

# 3 How Much Does Transportation Cost?

## Key Takeaways

- The *cost* of transportation stems from the resources it requires—labor, equipment, fuel, and infrastructure. Fuel prices, are the most widely discussed resource cost. Fuel prices peaked in 2012, then declined in 2013 through 2016 before rising once again in 2017 as the price of crude oil rose.
- The prices received for transportation services (e.g., by airlines for air freight and passenger services) are an indicator of the prices businesses pay when purchasing transportation services. They reached an all-time high in 2014 (except for the prices received for water transportation services, which rose to their highest level in 2015). Prices then declined before increasing in 2017.
- From 2004 to 2017, the price received by the rail transportation industry (an indicator of the prices faced by purchasers of rail transportation services) grew by more than the prices received by all other modes.
- On average, except for air, consumers faced higher transportation costs in 2017 than in 2016.
- Average airfares dropped to an all-time low of \$293 (chained 2009 dollars) in 2017.
- Local transit fares (adjusted for inflation) have remained relatively unchanged over the past two decades. Transit fares were the same in 2016 as in 1995, while commuter rail fares (adjusted for inflation) have grown since their 2002 low.

## Introduction

This chapter shows the costs to produce transportation services and the *prices* paid by users to use those services. *Producers* are the firms that carry out transportation operations to move people and goods. The producers may not necessarily be the *providers*. For example, freight forwarders provide transportation services by arranging the shipping of merchandise with a for-hire transportation firm that produces the transportation services (e.g., trucking services) requested by purchasers. *Purchasers* are users, who may be either households—known as consumers—or businesses.

The *cost* to produce transportation services stems from the resources it requires—labor, equipment, fuel, and infrastructure. Firms purchase these resources to produce transportation services. For example, airlines pay for pilots, commercial jets, and jet fuel to produce air transportation services. In addition, federal, state, and local governments purchase labor, equipment, and material to build, operate, and maintain transportation infrastructure, such as highways.

The cost of the resources used by producers of transportation services influences the prices they charge. The *price* reflects the cost of the resources plus mark-up and tax (box 3-1). The prices that transportation companies charge for transportation services become out-of-pocket costs to travelers and freight shippers and influence their transportation choices. Because transportation is an input to the production of almost all goods and services, transportation price changes influence the cost of other goods and services as well. Transportation prices themselves are affected by the prices of inputs, such as labor costs, fuel costs, and the costs of transportation parts.

### Box 3-1 Transportation Cost and Price Terminology

The following defines the cost and price terms used in this chapter.

*Cost* refers to the monetary value of the resources used to produce transportation services—labor, equipment, fuel, and infrastructure. The cost of the resources used by producers of transportation services influences the prices they charge.

*Price* is the sum of the cost of the resources used plus mark-up and tax.

Users are *purchasers*, who may be either households—known as consumers—or businesses.

*Producers* are the firms that carry out transportation operations to move people and goods. For example, trucking companies that haul merchandise to stores and air carriers that transport freight and passengers. The producers may not necessarily be the *providers*. For example, freight forwarders and freight brokers provide transportation services by arranging the shipping of merchandise with a for-hire transportation firm that produces the transportation services (e.g., trucking services) needed to move the merchandise.

This chapter discusses fuel and equipment costs faced by producers of transportation services, such as railroads, airlines, or trucking companies. This chapter also discusses the prices faced by two segments of the transportation market:

1. businesses that use transportation to produce and deliver goods, such as retail and grocery, and
2. households.

The prices paid for transportation do not fully account for air pollution, traffic congestion, or other negative effects of transportation. These unaccounted effects represent costs to society and are known as *negative externalities*. While negative externalities are an important part of economic analysis, this chapter covers only prices paid.

### Costs to Produce Transportation Services

The major inputs to produce transportation services include labor, equipment, fuel, and infrastructure. This section discusses fuel and

equipment prices. The prices are a cost to producers of transportation services, as they are resources that must be purchased to produce transportation services. Chapter 4 examines the number employed in transportation and transportation-related industries as well as their wages and compensation. Chapter 7 presents data on the value of and investment in transportation infrastructure.

Fuel prices are a cost to firms that carry out their own transportation operations and industries that sell transportation services. These industries embed the costs in the price they charge businesses and households—for the transportation services they provide for a fee (for-hire transportation) or for the goods they produce with the transportation services. Looking at for-hire transportation services, the cost of petroleum products is a large share of the total cost of inputs used to produce for-hire transportation services, ranging as high as 36.7 percent for aviation (figure 3-1).

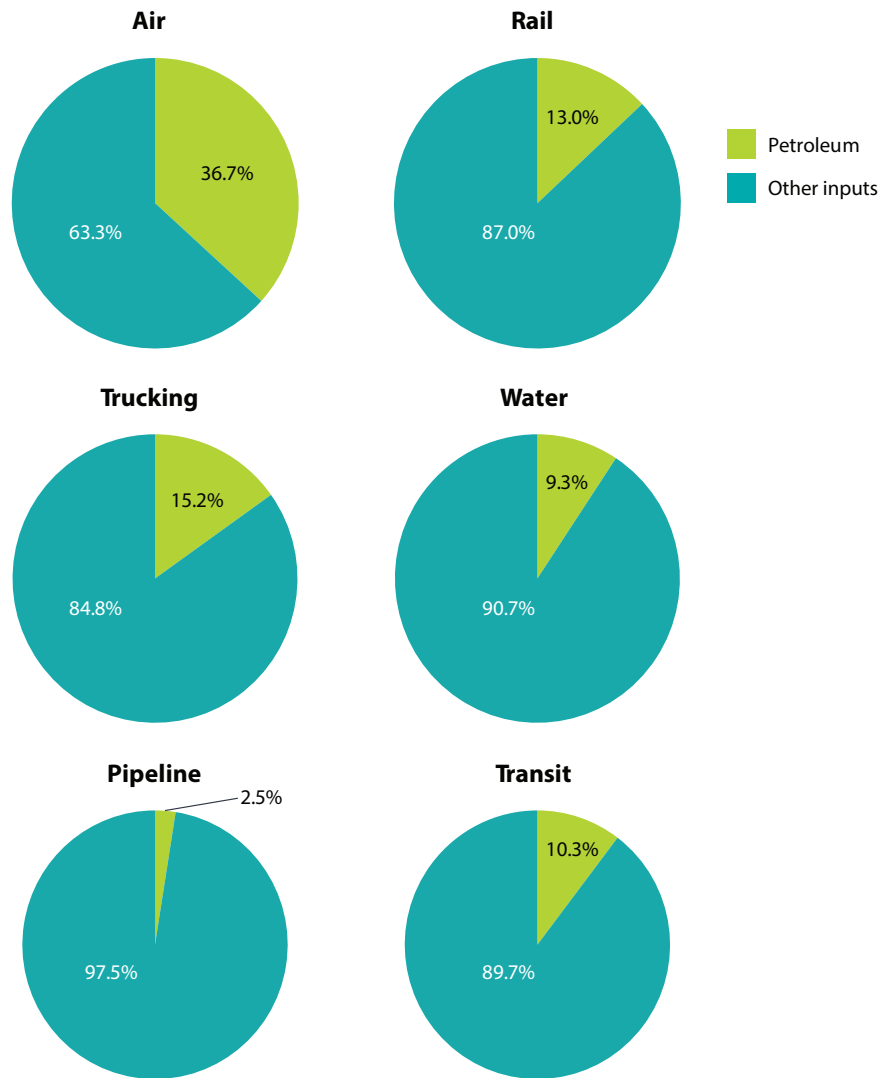
While this section looks at costs to produce transportation services, fuel prices also are a cost to households to operate motor vehicles for their own use. Gasoline and motor oil account for 22.0 percent of household spending on transportation, as discussed in chapter 6 (figure 6-6). Fuel cost is readily visible to households, as news reports focus on changes in fuel prices and gas stations must post prices by law, making fuel prices salient to consumers in ways other prices are not.

### Sales Price of Transportation Fuel

Prices for regular gasoline, No. 2 diesel (used by automobiles and trucks), jet fuel kerosene, and railroad diesel typically move together with slight variations (figure 3-2). This reflects the underlying price of crude oil from which they are all refined (figure 3-3).

Following a decade of relatively stable fuel prices in the 1990s, fuel prices began to increase (figure 3-2). Gasoline, No. 2 diesel fuel, and kerosene spiked

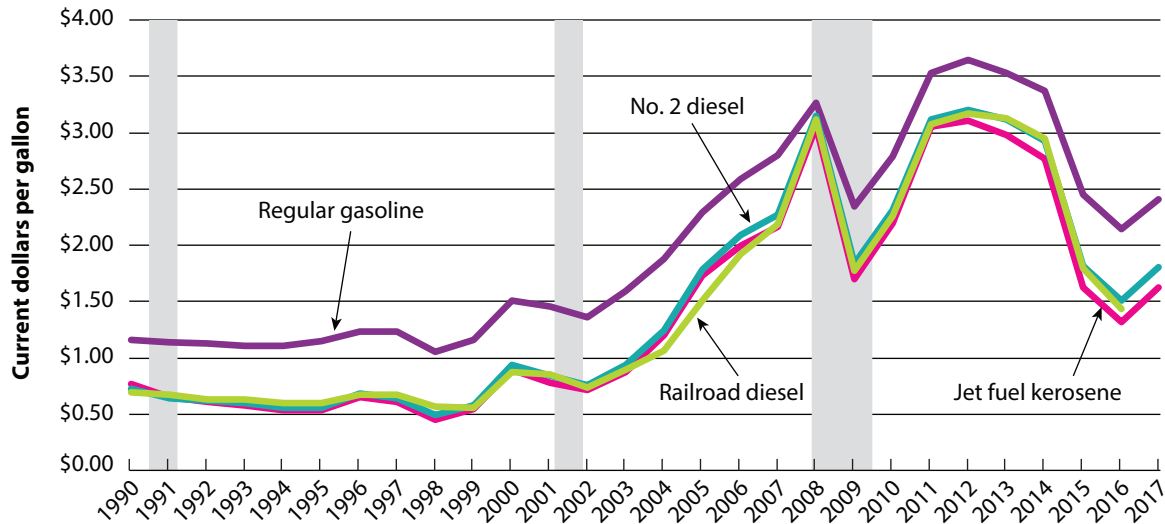
**Figure 3-1 Input Cost Shares for For-hire Transportation by Mode, 2016**



**NOTES:** Chapter 4 discusses labor costs in more detail. Percentages may not add to 100 due to rounding.

**SOURCES:** U.S. Department of Transportation, Bureau of Transportation Statistics, *2016 Transportation Satellite Accounts*, available at [www.bts.gov](http://www.bts.gov) as of June 2018.

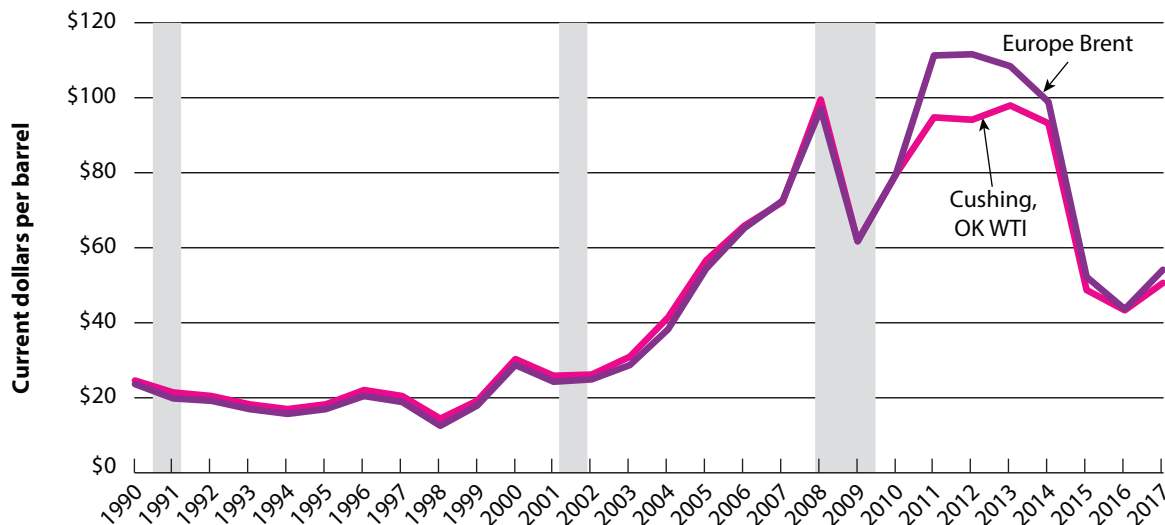
**Figure 3-2 Sales Price of Transportation Fuel to End-Users, Excluding Taxes, 1990–2017 (current dollars per gallon)**



**NOTES:** Gasoline costs are average retail prices. Highway diesel fuel and jet fuel prices are based on sales to end-users (sales made directly to the ultimate consumer, including bulk customers in agriculture, industry, and utility). Shaded bars indicate economic recessions.

**SOURCES:** All data except railroad fuel: U.S. Department of Energy, Energy Information Administration, Monthly Energy Review, tables 9.4 and 9.7, available at [www.eia.doe.gov/emeu/mer/prices.html](http://www.eia.doe.gov/emeu/mer/prices.html) as of June 18, 2018; Railroad fuel: Association of American Railroads, Railroad Facts (Washington, DC: Annual Issues), p. 62.

**Figure 3-3 Price of Crude Oil (current dollars per barrel)**



**NOTES:** Cushing, OK WTI—A crude stream produced in Texas and southern Oklahoma that serves as a reference or “marker” for pricing a number of other crude streams that are traded in the domestic spot market at Cushing, Oklahoma. Europe Brent—A blended crude stream produced in the North Sea region that serves as a reference or “marker” for pricing a number of other crude streams. Shaded bars indicate economic recessions.

**SOURCES:** U.S. Department of Energy, Energy Information Administration, Spot Prices for Crude Oil, available at [www.eia.gov/dnav/pet/pet\\_pri\\_spt\\_s1\\_a.htm](http://www.eia.gov/dnav/pet/pet_pri_spt_s1_a.htm) as of August 2018.

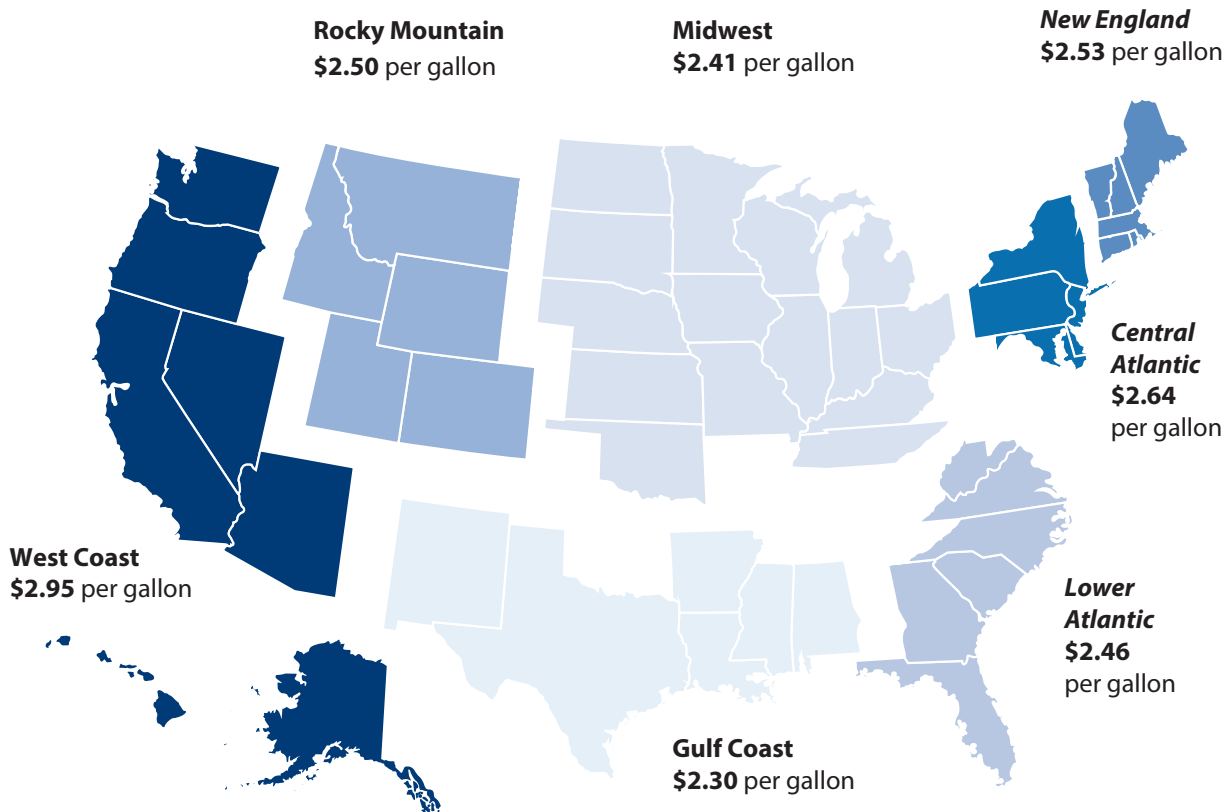
to over \$3.00 per gallon in 2008. While declining sharply during the 2007 to 2009 recession, fuel prices began to rise again, rising above the 2008 price just after 2011. Since peaking in 2012, prices declined in 2013 through 2016 before rising once again in 2017. In 2015 prices declined below the 2009 low for kerosene and diesel fuel. The prices for kerosene and diesel fuel remained below the 2009 low despite rising in 2017. In contrast, the price for regular gasoline declined below the 2009 low in 2016 before rising above it in 2017 due to an increase in crude oil prices. Railroad diesel fell to about its 2005 level in 2016.

**Average Motor Gasoline Prices by Region**

Gasoline prices vary substantially across the United States. Prices can vary because of state and local taxes, refinery locations, fuel supplies,

retail competition, and fuel regulations. Figure 3-4 illustrates average regional gasoline prices in 2017 using data from the Energy Information Administration (EIA). The averages include all grades and blends of regular gasoline. In 2017 the average gasoline price in the United States was \$2.53 per gallon. The West Coast had the highest gasoline prices in the country at \$2.95 per gallon—\$0.31 more than the Central Atlantic, which had the second-highest prices at \$2.64 per gallon. Among West Coast states, prices were highest in California, at \$3.08 per gallon, because California requires a unique blend of gasoline to meet environmental regulations. Meanwhile, the Gulf Coast states had the lowest gasoline prices at \$2.30 per gallon, or \$0.11 lower than the Midwest states, which had the second-lowest prices at \$2.41 per gallon.

**Figure 3-4 Average Retail Gasoline Prices by Region, 2017**



**NOTE:** Average prices include all grades and formulations of regular gasoline.

**SOURCE:** U.S. Department of Energy, Energy Information Administration, available at [www.eia.gov/dnav/pet/pet\\_pri\\_gnd\\_dcus\\_nus\\_a.htm](http://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_nus_a.htm) as of August 2018.

The average gasoline price in the United States increased 12.4 percent from 2016 to 2017 (figure 3-5). The Central Atlantic states experienced the greatest increase in gasoline prices, rising 14.1 percent from \$2.31 to \$2.64. Gasoline prices increased the least in the Lower Atlantic states—rising 11.3 percent from \$2.21 to \$2.46.

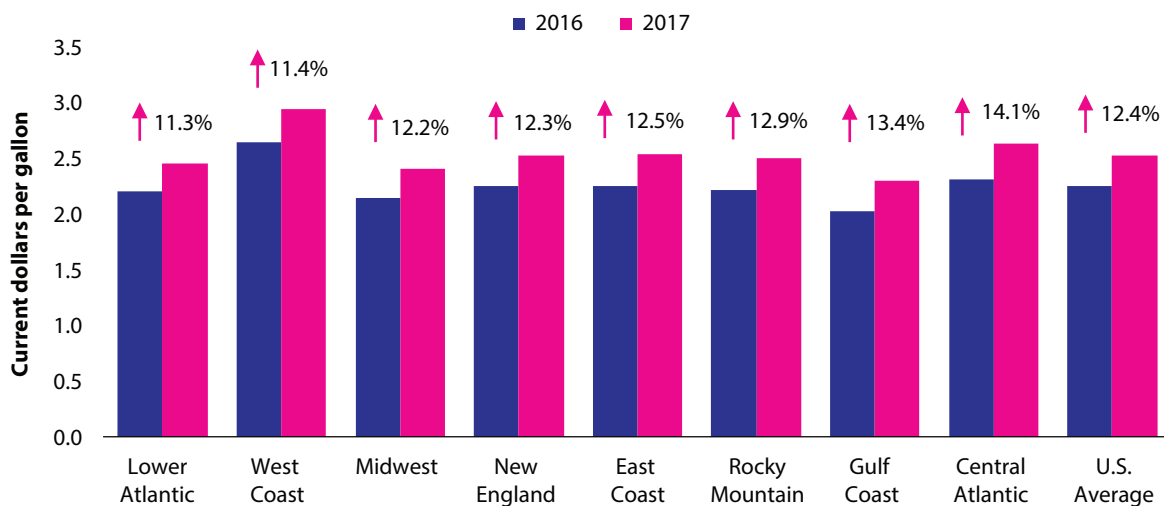
### Equipment Costs

Different modes of transportation purchase and use different equipment, for example, airlines use aircraft to move people and goods, while households primarily use motor vehicles to travel. This section looks at the cost of transportation equipment used to produce transportation services. Data are not available on the prices transportation providers pay for transportation equipment like railcars; however, data on the prices received by firms producing transportation equipment are available. The prices firms receive for producing transportation equipment differ from the prices purchasers pay, in that they do not include sales and other excise taxes that purchasers face when buying transportation

equipment. For example, the price purchasers pay for a new car at an auto-dealership includes State sales tax, which the State receives. This means that the automobile manufacturer receives less than what purchasers pay. The prices that firms receive for producing transportation equipment are an indicator of the prices faced by purchasers, for example, if the prices firms receive rise, the prices faced by purchasers likely increase—making transportation equipment a larger cost in producing transportation services.

The *Producer Price Index (PPI)* (box 3-2) shows the average change over time in the prices received by producers of transportation equipment, for example, prices received by aircraft manufacturers (figure 3-6). The PPI includes indexes for equipment used by transportation industries, such as aircraft, railroad cars, and heavy trucks, as well as motor vehicles used by businesses and households. The PPI shows the trends in transportation equipment manufacturing prices and reflect their potential effect on the cost of producing transportation services—the higher the equipment cost, the higher the cost of producing transportation

**Figure 3-5 Change in Average Retail Price of Gasoline, 2016–2017**



**NOTE:** Average prices include all grades and formulations of regular gasoline.

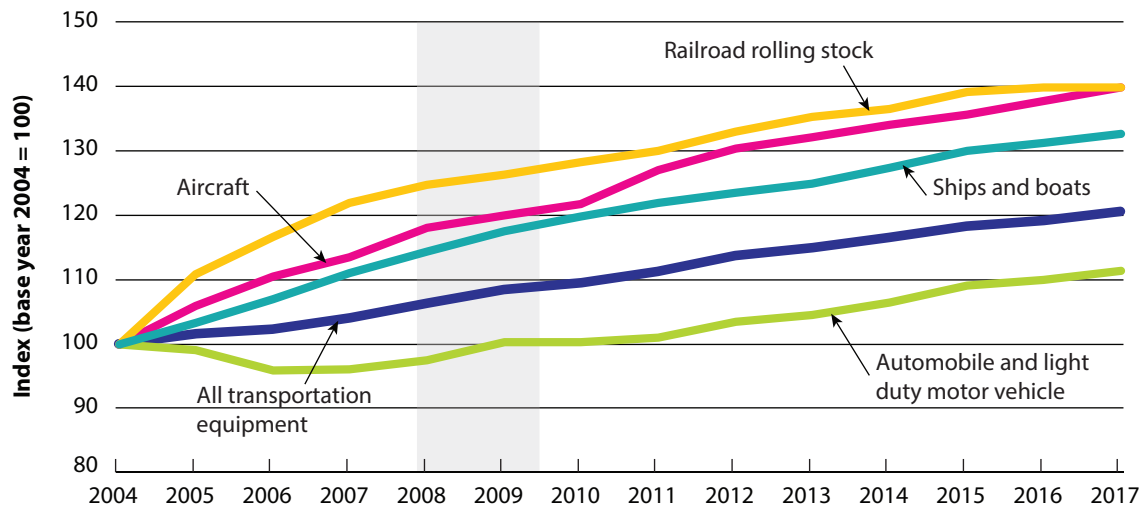
**SOURCE:** U.S. Department of Energy, Energy Information Administration, available at [www.eia.gov/dnav/pet/pet\\_pri\\_gnd\\_dcus\\_nus\\_a.htm](http://www.eia.gov/dnav/pet/pet_pri_gnd_dcus_nus_a.htm) as of August 2018.

### Box 3-2 Producer Price Indexes

The Producer Price Index (PPI) captures the weighted average of wholesale or producer prices that producers of transportation services (e.g., air carriers and trucking companies) receive. The PPI for a mode of transportation measures the average change in the prices received by producers. For example, the rail producer price index uses a survey of railroad prices charged to shippers. The PPI for trucking services measures the average change over time in the price received for trucking services. The PPI differs from the Consumer Price Index (box 3-3), which shows changes in prices from the viewpoint of households purchasing transportation services.

The PPI, published by the Bureau of Labor Statistics (BLS), is one of the most widely used measures of price changes for the transportation sector. BLS surveys a sample of individual business establishments. Because prices are from the point of view of the producer of transportation services, they exclude items like sales and excise taxes. BLS weights prices by the size of establishment's revenue to create indexes for narrowly defined services (e.g., local specialized freight trucking excluding used goods) and then combines them into aggregated indexes (e.g., all trucking) using value-of-shipments data from the economic censuses of the Bureau of the Census. BLS publishes data for both broad and more narrowly defined services and costs.

**Figure 3-6 Producer Price Indexes for Select Transportation Equipment Manufacturing, 2004–2017**



**NOTES:** Producer Price Index data come from the U.S. Bureau of Labor Statistics. Shaded bars indicate economic recessions.

**SOURCE:** U.S. Department of Labor, Bureau of Labor Statistics, Producer Price Index Industry Data, available at [www.bls.gov/ppi/](http://www.bls.gov/ppi/) as of June 2018.

services. The PPI for transportation equipment differs from the PPIs for transportation services discussed later in this chapter.

The prices for transportation equipment, as measured by the PPI, continuously increased between 2004 and 2017, except for automobiles and light-duty motor vehicles. In contrast, the prices for automobiles and light-duty vehicles declined between 2004 and 2008, leveled off from 2009 to 2010, and finally increased between

2011 and 2017. The prices for railroad, aircraft, and ships and boats showed a growth greater than that for all transportation equipment combined. This increase in equipment prices may have affected the profitability and purchase decisions of transportation sectors, the costs for transportation users, and prices along the economic supply chain in other sectors that use transportation services, such as wholesale, retail, and warehousing and storage industries.

## Prices Faced by Businesses Purchasing Transportation Services

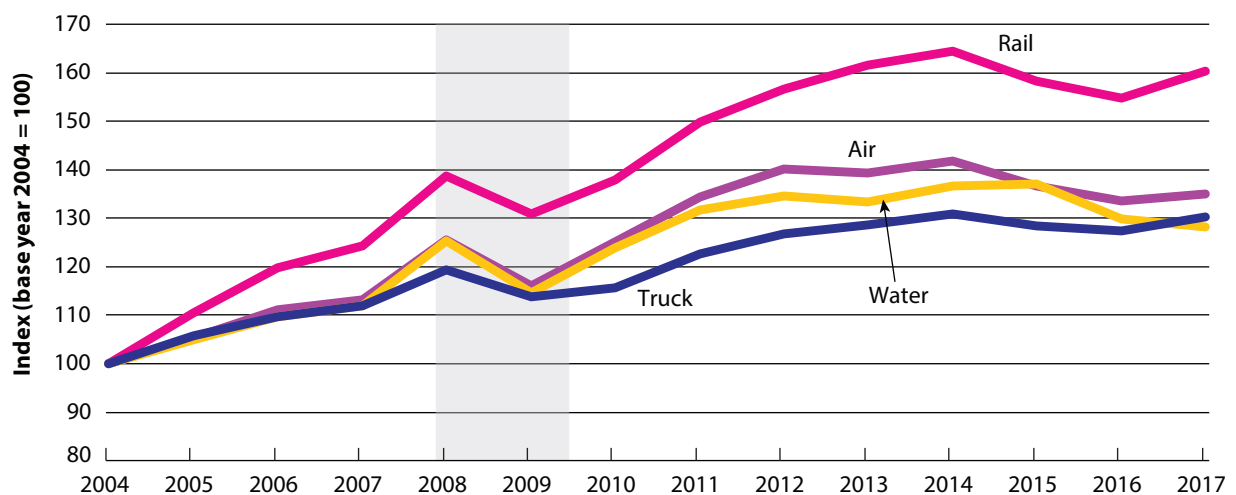
The PPI for producing transportation services measures the average change over time in the prices received by producers for selling their transportation services, for example, airfare. The PPIs are not the cost to purchase transportation services, because they do not include sales and excises taxes that businesses and households pay for the services. Nonetheless, the PPIs are an indicator of the prices faced by businesses purchasing transportation services. Some of the services, for example, airfare, may be purchased by households as well.

Figure 3-7 shows PPIs for transportation service producers by mode from 2004 to 2017. Despite periods of modest decline from 2007 to 2009 (during the recession) and from 2014 to 2016, the prices received by producers of air, rail, truck, water, and pipeline transportation services increased. This means that purchasers of transportation services saw an overall increase in prices for transportation services. From 2004 to 2017, the price received for producing rail transportation services grew by 60.4 percent,

more rapidly than any other transportation mode. The prices received for producing truck, water, and air transportation services (and hence faced by purchasers of the services) also increased. The price received for producing water transportation services grew at a slightly slower rate (28.1 percent) than truck (30.3 percent) and air (35.0 percent) transportation services, because the price received for producing water transportation services declined from 2014 to 2017. More research is needed to better understand the reasons PPIs change differently by mode.

The historic trends in the PPI show a peak across modes in 2008. The 2008 peak occurred at the end of a period of economic growth accompanied by increasing fuel prices. After a decline during the economic downturn in 2009, prices rose and surpassed the 2008 peak in 2011. Prices reached their all-time highest level in 2014 (except for prices received for producing water transportation services, which rose to their highest level in 2015) and have since declined modestly before increasing in 2017 (except for prices received for water transportation services, which declined in 2017).

**Figure 3-7 Producer Price Indices for Producers of Selected Transportation and Warehousing Services, 2004–2017**



**NOTES:** Transportation Warehousing Services are defined using the North American Industry Classification System (NAICS). Shaded bars indicate economic recessions.

**SOURCE:** U.S. Department of Labor, Bureau of Labor Statistics, Producer Price Index Industry Data, available at [www.bls.gov/ppi](http://www.bls.gov/ppi) as of May 2018.



Table 3-1 shows changes in the prices received by selected transportation producers. While transportation PPIs have often moved together, some subsectors show exceptions. For example, the prices received for producing transportation services (and hence faced by purchasers of transportation services) declined for all transportation modes during the recession, except for the pipeline transportation subsectors, postal service, and the household and office

moving subsector of the trucking industry, which increased modestly (6.0 percent or less) between 2008 and 2009.

### Prices Faced by Households

Households pay for travel in two ways. First, they pay to own and operate passenger vehicles for their own use. Second, they pay fares to use for-hire passenger transportation services (e.g.,

**Table 3-1 Detailed Producer Price Indexes by Transportation Modes, 2004–2016 (2004 = 100)**

Mode	2004	2017	2004-2017
Air transportation (NAICS 481) <sup>1</sup>	100.0	135.0	
Scheduled air transportation (NAICS 4811) <sup>2</sup>	100.0	135.4	
Scheduled freight air transportation (NAICS 481112)	100.0	150.1	
Nonscheduled air transportation (NAICS 4812) <sup>3</sup>	100.0	140.5	
Rail transportation (NAICS 482) <sup>3</sup>	100.0	160.3	
Line-haul railroads (NAICS 482111) <sup>4</sup>	100.0	160.3	
Water transportation (NAICS 483)	100.0	128.1	
Deep sea freight transportation (NAICS 483111) <sup>5</sup>	100.0	116.3	
Coastal and great lakes freight transportation (NAICS 483113)	100.0	147.6	
Inland water freight transportation (NAICS 483211) <sup>6</sup>	100.0	159.0	
Truck transportation (NAICS 484)	100.0	130.4	
General freight trucking (NAICS 4841)	100.0	132.7	
General freight trucking, local (NAICS 48411)	100.0	123.6	
General freight trucking, long distance (NAICS 48412)	100.0	134.7	
Specialized freight trucking (NAICS 4842)	100.0	125.2	
Used household and office goods moving (NAICS 48421)	100.0	124.1	
Specialized freight (except used goods) trucking, local (NAICS 48422)	100.0	129.8	
Specialized freight (except used goods) trucking, long distance (NAICS 48423)	100.0	120.8	
Pipeline transportation (NAICS 486)	NA	NA	
Pipeline transportation of crude oil (NAICS 4861)	100.0	224.1	
Other pipeline transportation (NAICS 4869)	100.0	170.8	
Support activities for transportation (NAICS 488)	100.0	120.0	
Support activities for water transportation (NAICS 4883)	100.0	137.6	
Postal service (NAICS 491) <sup>2</sup>	100.0	140.1	
Couriers and messengers (NAICS 492)	100.0	198.3	

**NOTES:** Blue dots on the sparkline charts indicate high values; red dots indicate low values. Transportation Mode defined by the North American Industry Classification System (NAICS). Indexes rebased, year 2004 = 100.

**SOURCE:** U.S. Department of Labor, Bureau of Labor Statistics, Producer Price Index, available at [www.bls.gov/ppi](http://www.bls.gov/ppi) as of June 2018.

air, transit bus, and rail services) for their intercity and intracity travel. This section presents data on prices from the Consumer Price Index (CPI) (box 3-3) as well as average fare data for three for-hire intercity passenger transportation modes: aviation, Amtrak (rail), and scheduled bus service other than that provided by transit agencies (e.g., Greyhound, Bolt Bus, and Megabus) (box 3-4).<sup>1</sup> This section also presents average-fare data for two for-hire intracity modes: local transit and commuter rail. While not presented in this chapter

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<sup>1</sup> Intercity rail service provided by Amtrak (commuter rail service) is included with other intracity modes in intracity passenger fares. Recent intercity bus fare data are currently not available.

due to a lack of available data on fares, other forms of for-hire intracity travel include ride-hailing services (taxis and rideshare services like Uber and Lyft), limousine services, and bikeshare. Chapter 6 provides detail on total household transportation expenditures and how it compares to other household expenditures.

### **Consumer Price Index for Urban Consumers (CPI)**

The CPI (box 3-3) measures transportation costs from the households' (also known as consumers') perspective. The CPI is a measure of the average change over time in the prices paid by urban consumers for a market basket of goods and

#### **Box 3-3 Consumer Price Index for All Urban Consumers (CPI)**

The Consumer Price Index for all Urban Consumers (CPI) measures the average change over time in the prices urban consumers paid for a market basket of consumer goods and services. The CPI covers the spending by 93 percent of the total U.S. population. It includes expenditures made by residents of urban or metropolitan areas. It does not include spending patterns of people living in rural nonmetropolitan areas, those in farm households, people in the Armed Forces, and those in institutions, such as prisons and mental hospitals.

The CPI for goods and services, such as ones related to transportation, show changes in prices paid by consumers for transportation related goods and services. Comparing the CPI for all goods and services to the CPI for transportation shows which transportation items are contributing to changes in the consumer cost of living. Comparing mode-specific CPIs shows which modes of transportation are becoming more expensive relative to other modes of transportation.

#### **Box 3-4 Average Fares**

Providers of for-hire passenger transportation services, such as airlines, railroads, and transit agencies, charge a variety of fares for different services. BTS defines the average fare for a mode as the sum of all fare revenue received by the service providers in that mode, divided by the number of one-way trips.

Data on revenue and trips for air come from the U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information. BTS divides revenue by trips. Passenger revenue does not include baggage fees, and BTS does not include free flights (e.g., frequent-flyer reward trips) in trip estimates.

Data on revenue and trips for rail come from Amtrak's *Annual Report*. The annual report gives ticket revenue per passenger-mile, which is multiplied by average trip length of passengers.

Data on commuter rail and transit come from the Federal Transit Administration's National Transit Database. For transit, BTS divided the revenue by unlinked trips. Trips on transit often involve transfers between two buses, or a bus and rail transit. Many transit systems only capture the number of boardings and cannot link the segments into a complete one-way trip, so BTS only uses unlinked trips (i.e., the number of times a passenger boards a transit vehicle). If data on complete one-way trips were available, they would show higher average fares for transit.

services.<sup>2</sup> The CPI also includes user fees (e.g., water and sewer service) and sales and excise taxes paid by the consumer. Economists often use the CPI as an indicator of general price trends. CPIs for goods and services, such as ones related to transportation, show changes in prices for those goods and services.

<sup>2</sup> The CPI covers the spending by 93 percent of the total U.S. population. It includes expenditures made by residents of urban or metropolitan areas. It does not include spending patterns of people living in rural nonmetropolitan areas, those in farm households, people in the Armed Forces, and those in institutions, such as prisons and mental hospitals.

Table 3-2 shows price changes in private and public transportation from 2016 to 2017.<sup>3</sup> On average, transportation cost more in 2017 than in 2016 (table 3-2). The CPI for private transportation increased (3.8 percent), while the CPI for public transportation declined modestly (0.9 percent) from 2016 to 2017 (table 3-2). Costs for private transportation rose by 3.8 percent, resulting primarily from a 12.9 percent increase in the cost

<sup>3</sup> In this discussion, “public transportation” includes fares for mass transit, buses, trains, airlines, taxis, school buses for which a fee is charged, and boats.

**Table 3-2 Consumer Price Indexes for All Urban Consumers, Transportation Related Goods and Services, 2016 and 2017**

Goods and Services	2016 average	2017 average	Change from 2016 to 2017
<b>Overall transportation</b>	<b>194.9</b>	<b>201.6</b>	<b>3.4%</b>
<b>Private transportation</b>	<b>189.5</b>	<b>196.6</b>	<b>3.8%</b>
New and used motor vehicles <sup>1</sup>	100.2	98.9	-1.3%
New vehicles	147.4	147.0	-0.2%
Used cars and trucks <sup>1 2</sup>	143.5	138.3	-3.6%
Motor fuel	188.4	212.7	12.9%
Gasoline (all types)	187.6	211.8	12.9%
Other motor fuels <sup>1</sup>	165.8	191.0	15.1%
Motor vehicle parts and equipment	143.6	143.0	-0.4%
Tires	125.4	124.0	-1.1%
Motor vehicle maint. and repair	275.4	280.8	2.0%
Motor vehicle insurance	489.1	526.9	7.7%
Motor vehicle fees <sup>1</sup>	182.6	185.0	1.3%
Parking fees and tolls <sup>1 2</sup>	198.3	200.2	1.0%
<b>Public transportation</b>	<b>265.4</b>	<b>263.1</b>	<b>-0.9%</b>
Airline Fare	282.6	275.8	-2.4%
Other intercity	158.3	159.6	0.9%
Intercity train fare <sup>2 3</sup>	112.4	116.1	3.3%
Ship fare <sup>1 2</sup>	66.3	66.0	-0.5%
Intracity transportation	308.9	314.3	1.7%
Intracity mass transit <sup>2 4</sup>	122.3	124.5	1.8%

**NOTES:** “New and used motor vehicles” includes all purchased consumer vehicles. “Private transportation” includes purchases made by households on new and used motor vehicles; motor fuel; motor vehicle parts and equipment; motor vehicle insurance; and motor vehicle fees. “Public transportation” includes fares for mass transit, buses, trains, airlines, taxis, school buses for which a fee is charged, and boats. Taxis are included in “intracity transportation.” The bases for indexes are as follows: (1) Indexes on a December 1997=100 base. (2) Special index based on a smaller sample. (3) Indexes on a December 2007=100 base. (4) Indexes on a December 2009=100 base. (All others) Average of 1982 to 1984=100.

**SOURCE:** U.S. Department of Labor, Bureau of Labor Statistics, All Urban Consumers (Current Series), Not Seasonally Adjusted, U.S. City Average, available at [www.bls.gov/cpi/data.htm](http://www.bls.gov/cpi/data.htm) as of June 2018.

of gasoline, a 15.1 percent increase in the cost of other motor fuels, and a 7.7 percent increase in the cost of motor vehicle insurance. These increases were partially offset by decreases in the cost of new and used motor vehicles (1.3 percent), motor vehicle parts and equipment (0.4 percent), and tires (1.1 percent).

Overall public transportation costs declined by 0.9 percent due to a 2.4 percent drop in air fares. Not all public transportation prices declined. Intercity train fare increased 3.3 percent, intracity transportation increased 1.7 percent, and intracity mass transit costs increased by 1.8 percent.

The CPI provides a picture of the relative change in the price households pay for transportation. Fare data, presented in the following sections, show the actual price paid.

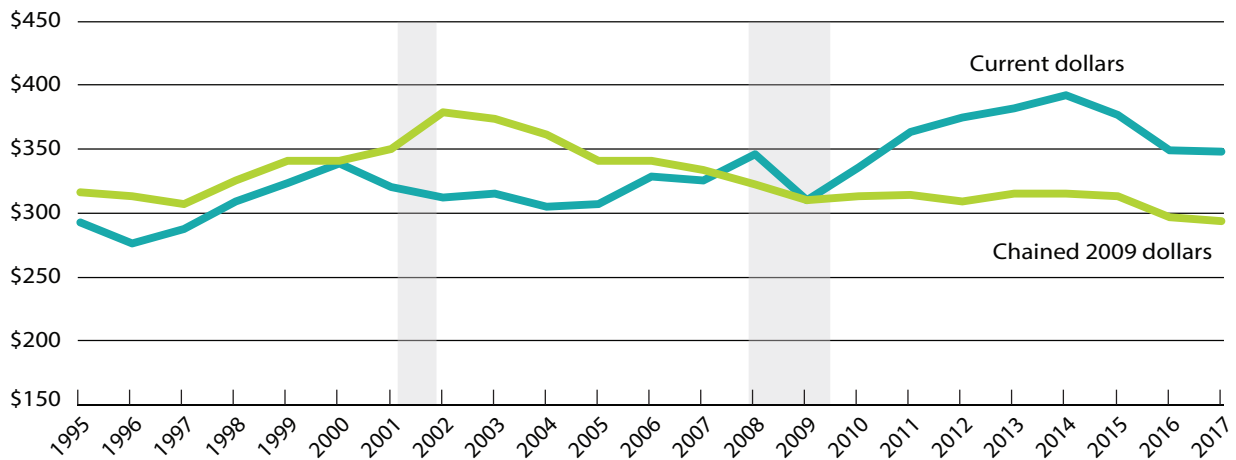
### Aviation Fares

Adjusted for inflation, passenger airfares increased 20.0 percent from 1995 to 2002, then

fell 22.6 percent from 2002 to 2017 (figure 3-8). Average airfares were \$316 in 1995 and increased to \$379 in 2002 before falling to \$310 in 2009. Average airfares then remained around \$310 from 2009 to 2015 before dropping to an all-time low for the period of \$293 in 2017. All changes are shown in real chained dollars, which account for inflation and substitutions within market baskets. Fares do not include baggage or reservation fees, which airlines began to charge in 2008.

Domestic air travel includes shorter trips of less than 700 miles and trips as long as 3,500 miles. Figure 3-9 shows air fares between 2009 and 2017 by distance traveled. Air fares by different distances show similar patterns over time. Changes in air fares between 2009 and 2017 ranged from a 7.8 percent increase for trips between 700 and 1,400 miles to a 28.3 percent increase for trips over 3,500 miles. Fares peaked in 2014 for all distance categories, then declined in 2015 due to lower fuel prices for carriers and competition from low-cost carriers. Average fares

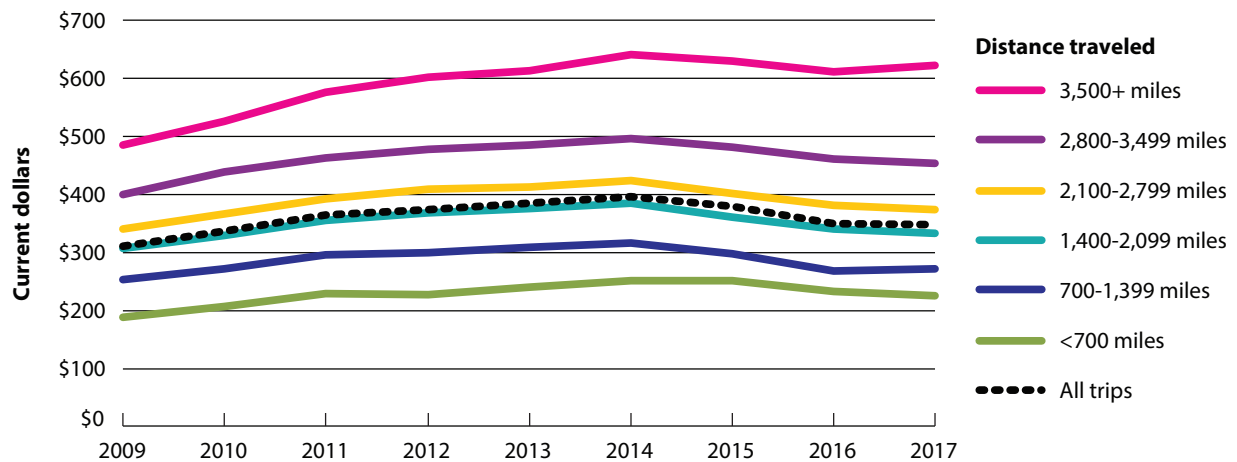
**Figure 3-8 Domestic Average Air Fares (scheduled service), 1995–2017**



**NOTES:** BTS reports average fares based on domestic itinerary fares. Domestic includes itineraries within or between the 50 U.S. States and the District of Columbia. Itinerary fares consist of round-trip fares, unless the customer does not purchase a return trip. In that case, BTS included the one-way fare. BTS based fares on the total ticket value, which consists of the price charged by the airlines plus any additional taxes and fees levied by an outside entity at the time of purchase. Fares include only the price paid at the time of the ticket purchase and do not include fees for optional services, such as baggage fees. Averages do not include frequent-flyer or “zero fares.” Shaded bars indicate economic recessions.

**SOURCES:** *Current dollars:* U.S. Department of Transportation, Bureau of Transportation Statistics, Annual U.S. Domestic Average Itinerary Fare, available at [www.bts.gov/content/annual-us-domestic-average-itinerary-fare-current-and-constant-dollars](http://www.bts.gov/content/annual-us-domestic-average-itinerary-fare-current-and-constant-dollars) as of June 2018. *Chained 2009 dollars:* calculated using chain-type quantity index from Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts tables, Price Indexes for Personal Consumption Expenditures by Type of Product, table 2.4.4U, line 203.

**Figure 3-9 Domestic Average Air Fares by Distance Traveled, 2009–2017**



**NOTES:** BTS reports average fares based on domestic itinerary fares. Domestic includes itineraries within or between the 50 U.S. States and the District of Columbia. BTS determines domestic average air fares by taking the revenue and dividing by the number of passengers. Airfare includes base fare plus taxes paid by the passenger at the time of ticket purchase. The data represent a 10 percent sampling of tickets obtained upon the passenger’s first traveled segment. The fare does not include any additional items, such as baggage fees, airline lounge access, or seat upgrades.

**SOURCES:** U.S. Department of Transportation, Bureau of Transportation Statistics, Airline Origin & Destination Survey (10 percent sample), DB1B\_Ticket where bulk fare equals zero, itinerary fare is greater than or equal to \$50 and itinerary yield is less than or equal to \$3 except Hawaii. For Hawaii, DB1B\_Ticket where bulk fare equals zero, itinerary fare is greater than or equal to \$25 and itinerary yield is less than or equal to \$3.

for trips between 700 and 1,400 miles as well as trips over 3,500 miles increased slightly in 2017, while the average fare for all other trips continued to decline from the 2014 peak.

recession but rose above the 2007 peak in 2013. Fares continued to climb, reaching an all-time high of \$67 in 2015 before declining to \$65 in 2016.

### ***Intercity Railroad Fares***

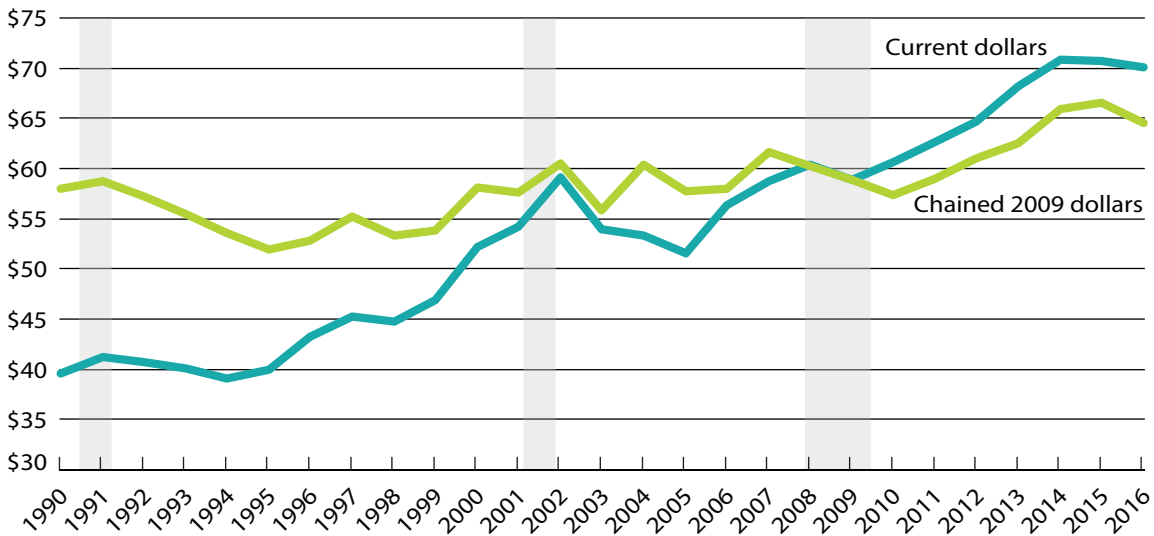
Amtrak intercity railroad fares represent a complex interaction of demand, operating costs, government subsidies, and regulation. Amtrak fares (in chained 2009 dollars) fluctuated within a narrow band from 1990 to 2016 (figure 3-10). The fares represent ticket revenue per passenger-mile multiplied by average trip length of passengers except for years prior to 1997, where BTS calculated fares from total transportation revenues.

Amtrak fares fell from about \$59 per passenger in 1991 to \$52 in 1995 and fluctuated between \$52 and \$61 from 1995 through 2003. Passenger fares began to rise again in 2004, hitting a peak of about \$62 in 2007. Fares declined during the

### ***Commuter Railroad Fares***

Commuter rail includes railway passenger service that operates between a central city and adjacent suburbs. Intercity rail service, such as Amtrak, is excluded, except for the part of service operated by or under contract with a public transit agency for predominantly commuter services. “Predominantly commuter service” means that, for any given trip segment between two stations, more than 50 percent of the average daily ridership makes a return trip on the same day. Commuter rail does not include heavy rail rapid transit or light rail/streetcar transit service. Figure 3-11 shows that commuter rail fares grew steadily from 2002 to 2016, rising to \$5.70 (in chained 2009 dollars) in 2016.

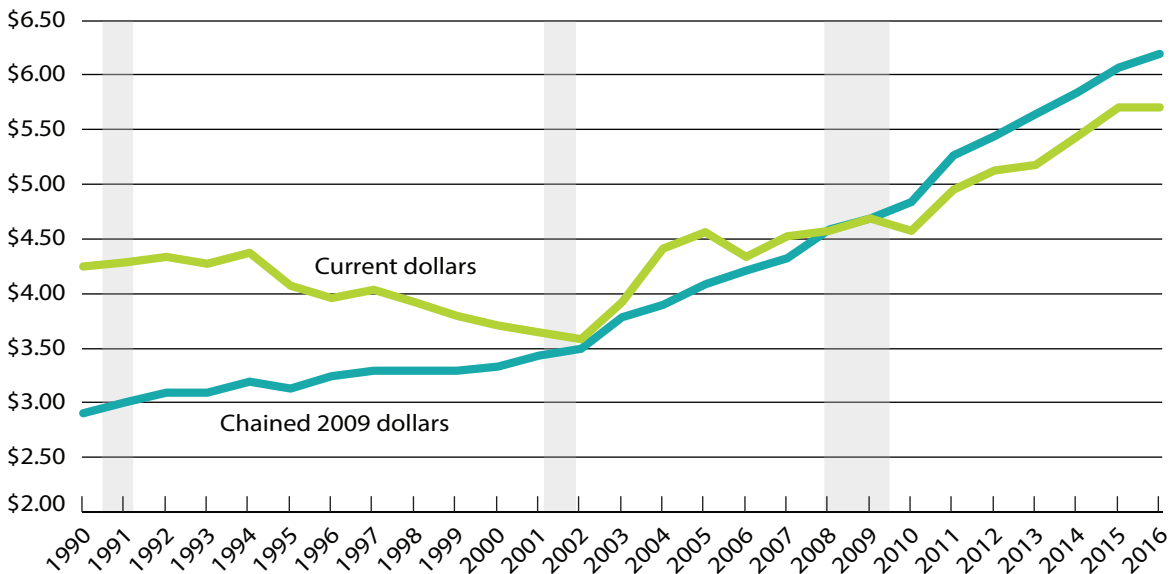
**Figure 3-10 Average Amtrak Rail Fares per Average Trip Length, 1990–2016**



**NOTES:** Fares for years after 1997 are from National Passenger Rail Corporation (Amtrak), *Amtrak Annual Report*, and calculated as ticket revenue per passenger-mile multiplied by average trip length of passengers. Fares for years before 1997 are from National Passenger Rail Corporation (Amtrak), *Amtrak Annual Report*, Statistical Appendix, and calculated as total transportation revenues divided by Amtrak system passenger trips. Shaded bars indicate economic recessions.

**SOURCES:** *Intercity Rail/Amtrak*: U.S. Department of Transportation, Bureau of Transportation Statistics, National Transportation Statistics, Average Passenger Fares (current dollars) (table 3-18) and Average Passenger Fares (chained 2009 dollars) (table 3-19), available at [www.bts.gov](http://www.bts.gov) as of June 2018.

**Figure 3-11 Commuter Rail Fares, 1990–2016**



**NOTE:** Shaded bars indicate economic recessions.

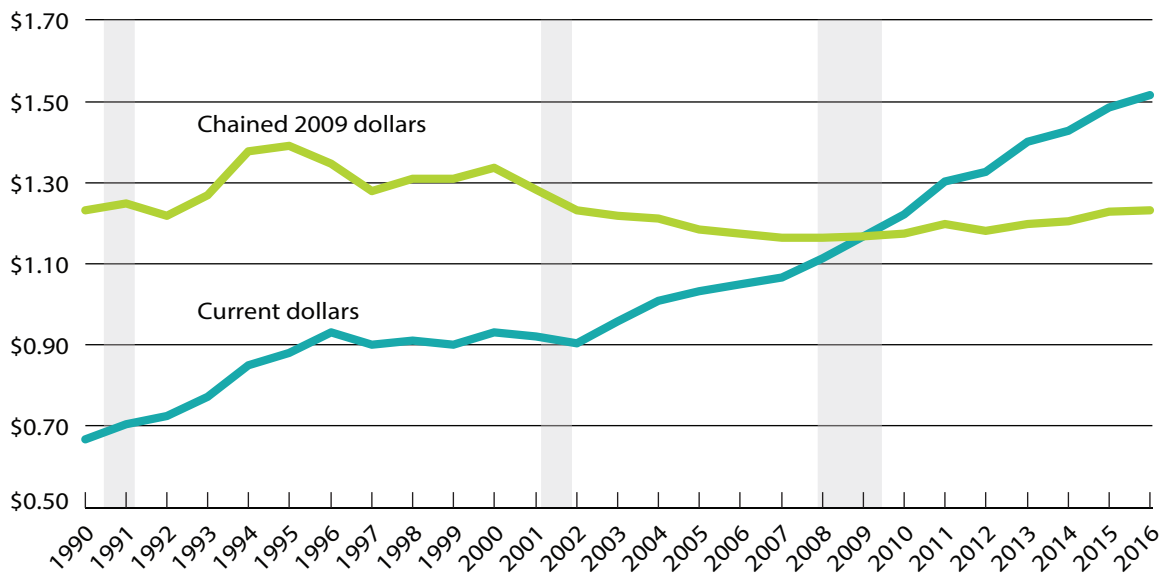
**SOURCES:** U.S. Department of Transportation, Bureau of Transportation Statistics, National Transportation Statistics, Average Passenger Fares (current dollars) (table 3-18) and Average Passenger Fares (chained 2009 dollars) (table 3-19), available at [www.bts.gov](http://www.bts.gov) as of June 2018.

### Transit Fares

Over the past two decades, average fares for all local transit modes have fluctuated between \$1.16 and \$1.40 per unlinked trip (in chained 2009 dollars), and were the same in 2016 as in 1990 (figure 3-12). Transit modes include heavy rail (subway or metro), light rail, bus, and trolley car. For the years 1995 to 2001, BTS calculates average transit fare per trip as total passenger fares by

total passenger trips collected by the American Public Transportation Association. For the years since 2001, data come from the National Transit Database, which presents average transit fares per unlinked trip. This means that if a passenger takes a bus with a fare of \$1 and transfers to a subway with a fare of \$2, the journey would count as two unlinked trips with an average fare of \$1.50. Many transit agencies cannot account for transfers in counting trips.

**Figure 3-12 Fares for all Transit Modes per Unlinked Trip, 1990–2016**



**NOTES:** An average of data for 2005 and 2007 substituted for 2006 data, because the 2006 data are a suspected outlier. Shaded bars indicate economic recessions.

**SOURCES:** U.S. Department of Transportation, Bureau of Transportation Statistics, National Transportation Statistics, Average Passenger Fares (current dollars) (table 3-18) and Average Passenger Fares (chained 2009 dollars) (table 3-19), available at [www.bts.gov](http://www.bts.gov) as of June 2018.