

SUPPORTING STATEMENT

Part B. Statistical Methods:**B.1 *Survey Purpose***

The purpose of the annual Urban Rate Survey (URS) is to collect price data separately for standalone residential telephone service (voice URS) and internet access service (broadband URS) currently charged by a representative sample of fixed voice and broadband providers in urban Census tracts in the United States.

The goal of the URS is to publish “reasonable comparability benchmarks” that serve as price caps for new residential fixed voice and broadband services to be offered the following year by providers that participate in at least one High Cost program under the Universal Service Fund. Because all such providers will have to offer these new services to non-urban areas, the benchmarks ensure that these providers offer these services at reasonably comparable rates for the same or similar services in urban areas.

There is only one voice benchmark, but there are as many broadband benchmarks as the number of internet service plans (or “tiers”) defined by three parameters: minimum download speed, minimum upload speed (both in megabits per second, Mbps), and monthly capacity allowance (in gigabytes, GB). Moreover, the broadband benchmarks are produced separately for the continental United States and Alaska.

For both voice and broadband services, the definition of reasonable comparability benchmark is the same: national average price, plus twice the standard deviation. While this definition refers to a “national average,” the URS does not produce national average fixed voice or broadband price estimates that can be regarded as official statistics in any context.

B.2 *Respondent Universe*

The universe of respondents for the URS consists of providers of fixed voice or broadband services that are required to file, and did file, the Form 477 in December of the year prior to data collection. This universe is limited to providers of residential services, and for broadband is further limited to providers of terrestrial services. This definition of the respondent universe will not change even after the Form 477 is decommissioned and replaced by the Broadband Data Collection (BDC).

The URS collects voice or broadband price data at the census tract level. By its very nature, the URS limits its scope only to urban tracts, defined historically as those tracts with at least one populated block located within an urban area or urban cluster that is also located within a county designated as a metropolitan statistical area (MSA). In the latest survey cycle, the voice URS universe consisted of about 360 providers in more than 55,100 urban tracts, and the broadband URS consisted of about 1,100 providers in about 58,600 urban tracts.

The current definition of an urban census tract for the purpose of the URS is a tract that has at least 80 percent of its housing units within an urban area that has a population of at least 50,000. This definition is subject to change every 10 years when the Census Bureau modifies the definition of urban areas.

B.3 *Sample Design*

B.3.1 Sampling Frame

For both voice and broadband URS, the frame consists of primary sampling units that are pairs (X,Y) , where Y is a voice or broadband provider as described in the section on *Respondent Universe*, and X is an urban Census tract in which Y provides service. In the latest survey cycle, the voice URS frame consisted of more than 95,400 sampling units, and the broadband URS frame consisted of about 284,500 sampling units.

The current construction method for the URS sampling frames will be retained in future survey cycles.

B.3.2 Stratification

Both voice and broadband URS use a stratified design. However, the exact strata definitions differ between the two.

Voice

There are three types of strata in the voice URS: holding company-based strata, and incumbent and competitive local exchange carriers (ILECs and CLECs/non-ILECs) strata.

A holding company is its own stratum in the voice URS if its measure of size (MOS) is at least a certain threshold (see below for definition of MOS).

Broadband

There are two types of strata in the broadband URS: holding company-based strata, and geography-based strata.

Similar to the voice URS, a holding company is its own stratum in the broadband URS if its MOS is at least a certain threshold.

Geography-based strata are the nine census divisions, Puerto Rico, and Alaska.

B.3.3 Sample Size and Allocation

Both voice and broadband URS use a fixed sample size: about 500 provider-urban tract pairs for voice, and, starting from the 2022 URS, around 2,000 such pairs for broadband. These sample sizes will be retained in future URS rounds.

The samples are allocated using proportional allocation. Additionally, in no case will a given stratum receive a sample size less than 20. This minimum stratum sample size will apply to future voice and broadband URS rounds. Also, we may specify a stratum-level cap in allocated sample size for holding company-based strata.

B.3.4 Measure of Size

In both voice and broadband URS, the MOS of a provider in an urban tract represents its footprint in the tract, obtained directly from the Form 477 or BDC filing. In particular, tract-level residential service deployment counts are used as the MOS.

B.3.4 Sample Selection

Both voice and broadband URS implement probability sampling, which means that every sampling unit has *some* chance of being selected in the sample. However, neither uses equal probability sampling, where every sampling unit has an *equal* chance of selection. Instead, both voice and broadband URS calculate a MOS for every sampling unit in their frame. The sample is then selected independently within each stratum based on this MOS. In this way, sampling units with higher MOS values have a higher chance of selection. This type of unequal probability selection is called probability proportional to size (PPS) sampling.

B.3.5 Weighting

Selection probabilities are calculated based on standard PPS formulas. To be specific, if n_h is the sample size allocated to stratum h , and $z_h = \sum_{i=1}^{n_h} z_i$ is the total MOS for the stratum, where z_i is the MOS for the i th sampling unit, this unit's selection probability, π_i , is given by

$$\pi_i = \frac{z_i}{z_h} * n_h.$$

Depending on the distribution of the MOS in the stratum, this equation may calculate selection probabilities greater than one for some sampling units. This is an artifact of PPS sampling and when it happens, a common procedure is to first set the selection probability manually to one and treat these sampling units as certainties and separate them from the rest of the units. Then, we calculate selection probabilities again for the remaining sampling units in the stratum. We repeat this process until there are no certainty units in the stratum.

Base sampling weights w_i are just the reciprocal of selection probabilities:

$$w_i = \frac{1}{\pi_i} = \frac{z_h}{z_i * n_h}.$$

In particular, certainty units have base weights equal to 1.

After data collection, both voice and broadband URS currently apply additional weight adjustments to account for multiple levels or multiple rates in broadband services, or for simultaneous provision of iVoIP and circuit voice services in the same urban tract.

To ensure that the sample represents the stratum, the same number currently used as the MOS is also applied. In addition, non-response adjustments are commonly applied to remedy unit non-response.

B.4 **Estimation**

The voice benchmark is currently calculated based on survey data alone, consistent with the definition as given in the section on *Survey Purpose* above. Future voice URS rounds will continue to follow this benchmark calculation method.

The broadband benchmark, on the other hand, has never been calculated based on survey data alone. As discussed in the same section on *Survey Purpose*, it is impossible to get enough price data points to calculate benchmarks in this manner, for all possible combinations of the three parameters that define a broadband service tier. To produce benchmarks for all possible service tiers realized in the broadband market, and especially for services from providers that participate in the High Cost programs, a model that includes at least these three parameters as independent variables, and price as dependent variable, must be used instead.

B.5 *Response Rates*

The voice and broadband URS generally yield response rates above 80%. These high response rates from both surveys are expected to continue. Staff directly contact any provider that is sent a survey notification that does not complete the online survey form within 30 days. Because compliance is mandatory, failure to comply may lead to enforcement action, including forfeiture penalties, pursuant to the Communications Act of 1934, as amended, and other applicable law. Based on the sampling methodology described above and an anticipated high rate of compliance, the information collected can be expected to be both sufficiently accurate and reliable for the purpose of calculating the reasonable comparability benchmarks.

B.6 *Statistical Consultations*

For additional information concerning the Urban Rate Survey, please contact the following subject matter experts:

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