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

*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 manu-
facturing 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.\footnote{For an analysis of interindustry differences in capital-output ratios as of 1929, see
Charles A. Bliss, \textit{op. cit.}, pp. 88-119.}

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
$-0.14$.\footnote{All coefficients except the last one are statistically significant.}