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Gross Dividend and Interest Payments by Corporations at Selected Dates in the 19th Century

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TO EXPLORE gross dividend and interest payments by corporations in the nineteenth century, estimates were made for all corporations for four arbitrarily chosen years, 1835, 1859, 1871, and 1890, and for certain corporations subject to the federal tax at source, annually, 1863–71. The figures show the kinds of data available and direct attention to corporate sectors and periods for which basic research is needed. If we are to develop reliable series, we shall need better information.

The Civil War Tax at Source on Dividend and Interest Payments[1]

Five classes of corporations were required by law from 1863 to 1871 to withhold from dividend and interest payments to their stockholders and bondholders a duty which was payable to the Commissioner or Collectors of Internal Revenue.[2] These were banks, insurance companies, railways, canals, and turnpikes. Under the act of July 1, 1862, the duty was fixed at 3 per cent. It was raised to 5 per cent under the act of June 30, 1864, then lowered to $2\frac{1}{2}$ per cent under the act of

[1] The tax manuals of the period are the best source of information on the income tax. See: George S. Boutwell, *A Manual of the Direct and Excise Tax System of the United States*, Little, Brown, 1863 and 1864; *idem, The Tax-Payer's Manual*, Little, Brown, 1865; O. F. Bump, *Internal Revenue Statutes now in Force*, Baker, Voorhis, 1870; C. N. Emerson, *Emerson's Internal Revenue Guide*, Springfield, Mass., Samuel Bowles, 1866. These manuals, however, do not contain the detail desirable for proper interpretation of tax receipts.

Annual reports of the Commissioner of Internal Revenue, *American Railroad Journal, Commercial and Financial Chronicle*, and *The New York Times*, 1863–1873, are sketchy in their coverage of tax developments.

The secondary literature is devoted mainly to the individual income tax and provides inadequate information on the practical application of the corporate tax, see: J. A. Hill, "The Civil War Income Tax," *Quarterly Journal of Economics*, July 1894, pp. 416–452, 491–498; Frederick C. Howe, *Taxation and Taxes in the United States under the Internal Revenue System, 1791–1895*, T. Y. Crowell, 1896; H. E. Smith, *The United States Federal Internal Tax History from 1861 to 1871*, Houghton, Mifflin, 1914 (Hart, Schaffner and Marx prize essay, no. 16).

[2] Withholding apparently was not always at the expense of stockholders and bondholders. The Commissioner of Internal Revenue noted that some companies paid the tax and charged it to their expense accounts, giving the government $5 for every $100 paid out, instead of $5 for every $95. See *American Railroad Journal*, 1865, p. 436.

July 14, 1870. The tax expired at the end of calendar 1871. Beginning July 1, 1864, undivided profits of banks, railways, canals and turnpike corporations were taxed at the same rate as dividends and interest payments. Sums added to surplus or contingent funds of banks and insurance companies were taxed from the start. Until July 1, 1866, the tax was paid directly to the Commissioner of Internal Revenue; thereafter, on the basis of corporate returns of dividend and interest disbursements, assessors notified the corporations of the amount of duty, payable to Collectors of Internal Revenue.

The published data show only tax collections for fiscal years ending June 30. Data on assessments, on which the tax was levied, should have existed beginning fiscal 1867, but there is no mention of them in the annual reports of the Commissioner of Internal Revenue. Tax collections data are clearly inferior to assessment data since they may reflect lags in payment and possible underpayment, but we assume here that the tax data generally mirror net earnings faithfully. The system of collection at source was considered efficient by contemporary opinion, and the Commissioner of Internal Revenue suggested that it be extended to all corporations declaring dividends.[3] It was only after the expiration of the tax that the Commissioner made any reference to tax delinquency, but this delinquency probably does not affect the figures for 1863–71. It may refer to the failure of corporations to pay taxes on dividend and interest payments made in 1872, thus disregarding the Commissioner's ruling that dividends and interest paid in 1872 on earnings of 1871 were taxable.[4]

For each class of corporation tax collections were divided by the effective tax rate. It seems likely that the tax forms showed dividend payments, interest payments, and net undivided profits on separate lines. For railroads, tax collections on net earnings and interest payments, except for one year, are given separately. For canals and turnpikes they are combined so that interest payments must be separately estimated and subtracted to get net earnings. (Banks and insurance companies, of course, had no funded debt.) Finally, to determine dividends, undistributed profits must be separately estimated for each corporation class and subtracted from net earnings. The results are shown in Table 1 and Appendix A.

For the best use of the tax-based figures, the following questions needed answers:

[3] *Annual Report of the Commissioner of Internal Revenue* in *Report on the Finances*, 1863, p. 73; and Howe, *op. cit.*, pp. 96–97.

[4] Cf. *Annual Report . . . Internal Revenue*, 1875, p. vii: "extraordinary efforts have been put forth by this Office to collect the delinquent taxes due from banks and bankers, railroads and other corporations and taxes due on incomes, legacies and successions." The amounts reported as assessed and collected under the expired law in the annual reports of 1875 to 1878 are small relative to the collections 1863–71.

1. What was the lag between dividend and interest payments and tax collection?

2. How significant were payments of dividends in scrip which were taxable equally with cash dividends?

3. Why was there a sharp dip in tax collections in fiscal 1871 and a sharp rise in fiscal 1872?

4. Since there was a premium on gold during the years the tax was in effect, and interest, in particular, on certain corporate bonds was paid in gold, do our figures treat gold dollars as equal to greenback dollars?

5. How large were dividend and interest payments to states which owned corporate stocks and bonds exempt from the federal tax?

THE LAG BETWEEN PAYMENTS AND COLLECTION

The evidence on this point is conflicting. The law clearly stated that the duty was to be paid to the Commissioner of Internal Revenue within thirty days after dividend or interest payment. Yet Internal Revenue decisions permitted quarterly tax payments.[5] Once the system of assessment was instituted beginning fiscal 1867, the interval between dividend payment and tax collection was apparently longer than a month.[6] Further, tax payments on additions to surplus or contingent funds were required only once in six months. I therefore assumed that the fiscal year collections represented dividend or interest payments for years ending March 31. I adjusted to a calendar year basis after converting fiscal year totals into average monthly data. The assumption of a quarterly lag affects particularly the results for calendar 1863, which is derived from fiscal 1863—covering ten months' collections for banks, railways, and insurance companies, four months' for canals and turnpikes—and fiscal 1864.[7]

PAYMENTS IN SCRIP

Apparently railroads and insurance companies in particular paid scrip as well as cash dividends. The scrip dividend made by the New York Central Railroad on December 19, 1868, amounting to $23 million was excluded. The tax on this dividend was not paid by the railroad until fiscal 1873 after prolonged litigation.[8] The amount of

[5] Boutwell, *A Manual* . . . , 1863, p. 256.

[6] In *American Railroad Journal*, 1870, p. 1100, there is a reference to a dividend declared December 22, 1869, payable to stockholders on and after January 17, 1870. A return was made to the assessor who assessed the tax of 5 per cent upon the dividends, payable March 31, 1870.

[7] The Internal Revenue Office was not equipped to handle returns of the first group of companies, until September 1, 1862, of the second group until March 1, 1863.

[8] The company contended that the scrip dividend represented undivided earnings over a period of fifteen years before 1868. The Commissioner of Internal Revenue exempted the dividend until 1862, when the income tax law was first enacted, and claimed a tax for six years or six-fifteenths of the whole dividend. *Commercial and Financial Chronicle*, March 1872, p. 278.

the tax collected from the New York Central Railroad was deducted from fiscal 1873 collections. For insurance companies, cash dividend payments can be estimated from the New York insurance reports; deducting dividend estimates so derived from the tax-based net earnings figures yields an estimate of undistributed profits and scrip dividends combined. Thus scrip dividends of insurance companies are excluded from the dividends shown in Tables 1 and A-3.

FISCAL 1871–FISCAL 1872

Congress intended to continue the 5 per cent tax on net earnings until August 1, 1870, and to substitute a tax of 2½ per cent after that date. The act of July 14, 1870, which reduced the tax, however, could be construed to exempt from taxation not only net earnings during the last five months of 1870 but also during the first seven months of the year. Tax suits were brought to court, the Internal Revenue Office appealed decisions unfavorable to collectors, rulings were made by the Commissioner, countermanded by the Secretary of the Treasury and then reversed by the Attorney General.[9] Ultimately the act was interpreted to exempt from taxation only the net earnings of the period August 1, 1870, through December 31, 1870.

Tax-based earnings, April 1870–March 1871, as computed from tax collections in fiscal 1871, are considerably lower than the tax-based earnings, April 1869–March 1870; and tax-based earnings, April 1871–December 1871, as computed from tax collections in fiscal 1872, are unusually large.[10]

There are two possible explanations: (1) the earnings figures for fiscal 1871 cover seven months only and have to be blown up to represent twelve months, while the swollen figures for fiscal 1872 reflect peak business conditions, or (2) because of the confusion over the act of July 14, 1870, taxes due in fiscal 1871 were not paid until fiscal 1872;

[9] The decision of the circuit court of the State of Pennsylvania, in the case of the Philadelphia and Reading Railroad Company *vs.* Wm. H. Barnes, collector (U.S. Circuit Court, Philadelphia, Sept. 9, 1870, opinion by Justice Strong), that no tax could be withheld from dividends or interest payable during the first seven months of 1870 was reversed. The Internal Revenue Office first ruled that interest was not taxable for the last five months of 1870, but that dividends were taxable, the tax to be collected in 1871 (*American Railroad Journal*, 1870, p. 1098). It then reversed itself on February 27, 1871, exempting dividends also during this period (*ibid.*, 1871, p. 340). The ruling was revoked by the order of the Secretary of the Treasury on May 13, 1871 (*ibid.*, 1871, p. 593). I have not found a reference to the date of the final decision that no tax was due on net earnings and interest payments of the last five months of 1870.

[10] Before the act of July 14, 1870, was passed, there was considerable agitation to repeal the income tax. If corporations anticipated repeal, they might conceivably have deferred declaring dividends in the first half of calendar 1870. After the act was passed, there was no reason to defer dividends whatever the company's interpretation of the language of the law. It does not then appear that a putative shift of dividend payments can account for the dip in dividends as estimated from tax collections in fiscal 1871 and the bulge in fiscal 1872.

taxes were paid in fiscal 1872 for the last five months of 1870, although subsequently it was determined that these taxes should not have been paid.

I adopted the second interpretation because of several bits of evidence. The banks apparently paid the tax on earnings from August 1, 1870, to December 31, 1870. The report of the Comptroller of the Currency shows that the tax paid by national banks in the year ending August 31, 1871, was on the full year's net earnings, not on eight months' net earnings as it would have been if national banks had not paid the tax for the last four months of 1870.[11] Also, annual amounts refunded for taxes illegally assessed and collected from fiscal 1871 through fiscal 1873 were three times greater than before and after.[12]

The returns for fiscal 1871 and fiscal 1872 were therefore combined. Since the tax formally expired at the end of calendar 1871, I assumed that fiscal year collections were substantially complete by March 1872.[13] I computed a per month average on that basis, allocating nine months to calendar 1870 and twelve months to calendar 1871. This, of course, brought the level of calendar 1870 up toward that of calendar 1871.

I attributed to calendar 1870 and 1871 small amounts of tax collected in fiscal 1873, omitting the back tax collected that year from the New York Central Railroad.

THE GOLD PREMIUM

As is true in general of monetary data for the greenback era, our figures represent sums of gold dollars and greenback dollars, although they were not interchangeable at a fixed rate during the years 1862–78. This is especially true of our interest payment figures, since corporations as well as the government sometimes guaranteed interest payments in coin.[14] The Internal Revenue Office apparently ruled that interest payments in gold were to be taxed as if they were greenback receipts.[15] Only if the gold was subsequently sold at a premium was the net gain taxed on the personal income schedule. Correctly, the portion of annual interest payments made in gold should be valued at the current premium and added to the balance of interest payments made in greenbacks to get meaningful totals for the period when the United States was off the gold standard.

[11] *Annual Report of the Comptroller of the Currency*, 1872, pp. xiv.

[12] *Annual Report . . . Internal Revenue*.

[13] For fiscal 1872 only, we know the collections for the first quarter of the year. They account for the bulk of the fiscal year collection (*Annual Report . . . Internal Revenue*, in *Report on the Finances*, 1872, p. 63).

[14] Apparently dividends were in certain cases also paid in gold. J. A. Fowler, *History of Insurance in Philadelphia for Two Centuries, 1683–1882*, p. 563, states that from April 1871 to January 1878 dividends "were paid in gold, or in the value of gold," by the Franklin Fire Insurance Company.

[15] Boutwell, *The Tax-Payer's Manual*, no. 31, p. 136.

PAYMENTS TO STATE STOCKHOLDERS

These were not taxed and have not been estimated. The error here is in the opposite direction from that due to the inclusion of scrip dividends.[16]

Dividend and interest payments, based on the tax data shown in Table 1, indicate that banks and railroads were the main revenue producers; turnpikes produced the least.[17] In view of their reputation for unprofitability, it seems curious that turnpikes were selected as

TABLE 1

Dividend and Interest Payments by Corporations Subject to the Tax at Source, 1863–1871 (millions of dollars)

	1863	*1864*	*1865*	*1866*	*1867*	*1868*	*1869*	*1870*	*1871*
Dividend payments to stockholders:									
1. Banks	39.5	66.7	67.1	56.1	55.1	56.8	52.3	55.6	58.5
2. Insurance companies	9.1	10.4	10.1	7.8	7.5	9.9	11.4	11.0	8.6
3. Railroads	28.0	41.3	36.2	31.4	32.1	39.8	43.9	48.1	48.1
4. Canals	1.4	5.9	3.9	2.6	3.1	3.1	3.5	2.9	2.6
5. Turnpikes	0.5	0.6	0.5	0.5	0.8	0.5	0.5	0.5	0.5
Total	78.5	124.9	117.8	98.4	98.6	110.1	111.6	118.1	118.3
Interest payments to bondholders:[a]									
6. Railroads	18.6	19.1	23.5	23.6	24.7	28.9	35.6	43.9	45.5
7. Canals	1.3	1.3	1.3	1.3	1.3	1.4	1.4	1.5	1.6
Total	19.9	20.4	24.8	24.9	26.0	30.3	37.0	45.4	47.1

[a] Turnpikes paid less than $100,000 in interest (see Table A–6, col. 3).

Line 1: Table A–2, col. 5. *Line 2:* Table A–3, col. 2. *Line 3:* Table A–4, col. 8. *Line 4:* Table A–5, col. 2. *Line 5:* Table A–6, col. 2. *Line 6:* Table A–4, col. 9. *Line 7:* Table A–5, col. 3.

[16] Boutwell, *A Manual* . . ., 1864, No. 19, dated Feb. 16, 1863, pp. 219–220.

[17] The tax reached the four largest revenue producers, according to the distribution of net earnings of all corporations in New York State in 1867:

	Percentage of Total Corporate Net Earnings in New York State
All commercial banks	24.1
Railroads	24.2
Insurance companies	22.7
Canal and navigation companies	17.7
Gaslight companies	2.3
Express companies, waterworks, turnpikes, bridges	0.7
Miscellaneous	8.3
	100.0

The percentages were computed from data in *Report of the Comptroller of New York State Giving the Names of All State Corporations Doing Business in this State*, 1868.

worth taxing on their net earnings.[18] No current quotation of the price of turnpike shares or bonds has been noted. The Treasury would have been better off had the Congress imposed the tax on gaslight companies instead of turnpikes.

According to the dividend estimates, 1864 was the peak year of the period. Gross dividend payments of the five classes of corporations taxed were 59 per cent higher that year than in 1863, compared to an increase of 45 per cent in the wholesale price index.[19] From the peak in 1864 dividend payments declined 21 per cent to a low in 1866. Over the same period, wholesale prices fell 10 per cent. In 1871, the final year of the estimates, a second peak was reached, about 51 per cent higher than the initial figure in 1863. The wholesale price level was about 2 per cent lower in 1871 than in 1863. Real income of dividend receivers as a group apparently increased over the period. A study of the tax returns, by states, should throw light on the extent to which the inclusion of southern corporations not reporting earlier raised the level of dividends in the postwar years, but this has not been possible here. Nor can we assess the importance of the sources of the recorded increase in dividend payments; that is, what part of the increase was due to an increase in the rate of return on capital and what part reflected the simple growth of equity capital in corporations.

Interest payments to bondholders were one and a third times higher at the end of the tax period than at the start. This is almost wholly accounted for by the rise in railroad interest payments. In part this rise reflected an improvement in the financial situation of railroads previously in default; in the postwar years, the growth of bonded debt. Railroad interest payments increased from year to year without a break except for a slowing in the rate of increase in 1866 and 1867. If a correction were introduced for interest payments in gold, the figures for 1863 and 1864, when the premium was at its peak, might be raised proportionately more than the figures for the later years. On the other hand, the proportion of bonds paying interest in gold probably increased over the period, offsetting the effect of the higher premium during the war years.

Estimates for Selected Years

We now turn to estimates for all classes of corporations for 1835, 1859, 1871, and 1890. These years, all of which fall during a late stage

[18] Yet on a capital of $806,984 and surplus of $7,417, New York turnpikes and plank roads reported net earnings in 1867 of $37,224, or 4.57 per cent on capital and surplus, which does not compare too unfavorably with the ratio of 5.25 per cent of net earnings of New York State railroads to their capital and surplus that year. See *Report of the Comptroller of New York State Giving the Names of All State Corporations Doing Business in this State*, 1868.

[19] G. F. Warren and F. A. Pearson, *Wholesale Prices for 212 Years, 1720 to 1932*, Cornell University Agricultural Experiment Station, Memoir 142, 1932.

of business expansion, were chosen arbitrarily. Estimates at such widely spaced intervals should illustrate changes in the kinds of information available and changes in the spread of the corporate form of business.

The major industrial groups for which estimates are presented are manufacturing and mining, gas and electric utilities, banks and insurance companies, railroads, other transportation (bridges, turnpikes, canals, express companies, steamboats), and all other corporations. For banks and insurance companies, railroads, canals, and turnpikes, the tax-based figures of 1871 were used.

For the Civil War and postwar years the estimates in Table 1 were made largely by distributing net earnings between dividend payments and retained earnings. Interest payments, when not separately available, were similarly broken down from a total combining them with dividend payments and retained earnings. There is, however, another way of estimating dividend and interest payments. For the four selected years in the nineteenth century, the method in most cases was to find the ratio of dividend payments to the par value of capital of a sample of corporations and apply this to all corporations in the industry. Interest payments were estimated by multiplying funded debt of all corporations in the industry, or the proportion on which it was assumed interest was paid, by an average rate of interest.

Figures on paid-in capital and on funded debt of all corporations in an industry, with exceptions noted below, are not directly available. They must be approximated from whatever data exist for the industry as a whole, under corporate as well as noncorporate ownership. For some industries it was necessary to work with data purporting to represent total investment, for others, with equity capital. Descriptions of the major deficiencies follow.

CAPITAL PAID IN OR TOTAL INVESTMENT

Neither equity capital invested in an industry nor total investment could be estimated with confidence. Little is known of census coverage before 1860. For manufacturing before 1890, census figures on "capital invested" were used to indicate paid-in capital, although many respondents must have given fixed or total assets instead. For 1890, on the basis of the census description, the figures were used to indicate total manufacturing assets. For mining, the census "capital invested" was assumed to represent total investment. For banks before the national banking system was established, we have annual figures of total capital compiled by the Secretary of the Treasury from 1833 on and estimates for selected earlier years. Coverage is presumably less deficient in these data than in the census figures, but the aggregates do not share a common date and certainly do not refer strictly to capital paid in. From

1863 until 1896 existing estimates of capital in nonnational banks are incomplete in their coverage. For insurance companies there are no total investment data before 1890. For railroads before 1860, as Wicker has shown, the job of constructing investment totals remains to be done. From 1870 on, data are available from Poor and later from the Interstate Commerce Commission. For other transportation, Cranmer has provided the kind of series needed for years before 1860; for turnpikes, there is Phillip Taylor's investment estimate for New England before 1840, some figures for Ohio at scattered dates, figures for Pennsylvania in 1821 and 1838 (authorized capital only), and a figure for New York in 1867; for bridges and steamboats there is no information on investment. For all other industries if there are no census data, whatever their shortcomings, information is incomplete or conjectural. (Wicker and Cranmer in this volume. *Poor's Manual of Railroads*, 1868–69 through 1900, annual volumes. Phillip E. Taylor, *The Turnpike Era in New England*, unpublished dissertation, Yale University, 1934.)

CORPORATE SHARE IN TOTAL OWNERSHIP

Even if total investment data existed, we would be handicapped by lack of information on the share of corporate in total ownership of manufacturing, mining, insurance and transportation other than railroad and canal. The earliest estimate for manufacturing is 1899, for mining, 1902, for insurance companies, 1889.

CORPORATE FINANCIAL STRUCTURE

Given information on total corporate investment, we need to know the ratio of paid-in capital and funded debt to total investment. The ratio of paid-in capital to total assets for Massachusetts manufacturing corporations is available since 1875, for railroads since 1870; otherwise, only for single companies at certain dates. If capitalization was watered, use of cost or investment data as the basis for estimating capital stock and funded debt may well understate the dividends and interest paid.

SAMPLE OF DIVIDEND PAYMENTS

The samples are drawn from a variety of sources. In general they are not adequate and possibly not representative.

For manufacturing, nearly all data are drawn from J. G. Martin's *A Century of Finance* (published in Boston by the author in 1898) and are principally for textile companies. A selected list of this sort may be biased by emphasis on relatively successful companies and the exclusion of failures.

For mines, the sample for 1835 is based on a few Pennsylvania companies. For 1859 a few copper companies are added. For 1871 and 1889 the sample is adequate, but it is drawn largely from *Mineral Industry* (Statistical Supplement of the *Engineering and Mining Journal*, published by the Scientific Publishing Co.), which probably also lists only the relatively successful concerns.

For gas utilities, the sample is for companies in a few cities, with complete coverage in 1835. For later years the coverage varies from fair to excellent.

For electric utilities, the sample is based on two companies in Fall River, Mass.

For banks before the Civil War, dividend payments by banks in Pennsylvania, derived from tax data, were the main basis for interpolation. There are also data for other states that could be used to enlarge the sample.

For insurance companies, the sample for 1859 is restricted to dividend payments of New York fire insurance companies.

For railroads, Poor's figures were used for New England and the Middle Atlantic states before the Civil War, and Interstate Commerce Commission figures for 1890.

For other transportation except canals, the information on dividends is scanty.

The samples do not exhaust the available data. Late in 1859, *American Railroad Journal* began presenting tables of current dividend payments in diverse industries. Later, the *Commercial and Financial Chronicle* published weekly reports of dividend and interest payments but the job of compiling this information remains to be done. During the last two decades of the century *Investors' Supplement* and *Handbook of Railroad Securities*, published by the *Chronicle*, systematically listed dividends announced by companies in various industrial groups. Throughout the century various companies reported their dividends to certain state legislatures. Individual company histories, in some cases, also show the record of dividend payments, although averages of a number of years, rather than the annual results, are often presented. Industry histories usually do not show the relative importance of corporations and do not provide dividend information. My survey of both individual and industry histories was, however, incomplete, and a more exhaustive examination may be valuable.

PAYMENTS ON FUNDED DEBT

Poor shows the proportion of railroad funded debt, payment on which was in default in 1859. For no other industry do we have such information, although for individual canals the data at times exist.

In view of these lacunae in basic information, much approximation, interpolation, and manipulation have gone into the estimates. Dividend payments are shown in Table 2, interest payments in Table 3 (for detailed derivation, see Appendix B).[20] We may note the relation of

[20] Mark Wehle had a large share in preparing the estimates in Tables B-1, 2, 4-8.

TABLE 2

Gross Dividend Payments to Stockholders by Corporations, by Major Industrial Group, 1835, 1859, 1871, and 1890

(millions of dollars)

	1835	*1859*	*1871*	*1890*
1. Manufacturing and mining	5.0	22.4	97.2	171.8
2. Gas and electric utilities	0.1	4.8	10.7	36.1
3. Banks and insurance companies	17.6	35.9	67.1	92.0
4. Railroads	0.6	14.2	48.1	89.1
5. Other transportation	2.0	7.3	12.4	14.6
6. All other corporations	2.3	7.6	21.2	36.3
Total, all corporations	27.6	92.2	256.7	439.9

Line 1: 1835, 1859, 1871—Sum of Table B-1, line 7, and Table B-2, line 9. 1890—Sum of Table B-1, line 15, and Table B-2, line 9.

Line 2: 1835—Table B-3, line 5. 1859—Sum of Table B-3, line 5; Table B-4, line 3; and Table B-5, line 4. 1871—Sum of Table B-3, line 5; Table B-4, line 3 (street railroads included with steam railroads). 1890—Sum of Table B-3, line 5; Table B-4, lines 1 and 3; Table B-5, line 12; and Table B-6, line 9.

Line 3: 1835—Sum of Table B-7, line 3, and Table B-10, line 6. 1859—Sum of Table B-7, line 3, and Table B-10, line 10. 1871—Sum of Table A-2, col. 5, and Table A-3, col. 2. 1890—Sum of Table B-7, lines 6 and 9, and Table B-10, line 13.

Line 4: 1835—Table B-11, line 2, col. 3. 1859—Table B-11, line 7, col. 3. 1871—Table A-4, col. 8 (includes street railroads). 1890—Table B-11, line 12.

Line 5: Table B-12, line 40.

Line 6: Assumed to be 9 per cent of the sum of cols. 1, 2, 3, 4, and 5. In 1867 net earnings of New York State miscellaneous companies were 9 per cent of net earnings of all other corporations (*Report of the Comptroller of New York State Giving the Name of All Stock Corporations Doing Business in This State*, 1868). Miscellaneous companies include waterworks, marketing corporations, real estate companies, hotels, packets, shipping companies, and nonbank trust companies.

these tables to the series on dividend and interest payments to individuals, which is the form in which these payments are included in personal income data. The gross series could be converted to the desired form by deducting payments to corporations and to foreigners. The coverage of the table on gross interest payments, in addition, would have to be extended. It is now limited to interest payments on corporate bonds and on commercial and mutual savings bank deposits. Additional estimates of interest payments to holders of public debt and to shareholders in building and loan associations would be required. Also interest payments on mortgage and other forms of debt held by individuals would have to be added.

Despite their limitations we shall briefly examine the estimates for their evidence on the change in the size and relative importance of dividend and interest payments by the various industrial groups.

The estimates indicate that dividend payments by every industrial group rose from one bench-mark date to the next. The relative shares of the groups, however, changed considerably. Bank and insurance

TABLE 3

Gross Interest Payments to Bondholders by Corporations, by Major Industrial Group, and to Depositors by Commercial and Mutual Savings Banks, 1835, 1859, 1871, and 1890

(millions of dollars)

	1835	*1859*	*1871*	*1890*
Interest payments to bondholders:				
1. Manufacturing and mining	[a]	[a]	0.4	3.3
2. Gas and electric utilities	[a]	0.1	0.4	13.9
3. Railroads	0.3	19.0	45.5	220.5
4. Other transportation	0.5	1.8	1.9	2.2
Interest payments to depositors:				
5. Commercial banks	2.8	7.8	22.2	90.6
6. Mutual savings banks	0.4	6.2	30.7	48.1
Total, all corporations and banks	4.0	34.9	101.1	378.6

[a] Less than $100,000.

Line 1: 1835, 1859, 1871—Sum of Table B–1, line 8, and Table B–2, line 11. 1890—Sum of Table B–1, line 16, and Table B–2, line 11.

Line 2: 1835—Table B–3, line 6. 1859—Sum of Table B–3, line 6; Table B–4, line 4; and Table B–5, line 5. 1871—Sum of Table B–3, line 6; Table B–4, line 4 (street railways included with steam railroads). 1890—Sum of Table B–3, line 6; Table B–4, lines 2 and 4; Table B–5, line 13; and Table B–6, line 11.

Line 3: 1835—Table B–11, line 5, col. 3. 1859—Table B–11, line 11, col. 3. 1871—Table A–4, col. 9 (includes street railroads). 1890—Table B–11, line 13.

Line 4: Table B–12, line 44.

Line 5: Table B–8, line 4.

Line 6: Table B–9, line 4.

company dividends accounted for nearly two-thirds of all dividend payments in 1835, but only for a little more than a fifth in 1890. Manufacturing and mining dividends, on the other hand, rose from 18 per cent of the total in 1835 to 39 per cent in 1890. Railroad dividends were never as large a share as those paid by banks and insurance companies, but by 1890 the two groups were nearly equal in importance. The share of other transportation declined from 7 per cent to 3 per cent from 1835 to 1890.

The only important interest payers in the private sector, our estimates indicate, were railroads and banks. In 1871 the banks paid more to depositors than did railroads to their bondholders. By 1890, however, railroad interest payments were nearly 60 per cent larger than interest payments by commercial and mutual savings banks.

Since the estimates are gross figures, no attempt was made to compare their size to that of total wages and salaries or national income.

Much preliminary work on corporate financial history in the nineteenth century is required before we can make intelligent analyses.

Balance sheet information is needed not merely for an industry group as a whole, but for individual branches of it, for different regions, and different periods. As the century progressed, company reports in periodicals became available in greater number. Accounting procedures may leave much to be desired; nevertheless, the data can surely be exploited. In addition the public documents, both state and federal, over the whole century, need to be studied for material relevant to the problem of estimating dividend and interest payments.

Among the state documents, the reports of two types of agencies in particular seem promising: the state supervisory agencies to which banks, railroads, and canals reported regularly, and all corporations occasionally, for some part of the century; and the state tax agencies. The reports made to state supervisory agencies often show balance sheet information, and sometimes income and expense data. Tax data more often provide information on capital stock or on dividends.

Among federal papers that might yield useful information are the transcripts of tariff hearings. Industries pleading for tariff revision may, indeed, provide biased reports on earnings and dividend payments, but they can be examined with this reservation in mind.

Research toward this end could make possible not only the construction of reliable estimates of dividend and interest payments but the enrichment of the factual content of our literature on economic history.

APPENDIX A

Derivation of Estimates of Dividend and Interest Payments by Corporations Subject to the Tax at Source, 1863–1871

BANK DIVIDENDS

A tax was imposed beginning September, 1862, on bank dividends, additions to surplus, and interest paid to stock savings bank depositors. The estimated dividends are residuals after deduction of undistributed profits and interest payments to depositors.

Additions to undivided profits were reported separately in the tax returns from fiscal 1865 to fiscal 1868. Thereafter they were combined in the tax returns with the tax-based figures on dividends and additions to surplus. Because the reported figures for additions to undivided profits from the tax returns did not correspond to those in the national bank call reports,[21] estimates of interest payments and additions to

[21] Banks possibly included additions to undivided profits with dividends and additions to surplus on their returns, despite the fact that a separate line for additions to undivided profits was available; or perhaps the banks were irregular in reporting the item for tax purposes.

undivided profits and surplus were deducted from the combined tax-based total of interest payments, dividends, and additions to surplus and undivided profits to obtain the residual dividend figures.

First, the ratio of net earnings of national banks to their capital and surplus was estimated for 1863–68 on the basis of reported figures for 1869–71. Then the ratio of corporate earnings of these banks to their capital and surplus was estimated for 1863–68 from balance sheet changes in surplus and undivided profits. Dividend rates for these years were derived as a residual; for 1869–71 they are known (Table A–1). The tax-based net earnings figures for all banks, less estimates for national banks, yielded residuals for nonnational banks. Net earnings of nonnational banks were distributed between dividends and corporate savings on the basis of national bank experience (Table A–2).

INSURANCE COMPANY DIVIDENDS TO STOCKHOLDERS

The estimates of dividends, 1863–69, are residuals after deduction of retained earnings. The 1870–71 dividend estimates are based on the *Annual Report of the Superintendent of the Insurance Department of New York State* and the ratio of these returns to returns of companies not reporting to the New York department (Table A–3). Similar estimates made for the earlier years on the basis of this source and the assumed ratio do not differ materially from the estimates derived as residuals. Estimates derived as residuals for 1870–71 are clearly inadequate. They yield results no larger than the reported figures of dividends to stockholders shown in the New York report. There are several possible explanations. (1) The tax-based net earnings figures for 1870–71 are too low. (2) The ratio of dividends to net earnings rose sharply during these years compared to the relationship in 1867 which was used. (3) The exclusion of "undistributable" profits from net earnings, which the act of July 14, 1870 permitted, changed the net earnings base. If (3) is the correct explanation, it implies that the New York definition of net earnings in 1867 was similar to the definition then used for federal tax purposes.

Retained earnings probably also include scrip dividends. The tax was imposed on cash and scrip dividends to stockholders and additions to surplus of insurance companies beginning September 1863. Our sample information on dividends covers cash dividends only.

RAILROAD DIVIDENDS AND INTEREST PAYMENTS

We know the dividends and retained earnings of New York State steam and street railroads, 1863–71. The ratios of their dividends to their retained earnings were the basis for estimates for all other steam and street railroads (Table A–4).

TABLE A-1

Net Earnings, Dividends, and Corporate Savings of National Banks, 1863–1871 (dollar figures in millions)

			NET EARNINGS		DIVIDENDS		CORPORATE SAVINGS	
Year	CAPITAL (1)	SURPLUS (2)	*Absolute Amount* (3)	*As Percentage of Capital and Surplus* (4)	*Absolute Amount* (5)	*As Percentage of Capital and Surplus* (6)	*Absolute Amount* (7)	*As Percentage of Capital and Surplus* (8)
1863	$ 11	$ 0	$ 1.45	13.2%	$ 1.00	9.5%	$ 0.40	3.7%
1864	71	4	13.93	18.6	11.10	14.8	2.80	3.7
1865	295	28	50.48	15.6	38.40	11.9	12.10	3.7
1866	413	50	59.73	12.9	42.40	9.2	17.30	3.7
1867	420	64	60.94	12.6	45.90	9.5	15.00	3.1
1868	420	76	63.49	12.8	49.00	9.9	14.50	2.9
1869	423	83	58.29	11.5	43.34	8.6	14.95	3.0
1870	429	92	54.64	10.5	43.04	8.3	11.60	2.2
1871	449	98	54.73	10.0	44.77	8.2	9.96	1.8

Cols. 1 and 2: Annual average of call date reports as given in *Annual Report of the Comptroller of the Currency*, 1917, Vol. II, pp. 305–309.

Col. 3: 1863–68—Sum of cols. 1 and 2 multiplied by col. 4. 1869–71:—Semiannual data for March–August, September–February, as given in *Annual Report of the Comptroller of the Currency*, 1872, pp. xxxviii–xliii, adjusted to calendar year basis.

Col. 4: 1863–68—Derived as follows. The price of gold in greenbacks (the premium on gold) for these years as given in Wesley C. Mitchell, *Gold Prices and Wages Under the Greenback Standard*, University of California Publications in Economics, Vol. 1, March 27, 1908, p. 4 was expressed as relatives of the price in 1870. The ratio of net earnings of national banks to their capital and surplus in 1870 was multiplied by these relatives to obtain estimates of the ratio, 1863–68. For 1865, when the gold premium fell dramatically in a fall that was generally anticipated upon the war's conclusion, the average of the price of gold in the first and third quarters, rather than the annual average as in other years, was used, on the assumption that the banks did not delay in selling gold interest they received from the government on their bondholdings at the semiannual payment periods.

This procedure was suggested by the Comptroller of the Currency's comment on the occasion of the first report from national banks on their net earnings and dividends. The law of March 1869 which required these reports was a response to the extraordinary profits of the national banks during the war years and immediately thereafter. The Comptroller stated: "The fact that the United States paid the interest on its bonds in gold, which gold was sold by the banks at a premium, enabled them to make larger profits than were accustomed to be realized by State banks formerly doing business under similar circumstances. . . . But that day has passed." *Annual Report of the Comptroller of the Currency*, 1869, p. xvii. 1869–71—Col. 3 expressed as percentage of sum of cols. 1 and 2.

Col. 5: 1863–68—The sum of cols. 1 and 2 multiplied by col. 6. 1869–71—Same as col. 3.

Col. 6: 1863–68—Col. 4 minus col. 8. 1869–71—Col. 5 expressed as percentage of sum of cols. 1 and 2.

Col. 7: 1863–65—The sum of cols. 1 and 2 multiplied by col. 8. 1866–68:—Balance sheet information on the semiannual changes in surplus and undivided profits, as given in the source note for col. 1, were used as the measure of corporate saving. 1869–71—Same as col. 3.

Col. 8: 1863–65—Same as 1866. Over these years the number of national banks increased steadily, largely through conversion of state banks to national charters. Balance sheet information did not therefore show the growth of earned corporate saving. 1866–71—Col. 7 expressed as percentage of sum of cols. 1 and 2.

TABLE A-2

Net Earnings, Dividends, and Corporate Savings of Commercial Banks, 1863–1871
(millions of dollars)

	NET EARNINGS		DIVIDENDS			CORPORATE SAVINGS		
Year	*All Commercial* (1)	*Stock Savings* (2)	*National* (3)	*Nonnational* (4)	*All Commercial* (5)	*National* (6)	*Nonnational* (7)	*All Commercial* (8)
1863	50.4	0.4	1.0	38.5	39.5	0.4	10.1	10.5
1864	79.7	0.5	11.1	55.6	66.7	2.8	9.6	12.4
1865	85.9	0.6	38.4	28.7	67.1	12.1	6.1	18.2
1866	77.8	0.8	42.4	13.7	56.1	17.3	3.7	21.0
1867	73.2	1.3	45.9	9.2	55.1	15.0	1.8	16.8
1868	74.7	2.0	49.0	7.8	56.8	14.5	1.4	15.9
1869	72.4	2.3	43.3	9.0	52.3	14.9	2.8	17.7
1870	72.9	2.6	43.0	12.6	55.6	11.6	3.0	14.6
1871	73.0	3.3	44.8	13.7	58.5	10.0	1.2	11.2

Col. 1: Internal revenue fiscal year collections from earnings tax on banks (46th Cong. 2d sess., H. Exec. Doc. 4, pp. 167–170) divided by the effective tax rates and adjusted to calendar year basis, as described in text.

Col. 2: Sum of deposits in states assumed to be without mutual savings banks (E. W. Keyes, *A History of Savings Banks in the U.S.* (New York, Bradford Rhodes, 1878, II, table facing p. 532) multiplied by the rate of interest earned by New York State mutual savings banks, computed from interest *earned* during calendar year divided by an average of deposits at the beginning and end of the year, as given in *Annual Report of the Superintendent of the Banking Department Relative to Savings Banks and Trust Companies*, 1862–72.

Col. 3: Table A–1, col. 5.

Col. 4: Net earnings of nonnational banks were obtained by subtracting the sum of cols. 2, 3, and 6 from col. 1. Then capital and surplus of nonnational banks was obtained by dividing the net earnings figures by the ratio of net earnings of national banks to their capital and surplus as given in Table A–1, col. 4, with the addition of 1 per cent for 1869–71 on the assumption that nonnational banks were more profitable enterprises than national banks during these years. Nonnational bank dividends were obtained by multiplying capital and surplus by the ratio of dividends of national banks to their capital and surplus, as given in Table A–1, col. 6, with the addition of 1 per cent, on the assumption that nonnational banks were less conservative than national banks during this period in distributing net earnings. See *Annual Report of the Comptroller of the Currency*, 1894, p. 11, for statement on the higher dividend rate of nonnational compared to national banks.

Col. 5: Sum of cols. 3 and 4.

Col. 6: Table A–1, col. 7.

Col. 7: Same as col. 4, except that the ratio of national bank corporate savings to their capital surplus, as given in Table A–1, col. 8, was applied to nonnational bank capital and surplus, after deducting 1 per cent 1863–68. Estimated capital and surplus of nonnational banks derived from the tax figures are not in agreement with the inadequate estimates for these banks for this period shown in *Historical Statistics of the United States, Dept. of Commerce, 1949, 1789–1945*, p. 265, Table N–40: the present estimates are lower in 1863 because of the absence of returns from banks in the Confederate states in the tax collections. Thereafter the level is higher than the estimates in the standard source, but considerably lower than James K. Kindahl's estimates, 1866–71, in "The Period of the Resumption in the U.S., 1865–79," unpublished Ph.D. dissertation, University of Chicago, 1958.

Col. 8: Sum of cols. 6 and 7.

TABLE A-3

Net Earnings, Dividend Payments, and Retained Earnings of Incorporated Insurance Companies, 1863-1871

(millions of dollars)

Year	*Net Earnings* (1)	*Dividend Payments* (2)	*Retained Earnings* (3)
1863	14.4	9.1	5.3
1864	16.5	10.4	6.1
1865	16.0	10.1	5.9
1866	12.4	7.8	4.6
1867	11.9	7.5	4.4
1868	15.7	9.9	5.8
1869	18.1	11.4	6.7
1870	12.0	11.0	0.9
1871	9.8	8.6	1.3

Col. 1: Internal revenue fiscal year collections from earnings tax on insurance companies (46th Cong., 2d sess., H. Exec. Doc. 4, pp. 167-170) divided by the effective tax rates and adjusted to calendar year basis, as described in text.

Col. 2: 1863-69—Col. 1 minus col. 3. 1870-71—Estimate based on dividends of joint stock fire insurance companies of New York and of other states licensed to do business in New York and of similar classes of marine insurance companies (*Twelfth and Thirteenth Annual Reports of the Superintendent of the Insurance Department of New York State*, 1871 and 1872, Part 1) increased by the ratio of the dividends of these companies (*ibid.*, 1890, Part 1), to dividends of all American fire insurance companies as estimated in Table B-10, plus dividends of joint stock life insurance companies (*ibid.*, 1871 and 1872, Part 2) increased by the ratio of the dividends of these companies (*ibid.*, 1890, Part 2), to dividends of all American life insurance companies, as estimated in Table B-10.

Col. 3: 1863-69—Col. 1 divided by 1.71 plus 1.00. For 1867 1.71 was the ratio of cash dividends to stockholders of New York State joint stock fire and marine insurance companies to retained earnings. Cash dividends are given in *Ninth Annual Report of the Superintendent of the Insurance Department of New York State*, 1868, Part 1. Retained earnings are residuals after subtracting cash dividends from net earnings reported by New York State joint stock fire and marine insurance companies in *Report of the Comptroller of New York State Giving the Names of all State Corporations Doing Business in This State*, 1868. 1870-71—Col. 1 minus col. 2. Retained earnings possibly include scrip dividends (see text).

TABLE A-4

Retained Earnings of and Dividend Payments by New York State and All Other Steam and Street Railroads, and Dividend and Interest Payments by All Railroads, 1863–1871
(dollar figures in millions)

	NEW YORK STATE STEAM AND STREET RAILROADS			ALL OTHER STEAM AND STREET RAILROADS					
Year	*Dividends* (1)	*Retained Earnings* (2)	*Dividends as Ratio to Retained Earnings* (3)	*Dividends and Retained Earnings* (4)	*Dividends* (5)	*Retained Earnings* (6)	*Dividends as Ratio to Retained Earnings* (7)	DIVIDEND PAYMENTS BY ALL RAILROADS (8)	INTEREST PAYMENTS BY ALL RAILROADS (9)
1863	$ 4.74	$ 4.15	1.1		$23.28			$28.0	$18.6
1864	5.58	2.28	2.4	$42.20	35.71	$ 6.49[a]	5.5	41.3	19.1
1865	4.82	1.68	2.9	40.32	31.36	8.96	3.5	36.2	23.5
1866	5.01	3.76	1.3	39.60	26.40	13.20	2.0	31.4	23.6
1867	5.96	4.72	1.3	39.89	26.16	13.73	1.9	32.1	24.7
1868	7.03	3.62	1.9	44.98	32.82	12.16	2.7	39.8	28.9
1869	10.26	4.19	2.4	43.19	33.59	9.60	3.5	43.9	35.6
1870	13.42	5.19	2.6	43.86	34.72	9.14	3.8	48.1	43.9
1871	15.03	5.82	2.6	41.78	33.08	8.70	3.8	48.1	45.5

[a] Retained earnings for July–December only.

For column notes see bottom of next page.

Interest payments by railroads were shown separately each year except fiscal 1867, when they were combined with dividends and retained earnings.[22] An average of the percentage distributions in 1866 and 1868 was applied to the data for 1867 to obtain the interest payments figure (Table A–4).

CANAL DIVIDENDS AND INTEREST PAYMENTS

The estimates of dividends and interest payments for 1863, 1867, and 1871 are sums of data for individual canals reported in *American Railroad Journal* and New York, New Jersey, and Pennsylvania State documents. Retained earnings are zero, computed as a residual after deducting interest and dividend payments (Table A–5). The tax was imposed on dividends and interest payments beginning March 1863, and beginning July 1864 on retained earnings as well.

For 1867 and 1871 the sum of interest and dividend payments reported for individual companies is larger than the tax-based figure of combined interest payments and net earnings in column 1. Since there are

[22] In this year returns of taxes were made to assessors and tax payments to collectors. Previously returns and tax payments were made directly to the Office of the Commissioner of Internal Revenue. Collections reported by the collectors did not show the amounts received from the two sources separately for this year. Cf. *Annual Report of the Commissioner of Internal Revenue*, 1867, p. 2.

Col. 1: Data for years ending September 30 (New York State, *Annual Report of the State Engineer and Surveyor*, 1867–72) adjusted to calendar year basis.

Col. 2: Data for total earnings less transportation expenses, dividend payments and interest payments for years ending September 30 (*ibid.*) adjusted to calendar year basis.

Col. 4: Internal revenue fiscal year collections from earnings tax on railroads (46th Cong., 2d sess., H. Exec. Doc. 4, pp. 167–170) divided by the effective tax rates and adjusted to calendar year basis, as described in text, minus the sum of cols. 1 and 2. Through June 1864 the tax was levied on dividends only. Only one-half of retained earnings shown in col. 2 for this year was deducted.

Col. 5: 1863—Minuend same as for col. 4; subtrahend, col. 1 only. 1864–66 and 1868–71—Col. 4 minus col. 6. 1867—Figure on total dividends paid (*Historical Statistics*, Series K–26, p. 201) minus col. 1.

Col. 6: Col. 4 divided by col. 7, plus 1.0.

Col. 7: 1867—Ratio of col. 5 to col. 6. 1864–66 and 1868–71—Rough extrapolation and interpolation based on movements of ratios in col. 3.

Col. 8: Col. 1 plus col. 5. The figure on total dividends paid for 1871, given in *Historical Statistics* (*loc. cit.*), is $56.5 million compared with the tax-based estimate of $48.1 million.

Col. 9: Internal revenue fiscal year collections from tax on interest payments by railroad corporations (46th Cong., 2d sess., H. Exec. Doc. 4, pp. 167–170) divided by the effective tax rates and adjusted to calendar year basis. *Historical Statistics* (Series K–21, p. 201) presents a figure for railroad bonded debt in 1867. Assuming interest at the rate of 7 per cent yields an estimate of $29 million compared with that of $25 million based on the tax data. Yet the tax-based figure on interest payments and the figure on bonded debt may both be approximately accurate if some of the bonded debt was in default—in 1867 the indicated percentage of default is 14. From 1876 on *Historical Statistics* (Series K–27, p. 201) presents figures on interest payments compiled by Poor in his *Manual of Railroads*. Poor's figure for 1876 is $94 million compared with the tax-based figure for 1871 of $46 million. The indicated change seems larger than reasonable.

TABLE A-5
Net Earnings and Dividend and Interest Payments of Canal Corporations, 1863–1871
(millions of dollars)

Year	*Interest Payments and Net Earnings* (1)	*Dividend Payments* (2)	*Interest Payments* (3)
1863	2.7	1.4	1.3
1864	7.2	5.9	1.3
1865	5.2	3.9	1.3
1866	3.9	2.6	1.3
1867	4.2	3.1	1.3
1868	4.5	3.1	1.4
1869	4.9	3.5	1.4
1870	4.4	2.9	1.5
1871	4.1	2.6	1.6

Retained earnings were zero (col. 1 minus the sum of cols. 2 and 3).

Col. 1: Internal revenue fiscal year collections from earnings tax on canals (46th Cong., 2d sess., H. Exec. Doc. 4, pp. 167–170) divided by the effective tax rates and adjusted to calendar year basis as described in text.

Col. 2: 1863, 1867, 1871—Sum of dividends computed from stock outstanding and annual dividend rate (*American Railroad Journal*, 1863, p. 1154; 1864, p. 148; 1867, p. 1219; 1871, p. 1449; "Abstract of Pennsylvania State Report on the Canals," *ibid.*, 1864, pp. 564–565, 1867, p. 369; and *Annual Report of the Auditor General of the State of Pennsylvania and the Tabulations and Deductions from the Reports of Railroad, Canal and Telegraph Companies for 1871*, p. lxxviii; "New Jersey State Report on the Canals," *American Railroad Journal*, 1867, p. 320; *Report of the Comptroller of New York State Giving the Names of All Stock Corporations Doing Business in This State, 1868*). 1864–66, 1868–70—Col. 1 minus col. 3.

Col. 3: 1863, 1867, 1871—Estimates of interest payments computed from bonds outstanding and interest rate for issues listed with market price in *American Railroad Journal* (1863, p. 1051; 1867, p. 1226; 1871, p. 1449) and state documents listed for col. 2, above. 1864–66, 1868–70—Straight-line interpolation between 1863 and 1867, 1867 and 1871.

differences in the accounting year of the individual companies summed, and since the taxed-based figure is derived from fiscal year data adjusted to a calendar year basis, the discrepancy may be fictitious.

From the sources listed above, totals of dividend and interest payments by individual canals, similar to those for 1863, 1867, and 1871, could be obtained for 1864–66 and 1868–70. Here net earnings were distributed between dividend and interest payments, 1864–66 and 1868–70, as shown in the notes.

TURNPIKE DIVIDENDS AND INTEREST PAYMENTS

The estimates of dividends are residuals after deduction of interest payments and retained earnings (Table A-6). As in the case of canals,

TABLE A-6

Net Earnings, Dividend and Interest Payments, and Retained Earnings of Turnpike Corporations, 1863–1871

(thousands of dollars)

Year	*Interest Payments and Net Earnings* (1)	*Dividend Payments* (2)	*Interest Payments* (3)	*Retained Earnings*[a] (4)
1863	547	540	7	
1864	616	579	7	30
1865	567	504	7	56
1866	597	531	7	59
1867	897	801	7	89
1868	583	518	7	58
1869	596	530	7	59
1870	564	501	7	56
1871	526	467	7	52

[a] Retained earnings are not shown for 1863 and the first half of 1864 when they were not taxable.

Col. 1: Internal revenue fiscal year collections from earnings tax on turnpikes (46th Cong., 2d sess., H. Exec. Doc. 4, pp. 167–170) divided by the effective tax rates and adjusted to calendar year basis.

Col. 2: Col. 1 minus the sum of cols. 3 and 4.

Col. 3: For 1867 New York turnpike and plank roads reported debt that was less than 1 per cent of capital stock (*Report of the Comptroller of New York State Giving the Names of All Stock Corporations Doing Business in This State*, 1868). It was arbitrarily assumed that funded debt of turnpike companies averaged $100,000 during this period and that interest at the rate of 7 per cent was paid.

Col. 4: Retained earnings were assumed 10 per cent of col. 1 after deducting col. 3. This percentage was based on evidence that Pennsylvania turnpikes made additions to surplus, 1858–60, and presumably did so also during the following decade (Pennsylvania Legislative Documents, 53, 54, 1860, pp. 1110–1111; 16, 1861, p. 449).

the tax was imposed on dividends and interest payments beginning March 1863, and beginning July 1864 on retained earnings as well.

The bulge in turnpike earnings in 1867 possibly reflects improved collection, but it is odd that net earnings of other classes of corporations subject to the tax do not show a similar peak. Earnings figures for New York State turnpikes and plank roads for 1867 and for the average of the five years ending 1867 do not indicate that that year was in any way unusual (*Report of the Comptroller of New York State Giving the Names of all State Corporations Doing Business in This State*, 1868). The ratio of earnings to capital for New York turnpikes in 1867 was, in fact, lower than the average of the five years—4.6 as against 5.1.

APPENDIX B

Derivation of Estimates of Gross Dividend and Interest Payments by Corporations in Major Industrial Groups, 1835, 1859, 1871, and 1890

TABLE B-1

Dividend and Interest Payments by Manufacturing Corporations, 1835, 1859, 1871, and 1890
(dollar figures in millions)

	1835	*1859*	*1871*
SAMPLE OF NEW ENGLAND MANUFACTURING CORPORATIONS			
1. Dividend payments	1.32	3.04	5.34
2. Capital stock paid in	11.16	44.47	51.44
3. *Dividend rate, per cent*	*11.8*	*6.8*	*10.4*
ALL U.S. MANUFACTURING			
4. Total paid-in equity[a]	167	973	2,118
5. *Corporate as percentage of total*[a]	*0.25*	*0.32*	*0.42*
6. Corporate paid-in capital[a]	42	311	890
7. Dividend payments	5.0	21.1	92.6
8. Interest payments on funded debt	0	0	0

	1890
SAMPLE OF NEW ENGLAND MANUFACTURING CORPORATIONS	
9. Dividend payments	4.42
10. Assets	111.25
11. *Dividend payments as percentage of assets*	*3.97*
ALL U.S. MANUFACTURING	
12. Total assets	6,266
13. *Corporate as percentage of total*[a]	*0.60*
14. Corporate assets[a]	3,760
15. Dividend payments	149.3
16. Interest payments on funded debt	0.1

[a] Assumed.

Lines 1 and 2: 1835—Dividend payments and capital for individual companies are from Joseph G. Martin, *A Century of Finance*, Boston, 1898, pp. 128–136, 140–143. 1859—Same as for 1835 except that the capital for some of the companies is from Massachusetts, Commonwealth Secretary, *Abstracts of the Returns of Assessors Relating to the Assessment of Taxes on the Shares of Corporations, and Deposits in Savings Institutions, in the Year 1860*, Boston, 1861. 1871—Same as for 1835 except that the capital for some of the companies is from Massachusetts, Commonwealth Secretary, *Abstract of the Certificates of Corporations, Organized under the General Laws of Massachusetts, with the Annual Returns Required by Chapter 224 of 1870, during the Year 1872*, Boston, 1873.

Line 3: 100 times line 1 divided by line 2.

Line 4: It was assumed that census capital before 1890 represented paid-in equity and in 1890 total assets. The former assumption is arguable. For "capital (real and personal) invested in the business" manufacturers before 1890 may have reported not necessarily paid-in equity, but rather their fixed assets. For discussion, see *1890 Census of the United States*, Vol. VI, *Report on Manufacturing Industries*, Part I, p. 10, and *1900 Census of the United States*, Vol. VII, *Manufactures*, Part I, pp. xcvi–xcvii. 1835—Interpolated from estimates by Victor S. Clark, *History of Manufactures in the United States*, McGraw-Hill, 1929, Vol. I, p. 369. 1859—From the 1860 capital of manufacturing industry (*1870 Census of the United States*, Vol. III, *Statistics of Wealth and Industry*, pp. 399–405) the capital of those industries that would now be classed as nonmanufacturing industries was subtracted. The same was done for 1850 using *Abstract of the Statistics of Manufactures, 1850*, Sen. Exec. Doc. 39, 35th Cong., 2d sess., dated January 21, 1859, pp. 137–142. An 1859 figure was obtained by interpolation and raised by an allowance for undercoverage computed from the introduction to *1870 Census*, Vol. III, pp. 378–379. 1871—From the 1870 capital of manufacturing industry (*1870 Census*, Vol. III, pp. 394–398, 528–532) the capital of those industries that would now be classed as nonmanufacturing was subtracted. A corresponding 1890 figure was obtained by multiplying the assets of manufacturing industry in *1890 Census*, Vol. VI, Part I, less the assets of nonmanufacturing industries, by an assumed capital-assets ratio of 0.6. This ratio was derived as follows: The paid-in capital of a sample of corporations constituting about one-third of the corporate capital of Massachusetts in 1890 was about 0.50 of their assets. Presumably the ratio would be higher in other states, where manufacturing got its start later. An 1871 figure was interpolated.

Line 5: 1835—Clark (*loc. cit.*) cites an estimate of Massachusetts factory dividends around 1849 as $3 million. Since Massachusetts manufactures in this period accounted for about one-sixth of the United States total (according to census figures), factory dividends for the whole country in 1835 might well have been $5 million, which would require the ratio shown. 1859, 1871—The 1860 paid-in capital of all manufacturing corporations in Massachusetts (estimated from Massachusetts, Commonwealth Secretary, *Abstract of the Returns of Assessors . . . 1860*) accounted for 45 per cent of 1860 Massachusetts manufacturing capital (estimated from *1870 Census*, Vol. III). The paid-in capital of Massachusetts manufacturing corporations in 1871 (estimated from one-third of them drawn from Massachusetts, Commonwealth Secretary, *Abstract of the Certificates of Corporations . . . 1872*) accounted for 39 per cent of 1871 Massachusetts manufacturing capital (estimated from *1870 Census*, Vol. III, and *1890 Census*, Vol. VI, Part I). In 1890 the assets of Massachusetts manufacturing corporations (estimated from one-third of them drawn from Massachusetts, Commonwealth Secretary, *Abstract of the Certificates of Corporations Organized under the General Laws of Massachusetts, together with the Annual Returns Required by Chapter 106 of the Revised Statutes, during the Year 1890*, Boston, 1891, pp. 54–86) were 44 per cent of Massachusetts manufacturing assets (computed from *1890 Census*, Vol. VI, Part 1, p. 452, and Part 3, p. 708). It is hard to believe that this sequence of 45 per cent in 1860, 39 per cent in 1871, and 44 per cent in 1890 reflects the actual relative importance of corporations in Massachusetts manufacturing. In 1899 two-thirds of value of United States product was produced by corporations (*1910 Census*, Vol. VIII, *Manufactures: General Report and Analysis*, p. 137). For the country as a whole, therefore, by the turn of the century the share of corporations in manufacturing ownership was assumed to have increased steadily to two-thirds of the total.

Line 6: Line 4 times line 5.

Line 7: Line 3 times line 6 divided by 100.

Line 8: Assumed zero for lack of information.

Line 9: Dividend rates from Joseph G. Martin, *A Century of Finance*, Boston, the author, 1898, pp. 136, 138–139, 140–143. Capital stock from Martin and from Massachusetts, Commonwealth Secretary, *Abstract of the Certificates of Corporations . . . 1890*, pp. 54–176.

Line 10: Massachusetts, *Abstract of the Certificates of Corporations . . .* 1890, *loc. cit.*

Line 11: 100 times line 9 divided by line 10.

Line 12: *1890 Census*, Vol. VI, Part I, p. 67, total capital, less gas from *ibid.*, Part 3, p. 699.

Line 13: In 1899, the ratio was about two-thirds (see notes to line 5 above).

Line 14: Line 12 times line 13.

Line 15: Line 11 times line 14 divided by 100.

Line 16: The par value of bonded debt outstanding in manufacturing at the beginning of 1900 was about $200 million, according to unpublished tables of the Corporate Bond Project of the National Bureau of Economic Research (W. Braddock Hickman, *Statistical Measures of Corporate Bond Financing since 1900*, in press). Since the combinations existing on June 1, 1900, accounted for $216 million of bonds (*1900 Census*, Vol. VII, Part 1, p. lxxix), and combinations before 1890 took the form of trusts, the bonds of manufacturing companies outstanding in 1890 must have been few. (I am indebted to Daniel Creamer for this suggestion.) The bonded debt of the companies that combined to form the U.S. Steel Corporation was less than 1 per cent of the bonds outstanding of the combination when formed in 1901 (*ibid.*, p. lxxvii); hence 1 per cent of the 1900 figure for the par value of bonded debt in manufacturing was assumed. The yield was taken as 4 per cent. Annual data on new bond issues, from 1885 at least, appear in the *Commercial and Financial Chronicle* (Vol. 61, p. 1138, Vol. 81, p. 1822, and Vol. 83, p. 1561) but are not broken down by industry.

TABLE B-2

Dividend and Interest Payments by Mining Corporations, 1835, 1859, 1871, and 1890

(dollar figures in millions)

	1835	*1859*	*1871*	*1890*
1. Total capital and funded debt	38	66	212	1,067
2. *Corporate as percentage of total*	*0.33*	*0.50*	*0.67*	*0.80*
3. Corporate capital and funded debt	12.5	33.0	142.0	853.6
4. *Equity capital as percentage of total*	*0.99*	*0.98*	*0.96*	*0.94*
5. Corporate equity capital	12.38	32.30	136.3	802.4
6. Corporate funded debt	0.12	0.70	5.7	51.2
7. Dividend payments, reported	0.02	0.41	2.82	15.7
8. Ratio of total capital and funded debt (line 1) to capital of reporting corporations	3.064	3.204	1.643	1.428
9. Dividend payments	0.49	1.32	4.63	22.49
10. *Interest rate, per cent*	*6.0*	*7.0*	*7.0*	*6.17*
11. Interest payments on funded debt	0.008	0.049	0.398	3.160

Line 1: It was assumed that census figures of capital (excluding leased land) equaled the sum of paid-in equity and borrowed long-term capital. If instead they equaled total assets, line 1 is an overstatement. Borenstein notes that the 1909 ratio of par value of outstanding capital stock and bonded indebtedness of a sample of mining corporations drawn from *Moody's Manual* to current and fixed assets was 85 per cent (Israel Borenstein, *Capital and Output Trends in Mining Industries, 1870–1948*, NBER, Occasional Paper 45, 1954, p. 78). 1835—*1850 Census*, J. D. B. DeBow, *Compendium*, p. 358. 1859—*1900 Census, Mines and Quarries*, p. 6. 1871 and 1890—Borenstein, p. 68.

Line 2: Estimates. *1900 Census, Mines and Quarries*, p. 65, shows share of mining corporations other than oil and gas as 85.9 per cent of value of output in 1902.

Line 3: Line 1 times line 2.

Line 4: Estimates. Ratio based on figures given in *1900 Census, Mines and Quarries*, pp. 88–89, is 0.92 for 1902.

Line 5: Line 3 times line 4.

Line 6: Line 3 minus line 5.

Line 7: 1835—Pennsylvania, *Senate Journal*, 1835–36, Vol. 2, pp. 75, 315, 412. 1859—Pennsylvania, *Legislative Documents*, 1860, Doc. 29, p. 798; *Mines Register*, 1903, Vol. 4, p. 751. 1871—*American Railroad Journal*, 1871, pp. 294, 826, 1440; *Mines Register*, 1903, Vol. 4, p. 751. 1890—*Commercial and Financial Chronicle, Investors Supplement*, January 1891; *Mineral Industry*, 1892, pp. 475–478.

Line 8: Capital figures, by states and classes of minerals, from census reports.

Line 9: Line 7 times line 8.

Line 10: 1835 and 1859—Estimates. 1871—Average rate of interest paid by mining companies shown under "miscellaneous bonds," *American Railroad Journal*, 1871, p. 917. 1890—Average rate of interest paid by mining companies shown in *Commercial and Financial Chronicle, Investors Supplement*, January 1891.

Line 11: Line 6 times line 10.

TABLE B-3

Dividend and Interest Payments by Gas-Light Corporations, 1835, 1859, 1871, and 1890

(dollar figures in millions)

	1835	*1859*	*1871*	*1890*
SAMPLE OF GAS-LIGHT CORPORATIONS:				
1. Dividend payments	0.053	0.505	1.18	4.76
2. Capital stock paid in	1.120	3.23	9.00	101.09
3. Dividend rate, per cent		15.6	13.1	4.7
ALL U.S. GAS-LIGHT CORPORATIONS:				
4. Capital stock paid in, assumed	1.120	26.6	79.9	229.7
5. *Dividend payments*	0.1	4.1	10.5	10.8
6. *Interest payments on funded debt*	0	0	0.2	2.5

Lines 1 and 2: 1835—The companies are Boston Gas (Martin, p. 128); Gas Light Co. of Baltimore (Thomson King, *Consolidated of Baltimore, 1816–1950: A History of Consolidated Gas Electric Light and Power Company of Baltimore*, published by the Company, Baltimore, 1950, p. 35); and New York Gas Light Co. (Frederick L. Collins, *Consolidated Gas Company of New York*, New York, 1934, pp. 74–75). 1859—New York Gas Light Co. and Harlem Gas Light Co. (*ibid.*, pp. 95, 142–143, and 1947) were combined with ten New England companies. Dividend rates for these companies and capital for a few of them are from Martin (pp. 199–203, 215–216) and capital for the rest is from Massachusetts, *Abstracts of the Returns of Assessors . . . 1860.* 1871—Manhattan Gas Co. (Collins, pp. 151–152) was combined with sixteen New England companies and capital for a few of them are from Martin (*loc. cit.*). Capital for the rest is from Massachusetts, *Abstract of Certificates of Corporations . . .* 1872, pp. 17, 20–63, and *ibid., 1874*, p. 31. 1890—Consolidated Gas of Baltimore (King, pp. 87, 124) and a group of large New York and other gas companies (*Commercial and Financial Chronicle, Investors Supplement*, January 1891, p. 154) were combined with sixteen New England companies. Dividend rates and capital for the New England companies are from Martin (*loc. cit.*) except for a few for which capital is from Massachusetts, *Abstract of Certificates of Corporations . . . 1890.*

Line 3: 100 times line 1 divided by line 2.

Line 4: It was assumed that all gas-light enterprises were corporations, and that census capital before 1890 represented paid-in capital (see notes to Table B–1). 1835—It was assumed that there were no gas-light companies outside of the sample. 1859—Gas capital for 1860 was obtained from *1870 Census*, Vol. III, pp. 399–405, and for 1850 from *1850 Census, Abstract*, pp. 137–142. An 1859 figure was interpolated on a straight line. Confidence in the census figure of $28.8 million in 1860 is diminished by King's statement that: "A tabulation of 1860 shows 381 gas companies in North America, capitalized at nearly 48 millions of dollars" (p. 58), and by a statement elsewhere that by 1859 there were 297 companies with a capital of $42 million (Louis Stotz and Alexander Jameson, *History of the Gas Industry*, Stettiner Bros., 1938, p. 4). *1871*—Gas capital for 1870 was obtained from *1870 Census*, Vol. III, pp. 394–398 and for 1890 as described below. Figure for 1871 was obtained by straight-line interpolation between these two dates. *1890*—Par value of capital stock outstanding, *1890 Census*, Vol. VI, Part 3, pp. 703, 718.

Line 5: Line 3 times line 4 divided by 100, except 1835, for which the figure is rounded off from line 1.

Line 6: 1835, 1859—Collins (p. 148) says that bonds were issued in the gas industry for the first time in 1868. 1871—It was assumed that the convertible certificates issued by Manhattan Gas in 1867 and Metropolitan Gas in 1868, all bearing 7 per cent interest (*ibid.*, pp. 148, 152), were the only bonds outstanding in the industry. 1890—Total interest payable in 1890 on bonds of gas companies accounting for two-fifths of the gas capital of the United States was $1.87 million (*Commercial and Financial Chronicle, Investors Supplement, loc. cit.*). *1890 Census* gives $1.56 million interest paid by the whole industry on cash used in the business (Vol. VI, Part 3, p. 703); however, this figure was disregarded on the theory that many operators reported only the interest paid on their floating debt. The $1.87 million was arbitrarily raised to the figure shown.

TABLE B-4

Dividend and Interest Payments by Telephone and Telegraph Corporations, 1859, 1871, and 1890

(millions of dollars)

	1859	*1871*	*1890*
TELEPHONE CORPORATIONS:			
1. *Dividend payments*			3.2
2. *Interest payments on funded debt*			0.4
TELEGRAPH CORPORATIONS:			
3. *Dividend payments*	0.1	0.2	5.5
4. *Interest payments on funded debt*	0	0.2	1.5

Line 1: 1890—*1902 Census of Telephones and Telegraphs*, p. 5.

Line 2: 1890—Interest paid on American Bell Telephone Co. bonds in 1890 (J. W. Stehman, *The Financial History of the American Telephone and Telegraph Company*, Houghton Mifflin Co., Boston, 1925) times a multiplier based on the 1899 ratio of the bonds of American Bell plus its forty-nine operating companies to the bonds of American Bell alone.

Line 3: 1859—*1902 Census of Telephones and Telegraphs*, p. 99, shows dividends for 1880. The ratio of miles of wire of Western Union in 1866 to those in 1880 (*Statistical Abstract of the U.S.*, 1906, p. 598) was applied to 1880 telegraph dividends to get 1866 dividends, and a fraction of this figure taken to represent 1859 dividends, on the theory that dividends were zero when Western Union was formed in 1856 and thereafter rose. 1871—The 1880 dividends of all telegraph companies were extrapolated back to 1871 by Western Union profits (*ibid.*), and the result then cut to one-tenth to allow for the fact that Western Union itself paid no dividend in 1871 (*American Railway Journal*, 1871, pp. 294, 826, 1440, and *Annual Report of the Auditor General of the State of Pennsylvania . . . relative to telegraph companies, 1871*, p. lxxxvi). 1890—Western Union paid $4.3 million dividends in 1890 (Pennsylvania, Internal Affairs Department, *Annual Report of the Railways Bureau*, Part IV, 1890/91, p. 984). Four other telegraph companies of seventeen listed paid $0.2 million. In 1880 Western Union dividends were 79 per cent of total telegraph dividends (Armin E. Sherman, "Report on the Statistics of Telegraphs and Telephones," p. 4, in *1880 Census*, Vol. IV, *Report on the Agencies of Transportation in the United States*). 1890 Western Union dividends were divided by 0.79 to get estimated dividends of all telegraph companies.

Line 4: 1859—Assumed zero. 1871—Census figure for 1880 interest payments extrapolated back to 1871 by Western Union miles of wire is $0.3 million. This figure was arbitrarily reduced, possibly not low enough (see *Annual Report of the Auditor General*). 1890—Telegraph companies reporting to Pennsylvania, Internal Affairs Department, 1890–1891, paid $1.4 million interest on their funded debt. In 1880 Western Union's interest payments were 75 per cent of total telegraph company interest payments on funded debt. Western Union interest payments in 1890 divided by this percentage yields a lower figure than interest paid by all companies reporting to Pennsylvania. The Pennsylvania figure was therefore arbitrarily raised.

TABLE B-5

Dividend and Interest Payments by Street and Electric Railway Corporations, 1859 and 1890

(dollar figures in millions)

	1859
1. Cost of construction	14.0
2. Capital stock	13.0
3. Funded debt	1.0
4. *Dividend payments*	0.65
5. *Interest payments on funded debt*	0.06
	1890
REPORTING OPERATING CORPORATIONS:	
6. Dividend payments	10.18
7. Interest payments on funded debt	7.58
ALL OPERATING CORPORATIONS:	
8. Dividend payments	11.24
9. Interest payments on funded debt	8.37
RATIO, ALL CORPORATIONS TO OPERATING CORPORATIONS:	
10. Dividend payments	1.1
11. Interest payments on funded debt	1.02
ALL CORPORATIONS:	
12. *Dividend payments*	12.4
13. *Interest payments on funded debt*	8.5

Line 1: 1860 Census, Preliminary Report, p. 231, shows the cost of construction of city railroads in 1860 as $14.9 million.

Lines 2 and 3: Ratio of capital stock to funded debt of New York street railways in 1863 was 7 to 2 (New York State, *Annual Report of the State Engineer and Surveyor*, 1867). The ratio declined rapidly 1863 to 1872. The estimates of capital stock and funded debt reflect the extrapolation of the ratio for New York to 1859.

Line 4: Line 2 times 5 per cent. The ratio of dividends to capital of New York street railways in 1863 was 5.6 per cent.

Line 5: Line 3 times 6 per cent. The average rate of interest paid on funded debt of New York street railways in 1863 was 5.7 per cent.

Line 6: 1902 Census of Street and Electric Railways, p. 11.

Line 7: Total interest (*loc. cit.*) was multiplied by the 1902 ratio of interest on funded debt to total interest, for operating and lessor companies combined (*ibid.*, pp. 58–59).

Lines 8 and 9: Lines 6 and 7 multiplied by the ratio of operating earnings of all street railways as estimated by the census to the earnings of those reporting (*ibid.*, p. 10).

Lines 10 and 11: The dividends and interest on funded debt paid in 1902 by operating and lessor companies combined (pp. 58–59), excluding intercompany payments, were divided by those paid in that year by operating companies alone. For dividends, the ratio of all companies to operating companies was 2.080; for interest it was 1.220. Most of the mergers and acquisitions that made these ratios so high in 1902 must have occurred between 1890 and 1902; hence for 1890 the ratios were arbitrarily reduced to the figures shown.

Line 12: Line 8 times line 10.

Line 13: Line 9 times line 11.

TABLE B–6

Dividend and Interest Payments by Electric Companies, 1890
(dollar figures in millions)

1. Aggregate cost of construction and equipment of private plants	81.8
2. *Aggregate cost (line 1) as ratio of total stocks and bonds outstanding*	*1.1*
3. Total stocks and bonds outstanding	74.4
4. *Capital stocks outstanding as percentage of total stocks and bonds outstanding*	*0.8*
5. *Bonds outstanding as percentage of total stocks and bonds outstanding*	*0.2*
6. Capital stock outstanding	59.5
7. Bonds outstanding	14.9
8. Rate of dividend payments to capital	6.5
9. *Dividend payments*	4.2
10. *Rate of interest on funded debt, percentage*	*6.0*
11. *Interest payments on funded debt*	1.0

Line 1: Average cost of construction per private plant is known for New York State and the country as a whole in 1902 and was estimated for New York State in 1890. The ratio of the cost per private plant for the country as a whole to what it was in New York State in 1902 was applied to the New York estimate in 1890; the resulting average multiplied by the number of private plants in the country yielded the aggregate figure.

The average cost of construction per private plant in New York State in 1890 was estimated as follows: cost of construction per dollar of income from the sale of current was calculated for New York State in 1902, first for private stations, then for municipal stations (*1902 Census of Central Electric Light and Power Stations*, pp. 110, 113, 126, 128). Cost, so computed, was 1.863 times as high for private stations as for municipal stations. In New York State in 1890, private companies accounted for 0.641 of aggregate income from lighting, municipal companies for 0.359 (*ibid.*, p. 15). The ratio 0.641 times the relative cost-income ratio of 1.863 yields 1.195. Then the aggregate construction cost of private plants to that of municipal plants must have been as 1.195 to 0.359. Applying these relative proportions to the aggregate cost of construction of all plants (*ibid.*) yields the assumed aggregate cost of private and municipal plants separately; average cost per private plant in New York State in 1890 was obtained by dividing the first of these by the number of private plants (*ibid.*, p. 106). The average cost of construction per private plant in the United States, 1890, is the average for New York times the ratio of the average cost of construction and equipment per private station in the United States to that in New York State (*ibid.*, pp. 112–113). The resulting average times the number of private stations in the whole country in 1890 (*ibid.*, p. 106) yielded the aggregate cost of construction.

Line 2: Estimated. The ratio of aggregate cost of construction and equipment to stocks and bonds in 1902 was 0.769 (*ibid.*, pp. 112–113). It was assumed that almost all the watering of stock occurred after 1890. Since 27 per cent of the private electric stations in operation at the start of 1890 was owned by individuals, aggregate cost was assumed to be in excess of corporate capitalization.

Line 3: Line 1 divided by line 2.

Lines 4 and 5: Capital stock and bonds were as 0.594 to 0.406 in 1902 (*ibid.*, pp. 112–113). The ratio of capital stock to bonds fell one-half for telegraph companies 1880–1902 (*1902 Census of Telephones and Telegraphs*, p. 99), so it seemed reasonable to assume some fall for electric companies.

Line 6: Line 3 times line 4.

Line 7: Line 3 times line 5.

Line 8: Based on data for two electric light companies in Fall River, Mass., as given by Martin p. 138.

Line 9: Line 6 times line 8.

Line 10: An average for nine New York gas companies listed in *Commercial and Financial Chronicle, Investors Supplement*, January 1891, p. 154.

Line 11: Line 7 times line 10.

TABLE B-7

Corporate Commercial Bank Dividend Payments, 1835, 1859, and 1890
(dollar figures in millions)

	1835	*1890*	*1859*
ALL BANKS:			
1. Capital stock	231		402
2. *Dividend payments as percentage of capital stock*	*7*		*7*
3. *Dividend payments*	16		28
NATIONAL BANKS:			
4. Capital plus surplus		848	
5. *Dividend payments as percentage of capital plus surplus*		*6.01*	
6. *Dividend payments*		51	
NONNATIONAL BANKS:			
7. Capital plus surplus		488	
8. *Dividend payments as percentage of capital plus surplus*		*6.7*	
9. *Dividend payments*		32	

Line 1: *Annual Report of the Comptroller of the Currency*, 1876, App., p. 94. These were originally published in the annual *Letter from the Secretary of the Treasury on the Condition of the Banks*, 1833–63. The figures are defective but are the best available.

Line 2: 1835—Derived from the tax on dividends of Pennsylvania banks for the year ending November 1835 (*Annual Report of the Auditor General on the Finances of the Commonwealth*) and an average of November 1834 and November 1835 figures on the capital stock of the banks subject to the tax (*Annual Report of the Auditor General on the Condition of the Banks* for these years). The computed rate of dividends to capital for Pennsylvania is 7.187 per cent. The Second Bank of the United States was still in existence, under Federal charter, in 1835. The last published dividend rate was 7 per cent in 1834. If a dividend was paid in 1835, the figure shown in line 3 would have to be increased by the amount paid. 1859—Same as for 1835 except that the rate of tax in this year varied from 8 per cent on dividends not exceeding 6 per cent to 30 per cent on dividends exceeding 20 per cent. For 1847 data are available on the absolute amount of dividends and ratio to capital for each bank in Pennsylvania (Pennsylvania *House Journal*, 1848, II, pp. 381–383). The distribution of dividend ratios to capital in this year was applied to 1859 in determining the average tax rate and dividend payments on which the tax was based. The computed ratio of dividends to capital in Pennsylvania, 1859, was 7.294. The dividend rate for Maine, Massachusetts and Rhode Island commercial banks for this year was 6.8, 6.9, and 6.7, respectively. The rates were computed from figures on bank capital and dividends for these states shown in *Letter from the Secretary of the Treasury* . . . 1860 (36th Cong., 1st sess., Exec. Doc. 49).

Line 3: Line 1 multiplied by line 2.

Lines 4 and 6: Semiannual data for March–August, September–February, as given in *Annual Report of the Comptroller of the Currency*, 1894, pp. 242–243, adjusted to calendar year basis.

Line 5: Line 6 as a percentage of line 4.

Line 7: Average of figures for all reporting banks less mutual savings and private banks, 1889–90 and 1890–91 (*Annual Report of the Comptroller of the Currency*, 1890, I, p. 79, 1891, I, p. 81) multiplied by 10 per cent for underreporting. According to Board of Governors of the Federal Reserve System, *All-Bank Statistics: United States, 1896–1955* (1959), p. 13, additions to capital accounts, as a result of the revision, of all banks other than national, amounted to about 20 per cent in the years before 1900. Since the addition of nonreporting unincorporated banks accounted for a large part of the change, the estimate of the increase in capital accounts to include nonreporting banks was cut to 10 per cent.

Line 8: Line 5 plus seven-tenths of a per cent for the estimated difference between dividend rate of nonnational and national banks.

Line 9: Line 7 multiplied by line *8*.

TABLE B-8

Interest Payments on Deposits of Corporate Commercial Banks, 1835, 1859, 1871, and 1890

(millions of dollars)

	1835	*1859*	*1871*	*1890*
DEPOSITS:				
1. State banks	83.1	259.6	158.8	1,597.9
2. Bank of the United States	11.8			
3. National banks			579.9	1,422.4
4. *Interest payments on deposits*	2.8	7.8	22.2	90.6

Line 1: 1835, 1859—*Annual Report of the Comptroller of the Currency*, 1876, App., p. 94. 1871—Based on ratio of 1.0589 of national bank capital and surplus to deposits. This ratio was applied to the capital and surplus figure for nonnational banks, derived from tax-based net earnings (see Table A-2, note to col. 7). 1890—Unpublished figure, NBER, based on David Fand, "Estimates of Deposits and Vault Cash in the Nonnational Banks in the Post-Civil War Period in the United States: 1876–1896," unpublished doctoral dissertation, University of Chicago, 1954.

Line 2: *Annual Report of the Comptroller of the Currency*, 1876, p. 44. I assume this figure excludes amounts due to banks.

Line 3: *Annual Report of the Comptroller of the Currency*, 1917, Vol. 1, pp. 309, 323.

Line 4: 1835, 1859, 1871—Total private deposits times interest estimated at 3 per cent. I found no figures on the rate paid on commercial bank deposits for these years and first assumed it was about the same as that paid on mutual savings bank deposits. From evidence for later years discussed below, however, the lower rate of 3 per cent, which is probably a conservative figure, was arbitrarily chosen. Mutual savings banks paid 4 per cent on deposits in Massachusetts in 1835, 5.25 per cent in 1859. In New York in 1871, it was 5.51 per cent. The Comptroller of the Currency reports the amount of interest paid on deposits due to banks in the year ending September 1870 (*Annual Report*, 1870, p. xii) at the rate of 4.8 per cent. 1890—The average rate of interest paid on national bank privately owned deposits in 1889 was 3.6 per cent, on nonnational bank privately owned deposits, 4 per cent, according to the Comptroller of the Currency (*Annual Report*, 1899, Vol. 1, p. xxvii). These rates presumably apply to demand and time deposits. When applied to national bank deposits for 1889, however, interest payments are as large as their reported expenses. It is possible, of course, that interest payments to depositors in the 19th century accounted for as much as 90 per cent of expenses, and the interest rate of 3 per cent that I have arbitrarily assumed may be too low.

TABLE B-9

Dividend Payments to Depositors by Mutual Savings Banks, 1835, 1859, 1871, and 1890

(dollar figures in millions)

	1835	*1859*	*1871*	*1890*
1. Dividend payments (New York banks)	0.17	2.61	14.98	19.24
2. Dividend payments (Massachusetts banks)	0.16	2.07	8.10	13.28
3. *New York and Massachusetts deposits as percentage of total U.S. deposits*	*80.8*	*75.7*	*75.1*	*67.6*
4. *Dividend payments* (U.S.)	0.41	6.18	30.73	48.10

Line 1: 1835—E. W. Keyes, *A History of Savings Banks in the United States*, Bradford Rhodes, New York, 1878, Vol. 2. 1859, 1871, 1890—New York State, *Reports of the Superintendent of Banks Relative to Savings Banks and Trust Companies.*

Line 2: 1835—Deposits times interest at 4 per cent, figure shown in Keyes, Vol. 1, p. 112. 1859, 1871, 1890—Massachusetts, *Annual Reports of the Commissioner or Board of Commissioners of Savings Banks.* For 1859 dividends are the product of deposits times interest at 5.25 per cent, average dividend rate reported by individual banks.

Line 3: 1835—Figures for New York and Massachusetts from sources cited for lines 1 and 2; figures for the United States, from Keyes, Vol. 2, table facing p. 532. 1859, 1871, 1890—Figures for New York and Massachusetts from sources cited for lines 1 and 2; figures for the United States from Keyes for 1859 and 1871, and for 1890 from *Annual Report of the Comptroller of the Currency.*

Line 4: Sum of lines 1 and 2 divided by line 3.

TABLE B-10

Capital Stock of Insurance Corporations (1835) and Their Dividend Payments to Stockholders, 1835, 1859, and 1890

(millions of dollars)

	Capital Stock (1)	Dividend Payments (2)	
LOCATION IN 1835 OF FIRE, MARINE, AND LIFE INSURANCE CORPS.:			
1. Boston, Massachusetts	6.450	0.669	
2. Massachusetts outside Boston	1.865	0.170	
3. New York State	3.661	0.229	
4. Maryland	5.300	0.331	
5. Other states	2.000	0.187	
6. Total		1.587	
ALL U.S. INSURANCE CORPS., 1859:			
7. New York State fire insurance		4.732	
8. Other fire insurance		1.577	
9. All other U.S. insurance		1.572	
10. Total		7.881	
ALL U.S. INSURANCE CORPS., 1889–1890:		*1889*	*1890*
11. Fire, marine, and casualty joint-stock insurance		8.5	8.0
12. Life insurance		1.0	1.0
13. Total		9.5	9.0

Col. 1: lines 1 and 2—Capital figures as of December 1, 1838 (Massachusetts General Court, H. Doc., 1839, *Abstract of the Returns of the Insurance Companies Incorporated with Specific Capital*). According to the *Twelfth Annual Report of the Insurance Commissioner of the Commonwealth of Massachusetts* (1867, Part I, p. 345) only two specific capital insurance companies began business between 1835 and 1838. As there was no return from one company, no change was made in the figures reported for 1838. *Line 3*—Sum of $2,110.7 capital of fire insurance and $1,550.0 capital of marine insurance companies (William Barnes, *New York Insurance Reports*, Condensed Report, Vol. 1, 1830–1853, Albany, 1872, pp. 68–90). *Line 4*—Derived from capital of twenty-three companies J. G. Blandi, *Maryland Business Corporations, 1783–1852*, Johns Hopkins University Studies in Historical and Political Science, L 11, 2, 1934, p. 25) which includes mutual insurance companies. Average capital per company was computed and multiplied by the number of incorporated Maryland insurance companies 1800–35 (G. H. Evans, *Business Incorporations in the United States, 1800–1943*, National Bureau of Economic Research, p. 14). The estimate is too high if the companies chartered did not in fact begin business or if they failed before 1835. *Line 5*—Rough estimate for Pennsylvania and Connecticut. According to the tax on capital stock paid by Pennsylvania insurance companies during the year ending November 1842, insurance companies had a capital of $2.3 million. Authorized capital of Pennsylvania insurance companies was reported as $9.1 million in 1838 (Pennsylvania *House Journal*, 1838/39, Vol. 2, Part 1, pp. 391–392), but probably many were still-born. P. H. Woodward (*One Hundred Years of the Hartford Bank*, The Case, Lockwood and Brainard Co., Hartford, 1892) refers to Connecticut stock fire insurance companies.

Col. 2: Lines 1 and 2—Sum of dividend figures computed from the rate of average annual dividends for the five years ending December 1, 1838, or since the incorporation of the reporting company, multiplied by the capital of each company, as given in the source note to col. 1, lines 1 and 2. *Line 3*—Sum of dividend figures computed from the rate paid in 1835 on capital of fire insurance companies. Marine insurance companies paid no dividends in 1835. *Lines 4 and 5*—Col. 1 times 6.25 per cent, the rate paid by all New York insurance companies on their capital. *Line 6*—Sum of lines 1–5. *Line 7*—William Barnes, *New York Insurance Reports* (Condensed Edition), Vol. 2, 1853–1863, Albany, 1872, pp. 536, 544, and 546. *Line 8*—Based on ratio of dividends of New York to those of all U.S. fire insurance companies in 1890, as described in note to Table A-3, col. 2. *Line 9*—Derived by assuming that if there had been New York joint-stock marine and life insurance companies this year, their dividends would have amounted to $786 thousand, based on the ratio of fire insurance company dividends to marine and life insurance company dividends, 1871, as given in *Thirteenth Annual Report of the Superintendent of the Insurance Department of New York State*, 1872, Part 1, pp. 430, 432, 445, 784; Part 2, p. 242, and that companies elsewhere would have distributed dividends of twice that amount, as they did in 1890. *Line 10*—Sum of lines 7, 8, and 9. *Line 11, 1889—1890 Census*, Vol. XI, Charles A. Jenney, *Report on Insurance Business in the United States*, Part 1, p. 149. *Line 12, 1889—ibid.*, Part 2, pp. viii, 43.

Line 11, 1890—1889 multiplied by 94.59, the ratio dividends in 1890 to dividends in 1889 of all U.S. joint-stock fire companies (their dividends in 1889 were 91 per cent of line 11), computed from dividends as given in Spectator Company, *The Insurance Yearbook: Fire and Marine*, 1891, p. 358. *Line 12, 1890*—1889 multiplied by 98.29, ratio of dividends in 1890 to dividends in 1889 of a sample of stock life insurance companies (their dividends in 1889 were 48 per cent of line 12), computed from dividends as given in *The Insurance Yearbook: Life and Miscellaneous*, Spectator Company, 1891, p. 407. *Line 13:* Line 11 plus line 12.

TABLE B-11

Dividend and Interest Payments by Railroad Corporations, 1835, 1859, and 1890
(dollar figures in millions)

	1835		
	New England and Middle Atlantic States (1)	Rest of United States (2)	Total (3)
1. Share capital	16.38	3.20	19.60
2. *Dividend payments*	0.54	0.10	0.64
3. *Dividend payments as percentage of capital*	*3.29*	*3.29*	
4. Funded debt	3.67	0.72	4.40
5. *Interest payments on funded debt*			0.26
	1859		
	New England and Middle Atlantic States (1)	Rest of United States (2)	Total (3)
6. Dividend payments (1855)	9.2	4.0	13.2
7. Dividend payments (1859)	9.9	4.3	14.2
8. *Line 7 as ratio of line 6*	*1.08*		
9. Funded debt	227.7	270.8	498.5
10. *Productive as percentage of total funded debt*	*76.58*		
11. *Interest payments on funded debt*	12.2	6.8	19.0
	1890		
12. *Dividend payments*			89.1
13. *Interest payments on funded debt*			220.5

Line 1: col. 1—Sum of individual state data (H. V. Poor, *History of the Railroads and Canals of the United States*, New York, 1860, passim). *Col. 2*—Derived from mileage completed (*1880 Census*, Vol. IV, Armin E. Shuman) "Railroads in the United States," *Report on the Agencies of Transportation in the United States*, p. 289) multiplied by the average cost of road per mile outside of New England and the Middle Atlantic States (33d Cong., 1st sess., S. Doc. 42, p. 50). The mileage figures have been criticized as too low by E. R. Wicker, but they are the only ones available broken down by regions. The cost figures were distributed between shares and bonds in the same proportion as for the New England and Middle Atlantic States. *Col. 3*—Sum of col. 1 and col. 2.

Line 2: col. 1—Same as for line 1, col. 1. *Col. 2*—Line 1 multiplied by line 3. *Col. 3*—Sum of col. 1 and col. 2.

Line 3: col. 1—Line 2 divided by line 1. *Col. 2*—Same figure used as for col. 1.

Line 4: col. 1—Same as for line 1, col. 1. *Col. 2*—Same as for line 1, col. 2. *Col. 3*—Sum of unrounded figures for col. 1 and col. 2.

Line 5: col. 3—Line 4, col. 3, multiplied by 6 per cent interest rate. It was assumed that all funded debt paid interest.

Line 6: col. 1—Sum of individual state data (Poor, *passim*). *Col. 2*—Sum of individual state data as given in *Annual Report on the Finances*, 1856, pp. 240–425. *Col. 3*—Sum of col. 1 and col. 2.

Line 7: col. 1—Same as for line 6, col. 1. *Col. 2*—Line 6, col. 2 multiplied by line 8, col. 1. *American Railway Journal*, Vol. 33, 1860, pp. 1150–1152, reports dividend payments of individual railways for 1859 with some 1857–58 and 1860 dates. The sum of 1859 dividends reported is $3,248.3 thousand declared by corporations with a capital of $73,233 thousand. This figure was discarded in favor of the procedure used above. *Col. 3*—Sum of col. 1 and col. 2.

Line 9: col. 1—Same as for line 6, col. 1. *Col. 2*—Sum of funded debt of individual state data as given in *American Railway Journal*, Vol. 33, 1860, pp. 1150–1152. *Col. 3*—Sum of col. 1 and col. 2.

Line 10: col. 1—Derived from data from the same source as for line 6, col. 1. Amounts of productive and unproductive share capital and funded debt are presented for 1859 only.

Line 11: col. 1—Line 9, col. 1, times line 10, col. 1, times interest at 7 per cent. *Col. 2*—For 1855, the ratio of productive to total funded debt was 68.21, computed from data given in *Annual Report on the Finances*, 1856, pp. 240–425. It was assumed that all railways which reported the rate of interest paid on their funded debt actually made interest payments. The yield on railroad stock for this year was 6.25 per cent. In 1859 the yield on railroad stock based on *American Railway Journal* dividend figures was 4.44 per cent. If the ratio of productive to total funded debt in 1859 is reduced proportionately to the assumed fall in stock yield, productive debt times interest at 7 per cent yields an estimate of $9 million. The figure for total interest payments by railroads in 1859 would have been $2 million higher than in 1863, according to the tax-based figure (see Table A–4). Even allowing for the omission of interest payments of the Confederate State railways from the latter figure, the above estimate for 1859 seemed too high in view of the improvement in railway finances, 1859–63. The figure for the rest of the states was therefore arbitrarily chosen to make the total for all the states approximately the same as in 1863. *Col. 3*—Sum of col. 1 and col. 2.

Line 12: Fiscal year figures given in *Historical Statistics* (series K–80), p. 205, adjusted to calendar year basis.

Line 13: Fiscal year figures as given in *Historical Statistics* (series K–81), p. 205, adjusted to calendar year basis. These figures are originally from *Statistics of Railways in the United States*, and represent interest accruals, not interest payments. They are, nevertheless, shown here as interest payments, since they are in substantial agreement with the figure for interest paid on funded debt for this year (series K–27), p. 201, compiled by Poor.

TABLE B-12

Dividend and Interest Payments, Other Transportation Corporations, 1835, 1859, 1871, and 1890

(dollar figures in millions)

	1835	*1859*	*1871*	*1890*
Bridges				
1. Net return on investment ($)	0.40	0.39	0.98	
2. *Dividend payments* ($)	0.34	0.33	0.83	
3. Retained earnings ($)	0.06	0.06	0.15	
4. *Interest payments on funded debt* ($)	0.03	0.13	0.32	
Turnpikes				
DIVIDEND PAYMENTS ($):				
5. New England	0.05			
6. New York	0.02			
7. Pennsylvania	0.02			
8. Ohio	0.04			
9. Rest of states	0.04			
10. *Total dividend payments*	0.16	0.36		
INTEREST PAYMENTS ON FUNDED DEBT ($):				
11. New England				
12. New York	0.02			
13. Pennsylvania	0.02			
14. Ohio				
15. Rest of states	0.04			
16. *Total interest payments on funded debt*	0.09	0.01		
Canals, Private				
17. Total investment ($)	27.71	73.36		
18. Capital stock of reporting canals ($)	11.35	35.83		
19. Capital stock of canals reporting dividend payments ($)	5.15	18.01		
20. Funded debt of canals reporting dividend payments ($)	3.75	13.68		
21. Ratio of line 19 to line 20	1.374	1.3166		
22. Total funded debt ($)	11.67	31.67		
23. Total capital stock ($)	16.04	41.69		
24. Dividend payments reported ($)	0.35	1.01		
25. Ratio of line 24 to line 18	3.104	2.817		
26. *Total dividend payments*	0.50	1.17		3.0
27. Interest rate (per cent)	5	7		
28. *Total interest payments on funded debt* ($)	0.44	1.66		1.9
Express Companies				
29. *Census figure of dividend payments* ($)				3.20
30. Reported dividend payments ($)			1.49	1.97
31. Ratio of census figure to reported in 1890				1.62
32. *Total dividend payments* ($)			2.42	
33. Ratio of total dividend payments in 1871 to census figure			0.757	
34. *Total dividend payments* ($)		1.83		

continued on next page

TABLE B-12 concluded

	1835	*1859*	*1871*	*1890*
Total Other Transportation:				
DIVIDEND PAYMENTS ($):				
35. Bridges	0.3	0.3	0.8	0.8
36. Turnpikes	0.2	0.4	0.5	0.5
37. Canals, private	0.5	1.2	2.6	3.0
38. Express companies		1.8	2.4	3.2
39. Steamboats and sailing vessels	1.0	3.6	6.1	7.1
40. *Total dividend payments*	2.0	7.3	12.4	14.6
INTEREST PAYMENTS ON FUNDED DEBT ($):				
41. Bridges	[a]	0.1	0.3	0.3
42. Turnpikes	0.1	[a]	[a]	[a]
43. Canals, private	0.4	1.7	1.6	1.9
44. *Total interest payments on funded debt*	0.5	1.8	1.9	2.2

[a] Less than $100,000.

Line 1: 1835—In 1821 in Pennsylvania investment in turnpikes was 3.6 times greater than investment in bridges (Pennsylvania, *Senate Journal,* 1821/22, p. 657). In 1838 authorized capital stock of Pennsylvania turnpikes was 2.8 times greater than authorized capital stock of bridges (Pennsylvania, *House Journal,* 1838/39, Vol. 2, part 1, pp. 391–392). On the basis of the relation of the number of turnpikes to the number of bridges incorporated 1800–21, 1822–35, 1836–38 (William Miller, "A Note on the History of Business Corporations in Pennsylvania, 1800–1860," *Quarterly Journal of Economics,* November 1940, pp. 158–159), we interpolated 2.9 as the estimate of the number of times investment in turnpikes was greater than that in bridges in 1835. If investment in turnpikes in the United States in 1835 was $38.9 million, then investment in bridges was $13.4 million. Assume 3 per cent net return on investment. Cf. Wheaton J. Lane, *From Indian Trail to Iron Horse: Travel and Transportation in New Jersey, 1620–1860,* Princeton University Press, 1939, pp. 125–128. 1859—The assessed value of bridge stock corporations in Pennsylvania in 1859 was about 40 per cent of that in 1871 (*Annual Reports of the Auditor General of Pennsylvania,* Tax on Corporate Stock figures). This percentage was applied to net return of 1871. 1871—Net earnings of Pennsylvania bridges in the year ending November 1871 were $237,500, based on the state tax on net earnings. Net earnings of New York bridges in 1867 were $25,000 (New York State, *Report of the Comptroller Giving the Names of All Stock Corporations Doing Business in This State, 1868*); assume the same net earnings in 1871.

We know gross receipts of bridges for fiscal 1870 for all states, based on the federal tax that expired in July 1870 (43d Cong., 2d sess., House Doc. 4). Assume that the ratio of net earnings of Pennsylvania bridges to the net earnings of those of other states excluding New York is the same as the ratio of gross receipts. Multiply Pennsylvania net earnings by 4 and add $25 thousand for New York. Treat as net return on investment.

Line 2: 1835—line 1 minus line 3. 1859—Same as for line 1, 1859. 1871—Line 1 minus line 3.

Line 3: 1835, 1859, 1871—Assumed to be 15 per cent of line 1.

Line 4: 1835—Assume funded debt was 5 per cent of investment, times interest at 5 per cent. 1859—Same as for line 1, 1859, applied to 1871 interest payments. 1871—Capital stock of New York bridges was about double funded debt in 1867. Interest payments were assumed to be one-third of line 1.

Line 5: Sum of dividends paid by sixteen turnpikes in New England, with capital of $1.3 million, as given in P. E. Taylor, *The Turnpike Era in New England* (unpublished dissertation, Yale, 1934), pp. 267, 270, 277, 348; F. J. Wood, *Turnpikes of New England,* Boston, 1919, pp. 71, 92, 93, 120, 161, 297, 402, 406; P. H. Woodward, *One Hundred Years of the Hartford Bank,* The Case, Lockwood and Brainard Co., 1892, pp. 96–97, and estimated dividends for remaining turnpikes with capital of $5.2 million, calculated at one-fourth of one per cent.

Line 6: Estimated dividends based on assumed capital of $7 million and dividend rate of one-fourth of one per cent. The law governing turnpike companies of the state in 1835 required the directors "to exhibit annually to the Comptroller an account of the sums arising from the tolls, of the disbursements and of the dividends actually made within the year" (W. S. Bishop, *Highways, Ways, and Plank Roads. The Statutes of New York in Relation to Highways*, Steele, Avery and Co., Rochester, New York; 1859, p. 150). I have not found these returns in the Comptroller's published reports.

Line 7: In the *Annual Report of the State Treasurer of Pennsylvania* for the year ending November 30, 1835, p. 39, the state's income from dividends on its combined holdings of turnpike, bridge and navigation stock is reported. The state's investment, by types of corporation, is given separately. For the year ending November 30, 1842, the state's income from dividends is broken down according to the corporate source in the *Annual Report of the Auditor General on the Finances*. Dividends for 1835 were distributed in the same proportion. For 1821 the investment in Pennsylvania turnpikes of individuals and the state is given in Pennsylvania *Senate Journal*, 1821–1922, p. 671, Table IV. It was assumed that individuals held the same proportion of turnpike stock in 1835 as in 1821. Total dividends were computed from the dividend rate on the state's holdings, which equaled one-quarter of one per cent.

Line 8: For 1848 and 1850 the investment in Ohio turnpikes of individuals and the state and their income from dividends thereon are given in Valuation, Taxation and Public Indebtedness, *Tenth Census of the United States*, Vol. 7, p. 614, and *Annual Report of the Auditor of the State of Ohio to the 49th General Assembly*, pp. 48–49. It was assumed that dividends were the same in 1835.

Line 9: An arbitrary figure based on turnpike and other road mileage, by states, in 1850, in J. L. Ringwalt, *Development of Transportation Systems in the United States*, Philadelphia, the author, 1888, p. 166.

Line 10: 1835—Sum of lines 5–9. 1859—Assumed to be one-third less than figure for 1863 (Table A-6). (For railroads, the sum of dividends and interest payments in 1859 is 42 per cent lower than in 1863.)

Line 11: No interest payments, since the entire capital was represented by common stock (Taylor, *op. cit.*, p. 155).

Lines 12 and 13: J. A. Durrenburger, *Turnpikes, A Study of the Toll Road Movement in the Middle Atlantic States and Maryland*, Valdosta, Ga.: Southern Stationery and Printing Co., 1931, p. 109, states that debt frequently was one-quarter to one-third the cost of the road. It is not clear that these were funded debts. In 1821 debts of Pennsylvania turnpikes were 12.5 per cent of the capital stock (Pennsylvania *Senate Journal*, 1821–1822, p. 671). No debts are shown for individual Pennsylvania turnpikes that reported in 1835 (*ibid.*, 1835–1836, Vol. 2, pp. 143, 161, 269, 347, 362). The Philadelphia and Lancaster turnpike noted (*ibid.*, p. 362) that it had paid off debt, amounting to 29 per cent of its capital, from retained earnings. We assumed that the debt of turnpikes was 12.5 per cent of capital as in 1821 and that interest payment was made on one-half of the debt at the rate of 5 per cent.

Line 14: Assumed no debt.

Line 15: Arbitrary figure derived from lines 2 and 3.

Line 16: 1835—Sum of lines 11–15. 1859—Figure for 1863 (Table A-6), on assumption that funded debt of turnpikes was negligible at both dates. The return of the Frankford and Bristol Turnpike Road Company for 1860 shows no debt (Pennsylvania Legislative Document 16, 1861, p. 449).

Line 17: H. Jerome Cranmer, "Canal Investment, 1815–1860," Table 3, col. 1, cumulative sums of annual investment, p. 555.

Line 18: Sum of individual private canal data for New York, New Jersey, Pennsylvania and Maryland, as given in H. V. Poor, *History of the Railroads and Canals of the United States*, John H. Schultz and Co., New York, 1860, plus cost of certain canals in above states for which capital at 1835 is not shown in Poor, as given in S. A. Mitchell, *Mitchell's Compendium of the Internal Improvements of the United States*, Mitchell and Hinman, Philadelphia, 1835.

Lines 19, 20, and 24: Data from Poor, as described above.

Line 22: Line 17 divided by line 21 plus 1.00.

Line 23: Line 17 minus line 22.

Line 26: 1835, 1859—Line 23 times line 25. 1890—Sum of dividend payments by Delaware and Hudson Canal Company, Lehigh Coal and Navigation Company, and Morris Canal Company computed from stock outstanding and annual dividend rate as given in *Commercial and Financial Chronicle, Investors Supplement,* January 1891, and *Handbook of Railroad Securities,* January 1892, and an estimate for Albermarle Canal Company from *Preliminary Report of the Inland Waterways Commission,* 60th Cong., 1st sess., S. Doc. 325, pp. 202–203.

Line 27: Based on Poor's figures of interest rates on bonded debt.

Line 28: 1835, 1859—Assumes interest payments were not made on one-quarter of debt shown in line 22. 1890—Sum of interest payments by companies included in line 26, 1890, and Delaware Division Canal, Pennsylvania Canal and Chesapeake and Delaware Canal Company, computed from bonds outstanding and interest rate as given in sources noted in line 26. Pennsylvania Internal Affairs Department, *Annual Report,* Part IV, 1890–1891 gives capital and funded debt of seven canal companies but no dividend information. If the Monongahela, Schuylkill and Susquehanna Canal paid interest on their funded debt, the figure shown in line 28, 1890 should be 2.5 million.

Line 29: Census Report on Transportation Business in the United States at the Eleventh Census, Part II, p. 496. Figure is for year ending June 30, 1890.

Line 30: 1871—*American Railroad Journal,* 1871, pp. 294, 826, 1440. 1890—*Commercial and Financial Chronicle, Investors Supplement,* 1890.

Line 32: Line 30, 1871, times line 31, 1890.

Line 34: 1859—line 32 times line 33.

Line 35: 1835, 1859, 1871—Line 2 above. 1890—Assumed to be the same as 1871.

Line 36: 1835, 1859—Line 10 above. 1871—Table A-6, col. 2. 1890—Assumed to be the same as 1871.

Line 37: 1835, 1859, 1890—Line 26 above. 1871—Table A-5, col. 2.

Line 38: 1859—Line 34 above. 1871—Line 32 above. 1890—Line 29 above.

Line 39: 1835, 1859, 1871—Assumed to be 97 per cent of sum of lines 35–38. 1890—Derived as follows: *Census Report on Transportation Business in the United States at the Eleventh Census,* Part II, pp. 34–65, gives valuation of steamers and sailing vessels owned by individuals, joint-stock companies and corporations for the Atlantic Coast and the Gulf of Mexico and the Pacific Coast; for the Great Lakes and the Mississippi, total valuation only. Estimated total valuation of $83.5 million for all joint-stock companies and corporations in the United States was derived from these figures. Net earnings of this group of companies, calculated from net earnings for all owners on the basis of the corporate share of total valuation, was $13.0 million. J. G. Martin, *A Century of Finance,* Boston, the author, 1898, pp. 138, 206–7, reports dividends and capital of Massachusetts steamboat companies. Since the census word "valuation" could be interpreted either as par value of capital or as assets, we obtained asset figures for the companies shown by Martin from Massachusetts Commonwealth Secretary, *Abstracts of the Certificates of Corporations . . . during the Year 1890,* pp. 54–170 and computed dividends as a per cent of assets. Applying this percentage to corporate valuation of steamboats and sailing vessels yielded $4.4 million as the estimate of dividends. This figure seemed too low in relation to net earnings. We therefore computed dividends as a per cent of capital and applied the percentage to corporate valuation.

The ratio of dividends so computed to the sum of dividends for other forms of transportation was 0.97. We used this percentage to estimate dividends for earlier years in the absence of direct information.

Line 40: Sum of lines 35–39.

Line 41: 1835, 1859, 1871—Line 4 above. 1890—Assumed to be the same as 1871.

Line 42: 1835, 1859—Line 16 above. 1871—Table A-6, col. 3. 1890—Assumed to be the same as 1871.

Line 43: 1835, 1859, 1890—Line 28 above. 1871—Table A-5, col. 3.

Line 44: Sum of lines 41, 42, and 43.

We have no information on funded debt of express companies and steamboats and assumed the amount was negligible.

COMMENT

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Anna Schwartz presents estimates of gross dividends and interest payments by corporations for 1835, 1859, 1871, and 1890, and similar estimates on an annual basis from 1863 through 1871 for a narrower group of corporations—those subject to the federal tax at source in these years. She *does not* present estimates of interest payments by the federal government, by state and local governments, by individuals, and by a few of the financial intermediaries. She offers, in brief, estimates of gross dividend and interest payments by the nonfinancial corporate sector of the economy and by the largest part of the financial intermediary sector.

The principal findings for the four years are these: Gross dividend and interest payments by the nonfinancial corporate sector rose about fiftyfold from 1835 to 1890, compared with a rise of around six- to eightfold in national income in current prices over the same period. The rate of growth of the corporate payments, however, appears to have slowed down markedly as the period progressed. The growth rate was very high, 1835–59; somewhat lower, 1859–71; and finally, 1871–90, it was less than half of that of the first period.

Turning now to financial intermediaries, we find that this sector's payments of dividends and interest—on capital stock, deposits, and shares—rose only tenfold during this long period. This is perhaps a somewhat more rapid rise than that achieved by national income, but it hardly compares to the record of nonfinancial corporations. However, the rates of growth in payments of dividends and interest by nonfinancial corporations, on the one hand, and by financial intermediaries, on the other, came closer and closer together as the period went on. In fact the two growth rates were about the same, 1871–90. This shows up even more emphatically when interest payments by savings and loan associations and by life insurance companies are included.

Most of the data for 1871 were taken from another study by Mrs. Schwartz. That study found that dividend payments by corporations subject to the federal tax at source rose by 50 per cent between 1863 and 1871, and that interest payments more than doubled.

Now how do these findings stack up with what we already know in a rather general way about financial development during the nineteenth century? Pretty well, I believe. In 1835 outstanding primary securities, that is, the equity issues and debts of nonfinancial sectors—business, consumer, and government—were probably about 50 per cent of national income. The ratio climbed steadily until 1870 or 1880 and then leveled off for the remainder of the century. By 1880 the ratio was around

300 per cent—that is, outstanding primary securities were three times the level of national income in current prices. It seems fairly certain that the rate of growth in primary securities slowed down rapidly after 1870.

These trends and the findings of Mrs. Schwartz are highly consistent with one another. A slowing down in the rate of growth of primary securities would tend to bring about a declining rate of growth in dividend and interest payments. Mrs. Schwartz's data, however, refer to dividend and interest payments on only those issued by nonfinancial corporations. (I am neglecting financial intermediaries for the moment.) Hence, even though the ratio of primary securities to national income leveled off during the nineteenth century, dividend and interest payments on *corporate* securities would not necessarily behave similarly if corporate securities rose much faster than total securities. A relative rise in corporate securities undoubtedly took place during these years, but not, I believe, to anywhere near the extent usually imagined, probably lagging behind the growth of mortgages from the consumer sector. Nevertheless, the relative rise in corporate securities, to whatever extent it occurred, tended to raise dividend and interest payments by nonfinancial corporations relative to national income. There was, however, at least one offsetting factor—the steady fall in interest rates, 1873–90. While it is difficult to know the degree to which one factor offsets the other, and while other factors such as trends in dividend pay-out ratios have to be considered, Mrs. Schwartz's findings hold up very well in terms of the general pattern.

The total primary securities coming from the business, consumer, and government sectors were sold to these nonfinancial sectors, including the foreign sector, and to financial intermediaries—commercial banks, mutual savings banks, savings and loan associations, and insurance companies. The purchase of primary securities by financial intermediaries was accompanied by an increase in indirect debt—in demand and time deposits, currency, savings deposits, shares, and other forms of saving. It was also accompanied by the issuance of equities by some of the intermediaries. Dividend and interest payments were made on the bulk of these securities. Consequently, to the extent that financial intermediaries purchased a growing share of primary security issues, their own dividend and interest payments tended to grow relative to those by nonfinancial sectors; and conversely. The fact is that financial intermediaries did very poorly over most of this long period, as measured by the ratio of their assets to outstanding primary securities, which is roughly the percentage of primary securities owned by financial intermediaries. This percentage was probably higher in 1835 than it was in 1850, and it was almost certainly higher in 1850 than in 1890; only after that were they able to hold their own.

These broad trends are reflected very clearly in Mrs. Schwartz's finding that payments of interest and dividends by financial intermediaries were about equal to those of nonfinancial corporations in 1835 and then declined relatively thereafter. Including savings and loan associations and life insurance companies, payments of interest and dividends by financial intermediaries were probably around one-third of those of nonfinancial corporations in 1859, one-fourth in 1871 and 1890.