

# METHODOLOGY REPORT: 2022 PEW PHILADELPHIA POLL

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## PROJECT OVERVIEW

SSRS conducted the data collection for The Pew Charitable Trusts' 2022 Philadelphia Resident Survey. The goal of this survey was to better understand what residents think about Philadelphia and how they feel about important public policy issues and current events facing the city.

The 2022 Philadelphia Resident Survey obtained surveys via a mixed-mode online and mail survey design. N=1,541 Philadelphia County residents completed the survey, with n=1,110 completing via web and n=431 completing via mail. Data collection was conducted in English (n=1,420) and Spanish (n=121) from Jan. 3, 2022, to Jan. 31, 2022. Statistical results are weighted to correct known demographic discrepancies. The total sample design effect for this survey is 1.88, and the margin of sampling error for the complete set of weighted data is  $\pm 3.4$  percentage points.

Details on the sampling, questionnaire design, data collection, questionnaire design, processing, and weighting are discussed below.

## SAMPLE DESIGN

### Target Population

The target population for this survey was adults age 18 or older living in Philadelphia County, Pennsylvania. Samples were provided according to SSRS specifications.

### Sampling Frame

The sampling frame utilized was the United States Postal Service (USPS) Computerized Delivery Sequence File (CDSF). The CDSF is a computerized file that contains information on all delivery addresses serviced by the USPS. Selected was a disproportionately stratified random sample of addresses in Philadelphia County from the CDSF. Hispanic surname flags were appended to the address-based sample (ABS) in order to oversample them and to be able to customize mailings as outlined below. In total the number of people mailed were n=14,634.

Given previous experience, SSRS anticipated that certain hard-to-reach demographic groups such as Hispanics and African Americans (AA) would participate in the survey at lower rates. In order to account for the anticipated lower response from these groups, a six-strata design was utilized based on the incidence of African Americans and on Hispanic surname flags. Strata with higher concentrations of African Americans were sampled at higher rates to combat the anticipated lower response from African Americans. Records flagged with Hispanic surnames were also oversampled. The differing sampling rates across strata are accounted for in the base weights within the final weighted data.

The sample stratification that was used is below in Table 1.

**Table 1: Sample Stratification Plan**

Stratum	Universe distribution	ACS Hispanic incidence	ACS AA incidence	2021 survey sampling rate
1. 86%+ AA	18.2%	1.5%	94.3%	25.4%
2. 47.9%-LT 86% AA	20.1%	10.7%	68.9%	22.5%
3. 18%-LT 47.9% AA	17.0%	24.7%	31.0%	14.3%
4. 4.9%-LT 18% AA	19.3%	21.0%	11.0%	8.1%
5. 0-LT 4.9% AA	17.4%	14.5%	1.4%	7.3%
6. Listed Hispanics (LT)	8.0%			22.3%
Total	100%			100%

## QUESTIONNAIRE/LETTER DESIGN AND FORMATTING

### Questionnaire Design

The questionnaire for this survey was developed by Pew. SSRS reviewed the questionnaire primarily to identify problems in the instrument that might increase respondent burden, cause respondents to refuse or terminate the interview, create problems with respondent comprehension, or pose practical challenges for a hard copy questionnaire such as complex skip patterns. Once the questionnaire was finalized, SSRS then translated the instrument into Spanish.

### Letter and Postcard Design

The text for the survey invitation letter, reminder postcard, and nonresponder follow-up cover letter was developed by Pew researchers in consultation with SSRS. SSRS translated these materials into Spanish and formatted the letters and postcards to prepare them for mailing. SSRS sent Pew the final postcard and letters for approval prior to printing and mailing the materials to contacts.

### Survey Formatting

SSRS was responsible for formatting the questionnaire into a self-administered paper instrument. SSRS focused on clarity of format for any skip logic and for overall comprehension of the questionnaire. Efforts were made in the design to (1) encourage cooperation by offering easy-to-read, easy-to-manuever hard copy; and (2) reduce the potential for confusion and thereby produce the most accurate data. SSRS formatted the survey in Word and then worked with our professional printing service for execution and

printing. Paper surveys were printed in both English and Spanish and were sent to Pew for approval before printing and mailing materials to contacts.

## Pretest

Prior to live phone data collection, SSRS conducted a pretest of the questionnaire on Dec. 6, 2021, and Dec. 13, 2021. SSRS completed a total of 23 pretest interviews via landline for the 2022 Philadelphia Resident Survey. For the pretest interviews, SSRS used a prescreened sample from its Omnibus surveys that had been previously identified respondents who lived in Philadelphia County. Recordings of completed interviews were shared with the Pew team for review. Any respondent personally identifiable information (PII) was removed from the recordings before sharing with Pew. SSRS also provided a detailed pretest memo of the findings.

## PROGRAMMING

Prior to the field period, SSRS programmed the survey into its Forsta Plus (formerly Confirmit) platform for web administration in both English and Spanish. The program was optimized for administration via smartphone or other mobile handheld devices. Extensive checking of the program was conducted to ensure that skip patterns followed the design of the questionnaire. The web program was checked on multiple devices, including desktop computers and handheld mobile devices, and different web browsers in order to ensure consistent and optimized visualization across devices and web browsers.

SSRS generated unique survey passwords that were assigned and provided via mail to potential respondents. The web survey was accessed directly by respondents, using their unique passwords. This also gave respondents the ability to return to their survey later if they chose to suspend their interview.

## DATA COLLECTION

A sequential web-mail mixed-mode methodology was utilized to conduct interviews for this survey. Data collection was conducted in English and Spanish. Seventy-two percent of the surveys were completed via web, while 28% were completed via mail mode.

All selected sample records received a one-page, single-sided survey invitation letter, which was printed on Pew stationery and addressed to "Philadelphia Area Resident." For records flagged with a Hispanic surname, the letter was printed double-sided with one side in English and the other side in Spanish. The text of this letter was developed in collaboration with Pew researchers and included a short web link for the survey and a personalized PIN to access the web survey. The invitation letter included a \$1.25 cash pre-incentive and an offer of \$10 payment upon completion of the survey via a virtual gift card code. The \$10 payment was disbursed immediately after completion of the web survey.

Three days after mailing the invitation letter, a reminder postcard was sent to all contacts. The purpose of this mailing was simply to remind potential respondents to reply to the initial mailing. The postcard did not contain the survey web link or the target respondent's personal PIN.

Seven business days after the survey invitation letters were mailed, questionnaire packets were sent to non-responders via first-class USPS mail. This mail option ensured that we were able to reach respondents who do not have internet access or are unable to complete the survey online. This mailing was sent in a 9-by-12 envelope and contained:

- A personalized reminder letter printed in color on Pew stationery, explaining the nature of the survey.
- One eight-page questionnaire booklet in English, or two eight-page questionnaire booklets (one English and one Spanish) for records flagged with a Hispanic surname.
- A postage-paid business reply envelope (BRE).

For respondents completing the survey via mail mode instead of web, a promised \$10 post-paid honorarium was provided to respondents as a check mailed after receipt and verification of completion of the mail questionnaire. Table 2 shows the contact schedule for when each mailing was sent out.

**Table 2: Contact Schedule**

Date	Mailing
January 3	Invitation letters mailed
January 6	Reminder postcards mailed
January 12	Survey packets mailed

## DATA PROCESSING AND QUALITY CONTROL

Prior to running cross-tabulations, data from both modes were combined and thoroughly cleaned with a computer validation program written by one of SSRS's data processing programmers. This program established editing parameters in order to locate any errors, including data that did not follow skip patterns, out-of-range values, and errors in data field locations.

Coding was completed at Question 5 to code open-end responses into previously used codes, when applicable. No additional coding was done for open-end responses. Coding for Question 5 was primarily completed through human coding and assisted through auto-coding. Ascribe, our auto-coding software, was used only in cases where the verbiage of a response matched the code exactly and only when the code's language was mutually exclusive to all other codes. All coding was reviewed by professionally trained coders and finalized by SSRS project staff.

As a standard of practice, quality checks were incorporated into the survey. Quality control checks for this study included a review of "speeders"<sup>1</sup> reviewing the internal response rate (number of questions answered divided by the number of questions asked) and open-ended questions. Respondents who failed the quality checks employed were not included in the final data set. This respondent set for this study included only addresses that were randomly selected and invited to the study. The risk of bots and fake profile respondents is greatly minimized because of this. In addition, every address received a personalized, unique survey participation code that the respondent would need to enter to take the survey, and our system would not accept multiple web completions for the same participation code. With the exception of

<sup>1</sup> This quality control check was reviewed only for interviews completed via the web survey.

respondents completing via web and mail given the multimodal nature of this survey, there were some duplicate cases (i.e., respondents who complete a paper and web survey) that needed to be addressed. For duplicate cases, the survey that was completed first was kept.

After quality control procedures were carried out, SSRS provided a clean, processed, fully labeled and weighted final SPSS data set to Pew.

## WEIGHTING

Weighting is generally used in survey analysis to compensate for sample designs and patterns of nonresponse that might bias results. Weighting ensures that survey estimates are unbiased, and the demographic profile of the sample matches the profile of the target population. The sample is weighted to be representative of the residential adult population of Philadelphia County.

There are three steps in the weighting process: a base weight to account for the disproportionately stratified sample design; a probability of selection adjustment to account for sampling fractions within household; and a calibration of sample demographics to target population parameters.

### Base Weight

The sample frame was divided into six strata. Five strata are based on the incidence of African Americans according to data from the Census Planning Database. The sixth stratum, which was newly introduced in this round of the survey, is a Hispanic listed surname stratum. All records on the ABS frame that were flagged as Hispanic surnames were included in the Hispanic stratum. Table 3 shows the stratadefinitions.

**Table 3: ABS Strata Definitions**

Stratum	Definition
1	86.0% or more AA and not Hispanic surname
2	47.9% to less than 86.0% AA and not Hispanic surname
3	18.0% to less than 47.9% AA and not Hispanic surname
4	4.9% to less than 18.0% AA and not Hispanic surname
5	Less than 4.9% AA and not Hispanic surname
6	Hispanic surname

The base weight<sup>2</sup> adjusts the distribution of completed interviews, across strata, back to the distribution of the sample frame. The relative probability of selection for each unit  $i$  in stratum  $h$  is the same -  $\pi_{hi} = p_h/P_h$  where  $p_h$  is the proportion of completed interviews in stratum  $h$  and  $P_h$  is the proportion of the sample frame stratum  $h$ .<sup>2</sup> The base weight is  $\pi_h^{-1}$  for all interviews in stratum  $h$ .

The base weight is then adjusted to account for different probabilities of selection within household. Since only one interview was conducted in each household, adults who live in households with more than one

<sup>2</sup> For the base weight we use the distribution of completed interviews rather than the distribution of samples pulled. Therefore, this adjustment also accounts for differential nonresponse across strata.

adult have a smaller probability of being selected and will be underrepresented in the sample if a weighting adjustment is not made.

The probability of an adult being sampled from household  $i$  is  $AD_i^{-1}$  where  $AD_i$  is the number of adults in the household. The final adjusted base weight,  $ABW$ , is the product of the base weight and the probability of selection adjustment.  $ABW_i = \pi_{hi} \times AD_i$ .

## Calibration

The final stage of the weighting balances the demographic profile of the sample to target population benchmarks.

To handle missing data among demographic variables used in the calibration, we employ a technique called hot decking. Hot deck imputation replaces the missing values of a respondent randomly with another similar respondent without missing data. We use an SPSS macro detailed in "Goodbye, Listwise Deletion: Presenting Hot Deck Imputation as an Easy and Effective Tool for Handling Missing Data" (Myers, 2011).

Weighting is accomplished using SPSSINC RAKE, an SPSS extension module that simultaneously balances the distributions of all variables using the GENLOG procedure. The sample is balanced to match benchmark distributions for the residential population age 18 or older in Philadelphia derived from 2019 American Community Survey (ACS) data.

Weights were trimmed to prevent individual interviews from having too much influence on the final results. The use of these weights in statistical analysis ensures that the demographic characteristics of the sample closely approximate those of the target population. Table 4 compares unweighted and weighted sample distributions to target population parameters.

**Table 4: Weighting Demographics Summary**

	Parameter	Unweighted	Weighted
<b><u>Sex</u></b>			
	Male	46.0%	36.1%
	Female	54.0%	63.9%
<b><u>Age</u></b>			
	18-24	11.0%	4.6%
	25-29	12.8%	8.9%
	30-35	14.4%	12.5%
	36-49	21.8%	20.6%
	50-60	16.5%	17.2%
	61-64	5.7%	8.6%
	65 or older	17.8%	27.6%
<b><u>Education</u></b>			
	Less than HS grad	14.5%	4.4%
	HS grad	32.1%	20.6%
	Some college	23.6%	22.7%
	College grad or more	29.9%	52.2%
<b><u>Density</u></b>			
	1 - Lowest	27.7%	19.6%
	2	17.0%	18.4%
	3	19.2%	19.2%
	4	17.0%	20.6%
	5 - Highest	19.2%	22.2%
<b><u>Internet use</u></b>			
	Yes	89.5%	92.0%
	No	10.5%	8.0%
<b><u>Recoded race/ethnicity</u></b>			
	White, not Hispanic	37.5%	38.2%
	Black, not Hispanic	38.7%	34.8%
	Hispanic	13.4%	16.2%
	Other, not Hispanic	10.5%	10.8%

## Effects of Sample Design on Statistical Inference

Specialized sampling designs and post-data collection statistical adjustments require analysis procedures that reflect departures from simple random sampling. SSRS calculates the effects of these design features so that an appropriate adjustment can be incorporated into tests of statistical significance when using these data. The so-called “design effect” or *deff* represents the loss in statistical efficiency that results from a

complex sample design and systematic nonresponse. SSRS calculates the composite design effect for a sample of size  $n$ , with each case having a weight,  $w$ , as:<sup>3</sup>

$$deff = \frac{n \sum w^2}{(\sum w)^2}$$

The design effect for this survey was 1.88 overall.

The survey's margin of error is the largest 95% confidence interval for any estimated proportion based on the total sample—one around 50%. For example, the margin of error for the total sample is  $\pm 3.4$  percentage points. This means that in 95 out of every 100 samples using the same methodology, estimated proportions based on the entire sample will be no more than 3.4 percentage points away from their true values in the population. It is important to remember that sampling fluctuations are only one possible source of error in a survey estimate. Other sources, such as measurement error, may contribute additional error of greater or lesser magnitude.

## RESPONSE RATE

Table 5 below reports the disposition of all sampled records that were contacted. The response rate estimates the fraction of all the eligible sample that was ultimately interviewed. Response rates are computed according to American Association for Public Opinion Research standards.<sup>4</sup> The response rate for this survey was 14.2%.

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<sup>3</sup> Kish, L. (1992). Weighting for Unequal Pi. *Journal of Official Statistics*, Vol. 8, No. 2, pp. 183-200.

<sup>4</sup> The American Association for Public Opinion Research. (2016.) Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys. 9th edition. AAPOR.

**Table 5: Sample Disposition**

Disposition	N
1. Complete (I)	1,541
2. Eligible, noninterview (R)	40
Refusal & Break-off	40
3. Unknown eligibility, noninterview (UH)	12,507
Nothing ever returned	12,495
Refused, unknown if eligible	12
4. Not eligible, returned (IN)	546
Does not live in Philadelphia	1
Undeliverable	545
Total records contacted	14,634
$e=(I+R)/(I+R+IN)$	74.3%
$RR3=I/[I+R+(e*UH)]$	14.2%

## DELIVERABLES

SSRS provided the following deliverables to Pew:

- Formatted, clean questionnaires (for both web and mail administration).
- A final, clean, fully labeled, weighted SPSS data file.
- Two banners of cross-tabulations run on final weighted data.
- A final SPSS data file of those who agreed to be recontacted.
- Topline results.
- Methodology report.

## ABOUT SSRS

SSRS is a full-service public opinion research firm managed by a core of industry-leading professionals. SSRS service offerings include the Probability Panel and other online solutions, as well as custom research programs—all driven by a central commitment to methodological rigor. The SSRS team is renowned for its multimodal approach, as well as its sophisticated and proprietary sample designs. Typical projects for the company include complex strategic, tactical, and public opinion initiatives in the U.S. and in more than 40 countries worldwide. Please visit [ssrs.com](https://www.ssrs.com) for further information.