

6 HOUSEHOLD SPENDING ON TRANSPORTATION

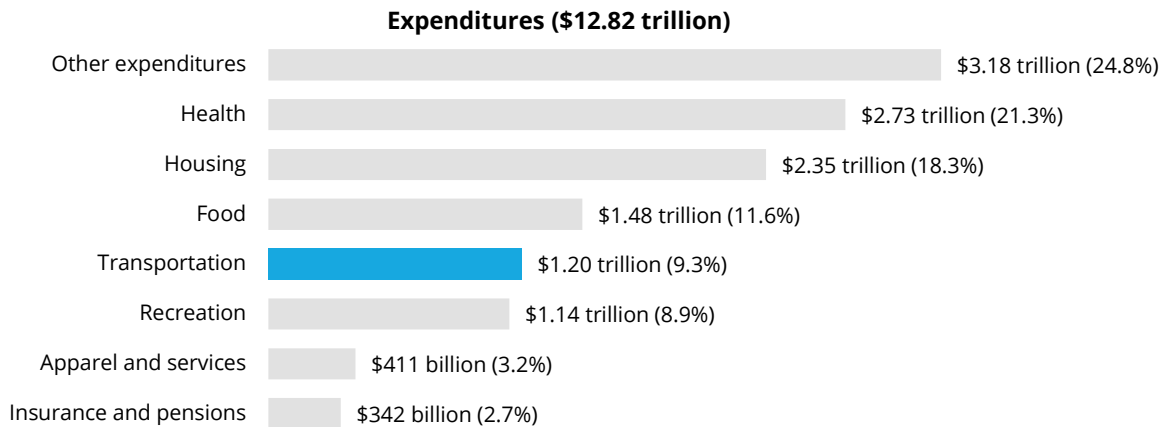
Household spending on transportation is a large expense for American households. It influences many of their personal decisions, including where they live and work. This chapter explores three national measures of household spending on transportation:

1. *Personal Consumption Expenditures*, which measure total national household spending on transportation;
2. The *Consumer Expenditure Survey*, which measures individual household spending on transportation; and
3. American Automobile Association (AAA) per-mile operating costs for new vehicles.

Personal Consumption Expenditures

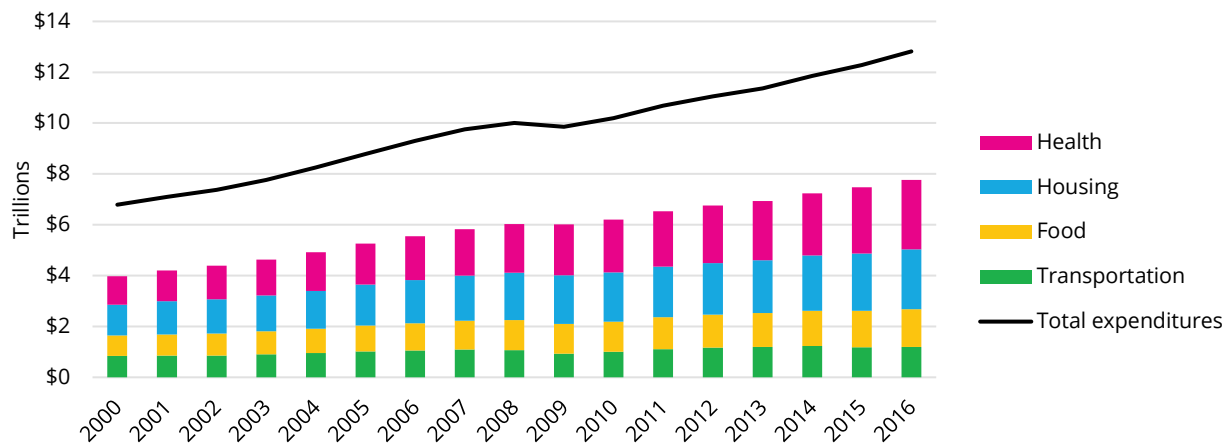
Personal Consumption Expenditures (PCE) is the broadest measure of consumer spending in the American economy. It measures total national household spending on transportation-related goods and services, such as vehicles, fuel, and for-hire transportation. It also measures total national transportation spending by governments, employers, and other organizations on behalf of households—for example, employee transit subsidies. The Bureau of Economic Analysis (BEA) produces PCE using data from a range of sources, including trade organizations, the Census Bureau, the Bureau of Labor Statistics, and the Centers for Medicare & Medicaid Services. PCE measures national aggregate spending only; it does not measure differences in spending among individual households.

Transportation expenditures accounted for \$1.20 trillion (9.3 percent) of PCE in 2016, making transportation the fourth largest category (excluding “other expenditures”) after healthcare, housing, and food (figure 6-1). Transportation expenditures increased 42.7 percent, from \$838 billion in 2000 to \$1.20 trillion in 2016 (figure 6-2). The growth in total expenditures outpaced the growth in transportation expenditures, increasing 88.8 percent from \$6.79 trillion to \$12.82 trillion over the same period. Expenditure growth for healthcare (145.6 percent), housing (93.5 percent), and food (83.5 percent) also outpaced expenditure growth for transportation. As a result, the percentage of total expenditures for transportation declined from 12.3 percent in 2000 to 9.3 percent in 2016.

Figure 6-1: Total National Household Expenditures (Major Categories), 2016

Notes: “Other expenditures” include alcoholic beverages purchased for off-premises consumption; furnishings, household equipment, and routine household maintenance; education; accommodations; financial services (excluding pension funds); other goods and services; net foreign travel and expenditures abroad by U.S. residents; and final consumption expenditures of nonprofit institutions serving households.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts Tables, table 2.5.5, 2.4.5U, available at www.bea.gov/iTable/index_nipa.cfm.

Figure 6-2: Total National Household Expenditures (Four Largest Categories), 2000 to 2016

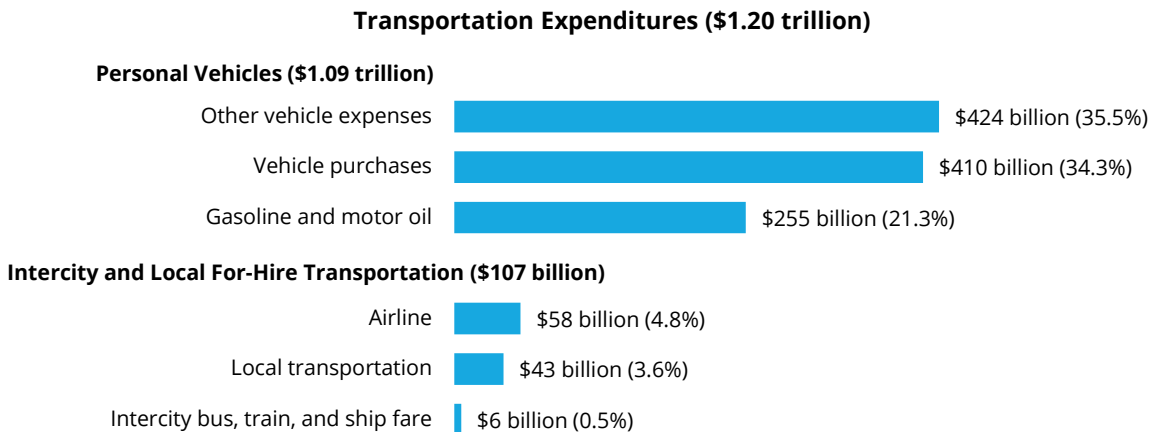
Source: U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts Tables, table 2.5.5, 2.4.5U, available at www.bea.gov/iTable/index_nipa.cfm.

Expenditures on Personal Vehicles

Personal vehicles account for the majority of transportation expenditures in the PCE—\$1.09 trillion in 2016, or 91.1 percent of total transportation expenditures (figure 6-3). This amount includes costs for purchasing, operating, and maintaining personal vehicles.

New and used vehicle purchases account for \$410 billion in expenditures, or one-third of total transportation expenditures (34.3 percent). Gasoline and motor oil purchases account for \$255 billion (21.3 percent) in transportation expenditures. World oil markets and national and regional refinery prices directly affect the cost of gasoline and motor oil. Vehicle gas mileage and congestion, which limits achievable mileage, also affect the cost. Finally, other vehicle expenses, such as repair costs and insurance, account for \$424 billion (35.5 percent) of transportation expenditures. Vehicle age, vehicle reliability, pavement conditions, prices of parts, and local market conditions affect the amount spent on repair.

Figure 6-3: Total National Household Transportation Expenditures, 2016



Note: “Other vehicle expenses” include vehicle insurance, vehicle parts, and maintenance and repair costs.

Source: U.S. Department of Commerce, Bureau of Economic Analysis, National Income and Product Accounts Tables, table 2.5.5, 2.4.5U, available at www.bea.gov/iTable/index_nipa.cfm.

Expenditures on Intercity and Local For-Hire Transportation

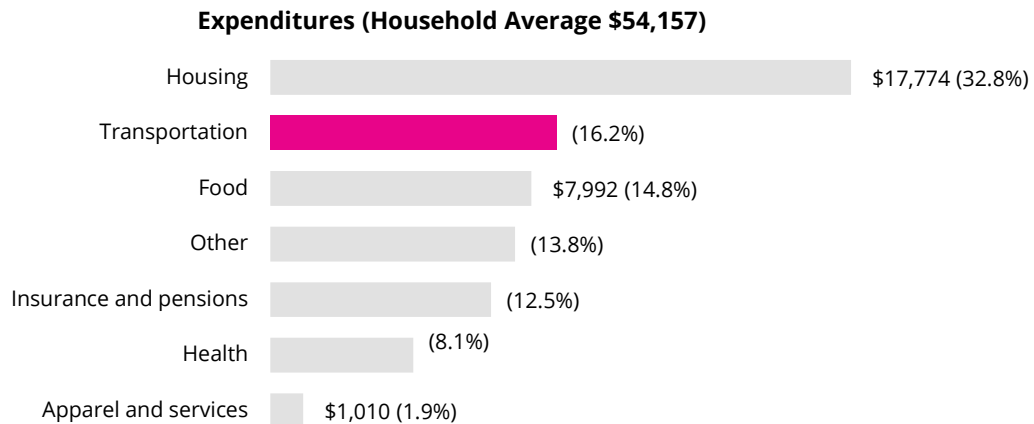
Air passenger travel spending accounted for \$58 billion (4.8 percent) of transportation expenditures; intercity bus, train, and ship fares accounted for \$6 billion (0.5 percent). Local for-hire transportation services account for \$43 billion (3.6 percent) of transportation expenditures. Further disaggregating local for-hire transportation shows that mass transit represents 49.2 percent of expenditures on local for-hire transportation (\$21 billion), taxis represent 14.3 percent (\$6 billion), and other services, such as sightseeing buses, account for the remaining 36.5 percent (\$16 billion).

Household Transportation Expenditures

The *Consumer Expenditure Survey* (CE), administered by the Bureau of Labor Statistics (BLS), measures individual household spending in the United States. A nationally representative sample of households provides detailed information on expenditures, income, and household characteristics. The CE is the only Federal survey that has information on the complete range of expenditures for individual households, including transportation.

The CE shows that households in the United States spent an average of \$8,755 on transportation in 2016, making transportation the second largest household expenditure category (representing 16.2 percent of total expenditures) after housing (figure 6-4). Transportation accounts for a greater percentage of the CE than the PCE because the CE includes only direct household expenditures, while the PCE includes expenditures on behalf of households (box 6-1).

Figure 6-4: Average Individual Household Expenditures (major categories), 2016



Note: Amounts are calculated by BTS using public-use microdata, and may differ slightly from amounts calculated using original data.

Source: U.S. Department of Labor, Bureau of Labor Statistics, Consumer Expenditure Survey 2016 Microdata, available at www.bls.gov/cex.

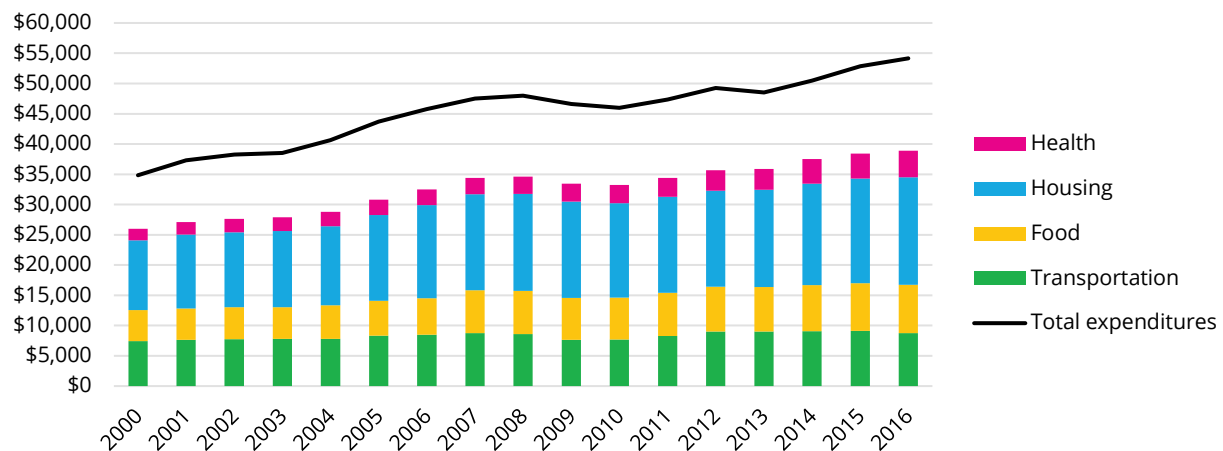
Box 6-1: Personal Consumption Expenditures and the Consumer Expenditure Survey

Personal Consumption Expenditures includes expenditures made on behalf of households, such as healthcare premiums paid by businesses and housing assistance from non-profits and the government. As a result, healthcare and housing expenditures are larger and account for a larger share of total expenditures than in the Consumer Expenditure Survey, which only examines direct household expenditures. Transportation as a percentage of personal consumption expenditures is the most useful measure for discussions about household needs because it includes all expenditures that society makes to meet household needs. At the same time, transportation as a percentage of household expenditures is the most useful measure for discussions about household budgets.

Source: U.S. Department of Transportation, Bureau of Transportation Statistics, 2017.

Average annual household transportation expenditures have increased more slowly than other major expenditures (figure 6-5). From 2000 to 2016, transportation expenditures increased by 18.0 percent, from \$7,417 to \$8,755, while total expenditures increased by 55.5 percent, from \$34,839 to \$54,157. As a result, the share of transportation expenditures declined from 21.3 percent in 2000 to 16.2 percent in 2016. In contrast, housing expenditures increased by 54.6 percent (from \$11,494 to \$17,774), food expenditures increased by 54.8 percent (from \$5,164 to \$7,992), and health expenditures increased by 125.6 percent (from \$1,938 to \$4,373) in the same period.

Figure 6-5: Average Individual Household Expenditures (four largest categories), 2000 to 2016



Note: Amounts are calculated by BTS using public-use microdata, and may differ slightly from amounts calculated using original data.

Source: U.S. Department of Labor, Bureau of Labor Statistics, Consumer Expenditure Survey 2016 Microdata, available at www.bls.gov/cex.

Household transportation expenditures vary by household characteristics. For example, rural households spent more on transportation (\$10,299) than urban households (\$8,768) in 2016, in part because rural households have higher rates of vehicle ownership and lower levels of access to public transit.¹ Drivers in rural areas also drove 47.9 percent more miles per capita in 2009 than drivers in urban areas—34.2 miles versus 23.1 miles per day, respectively. Finally, households without vehicles spend lower amounts on transportation.

Average annual expenditures are a useful measure of household spending on transportation; at the same time, however, spending for an individual household can vary greatly from year to year. For example, households have much higher expenditures in years that they purchase vehicles. Year-to-year changes in gasoline prices and vehicle insurance premiums can also affect expenditures for an individual household. The CE does not capture these changes for households, because it is a cross-sectional survey and samples a different group of households each year.

Expenditures on Personal Vehicles

The average household devotes most of its transportation budget (\$8,132 of \$8,755, or 92.9 percent) to purchasing, operating, and maintaining private vehicles (figure 6-6). Vehicle purchases account for 40.8 percent (\$3,569) of transportation expenditures, gasoline and motor oil account for 21.8 percent (\$1,909), and other vehicle expenses, such as repairs and insurance, account for 30.3 percent (\$2,654).

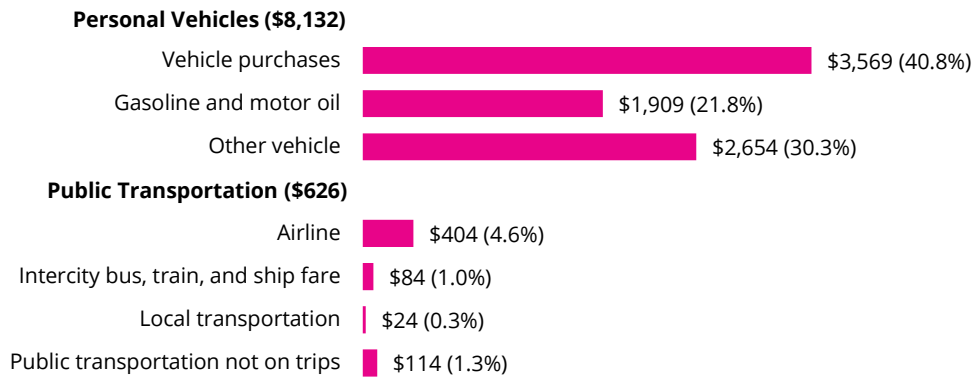
¹ For more information on travel behavior and demographics, please see U.S. Department of Transportation Federal Highway Administration, *Summary of Travel Trends: 2009 National Household Travel Survey*, available at nhts.ornl.gov/2009/pub/stt.pdf.

Expenditures on Intercity and Local For-Hire Transportation

Public transportation accounts for the remaining 7.1 percent (\$626) of household transportation expenditures. Looking at public transportation expenditures on trips, intercity travel represents 78.0 percent (\$488) of expenditures—64.5 percent (\$404) for airline fares and 13.4 percent (\$84) for bus, train, and ship fares—and local transportation accounts for 3.8 percent (\$24). Public transportation not on trips accounts for the remaining 18.2 percent (\$114) of public transportation expenditures.

Figure 6-6: Average Individual Household Transportation Expenditures, 2016

Transportation Expenditures (Household Average \$8,755)



Notes: Amounts are calculated by BTS using public-use microdata, and may differ slightly from amounts calculated using original data. Transportation expenditures include vehicle insurance.

Source: U.S. Department of Labor, Bureau of Labor Statistics, Consumer Expenditure Survey 2016 Microdata, available at www.bls.gov/cex.

Transportation Expenditures and Income

Households spend similar percentages on transportation across all income categories (table 6-1), with the percentage ranging from 14.4 to 17.8 percent in 2016. While the percentages remain relatively similar, households in the top income quintile spent over four times as much as households in the bottom income quintile in 2016—\$16,114 versus \$3,767.

Higher income households spend more on transportation because they are more likely to own vehicles: in 2016, 97.0 percent of households on the top income quintile had at least one vehicle, compared with 64.0 percent in the bottom income quintile. Moreover, higher income households have greater numbers of vehicles. Households in the top income quintile owned an average of 2.7 vehicles per household in 2016, while households in the bottom income quintile owned 0.9 vehicles per household.

Table 6-1: Average Individual Household Expenditures by Income Quintile, 2016

Income range by quintile	Household spending	Vehicles per household	Households with at least one vehicle	Transportation spending	Percentage of total spending
All quintiles	\$57,311	1.9	87.0%	\$9,049	15.8%
First quintile (\$0-\$19,868)	\$25,138	0.9	64.0%	\$3,767	15.0%
Second quintile (\$19,869-\$38,163)	\$36,770	1.5	86.0%	\$5,992	16.3%
Third quintile (\$38,164-\$64,418)	\$47,664	1.9	93.0%	\$8,464	17.8%
Fourth quintile (\$64,419-\$103,040)	\$64,910	2.4	97.0%	\$10,931	16.8%
Fifth quintile (\$103,041+)	\$112,221	2.7	97.0%	\$16,114	14.4%

Source: U.S. Department of Labor, Bureau of Labor Statistics, Consumer Expenditure Survey, available at www.bls.gov/cex.

Per-Mile Vehicle Operating Costs

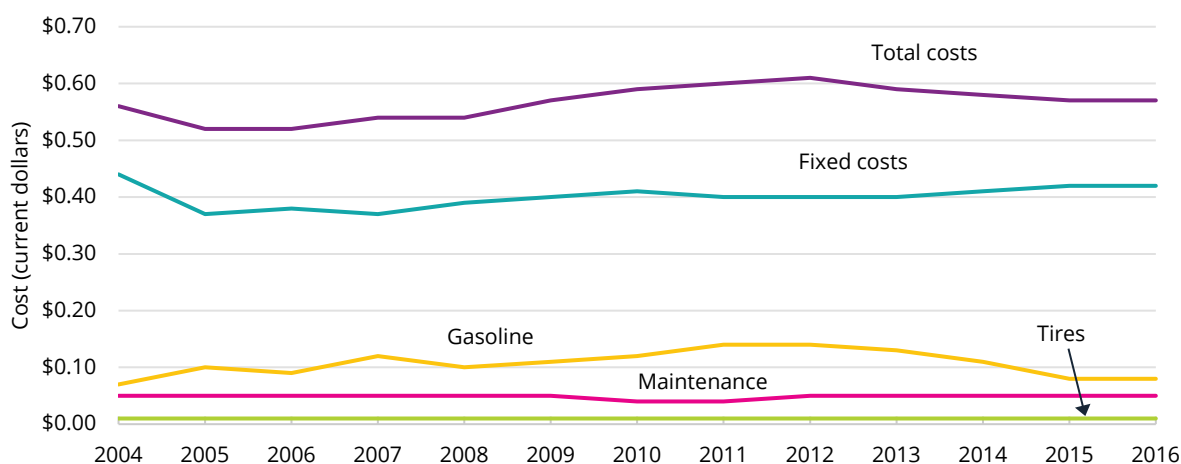
The American Automobile Association (AAA) collects data on automobile operating costs annually and publishes per-mile cost estimates for new vehicles driven 15,000 miles a year for 5 years (box 6-2). Figure 6-7 shows the costs to own and operate a new vehicle on a per-mile basis from 2004 to 2016. On average, it costs \$0.56 per mile to own and operate a new vehicle in 2016. The largest expense is fixed ownership costs, which represent 73.7 percent of the total cost (\$0.42 per mile). Fixed ownership costs include depreciation, vehicle insurance, license and registration fees, and finance charges. Operating costs account for the remaining 26.3 percent of the total cost (\$0.14 per mile). Gasoline, a highly salient cost to consumers because they see prices posted at every gas station, is the largest operating cost, representing 14.0 percent (\$0.08 per mile) of the total cost. Maintenance and tires account for the remaining 10.5 percent (\$0.06 per mile) of the total cost.

Box 6-2: Per-Mile Vehicle Operating Expenses

The American Automobile Association (AAA) publishes per-mile vehicle operating cost estimates in *Your Driving Costs*. To calculate the costs, AAA estimates annual costs for small, medium, and large sedans using data from five top-selling current-year vehicles for each group. AAA's estimates assume that drivers drive 15,000 miles a year and trade in vehicles after 5 years. Fixed costs include depreciation, insurance, licensing, registration, taxes, and finance charges.

Source: U.S. Department of Transportation, Bureau of Transportation Statistics, 2017.

Figure 6-7: Per-Mile Costs of Owning and Operating an Automobile, 2004 to 2016 (current dollars)



Note: Fixed costs include depreciation, insurance, licensing, registration, taxes, and finance charges.

Source: American Automobile Association, *Your Driving Costs*, as cited in U.S. Department of Transportation, Bureau of Transportation Statistics, *National Transportation Statistics*, Table 3-17, available at www.bts.gov.