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Volume Author/Editor: Daniel Creamer, assisted by Martin Bernstein

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Chapter Author: Daniel Creamer, Martin Bernstein

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## Pattern of Change in Capital-Output Ratios in Individual Industries

Is there any pattern underlying the change in the capital-output ratios of individual industries that helps to explain the reversal of trend in the capital-output ratio of total manufacturing?

One pattern is clear: Between 1880 and 1919, when the capital-output ratio for all manufacturing was rising, the dispersion of the

TABLE 14

**Coefficient of Variation of the Capital-Output Ratios (1929 Prices)  
in Thirty-seven Manufacturing Industries, Selected Years, 1880-1948**

<i>Benchmark Years</i>	<i>Coefficient of Variation (%)</i>
1880	63.1
1890	70.3
1900	
Comparable with preceding years	65.5
1900	
Comparable with following years	66.9
1904	58.5
1909	49.3
1914	50.5
1919	38.3
1929	33.0
1937	35.6
1948	30.7

*Source:* Based on Appendix Table A-2.

minor industry ratios about the all-manufacturing ratio, measured by the coefficient of variation, declined by nearly two-fifths. All of the decline occurred after 1900 (Table 14). This must mean that the rate of increase in the capital-output ratio of industries with relatively low ratios in 1880 was typically higher than for industries with relatively high ratios. The continued narrowing of the dispersion of the minor industry ratios after 1919, when the capital-output ratio of all manufacturing was declining, is consistent with only one inference: The ratios of industries with relatively high ratios in 1919 generally declined more rapidly than the ratios of industries with relatively low ratios in 1919. This trend toward less dispersion of the capital-output ratios suggests a hypothesis which, however, cannot be tested. During the earlier period, the smaller the importance of capital in 1880, i.e. the lower the capital-output ratio, the greater the scope for additional mechanization of processes; during the later period, the greater the importance of capital in 1919, i.e. the higher the capital-output ratio, the larger is the scope for improving the efficiency of capital.<sup>41</sup>

The relationship between the changes in the capital-output ratios and changes in rate of growth measured by output in constant prices is not particularly helpful. True, there is a fairly high correlation in both periods between the per cent change in output and per cent change in capital (both in 1929 prices) since over the long term output and plant capacity must change in much the same way. Thus the coefficient of correlation between relative changes in output and capital from 1880 to 1919 for the 50 or more industries is +0.85 and +0.79 for the period 1919 to 1948. A lower degree of association is expected in the second period when capital-saving innovations have predominated. However, when the point of reference is the relative changes in output and in the capital-output ratio, the degree of association is negative and of a low order in both periods, in the earlier period -0.39 and in the second -0.14.<sup>42</sup>

<sup>41</sup> For an analysis of interindustry differences in capital-output ratios as of 1929, see Charles A. Bliss, *op. cit.*, pp. 88-119.

<sup>42</sup> All coefficients except the last one are statistically significant.