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Volume Title: Income in the United States, Its Amount and Distribution, 1909-1919, Volume II: Detailed Report

Volume Author/Editor: Wesley Clair Mitchell, editor

Volume Publisher: NBER

Volume ISBN: 0-87014-001-9

Volume URL: <http://www.nber.org/books/mitc22-1>

Publication Date: 1922

Chapter Title: Steam Railway, Switching and Terminal Companies

Chapter Author: Willford I. King

Chapter URL: <http://www.nber.org/chapters/c9405>

Chapter pages in book: (p. 119 - 132)

CHAPTER 9

STEAM RAILWAY, SWITCHING AND TERMINAL COMPANIES

§ 9a. Nature of Available Information

The Interstate Commerce Commission, for a number of years, has required the railways of the country to render annual statements of their business. While the accounts for the large roads (designated as Class I), are fairly complete for each year, the form of the summary reports for "all roads considered as one system" has changed materially from time to time, making it somewhat difficult to obtain strictly comparable figures. Many of the minor items have been grouped together in these condensed summaries and, in such instances, it cannot be determined to which categories they should be assigned. The data for the switching and terminal companies are not recorded until recent years. Here and there, items are omitted. Owing to these shortcomings of the data, it is certain that the figures presented herewith contain many inaccuracies.

Fortunately, however, the major items of interest, namely those recording the funded debt, dividends, compensation to employees, additions to physical property, and amounts carried to surplus have been reported each year and presumably the figures are fairly comparable throughout. These items combined apparently constitute at least 95 per cent of the value dealt with. Under these circumstances, one feels safe in saying that, outside of definite errors¹ which may exist in the statistics furnished to the Interstate Commerce Commission, the figures herewith presented are sufficiently accurate to show the main facts desired. A computation, in which an entirely distinct method of approach was used, showed a value product differing by not over two or three per cent from that obtained by the process finally determined upon except in 1909 and 1910, years in which the classification of the data was less complete than at later periods.

§ 9b. Method of Utilizing Data

The theory underlying the selection of the data chosen to represent the value product of the industry is as follows: The amount carried to surplus is the joint property of the stockholders and constitutes part of the saving made from current earnings. Other items which similarly enter into sav-

¹ The place where error is most likely is in the amounts recorded as representing the annual surplus. Errors in depreciation accounts give rise to equally large errors in the annual surplus. It is impossible to say whether the depreciation allowances are too large or too small.

ings are funds set aside to compensate for the original sale of stock below par, and additions made to the sinking fund. These are offset to some extent by bond premiums written off and by receipts from sinking funds accumulated in earlier years. These receipts evidently represent the productivity of the past rather than of the present. The fact that the discounts now written off were, in the past, losses to the corporation, does not alter the fact that the assets now cancelling these discounts are part of the current earnings and represent savings for the stockholders which might be paid out in dividends if the directors thought that policy advisable. Sums set aside from earnings for additions and betterments to the physical property have also been included in the share of the stockholders because they likewise represent savings from current income.

Items classified merely as "Miscellaneous Appropriations from Income" have not been included in the current income for it is assumed that most of this account represents funds set aside to cover losses of one sort or another, due perhaps to depreciation, obsolescence, or bad investments.

Changes in the designations and classification of various appropriations make it impossible to allocate them correctly. A careful endeavor has been made to include or exclude corresponding items in each year and it is believed that this task has been accomplished with a fair degree of success. The amounts in doubt are too small to invalidate any of the main conclusions of this report, even if some of the items have been misplaced.

The income distributed by the railways in the form of interest and dividends is partly derived from inter-corporate payments and partly derived from bond interest and dividends received on the stock of corporations outside the railway field. Payments from one railway to another should evidently be deducted and since, in dealing with other industries, it has been assumed that their dividends and bonds interest have been paid to individuals, it would evidently be a duplication again to include this income here. For this reason, all bond interest and dividends received from stocks owned have been deducted from the similar items paid out by the railways. The remainders represent only payments made possible by the operation of railways and do not include returns from the investments of railways in other industries. Salaries and wages paid are evidently individual gains made possible by railway activity and hence must be included. A trivial item appearing in the later accounts is entitled "Uncollectible Revenues." This quantity, in each case, has been assumed to constitute a part of the net value product of the railway field, for it represents a valuable service received by someone, and this condition is not altered by the fact that the railway company has not been paid therefor.

Since the year 1915, the Interstate Commerce Commission has included in the *Statistics of Railways* a summary of the reports of switching and ter-

TABLE 9A

ESTIMATES¹ OF THE AMOUNTS SAVED FROM CURRENT REVENUES BY THE STEAM RAILWAY SWITCHING AND TERMINAL COMPANIES OF THE CONTINENTAL UNITED STATES

(Millions of Dollars)

Year	Net reduction of security discounts ^a		Additions and betterments to physical property		Net addition to sinking funds ^b		Balance carried to surplus ^x		Total savings	
	Railways	Switching and terminal cos.	Railways	Switching and terminal cos.	Railways	Switching and terminal cos.	Railways	Switching and terminal cos.	Railways	Switching and terminal cos.
Ending June 30										
1909...	20.3 ^d	c	24.9 ^k	c	7.2 ^o	c	79 ^l 2 ^r	c	131.6	
1910...	26.7 ^d	c	57.8 ^l	c	9.5 ^q	c	122.0 ^l	c	216.0	
1911...	18.7 ^d	c	62.3 ^e	c	13.9 ^{ep}	c	23.5 ^e	c	118.4	
1912...	17.6 ^e	c	44.2 ^e	c	14.7 ^{ep}	c	0.0 ^e	c	76.5	
1913...	32.1 ^f	c	66.4 ^f	c	30.6 ^f	c	32.7 ^f	c	161.8	
1914...	15.5 ^f	c	40.5 ^f	c	11.5 ^f	c	-124.1 ^f	c	-56.6	
1915...	17.9 ^g	0.07	30.7 ^g	0.2 ^m	10.4 ^g	0.3 ^m	-36.7 ^g	1.2 ^m	21.7	1.8
1916...	25.9 ^h	0.22	76.5 ^h	0.2 ^m	18.0 ^h	0.7 ^m	191.4 ^h	6.0 ⁿ	311.8	7.1
Calendar										
1916...	21.7 ⁱ	0.5 ⁱ	84.4 ⁱ	0.3 ⁱ	14.8 ⁱ	0.8 ⁱ	188.1 ⁱ	3.2 ⁱ	309.0	4.8
1917...	19.8 ^o	0.5 ^o	95.1 ^z	1.0 ^z	10.8 ^z	0.6 ^z	154.7 ^z	-1.6 ^z	280.4	0.5
1918 ⁴ ...	6.8 ^t	0.6 ^v	43.1 ^j	0.3 ^v	9.7 ^z	0.6 ^v	53.5 ^u	2.1 ^v	113.1	3.6

R = Interstate Commerce Commission—*Statistics of Railways.*^a "Amortization of Discount" plus "Stock and Debt Discount Extinguished" minus "Release of Premium on Funded Debt."^b "Appropriation to Sinking and Other Reserve Funds" minus "Income from Sinking and Other Reserve Funds."^c Item not given in reports of Interstate Commerce Commission.^d Assumed to bear the same ratio as in 1912 (viz. .0642) to the sum of "Surplus" and "Dividends Paid."^e R. 1912, pp. 51-52.^f R. 1914, p. 52.^g R. 1915, p. 49.^h R. 1916 (fiscal year), p. 51.ⁱ R. 1916 (calendar year), p. 53; figures for switching and terminal companies arrived at by deducting railway data from combined figures.^j Item for Class I Operating and Non-Operating roads multiplied by 1.013, the ratio for 1916 of the total to Class I for this item.^k R. 1909, p. 72.^l R. 1910, p. 69.^m R. 1915, p. 58.ⁿ R. 1916 (fiscal year), p. 60.^o Assumed to vary in same proportion from year 1910 as does the sum of "Surplus" and "Dividends Paid."^p Equals "Sinking and redemption funds chargeable to income" plus "Appropriations for other reserves."^q R. 1911, p. 53.^r Includes "Advances to weak lines to cover deficits."^s R. 1917, pp. 36-37.^t "Corporate" statistics for roads under Federal control combined with figures for non-controlled roads.^u Item for Class I Operating and Non-Operating roads multiplied by 0.97, the ratio in 1916; see Note w.^v R. 1918, pp. 40-47.^w 97% of 159.3 the increase in "Balance" during the year of Class I Operating and Non-Operating roads. This is the ratio in 1916; Classes II and III both showing decreases in assets.^x Net corporate income—total appropriations for year; after 1916, equals the balance at the end of the year less the balance at the beginning of the year.^y The ratio of this item for all roads to the same item for Class I Operating and Non-Operating roads was 1.028 in 1916. The item for this year has been multiplied by that ratio to obtain the amount here entered.^z The item for this year is that for Class I Operating and Non-Operating roads. No adjustment has been made, for the 1916 records show the appropriations by other classes of roads to have been negligible.⁴ The ratio in 1916 of this item for all to the same item for Class I Operating and Non-Operating roads was 1.051; hence the item for this year for Class I roads has been multiplied by this ratio.⁵ Item for Class I Operating and Non-Operating roads multiplied by 1.003, the ratio for 1916 of the total to Class I for this item.

TABLE 9B

THE ESTIMATED AMOUNTS COMPOSING THE SHARE OF THE SECURITY HOLDERS IN THE ANNUAL VALUE PRODUCT OF THE RAILWAY, SWITCHING, AND TERMINAL COMPANIES OF THE CONTINENTAL UNITED STATES

(Millions of Dollars)

Year	Amounts as recorded in statistics of railways										Estimated ratio of total to total for railways only	Estimated total for railway, switching and terminal companies
	Excess of dividends paid by companies over dividends received by them from investments		Excess of interest on funded debt paid by companies over similar interest received by them from investments		Savings ^p		Total of preceding items		Switching and terminal cos.	Railways		
	Railways	Switching and terminal cos.	Railways	Switching and terminal cos.	Railways	Switching and terminal cos.	Railways	Switching and terminal cos.				
Ending June 30												
1909	236.6 ^a	m	290.5 ^{an}	m	131.6	m	658.7	1.021 ^r	672.6 ^e			
1910	293.8 ^b	m	291.6 ⁿ	m	216.0	m	801.4	1.021 ^r	818.2 ^e			
1911	246.8 ^c	m	386.9 ^c	m	118.4	m	772.1	1.021 ^r	788.3 ^a			
1912	273.3 ^c	m	372.7 ^c	m	76.5	m	722.5	1.021 ^r	737.7 ^a			
1913	230.8 ^d	m	395.3 ^d	m	161.8	m	787.9	1.021 ^r	804.4 ^a			
1914	312.0 ^d	m	402.8 ^d	m	56.6	m	658.2	1.021 ^r	672.0 ^a			
1915	237.5 ^e	2.7 ^j	422.6 ^c	11.9 ^j	21.7	1.8	681.8	1.021 ^q	698.2 ⁱ			
1916	244.7 ^f	1.6 ^k	426.3 ^f	13.5 ^k	311.8	7.1	982.8	1.021 ^q	1,005.0 ⁱ			
Calendar												
1916	262.8 ^g	5.8 ^g	426.7 ^g	14.2 ^g	309.0	4.8	998.5	1.025 ^q	1,023.3 ^r			
1917	257.6 ^h	5.0 ⁱ	426.0 ^h	14.9 ⁱ	280.4	0.5	964.0	1.021 ^q	984.4			
1918	246.3 ^{uv}	2.8 ^u	417.0 ^{uv}	15.5 ^u	113.1	3.6	776.4	1.026 ^r	798.3			

R. = Interstate Commerce Commission—Statistics of Railways.
a R. 1906, p. 72.

TABLE 9B NOTES—continued

- ^b R. 1910, p. 69.
- ^c R. 1912, pp. 51-52.
- ^d R. 1914, p. 52.
- ^e R. 1915, p. 49.
- ^f R. 1916 (fiscal year), p. 51.
- ^g R. 1916 (Calendar year), p. 53; figures for switching and terminal companies arrived at by deducting railway data from combined figures.
- ^h The figures for railways are obtained by multiplying the net dividends for Operating and Non-Operating Class I roads by 1.015, the ratio of the total to the same items in 1916.
- ⁱ R. 1917, Statements 31 and 33.
- ^j R. 1915, p. 58.
- ^k R. 1916 (fiscal year), p. 60.
- ^m Not reported by Interstate Commerce Commission.
- ⁿ From this item, receipts of interests on bonds and dividends have both been deducted.
- ^o 101.8% of net interest payments of Class I roads were for funded debt, (since receipts of interest on unfunded debt were greater than payments of the same type). Applying same percentage to all roads for 1917 gives the amount here entered as bond interest.
- ^p Derivation of these items shown in Table 9A.
- ^q Computed from figures in two immediately preceding columns.
- ^r Assumed on basis of figures for 1915 and 1916.
- ^s Product of quantities in first and third columns preceding this one.
- ^t Computed by addition of original items, these being carried to more decimal places than those in this table.
- ^u R. 1918, pp. 43-44, 46-47, 74.
- ^v 242.2, the amount for Class I Operating and Non-Operating Companies times 1.015, the ratio of Classes I, II, and III to Class I in 1916.
- ^w 401.8, the amount for Class I Operating and Non-Operating Companies times 1.037, the ratio of Classes I, II, and III to Class I in 1916 for interest on funded debt.

minal companies. The total value product of this field is only about two per cent as large as that of the railways—hence, it has been deemed sufficiently exact to make the adjustment for the years preceding 1915 by the simple method of multiplying the railway figures by appropriate factors derived from a study of the ratios in 1915 and 1916.

§ 9c. The Net Value Product and Its Distribution

The estimates derived from the reports of the Interstate Commerce Commission through the application of the theories and methods just described are presented in Tables 9A, 9B, 9C, 9D, and 9E.

Table 9E shows the recorded amounts going to each of the principal classes of recipients during the fiscal years from 1909 to 1916, and also estimates for the calendar years from 1909 to the latest report published by the Interstate Commerce Commission. These estimates have been made simply by averaging the data for the adjoining fiscal years. This process tends to smooth out to a degree the irregularities due to cyclical or chance causes, but it makes the direction of the trend more evident.

Perhaps the most significant column in Table 9E is the last. This shows that the employees have been receiving from three-fifths to three-fourths of the net value product of the industry, the fraction varying materially from year to year but indicating no definite trend until 1917 when a sharp upward movement begins and continues through 1918.

§ 9d. The Physical Output per Employee

Table 9F illustrates the development of important phases of railway activity. The data have been estimated for the calendar years in order to make them comparable with other fields of industry.

TABLE 9C

THE ESTIMATED SHARE OF EMPLOYEES IN THE ANNUAL VALUE PRODUCT OF THE STEAM RAILWAY, SWITCHING, AND TERMINAL COMPANIES OF THE CONTINENTAL UNITED STATES

(Millions of Dollars)

Year	Compensation paid for services				Estimated total, all companies	Estimated payments to employees for personal injuries ^o	Relief and pensions for employees ^w	Estimated total share of employees
	Railways	Switching and terminal companies		Estimated amount ^f				
		Amounts reported	Ratio to R. R. compensation					
Ending June 30								
1909..	\$ 988 ^g		.0244 ^e	\$24	\$1.012	\$ 9 ^m	\$2 ⁿ	\$1.024
1910..	1,144 ^g		.0246 ^e	28	1,172	11 ⁿ	3 ⁿ	1,185
1911..	1,208 ^g		.0248 ^e	30	1,238	12 ^p	3 ^p	1,253
1912..	1,252 ^g		.0250 ^e	31	1,284	13 ^q	3 ^q	1,300
1913..	1,381 ^h		.0252 ^e	35	1,416	14 ^r	4 ^r	1,433
1914..	1,381 ⁱ		.0254 ^e	35	1,416	15 ^s	4 ^s	1,436
1915..	1,173 ^j	30 1 ^a	.0256 ^d	30	1,203	12 ^t	5 ^t	1,220
1916..	1,404 ^b	36.4 ^b	.0259 ^d	36	1,440 ^t	13 ^u	5 ^u	1,458
Calendar								
1915..	1,507 ^c	39.8 ^c	.0264 ^d	40	1,547	14 ^v	6 ^v	1,566
1917..	1,917 ^k		.0264 ^e	51	1,968	16 ^x	7 ^y	1,990
1918..	2,670 ^z		.0264 ^e	70	2,740	15	8 ^y	2,763

R = Interstate Commerce Commission—*Statistics of Railways in the United States*.

^a R. 1915, p. 31.

^b R. 1916, p. 49.

^c R. 1916, pp. 32-34.

^d Computed.

^e Assumed to vary along a smooth curve.

^f Compensation to railway employees multiplied by assumed ratios.

^g R. 1912, p. 29.

^h R. 1914, p. 29. Data adjusted for absence of Class III roads on basis of proportion of wages paid by those roads in 1914.

ⁱ R. 1914, p. 29.

^j R. 1915, p. 31: wages adjusted by assuming that the missing Class III wages are of the same relative importance as Class III operating expenses.

^k 1918 Report of Railway Wage Commission, p. 102.

^l Last figure correct—original data carried to more decimals.

^m R. 1930, pp. 75-79.

ⁿ R. 1910, pp. 73-76.

^o 45% of total paid for all injuries to persons; assumed that employees get this amount, other injured persons 25% and attorneys 30%. The last amount is not the product of the railway industry, according to our classification.

^p R. 1911, pp. 58-60.

^q R. 1912, pp. 56-58.

^r R. 1913, pp. 54-57.

^s R. 1914, pp. 59-61.

^t R. 1915, pp. 65-70.

^u R. 1916, fiscal year, pp. 67-69.

^v R. 1916 (Calendar year), pp. 66-76.

^w Data for Class I roads only—others do not report; amounts doubtless negligible.

^x R. 1917, pp. 40-43: figures for Class I roads adjusted on basis of 1916 ratios to represent all roads.

^y R. 1917, p. 43.

^z R. 1918, p. 24: figures for Class I roads multiplied by 1.025, the 1916 ratio of wages on all roads to wages on Class I roads only.

* Figures for Class I roads multiplied by 1.020 the ratio in 1916 of all roads to Class I roads only.

R. 1918, pp. 55-59.

TABLE 9D

MISCELLANEOUS ITEMS IN THE VALUE PRODUCT OF THE PRIVATELY OPERATED RAILWAY, SWITCHING, AND TERMINAL COMPANIES OF THE CONTINENTAL UNITED STATES

(Millions of Dollars)

Year	Uncollectible revenues reported			Damages paid to non-employees for personal injuries	Estimated total of miscellaneous items
	Switching & terminal companies	Railways	Estimated total, all companies		
Ending June 30					
1909			0.6 ^a	5.2 ^a	5.8
1910			0.6 ^a	5.9 ^b	6.5
1911			0.7 ^a	6.5 ^c	7.2
1912			0.7 ^a	7.0 ^d	7.7
1913			0.8 ^e	7.6 ^e	8.4
1914			0.8 ^e	8.0 ^f	8.8
1915 .....	.006 ^l	0.7 ^b	0.7	6.8 ^g	7.5
1916 .....	.006 ^m	0.8 ⁿ	0.8	6.9 ^h	7.7
Calendar					
1916 .....	.007 ^o	0.8 ^o	0.8	7.5 ⁱ	8.3
1917 .....	.005 ^p	0.7 ^p	0.7	8.7 ^j	9.4
1918 .....	.003 ^s	0.6 ^t	0.6	8.3 ^k	8.9

R. = Interstate Commerce Commission—*Statistics of Railways.*^a R. 1909, pp. 75-79.^b R. 1910, pp. 73-76.^c R. 1911, pp. 58-60.^d R. 1912, pp. 56-58.^e R. 1913, pp. 54-57.^f R. 1914, pp. 59-61.^g R. 1915, pp. 65-70.^h R. 1916 (fiscal year), pp. 67-89.ⁱ R. 1916 (calendar year), pp. 66-76.^j R. 1917, pp. 40-43, figures for Class I roads adjusted on basis of ratio in 1916.^k R. 1918, pp. 55-59, figures for Class I roads multiplied by 1.020, the ratio in 1916 of all roads to Class I roads.^l R. 1915, p. 58.^m R. 1916 (fiscal year), p. 60.ⁿ R. 1916 (fiscal year), p. 51.^o R. 1916 (calendar year), p. 53.^p R. 1917, pp. 34-36.^q Roughly estimated.^r Estimated at 25% of all amounts paid for personal injuries.^s R. 1918, p. 46.^t R. 1918, p. 43.

TABLE 9E

THE ESTIMATED DIVISION OF THE ANNUAL VALUE PRODUCT OF THE STEAM RAILWAY, SWITCHING, AND
TERMINAL COMPANIES OF THE CONTINENTAL UNITED STATES

(Millions of Dollars)

A		B		C		D		E		F		G		H
Year		Share of the security holders						Miscellaneous items ^a		Share of employees ^c		Estimated total net annual value product ^d		Per cent of net value product going to employees ^f
End- ing June 30	Cal- en- dar	Corporate savings		Net dividends and bond interest		Receipts and savings combined B + C								
1909	1909	134 ^b	177 ^c	538 ^b	568 ^e	673	745 ^e	6	6 ^e	1,024	1,105 ^e	1,702	1,856 ^e	59.5
1910	1910	220 ^b	171 ^c	598 ^b	633 ^e	818	803 ^e	7	7 ^e	1,185	1,219 ^e	2,010	2,029 ^e	60.1
1911	1911	121 ^b	99 ^e	667 ^b	664 ^e	788	763 ^e	7	7 ^e	1,253	1,277 ^e	2,049	2,047 ^e	62.4
1912	1912	78 ^b	120 ^e	660 ^b	650 ^e	738	770 ^e	8	8 ^e	1,300	1,367 ^e	2,045	2,146 ^e	63.7
1913	1913	165 ^b	53 ^e	639 ^b	685 ^e	804	738 ^e	8	9 ^e	1,433	1,434 ^e	2,246	2,181 ^e	65.8
1914	1914	-58 ^b	-17 ^e	730 ^b	702 ^e	672	685 ^e	9	8 ^e	1,436	1,328 ^e	2,117	2,021 ^e	65.7
1915	1915	23 ^a	171.5 ^c	675 ^a	680 ^e	698	852 ^e	7	8 ^e	1,220	1,339 ^e	1,925	2,199 ^e	60.9
1916	1916	319 ^a	314 ^a	686 ^a	709.5 ^a	1,005	1,023	8	8	1,458	1,566	2,470	2,598	60.3
1917	1917	281 ^a	117 ^a	703.5 ^a	682 ^a	984	798	9	9	1,990	2,763	2,984	3,570	66.7
1918	1918	117 ^a	117 ^a	682 ^a	682 ^a	798	798	9	9	2,763	2,763	3,570	3,570	77.4

^a See Table 9D.^b See Table 9B; estimated from data there given.^c See Table 9C.^d Computed from original data carried to more decimal places than the figures here given; equals D + E + F.^e Interpolated between the two fiscal years.^f Equals F ÷ G.^g Equals sum of amounts recorded in Table 9B.

TABLE 9F

MEASURES OF ACTIVITY OF STEAM RAILWAY, SWITCHING, AND
TERMINAL COMPANIES ESTIMATED FOR THE CALENDAR YEARS(Data for the Adjoining Fiscal Years *a* Averaged)

Year	Wages and salaries paid employees (Millions)		Number of employees ^c actually at work (Thousands)		Revenue freight carried (Billions of ton miles)		Passenger traffic (Billions of passenger miles)	
	Year ending June 30 ^b	Calendar year	Year ending June 30	Calendar year	Year ending June 30	Calendar year	Year ending June 30	Calendar year
1909..	\$1,012	\$1,092	1,540 ^d	1,641	219 ^j	237 ^l	29.1 ^j	30.7 ^l
1910..	1,172	1,205	1,742 ^d	1,742	255 ^j	254 ^l	32.3 ^j	32.8 ^l
1911..	1,238	1,261	1,742 ^e	1,750	254 ^j	259 ^l	33.2 ^j	33.2 ^l
1912..	1,284	1,350	1,759 ^d	1,817	264 ^j	284 ^l	33.1 ^j	34.1 ^l
1913..	1,416	1,416	1,876 ^f	1,814	301 ^j	297 ^l	34.6 ^j	35.4 ^l
1914..	1,416	1,310	1,753 ^d	1,604	288 ^j	283 ^l	35.3 ^j	34.0 ^l
1915..	1,203	1,322	1,456 ^f	1,575	274 ^k	309 ^l	31.8 ^k	33.2 ^l
1916..	1,440	1,547 ^b	1,695 ^g	1,744 ^h	340 ^k	365 ^k	33.6 ^k	35.0 ^k
1917..		1,968 ^b		1,834 ⁱ		397 ^k		40.0 ^k
1918..		2,741 ^b		1,937 ^m		409 ^k		43.2 ^k

R. = Interstate Commerce Commission—*Statistics of Railways*.^a Years ending June 30.^b See Table 9C.^c In 1915 and 1916, the switching and terminal companies employed about 2.4% as many men as the railways; hence for other years the number of railway employees has been multiplied by 1.024.^d *Statistical Abstract of U. S.* for 1919, p. 344.^e R. 1911, p. 26.^f R. 1913, p. 23 and 1915, p. 26. Adjusted to include Class III roads on the basis of the 1912 ratio.^g R. 1916 (fiscal year), pp. 25-26.^h R. 1916 (calendar year), pp. 25-26.ⁱ R. 1917, p. 19.^j *Statistical Abstract of U. S.* for 1919, p. 797.^k R. 1918, p. 37.^l Average of figures for two overlapping fiscal years.^m R. 1918, pp. 20-22.

There has been much discussion concerning the growing efficiency or inefficiency of railway labor during the last decade. Certain facts concerning this issue have been brought out by our investigation and are presented in Table 9G.

This Table shows a very marked growth in the output per employee, especially in the amount of freight transported, the increase being just about fifty per cent from 1909 to 1917. Whether this change was the result of inventive genius, a better supply of equipment, more effective management, or greater diligence on the part of the employees, is a subject still open for investigation. The fact is clear, however, that in, 1917, the aver-

TABLE 9G

THE AVERAGE OUTPUT PER EMPLOYEE ACTUALLY AT WORK FOR
STEAM RAILWAY, SWITCHING, AND TERMINAL COMPANIES COM-
BINED^a

(Estimates for Calendar Years)

Calen- dar year	Number of ton miles of freight per employee	Passenger miles per employee	Value product per employee at prices current in given year	Index of prices of rail- way service ^b Base, 1914	Value product per employee at prices of 1914 ^d
1909....	144,400	18,720	\$1,131	102.3	\$1,103
1910....	146,000	18,310	1,165	102.2	1,149
1911....	147,900	18,950	1,169	102.0	1,144
1912....	156,100	18,750	1,181	100.7	1,173
1913....	163,500	19,500	1,202	100.0	1,202
1914....	176,300	21,180	1,260	100.0	1,260
1915....	196,000	21,050	1,396	99.3	1,406
1916....	209,100	20,090	1,490	98.5c	1,513
1917....	216,600	21,810	1,627	93.7c	1,632
1918....	211,000	22,310	1,843	117.9c	1,563

^a For sources of data, see Tables 9E and 9F. The figures here given are obtained by division of the other items by those in the fifth column of Table 9F.

^b The price index here given is proportional to the combined value of 10 freight ton miles and 1 passenger mile. This ratio represents the approximate proportion of each factor in the output of 1917, and is fairly representative for all years. Data for pairs of fiscal years have been averaged to obtain estimates for calendar years. See *Statistical Abstract of U. S.* for 1919, p. 332.

^c Interstate Commerce Commission, *Statistics of Railways*, 1918, p. 37.

^d Value product at current prices divided by the index of prices of railway service

age railway employee moved much more traffic and obtained a materially larger value product for the industry than he did in 1909, and the increase in the value product was real and not merely a reflection of increase in prices for the service furnished.

§ 9e. Growths of Railway Service and of Population Compared

Another interesting comparison is that of the relative growths of railway service and of population. There has been great complaint concerning a shortage of railway equipment and service. Is this complaint due to the fact that we have less service per capita than formerly or does it mean that our demand has increased? Table 9H gives a fairly definite answer to this query.

It is clear that, from 1909 to 1914, the growth of railway service just about kept pace with population but that, since 1915, the supply of railway service has far outstripped the growth in numbers of people, with the result that, in 1917, the output was nearly fifty per cent larger than in

TABLE 9H

THE PER CAPITA SERVICE RENDERED TO THE PEOPLE OF THE CONTINENTAL UNITED STATES BY THE RAILWAY, SWITCHING, AND TERMINAL COMPANIES ^a

Calendar year	Estimated population of the Continental United States (Thousands) ^b	Freight carried; Ton miles per capita	Passenger miles traveled per capita	Net value produced per capita by railway industry	
				At prices current in given year	At prices of 1914 ^c
1909.....	90,370	2,621	340	\$20.54	\$20.08
1910.....	92,229	2,758	355	22.00	21.53
1911.....	93,811	2,760	354	21.82	21.39
1912.....	95,338	2,976	357	22.51	22.35
1913.....	97,278	3,050	364	22.42	22.42
1914.....	99,194	2,851	343	20.38	20.38
1915.....	100,428	3,075	330	21.89	21.93
1916.....	101,722	3,585	344	25.54	25.93
1917.....	103,059	3,853	388	28.96	29.05
1918.....	104,182	3,924	415	34.27	29.07

^a For origin of data, see Tables 9E and 9F.

^b Read from a smooth curve based upon Census figures.

^c Figures in preceding column divided by price index shown in Table 9G.

1914. If the supply of railway service is inadequate, it appears, therefore, that this condition arises from an increasing demand and not from a diminishing supply.

§ 9f. The Purchasing Power of the Shares in the Net Value Product

Table 9E showed how the net value product has been divided among the principal classes of claimants thereto, but the absolute amounts there recorded have relatively little significance, because of the radical changes in the purchasing power of money which have taken place during the last decade. In order to give meaning to these figures, it is necessary to divide them by appropriate price indices. In Table 9I, this process has been applied to the compensation of the employees and in Table 9J, the share of the security holders and other property owners is similarly dealt with. The price indices employed for this purpose are those described in §§ 2b and 2c. The reasons for their use have been stated in § 1k and need not be repeated here.

TABLE 9I

THE NUMBER OF EMPLOYEES AND THE AVERAGE COMPENSATION RECEIVED BY THEM FROM RAILWAYS, SWITCHING, AND TERMINAL COMPANIES

A	B	C	D	E	F	G	H
Calendar year	Estimated number of employees actually at work ^a (Thousands)	Estimated fraction of full time that average worker was employed ^b	Estimated number of employees attached to industry (Thousands) $B \div C$	Total compensation paid to employees ^c (Millions)	Average annual compensation per employee $E \div D$	Average index of prices of goods bought by manual and clerical workers ^d	Average annual compensation at the prices of 1913 $F \div G$
1909..	1,641	.962	1,705	\$1,105	\$ 648	.955	\$879
1910..	1,742	.981	1,775	1,219	687	.978	702
1911..	1,750	.963	1,818	1,277	702	.984	713
1912..	1,817	.990	1,834	1,367	745	.994	750
1913..	1,814	.988	1,836	1,434	781	1.000	781
1914..	1,604	.873	1,838	1,328	723	1.01	716
1915..	1,575	.856	1,840	1,339	728	1.03	707
1916..	1,744	.947	1,842	1,566	850	1.10	773
1917..	1,834	.988	1,856	1,990	1,072	1.29	831
1918..	1,937	.989	1,958	2,763	1,411	1.58	893

^a See Table 9F.

^b See § 2d.

^c See Table 9E.

^d See Table 2C.

The figures in Table 9I show that the average annual compensation paid by railways to their employees has risen materially since 1909, the increase up to 1918, when measured in purchasing power, amounting to something over thirty per cent. During this period, therefore, the increase in money earnings more than kept pace with the rise in the value of commodities consumed by the working classes. The facts brought out do not show, however, whether this increase in earning power has resulted from a monopolistic organization of wage earners, from increased efficiency of the wage earners, from an increase in the supply of railway equipment as compared to railway laborers, from a general increase in the wage level, or from some entirely different cause.

The purchasing power of the total share of the security holders increased rather steadily up to 1914, but, since that date, has fallen materially, until in 1918, it was smaller than in 1909. This change in the total tells nothing concerning the income per dollar invested. Since, however, it is believed that the total investment in the railway business has been increasing, it appears that the recent decline in the total income of the security holders must have been accompanied by a considerably greater fall in the returns per unit of investment.

TABLE 9J

THE PURCHASING POWER OF THE ESTIMATED SHARE OF THE SECURITY HOLDERS IN THE VALUE PRODUCT OF STEAM RAILWAYS, SWITCHING, AND TERMINAL COMPANIES IN THE CONTINENTAL UNITED STATES

Calendar year	Disbursements to security holders			Corporate savings		
	Amount in dollars <i>d</i>	Index of prices of articles consumed by wealthy classes <i>a</i>	Purchasing power in terms of prices of 1913 <i>c</i>	Amount in dollars <i>d</i>	Index of construction costs <i>b</i>	Value of construction purchasable at prices of 1913 <i>c</i>
1909.....	\$568	.973	\$584	\$177	.927	\$191
1910.....	633	.988	640	171	.953	179
1911.....	664	.995	667	100	.945	105
1912.....	650	1.000	650	88	.983	90
1913.....	685	1.000	685	20	1.000	20
1914.....	702	1.010	695	-17	.960	-18
1915.....	680	.996	683	172	.992	173
1916.....	709	1.074	661	314	1.194	263
1917.....	704	1.198	587	281	1.473	191
1918.....	682	1.364	500	117	1.499	78

a See Table 2E, based upon families spending \$25,000, each annually.

b For derivation see Table 5L, note g.

c Amount in dollars divided by the price index.

d See Table 9E.