

IV. ECONOMIC CHARACTERISTICS OF THE FREIGHT TRANSPORTATION INDUSTRY

The freight transportation industry is an important part of the U.S. economy. It employs millions of people and comprises 11.7 percent of the Nation's economic activity, as measured by gross domestic product.

Table 4-1. Transportation Fixed Assets: 2000, 2005, and 2010-2012
(billions of current dollars)

	2000	2005	2010	2011	2012	Percent change, 2000 to 2012
Private Sector						
Transportation Equipment ¹	828	980	1,001	1,037	1,108	33.8
Transportation Structures ²	450	557	656	680	690	53.5
Public Sector						
Highways	1,435	2,056	2,939	3,132	3,265	127.5
Transportation Structures ²	261	413	592	635	663	154.3
Federal	6	10	14	15	13	104.7
State and Local	254	403	578	621	650	155.5

¹ Includes trucks, truck trailers, buses, automobiles, aircraft, ships, boats, and railroad equipment.

² Includes physical structures for all modes of transportation.

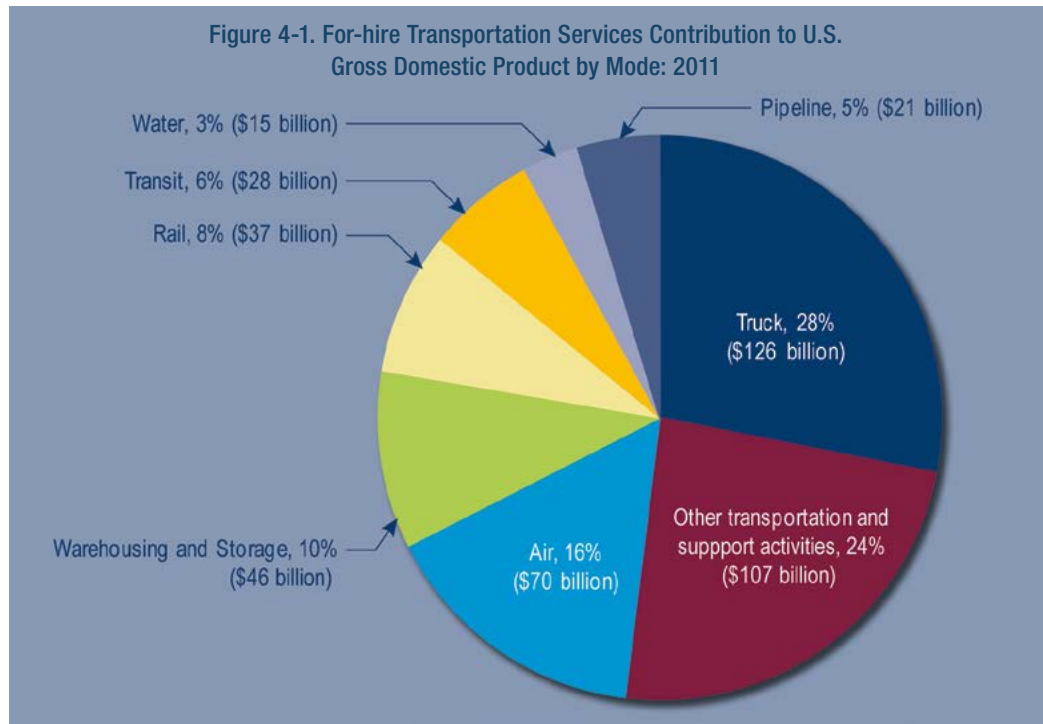
Fixed transportation assets reflect the important role of both public and private sectors in moving freight. The freight railroad facilities and services are almost entirely private, while private-sector trucks operate over public highways. Air-cargo services in the private sector operate in public airways and mostly public airports, and ships in the private sector serve public waterways and both public and private port facilities. Pipelines are mostly privately owned, although significantly controlled by public regulation. In the public sector, virtually all truck routes are owned and maintained by state or local governments. Airports and harbors are typically owned by public authorities, although terminals are usually owned or managed by private operators. Air and water navigation is mostly controlled by the Federal government, and safety is regulated by all levels of government.

Total private and public fixed assets grew from just over \$27.7 trillion in 2000 to \$48.7 trillion in 2012 (current U.S. dollars). Transportation equipment and structures (private and public) accounted for approximately 12 percent of the total in 2012. The components of transportation fixed assets and their 2012 values are private transportation equipment (\$1.11 trillion), private transportation structures (\$690 billion), and government transportation structures (\$3.93 trillion).¹

¹ See the U.S. Department of Commerce, Bureau of Economic Analysis, Fixed Assets tables 1.1, 2.1, 3.1s and 7.1b for total and transportation fixed assets data. Both passenger and freight data are included under transportation fixed assets.

Table 4-1. Transportation Fixed Assets: 2000, 2005, and 2010-2012

Source: U.S. Department of Commerce, Bureau of Economic Analysis, National Economic Accounts, Fixed Assets Tables, tables 2.1, 3.1s, and 7.1b, available at www.bea.gov/itable/index_FA.cfm as of October 17, 2013.



Transportation contributes to the nation's economic output, as measured by gross domestic product (GDP). In 2011, for-hire transportation contributed \$448 billion to U.S. GDP. The for-hire trucking mode contributed the largest share (28 percent), followed by air (16 percent). BTS analysis found that transportation services provided by nontransportation industries for their own use, referred to as in-house transportation sector, are almost as large as the for-hire sector.

Figure 4-1. For-Hire Transportation Services Contribution to Gross Domestic Product by Mode: 2011
Source: U.S. Department of Commerce, Bureau of Economic Analysis, Industry Economic Accounts, as cited in the U.S. Department of Transportation, Bureau of Transportation Statistics, National Transportation Statistics, table 3-1, available at www.rita.dot.gov/bts/sites/rita.dot.gov/bts/files/publications/national_transportation_statistics/index.html as of October 3, 2013.



Table 4-2. Economic Characteristics of Transportation and Warehousing Establishments in Freight-Dominated Modes: 2002 and 2007

NAICS	Establishments		Revenue (millions of current \$)		Payroll (millions of current \$)		Paid Employees	
	2002	2007	2002	2007	2002	2007	2002	2007
	Transportation and warehousing, Total	199,618	219,706	382,152	639,916	115,989	173,183	3,650,859
Rail transportation	NA	NA	NA	NA	NA	NA	NA	NA
Water transportation	1,890	1,721	23,331	34,447	3,194	4,544	66,153	75,997
Truck transportation	112,642	120,390	164,219	217,833	47,750	58,266	1,435,210	1,507,923
Pipeline transportation	2,188	2,529	22,031	25,718	2,477	3,219	36,790	36,964
Support activities for transportation	33,942	42,130	57,414	86,596	16,202	24,579	465,616	608,385
Couriers and messengers	12,655	13,004	58,165	77,877	17,175	20,431	561,514	557,195
Warehousing and storage	12,671	13,938	16,548	21,921	17,183	25,526	565,533	720,451

Key: NA = not available; NAICS = North American Industry Classification System.

Notes: Total includes air transportation, transit and ground passenger transportation, and scenic and sightseeing transportation. Data are for establishments in which transportation is the primary business. Data exclude transportation provided privately, such as trucking organized "in-house" by a grocery company. Data are not collected for rail transportation or for governmental organizations even when their primary activity would be classified in industries covered by the Economic Census. For example, data are not collected for publicly operated buses and subway systems.

The freight industry has many components, encompassing companies large and small. All told there were nearly 220,000 transportation and warehousing establishments in 2007, with more than one-half of those primarily engaged in trucking. Revenue generated by trucking accounted for about 34 percent of transportation and warehousing sector revenue while warehousing accounted for a small percentage of the total.

Table 4-3. Economic Characteristics of Freight Railroads: 2000 and 2011

	Class I		Non-Class I		Total	
	2000	2011	2000	2011	2000	2011
Number of railroads	8	7	552	560	560	567
Freight revenue (billions of current dollars)	33.1	65.0	3.2	4.0	36.3	68.9
Operating revenue (billions of current dollars)	34.1	67.4	NA	NA	NA	NA
Employees	168,360	158,623	23,448	17,317	191,808	175,940

Key: NA = not available.

Note: Class I railroads have annual carrier operating revenue of \$433.2 million or more. Numbers may not add to totals due to rounding.

Railroads include Class I (national), Class II (regional), and Class III (local) carriers. In all three classes of railroads, revenue grew while employment declined between 2000 and 2011.

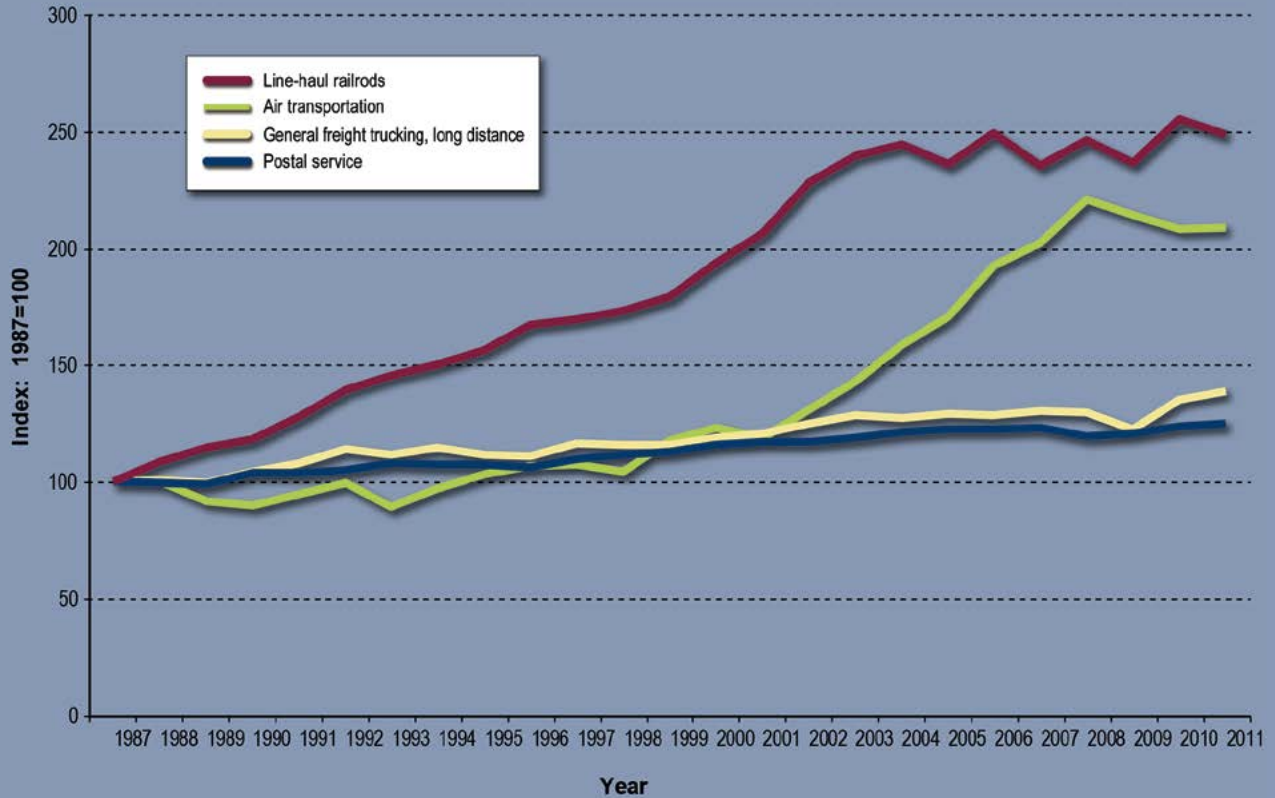
Table 4-2. Economic Characteristics of Transportation and Warehousing Establishments in Freight-Dominated Modes: 2002 and 2007

Sources: **2002:** U.S. Department of Commerce, Census Bureau, 2002 Economic Census, Transportation and Warehousing, United States (Washington, DC: 2004), available at www.census.gov/econ/census02/data/us/US000_48.HTM as of September 20, 2013; **2007:** U.S. Department of Commerce, Census Bureau, 2007 Economic Census, Transportation and Warehousing, United States (Washington, DC: 2010), available at www.census.gov/econ/census07 as of September 20, 2013.

Table 4-3. Economic Characteristics of Freight Railroads: 2000 and 2011

Source: Association of American Railroads, Railroad Facts (Washington, DC: annual issues), p. 3.

Figure 4-2. Productivity in Selected Transportation Industries: 1987-2011
(Output per Employee)



Notes: Output per employee is based on the number of paid hours. Real gross domestic product (GDP) in the business and nonfarm business sectors is the basis of the output components of the productivity measures. These output components are based on and are consistent with the National Income and Product Accounts, including the GDP measure, prepared by the Bureau of Economic Analysis of the U.S. Department of Commerce. In 2009, the Bureau of Labor Statistics (BLS) revised its data for air transportation output per hour worked to include both full-time and part-time workers. Prior to 2009, BLS assumed all air transportation workers were full-time employees.

Between 1987 and 2011, output-per-hour worked more than doubled in line-haul railroading. (Line-haul railroads do not include switching and terminal operations or short-distance/local railroads.) Long-distance, general-freight trucking grew by 39 percent over the same period. However, in recent years trucking has grown more rapidly. (Long-distance, general-freight trucking establishments exclude local trucking and truck operators that require specialized equipment, such as flatbeds, tankers, or refrigerated trailers.)



Table 4-4. Employment in For-Hire Transportation Establishments Primarily Serving Freight: 1990, 2000, and 2010-2012¹ (thousands)

	1990	2000	2010	2011	2012
Total U.S. labor force²	109,487	131,785	130,346	132,186	134,691
Transportation and warehousing	3,476	4,410	4,235	4,322	4,494
Rail transportation	272	232	223	232	230
Water transportation	57	56	63	63	63
Truck transportation	1,122	1,406	1,271	1,318	1,371
Air Transportation ³	541	628	454	456	451
Pipeline transportation	60	46	42	43	44
Support activities for transportation ⁴	364	537	548	574	589
Couriers and messengers	375	605	527	522	560
Warehousing and storage	407	514	643	650	696

¹ Annual averages.

² Excludes farm employment.

³ Data for air transportation includes passenger and freight transportation employment.

⁴ Industries in the support activities for transportation subsector provide services to transportation carrier establishments or to the general public. This subsector includes a wide array of establishments, including air traffic control services, marine cargo handling, and motor vehicle towing.

Notes: These data include workers employed in transportation industries but not necessarily in a transportation occupation, such as a lawyer working for a trucking company. Moreover, these data exclude workers in transportation occupations employed by non-transportation industries, such as a truck driver employed by a retail company.

Employment in the truck and water transportation industries has grown since 1990, while railroads, air transportation, and pipelines have experienced a decline in the number of employees. Between 1990 and 2012, pipelines showed the greatest decline, followed by air. Trucking in 2012 accounted for nearly 31 percent of total transportation and warehousing sector employment.



Table 4-4. Employment in For-Hire Transportation Establishments Primarily Serving Freight: 1990, 2000, and 2010-2012

Source: U.S. Department of Labor, Bureau of Labor Statistics, Current Employment Statistics survey, available at www.bls.gov/ces as of October 3, 2013.

Table 4-5. Employment in Selected Freight Transportation and Freight Transportation-Related Occupations: 2000 and 2010-2012

Occupation (SOC code)	2000	2010	2011	2012
Vehicle operators, pipeline operators, and primary support				
Driver/sales worker (53-3031)	373,660	371,670	387,950	394,110
Truck drivers, heavy and tractor-trailer (53-3032)	1,577,070	1,466,740	1,508,620	1,556,510
Truck drivers, light or delivery services (53-3033)	1,033,220	780,260	771,210	769,010
Locomotive engineers (53-4011)	29,390	40,750	38,790	37,060
Rail yard engineers, dinkey operators, and hostlers (53-4013)	4,020	5,600	5,060	5,170
Railroad brake, signal, and switch operators (53-4021)	16,830	22,760	23,830	24,380
Railroad conductors and yardmasters (53-4031)	40,380	42,700	44,280	42,740
Sailors and marine oilers (53-5011)	30,090	31,690	31,280	31,500
Captains, mates, and pilots of water vessels (53-5021)	21,080	29,280	30,220	30,860
Ship engineers (53-5031)	7,370	9,470	10,010	10,760
Bridge and lock tenders (53-6011)	4,790	3,250	3,420	3,460
Gas compressor and gas pumping station operators (53-7071)	6,510	4,040	3,870	4,350
Pump operators, except wellhead pumpers (53-7072)	13,730	9,440	12,150	11,870
Transportation equipment manufacturing and maintenance occupations				
Bus and truck mechanics and diesel engine specialists (49-3031)	258,800	222,770	222,940	230,030
Rail car repairers (49-3043)	10,620	19,280	19,480	19,140
Transportation Infrastructure construction and maintenance occupations				
Rail-track laying and maintenance equipment operators (47-4061)	9,940	15,520	15,590	16,870
Signal and track switch repairers (49-9097)	5,540	7,400	8,300	8,600
Dredge operators (53-7031)	3,100	1,720	1,590	1,740
Secondary support service occupations				
Dispatchers, except police, fire, and ambulance (43-5032)	167,180	180,540	182,310	184,890
Postal service mail carriers (43-5052)	354,980	324,990	315,330	305,490
Shipping, receiving, and traffic clerks (43-5071)	864,530	687,850	687,940	690,780
Transportation inspectors (53-6051)	26,520	24,280	24,810	24,310
Tank car, truck, and ship loaders (53-7121)	17,480	10,390	10,960	12,390

Key: SOC = Standard Occupational Classification.

Freight transportation jobs are not limited to for-hire carriers. Truck driving is by far the largest freight transportation occupation in the United States, and many drivers work for retailers and other establishments with shipper-owned trucks. There were approximately 2.72 million truck drivers in 2012; about 57 percent of these professionals drive heavy/tractor trailer trucks, 28 percent drive light/delivery service trucks, and about 15 percent are driver/sales workers.

Table 4-5. Employment in Selected Freight Transportation and Freight Transportation-Related Occupations: 2000 and 2010-2012

Source: U.S. Department of Labor, Bureau of Labor Statistics, National Occupational Employment and Wages, 2012, available at www.bls.gov/oes as of October 2, 2013.



Table 4-6. Producer Price Indices for Selected Transportation Services: 1990, 2000, 2003, and 2007-2011

	1990	2000	2003	2007	2008	2009	2010	2011
Air Transportation (NAICS 481) ¹	NA	147.7	162.1	183.7	203.8	188.5	202.9	218.3
Scheduled Air Transportation (NAICS 4811) ²	110.2	180.1	198.5	224.5	248.9	229.1	247.7	267.9
Scheduled Freight Air Transportation (NAICS 481112)	NA	NA	100.0	109.0	127.8	119.1	130.2	145.9
Nonscheduled Air Transportation (NAICS 4812) ³	NA	107.3	117.8	148.5	165.8	160.4	165.4	168.1
Rail Transportation (NAICS 482) ³	NA	102.6	108.8	140.9	157.3	148.5	156.2	169.8
Line-Haul Railroads (NAICS 482111) ⁴	107.5	114.5	121.4	157.2	175.5	165.6	174.3	189.4
Water Transportation (NAICS 483)	NA	NA	100.0	113.5	127.0	116.1	125.5	133.4
Deep Sea Freight Transportation (NAICS 483111) ⁵	113.1	155.8	219.9	230.0	258.3	218.8	244.8	253.8
Coastal and Great Lakes Freight Transportation (NAICS 483113)	NA	NA	100.0	130.2	141.8	137.4	146.7	158.5
Inland Water Freight Transportation (NAICS 483211)	100.0	117.9	124.7	186.1	218.3	211.4	217.4	235.9
Truck Transportation (NAICS 484)	NA	NA	100.0	115.4	123.0	117.3	119.4	126.4
General Freight Trucking (NAICS 4841)	NA	NA	100.0	116.5	123.6	117.5	119.3	126.8
General Freight Trucking, Local (NAICS 48411)	NA	NA	100.0	119.6	130.2	126.0	127.2	130.5
General Freight Trucking, Long Distance (NAICS 48412)	NA	NA	100.0	115.9	122.2	115.5	117.5	126.1
Specialized Freight Trucking (NAICS 4842)	NA	NA	100.0	113.1	122.1	117.4	119.9	125.7
Used Household and Office Goods Moving (NAICS 48421)	NA	NA	100.0	108.8	112.2	112.8	114.7	122.9
Specialized Freight (except Used Goods) Trucking, Local (NAICS 48422)	NA	NA	100.0	114.2	126.7	123.9	126.5	131.3
Specialized Freight (except Used Goods) Trucking, Long Distance (NAICS 48423)	NA	NA	100.0	114.8	123.6	113.2	115.8	121.4
Pipeline Transportation (NAICS 486)	NA	NA	NA	NA	NA	NA	NA	NA
Pipeline Transportation of Crude Oil (NAICS 4861)	NA	NA	100.0	125.4	137.1	141.0	183.4	184.7
Other Pipeline Transportation (NAICS 4869) ⁶	NA	NA	100.0	115.0	121.6	128.7	133.8	137.3
Support Activities for Transportation (NAICS 488)	NA	NA	100.0	108.5	111.7	108.6	110.7	114.0
Support Activities for Water Transportation (NAICS 4883) ⁷	NA	NA	100.0	112.7	117.3	116.8	120.2	123.9
Navigational Services to Shipping (NAICS 48833)	NA	NA	100.0	120.6	133.8	122.9	122.9	129.3
Freight Transportation Arrangement (NAICS 4885) ³	NA	98.3	97.9	100.2	102.5	94.8	95.2	98.7
Postal Service (NAICS 491)	100.0	135.2	155.0	171.9	178.9	185.0	187.7	190.6
Couriers and Messengers (NAICS 492)	NA	NA	100.0	131.5	142.0	141.5	153.4	168.8

Key: NA = not available; NAICS = North American Industry Classification System.

¹ Base year = 1992.

² Base year = 1989.

³ Base year = 1996.

⁴ Base year = 1984.

⁵ Base year = 1988.

⁶ Other pipeline transportation includes pipeline transportation of refined petroleum products (NAICS 48691).

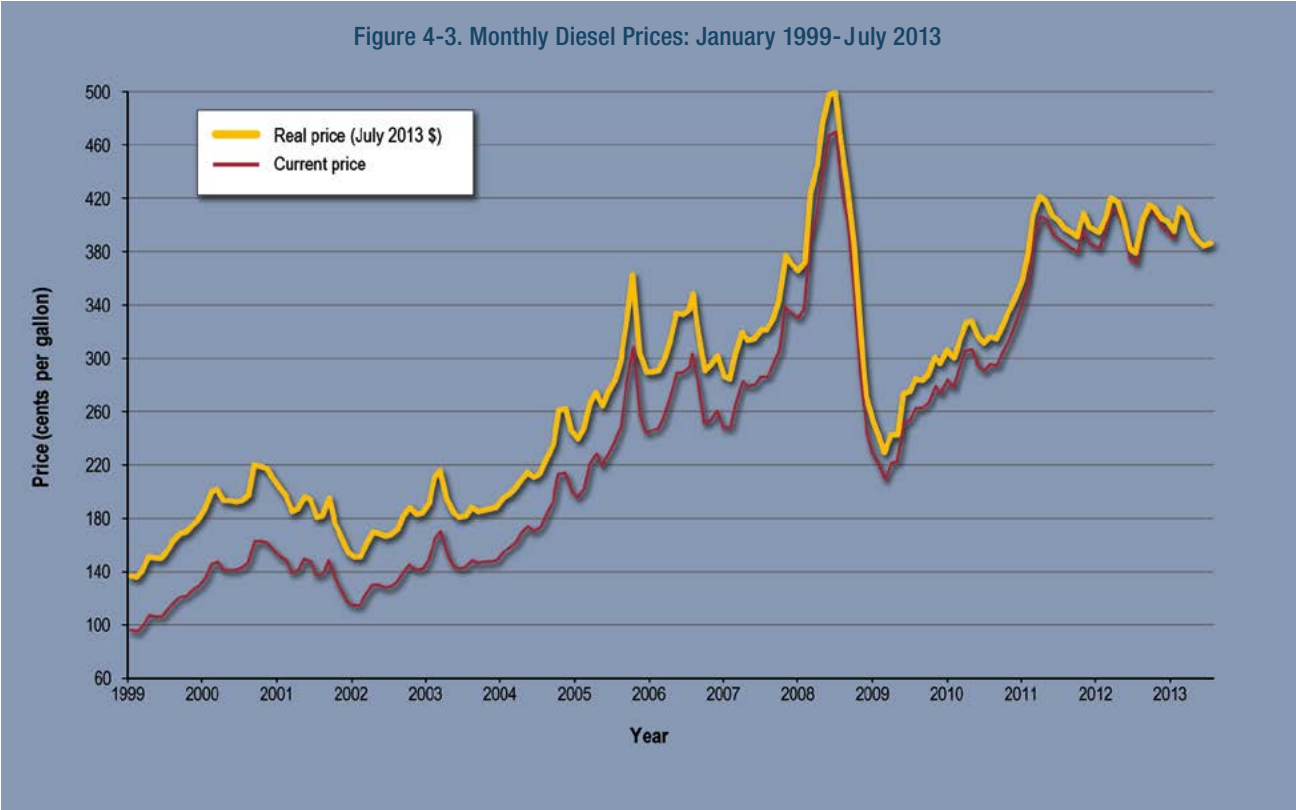
⁷ Support activities for water transportation include port and harbor operations (NAICS 48831), marine cargo handling (NAICS 48832), and navigational services to shipping (NAICS 48833).

Notes: Index values start at 100.0 in 2003 unless another year is specified. This table shows annual data, which are calculated by the Bureau of Labor Statistics by averaging monthly indices. Data are reported monthly from January to December. The monthly indices, however, are available for fewer than 12 months for some years. In both cases, a simple average of the available monthly indices is reported for each year. Data are not seasonally adjusted.

From 2010 to 2011, the prices charged for transportation purchased from carriers and support activities have gone up in all industries shown in table 4-6. Rail transportation prices increased by nearly 9 percent and air prices by more than 7 percent.

Table 4-6. Producer Price Indices for Selected Transportation Services: 1990, 2000, 2003, and 2007-2011

Source: U.S. Department of Labor, Bureau of Labor Statistics, Producer Price Index Industry Data, available at www.bls.gov/data/sa.htm as of October 2, 2013.



Diesel prices were about 112 percent higher in July 2013 than 10 years earlier (in inflation-adjusted terms). Diesel prices peaked in the summer of 2008 followed by a sharp decline during the economic recession.



Figure 4-3. Monthly Diesel Prices: January 1999 - July 2013
Sources: Diesel price: U.S. Department of Energy, Energy Information Agency, U.S. Petroleum Prices, available at www.eia.doe.gov as of September 2, 2013. Consumer price index: U.S. Department of Labor, Bureau of Labor Statistics, Consumer Price Index – All Urban Consumers, Monthly, available at www.bls.gov as of September 2, 2013.