salaried workers to total workers will tend to raise the percentage change in average annual earnings relative to the change in average hourly earnings of production workers, since the level of salary rates tends to be higher than the level of wage rates.

TABLE 11.—*Relationship of changes in employment to change in average annual earnings (wage and salary workers)*

[Percent change]

	Employment		Average annual earnings	
	1948–57	1955–57	1948–57	1955–57
Upper quartile [1]	32	6	60	20
All industry average	8	5	53	17
Lower quartile [1]	−16	−5	48	14

[1] Quartiles selected on basis of employment only.

Source: Average full-time equivalent employees, and average annual earnings of full-time equivalent employees; U.S. Department of Commerce.

If we rank the 20 manufacturing industries by size of employment increases and compare the increase in average annual earnings of both wage and salary workers in the upper and lower quartiles, we find this time a difference between the average earnings gain in the two quartiles.

In view of the substantial differences in changes in employment, differences in average annual wage rate increases were not striking.[14]

If we rank industries according to output increases and compare the increase in average annual earnings in the upper and lower quartiles, we arrive at the same results found in the comparison of wage rates and output—there does appear to be a noticeable difference in the increase in average annual earnings in the two quartiles. The difference between the quartiles is somewhat larger during the 1955–57 period, when the comparison is made on the basis of average annual earnings than when it is made on the basis of average hourly earnings.

In general we have found that there appears to be only a modest association between *relative* changes in wage and salary rates and relative changes in employment. Between 1948 and 1957 there did appear to be some relationship between the relative magnitude of wage and salary increases and the relative size of output increases. In the shorter period from 1955 to 1957, the relationship between wage and salary changes on the one hand and output changes on the other was much weaker, and may have been so small as to be insignificant.

WAGES, PRODUCTIVITY, AND UNIT LABOR COSTS

Changes in unit labor costs may be separated into two distinct components: changes in the cost of labor inputs and changes in labor productivity. To the extent that increases in compensation per employee exceed increases in output per employee, unit labor costs

[14] A further test can be performed by constructing rough estimates of average wage and salary compensation by man-hour, and comparing changes in such average compensation with changes in man-hours of employment. The coefficient of rank correlation between the two sets of increases was only 0.36. The estimates of average compensation per man-hour of both wage and salaried employees was constructed by dividing Department of Commerce estimates of total employee compensation by estimates of total man-hours of employment including nonproduction workers. In making this calculation, nonproduction workers were assumed to work an average of 40 hours per week in all years.