Housing Costs of Renters: 2000

Census 2000 Brief

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Census 2000 counted 35.7 million renter-occupied housing units, or about one-third of the nation's 105.5 million occupied housing units. Renter-occupied units consisted of those rented for cash payments plus those occupied by someone other than the owner without payment of cash rent; the latter usually were rent-free houses or apartments provided by friends or relatives, or for compensation for services to resident managers, ministers, and tenant farmers. Almost all rental units (95 percent) were rented for cash rent.

This report, part of a series that presents population and housing data collected from Census 2000, examines gross rent and gross rent as a percentage of household income in 1999 for specified renter-occupied housing units. It shows how these measures vary geographically (by regions, states, and large cities), by age of the householder, by race and Hispanic origin of

Figure 1.
Reproduction of the Question on Housing Utilities and Fuels From Census 2000

45 What are the annual costs of utilities and fuels for this house, apartment, or mobile home? *If you have lived here less than 1 year, estimate the annual cost.*

a. Electricity

Annual cost — *Dollars*

$, .00

OR

☐ Included in rent or in condominium fee
☐ No charge or electricity not used

b. Gas

Annual cost — *Dollars*

$, .00

OR

☐ Included in rent or in condominium fee
☐ No charge or gas not used

c. Water and sewer

Annual cost — *Dollars*

$, .00

OR

☐ Included in rent or in condominium fee
☐ No charge

d. Oil, coal, kerosene, wood, etc.

Annual cost — *Dollars*

$, .00

OR

☐ Included in rent or in condominium fee
☐ No charge or these fuels not used

Source: U.S. Census Bureau, Census 2000 questionnaire.

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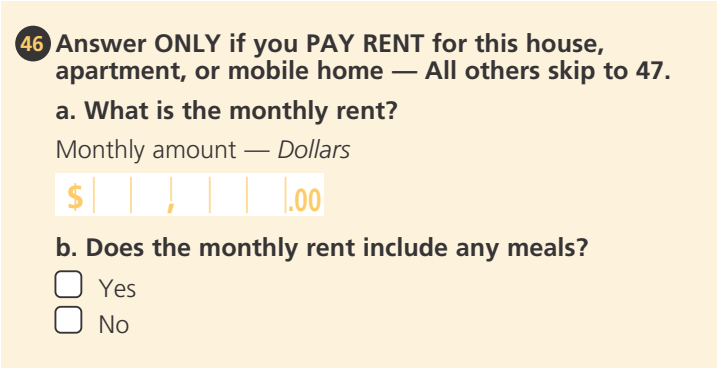
United States Census 2000

the householder, and by some housing characteristics. This brief also examines "meals included in rent," which is intended to gauge the extent of congregate housing. Congregate housing is generally considered to be housing units where the rent includes meals and other services, such as transportation to shopping and recreation.

Gross rent is the monthly amount of rent plus the estimated average monthly cost of utilities (electricity, gas, water, and sewer) and fuels (oil, coal, kerosene, wood, etc.). Figures 1 and 2 reproduce the Census 2000 questions about the components of gross rent. Medians in this report are computed for specified renter-occupied units paying cash rent, which exclude one-family houses on ten or more acres.

The Census Bureau initially collected gross rent data for renter-occupied housing units in 1940, the first Census of Housing. Beginning in 1950, the Census Bureau tabulated gross rent as a percentage of income to create a measure of affordability. From 1950 to 1970, income was defined as that of families and primary individuals; since 1980, the Census Bureau has used household income. The question of whether meals were included in rent was first asked in 1990.

Figure 2.
Reproduction of the Question on Housing Showing Rent Paid From Census 2000


46 **Answer ONLY if you PAY RENT for this house, apartment, or mobile home — All others skip to 47.**

a. What is the monthly rent?

Monthly amount — *Dollars*

$, .00

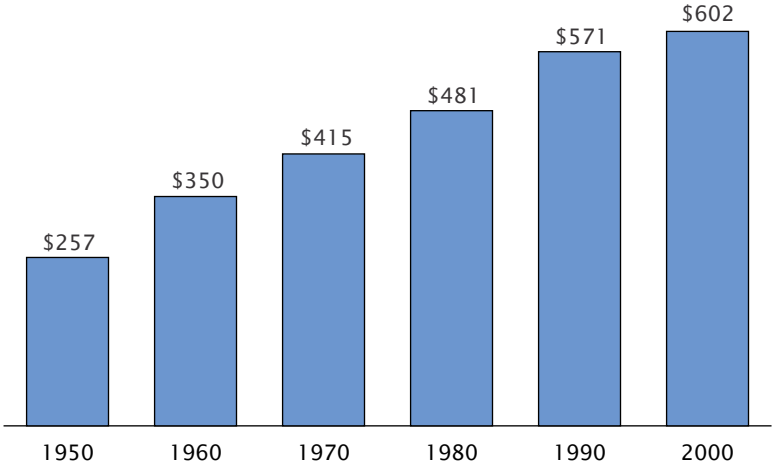
b. Does the monthly rent include any meals?

☐ Yes
☐ No

Source: U.S. Census Bureau, Census 2000 questionnaire.

Figure 3.
Median Gross Rent: 1950 to 2000

(In 2000 dollars. Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/prod/cen2000/doc/sf3.pdf*)



Source: U.S. Census Bureau, decennial censuses: 1950 to 2000.

Rents rose in every decade from 1950 to 2000.

According to Census 2000, the median monthly gross rent was $602 for the United States as a whole, a 5.4 percent increase over the $571 median for 1990[1], and more than double the median (adjusted for inflation) of $257 a month in 1950, as shown in Figure 3.[2] Much of this increase may be attributed to the increase in amenities included with rental units. In 1960, for example, over 90 percent of all rental housing lacked air conditioning, about 40 percent lacked central heating, and 20 percent lacked complete plumbing facilities. By 1980, the last census to measure these three items, almost half of all rental units had air conditioning, slightly over 80 percent had central heating, and only 3 percent lacked complete plumbing.

[1] 1990 rent was adjusted to 2000 dollars using CPI-U-RS factor 1.277636. Rents for previous years were also adjusted to 2000 dollars using factors appropriate for those years.

[2] The estimates in this report are based on responses from a sample of the population. As with all surveys, estimates may vary from the actual values because of sampling variation or other factors. All statements made in this report have undergone statistical testing and are significant at the 90-percent confidence level, unless otherwise noted.

Rents varied by race and Hispanic origin.

Census 2000 allowed respondents to choose more than one race. With the exception of the Two or more races group, all race groups discussed in this report refer to people who indicated only one racial identity among the six major categories: White, Black or African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, and Some other race.[3] The use of the single-race population in this report does not imply that it is the preferred method of presenting or analyzing data. The Census Bureau uses a variety of approaches.[4]

Median gross rent was highest for householders who classified themselves as Asian ($734), second-highest for Pacific Islander renters ($690), and third-highest for those of Two or more races ($637).[5] Rents were high for the Asian and Native Hawaiian and Pacific Islander households because these two groups were concentrated in Hawaii and California, which registered median monthly rents far above the U.S. median. In fact, 5 of the 7 racial groups shown in Table 1 reported rents at or above the U.S. median of $602; only American Indian and Alaska Native and Black households reported rents below the national median.

Table 1.
Median Gross Rent by Race and Hispanic Origin of Householder: 2000

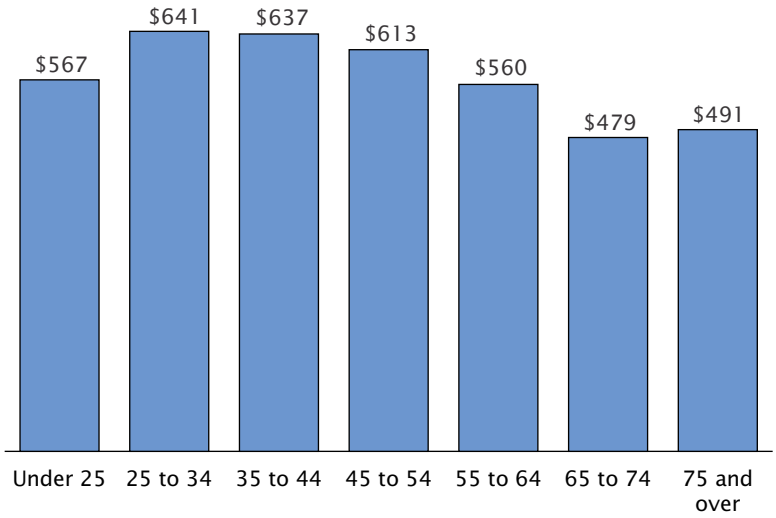
(Data based on sample. For information on confidentiality protection, nonsampling error, and definitions, see *www.census.gov/prod/cen2000/doc/sf3.pdf)*

Race and Hispanic origin of householder	Specified renter-occupied units paying cash rent	Median gross rent
Total, all households	**33,386,326**	**$602**
White alone	22,239,892	$612
Black or African American alone	6,156,870	$541
American Indian and Alaska Native alone	309,034	$518
Asian alone	1,415,812	$734
Native Hawaiian and Other Pacific Islander alone	50,694	$690
Some other race alone	2,206,431	$602
Two or more races	1,007,593	$637
Hispanic or Latino (of any race)	4,810,020	$604
White alone, not Hispanic or Latino	20,068,338	$613

Source: U.S. Census Bureau, Census 2000 Summary File 3.

Figure 4.
Median Gross Rent by Age of Householder: 2000

(Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/prod/cen2000/doc/sf3.pdf*)



Source: U.S. Census Bureau, Census 2000 Summary File 3.

[3] For further information on each of the six major race groups and the Two or more races population, see reports from the Census 2000 Brief series (C2KBR/01), available on the Census 2000 Web site at *www.census.gov/population/www/cen2000/briefs.html.*

[4] This report draws heavily on Summary File 3, a Census 2000 product that can be accessed through American FactFinder, available from the Census Bureau's Web site, *www.census.gov*. Information on people who reported more than one race, such as "White ***and*** American Indian and Alaska Native" or "Asian ***and*** Black or African American," is forthcoming in Summary File 4, which will also be available through American FactFinder in 2003. About 2.6 percent of people reported more than one race.

[5] Hereafter this report uses the term Black to refer to people who are Black or African American, the term Pacific Islander to refer to people who are Native Hawaiian and Other Pacific Islander, and the term Hispanic to refer to people who are Hispanic or Latino.

Because Hispanics may be of any race, data in this report for Hispanics overlap with data for racial groups. Based on Census 2000 sample data, the proportion Hispanic was 8.0 percent for Whites, 1.9 percent for Blacks, 14.6 percent for American Indians and Alaska Natives, 1.0 percent for Asians, 9.5 percent for Pacific Islanders, 97.1 percent for those reporting Some other race, and 31.1 percent for those reporting Two or more races.

Median gross rent paid by Hispanics (who can be of any race) was slightly above the national average. Rents paid by non-Hispanic Whites were also above the national median.

Householders aged 25 to 34 paid the highest rents.

Monthly rents were relatively low ($567) for householders 15 to 24, peaked among householders 25 to 34 ($641), and then declined steadily to $479 for householders 65 to 74. For older householders, aged 75 and over, rents rose slightly to $491 (see Figure 4).

The number of bedrooms was a major factor in determining rent.

Median gross rent was $522 for units with no bedroom (generally efficiencies) and then rose to $542 for one-bedroom units, $620 for two bedrooms, $698 for three bedrooms, and $786 for units with four or more bedrooms, which were almost always one-family homes.

Gross rent as a percentage of household income in 1999 is a measure of the affordability of rental housing.

Nationally, renter households spent a little over one-quarter of their pre-tax income on rent (median 25.5 percent). This value was down almost a full percentage point from the median of 26.4 percent in 1990.

When gross rent equals or exceeds 30 percent of household income, renters are often considered to be financially burdened. In all states, fewer than half of rental households paid this percentage; but certain subgroups of renter households had medians at or above the 30-percent level. These included renters where the householder was under 25 (for whom the median was 30.8 percent) and the oldest renters, those

Table 2.
Median Gross Rent and Median Gross Rent as Percentage of Household Income for the United States, Regions, and States, and for Puerto Rico: 1990 and 2000

(Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/prod/cen2000/doc/sf3.pdf)*

Area	1990		2000	
	Median gross rent	Median gross rent as percentage of household income in 1989	Median gross rent	Median gross rent as percentage of household income in 1999
United States	**$571**	**26.4**	**$602**	**25.5**
Region				
Northeast	$638	26.4	$651	25.9
Midwest	$506	25.4	$533	24.0
South	$517	25.7	$559	25.0
West	$684	27.9	$694	27.1
State				
Alabama	$415	24.8	$447	24.8
Alaska	$714	23.8	$720	24.8
Arizona	$560	27.5	$619	26.6
Arkansas	$418	26.5	$453	24.4
California	$792	29.1	$747	27.7
Colorado	$533	26.1	$671	26.4
Connecticut	$764	26.6	$681	25.4
Delaware	$634	24.7	$639	24.3
District of Columbia	$612	25.4	$618	24.8
Florida	$613	28.0	$641	27.5
Georgia	$553	25.8	$613	24.9
Hawaii	$830	27.4	$779	27.2
Idaho	$422	23.8	$515	25.3
Illinois	$569	25.9	$605	24.4
Indiana	$477	24.3	$521	23.9
Iowa	$429	24.1	$470	23.2
Kansas	$474	24.5	$498	23.4
Kentucky	$408	24.9	$445	24.0
Louisiana	$450	27.9	$466	25.8
Maine	$535	26.8	$497	25.3
Maryland	$700	25.4	$689	24.7
Massachusetts	$741	26.8	$684	25.5
Michigan	$540	27.2	$546	24.4
Minnesota	$539	26.7	$566	24.7
Mississippi	$394	27.1	$439	25.0
Missouri	$470	25.2	$484	24.0
Montana	$396	25.0	$447	25.3
Nebraska	$445	23.7	$491	23.0
Nevada	$650	26.8	$699	26.5
New Hampshire	$701	26.4	$646	24.2
New Jersey	$756	26.3	$751	25.5
New Mexico	$473	26.5	$503	26.6
New York	$620	26.3	$672	26.8
North Carolina	$488	24.4	$548	24.3
North Dakota	$400	23.9	$412	22.3
Ohio	$483	25.3	$515	24.2
Oklahoma	$434	25.4	$456	24.3
Oregon	$521	25.5	$620	26.9
Pennsylvania	$516	26.1	$531	25.0
Rhode Island	$625	27.5	$553	25.7
South Carolina	$482	24.4	$510	24.4
South Dakota	$391	24.6	$426	22.9
Tennessee	$456	25.0	$505	24.8
Texas	$505	24.6	$574	24.4
Utah	$471	23.8	$597	24.9
Vermont	$570	27.1	$553	26.2
Virginia	$632	25.8	$650	24.5
Washington	$569	25.7	$663	26.5
West Virginia	$387	26.8	$401	25.8
Wisconsin	$510	24.9	$540	23.4
Wyoming	$425	23.7	$437	22.5
Puerto Rico	$261	29.4	$297	27.0

Note: Adjusted to 2000 dollars, using CPI-U-RS factor 1.277636.

Source: U.S. Census Bureau, 1990 census and Census 2000 Summary File 3.

75 or over (33.7 percent). Two other financially burdened groups, with over half paying 30 percent or more of their household income on rent, were female householders living alone, and female householders, with no husband present, who lived with their own children under 18.

GEOGRAPHIC DISTRIBUTION OF RENTAL COSTS

Median gross rents were above the national level in the West and the Northeast, while below it in the South and the Midwest.[6]

Median monthly gross rent was highest in the West at $694, far above the national median of $602 (see Table 2). The Northeast registered the second highest median gross rent at $651, while the South ($559) and the Midwest ($533) were below the national median.

Rents rose fastest in the South and the Midwest from 1990 to 2000.

In this report, 1990 median gross rents have been adjusted to constant 2000 dollars. Interestingly, the two regions with the lowest median gross rents in 2000 had higher increases than the other two regions from 1990 to 2000. Median rent increases were highest in the South (8.1 percent) and the Midwest (5.3 percent), and lowest in the Northeast (2.0 percent) and the West (1.5 percent).

[6] The Northeast region includes the states of Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont. The Midwest region includes the states of Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin. The South region includes the states of Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia, and the District of Columbia, a state equivalent. The West region includes the states of Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, and Wyoming.

Hawaii continued to have the highest median gross rent among all states.

Median gross rent in Hawaii, at $779, surpassed that in all other states, just as it did in 1990. New Jersey ($751) edged out California ($747) for second place; California had been second-highest in 1990. In 2000, half of the ten states with the highest rents were located in the West: Alaska, Colorado, and Nevada joined California and Hawaii in this group. In the Northeast, Connecticut, Massachusetts, New York, and New Jersey, were among the ten highest-rent states nationally. Maryland was the only southern state among the national top ten.

Median monthly rents were lowest in West Virginia ($401). North Dakota and South Dakota featured the next lowest rents ($412 and $426 respectively). Six of the ten states with the lowest rents were in the South: West Virginia, Alabama, Arkansas, Kentucky, Mississippi, and Oklahoma. The other two states with the lowest monthly rents were in the West: Montana and Wyoming ($447 and $437, respectively).

From 1990 to 2000, rents rose the most in three Rocky Mountain states and decreased the most in two New England states.

In three states — Colorado, Idaho, and Utah — median gross rent increased over 20 percent between 1990 and 2000. In another four states — Arizona, Montana, Oregon, and Washington — rents increased 10 percent or more. Big increases in rents in these seven western states were offset to some degree by a 5.7-percent decline in median rents in California's huge rental inventory, so that the West as a whole registered only a small increase (1.5 percent) in median rents between 1990 and 2000. Georgia, Mississippi, North Carolina, Tennessee, and Texas also recorded double-digit rent increases from 1990 to 2000.[7]

Ten states posted rent decreases. Seven of the nine states in the Northeast, including every one in New England, registered rent decreases, with Connecticut and Rhode Island the only states in the United States posting double-digit rent decreases. However, the sheer size of the rental inventories in New York and Pennsylvania, the two states where rents increased in the Northeast, prevented the region as a whole from decreasing. California, Hawaii, and Maryland were the three states outside the Northeast posting rent decreases from 1990 to 2000.[8]

The proportion of household income spent on rent decreased in almost every state between 1990 and 2000.

The few states registering increases were generally in the West — for example, Alaska, Idaho, Oregon, and Utah. States with large decreases in median gross rent as a percentage of household income were more widely scattered, such as Michigan in the Midwest; Arkansas, Louisiana, and Mississippi in the South; and New Hampshire in the Northeast.

Renters in California devoted the largest share of their income to rent (median 27.7 percent). Renters in Iowa, Kansas, Nebraska,

[7] At the 90-percent confidence level, Iowa showed an increase between 8.7 and 10.3 percent, Nebraska between 9.4 and 11.2 percent, and South Dakota between 7.7 and 10.2 percent, so these three states may also have experienced double-digit increases.

[8] At the 90-percent confidence level, Alaska showed a 1990-2000 change of -0.5 to 2.1 percent, Delaware -0.2 to 2.1 percent, and the District of Columbia -0.3 to 2.3 percent, so these states may also have experienced median rent decreases.

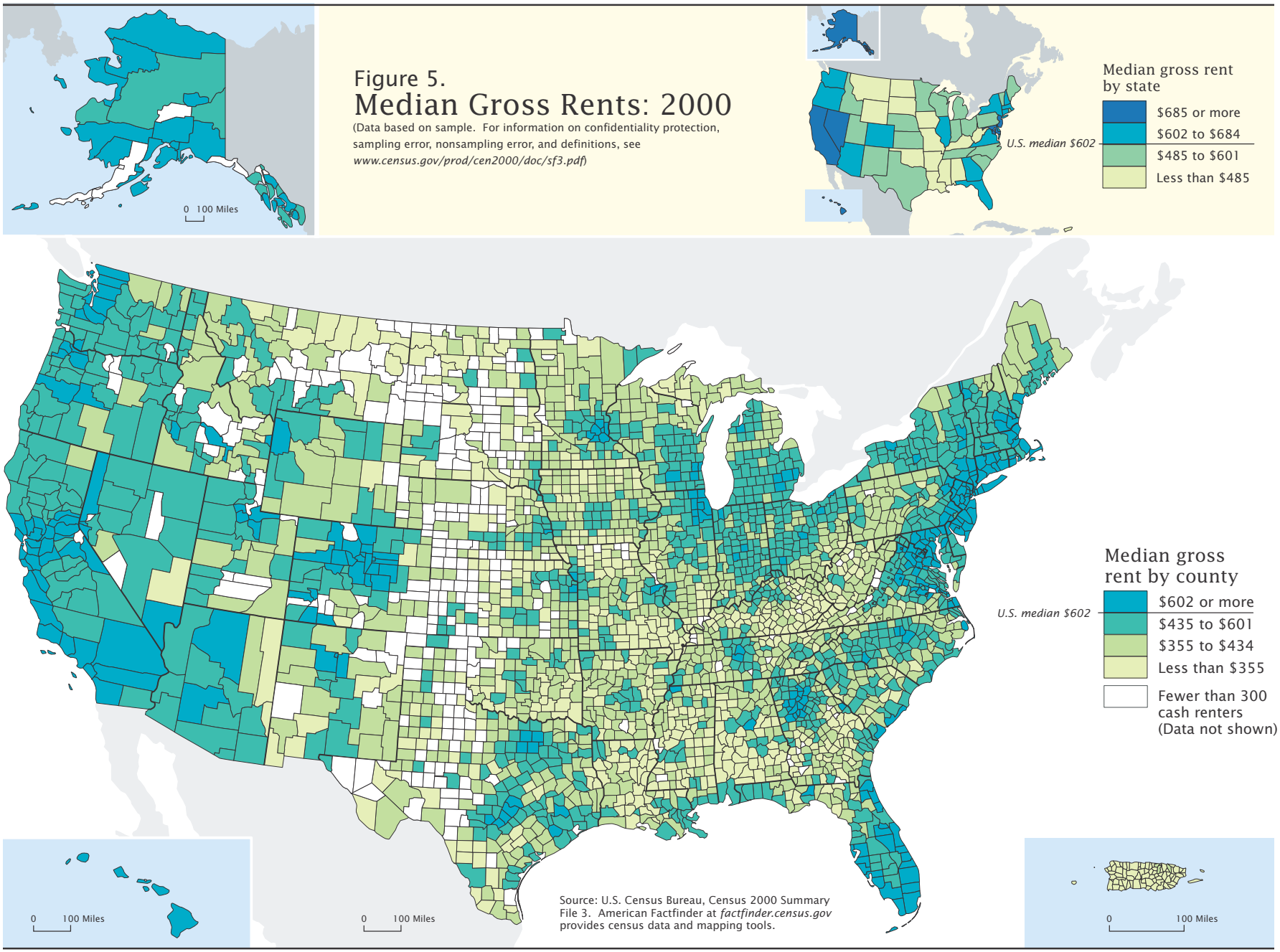


Figure 5.
Median Gross Rents: 2000

(Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/prod/cen2000/doc/sf3.pdf*)

Source: U.S. Census Bureau, Census 2000 Summary File 3. American Factfinder at *factfinder.census.gov* provides census data and mapping tools.

Table 3.
Places of 100,000 or More With the Highest Median Gross Rent: 2000

(The data are for specified renter-occupied housing units. Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/prod/cen2000/doc/sf3.pdf)*

Place	Specified renter-occupied units paying cash rent	Median gross rent	90-percent confidence interval
Irvine, CA	20,147	$1,272	$1,257 - $1,287
Sunnyvale, CA	27,158	$1,270	$1,256 - $1,284
Santa Clara, CA	20,337	$1,238	$1,219 - $1,257
Fremont, CA	23,782	$1,196	$1,183 - $1,209
Thousand Oaks, CA	10,007	$1,131	$1,109 - $1,153
San Jose, CA	103,317	$1,123	$1,115 - $1,131
Daly City, CA	11,964	$1,074	$1,062 - $1,086
Simi Valley, CA	7,932	$1,058	$1,037 - $1,079
Stamford, CT	19,283	$1,007	$986 - $1,028
Huntington Beach, CA	28,514	$985	$980 - $990

Note: Because of sampling error, the estimates in this table may not be significantly different from one another or from rates for geographic areas not listed in this table.

Source: U.S. Census Bureau, Census 2000 Summary File 3.

Table 4.
Places of 100,000 or More With the Lowest Median Gross Rent: 2000

(Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/prod/cen2000/doc/sf3.pdf)*

Place	Specified renter-occupied units paying cash rent	Median gross rent	90-percent confidence interval
Brownsville, TX	13,633	$405	$400 - $410
Erie, PA	17,153	$424	$416 - $432
St. Louis, MO	75,581	$442	$439 - $445
Louisville, KY	51,102	$443	$438 - $448
Cincinnati, OH	88,512	$444	$441 - $447
Birmingham, AL	43,681	$446	$441 - $451
Dayton, OH	30,787	$448	$442 - $454
Springfield, MO	28,916	$452	$446 - $458
Evansville, IN	20,079	$454	$448 - $460
Laredo, TX	15,425	$454	$446 - $462

Note: Because of sampling error, the estimates in this table may not be significantly different from one another or from rates for geographic areas not listed in this table.

Source: U.S. Census Bureau, Census 2000 Summary File 3.

North Dakota, South Dakota, Wisconsin, and Wyoming spent the lowest share of their income on rent (23.4 percent or less).

High rents show distinct clusters.

Rental units at or above the national median of $602 cluster in a few areas, such as the Boston-Washington corridor, the Pacific coast of California, the southern coasts of Florida, Puget Sound, central Colorado, and around various large metropolitan areas like Chicago, Atlanta, Detroit, and Dallas. In about 10 percent of all counties the median was at or above the U.S. median. County-level data are mapped in Figure 5.

If the rental inventory were divided into four equal groupings called *quartiles*, the lowest group would have rents below $436 (the lower quartile), another one-quarter between $436 and the median ($602), another quarter between the median and the upper quartile of $804, and the highest quarter above $804. However, counties were not equally divided into these quartiles; in fact, in about 60 percent of all counties, median rents were below the lower quartile of $436. Higher rents, those at or above the U.S. median, were concentrated in a few counties which generally had a large number of renters and relatively expensive rental housing. Only about 60 counties had median rents above the upper quartile.

Nine of the ten places of 100,000 or more people with the highest rents were in California.

The only one of these ten high rent places not in California was Stamford, Connecticut (see Table 3).

The ten places with the lowest median gross rent are shown in Table 4. Unlike the top ten, these bottom ten were scattered across the nation, in every region except the West. Among places of 100,000 or more people in 2000, Brownsville, Texas, and Erie, Pennsylvania, had the lowest rents ($405 and $424, respectively).

ADDITIONAL FINDINGS

How did rents vary by type and age of structure?

Median gross rent for one-family, detached houses was $648, well above the $602 for all specified renter units. Rent was even higher for one-family, attached units ($688), which were generally townhouses and rowhouses. For units in apartment buildings of two to four units, the median gross rent was $573 and it rose to $608 for those units in buildings with five or more apartments.

Median gross rent for new housing units — those built 1995 or later — was $718. Older homes, those built before 1940, commanded much lower rents of $565.

Was rental housing more or less affordable in 2000 than it was 50 years earlier?

Median gross rent as a percentage of income from 1950 to 2000 is shown in Figure 6. The percentage rose steadily until 1990, but then declined a bit by 2000. Thus, in 2000, rental housing was less affordable than in 1950 but more affordable than in 1990. The income measure used in1980, 1990, and 2000 was household income. Income of families and primary individuals was used from 1950 through 1970. The main effect of the change was to include income of all members of the household. For example, only the income of the person designated as the householder would have been used in the earlier censuses if two or more unrelated people lived in the same apartment.

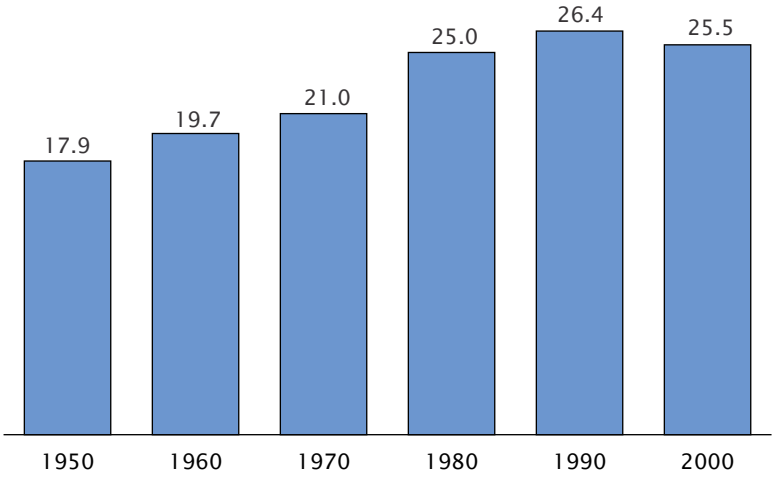
Among householders of different races and Hispanic origin, were there significant differences in the proportions of household income spent on rent and utilities?

Data on gross rent as a percentage of household income by race and Hispanic origin are presented in Figure 7. Single-race Black householders and those with a householder classified as two or more races paid the highest proportion of their income (27.6 percent) for rent. Single-race White householders, irrespective of Hispanic origin, paid the lowest (24.8 percent). Hispanic or Latino households spent a higher percentage of their household income for rent (27.0 percent) than all specified renter households nationally (25.5 percent).

Figure 6.

Gross Rent as a Percentage of Income: 1950 to 2000

(Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/prod/cen2000/doc/sf3.pdf*)



Note: Income of families and primary individuals for 1950-1970; and household income for 1980-2000.
Source: U.S. Census Bureau, Census of Population and Housing, decennial volumes.

Did the percentage of units with meals included increase during the 1990s?

The 1990 census introduced a question on whether meals were included in the rent (see Figure 2). This question was intended to measure congregate housing, generally for older households. In 1990, 3.8 percent of householders 65 and over reported meals included with the rent, and for householders 75 and over, the figure was 6.3 percent. By 2000, these percentages had increased to 8 percent for all householders 65 and over and to 13 percent for those 75 and over.

The largest number of elderly households reporting meals included in the rent in 2000 were found in California and Florida, but that was not unexpected given the size of the elderly population in those two states. The highest percentage of elderly reporting meals included in rent were found in Oregon and Washington.

ABOUT CENSUS 2000

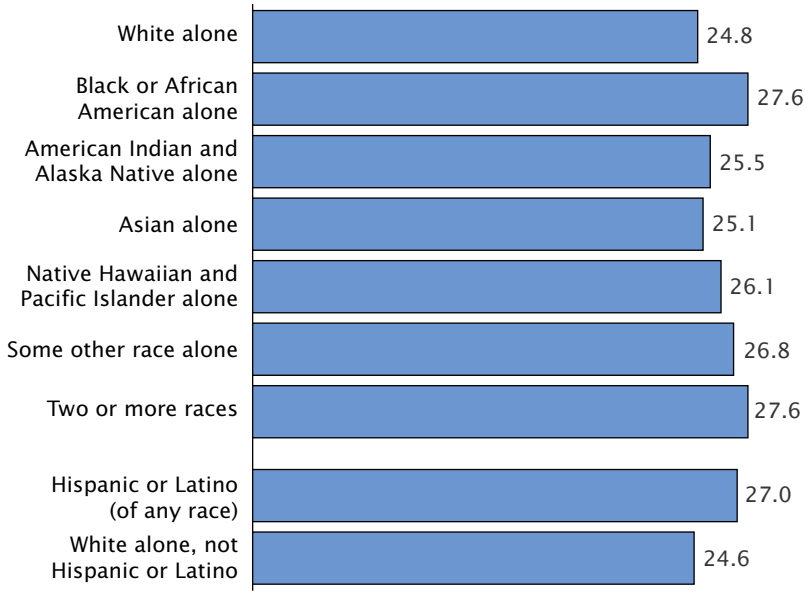
Why the Census Bureau collects and tabulates rent data.

The U.S. Census Bureau collects data on gross rent, which is the sum of rent contracted for plus amounts paid for utilities (electricity, gas, water, and sewer) and fuels (oil, coal, kerosene, wood, etc.). Federal uses include establishment of Section 8 fair market rents by the Department of Housing and Urban Development and allocation of funds by the Departments of Health and Human Services and Agriculture to help low- and moderate-income families whose rents exceed 30 percent of their household income. Rent data are also used by the Bureau of Economic Analysis in its state per-capita

Figure 7.

Gross Rent as a Percentage of Household Income in 1999 by Race and Hispanic Origin of Householder: 2000

(Data based on sample. For information on confidentiality protection, sampling error, nonsampling error, and definitions, see *www.census.gov/prod/cen2000/doc/sf3.pdf*)



Source: U.S. Census Bureau, Census 2000 Summary File 3.

income estimates, which are used in allocation formulas or eligibility criteria of more than 20 federal programs. Rent data are also needed to distribute funds for housing for low-income households under the Older Americans Act and for home energy assistance to low-income individuals and families.

Accuracy of the Estimates

The data contained in this report are based on the sample of households who responded to the Census 2000 long form. Nationally, approximately one out of every six housing units was included in this sample. As a result, the sample estimates may differ somewhat from the100-percent figures that would have been obtained if all housing units, people within those housing units, and people living in group quarters had been enumerated using the same questionnaires, instructions, enumerators, and so forth. The sample estimates also differ from the values that would have been obtained from different samples of housing units, people within those housing units, and people living in group quarters. The deviation of a sample estimate from the average of all possible samples is called the sampling error.

In addition to the variability that arises from the sampling procedures, both sample data and 100-percent data are subject to nonsampling error. Nonsampling error may be introduced during any of the various complex operations used to collect and process data. Such errors may include: not enumerating every household or every person in the population, failing to obtain all required information from the respondents, obtaining incorrect or inconsistent information, and recording information incorrectly. In addition, errors can occur during the field review of the enumerators' work, during clerical handling of the census questionnaires, or during the electronic processing of the questionnaires.

Nonsampling error may affect the data in two ways: (1) errors that are introduced randomly will increase the variability of the data and, therefore, should be reflected in the standard errors; and (2) errors that tend to be consistent in one direction will bias both sample and 100-percent data in that direction. For example, if respondents consistently tend to underreport their incomes, then the resulting estimates of households or families by income category will tend to be understated for the higher income categories and overstated for the lower income categories. Such biases are not reflected in the standard errors.

While it is impossible to completely eliminate error from an operation as large and complex as the decennial census, the Census Bureau attempts to control the sources of such error during the data collection and processing operations. The primary sources of error and the programs instituted to control error in Census 2000 are described in detail in *Summary File 3 Technical Documentation* under Chapter 8, "Accuracy of the Data," located at *www.census.gov/prod/cen2000/doc/sf3.pdf.*

All statements in this Census 2000 Brief have undergone statistical testing and all comparisons are significant at the 90-percent

confidence level, unless otherwise noted. The estimates in tables, maps, and other figures may vary from actual values due to sampling and nonsampling errors. As a result, estimates in one category may not be significantly different from estimates assigned to a different category. Further information on the accuracy of the data is located at *www.census.gov/prod/cen2000/doc/sf3.pdf*. For further information on the computation and use of standard errors, contact the Decennial Statistical Studies Division at 301-763-4242.

For More Information

The Census 2000 Summary File 3 data are available from the American Factfinder on the Internet (*factfinder.census.gov*). They were released on a state-by-state basis during 2002. For information on confidentiality protection, nonsampling error, sampling error, and definitions, also see *www.census.gov/prod/cen2000/doc/sf3.pdf* or contact the Customer Services Center at 301-763-INFO (4636).

Information on population and housing topics is presented in the Census 2000 Brief series, located on the Census Bureau's Web site at *www.census.gov/population/www/cen2000/briefs.html*. This series, which will be completed in 2003, presents information on race, Hispanic origin, age, sex, household type, housing tenure, and social, economic, and housing characteristics, such as ancestry, income, and housing costs.

For additional information on housing, including reports and survey data, visit the Census Bureau's Internet site on at *www.census.gov/hhes/www/housing.html*. To find information about the availability of data products, including reports, CD-ROMs, and DVDs, call the Customer Services Center at 301-763-INFO (4636), or e-mail *webmaster@census.gov*.

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