Transportation Revolution -- facts and figures --

TR=collapse of inland transportation costs (freight rates).

fun fact: in the US in 1790 it was cheaper to send 1 ton 3000 miles by sea than 30 miles overland. (D.C. North)

Freight Rates in the 19th C -- costs per ton-mile (taking 1 ton 1 mile)
Wagon: 15-35 cents; Upriver: 7-10 cents before steamboat, dropping to <1 cent with steamboats.
Canals: 5-7 cents; Railroad 7 cents (compared to canals, a little more money paid out, but costs less in terms of time and insurance rates).

Decreased transport costs has 3 effects:
1. less resources used for transportation, more resources available for output. With more output from the same output, TFP increases, and so does pcGDP.

2. increases amount of land and other natural resources available for use (increase Z, increase GDP).

3. increases trade and specialization. Given population, cheaper transport provides cheap food to the eastern cities and enables expansion of manufacturing. But cheap transportation and increase land base out west draws people away from the east. Overall effect is not clear.

Canals

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3 cycles of canal building
1816-34 2188 miles 59$mill (Erie and responses to it) Trunk Lines
1834-44 1172 miles 72$mill Feeder lines
1845-60 890 miles 59$mill

Govt Role: mixed enterprise -- private and state/local governments, financing with bonds (not taxes). Estimated that 3/4 of canal investment was financed by government

CANALS ***3 main types: Erie Other Eastern MidWest***

Erie Canal -- Lake Erie to Hudson River. (Buffalo to New York) Drops freight rate: from wagon's 20 cents per ton-mile to less than 1 cent via canal. Built 1817-1825, paid off quickly with tolls. Great success as a business enterprise, and for region it served. 363 miles, 7$million.
Other eastern cities -- wasteful mercantilist copies of the Erie. Boston, Philadelphia, Baltimore, Richmond, all in the chase and waste lots of money ... canals built but none amounts to much Most extreme and wacky example: Penn "Main Line" goes over the mountains ! (using transhipment) ... 359 miles, 12$ million.

Midwest canals -- Illinois Indianna Ohio, connect to the Misssippi.

Ransom says that 3/4 of the canal building was unsuccessful in the sense that they proved unprofitable as business enterprises. That is partly valid.

Ransom finds the Ohio Canal earning 15% annual return 1830's & 1840's; 3% 1850-55; 0% 1855 on.
ex ante: useful projects; *ex post:* a waste of resources since railroad is lower cost.

Steamboats

cents per ton mile for freight on the Mississippi:
1815 32 cents 1820 12 cents per ton mile 1860: ½ cent per ton-mile

source: Engerman, U of R class notes.

Mississippi and other "Western" Rivers

number of steam boats

year	1811	1820	1830	1840	1850	1860
number	1	69	151	494	638	817
tons ('000)	0.37	14.2	24.6	82.6	135	195

source: Cain&Hughes (pp. 147, and others).

Railroads

year	18291839	1849	1859	18791899		
mileage	0	2,302	7,365	28,789	90,000	206,000

By 1840 (pre RR) 40% of population already west of Appalachians
In 1890: 96% of US agricultural land was accessible water transport (waterways that existed or easily could have been constructed).

Telegraph 1843 Balt & Wash; by 1860 50 K miles, with all major cities connected.
Post Office 1791: 89 offices 1859: 27,977 offices.