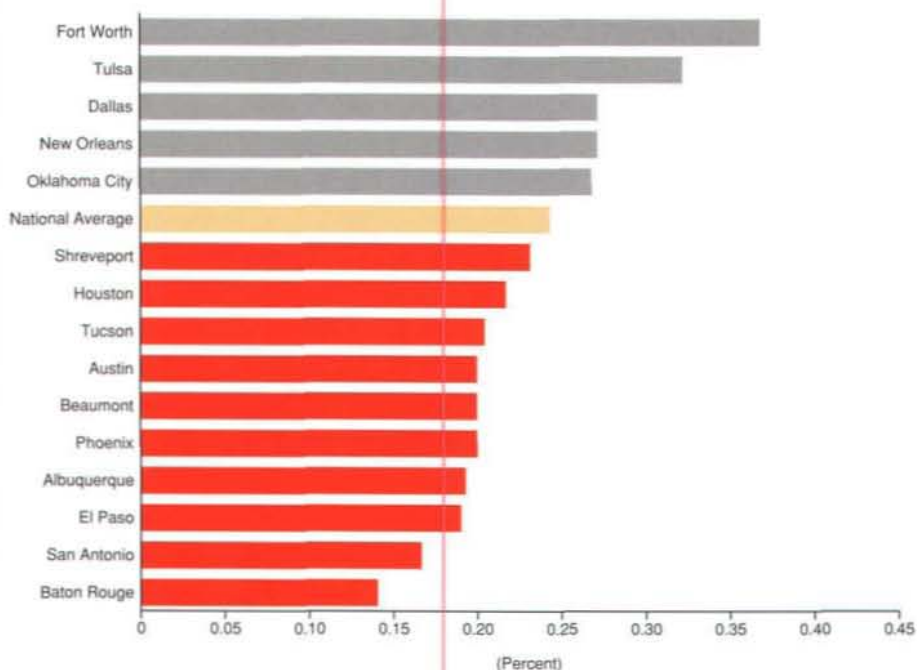


Chart 3
Defense-Industry Dependence of Southwestern Metropolitan Areas



“The concentration of transportation equipment industries in Fort Worth’s economy makes it the Southwestern metropolitan area that is most defense-dependent.”

percent of their employment, while the manufacturers of other metals—such as aluminum—would lose 1.34 percent of their employment. The mining industry would lose 0.56 percent of its employment.

Even industries that sell little to the U.S. Defense Department or its suppliers are exposed to job losses from defense purchasing cuts. Demand for consumer goods and services would fall slightly while the former employees of strongly defense-dependent industries look for new work. For example, retail and wholesale trade stands to lose 0.17 percent of its employment if real defense purchases decrease by 10 percent.

Defense-Dependent Metropolitan Areas

Because of the interrelationships among industries, all industries are defense-dependent to some degree. Therefore, all metropolitan areas are exposed to the possibility of job losses caused by defense purchasing cuts. The composition of their economies determines the extent of

that exposure. Metropolitan areas with a large share of their employment in strongly defense-dependent industries are more vulnerable to job losses than metropolitan areas with a small share of their employment in strongly defense-dependent industries. For example, metropolitan areas with a relatively large share of their labor force in aircraft manufacturing are likely to lose more jobs through cuts in defense purchasing than metropolitan areas with little or no aircraft manufacturing employment, all other things being equal.

Data from the Bureau of Labor Statistics indicate the composition of employment in the nation’s statistically average metropolitan area (*Chart 2*), and in each of the 15 largest metropolitan areas in the Southwest (Albuquerque, Austin, Baton Rouge, Beaumont/Port Arthur, Dallas, El Paso, Fort Worth, Houston, New Orleans, Oklahoma City, Phoenix, San Antonio, Shreveport, Tucson and Tulsa). The data indicate, for example, that manufacturing jobs represent 16 percent of nonfarm employment in the average metropolitan area, but they represent

20 percent of nonfarm employment in Fort Worth and El Paso and 9 percent of nonfarm employment in Albuquerque, Baton Rouge and New Orleans. The share of mining employment in Houston is four times the national average, which is more than 10 times as great as the share of mining employment in Phoenix.

From these data on the distribution of employment by industry, the author calculates the defense-industry dependence of the average metropolitan area and each Southwestern metropolitan area (*Chart 3*). For example, the composition of the average metropolitan area's employment indicates that its nonfarm employment would decline by less than 0.27 percent if real defense purchasing declined by a uniform 10 percent. Further, the data indicate that metropolitan areas in the Southwest generally have only a small fraction of their employment in strongly defense-dependent industries. Therefore, regional exposure to job losses from cuts in defense purchasing is also minimal.

Although defense dependence is generally low, the variations in employment composition lead to considerable variation in the degree of defense dependence among the metropolitan areas in the Southwest. The most defense-dependent metropolitan area—Fort Worth—is more than 2.5 times as dependent on defense purchases as the least defense-dependent metropolitan area in the Southwest—Baton Rouge.

The concentration of transportation equipment industries in Fort Worth's economy makes it the Southwestern metropolitan area that is most defense-dependent. Nearly 40 percent of all manufacturing workers in Fort Worth produce aircraft or other transportation equipment. If defense purchasing were cut by a uniform 10 percent, 47 percent of the job losses in Fort Worth would be in transportation manufacturing. However, transportation equipment manufacturing represents less than

8 percent of nonfarm employment in Fort Worth. The area would lose only an estimated 0.41 percent of its employment if defense purchasing fell by a uniform 10 percent.

In addition to Fort Worth, four other metropolitan areas in the Southwest depend more heavily than the national average on defense purchases. Tulsa is more dependent than the national average on defense industries because most of its manufacturing jobs are in durable goods industries—such as transportation equipment and fabricated metals—that depend strongly on defense purchases. New Orleans is more dependent than the national average on defense industries because, although it has a relatively small share of its employment in manufacturing, nearly half of those jobs are also in strongly defense-dependent industries such as transportation equipment manufacturing. Dallas is more dependent than average on defense purchases because the share of electronics manufacturing employment in the Dallas economy is nearly four times the national average, while Oklahoma City is more dependent than average because it has a relatively large concentration of employment in strongly defense-dependent industries such as nonelectrical machinery and transportation equipment.

On the other hand, two-thirds of the largest metropolitan areas in the Southwest are less dependent on defense purchases than the national average. Austin is less dependent than average because it has a particularly large concentration of state government employment, and state governments are generally insulated from cuts in defense purchasing. Albuquerque, Baton Rouge, Houston and San Antonio are less dependent than average on defense industries because manufacturing represents a particularly small share of their economies. Phoenix is less dependent than average on defense purchases because it has less manufacturing than average and

a very small mining sector. Shreveport and Tucson are less dependent on defense industries than the average metropolitan area because they have less manufacturing employment and more government employment than average. Beaumont and El Paso are less dependent than the national average on defense industries because most of their manufacturing jobs are in industries such as food products manufacturing that are only weakly or moderately defense-dependent.

Conclusions

Five of the 15 largest metropolitan areas in the Southwest have economies with above-average concentrations of strongly defense-dependent industries. Therefore, those metropolitan areas are more exposed than the national average to job losses from cuts in defense purchasing. However, none of the metropolitan areas in the Southwest has a particularly vulnerable economy. Fort Worth has the highest concentration of strongly defense-dependent industries in the Southwest. Based on its industrial composition, Fort Worth would lose less than 0.5 percent of its employment if real defense purchasing declined by a uniform 10 percent.

—Lori L. Taylor

¹ For a more detailed explanation of the analytic technique, including a thorough description of input-output analysis, see "Reduced Defense Purchasing: Anticipating the Impact on State and Industry Employment" in the November 1990 issue of the Federal Reserve Bank of Dallas' *Economic Review*.