Volume Title: The Transportation Industries, 1889-1946: A Study of Output, Employment, and Productivity

Volume Author/Editor: Harold Barger

Volume Publisher: NBER

Volume ISBN: 0-87014-050-7

Volume URL: http://www.nber.org/books/barg51-1

Publication Date: 1951

Chapter Title: Appendix G: Oil Pipelines: Basic Series

Chapter Author: Harold Barger

Chapter URL: http://www.nber.org/chapters/c3201

Chapter pages in book: (p. 249 - 252)

Appendix G

Oil Pipelines: Basic Series

The traffic data in Table G-1 cover trunk line movements of crude and refined oils, but only on interstate pipelines; whereas the figures in Table 4, and the weight given to pipelines in more comprehensive indexes (e.g., for all transportation agencies combined), include an allowance for trunk-line movements on intrastate lines as well. (Activities of gathering lines are omitted for lack of data.) Trunk-line traffic on intrastate pipelines was estimated as follows for 1939.

Unlike the ICC figures in Table G-1, data for receipts at and shipments from refineries cover intrastate as well as interstate lines. For instance, refineries received 902 million barrels of crude from pipelines and 261 million barrels from tankers (*Minerals Yearbook, Review of 1940,* p. 967). Crude delivered from tankers may be assumed to have traveled by pipeline from well to tanker, so that we can take 1,163 million barrels (174.4 million tons) as total crude originated on all lines. (This total falls short of aggregate receipts at refineries only by tank car and truck deliveries, assumed not to have moved by pipeline; and tanker deliveries of foreign oil, not then important). In addition we have to include 95 million barrels (12.4 million tons) of refined products shipped by pipeline (*ibid.,* p. 994), making total barrels originated 1,258 million (187 million tons). But we know that 803 million barrels of crude and 70 million barrels of refined originated on ICC lines (American Petroleum Institute, *Petroleum Facts and Figures,* 1941, p. 123), making a total of 873 million barrels. The ICC share in originated tonnage may therefore be put at 69.4 percent, compared with 85.9 percent of all trunk mileage (*ibid.,* p. 124); the interstate lines are of course longer than the intrastate.

It usually is assumed, for instance in studies by the Federal Coordinator of Transportation (1932), that intrastate hauls of

petroleum are about one-third interstate hauls. The latter were 330 miles for crude and 348 miles for refined (*ibid.*, p. 126). Taking intrastate hauls as 110 miles for crude and 116 miles for refined, and converting barrels at 0.15 tons for crude and 0.13 tons for refined, we have 5.9 and 0.4 billion ton-miles respectively, or 6.3 billion ton-miles for total intrastate trunk-line movement. Together with 43.0 billion ton-miles for the interstate traffic (Table G-1) we reach 49.3 billion ton-miles for total trunk line movement, as shown in Table 4.[1]

Freight revenues reported by ICC lines in 1939, $164 million, were 0.381 cents per ton-mile. The same revenue per ton-mile was assumed for intrastate lines, yielding $188 million for all trunk lines.

[1] The American Petroleum Institute have placed total trunk-line movement at 50.4 billion ton-miles in 1939. Their estimate is slightly higher than our own, being based on the ratio of interstate to total trunk line mileage, without allowance for the shorter haul on intrastate lines (*Petroleum Facts and Figures, 1941*, p. 126). The Board of Investigation and Research (under the Transportation Act of 1940) estimated total pipeline ton-miles in 1939 at 46.1 billion, but "all movements between points under 5 miles [apart]" were excluded, as well as gathering operations (*The National Traffic Pattern*, 79th Cong., 1st Sess., Senate Document 83, 1945). The ICC have published a ton-mileage figure for 1939, confined to interstate but including gathering lines, of as much as 65.0 billion (ICC, Ex Parte No. 165, *Problems in the Regulation of Domestic Transportation by Water*, 1946, p. 428). This implies traffic of 22 billion ton-miles on ICC gathering lines, or 550 thousand ton-miles per mile of line annually, compared with 730 thousand ton-miles per mile of trunk-line. Since gathering lines average a much smaller cross section than trunk lines, the admittedly speculative ton-mileage in gathering operations would appear to have been overstated.

Table G-1

OIL PIPELINES: DERIVATION OF TON-MILES, AND DATA FOR EMPLOYMENT, 1920-1946[a]

Trunk-Line Movement, ICC Pipelines

	Oil Received into System[b] (mil. barrels)			*Oil Transported*[c] (bil. ton-miles)			*Employment*[d] (th.)
	Crude	Refined	Total	Crude	Refined	Total	
1920	534	....	....	7.0	....	7.0	....
1921	526	....	....	....	....	8	13.0
1922	651	....	....	....	....	11	17.4
1923	658	....	....	....	....	12	24.1
1924	758	....	....	....	....	15	22.5
1925	831	....	....	....	....	17	20.7
1926	836	....	....	....	....	19	27.3
1927	989	....	....	....	....	23	28.4
1928	1053	....	....	....	....	26	25.3
1929	1156	....	....	....	....	31	23.5
1930	1172	....	....	....	....	33	21.9
1931	1110	18	1128	....	....	33	19.9
1932	1096	25	1121	....	....	34	16.3
1933	1160	29	1189	....	....	38	18.9
1934	1178	35	1214	....	....	41	20.9
1935	1005	54	1059	....	....	37	21.5
1936	1039	62	1102	37.8	2.4	40.2	23.2
1937	1208	81	1288	42.1	2.9	45.0	24.2
1938	1084	89	1172	39.5	3.1	42.5	21.8
1939	1133	95	1228	39.8	3.2	43.0	20.7
1940	1326	95	1421	42.3	3.1	45.4	21.6
1941	1532	107	1639	48.6	3.5	52.1	22.4
1942	1665	115	1780	51.9	5.0	56.9	23.2
1943	1884	197	2080	59.0	7.9	66.9	23.4
1944	2158	240	2398	65.7	9.2	74.9	23.5
1945	2151	228	2379	64.5	8.5	73.0	23.8
1946	2054	218	2272	64.3	7.6	72.0	25.8

[a] Figures cover only pipelines reporting to the ICC.

[b] ICC, 'Statistics of Oil Pipeline Companies' (annual). See also ICC Statement 4280, 'A Review of Statistics of Oil Pipe Lines 1921-1941' (mimeo., Oct. 1942).

[c] 1936-46, 'Statistics of Oil Pipeline Companies'. For crude, 1 barrel = .15 tons; for refined, 1 barrel = .13 tons (see American Petroleum Institute, *Petroleum Facts and Figures,* annual). For 1920-35, based on preceding columns, on the assumption that the average haul increased from 200 miles in 1920 to 330 miles in 1936. The 1920 haul was estimated as a weighted mean of distances between principal producing and consuming centers at that time. This procedure assumes that the 1936 ratio of barrels originated to barrels received into system (0.73) also held for earlier years.

[d] 'Statistics of Oil Pipeline Companies'. In recent years, average of twelve monthly counts; in early years probably a single count for each year.