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Summary

Any appraisal of the future capital requirements of the railroads must rest in part, at least, upon an analysis of growth patterns discernible in the past. In Appendix A of this report the assembly of the raw statistical materials required for this purpose is presented. In the preceding pages an exploratory investigation of these new series was undertaken.

It was found that the expansion of the railroads over the long term proceeded at a constantly diminishing rate from the earliest year — 1870 — covered in this study. The peak of the total stock of road and equipment was reached at the end of 1930, when the aggregate value in 1929 prices was $24 billion. In the subsequent twenty years there was a modest net decline.

The explanation for this behavior was not found simply in changes in the level of railroad traffic. For in the years prior to World War I, railroad output rose for the most part at an increasing rate, while the flow of net investment, though very sharp, nonetheless diminished persistently. These diverse trends were reflected in the sharply declining ratio of the stock of capital to the annual flow of output, both measured in constant dollars. From the early 1880's to the years just preceding World War I, the drop was from 15 to 4, in striking contrast to the rise in the corresponding ratio for manufacturing in this period. Underlying this change were several factors, some of which — such as the high degree of indivisibility of facilities — are common to most utilities, others of which are characteristic of railroads alone. Their influence, in concert, was to reduce over time the quantity of investment required for a given expansion in output. This progressively dampening effect upon the volume of capital formation, which was most pronounced in the pre-World War I period, was reinforced in subsequent years when the volume of traffic itself leveled off in the face of the growing competition of other forms of transportation.

As implied above, net capital formation in the period 1919-1950, taken as a whole, was relatively small in contrast to the swift accumulation of earlier years. However, the flow of gross investment remained at substantial levels, for the huge dimensions reached by the entire stock of road and equipment brought with it large replacement requirements. Capital consumption in the decade of the forties alone was as great as the entire net investment made in the railroads during the years 1870-1890, when expansion was at its peak.

Reference in preceding paragraphs was to the secular drift perceptible in the eighty-year span under review. The record of railroad capital formation in the shorter term is dominated by dramatic expansions and contractions, lasting from peak to peak on the average either fifteen or over twenty years, depending upon the moving average used to eliminate the shorter-term cycles. As might be expected, the upper turning points of these long cycles uniformly occurred in the neighborhood of major downturns in general business activity. Their character, however, was appreciably altered over time. Expansions grew persistently weaker, contractions deeper and more prolonged. This difference reflected transition from the stage of youthful, vigorous growth to one of maturity.

Although the net expansion of railroad facilities after World War I was retarded and ultimately reversed, rising prices and substantial replacement requirements have maintained this industry's need for money capital at fairly high levels. In the earliest decade covered in the study, capital requirements were financed primarily by the sale of stocks and bonds. From the first, however, there was evidence of a long-term trend toward internal financing. This trend persisted until, in the aggregate, all capital needs in the 1940's were provided by either earnings or depreciation charges.