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Wireless Substitution: State-level Estimates From the National Health Interview Survey, 2012

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Abstract

Objectives—This report updates subnational estimates of the percentage of adults and children living in households that do not have a landline telephone but have at least one wireless telephone (i.e., wireless-only households). State-level estimates for 2012 are presented, along with estimates for selected U.S. counties and groups of counties, for other household telephone service use categories (e.g., those that had only landlines and those that had landlines yet received all or almost all calls on wireless telephones), and for one earlier 12-month period (July 2011–June 2012).

Methods—Small-area statistical modeling techniques were used to estimate the prevalence of adults and children living in households with various household telephone service types for 93 disjoint geographic areas that make up the United States. This modeling was based on 2007–2012 data from the National Health Interview Survey, 2006–2011 data from the American Community Survey, and auxiliary information on the number of listed telephone lines per capita in 2007–2012.

Results—The prevalence of wireless-only adults and children varied substantially across states. State-level estimates for 2012 ranged from 19.4% (New Jersey) to 52.3% (Idaho) of adults and from 20.6% (New Jersey) to 63.4% (Mississippi) of children.

Keywords: cell phones • telephone surveys • small domain estimation

Introduction

The prevalence and use of wireless telephones (also known as cellular telephones, cell phones, or mobile phones) has changed substantially over the past decade. Today, an ever-increasing number of adults have chosen to use wireless telephones rather than landline telephones to make and receive calls. As of the second half of 2012, nearly two in every five American households (38.2%) had only wireless telephones (1). The prevalence of such ''wireless-only'' households markedly exceeds the prevalence of households with only landline telephones (8.6%), as it has since 2009, and this difference is expected to grow.

The National Health Interview Survey (NHIS) is the most widely cited source for data on the ownership and use of wireless telephones. Every 6 months, the Centers for Disease Control and Prevention's (CDC) National Center for Health Statistics (NCHS) releases a report with the most up-to-date estimates available from the federal government concerning the size and characteristics of the wireless-only population (1). That report, published as part of the NHIS Early Release Program (http://www.cdc.gov/nchs/nhis/releases.htm), presents both national and regional estimates.

Direct state-level estimates of this prevalence were not available previously from NHIS data because the NHIS sample size was insufficient for direct, reliable annual estimates for most states. However, in April 2011 NCHS released the results of statistically modeled estimates of the prevalence of wireless-only adults and children at the state level, using data from NHIS and the U.S. Census Bureau's American Community Survey (ACS), along with auxiliary information on the number of listed telephone lines per capita (2). Those estimates for 12-month periods from January 2007 through June 2010 were the first multiyear state-level estimates of the size of this population

available from the federal government. In October 2012, those estimates were updated through December 2011 (3).

In this report, the estimates are further updated through December 2012. Estimates are presented for adults and children living in wireless-only households, wireless-mostly households (defined as households that have landlines yet receive all or almost all calls on wireless telephones), dual-use households (which receive significant numbers of calls on both landlines and wireless telephones), landline-mostly households (which have wireless telephones yet receive all or almost all calls on landlines), and landline-only households.

Methods

The methods employed to produce the estimates for this report were identical to those used for the estimates published in 2011 and 2012 (2,3). Small-area statistical modeling techniques were used to combine NHIS data collected within specific geographies (states and some counties) with auxiliary data that are representative of those geographies, to produce model-based estimates. Specifically, a combination of direct survey estimates from the 2007–2012 NHIS and the 2006–2011 ACS, and auxiliary information on the number of listed telephone lines per capita in 2007–2012, were used. The small-area model was used to derive estimates of the proportion of people who lived in households that were wireless-only, wireless-mostly, dual-use, landline-mostly, and landline-only for twelve 6-month periods: January–June and July–December in each year from 2007 through 2012.

Selection of small areas

Estimates were derived separately for adults (aged 18 and over) and children (under age 18) for 93 nonoverlapping areas that make up the United States. Twenty-six of these areas were states and one was the District of Columbia; other areas consisted of selected counties, groups of counties, or the balance of the state population excluding the selected counties. No areas crossed state lines, and every location in the United States was part of one (and only one) of the 93 areas. Areas considered for inclusion in this report were urban areas that receive federal Section 317 immunization grants, and other substate areas that are strata for CDC's National Immunization Survey (4). Areas were selected based on the available survey sample sizes and the stability of the modeled estimates.

Production of model-based estimates

For each telephone category, the 6-month estimates for all 93 small areas were modeled jointly. That is, all 6-month periods were modeled together in a single model rather than separately as 12 models (one for each 6-month period). Separate small-area models were fitted for each telephone service use category (e.g., wireless-only, dual-use) and by age group (adults or children). The model-based estimates for each telephone service use category, small area, and 6-month period were derived using a standard small-area modeling and estimation approach known as ''empirical best linear unbiased prediction'' (5–7). The model-based estimates were a weighted combination of three distinct sets of estimates: (a) the direct estimate from NHIS for the small area during the 6-month period of interest, (b) a synthetic estimate derived from a regression model involving ACS and auxiliary data for the small area during the 6-month period of interest, and (c) adjusted direct estimates from NHIS for the small area during all 6-month periods other than the 6-month period of interest. By using estimates from all twelve 6-month periods, the model-based estimate allows for ''borrowing strength'' across time. When these three distinct sets of estimates were combined, the weights associated with each set reflected the relative precision of each estimate.

Model-based estimates were produced for every small area and 6-month period, and consecutive 6-month estimates were combined to produce 12-month estimates. The small-area estimates for 12-month periods were obtained by averaging the two consecutive 6-month estimates. This helped to reduce the variability of the estimates. The 12-month small-area estimates for each telephone category were then adjusted to agree with the national direct estimates from NHIS for the corresponding telephone category and year. The 12-month estimates were further adjusted to agree with annual ACS estimates for the population without telephone service (landline or wireless) for each small area. For states with multiple small areas, 12-month state-level estimates were obtained by appropriately weighting the 12-month small-area estimates by population size.

Model-based estimates were produced for 2007–2012. Because the models now included full-year data from 2012, the estimates for 2007–2011 differed from the estimates previously reported (3) that were based on models that did not include data from 2012. The differences in the estimates for 2007–2011 were generally small (e.g., for the prevalence of wireless-only adults, mean = –0.01, interquartile range = 0.5). Therefore, the updated estimates for 2007–2011 are not presented here. Instead, this report includes estimates for July 2011–June 2012 and January–December 2012 only.

Estimates for Adults and Children Living in Wireless-only Households

Results from the small-area modeling strategy showed great variation in the prevalence of adults living in wireless-only households across states. Estimates for 2012 ranged from a high of 52.3% in Idaho to a low of 19.4% in New Jersey (Table 1). Other states in which the prevalence of wireless-only adults was relatively high (exceeding 45%) were Mississippi (49.4%), Arkansas (49.0%), and Utah (46.6%). Several other states in the northeast joined New Jersey with prevalence rates below 25%, including

Connecticut (20.6%), Delaware (23.3%), New York (23.5%), Massachusetts (24.1%), and Rhode Island (24.9%).

Similarly, results showed great variation in the prevalence of wireless-only children across states, ranging from a high of 63.4% in Mississippi to a low of 20.6% in New Jersey (Table 1). Other states with a high prevalence of wireless-only children included Idaho (62.2%), Arkansas (59.8%), Missouri (55.2%), and South Carolina (54.5%). Other states with a low prevalence of wireless-only children included Vermont (24.5%), Connecticut (25.4%), Alaska (25.7%), and Massachusetts (26.7%).

Estimates for Adults and Children Living in Households With Wireless Telephones

Table 2 presents modeled estimates for 2012 for the prevalence of adults living in households with various telephone service types, including but not limited to wireless-only status. Estimates are presented for adults living in wireless-mostly households, landline-mostly households, dual-use households, and landline-only households. These results can be used to obtain the prevalence of adults living in households with any wireless telephones (regardless of whether the wireless telephones are the only telephones). Estimates ranged from a high of 94.1% in Utah to a low of 80.8% in West Virginia. Two-thirds of the states (33 total) exceeded 90%, with Maryland (93.8%), New Hampshire (93.6%), Minnesota (93.6%), and Illinois (93.0%) joining Utah with the highest rates. Along with West Virginia, states with the lowest rates included New Mexico (81.1%) and North Dakota (82.6%).

Table 2 can also be used to examine the prevalence of adults living in households that receive all or almost all calls on wireless telephones, regardless of whether the households have landline telephones. Both wireless-only and wireless-mostly adults are in this group. Estimates of the prevalence of adults living in households where wireless telephones are the primary means of receiving calls ranged from 64.1% in Arkansas to 39.4% in Connecticut. Thirty-two states had rates of primary wireless use exceeding 50%, with Texas (63.0%), Idaho (62.7%), and Mississippi (62.0%) joining Arkansas at the top end. Other states at the low end included Massachusetts (41.1%), New York (41.2%), West Virginia (41.3%), and Vermont (41.3%).

Table 3 presents modeled estimates for 2012 for the prevalence of children living in households with various telephone service types. The table can be used to calculate estimates for children similar to those for adults as described above.

Implications of Findings

The increasing prevalence of wireless-only households has implications for random-digit-dial (RDD) telephone surveys. Historically, such surveys did not include wireless telephone numbers in their samples. Now, despite operational challenges (8), most major RDD telephone surveys include wireless telephone numbers (9,10). If they did not, the exclusion of households with only wireless telephones (along with the 2.1% of households that have no telephone service) could bias results (11).

Statistical challenges exist when samples of wireless-only households are combined with samples of landline households from RDD surveys. To ensure that each sample is appropriately represented in the final data set and appropriately weighted in the final analyses, reliable and current estimates of the prevalence of wireless-only households are needed (8). Moreover, if the persons interviewed on their wireless telephones are not screened to exclude those who also have landlines, reliable and current estimates of the prevalence of landline and wireless telephone service use may be required in order to address the probability that an individual could be in both samples (8).

This report presents survey researchers with the most up-to-date estimates available from the federal government concerning the prevalence of landline and wireless telephone service use in each state. Telecommunications companies may also find these estimates useful for understanding changing conditions in state and local markets.

References

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Table 1. Modeled estimates (with standard errors) of the percentage of persons living in wireless-only households, by selected geographic areas, age, and period: United States, 2011–2012

Geographic area	Adults aged 18 and over		Children under age 18	
	July 2011–June 2012	January–December 2012	July 2011–June 2012	January–December 2012
	Percent (standard error)			
Alabama	34.4 (1.9)	36.4 (2.0)	46.8 (3.1)	49.6 (3.2)
Jefferson County	40.8 (2.7)	41.7 (2.8)	55.7 (4.4)	55.2 (4.4)
Rest of Alabama	33.4 (2.1)	35.5 (2.3)	45.4 (3.5)	48.7 (3.7)
Alaska	30.2 (2.8)	31.6 (2.7)	22.8 (3.8)	25.7 (3.7)
Arizona	39.4 (1.8)	41.2 (1.9)	45.8 (2.6)	49.9 (2.7)
Maricopa County	42.7 (2.4)	44.6 (2.6)	48.1 (3.5)	52.0 (3.7)
Rest of Arizona	34.6 (2.6)	36.1 (2.7)	42.1 (3.8)	46.3 (3.9)
Arkansas	45.7 (2.1)	49.0 (2.1)	56.6 (3.3)	59.8 (3.1)
California	30.1 (0.7)	32.6 (0.8)	33.8 (1.1)	38.2 (1.2)
Alameda County	31.4 (2.6)	34.2 (2.9)	34.3 (4.1)	37.0 (4.3)
Fresno County	31.8 (2.8)	33.8 (2.9)	31.6 (3.7)	36.1 (3.6)
Los Angeles County	30.2 (1.5)	31.7 (1.6)	33.7 (2.1)	36.7 (2.2)
Northern counties[1]	27.0 (2.7)	30.5 (3.0)	32.0 (4.1)	38.2 (4.4)
San Bernardino County	33.7 (2.5)	38.9 (2.7)	38.0 (3.5)	45.8 (3.9)
San Diego County	23.5 (1.8)	26.6 (2.0)	23.1 (2.7)	29.5 (3.0)
Santa Clara County	30.9 (2.4)	31.4 (2.5)	32.8 (3.6)	34.9 (3.7)
Rest of California	30.8 (1.2)	33.6 (1.3)	35.4 (1.9)	40.0 (2.0)
Colorado	39.9 (1.9)	41.7 (2.0)	42.2 (2.7)	45.1 (2.8)
City of Denver counties[2]	35.2 (2.4)	37.8 (2.7)	41.7 (3.6)	46.3 (3.9)
Rest of Colorado	42.9 (2.6)	44.3 (2.7)	42.6 (3.8)	44.2 (3.8)
Connecticut	19.1 (1.7)	20.6 (1.7)	21.2 (2.4)	25.4 (2.6)
Delaware	23.0 (2.1)	23.3 (1.9)	24.5 (3.5)	26.8 (3.3)
District of Columbia	44.4 (2.9)	46.0 (2.6)	43.7 (4.9)	42.2 (4.4)
Florida	37.1 (1.2)	39.7 (1.2)	45.6 (1.8)	49.2 (1.8)
Miami-Dade County	36.6 (3.0)	37.6 (3.1)	48.8 (4.6)	53.2 (4.6)
Duval County	43.5 (2.2)	44.4 (2.3)	52.8 (3.2)	54.2 (3.3)
Orange County	43.9 (3.2)	46.5 (3.2)	49.1 (4.8)	51.4 (4.6)
Rest of Florida	35.4 (1.5)	38.4 (1.5)	43.7 (2.3)	47.7 (2.3)
Georgia	34.3 (1.6)	37.0 (1.7)	41.3 (2.4)	45.9 (2.4)
Fulton/DeKalb counties	40.7 (2.9)	41.8 (3.0)	46.8 (4.5)	48.8 (4.4)
Rest of Georgia	33.0 (1.8)	36.0 (1.9)	40.3 (2.7)	45.4 (2.7)
Hawaii	29.2 (2.1)	31.6 (2.2)	38.8 (3.9)	43.8 (3.9)
Idaho	49.7 (2.0)	52.3 (1.9)	58.3 (2.9)	62.2 (2.6)
Illinois	35.2 (1.4)	38.0 (1.5)	39.7 (2.2)	42.4 (2.3)
Cook County	39.7 (2.0)	42.2 (2.1)	41.1 (3.1)	42.3 (3.2)
Madison/St. Clair counties	35.1 (3.5)	36.5 (3.6)	43.8 (5.7)	45.6 (5.5)
Rest of Illinois	33.9 (1.8)	36.8 (2.0)	39.1 (2.7)	42.2 (2.9)
Indiana	33.4 (1.6)	36.1 (1.8)	43.3 (2.7)	46.3 (2.9)
Lake County	30.3 (2.8)	33.1 (3.0)	41.3 (5.0)	44.5 (5.2)
Marion County	41.5 (3.3)	44.9 (3.3)	51.0 (5.1)	52.8 (4.7)
Rest of Indiana	32.3 (2.0)	34.8 (2.2)	42.0 (3.2)	45.3 (3.5)
Iowa	40.1 (2.0)	42.2 (2.1)	41.3 (3.2)	45.4 (3.2)
Kansas	40.0 (1.8)	42.3 (1.9)	48.6 (2.8)	52.5 (2.7)
Johnson/Wyandotte counties	31.1 (3.1)	35.0 (3.3)	33.7 (4.4)	41.5 (4.8)
Rest of Kansas	42.9 (2.2)	44.8 (2.2)	53.8 (3.4)	56.4 (3.2)
Kentucky	35.3 (2.2)	37.0 (2.2)	47.1 (3.2)	52.5 (3.2)
Louisiana	34.0 (2.1)	36.2 (2.2)	42.8 (3.1)	45.1 (3.1)
Maine	33.0 (2.4)	35.0 (2.3)	38.6 (3.6)	41.6 (3.3)
Maryland	27.9 (1.5)	29.4 (1.6)	31.1 (2.3)	33.6 (2.4)
Baltimore City	37.2 (3.1)	39.6 (3.2)	46.7 (5.0)	51.8 (5.3)
Prince George's County	§	§	§	§
Rest of Maryland	26.2 (1.9)	27.6 (2.0)	28.0 (2.8)	30.0 (3.0)
Massachusetts	22.3 (1.5)	24.1 (1.6)	23.7 (2.4)	26.7 (2.7)
Suffolk County	35.1 (3.4)	37.5 (3.6)	41.9 (6.4)	48.9 (6.8)
Rest of Massachusetts	20.9 (1.6)	22.6 (1.7)	22.2 (2.6)	24.9 (2.8)
Michigan	37.5 (1.6)	39.5 (1.7)	42.7 (2.5)	44.2 (2.6)
Wayne County	43.5 (2.6)	46.6 (2.8)	54.5 (4.2)	59.6 (4.1)
Rest of Michigan	37.0 (1.8)	39.0 (1.9)	41.7 (2.7)	42.9 (2.8)

See footnotes at end of table.

Table 1. Modeled estimates (with standard errors) of the percentage of persons living in wireless-only households, by selected geographic areas, age, and period: United States, 2011–2012—Con.

Geographic area	Adults aged 18 and over		Children under age 18	
	July 2011–June 2012	January–December 2012	July 2011–June 2012	January–December 2012
	Percent (standard error)			
Minnesota	34.4 (1.6)	35.7 (1.7)	33.0 (2.5)	36.7 (2.6)
Twin Cities counties[3]	35.6 (2.1)	36.7 (2.3)	33.7 (3.5)	37.0 (3.7)
Rest of Minnesota	33.1 (2.3)	34.6 (2.5)	32.2 (3.4)	36.3 (3.7)
Mississippi	45.6 (2.0)	49.4 (1.9)	59.0 (3.2)	63.4 (3.0)
Missouri	38.1 (1.8)	41.4 (2.0)	49.8 (2.8)	55.2 (3.0)
St. Louis County/City	34.2 (2.9)	38.1 (3.2)	32.4 (4.3)	39.2 (4.8)
Rest of Missouri	39.3 (2.1)	42.4 (2.4)	54.5 (3.4)	59.4 (3.5)
Montana	§	§	§	§
Nebraska	37.4 (2.0)	37.5 (2.0)	40.5 (3.3)	43.7 (3.2)
Nevada	36.0 (1.8)	38.9 (1.8)	37.9 (2.8)	41.7 (2.8)
Clark County	37.2 (2.2)	40.7 (2.2)	36.3 (3.3)	40.6 (3.4)
Rest of Nevada	33.1 (2.9)	34.4 (2.9)	42.2 (5.0)	44.6 (5.0)
New Hampshire	25.4 (2.0)	26.7 (1.9)	29.3 (3.6)	30.3 (3.2)
New Jersey	17.8 (1.3)	19.4 (1.4)	19.8 (2.1)	20.6 (2.2)
Essex County	35.9 (3.4)	40.2 (3.7)	29.9 (4.4)	38.2 (5.0)
Rest of New Jersey	17.2 (1.3)	18.8 (1.5)	19.4 (2.2)	19.9 (2.3)
New Mexico	35.8 (2.0)	36.8 (2.0)	50.7 (3.3)	53.4 (3.3)
Southern counties[4]	38.1 (2.8)	40.1 (3.0)	56.1 (4.4)	59.1 (4.6)
Rest of New Mexico	35.0 (2.5)	35.6 (2.5)	48.6 (4.2)	51.2 (4.1)
New York	21.4 (1.1)	23.5 (1.2)	23.2 (1.7)	26.8 (1.9)
City of New York counties[5]	26.0 (1.5)	29.4 (1.6)	25.7 (2.4)	29.8 (2.7)
Rest of New York	18.0 (1.5)	19.1 (1.6)	21.5 (2.3)	24.7 (2.6)
North Carolina	34.3 (1.7)	34.7 (1.7)	46.3 (2.6)	47.1 (2.6)
North Dakota	39.9 (1.8)	40.2 (1.7)	44.9 (3.5)	50.0 (3.2)
Ohio	35.5 (1.3)	36.8 (1.4)	41.2 (2.2)	44.7 (2.4)
Cuyahoga County	34.3 (2.9)	38.1 (3.2)	31.1 (4.0)	37.0 (4.2)
Franklin County	40.9 (3.7)	41.8 (3.7)	43.9 (4.4)	43.1 (4.5)
Rest of Ohio	34.9 (1.6)	35.9 (1.7)	42.2 (2.7)	46.0 (2.9)
Oklahoma	37.1 (2.0)	39.0 (2.0)	46.1 (3.2)	50.9 (3.4)
Oregon	37.2 (2.1)	36.8 (2.2)	38.6 (3.4)	41.5 (3.4)
Pennsylvania	25.0 (1.2)	26.2 (1.3)	29.9 (2.1)	31.4 (2.1)
Allegheny County	39.4 (3.2)	40.4 (3.4)	42.0 (5.2)	43.9 (5.4)
Philadelphia County	33.5 (2.6)	37.8 (2.9)	40.8 (4.2)	46.8 (4.4)
Rest of Pennsylvania	21.8 (1.4)	22.7 (1.6)	26.9 (2.5)	27.6 (2.5)
Rhode Island	19.5 (1.7)	24.9 (1.8)	25.5 (3.4)	34.8 (3.4)
South Carolina	37.0 (1.9)	39.0 (2.1)	48.3 (3.2)	54.5 (3.3)
South Dakota	§	§	§	§
Tennessee	35.9 (1.6)	37.8 (1.7)	47.3 (2.6)	52.3 (2.6)
Davidson County	48.0 (3.5)	51.2 (3.6)	55.5 (5.2)	61.8 (5.4)
Shelby County	43.2 (3.2)	46.2 (3.3)	49.4 (4.8)	54.1 (4.7)
Rest of Tennessee	32.9 (2.0)	34.5 (2.1)	45.8 (3.2)	50.7 (3.3)
Texas	42.6 (1.1)	44.5 (1.2)	51.9 (1.7)	54.2 (1.7)
Bexar County	41.4 (2.3)	42.6 (2.5)	52.1 (3.6)	57.0 (3.9)
Dallas County	55.0 (2.6)	56.5 (2.6)	63.0 (3.6)	65.9 (3.6)
El Paso County	§	§	§	§
Harris County	44.1 (2.0)	47.0 (2.1)	49.2 (2.8)	54.8 (2.9)
Rest of Texas	40.9 (1.5)	42.9 (1.6)	50.4 (2.2)	52.0 (2.2)
Utah	42.3 (2.0)	46.6 (1.9)	43.8 (2.8)	48.5 (2.6)
Vermont	29.0 (2.1)	29.9 (1.9)	22.6 (3.5)	24.5 (3.2)
Virginia	30.1 (1.8)	32.0 (1.9)	32.2 (2.5)	36.2 (2.7)
Washington	37.3 (1.5)	39.4 (1.6)	37.5 (2.1)	41.8 (2.2)
Eastern counties[6]	32.1 (2.2)	34.2 (2.4)	40.7 (3.6)	44.2 (3.7)
King County	45.3 (2.8)	46.0 (2.9)	38.6 (4.0)	41.0 (4.0)
Rest of Washington	34.6 (2.3)	37.6 (2.4)	35.4 (3.1)	41.1 (3.4)
West Virginia	27.3 (2.4)	30.2 (2.4)	36.1 (3.6)	42.7 (3.6)
Wisconsin	35.2 (1.8)	39.0 (2.0)	38.0 (2.8)	44.5 (3.0)
Milwaukee County	§	§	§	§
Rest of Wisconsin	32.9 (2.1)	36.6 (2.2)	34.8 (3.2)	41.0 (3.5)
Wyoming	§	§	§	§

§ Model-based estimates for Maryland-Prince George's County, Montana, South Dakota, Texas-El Paso County, Wisconsin-Milwaukee County, and Wyoming are not reported because, for at least one telephone service use category, direct estimates from the National Health Information Survey were more than double or less than one-half the synthetic estimate. These differences between two components of the model-based estimates suggest that the direct estimates for these areas may be biased. Biased estimates violate a key model-based estimation assumption.

[1]Includes Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Sierra, Siskiyou, Tehama, and Trinity.
[2]Includes Adams, Arapahoe, Denver, and Douglas.
[3]Includes Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.
[4]Includes Catron, Chaves, Curry, De Baca, Dona Ana, Eddy, Grant, Hidalgo, Lea, Lincoln, Luna, Otero, Roosevelt, Sierra, and Socorro.
[5]Includes Bronx, Kings, New York, Queens, and Richmond.
[6]Includes Adams, Asotin, Benton, Chelan, Columbia, Douglas, Ferry, Franklin, Garfield, Grant, Kittitas, Klickitat, Lincoln, Okanogan, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman, and Yakima.

NOTE: Estimates were calculated by NORC at the University of Chicago.

SOURCES: CDC/NCHS, National Health Interview Survey, 2007–2012; U.S. Census Bureau, American Community Survey, 2006–2011; and infoUSA.com consumer database, 2007–2012.

Table 2. Modeled estimates (with standard errors) of the percent distribution of household telephone status for adults aged 18 and over, by selected geographic areas: United States, 2012

Geographic area	Wireless-only	Wireless-mostly	Dual-use	Landline-mostly	Landline-only	No telephone service[1]	Total
	Percent (standard error)						
Alabama	36.4 (2.0)	16.0 (1.5)	21.6 (1.9)	16.3 (1.6)	7.8 (1.3)	2.0	100.0
Jefferson County	41.7 (2.8)	17.6 (2.1)	20.7 (2.5)	12.1 (1.8)	6.5 (1.6)	1.5	100.0
Rest of Alabama	35.5 (2.3)	15.7 (1.7)	21.7 (2.1)	17.0 (1.8)	8.0 (1.4)	2.0	100.0
Alaska	31.6 (2.7)	17.7 (2.2)	30.3 (2.9)	12.2 (1.9)	6.6 (1.6)	1.6	100.0
Arizona	41.2 (1.9)	16.4 (1.4)	18.8 (1.6)	10.7 (1.1)	10.8 (1.4)	2.1	100.0
Maricopa County	44.6 (2.6)	17.1 (1.9)	18.8 (2.2)	6.0 (1.2)	11.8 (1.9)	1.8	100.0
Rest of Arizona	36.1 (2.7)	15.5 (2.0)	18.9 (2.4)	17.6 (2.1)	9.4 (1.9)	2.6	100.0
Arkansas	49.0 (2.1)	15.1 (1.5)	15.8 (1.6)	10.9 (1.3)	6.7 (1.1)	2.4	100.0
California	32.6 (0.8)	21.5 (0.7)	25.6 (0.8)	11.3 (0.5)	7.4 (0.5)	1.5	100.0
Alameda County	34.2 (2.9)	17.6 (2.3)	30.1 (3.1)	10.6 (1.8)	6.3 (1.7)	1.2	100.0
Fresno County	33.8 (2.9)	9.6 (1.8)	32.1 (3.1)	10.8 (1.9)	12.3 (2.3)	1.3	100.0
Los Angeles County	31.7 (1.6)	22.9 (1.4)	26.6 (1.5)	9.8 (1.0)	7.5 (0.9)	1.4	100.0
Northern counties[2]	30.5 (3.0)	15.2 (2.3)	23.6 (3.1)	19.2 (2.5)	10.1 (2.3)	1.4	100.0
San Bernardino County	38.9 (2.7)	22.5 (2.3)	23.6 (2.6)	9.8 (1.6)	*3.9 (1.2)	1.2	100.0
San Diego County	26.6 (2.0)	21.1 (1.8)	32.0 (2.3)	9.4 (1.3)	8.3 (1.4)	2.6	100.0
Santa Clara County	31.4 (2.5)	21.2 (2.2)	27.9 (2.7)	9.3 (1.6)	9.0 (1.8)	1.1	100.0
Rest of California	33.6 (1.3)	22.1 (1.1)	23.3 (1.2)	12.5 (0.9)	7.1 (0.7)	1.4	100.0
Colorado	41.7 (2.0)	16.9 (1.5)	20.9 (1.8)	11.9 (1.3)	6.7 (1.1)	1.8	100.0
City of Denver counties[3]	37.8 (2.7)	19.0 (2.1)	23.5 (2.6)	12.0 (1.8)	6.1 (1.5)	1.7	100.0
Rest of Colorado	44.3 (2.7)	15.6 (2.0)	19.3 (2.4)	11.8 (1.8)	7.1 (1.6)	1.9	100.0
Connecticut	20.6 (1.7)	18.8 (1.6)	32.0 (2.1)	18.5 (1.6)	9.0 (1.3)	1.1	100.0
Delaware	23.3 (1.9)	22.5 (1.9)	30.0 (2.2)	17.1 (1.7)	6.0 (1.1)	1.2	100.0
District of Columbia	46.0 (2.6)	18.3 (2.1)	17.3 (2.1)	9.1 (1.5)	6.6 (1.4)	2.6	100.0
Florida	39.7 (1.2)	17.2 (0.9)	22.6 (1.1)	11.5 (0.8)	6.5 (0.7)	2.5	100.0
Miami-Dade County	37.6 (3.1)	13.0 (2.1)	27.8 (3.2)	11.9 (2.1)	7.1 (2.0)	2.6	100.0
Duval County	44.4 (2.3)	18.8 (1.8)	19.9 (2.0)	6.4 (1.1)	6.5 (1.3)	4.0	100.0
Orange County	46.5 (3.2)	22.2 (2.7)	18.7 (2.8)	6.2 (1.6)	*4.5 (1.6)	1.9	100.0
Rest of Florida	38.4 (1.5)	16.7 (1.2)	23.1 (1.4)	12.9 (1.1)	6.6 (0.8)	2.3	100.0
Georgia	37.0 (1.7)	22.8 (1.4)	20.2 (1.5)	11.0 (1.1)	6.4 (0.9)	2.6	100.0
Fulton/DeKalb counties	41.8 (3.0)	21.6 (2.5)	21.3 (2.8)	9.0 (1.8)	*4.2 (1.4)	2.1	100.0
Rest of Georgia	36.0 (1.9)	23.1 (1.7)	20.0 (1.7)	11.4 (1.3)	6.8 (1.1)	2.7	100.0
Hawaii	31.6 (2.2)	19.6 (1.8)	28.9 (2.2)	11.6 (1.5)	6.5 (1.2)	1.7	100.0
Idaho	52.3 (1.9)	10.4 (1.1)	17.5 (1.5)	12.3 (1.2)	4.9 (0.9)	2.7	100.0
Illinois	38.0 (1.5)	17.5 (1.2)	24.3 (1.5)	13.2 (1.1)	5.5 (0.8)	1.6	100.0
Cook County	42.2 (2.1)	14.9 (1.5)	24.2 (2.0)	10.4 (1.3)	6.3 (1.1)	2.0	100.0
Madison/St. Clair counties	36.5 (3.6)	17.5 (2.8)	25.3 (3.7)	13.7 (2.5)	*5.4 (2.1)	1.6	100.0
Rest of Illinois	36.8 (2.0)	18.2 (1.6)	24.3 (1.9)	14.0 (1.4)	5.2 (1.0)	1.4	100.0
Indiana	36.1 (1.8)	15.4 (1.4)	20.9 (1.6)	15.5 (1.3)	9.5 (1.2)	2.7	100.0
Lake County	33.1 (3.0)	15.1 (2.2)	23.5 (2.9)	16.8 (2.3)	10.1 (2.2)	1.4	100.0
Marion County	44.9 (3.3)	8.8 (1.9)	16.5 (2.7)	16.8 (2.5)	9.0 (2.2)	3.9	100.0
Rest of Indiana	34.8 (2.2)	16.6 (1.7)	21.4 (2.0)	15.1 (1.6)	9.5 (1.5)	2.6	100.0
Iowa	42.2 (2.1)	18.4 (1.6)	19.4 (1.8)	11.9 (1.4)	5.7 (1.1)	2.3	100.0
Kansas	42.3 (1.9)	13.5 (1.3)	23.2 (1.7)	11.0 (1.2)	8.3 (1.2)	1.7	100.0
Johnson/Wyandotte counties	35.0 (3.3)	14.2 (2.4)	31.8 (3.5)	10.8 (2.1)	*6.6 (2.0)	1.7	100.0
Rest of Kansas	44.8 (2.2)	13.3 (1.5)	20.3 (1.9)	11.0 (1.4)	8.8 (1.4)	1.7	100.0
Kentucky	37.0 (2.2)	15.3 (1.7)	19.7 (2.0)	16.6 (1.7)	9.1 (1.5)	2.4	100.0
Louisiana	36.2 (2.2)	16.5 (1.7)	26.4 (2.2)	11.9 (1.5)	7.1 (1.3)	1.9	100.0
Maine	35.0 (2.3)	13.4 (1.6)	21.0 (2.1)	22.6 (2.0)	6.8 (1.3)	1.3	100.0
Maryland	29.4 (1.6)	18.1 (1.4)	28.4 (1.7)	17.8 (1.4)	4.6 (0.8)	1.6	100.0
Baltimore City	39.6 (3.2)	11.7 (2.1)	23.4 (3.1)	12.1 (2.2)	9.4 (2.3)	3.8	100.0
Prince George's County	§	§	§	§	§	§	§
Rest of Maryland	27.6 (2.0)	17.9 (1.7)	30.3 (2.2)	19.0 (1.8)	3.8 (1.0)	1.4	100.0
Massachusetts	24.1 (1.6)	17.0 (1.4)	34.3 (2.0)	15.0 (1.4)	8.4 (1.2)	1.1	100.0
Suffolk County	37.5 (3.6)	17.5 (2.8)	19.8 (3.4)	12.2 (2.5)	11.2 (2.8)	1.6	100.0
Rest of Massachusetts	22.6 (1.7)	16.9 (1.6)	36.0 (2.1)	15.4 (1.5)	8.1 (1.2)	1.1	100.0
Michigan	39.5 (1.7)	14.4 (1.2)	21.6 (1.6)	15.8 (1.3)	6.5 (1.0)	2.2	100.0
Wayne County	46.6 (2.8)	16.9 (2.1)	16.8 (2.4)	9.4 (1.6)	5.8 (1.5)	4.6	100.0
Rest of Michigan	39.0 (1.9)	14.2 (1.3)	21.9 (1.7)	16.3 (1.4)	6.6 (1.0)	2.1	100.0
Minnesota	35.7 (1.7)	17.5 (1.3)	26.5 (1.7)	13.8 (1.2)	5.0 (0.9)	1.4	100.0
Twin Cities counties[4]	36.7 (2.3)	18.3 (1.8)	27.9 (2.3)	12.5 (1.6)	3.2 (0.9)	1.3	100.0
Rest of Minnesota	34.6 (2.5)	16.6 (1.9)	24.9 (2.5)	15.3 (1.9)	7.2 (1.5)	1.4	100.0

See footnotes at end of table.

Table 2. Modeled estimates (with standard errors) of the percent distribution of household telephone status for adults aged 18 and over, by selected geographic areas: United States, 2012—Con.

Geographic area	Wireless-only	Wireless-mostly	Dual-use	Landline-mostly	Landline-only	No telephone service[1]	Total
	Percent (standard error)						
Mississippi	49.4 (1.9)	12.6 (1.3)	16.0 (1.5)	14.2 (1.3)	5.8 (1.0)	2.1	100.0
Missouri	41.4 (2.0)	15.8 (1.4)	20.6 (1.7)	14.1 (1.4)	5.9 (1.0)	2.1	100.0
St. Louis County/City	38.1 (3.2)	15.4 (2.3)	25.1 (3.2)	13.4 (2.2)	6.4 (1.9)	1.5	100.0
Rest of Missouri	42.4 (2.4)	15.9 (1.7)	19.3 (2.0)	14.3 (1.7)	5.7 (1.2)	2.3	100.0
Montana	§	§	§	§	§	§	§
Nebraska	37.5 (2.0)	15.3 (1.5)	25.0 (1.9)	12.9 (1.4)	7.7 (1.2)	1.6	100.0
Nevada	38.9 (1.8)	21.2 (1.5)	19.9 (1.6)	9.4 (1.0)	9.1 (1.2)	1.5	100.0
Clark County	40.7 (2.2)	21.6 (1.9)	19.8 (1.9)	7.9 (1.2)	8.6 (1.4)	1.5	100.0
Rest of Nevada	34.4 (2.9)	20.1 (2.4)	20.1 (2.6)	13.0 (2.0)	10.5 (2.1)	1.7	100.0
New Hampshire	26.7 (1.9)	17.5 (1.6)	31.8 (2.1)	17.6 (1.6)	5.2 (1.0)	1.2	100.0
New Jersey	19.4 (1.4)	25.7 (1.6)	31.1 (1.8)	15.2 (1.3)	6.9 (1.0)	1.6	100.0
Essex County	40.2 (3.7)	14.8 (2.6)	30.9 (3.9)	*3.3 (1.3)	8.2 (2.4)	2.5	100.0
Rest of New Jersey	18.8 (1.5)	26.0 (1.6)	31.1 (1.8)	15.5 (1.3)	6.9 (1.0)	1.6	100.0
New Mexico	36.8 (2.0)	13.2 (1.4)	21.7 (1.9)	9.4 (1.2)	15.1 (1.7)	3.8	100.0
Southern counties[5]	40.1 (3.0)	9.4 (1.7)	22.7 (2.8)	9.2 (1.8)	15.3 (2.5)	3.3	100.0
Rest of New Mexico	35.6 (2.5)	14.6 (1.8)	21.4 (2.3)	9.4 (1.5)	15.1 (2.1)	4.0	100.0
New York	23.5 (1.2)	17.7 (1.1)	30.9 (1.4)	16.5 (1.1)	9.4 (0.9)	2.0	100.0
City of New York counties[6]	29.4 (1.6)	16.7 (1.3)	30.3 (1.7)	10.2 (1.1)	10.6 (1.2)	2.7	100.0
Rest of New York	19.1 (1.6)	18.4 (1.6)	31.3 (2.0)	21.3 (1.7)	8.6 (1.3)	1.4	100.0
North Carolina	34.7 (1.7)	12.7 (1.2)	26.2 (1.7)	17.2 (1.4)	7.6 (1.0)	1.7	100.0
North Dakota	40.2 (1.7)	10.8 (1.1)	23.2 (1.5)	8.4 (1.0)	15.6 (1.3)	1.7	100.0
Ohio	36.8 (1.4)	16.1 (1.1)	24.0 (1.3)	15.8 (1.1)	5.3 (0.7)	2.1	100.0
Cuyahoga County	38.1 (3.2)	18.4 (2.5)	19.3 (2.9)	16.2 (2.4)	6.1 (1.8)	1.9	100.0
Franklin County	41.8 (3.7)	17.1 (2.8)	25.4 (3.8)	10.7 (2.4)	†	2.4	100.0
Rest of Ohio	35.9 (1.7)	15.6 (1.3)	24.4 (1.6)	16.4 (1.3)	5.5 (0.8)	2.1	100.0
Oklahoma	39.0 (2.0)	19.2 (1.6)	21.2 (1.8)	11.3 (1.3)	7.6 (1.2)	1.8	100.0
Oregon	36.8 (2.2)	16.1 (1.7)	19.7 (1.9)	16.4 (1.7)	9.2 (1.4)	1.8	100.0
Pennsylvania	26.2 (1.3)	18.7 (1.2)	26.4 (1.4)	18.4 (1.2)	8.7 (0.9)	1.5	100.0
Allegheny County	40.4 (3.4)	12.6 (2.3)	24.5 (3.3)	14.4 (2.4)	*6.8 (2.0)	1.4	100.0
Philadelphia County	37.8 (2.9)	18.1 (2.2)	21.8 (2.7)	13.0 (2.0)	6.6 (1.7)	2.7	100.0
Rest of Pennsylvania	22.7 (1.6)	19.5 (1.5)	27.4 (1.7)	19.7 (1.5)	9.3 (1.2)	1.4	100.0
Rhode Island	24.9 (1.8)	22.0 (1.7)	28.5 (1.9)	15.9 (1.5)	6.9 (1.1)	1.7	100.0
South Carolina	39.0 (2.1)	16.3 (1.5)	18.7 (1.8)	16.0 (1.5)	8.0 (1.2)	2.0	100.0
South Dakota	§	§	§	§	§	§	§
Tennessee	37.8 (1.7)	16.7 (1.3)	24.6 (1.7)	13.3 (1.2)	5.4 (0.9)	2.1	100.0
Davidson County	51.2 (3.6)	16.5 (2.6)	16.1 (3.0)	10.4 (2.2)	*4.1 (1.7)	1.7	100.0
Shelby County	46.2 (3.3)	17.9 (2.5)	19.7 (2.9)	8.7 (1.8)	*5.6 (1.8)	1.9	100.0
Rest of Tennessee	34.5 (2.1)	16.5 (1.6)	26.7 (2.1)	14.6 (1.6)	5.6 (1.1)	2.2	100.0
Texas	44.5 (1.2)	18.5 (0.9)	18.0 (1.0)	9.4 (0.7)	7.5 (0.6)	2.0	100.0
Bexar County	42.6 (2.5)	16.1 (1.9)	17.7 (2.1)	5.8 (1.2)	16.0 (2.1)	1.7	100.0
Dallas County	56.5 (2.6)	16.4 (1.9)	13.1 (1.9)	7.1 (1.3)	5.2 (1.3)	1.8	100.0
El Paso County	§	§	§	§	§	§	§
Harris County	47.0 (2.1)	20.7 (1.7)	16.4 (1.7)	9.7 (1.3)	3.7 (0.9)	2.5	100.0
Rest of Texas	42.9 (1.6)	19.0 (1.2)	19.3 (1.3)	10.2 (1.0)	6.7 (0.8)	1.9	100.0
Utah	46.6 (1.9)	15.2 (1.3)	22.1 (1.6)	10.2 (1.1)	4.1 (0.8)	1.8	100.0
Vermont	29.9 (1.9)	11.5 (1.3)	23.9 (1.8)	22.4 (1.7)	11.1 (1.4)	1.2	100.0
Virginia	32.0 (1.9)	22.1 (1.7)	24.0 (1.9)	14.6 (1.4)	5.3 (1.0)	1.9	100.0
Washington	39.4 (1.6)	17.4 (1.2)	22.1 (1.5)	13.4 (1.1)	6.3 (0.9)	1.4	100.0
Eastern counties[7]	34.2 (2.4)	19.4 (2.0)	22.8 (2.3)	15.8 (1.9)	6.2 (1.4)	1.7	100.0
King County	46.0 (2.9)	16.9 (2.2)	21.0 (2.6)	9.8 (1.7)	*4.7 (1.4)	1.5	100.0
Rest of Washington	37.6 (2.4)	16.7 (1.9)	22.5 (2.3)	14.6 (1.8)	7.4 (1.5)	1.2	100.0
West Virginia	30.2 (2.4)	11.1 (1.6)	14.6 (1.9)	24.8 (2.2)	16.7 (2.1)	2.5	100.0
Wisconsin	39.0 (2.0)	11.3 (1.3)	20.2 (1.7)	18.0 (1.6)	9.8 (1.3)	1.7	100.0
Milwaukee County	§	§	§	§	§	§	§
Rest of Wisconsin	36.6 (2.2)	11.9 (1.5)	20.3 (2.0)	19.5 (1.8)	10.1 (1.5)	1.5	100.0
Wyoming	§	§	§	§	§	§	§

* Estimate has a relative standard error greater than 30% and less than or equal to 50% and is considered unreliable.

§ Model-based estimates for Maryland-Prince George's County, Montana, South Dakota, Texas-El Paso County, Wisconsin-Milwaukee County, and Wyoming are not reported because, for at least one telephone service use category, direct estimates from the National Health Information Survey were more than double or less than one-half the synthetic estimate. These differences between two components of the model-based estimates suggest that the direct estimates for these areas may be biased. Biased estimates violate a key model-based estimation assumption.

† Estimate has a relative standard error greater than 50% and is not shown.

[1]The proportion of adults living in households with no telephone service was not modeled. Other proportions were adjusted so that this estimate agreed with the 2011 American Community Survey estimate for this proportion.

[2]Includes Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Sierra, Siskiyou, Tehama, and Trinity.

[3]Includes Adams, Arapahoe, Denver, and Douglas.
[4]Includes Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.
[5]Includes Catron, Chaves, Curry, De Baca, Dona Ana, Eddy, Grant, Hidalgo, Lea, Lincoln, Luna, Otero, Roosevelt, Sierra, and Socorro.
[6]Includes Bronx, Kings, New York, Queens, and Richmond.
[7]Includes Adams, Asotin, Benton, Chelan, Columbia, Douglas, Ferry, Franklin, Garfield, Grant, Kittitas, Klickitat, Lincoln, Okanogan, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman, and Yakima.

NOTE: Estimates were calculated by NORC at the University of Chicago.

SOURCES: CDC/NCHS, National Health Interview Survey, 2007–2012; U.S. Census Bureau, American Community Survey, 2006–2011; and infoUSA.com consumer database, 2007–2012.

Table 3. Modeled estimates (with standard errors) of the percent distribution of household telephone status for children under age 18, by selected geographic areas: United States, 2012

Geographic area	Wireless-only	Wireless-mostly	Dual-use	Landline-mostly	Landline-only	No telephone service[1]	Total
	Percent (standard error)						
Alabama	49.6 (3.2)	19.8 (2.7)	18.5 (2.9)	6.6 (1.6)	*3.5 (1.5)	2.1	100.0
Jefferson County	55.2 (4.4)	20.3 (3.7)	16.4 (3.7)	†	†	1.4	100.0
Rest of Alabama	48.7 (3.7)	19.7 (3.1)	18.8 (3.3)	7.2 (1.9)	*3.5 (1.6)	2.2	100.0
Alaska	25.7 (3.7)	27.6 (3.9)	30.6 (4.2)	10.1 (2.6)	*5.1 (2.1)	0.9	100.0
Arizona	49.9 (2.7)	19.7 (2.3)	16.3 (2.3)	3.7 (0.9)	8.4 (1.9)	2.0	100.0
Maricopa County	52.0 (3.7)	18.6 (3.0)	15.7 (3.0)	†	10.9 (2.8)	1.6	100.0
Rest of Arizona	46.3 (3.9)	21.4 (3.5)	17.4 (3.4)	7.8 (2.0)	*4.2 (2.0)	2.8	100.0
Arkansas	59.8 (3.1)	16.3 (2.5)	14.1 (2.5)	*4.1 (1.3)	*3.0 (1.3)	2.8	100.0
California	38.2 (1.2)	22.9 (1.1)	24.1 (1.1)	7.4 (0.6)	6.0 (0.6)	1.4	100.0
Alameda County	37.0 (4.3)	22.7 (4.0)	34.2 (4.9)	*4.9 (1.8)	†	0.7	100.0
Fresno County	36.1 (3.6)	11.5 (2.5)	28.3 (3.8)	8.1 (2.1)	14.7 (3.3)	1.3	100.0
Los Angeles County	36.7 (2.2)	24.4 (2.0)	23.5 (2.0)	7.2 (1.2)	6.5 (1.3)	1.6	100.0
Northern counties[2]	38.2 (4.4)	18.3 (3.8)	25.8 (4.6)	8.6 (2.4)	*7.6 (3.1)	1.5	100.0
San Bernardino County	45.8 (3.9)	22.9 (3.5)	19.8 (3.5)	6.9 (1.9)	*3.4 (1.7)	1.1	100.0
San Diego County	29.5 (3.0)	23.4 (2.9)	28.4 (3.3)	8.2 (1.8)	8.2 (2.1)	2.3	100.0
Santa Clara County	34.9 (3.7)	24.1 (3.5)	31.7 (4.1)	*3.9 (1.5)	*4.6 (2.0)	0.7	100.0
Rest of California	40.0 (2.0)	22.9 (1.7)	22.2 (1.7)	7.9 (1.1)	5.6 (1.0)	1.3	100.0
Colorado	45.1 (2.8)	21.1 (2.4)	23.7 (2.6)	6.1 (1.3)	*2.2 (1.0)	1.9	100.0
City of Denver counties[3]	46.3 (3.9)	20.2 (3.3)	24.5 (3.7)	*5.5 (1.7)	†	1.4	100.0
Rest of Colorado	44.2 (3.8)	21.7 (3.3)	23.1 (3.6)	6.5 (1.9)	†	2.2	100.0
Connecticut	25.4 (2.6)	20.6 (2.5)	32.9 (3.0)	11.8 (1.9)	8.4 (1.9)	0.8	100.0
Delaware	26.8 (3.3)	28.5 (3.5)	35.5 (3.9)	5.9 (1.8)	†	1.2	100.0
District of Columbia	42.2 (4.4)	19.4 (3.7)	25.3 (4.0)	*3.8 (1.7)	*7.2 (2.6)	2.2	100.0
Florida	49.2 (1.8)	21.1 (1.6)	21.4 (1.6)	2.6 (0.6)	2.7 (0.7)	3.1	100.0
Miami-Dade County	53.2 (4.6)	18.3 (3.8)	21.1 (4.3)	†	†	2.9	100.0
Duval County	54.2 (3.3)	18.6 (2.8)	18.6 (2.9)	*1.9 (0.9)	†	5.7	100.0
Orange County	51.4 (4.6)	23.3 (4.2)	21.1 (4.4)	†	†	1.7	100.0
Rest of Florida	47.7 (2.3)	21.5 (2.0)	22.0 (2.1)	3.0 (0.8)	3.0 (0.9)	2.7	100.0
Georgia	45.9 (2.4)	24.6 (2.2)	18.7 (2.0)	3.9 (1.0)	3.8 (1.1)	3.0	100.0
Fulton/DeKalb counties	48.8 (4.4)	25.1 (4.1)	22.8 (4.3)	†	†	2.1	100.0
Rest of Georgia	45.4 (2.7)	24.5 (2.5)	18.0 (2.3)	4.5 (1.1)	4.4 (1.3)	3.2	100.0
Hawaii	43.8 (3.9)	18.6 (3.2)	28.6 (3.9)	*3.7 (1.4)	*3.5 (1.7)	1.7	100.0
Idaho	62.2 (2.6)	9.1 (1.6)	17.8 (2.2)	7.0 (1.4)	†	2.7	100.0
Illinois	42.4 (2.3)	21.3 (2.0)	26.5 (2.2)	5.9 (1.1)	*2.3 (0.8)	1.6	100.0
Cook County	42.3 (3.2)	16.2 (2.5)	32.4 (3.3)	*4.1 (1.3)	*2.5 (1.2)	2.4	100.0
Madison/St. Clair counties	45.6 (5.5)	21.4 (4.7)	25.9 (5.6)	*5.8 (2.4)	†	1.2	100.0
Rest of Illinois	42.2 (2.9)	22.7 (2.6)	25.0 (2.8)	6.4 (1.4)	*2.3 (1.0)	1.4	100.0
Indiana	46.3 (2.9)	16.0 (2.2)	19.5 (2.5)	6.5 (1.4)	8.3 (1.9)	3.4	100.0
Lake County	44.5 (5.2)	18.9 (4.2)	21.0 (4.8)	*5.5 (2.3)	*8.0 (3.6)	2.1	100.0
Marion County	52.8 (4.7)	11.0 (3.1)	21.0 (4.3)	*5.2 (2.0)	*5.9 (2.8)	4.1	100.0
Rest of Indiana	45.3 (3.5)	16.6 (2.8)	19.1 (3.1)	6.9 (1.7)	8.7 (2.4)	3.4	100.0
Iowa	45.4 (3.2)	27.5 (3.0)	18.0 (2.7)	*3.3 (1.1)	*2.7 (1.2)	3.0	100.0
Kansas	52.5 (2.7)	15.9 (2.1)	21.9 (2.4)	5.2 (1.2)	*3.2 (1.1)	1.4	100.0
Johnson/Wyandotte counties	41.5 (4.8)	17.6 (3.9)	32.9 (5.2)	*5.0 (2.0)	†	1.1	100.0
Rest of Kansas	56.4 (3.2)	15.3 (2.4)	18.0 (2.7)	5.3 (1.4)	*3.6 (1.4)	1.4	100.0
Kentucky	52.5 (3.2)	16.2 (2.5)	14.6 (2.5)	9.4 (1.8)	*4.3 (1.5)	3.0	100.0
Louisiana	45.1 (3.1)	21.5 (2.7)	24.4 (3.0)	4.8 (1.3)	†	2.2	100.0
Maine	41.6 (3.3)	17.9 (2.7)	21.8 (3.0)	16.1 (2.5)	†	0.6	100.0
Maryland	33.6 (2.4)	22.7 (2.3)	30.6 (2.7)	9.7 (1.6)	†	2.1	100.0
Baltimore City	51.8 (5.3)	12.5 (3.6)	22.0 (4.9)	*6.7 (2.5)	†	5.4	100.0
Prince George's County	§	§	§	§	§	§	§
Rest of Maryland	30.0 (3.0)	23.3 (2.9)	32.8 (3.4)	10.6 (2.0)	†	1.9	100.0
Massachusetts	26.7 (2.7)	22.3 (2.7)	37.9 (3.3)	8.6 (1.7)	*3.3 (1.3)	1.2	100.0
Suffolk County	48.9 (6.8)	22.0 (5.8)	*20.2 (6.1)	†	†	2.8	100.0
Rest of Massachusetts	24.9 (2.8)	22.3 (2.9)	39.4 (3.5)	8.9 (1.8)	*3.4 (1.4)	1.1	100.0
Michigan	44.2 (2.6)	18.6 (2.2)	23.5 (2.5)	8.1 (1.5)	*3.2 (1.1)	2.3	100.0
Wayne County	59.6 (4.1)	19.5 (3.7)	12.4 (3.4)	*2.8 (1.3)	†	3.5	100.0
Rest of Michigan	42.9 (2.8)	18.6 (2.3)	24.5 (2.7)	8.6 (1.6)	*3.3 (1.2)	2.2	100.0
Minnesota	36.7 (2.6)	22.5 (2.4)	30.0 (2.8)	8.3 (1.5)	†	1.2	100.0
Twin Cities counties[4]	37.0 (3.7)	19.9 (3.2)	33.1 (4.0)	9.0 (2.1)	†	0.8	100.0
Rest of Minnesota	36.3 (3.7)	25.7 (3.6)	26.1 (3.8)	7.4 (2.0)	†	1.5	100.0

See footnotes at end of table.

Table 3. Modeled estimates (with standard errors) of the percent distribution of household telephone status for children under age 18, by selected geographic areas: United States, 2012—Con.

Geographic area	Wireless-only	Wireless-mostly	Dual-use	Landline-mostly	Landline-only	No telephone service[1]	Total
	Percent (standard error)						
Mississippi	63.4 (3.0)	15.4 (2.4)	11.3 (2.2)	5.5 (1.4)	*2.5 (1.1)	1.9	100.0
Missouri	55.2 (3.0)	17.8 (2.4)	16.4 (2.4)	5.9 (1.4)	*2.3 (1.1)	2.5	100.0
St. Louis County/City	39.2 (4.8)	22.9 (4.4)	28.6 (5.1)	*6.5 (2.3)	†	2.1	100.0
Rest of Missouri	59.4 (3.5)	16.5 (2.8)	13.1 (2.6)	5.8 (1.6)	†	2.5	100.0
Montana	§	§	§	§	§	§	§
Nebraska	43.7 (3.2)	19.7 (2.7)	26.8 (3.2)	5.8 (1.5)	*2.4 (1.2)	1.6	100.0
Nevada	41.7 (2.8)	27.2 (2.6)	20.8 (2.5)	4.0 (1.1)	*4.7 (1.4)	1.7	100.0
Clark County	40.6 (3.4)	25.0 (3.1)	22.9 (3.1)	*4.0 (1.3)	*6.1 (1.9)	1.5	100.0
Rest of Nevada	44.6 (5.0)	33.5 (4.8)	15.0 (3.9)	*3.9 (1.9)	†	2.2	100.0
New Hampshire	30.3 (3.2)	23.4 (3.1)	32.7 (3.6)	9.8 (2.1)	†	1.2	100.0
New Jersey	20.6 (2.2)	31.2 (2.7)	33.2 (2.9)	8.5 (1.6)	4.8 (1.4)	1.7	100.0
Essex County	38.2 (5.0)	20.4 (4.3)	33.1 (5.5)	†	†	4.3	100.0
Rest of New Jersey	19.9 (2.3)	31.6 (2.8)	33.2 (3.0)	8.8 (1.6)	*4.8 (1.5)	1.6	100.0
New Mexico	53.4 (3.3)	15.2 (2.5)	18.7 (2.8)	*2.7 (1.1)	*5.1 (1.8)	4.8	100.0
Southern counties[5]	59.1 (4.6)	10.4 (2.9)	20.7 (4.3)	†	†	4.5	100.0
Rest of New Mexico	51.2 (4.1)	17.1 (3.2)	17.9 (3.5)	*3.4 (1.5)	*5.5 (2.3)	5.0	100.0
New York	26.8 (1.9)	21.0 (1.8)	34.5 (2.2)	10.7 (1.3)	4.9 (1.1)	2.0	100.0
City of New York counties[6]	29.8 (2.7)	20.3 (2.5)	34.7 (3.0)	7.3 (1.5)	5.3 (1.5)	2.7	100.0
Rest of New York	24.7 (2.6)	21.6 (2.5)	34.3 (3.1)	13.1 (2.0)	*4.7 (1.4)	1.6	100.0
North Carolina	47.1 (2.6)	17.8 (2.1)	23.2 (2.4)	6.9 (1.3)	*3.4 (1.1)	1.6	100.0
North Dakota	50.0 (3.2)	16.3 (2.4)	25.2 (2.9)	†	6.8 (1.8)	1.5	100.0
Ohio	44.7 (2.4)	18.1 (1.9)	22.8 (2.2)	8.5 (1.3)	*2.9 (1.0)	3.0	100.0
Cuyahoga County	37.0 (4.2)	20.5 (3.8)	25.5 (4.4)	14.2 (3.0)	†	2.5	100.0
Franklin County	43.1 (4.5)	19.7 (3.8)	28.5 (4.7)	*5.4 (2.0)	†	1.6	100.0
Rest of Ohio	46.0 (2.9)	17.5 (2.3)	21.7 (2.6)	8.2 (1.6)	*3.4 (1.2)	3.2	100.0
Oklahoma	50.9 (3.4)	24.8 (3.0)	15.1 (2.6)	*3.3 (1.2)	*4.6 (1.6)	1.3	100.0
Oregon	41.5 (3.4)	21.4 (3.0)	22.3 (3.2)	7.2 (1.8)	*5.7 (1.9)	1.9	100.0
Pennsylvania	31.4 (2.1)	24.6 (2.1)	29.9 (2.4)	8.5 (1.3)	3.6 (1.0)	2.1	100.0
Allegheny County	43.9 (5.4)	21.7 (4.7)	28.6 (5.6)	*4.7 (2.2)	†	0.9	100.0
Philadelphia County	46.8 (4.4)	17.1 (3.4)	22.3 (4.1)	8.5 (2.3)	†	2.7	100.0
Rest of Pennsylvania	27.6 (2.5)	26.1 (2.6)	31.2 (2.8)	8.9 (1.6)	*4.1 (1.3)	2.2	100.0
Rhode Island	34.8 (3.4)	27.9 (3.3)	25.4 (3.4)	6.5 (1.8)	*3.4 (1.5)	1.9	100.0
South Carolina	54.5 (3.3)	19.0 (2.7)	16.2 (2.6)	5.8 (1.5)	*2.5 (1.2)	2.1	100.0
South Dakota	§	§	§	§	§	§	§
Tennessee	52.3 (2.6)	18.1 (2.1)	20.6 (2.4)	5.9 (1.3)	†	2.3	100.0
Davidson County	61.8 (5.4)	17.6 (4.2)	17.5 (4.6)	†	†	2.1	100.0
Shelby County	54.1 (4.7)	22.4 (4.2)	16.8 (4.0)	†	†	1.4	100.0
Rest of Tennessee	50.7 (3.3)	17.2 (2.6)	21.8 (3.0)	7.2 (1.7)	†	2.5	100.0
Texas	54.2 (1.7)	21.6 (1.5)	14.7 (1.3)	4.1 (0.7)	3.4 (0.7)	2.1	100.0
Bexar County	57.0 (3.9)	18.4 (3.2)	16.4 (3.2)	†	*5.9 (2.2)	1.6	100.0
Dallas County	65.9 (3.6)	17.6 (3.0)	10.7 (2.6)	*3.6 (1.4)	†	2.0	100.0
El Paso County	§	§	§	§	§	§	§
Harris County	54.8 (2.9)	22.6 (2.5)	13.5 (2.1)	4.7 (1.2)	*2.1 (1.0)	2.4	100.0
Rest of Texas	52.0 (2.2)	22.8 (1.9)	15.3 (1.7)	4.6 (0.9)	3.4 (0.9)	1.9	100.0
Utah	48.5 (2.6)	19.7 (2.1)	23.5 (2.3)	4.5 (1.0)	*1.9 (0.8)	1.9	100.0
Vermont	24.5 (3.2)	13.5 (2.6)	32.8 (3.7)	20.7 (3.0)	8.2 (2.3)	0.2	100.0
Virginia	36.2 (2.7)	24.3 (2.5)	27.6 (2.7)	6.9 (1.4)	*3.1 (1.1)	2.0	100.0
Washington	41.8 (2.2)	20.6 (1.9)	23.9 (2.1)	7.8 (1.2)	4.6 (1.2)	1.3	100.0
Eastern counties[7]	44.2 (3.7)	23.4 (3.3)	21.5 (3.4)	7.2 (1.9)	†	1.8	100.0
King County	41.0 (4.0)	19.3 (3.5)	31.9 (4.4)	*4.7 (1.7)	†	1.4	100.0
Rest of Washington	41.1 (3.4)	19.9 (3.0)	20.7 (3.2)	9.8 (2.0)	7.5 (2.2)	1.0	100.0
West Virginia	42.7 (3.6)	11.9 (2.4)	13.9 (2.7)	18.6 (2.8)	10.0 (2.5)	2.9	100.0
Wisconsin	44.5 (3.0)	17.4 (2.5)	24.3 (3.0)	8.6 (1.7)	*2.6 (1.2)	2.7	100.0
Milwaukee County	§	§	§	§	§	§	§
Rest of Wisconsin	41.0 (3.5)	18.5 (2.9)	25.6 (3.5)	9.9 (2.1)	†	2.5	100.0
Wyoming	§	§	§	§	§	§	§

* Estimate has a relative standard error greater than 30% and less than or equal to 50% and is considered unreliable.

† Estimate has a relative standard error greater than 50% and is not shown.

§ Model-based estimates for Maryland-Prince George's County, Montana, South Dakota, Texas-El Paso County, Wisconsin-Milwaukee County, and Wyoming are not reported because, for at least one telephone service use category, direct estimates from the National Health Information Survey were more than double or less than one-half the synthetic estimate. These differences between two components of the model-based estimates suggest that the direct estimates for these areas may be biased. Biased estimates violate a key model-based estimation assumption.

[1]The proportion of children living in households with no telephone service was not modeled. Other proportions were adjusted so that this estimate agreed with the 2011 American Community Survey estimate for this proportion.

[2]Includes Butte, Colusa, Del Norte, Glenn, Humboldt, Lake, Lassen, Mendocino, Modoc, Plumas, Shasta, Sierra, Siskiyou, Tehama, and Trinity.
[3]Includes Adams, Arapahoe, Denver, and Douglas.
[4]Includes Anoka, Carver, Dakota, Hennepin, Ramsey, Scott, and Washington.
[5]Includes Catron, Chaves, Curry, De Baca, Dona Ana, Eddy, Grant, Hidalgo, Lea, Lincoln, Luna, Otero, Roosevelt, Sierra, and Socorro.
[6]Includes Bronx, Kings, New York, Queens, and Richmond.
[7]Includes Adams, Asotin, Benton, Chelan, Columbia, Douglas, Ferry, Franklin, Garfield, Grant, Kittitas, Klickitat, Lincoln, Okanogan, Pend Oreille, Spokane, Stevens, Walla Walla, Whitman, and Yakima.

NOTE: Estimates were calculated by NORC at the University of Chicago.

SOURCES: CDC/NCHS, National Health Interview Survey, 2007–2012; U.S. Census Bureau, American Community Survey, 2006–2011; and infoUSA.com consumer database, 2007–2012.

Technical Notes

Survey data sources

The estimates presented in this report are based on National Health Interview Survey (NHIS) data collected from January 2007 through December 2012, and on American Community Survey (ACS) data collected from 2006 through 2011. NHIS is a multipurpose health survey conducted by the Centers for Disease Control and Prevention's (CDC) National Center for Health Statistics (NCHS). ACS is a multipurpose survey conducted by the U.S. Census Bureau to produce estimates of demographic, social, economic, and housing characteristics.

National Health Interview Survey

NHIS is a multistage probability household survey of a large sample of households drawn from the civilian noninstitutionalized household population of the United States. This face-to-face interview survey is administered by trained field representatives from the U.S. Census Bureau, under contract to NCHS. NHIS interviews are conducted continuously throughout the year to collect information that is used to assess progress toward meeting national health objectives. Survey content includes health status, health risk factors, health-related behaviors, health care access, and health care utilization. NHIS also includes questions about demographic and socioeconomic characteristics, household telephones, and whether anyone in the household has a wireless telephone.

The sample for NHIS is stratified by state, which allows NHIS data to be used in statistical models that produce state-level estimates. However, for most states the limited number of sampling strata and small sample sizes preclude reliable direct state-level estimates. Household telephone status information was obtained for 75,150 persons in 2007, for 73,749 persons in 2008, for 88,053 persons in 2009, for 89,620 persons in 2010, for 101,449 persons in 2011, and for 107,723 persons in 2012. Fewer than 0.5% of persons with completed NHIS family-level interviews had missing data for household telephone status.

NHIS was used to derive direct estimates for each telephone service use category by age group (adults aged 18 and over or children under age 18), small area, and 6-month period. These estimates were the dependent variables in the statistical models. Also, NHIS was the source for the national estimates used for raking the model-based estimates for each telephone service use category by age group and year.

American Community Survey

ACS is a multistage probability survey that provides data on households and group quarters. In this report, a subset of the full ACS sample—the civilian noninstitutionalized population—is used to represent a population similar to that sampled for NHIS. Data are collected continuously through a combination of mailed, telephone, and face-to-face interviews. ACS is both nationally and state-representative and has included approximately 2 million housing units per year since 2006.

ACS data are released for calendar years rather than for 6-month periods. Moreover, 2012 ACS data will not be released until Fall 2013. Therefore, ACS data for 2006 were used in models for both 6-month periods of 2007 (i.e., January–June 2007 and July–December 2007). Similarly, ACS data for 2007 were used in models for both 6-month periods of 2008; data for 2008 were used in models for 2009; data for 2009 were used in models for 2010; data for 2010 were used in models for 2011; and data for 2011 were used in models for 2012. Moreover, ACS was the source for the proportion of adults or children living in households with any telephone service (landline or wireless). These ACS estimates were used as benchmarking totals when raking the model-based estimates.

Auxiliary data source

The numbers of listed telephone lines within each state for 2007–2012 were obtained from a consumer database compiled by infoUSA.com (Infogroup, Papillion, NE). This database is updated bimonthly with information from 37 sources, including postal delivery sequence files, National Change of Address lists, utility company records, and more than 4,000 white pages directories. These data were available for each calendar year rather than each 6-month period. Therefore, annual data on listed telephone lines were used in models for both 6-month periods of the selected calendar year. The count of listed telephone lines was divided by the number of civilian noninstitutionalized persons and, because these proportions were available at the state level only, the same state-specific proportion was used in the model for each small area in the state.

Definitions

For each family contacted by NHIS, one adult family member is asked whether ''you or anyone in your family has a working cellular telephone.'' An NHIS family can be an individual or a group of two or more related persons living together in the same housing unit (a ''household''). Thus, a family can consist of only one person, and more than one family can live in a household (including, for example, a household where there are multiple single-person families, as when unrelated roommates are living together).

To produce the statistics for this report, families are identified as ''wireless families'' if anyone in the family had a working cellular telephone at the time of interview. This person (or persons) could be a civilian adult, a member of the military, or a child. Households are identified as ''wireless-only'' if they include at least one wireless family and if there are no working landline telephones inside the household. To determine whether there was a working landline telephone inside the household, survey respondents were asked if there was ''at least one phone inside your home that is currently working and is not a cell phone.''

Household telephone status (rather than family telephone status) is used

because most telephone surveys draw samples of households rather than families. Adults and children are identified as wireless-only if they live in a wireless-only household. Individual ownership or use of wireless telephones is not determined. A similar approach is used to identify adults and children living in landline-only households and in households with both landline and wireless telephones.

NHIS includes an additional question for persons living in families with both landline and wireless telephones. The respondent for the family is asked to consider all of the telephone calls the family receives and to report whether ''all or almost all calls are received on cell phones, some are received on cell phones and some on regular telephones, or very few or none are received on cell phones.'' This question permits the identification of persons living in ''wireless-mostly'' households (defined as households with both landline and cellular telephones in which all families receive all or almost all calls on cell phones) and ''landline-mostly'' households (defined as households with both landline and cellular telephones in which all families receive all or almost all calls on landline telephones). ''Dual-use'' households are those with both landline and cellular telephones that are neither wireless-mostly nor landline-mostly. That is, they receive some calls on cell phones and some on landline telephones.

Small-area model

Detailed descriptions of the small-area model and the derivation of the model-based estimates and standard errors are provided elsewhere (2). As noted above, the model-based estimates were a weighted combination of three distinct sets of estimates: (a) the direct estimate from NHIS for the small area during the 6-month period of interest, (b) a synthetic estimate derived from a regression model involving ACS and auxiliary data for the small area during the 6-month period of interest, and (c) adjusted direct estimates from NHIS for the small area during all 6-month periods other than the 6-month period of interest.

NHIS and ACS sampling weights adjust for the probability of selection of each household, and are adjusted for nonresponse. The results in this report are based on weighted estimates. *R* software (http://www.r-project.org) was used to derive the model-based estimates and standard errors. Design effects were included in the models to account for the complex survey designs.

The approach used to create the model-based estimates can produce substantially biased prevalence estimates and unstable variance estimates when the direct estimate from NHIS is based on small sample sizes, when that sample is drawn from only a few geographic areas, and when those few geographic areas are not representative of the state or county of interest. To identify potentially problematic model-based estimates, the person-level prevalence ratio of the direct survey estimate to the synthetic regression-based estimate was examined for each telephone service use category and for each small area. Ratios were computed across all 6-month periods. If the ratios for any telephone service use category were greater than two or less than one-half, then all model-based estimates for that reporting area were suppressed from Tables 1–3 in this report. This occurred for six small areas: Maryland-Prince George's County, Montana, South Dakota, Texas-El Paso County, Wisconsin-Milwaukee County, and Wyoming. For these areas, the synthetic estimates derived from the regression model are presented in the Table below.

Table. Synthetic regression-based estimates (with standard errors) of the percent distribution of household telephone status, by age, for selected geographic areas where model-based estimates are not reported: United States, 2012

Age and geographic area	Wireless-only	Wireless-mostly	Dual-use	Landline-mostly	Landline-only	No telephone service[1]	Total
Adults aged 18 and over	Percent (standard error)						
Maryland-Prince George's County	32.2 (5.7)	21.3 (4.3)	29.6 (6.0)	13.3 (3.6)	†	1.0	100.0
Montana	39.9 (6.1)	16.9 (3.8)	17.7 (4.9)	14.7 (3.8)	†	2.4	100.0
South Dakota	38.6 (5.9)	15.1 (3.6)	21.8 (5.1)	13.9 (3.7)	†	2.0	100.0
Texas-El Paso County	43.8 (6.3)	14.3 (3.7)	23.2 (5.5)	†	†	3.8	100.0
Wisconsin-Milwaukee County	44.1 (6.1)	13.7 (3.5)	20.8 (5.1)	*9.7 (3.2)	†	2.4	100.0
Wyoming	39.3 (6.1)	15.7 (3.7)	19.8 (5.1)	13.3 (3.7)	†	2.1	100.0
Children under age 18							
Maryland-Prince George's County	35.6 (7.5)	24.8 (6.4)	31.2 (7.8)	†	†	1.0	100.0
Montana	49.7 (8.1)	22.9 (6.2)	*15.6 (6.0)	†	†	2.5	100.0
South Dakota	46.2 (7.7)	19.3 (5.6)	22.3 (6.5)	†	†	2.5	100.0
Texas-El Paso County	55.9 (7.4)	*15.2 (5.0)	*17.7 (6.0)	†	†	5.2	100.0
Wisconsin-Milwaukee County	51.5 (8.1)	*16.4 (5.4)	*21.1 (6.6)	†	†	3.4	100.0
Wyoming	47.3 (8.0)	21.0 (5.9)	*17.9 (6.3)	†	†	1.7	100.0

† Estimate has a relative standard error greater than 50% and is not shown.

* Estimate has a relative standard error greater than 30% and less than or equal to 50% and is considered unreliable.

[1]The proportion of persons living in households with no telephone service was not modeled. Other proportions were adjusted so that this estimate agreed with the 2011 American Community Survey estimate for this proportion.

NOTES: Model-based estimates for these six areas are not reported in the main-text tables because the direct National Health Interview Survey estimates (a component of the model-based estimates) may be biased. This table presents synthetic estimates (another component of the model-based estimates) for these areas. These synthetic estimates are the best available estimates for these areas but should be used with caution because they are generally less reliable than the model-based estimates reported for other geographic areas. Estimates were calculated by NORC at the University of Chicago.

SOURCES: U.S. Census Bureau, American Community Survey, 2006–2011; and infoUSA.com consumer database, 2007–2012.

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