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by

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MEASURES OF THE IMPACT OF DEFENSE AND SPACE PROGRAMS

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Information on the economic impact of defense and space expenditures is not a statistical luxury. It is necessary for important substantive purposes: (1) for making any sort of penetrating analysis of the factors influencing the development of a given regional economy or of many leading branches of industry, (2) for forecasting the impact on a region of shifts in its so-called exports to the government sector, and (3) for developing and choosing among alternative public policies to offset reductions in the total or, possibly of greater real importance, abrupt major changes in the composition of defense and space expenditures.

Despite the vast amount of statistical information generated by Federal Government and other research organizations, important gaps continue to exist in the understanding of basic aspects of the economic impact of defense and space expenditures. This paper covers three aspects of the problem: the current stock of information, the increment that will soon become available, and the relatively high-priority gaps that need to be filled.

The Current Stock of Information

A very considerable body of information currently exists in the area of defense and space expenditures and their economic impact. At times, it appears that many researchers do not avail themselves of the available unclassified information, mainly because of the lack of knowledge of the specialized sources involved. The availability of such information for 1963 -- the most recent period for which there are comprehensive data -- is shown in this section of the paper. At the aggregate level, there is relatively firm information on the national defense component of GNP, which includes both Department of Defense and NASA outlays. Useful details are available showing the amount of in-house effort and purchases from industry. The latter is broken down to differentiate between specialized military equipment and relatively conventional types of procurement. Another measure of the aggregate importance of defense and space programs is more approximate -- the Labor Department's estimate of the portion of the labor force devoted to defense work, including both industry and government personnel. Both of these measures indicate that approximately a little less than one-tenth of the Nation's resources is being devoted at the present time to defense, space, and related national security programs (see Table 1 for details).

Of the estimated 6.7 million persons engaged in such work in 1963, over half were employed directly by the Federal Government, either in the Armed Forces or in civilian positions with Federal defense and space agencies. The rest were employed either by contractors and subcontractors working directly on defense orders or by firms providing materials and services to these contractors. The figure of 6.7 million does not include

employment indirectly generated through multiplier or accelerator effects. It is labeled approximate because there is at present no satisfactory method of allocating employment in a given industry or firm between defense and nondefense work, especially when similar or identical items are produced simultaneously for both military and commercial markets. An analogous problem arises with government employment in such agencies as the Atomic Energy Commission, which develops both peaceful uses of atomic energy and military weapon programs.

Budgetary Data

A great wealth of breakdowns is available showing the details of the expenditures by the Department of Defense, NASA, AEC, and similar national security type agencies.[2] This is in striking contrast to the paucity of similar data for other nations, whether in the Free World or elsewhere. These breakdowns indicate such useful items as the amount of capital equipment, R&D, and construction being financed. In the case of the Department of Defense, procurement is shown in sufficient detail to make crude approximations to some of the Standard Industrial Classification categories, such as aircraft, ships, etc. A cross industry product such as missiles represent a more difficult problem.

Industrial Impacts

Less information is available on the industrial performance of defense work. The Department of Defense and NASA each make available annual listings of the distribution of prime contract awards to the top 100 companies receiving such contracts.[3] With the use of standard industrial directories,[4] the data on these companies can be aggregated

to indicate industry totals. Several shortcomings are apparent. Prime contracts provide only a limited indication of the actual performance of the work, approximately one-half of which normally is subcontracted to a multitude of companies in a wide variety of industries. (This is not a crude rule-of-thumb, but the result of annual surveys of defense contractors for the years 1957-63. See Table 2 for details.) Also, the data are necessarily on a company rather than establishment basis, causing difficulty in the case of the large, diversified corporations, the bulk of whose defense work may not coincide with the company's primary industry classification.

On the basis of this crude approach (see Table 3) it is apparent that a relatively few industry groups accounted for the great bulk of the prime defense/space contracts in 1963: aircraft, electronics, motor vehicles, petroleum refining, chemicals, rubber, and construction, in that order. A far greater variety of companies and industries, of course, participate at the subcontractor and supplier level.

Input-output coefficients may be utilized as a measure of the importance of defense work to individual industries. The shortcomings of these data have been described elsewhere.[5] Nevertheless, they yield a useful rough approximation of the industrial distribution of defense/space activity and are the basis for the Labor Department's estimate of the portion of the private labor force engaged in such work (see Table 4). It is apparent that the great majority of industries is only slightly dependent, directly or indirectly, on defense/space demands.

The extent of this dependence varies widely among individual companies. An analysis of the 35 companies that received the largest

amounts of prime defense/space contracts in 1963 reveals that these contracts accounted for half or more of the company sales in only 17 cases. For 18 of the 35 top defense/space contractors, the bulk of the sales was made to non-defense markets. For one of the largest recipients of such orders, it is estimated that they represented only six percent of sales (see Table 5).

Geographical Impacts

The available regional information of defense and space expenditures is about as limited as the industrial data. The Department of Defense and NASA each publish annual tabulations showing the distribution of prime contracts by State.[6] Much of the work is subcontracted to companies in other states. Unlike the industrial situation, there are no convenient rules-of-thumb to indicate the interstate distribution of subcontracts.

A widely used approximation method does exist for determining the regional distribution of defense and space income and employment. This approach consists of selecting those two- or three-digit manufacturing industries (the level of detail depending on the availability of data) in which more than half of the sales are estimated to be made to the Department of Defense, NASA, and AEC. Input-output tables are used for selecting the industries, and the lack of up-to-date coefficients presents a considerable problem.[7]

Aggregating the employment or payrolls of these industries--usually aircraft, ordnance, shipbuilding, and electronics--yields a measure of the defense work in a given State. A crude indication of the relative importance of defense and space activity to a State or region can be obtained by computing the ratio of the employment in the above major

"defense-related" industries to total manufacturing and/or to total nonagricultural employment in the area. In addition, or alternatively, the payrolls in these industries--to which may be added the pay of the direct employees of the Department of Defense--may be expressed as a percentage of personal income in the region, again as a measure of the dependence on defense and space work (see Tables 6 and 7).

There are obvious and serious shortcomings of this approach. It omits the defense and space work in other than the major defense-dependent industries and includes the nondefense work in the latter industries. There is no basis for assuming substantial offsetting, particularly at the regional level.

In an attempt to determine whether the various methods of estimating the geographic distribution of defense and space work differed significantly, rank correlations were performed. The results are contained in Tables 8 and 9. Table 8 shows the correlation of the state-by-state ranking of prime contract awards by the Department of Defense and NASA with that of defense-related income disbursements. The coefficient of rank correlation is 0.84. Table 9 shows the correlation of defense-related income disbursements (expressed as a proportion of state personal income) with defense-related employment (taken as a percentage of state nonagricultural employment). For the latter, the correlation was 0.95. Thus it appears that there is no fundamental difference among the various available measures of regional defense and space impact. In all cases, the highly industrialized states, especially those with large aircraft and electronics industries, are shown to receive the largest shares (e.g. California and New York).

There exists some limited information on state-by-state distribution of subcontracts for NASA programs. This results from the recent institution of a so-called "post card" system, whereby a sample of large NASA prime contractors report each significant subcontract that they award.[8] The returns to date indicate that subcontracting results in a somewhat broader regional distribution than prime contracts alone. Table 10 shows that the work performed under prime contracts awarded to firms in eight states was actually done in forty states, many of which were not involved in prime contract operations for NASA at all.

Data Becoming Available

A number of attempts are currently underway to improve the knowledge of the economic impact of defense and space programs. The special addendum to the 1963 Census of Manufactures is one such step, although detailed results are not yet available.[9] Samples of companies in 16 SIC codes at the three- or four-digit level were asked to estimate their sales to the Department of Defense, NASA, AEC, and other Federal Government agencies, and the employment resulting therefrom. The sample includes both prime and subcontractors. The coverage leaves much to be desired. Yet, when the data are aggregated, a somewhat firmer indication should be obtained of both the industrial as well as geographical distribution of defense employment. Over a period of years, if this information continues to be collected, time series will thus be developed in addition to the cross-sectional data to be available on the first attempt. The Department of Defense, which is providing the bulk of the financing, is analyzing methods of improving this reporting system.

Also, the U.S. Arms Control and Disarmament Agency is sponsoring a variety of studies designed to indicate the nature of the impact of and adjustments to changes in defense and space spending.[10] Two of these deal with specific industries, electronics and shipbuilding, while others are concerned with regions where reductions in military spending would be significant. The State of New Mexico, Southeastern Connecticut, and the Baltimore and Seattle areas are among those being studied.

The ACDA is also sponsoring a series of case studies of previous attempts of companies to utilize defense technology in civilian markets. Hopefully, this research will indicate possible patterns for successful transfer of this technology. Also, the Washington State Employment Security Department, again with financial assistance from ACDA and the Department of Defense, is studying one specific defense cutback, the Dyna-Soar cancellation at The Boeing Company in Seattle. This analysis of the patterns of employee adjustments is designed to improve knowledge of the occupational as well as regional mobility of labor in the face of shifts in the pattern of government spending.

Some preliminary results of the Dyna-Soar study are illuminating,[11] although hardly conclusive. About eight months after the layoffs, the following was reported from a survey covering 77 percent of the 5,229 employees subject to layoff:

1. Approximately 30 percent of the respondents were still unemployed. The average male was unemployed 14 weeks and the average female 23 weeks. In comparison with other occupational groups, professionals had both the lowest unemployment rate (17 percent) and the lowest average length of unemployment (12 weeks).

2. Of those who found employment, there was a great deal of change in occupation, industry, wage rates, and location. There appeared to be considerable downgrading of skills, at least when the occupational titles at Boeing were compared to the new job titles. There was a reduction of almost 30 percent in the male professional category, and this shift was most noticeable in the case of male workers over 35.

3. Slightly less than one-third of the male respondents who were working and whose industry of employment was identifiable were in defense employment, governmental or private. The greatest movement out of defense was in the under 24 year old age category.

4. About 70 percent of all the employed were still in the Seattle area, but the more highly educated were more likely to leave (45 percent of college graduates compared to 30 percent overall).

5. Employed male professional workers were receiving almost $50 a month more than they were receiving at Boeing. In some of the other occupational groups, such as skilled workers, average pay declined.

It will be helpful to compare these results with those to be obtained from other studies of defense contract cancellations and base closings.

Informational Gaps

Important gaps in information on the economic impact of defense/space expenditures will still exist after the completion of the current studies. Systematic knowledge of the regional and industrial distribution of these activities, at best, will begin when we obtain the data for 1963. The historical perspective remains poor and, as pointed out earlier, the Census effort is only a partial attempt to fill the gap on

current account, so to speak. The highest priority need still appears to be a comprehensive body of data on the income and employment generated by defense/space expenditures, cross-classified by industry (at least the three-digit level) and by location (region, state, and selected metropolitan areas).

A second priority area is the adjustments, particularly at the local level, to changes in the level and composition of defense/space spending. Much more needs to be known about the community impact of changes in defense spending. Answers are needed for questions such as the following: are there any identifiable patterns of local adjustment to a cutback in defense production or R&D work? How many and what kinds of people leave? How many who stay change occupations or industries? What market adjustments--in pay rates, etc.--are made? What happens to the structure of the community's economic base? Is there a shift from manufacturing to services? To what extent do interindustry relations hold constant or do they change in a predictable way?

A third priority area is the "spill-over" or transfer of defense and space technology and other capabilities to the civilian sectors of the economy. Comprehensive information on sales, employment, and profits associated with the various attempts of companies to utilize defense and space technology in civilian fields would be helpful. The ACDA case studies will provide some inputs. Of course, there is an ample supply of individual instances of failures and mediocre performances along these lines, which is an important limiting factor to be taken into account in analyzing the future potential economic implications of defense and space spending. /12

In a sense, the most necessary but most illusive data that are required for analyzing the economic impacts of defense and space programs are relatively firm projections, with considerable detail, of the future size and distribution of these programs. By their very nature, such projections may always be primarily conjectural.

Conclusions

Despite the gaps in the available stock of information on the economic impact of defense and space programs, some useful findings can be obtained from the available data:

1. About one-tenth of the Nation's resources are being devoted to national security programs.
2. Much of these resources tend to be located in a relatively few industries and regions.
3. The industries are predominantly the high-technology ones--aircraft and electronics, plus supporting firms in such fields as ordnance and instruments.
4. The regions most heavily involved are predominantly the areas where these industries tend to cluster--the West Coast and the highly industrialized states of the Northeast.
5. These few crude observations may serve as a useful guide to much of the economic adjustment policies required to offset any adverse impacts resulting from changes in the level and composition of such spending during periods short of general war.

The bulk of the population, area, and industry of the country is only marginally influenced by defense and space programs. Only a relatively few companies in a few regions tend to be either greatly benefitted or adversely affected by these programs at the present time. For those companies and regions, of course, the impacts are likely to be most substantial.

Footnotes

/1 This paper draws on the author's earlier paper, "Measuring the Economic Impact of Defense/Space Expenditures," Proceedings of the Eleventh Annual Conference of the Midcontinent Research and Development Council, Denver, Colorado, October 1964. The statistical materials for this paper were prepared by Mr. Gerald Williams. The research was financed by National Aeronautics and Space Administration Grant NsG-342 to Washington University.

/2 See Budget of the United States Government for the Fiscal Year Ending June 30, 1966 and Appendix; the Annual Hearings before the House and Senate Committees on Appropriations, Armed Services, and Science and Astronautics; the variety of releases from the Offices of the Assistant Secretary of Defense (Comptroller) and the Assistant Secretary of Defense (Installations and Logistics); the Annual Procurement Report issued by NASA. A representative listing is contained in J. Fred Weston, Editor, Defense-Space Market Research, Cambridge, MIT Press, 1964, pp. 176-183.

/3 U.S. Congress, Joint Economic Committee, Background Material on Economic Aspects of Military Procurement and Supply--1964, 1964, pp. 13-22; National Aeronautics and Space Administration, Annual Procurement Report, Fiscal Year 1963, pp. 49-53; Aerospace Industries Association.

/4 Securities and Exchange Commission, Directory of Listed Companies, 1963; Dun and Bradstreet, Million Dollar Directory, 1963.

/5 Wassily W. Leontief, "Some Basic Problems of Empirical Input-Output Analysis," Input-Output Analysis: An Appraisal, Studies in Income and Wealth, Volume Eighteen, National Bureau of Economic Research, Princeton University Press, Princeton, pp. 9-51.

/6 Joint Economic Committee, op. cit., p. 9; National Aeronautics and Space Administration, op. cit., p. 35.

/7 Joseph F. Fulton, "Employment Impact of Changing Defense Programs," Monthly Labor Review, May, 1964, pp. 508-516; Murray L. Weidenbaum, "Industrial Impact of Disarmament," The American Journal of Economics and Sociology, October 1963, pp. 513-526; Emile Benoit, "The Disarmament Model," Disarmament and the Economy, edited by Emile Benoit and Kenneth Boulding, Harper and Row, New York, 1963, Table 6, pp. 46-47.

/8 National Aeronautics and Space Administration, op. cit., pp. 38-39.

/9 U.S. Bureau of the Census, "Shipments of Defense-Oriented Industries in 1963 by Industry, Region, and Federal Agency," 1963 Census of Manufactures, Summary Series, March 1965.

/10 Statement by Archibald S. Alexander, Assistant Director, U.S. Arms Control and Disarmament Agency, before the Subcommittee on Employment and Manpower, Senate Committee on Labor and Public Welfare, June 7, 1965.

/11 Robert Brandwein, "The Dyna-Soar Contract Cancellation--A Statistical Summary," University of Washington Business Review (forthcoming).

/12 Murray L. Weidenbaum, "Adjusting to a Defense Cutback: Government Policy Toward Business," Quarterly Review of Economics and Business, Vol. 4, No. 1, Spring 1964, pp. 7-14.

TABLES

Table 1

MEASURES OF THE AGGREGATE IMPACT OF DEFENSE/SPACE SPENDING, 1963

GNP Comparisons (dollar amounts in billions)	
Gross National Product	$585.1
Purchases of Goods and Services for National Defense /1	56.7
National Defense as percentage of GNP	9.7 percent
Labor Force Comparisons (in millions)	
Total U.S. Employment	71.5
Estimated defense-related employment	6.7
Defense employment as percentage of total	9.4 percent
Detail of Defense-related Employment (in millions)	
Military personnel	2.7
Civilian Federal personnel	1.0
Estimated defense-related employment in private industry	3.0
TOTAL	6.7

/1 Includes: Department of Defense military functions and military assistance; AEC; stockpiling; NASA; Selective Service System. Excludes: economic assistance for defense support under the mutual defense program.

SOURCE: The Economic and Social Consequences of Disarmament, U.S. ACDA, Washington, D.C., June 1964, Tables 1, 4, 5; "Employment Impact of Changing Defense Programs," Joseph F. Fulton, Monthly Labor Review, May, 1964, p. 510, Table 1.

Table 2

DEFENSE SUBCONTRACTING PROGRAM (BY FISCAL YEAR)
(Dollar Amounts in Millions)

	1957	1958	1959	1960	1961	1962	1963
1. Number of large contractors reporting subcontract receipts and payments	198	294	298	298	309	378	453
2. Military subcontract payments, total	$9,314	9,026	9,144	9,666	9,407	10,560	11,411
3. Military contract receipts by reporting contractors from prime and subcontract work	$16,992	17,479	18,704	19,095	19,803	22,337	23,667
4. Percent of receipts paid out to all business concerns (Line 2 ÷ 3)	54.8%	51.6	48.9	50.6	47.5	47.3	48.2

Source: Military Prime Contract Awards and Subcontract Payments, July, 1963-June 1964, Office of the Secretary of Defense, p. 49, Table 18.

Table 3

DEFENSE CONTRACT AWARDS BY INDUSTRY, FISCAL YEAR 1963
(in millions of dollars)

Industry /1	SIC Code	Dept. of Defense	NASA	Total	Cumulative Percent
Aircraft and Parts	372	$ 9192.1	$1477.0	$10,669.1	50.4
Electronics	481, 482 361, 365 366	5065.1	257.5	5,322.6	75.5
Motor Vehicle and Equipment	371	1101.5	85.6	1,187.1	81.1
Petroleum Refining	291	716.7	-	716.7	84.5
Chemicals	281,289	556.8	12.7	569.5	87.2
Rubber	301	497.3	-	497.3	89.6
Construction	15,16	406.0	34.8	440.8	91.6
Education and Non-Profit Institutions	822,892	288.8	102.2	391.0	93.5
Ship and Boat Building	373	284.9	-	284.9	94.8
Machinery	352,354 355,356 358	238.8	13.3	252.1	96.0
Instruments	381,383	206.8	10.7	217.5	97.0
Air Transportation	451,458	213.1	-	213.1	98.0
Engines and Turbines	351	97.2	-	97.2	98.5
Business Services	739	43.9	33.8	77.7	98.9
Primary Metal Industries	331,333	68.4	2.7	71.1	99.2
Toys, Amusement and Sporting Goods	394	57.1	1.6	58.7	99.5
Deep Sea Transportation	441	26.7	-	26.7	99.6
Combined Utility Systems	493	-	1.3	1.3	99.6
Paper and Allied Products	262	-	1.2	1.2	99.6
Railroad Equipment	374	-	1.2	1.2	99.6
Miscellaneous	991 and Misc.	31.4	46.7	78.1	100.0
TOTAL		$19,092.6	$2082.3	$21,174.9	

/1 Companies are classified according to their primary area of business. This may not coincide with the categories in which they do the bulk of their defense/space work.

Sources: Listings of SIC codes were taken from S.E.C., Directory of Listed Companies, 1963, Dun and Bradstreet, Million Dollar Directory, and Aerospace Industry Assn. reports. Data on Defense contracts were obtained from Joint Economic Committee, Background Material on Economic Aspects of Military Procurement and Supply--1964; for NASA contractors from NASA Annual Procurement Report, Fiscal Year 1963.

Table 4

PROPORTION OF FINAL OUTPUT OF SELECTED INDUSTRIES DEVOTED TO DEFENSE DEMANDS /1

	Percentage
Food and Kindred Products	1.6
Apparel and Textile-Mill Products	1.9
Leather Products	3.1
Paper and Allied Products	7.0
Chemicals and Allied Products	5.3
Fuel and Power	7.3
Rubber and Rubber Products	5.6
Lumber and Wood Products	3.9
Nonmetallic Minerals and Products	4.7
Primary Metals	13.4
Fabricated Metal Products	8.0
Machinery (Except Electrical)	5.2
Electrical Machinery	20.8
Transportation Equipment and Ordnance	38.4
Instruments and Allied Products	20.2
Miscellaneous Manufacturing Industries	2.8
Transportation	5.9
Trade	1.4
Service and Finance	1.3
Construction	2.1
Unallocated and Waste Products	12.3

/1 Includes direct deliveries plus deliveries to other industries necessary for deliveries to this demand category, i.e. subcontractors and suppliers. Coefficients based on 1947 structural relationships.

Source: Derived from Wassily W. Leontief and Marvin Hoffenberg, "The Economic Effects of Disarmament," Scientific American, April, 1961, p. 5.

Table 5

Importance of Defense-Space Orders to 35 Major Contractors
Fiscal Year 1963

Company	(1) Defense Contracts[a] (millions)	(2) NASA Contracts[a] (millions)	(3) Total (1) + (2) (millions)	(4) Company Sales[b] (millions)	(5) Ratio of Orders to Total Sales (3)/(4)	(6) Percent of U.S. Total
U.S. Total	$25,834.0	$3,231.0	$29,065.0			100%
Total 35 Companies	15,280.1	1,697.1	16,978.5			58.4%
75-100%						
McDonnell Aircraft Corporation	$ 497.0	$193.1	$ 690.1	$ 565.3	100.0+%	2.4
Newport News Shipbuilding & Dry Dock Co.	221.0	---	221.0	226.4	97.6	.8
Grumman Aircraft Engineering Corp.	390.5	48.2	438.7	468.2	93.6	1.5
Thiokol Chemical Corp.	238.6	3.7	242.3	271.4	89.3	.8
North American Aviation, Inc.	1,062.4	525.8	1,588.2	1,867.1	85.1	5.5
Boeing Company	1,356.3	101.0	1,457.3	1,771.4	82.2	5.0
General Dynamics Corporation	1,033.2	103.1	1,136.3	1,415.1	80.3	3.9
Lockheed Aircraft Corp.	1,517.0	23.7	1,540.7	1,930.5	79.8	5.3
Martin Marietta Corp.	766.8	7.2	774.0	974.2	79.4	2.7
Hughes Aircraft Co.	312.9	18.3	331.2	c	d	1.1
50-74%						
Douglas Aircraft Company, Inc.	361.1	133.0	494.1	698.3	70.8	1.7
Ling-Temco-Vought, Inc.	205.9	26.7	232.6	329.0	70.7	.8
Northrop Corporation	222.9	2.0	224.9	347.0	64.8	.8
Merritt-Chapmann & Scott Corp.	169.9	---	169.9	269.4	63.1	.6
Raytheon Co.	294.9	7.1	302.0	488.9	61.8	1.0
Republic Aviation Corp.	196.8	9.3	206.1	362.0	56.9	.7
AVCO Corporation	253.1	3.7	256.8	514.1	50.0	.9

25-49%	(1)	(2)	(3)	(4)	(5)	(6)
United Aircraft Corporation	529.9	48.9	578.8	1,281.1	45.2	2.0
Bendix Corp.	290.3	32.5	322.8	813.1	39.7	1.1
Hercules Powder Co.	182.7	---	182.7	476.5	38.3	.6
Sperry Rand Corp.	445.5	3.2	448.7	1,227.1	36.6	1.5
Litton Industries, Inc.	197.8	---	197.8	553.1	35.8	.7
General Tire & Rubber Co.[e]	424.6	161.9	586.5	1,787.4	32.8	2.0
FMC Corp.	199.1	---	199.1	618.0	32.2	.7
Honeywell Co.	170.0	3.2	173.2	648.5	26.7	.6
0-24%						
General Electric Co.	1,021.2	53.0	1,074.2	4,918.7	21.8	3.7
Radio Corporation of America	328.6	42.2	370.8	1,789.3	20.7	1.3
International Telephone & Telegraph Corp.	265.5	1.3	266.8	1,306.8	20.4	.9
Westinghouse Electric Corp.	322.6	3.8	326.4	2,127.3	15.3	1.1
International Business Machines Corp.	203.3	36.1	239.4	2,059.6	11.6	.8
General Telephone & Electronics Corp.	162.6	---	162.6	1,443.4	11.3	.6
Chrysler Corp.	186.2	75.4	261.6	3,505.3	7.5	.9
American Telephone & Telegraph Co.	578.6	4.6	583.2	9,720.3	6.0	2.0
General Motors Corp.	444.0	10.2	454.2	16,494.8	2.8	1.6
Ford Motor Co.	227.7	14.9	242.6	8,742.5	2.8	.8

a. Prime contracts only. Excludes defense-space work performed under subcontracts.
b. Net sales for fiscal year ending during 1963.
c. Not available.
d. Estimated from other sources to be in excess of 75 percent.
e. Includes Aerojet-General Corp.

Note: In some cases, it appears that the ratio of defense-space orders to total sales in fiscal year 1963 is not an accurate indicator of the actual ratio of military-space sales to total sales.

Sources: Department of Defense, NASA, and company annual reports.

Table 6

State Distribution of Wage and Salary Disbursements [a] and Employment [b] in Defense-Related Work, 1963
(Disbursements in Millions; Employment in Thousands)

Region and State	Wage and Salary Disbursements to Personnel in Defense-Related Work					Employment in Defense-Related Work				
			Total Columns (1) and (2)					Total Columns (6) and (7)		
	Five Industries (1)	Federal Civilian and Military Personnel (2)	Amount (3)	Percent of State Personnel Income (4)	Percent of Defense Related Disbursements (5)	Five Industries (6)	Federal Civilian and Military Personnel (7)	Number (8)	Percent of State Nonagriculture Employment (9)	Percent of Defense Related Employment (10)
Total U.S. [c]	$12,933	$12,809	$25,741	5.6	100.0	1751.2	2,639.3	4,390.5	7.7	100.0
New England:										
Maine	[d] 29.4	72.9	102.3	5.3	.4	[d] 5.7	15.9	21.6	7.8	.5
New Hampshire	[d] 40.9	101.2	142.1	9.8	.6	[d] 8.0	18.5	26.5	12.9	.6
Vermont	[d] 3.6	2.5	6.1	.7	.02	[d] .9	.5	1.4	1.3	.03
Massachusetts	566.8	300.5	867.3	5.8	3.4	90.3	58.5	148.8	7.6	3.4
Rhode Island	[d] 9.6	76.7	86.3	4.0	.3	[d] 2.3	14.5	16.8	5.6	.4
Connecticut	735.2	39.5	774.7	9.1	3.0	102.8	8.5	111.3	11.5	2.5
Middle Atlantic										
New York	1070.4	494.3	1568.3	2.9	6.1	138.9	90.8	229.7	3.7	5.2
New Jersey	663.6	329.2	992.8	5.2	3.9	94.6	68.2	162.8	7.7	3.7
Pennsylvania	502.0	500.1	1002.1	3.6	3.9	79.6	84.3	163.9	4.4	3.7
East North Central										
Ohio	512.0	388.7	900.7	3.6	3.5	66.1	57.8	123.9	3.9	2.8
Indiana	327.2	122.8	440.0	3.8	1.7	51.5	20.6	72.1	4.8	1.6
Illinois	480.4	364.7	845.1	2.8	3.3	82.1	74.5	156.6	4.4	3.6
Michigan	103.2	174.1	277.3	1.3	1.1	14.6	34.4	49.0	2.1	1.1
Wisconsin	[d] 91.6	33.4	125.0	1.3	.5	[d] 13.9	6.8	20.7	1.7	.5

Table 6 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
West North Central										
Minnesota	88.8	35.0	123.8	1.5	.5	14.4	7.4	21.8	2.2	.5
Iowa	d/ 68.8	9.8	78.6	1.2	.3	d/12.3	2.0	14.3	2.1	.3
Missouri	357.2	208.6	565.4	5.2	2.2	51.3	43.9	95.2	6.9	2.1
North Dakota	d/	56.7	4.4	.2		d/12.2	12.2	9.2		.3
South Dakota	d/ .4	40.4	40.8	2.9	.2	d/ .03	8.4	8.4	5.5	.2
Nebraska	41.2	113.9	155.1	4.6	.6	7.3	23.7	31.0	7.8	.7
Kansas	222.4	180.5	402.9	8.0	1.6	31.3	41.9	73.2	12.7	1.6
South Atlantic										
Delaware	d/ 1.2	44.3	45.5	2.9	.2	d/ .2	9.4	9.6	5.8	.2
Maryland	303.2	432.5	735.7	8.0	2.9	40.9	86.6	127.5	13.0	2.9
District of Columbia	d/ 4.8	260.4	265.2	10.0	1.0	d/ .4	48.0	48.4	8.3	1.1
Virginia	d/183.2	838.5	1,021.7	11.5	4.0	d/16.9	167.1	184.0	16.4	4.2
West Virginia	d/ 2.0	8.5	10.5	.3	.04	d/ .5	1.6	2.1	.5	.05
North Carolina	d/ 91.6	377.6	469.2	5.5	1.8	d/17.0	99.4	116.4	9.0	2.7
South Carolina	d/ 14.0	252.7	266.7	6.8	1.0	d/ 3.8	55.6	59.4	9.4	1.4
Georgia	138.4	572.5	710.9	9.2	2.8	19.5	127.0	146.5	12.8	3.3
Florida	347.6	431.7	779.3	6.5	3.0	48.6	90.8	139.4	9.7	3.2
East South Central										
Kentucky	d/ 26.0	253.2	279.2	5.0	1.1	d/ 5.1	60.3	65.4	9.3	1.5
Tennessee	d/ 36.8	108.3	145.1	2.2	.6	d/ 7.5	24.0	31.5	3.2	.7
Alabama	93.6	311.0	404.6	7.3	1.6	14.6	57.7	72.3	9.0	1.6
Mississippi	d/ 34.8	148.4	183.2	5.8	.7	d/ 5.7	30.9	36.6	8.3	.8
West South Central										
Arkansas	d/ 4.8	88.7	93.5	3.1	.4	d/ 1.0	18.9	19.9	4.8	.5
Louisana	d/116.0	174.6	290.6	4.8	1.1	d/17.0	39.7	56.7	7.0	1.3
Oklahoma	d/ 36.8	308.0	344.8	7.1	1.3	d/ 6.1	62.3	68.4	11.2	1.6
Texas	461.6	1,112.1	1,153.7	7.4	6.1	65.8	237.2	303.0	11.3	6.9
Mountain										
Montana	d/ .1	53.7	53.8	3.5	.2	d/ .02	11.6	11.6	6.7	.3
Idaho	d/ .8	30.5	31.3	2.3	.1	d/ .1	6.8	6.9	4.2	.2
Wyoming	d/ 1.2	23.8	25.0	3.0	.1	d/ .2	5.1	5.3	5.5	.1
Colorado	d/158.0	242.9	400.9	8.3	1.6	d/19.7	51.4	71.1	12.7	1.6
New Mexico	d/ 30.8	163.1	193.9	9.9	.8	d/ 4.1	32.8	36.9	14.9	.8

Table 6 (continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Arizona	137.6	129.9	267.5	8.0	1.0	19.0	27.3	26.3	7.0	.6
Utah	d/ 124.8	142.4	267.2	12.8	1.0	d/ 17.8	24.8	42.6	14.4	1.0
Nevada	d/ 1.2	52.4	53.6	4.3	.2	d/ .3	10.8	11.1	7.8	.3
Pacific										
Washington	561.6	335.0	896.6	11.8	3.5	70.5	70.6	141.1	16.6	3.2
Oregon	d/ 13.2	45.9	59.1	1.3	.2	d/ 2.7	8.8	11.5	2.1	.3
California	3,560.8	1,746.0	5,306.8	10.1	20.6	419.8	362.0	781.8	14.5	17.8
Alaska	d/ .8	175.7	176.5	25.1	.7	d/ .1	37.7	37.8	61.0	.9
Hawaii	d/ .4	287.8	288.2	17.3	1.1	d/ .1	59.4	59.5	29.8	1.4
Undistributed		83.4	83.4		.3		23.0	23.0		.5

a/ Includes disbursements to all wage and salary employees (not only employees engaged in defense work) in five major manufacturing industries primarily engaged in defense-related work, civilian personnel of the Department of Defense, and Federal military personnel. The five manufacturing industries are: Ordnance and accessories, SIC 19; communications equipment, SIC 366; electronic components and accessories, SIC 367; aircraft and parts, SIC 372; and ship and boat building and repairing, SIC 373.

b/ Includes all wage and salary employees (not only employees engaged in defense work) in the five major manufacturing industries and civilian personnel in Department of Defense listed in footnote 1.

c/ Includes disbursements or employment excluded from state figures to avoid disclosure for individual firms.

d/ Figure is somewhat understated because the data for 1 or more of the 5 manufacturing industries were not published separately, to avoid disclosure of data for individual firms.

Source: Disbursements and employment in the manufacturing industries are from the U.S. Department of Labor, Bureau of Employment Security, Employment and Wages, 1st, 2nd, 3rd, 4th quarters 1963. Wage and salary disbursements and Department of Defense and military employment data are from Background Material on Economic Aspects of Military Procurement and Supply-1964 prepared for the Joint Economic Committee of Congress, April, 1964, p. 7. State personal income figures are from Survey of Current Business, April, 1965, p. 15. Nonagricultural employment figures are from the 1964 Statistical Abstract of the United States, Table 300.

Table 7

Prime Contract Awards of Department of Defense and NASA by State, Fiscal Year 1963 a/ and Defense-Related Disbursements by State, Calendar Year 1963

	Contract Awards		Defense-Related Disbursements	
	Thousands	Percent of State Total	Thousands	Percent of State Total
Total U.S. b/	c/ $30,289,287		$25,741,000	100%
Not Distributed by State	2,874,642			
State Total	27,414,645	100%	25,741,000	
Alabama	292,058	1.1%	404,600	1.6%
Alaska	105,533	.4%	176,500	.7%
Arizona	292,042	1.1%	267,500	1.0%
Arkansas	39,436	.1%	93,500	.4%
California	6,934,156	25.3%	5,306,800	20.6%
Colorado	451,290	1.6%	400,900	1.6%
Connecticut	1,057,464	3.9%	774,700	3.0%
Delaware	67,239	.3%	45,500	.2%
District of Columbia	265,261	1.0%	265,200	1.0%
Florida	675,629	2.5%	779,300	3.0%
Georgia	429,315	1.6%	710,900	2.8%
Hawaii	45,330	.2%	288,200	1.1%
Idaho	10,425	*	31,300	.1%
Illinois	500,904	1.8%	845,100	3.3%
Indiana	489,680	1.8%	440,000	1.7%
Iowa	132,954	.5%	78,600	.3%
Kansas	332,579	1.2%	402,900	1.6%
Kentucky	55,807	.2%	279,200	1.1%
Louisiana	380,604	1.4%	290,600	1.1%
Maine	58,601	.2%	102,300	.4%
Maryland	712,151	2.6%	735,700	2.9%
Massachusetts	1,103,628	4.0%	867,300	3.4%
Michigan	642,135	2.3%	277,300	1.1%
Minnesota	282,340	1.0%	123,800	.5%
Mississippi	186,125	.7%	183,200	.7%
Missouri	883,215	3.2%	565,400	2.2%
Montana	79,419	.3%	53,800	.2%
Nebraska	33,559	.1%	155,100	.6%
Nevada	13,627	.1%	53,600	.2%
New Hampshire	51,759	.2%	142,100	.6%
New Jersey	1,307,497	4.8%	992,800	3.9%
New Mexico	64,558	.2%	193,900	.8%
New York	2,598,117	9.5%	1,568,300	6.1%
North Carolina	259,987	.9%	469,200	1.8%
North Dakota	64,855	.2%	56,700	.2%
Ohio	1,377,954	5.0%	900,700	3.5%
Oklahoma	112,291	.4%	344,800	1.3%
Oregon	42,352	.2%	59,100	.2%

Table 7 (continued)

	Contract Awards		Defense-Related Disbursements	
	Thousands	Percent of State Total	Thousands	Percent of State Total
Pennsylvania	917,941	3.3%	1,002,100	3.9%
Rhode Island	47,326	.2%	86,300	.3%
South Carolina	57,823	.2%	266,700	1.0%
South Dakota	80,767	.3%	40,800	.2%
Tennessee	185,779	.7%	145,100	.6%
Texas	1,257,895	4.6%	1,573,700	6.1%
Utah	408,661	1.5%	267,200	1.0%
Vermont	12,386	.1%	6,100	.02%
Virginia	508,950	1.9%	1,021,700	4.0%
Washington	1,044,097	3.8%	896,600	3.5%
West Virginia	162,739	.6%	10,500	.04%
Wisconsin	232,100	.8%	125,000	.5%
Wyoming	125,119	.5%	25,000	.1%

Footnotes

* less than 0.05%

a/ Covers only prime contracts and therefore provides no direct indication as to the state in which the actual production work is done.

b/ Includes all contracts awarded for work performance in the U.S.

c/ Includes contracts of less than $10,000.

Source: Derived from the June, 1964 release of the Department of Defense, Prime Contract Awards by State, Table 3; NASA Annual Procurement Report, Fiscal Year 1963, p. 35; Data for defense-related disbursement from Table 6.

Table 8

Rank Correlation of Defense-Space Prime Contract Awards by State, Fiscal Year 1963 with Defense-Related Wage and Salary Disbursements, by State, Calendar Year 1963

State	Ranking 1 Prime Contract Awards of DOD and NASA	Ranking 2 Defense-Related Disbursements	Difference Squared (D^2)
California	1	1	
New York	2	2	
Ohio	3	7	16
New Jersey	4	5	1
Texas	5	3	4
Massachusetts	6	9	9
Connecticut	7	12	25
Washington	8	8	
Pennsylvania	9	6	9
Missouri	10	15	25
Maryland	11	13	4
Florida	12	11	1
Michigan	13	25	144
Virginia	14	4	100
Illinois	15	10	25
Indiana	16	17	1
Colorado	17	20	9
Georgia	18	14	16
Utah	19	27	64
Louisiana	20	22	4
Kansas	21	19	4
Alabama	22	18	16
Arizona	23	26	9
Minnesota	24	37	100
District of Columbia	25	29	16
North Carolina	26	16	100
Wisconsin	27	36	81
Mississippi	28	31	9
Tennessee	29	34	25
West Virginia	30	50	400
Iowa	31	41	100
Wyoming	32	49	289
Oklahoma	33	21	144
Alaska	34	32	4
South Dakota	35	47	144
Montana	36	44	64
Delaware	37	46	81
North Dakota	38	43	25
New Mexico	39	30	81
Maine	40	38	4
South Carolina	41	28	156
Kentucky	42	24	324

Table 8 (continued)

State	Prime Contract Awards of DOD and NASA	Defense-Related Disbursements	Difference Squared (D^2)
New Hampshire	43	35	64
Rhode Island	44	40	16
Hawaii	45	23	484
Oregon	46	42	16
Arkansas	47	39	144
Nebraska	48	33	225
Nevada	49	45	16
Vermont	50	51	1
Idaho	51	48	9

Spearman's Rank Correlation Coefficient

$$r_{rank} = \frac{1 - 6\ D^2}{N\ (N^2 - 1)}$$

$$= \frac{1 - 6\ (3608)}{51\ (2601-1)}$$

$$= 1 - \frac{21648}{132600}$$

$$= 1 - .163$$

$$= .837$$

Source: Derived from Table 7.

Table 9

Rank Correlation of Defense-Related Disbursements and Defense-Related Employment Calendar year 1963

State	Ranking 1 Disbursements as a Percent of State Personal Income	Ranking 2 Employment as a Percent of State Non-Agricultural Employment	Difference Squared (D^2)
Alaska	1	1	
Hawaii	2	2	
Utah	3	7	16
Washington	4	3	1
Virginia	5	4	1
California	6	6	
District of Columbia	7	22	225
New Mexico	8	5	9
New Hampshire	9	9	
Georgia	10	10	
Connecticut	11	13	4
Colorado	12	12	
Maryland	13	8	25
Kansas	14	11	9
Arizona	15	30	225
Texas	16	14	4
Alabama	17	21	16
Oklahoma	18	15	9
South Carolina	19	17	4
Florida	20	16	16
Massachusetts	21	28	49
Mississippi	22	23	1
North Carolina	23	20	9
Maine	24	25	1
New Jersey	25	27	4
Missouri	26	31	25
Kentucky	27	18	81
Louisiana	28	29	1
Nebraska	29	24	25
North Dakota	30	19	121
Nevada	31	26	25
Rhode Island	32	34	4
Indiana	33	37	16
Pennsylvania	34	39	25
Ohio	35	42	49
Montana	36	32	16
Arkansas	37	38	1
Wyoming	38	36	4
New York	39	43	25
Delaware	40	33	49

Table 9 (continued)

State	Disbursements as a Percent of State Personal Income	Employment as a Percent of State Non-Agricultural Employment	Difference Squared (D^2)
South Dakota	41	35	36
Illinois	42	40	4
Idaho	42	41	4
Tennessee	44	44	
Minnesota	45	45	
Michigan	46	46	
Wisconsin	47	49	4
Oregon	48	48	
Iowa	49	47	4
Vermont	50	50	
West Virginia	51	51	

Spearman's Rank Correlation Coefficient

$$r_{rank} = \frac{1-6\ D^2}{N(N^2 - 1)}$$

$$= 1 - \frac{6(1156)}{51(2601-1)}$$

$$= 1 - \frac{6936}{132600}$$

$$= 1 - .052$$

$$= .948$$

Source: Derived from Table 6.

Table 10

Subcontract Awards of 12 of NASA's Major Prime Contractors Located in Eight States January 1, 1962 to June 30, 1963 1/

	Millions	Percent of Total
Subcontracted Outside Originating State:		
To other than 8 originating States	253.5	37
To other originating States	160.0	24
Subcontracting Within Originating State	268.7	39
TOTAL	682.2	100

1/ Reporting program was established August, 1962. Retroactive reporting to January 1, 1962 was on a voluntary basis and not necessarily complete.

Source: National Aeronautics and Space Administration, Annual Procurement Report, Fiscal Year 1963, p. 38.

Table 11

Employment and Wages for Five Defense-Related Industries for 1963 1/

States	Ordnance		Communications Equipment		Electronic Components and Accessories		Aircraft and Parts		Ship and Boat Building		Total: Five Defense Industries	
	Employment (000's)	Wages Millions	Employment (000's)	Wages Millions	Employment (000's)	Wages Millions	Employment (000's)	Wages Millions	Employment (000's)	Wages Millions	Employment (000's)	Wages Millions
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
Total U.S.	274.8	2,163.3	452.8	3,254.0	253.1	1,386.1	629.0	4,896.5	141.6	929.2	1,751.2	12,933.0
New England	29.0	194.6	38.9	254.7	41.3	195.6	2/	2/	26.3	199.1	135.4	844.1
Maine	2/	2/	0.3	1.7	1.2	4.7	1.0	5.5	3.1	17.5	5.7	29.4
New Hampshire	-	-	3.2	21.2	4.7	19.5	-	0.1	2/	2/	8.0	40.9
Vermont	-	-	2/	2/	0.9	3.6	2/	2/	2/	2/	.9	3.6
Massachusetts	20.5	140.2	28.4	182.3	26.3	130.2	9.4	72.8	5.8	41.4	90.3	566.8
Rhode Island	2/	2/	2/	2/	1.8	7.1	-	0.2	0.5	2.3	2.3	9.6
Connecticut	7.7	49.6	5.5	37.1	6.5	30.5	66.3	480.5	16.8	137.4	102.8	735.2
Middle Atlantic	14.8	116.1	115.1	886.5	84.1	450.5	77.9	637.8	20.5	142.5	312.4	2,233.2
New York	11.7	96.6	52.5	392.9	23.7	134.0	45.6	413.6	5.2	33.4	138.9	1,070.4
New Jersey	-	-	44.9	355.1	25.4	137.9	14.8	104.2	9.5	66.3	94.6	663.6
Pennsylvania	3.1	19.5	17.7	138.4	34.8	178.6	17.2	122.6	6.1	42.7	79.6	502.0
East N. Central	2/	2/	88.1	57.1	45.6	207.3	2/	2/	8.5	46.5	142.2	818.8
Ohio	9.5	73.3	15.1	8.9	0.6	29.1	39.7	312.9	1.2	7.5	66.1	512.0
Indiana	5.3	34.1	12.1	78.1	12.9	59.5	19.7	146.8	1.6	8.5	51.5	327.2
Illinois	4.2	21.8	51.7	330.2	21.4	94.7	4.1	29.7	.7	4.0	82.1	480.4
Michigan	4.1	35.7	1.4	7.7	1.4	5.5	5.5	41.0	2.3	13.3	14.6	103.2
Wisconsin	2/	2/	7.8	60.1	3.7	18.4	2/	2/	2.5	13.1	13.9	91.6
West N. Central	20.3	143.7	27.3	161.4	2/	2/	66.3	488.4	2/	2/	113.9	793.2
Minnesota	4.8	32.7	6.8	42.4	1.6	8.5	0.3	1.6	0.8	3.5	14.4	88.8
Iowa	2/	2/	9.9	58.6	2.4	10.0	2/	2/	-	0.1	12.3	68.8
Missouri	10.0	71.0	5.1	28.8	.8	3.2	34.4	249.0	1.0	5.1	51.3	357.2
North Dakota	2/	2/	2/	2/	-	-	2/	2/	2/	2/	2/	2/
South Dakota	2/	2/	-	-	2/	2/	-	0.2	-	-	*	0.4
Nebraska	0.3	2.1	5.3	32.0	1.7	6.5	0.1	0.6	-	-	7.3	41.2
Kansas	1.4	12.7	0.1	0.8	1.7	7.0	28.0	201.0	0.2	0.6	31.3	222.4

Table 11 (continued)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
South Atlantic	31.3	254.5	39.7	266.0	13.8	60.6	36.5	265.1	41.4	260.1	162.7	1,106.4
Delaware	2/	2/	-	-	0.1	0.6	-	-	-	0.6	0.2	1.2
Maryland	16.8	135.4	10.1	94.5	0.8	4.5	3.1	22.9	10.1	65.8	40.9	303.2
D.C.	2/	2/	-	0.7	-	0.6	0.3	3.4	2/	2/	0.4	4.8
Virginia	-	-	5.2	30.8	1.5	5.0	-	0.2	10.1	147.2	16.9	183.2
West Virginia	2/	2/	2/	2/	0.5	1.8	2/	2/	2/	2/	0.5	2.0
North Carolina	2/	2/	11.6	68.6	3.3	12.8	1.2	6.6	0.8	3.4	17.0	91.6
South Carolina	2/	2/	2/	2/	3.3	11.4	2/	2/	0.5	2.5	3.8	14.0
Georgia	0.4	0.9	-	0.6	0.2	0.9	17.4	129.9	1.4	6.2	19.5	138.4
Florida	12.8	107.0	11.2	86.1	4.3	23.3	14.2	99.1	6.0	32.2	48.6	347.6
East S. Central	4.7	33.8	4.3	23.1	6.9	33.8	8.6	51.2	9.8	57.4	34.4	199.2
Kentucky	-	-	2/	2/	4.7	24.3	2/	2/	0.3	1.6	5.1	26.0
Tennessee	1.8	7.9	3.5	19.5	1.0	3.3	2/	2/	1.3	6.2	7.5	36.8
Alabama	3.0	26.5	0.5	2.0	0.8	3.6	7.4	45.4	2.9	16.0	14.6	93.6
Mississippi	-	-	2/	2/	0.4	1.4	2/	2/	5.3	33.6	5.7	34.8
West S. Central	16.4	114.1	21.5	135.7	2/	2/	2/	2/	14.9	49.4	52.9	339.2
Arkansas	2/	2/	0.4	2.1	2/	2/	0.2	0.5	0.5	2.0	1.0	4.8
Louisiana	8.3	61.2	-	0.1	-	-	2/	2/	8.7	54.8	17.0	116.0
Oklahoma	2/	2/	2/	2/	0.3	1.2	5.8	35.3	-	0.1	6.1	36.8
Texas	5.5	31.6	17.8	116.1	2.4	13.0	34.3	266.8	5.8	34.0	65.8	461.6
Mountain	29.9	237.8	0.9	5.6	10.6	61.9	2/	2/	2/	2/	41.4	305.2
Montana	2/	2/	-	-	-	-	-	-	-	-	*	0.1
Idaho	0.1	0.7	-	-	2/	2/	-	-	-	-	0.1	0.8
Wyoming	2/	2/	-	-	2/	2/	0.2	1.2	-	-	0.2	1.2
Colorado	16.3	135.7	2/	2/	0.6	2.9	2.7	19.5	-	-	19.7	158.0
New Mexico	2.6	19.0	0.4	2.6	0.4	2.3	0.7	6.9	2/	2/	4.1	30.8
Arizona	5.3	42.7	0.2	1.2	8.2	50.1	5.3	43.5	-	0.1	19.0	137.6
Utah	4.5	31.6	2/	2/	1.1	5.0	12.3	88.1	-	-	17.8	124.8
Nevada	2/	2/	0.2	1.1	-	-	2/	2/	-	-	0.3	1.2
Pacific	2/	2/	113.0	929.1	2/	2/	232.9	1,932.2	17.8	122.5	363.7	2,984.0
Washington	-	0.5	0.8	6.9	0.1	0.8	64.2	517.9	5.3	36.4	70.5	561.6
Oregon	2/	2/	0.2	0.9	0.3	1.3	0.6	4.4	1.6	11.0	2.7	13.2
California	103.5	897.3	113.6	934.9	37.0	244.8	154.9	1,409.8	10.8	74.0	419.8	3,560.8
Alaska	-	-	-	-	2/	2/	2/	2/	0.1	0.7	0.1	0.8
Hawaii	-	-	2/	2/	2/	2/	2/	2/	0.1	0.5	0.1	0.4

* less than 50.

1/ 1963 wages are the sum of the 4 quarters, 1963 employment is the average of the 4 quarters .

2/ Data for the industry were omitted to avoid disclosure of details for individual firms.

Source: Employment and Wages, U.S. Department of Labor, Bureau of Employment Security, 1st, 2nd, 3rd, 4th quarters, 1963.