



## U.S. Merit Systems Protection Board 2021 Merit Principles Survey Design and Methodology

This methodology document has been revised as of September 2025. Due to analyst attrition, detailed documentation of steps taken to prepare the original public version of the U.S. Merit Systems Protection Board (MSPB)'s Merit Principles Survey 2021 dataset are no longer available. To ensure MSPB's continued ability to address public questions about how to appropriately use this data, a new public dataset was created. All steps related to data cleaning, weight development, and response masking for this new version of the public dataset are included in this revised methodology document.

This document describes the data (public use files and supporting documentation) and methodology for MSPB's 2021 Merit Principles Survey (MPS or MPS 2021).

### Background

The U.S. Merit Systems Protection Board (MSPB) has the statutory responsibility to assess the health of Federal merit systems and the authority to conduct special studies of the Federal civil service [see 5 U.S.C. 1204(a)(3) and 5 U.S.C. 1204(e)(3)]. MSPB administers a periodic Merit Principles Survey to help carry out those studies. Those studies, including summaries and analyses of data from the MPS, are officially submitted to the President and Congress and shared with Federal policymakers and agencies.

### Survey Design

Typically, the MPS contains a combination of core items that MSPB tracks over time and special-purpose items developed to support a particular study or provide information on a topic of research interest. This survey differs from the Federal Employee Viewpoint Survey administered by OPM in several respects, including: a focus on merit system principles and Governmentwide civil service issues; administration every few years instead of annually; and a smaller sample. Agency participation in the MPS was mandatory, but individual responses to the survey were voluntary.

### Survey Content

The MPS 2021 supports several lines of research in MSPB's research agenda. The survey comprised sections related to particular research topics and sections that support data validation and analysis. The major sections of the survey are listed below.

- Work Experience/Employee Engagement
- Adherence to Merit System Principles
- Experience of Prohibited Personnel Practices
- Experience of Sexual Harassment
- Respondent Demographics and Career Intentions

### Survey Sampling

MSPB developed a sampling strategy, using a stratified random sample, to provide a reliable measure of Governmentwide opinion among permanent, full-time civilian Federal employees. The sample was stratified by Federal agency (and agency bureau or component for selected agencies) and supervisory status (nonsupervisor, supervisor, or executive). To provide useful measures across agency and supervisory status, MSPB oversampled (i.e., surveyed a higher proportion of) some groups, including supervisors, executives, and employees in smaller agencies.

MSPB drew the survey samples from rosters provided by participating agencies. Those rosters contained data needed to administer the survey (such as the email address), confirm eligibility for the survey, and categorize employees for survey sampling. Rosters were provided by agencies in November 2020 and the sample was drawn in December 2020. For the two small agencies

participating, all eligible employees were surveyed. The final sample included just over 100,000 employees from the Federal agencies listed below.

**Table: Federal Agencies Participating in the 2021 Merit Principles Survey**

<i>Departments</i>	
<ul style="list-style-type: none"><li>• Department of Agriculture</li><li>• Department of the Air Force</li><li>• Department of the Army</li><li>• Department of Commerce</li><li>• Department of Defense</li><li>• Department of Education</li><li>• Department of Energy</li><li>• Department of Health and Human Services</li><li>• Department of Homeland Security</li></ul>	<ul style="list-style-type: none"><li>• Department of Housing and Urban Development</li><li>• Department of the Interior</li><li>• Department of Justice</li><li>• Department of Labor</li><li>• Department of the Navy</li><li>• Department of State</li><li>• Department of Transportation</li><li>• Department of the Treasury</li><li>• Department of Veterans Affairs</li></ul>
<i>Independent Agencies</i>	
<ul style="list-style-type: none"><li>• Environmental Protection Agency</li><li>• Federal Deposit Insurance Corporation</li><li>• General Services Administration</li><li>• National Aeronautics and Space Administration</li></ul>	<ul style="list-style-type: none"><li>• Office of Personnel Management</li><li>• Securities and Exchange Commission</li><li>• Social Security Administration</li><li>• U.S. Merit Systems Protection Board*</li><li>• U.S. Office of Government Ethics*</li></ul>
<p>* Responses from these agencies were excluded from the dataset due to the absence of documentation detailing the data collection methods and timing of their inclusion.</p>	

The agencies that participated in the 2021 MPS account for approximately 98 percent of the permanent full-time Federal workforce covered by the Enterprise HR Integration–Statistical Data Mart, a Governmentwide workforce data repository maintained by the U.S. Office of Personnel Management (OPM). Accordingly, the MPS population is functionally almost identical to the corresponding Governmentwide population, and the MPS can provide a useful measure of employee opinions Governmentwide.

### **Survey Administration**

MSPB notified participating Federal agencies and selected stakeholders (e.g., major Federal employee unions) of the survey to request their support. The survey was administered online using a Federal Government-specific implementation of a survey development and administration application that is used in the private, public, and academic/nonprofit sectors.

Employees were invited to complete the survey via an email message that contained a link unique to the individual employee. Those invitations and other publicly available documents (such as MSPB-developed fact sheets) informed employees that their participation was voluntary and their responses confidential. MSPB further assured participants that it would not disclose data that could be used to identify an individual employee.

The MPS was launched in January 2021, with periodic email reminders to complete the survey, and closed in April 2021. The survey was open to invited employees for six to eight weeks, allowing for a rolling start date and extensions to accommodate IT-related delays in distribution.

### **Response Acceptance, Rate, and Weighting**

After the survey closed, MSPB reviewed the response records to determine whether they would be accepted. Acceptance was based on completing a minimum number (approximately ten percent) of the non-demographic items asked of all respondents. MSPB then estimated a response rate, calculated by dividing the number of accepted responses by the estimated number of invited employees who were available to complete the survey.<sup>1</sup>

**Table: Response Rate for the MPS2021**

Total Sampled	99,998
Responded	33,139
Response Rate	33.14%
Final # After Cleaning	32,449

A raking weighting methodology was used to assign weights to survey responses and adjust their representativeness within the sample, thereby reducing sampling bias. This iterative process adjusts response weights across selected variables until the sample distribution closely aligns with the known population margins for each criterion. The anesrake package in R was utilized for this process. The weighting was conducted in three successive stages.

First, respondent weights were adjusted to match the target distribution of the participating agencies, as specified in the sampling plan. The weights were then further refined based on respondents' self-reported supervisory status. And finally, responses were weighted based on self-reported age, recoded into a binary variable indicating whether the respondent was over or under 40 years of age.

### **Survey Representativeness**

The R anesrake package default settings were used. These values originated from the the DeBell and Krosnick<sup>2</sup> study on weighting. This approach produced response weights ranging from a maximum of 5 to a minimum of 0.002. This means that the least represented group in the survey is weighted to count five times more in the population estimates than their actual share in the data, while the most overrepresented group is weighted to count for only about 0.2% of what their raw numbers would suggest.

### **Confidence Interval**

The confidence interval provides a range of values, with a level of confidence, that contain the true population value.

It was determined that the number of responses for population level estimates was sufficient by assessing the precision of 99 percent confidence intervals for every survey question. The size of a confidence interval depends on the number of responses to a given question, the standard deviation of the responses, and a researcher-selected value associated with the choice of a given

<sup>1</sup>An employee was recorded as "unavailable" for reasons such as an invalid email address and receipt of an automated reply indicating that the employee has separated from the Federal service, transferred to another agency, or was otherwise absent for all or most of the survey period.

<sup>2</sup>DeBell, M., & Krosnick, J.A. (2009). Computing weights for American national election study survey data. ANES Technical Report series (no. nes012427), 1-14. <https://electionstudies.org/wp-content/uploads/2018/04/nes012427.pdf>

confidence level, in this case 99 percent<sup>3</sup>. The confidence interval can be estimated for each question using weighted or unweighted data. After setting a threshold, a confidence interval therefore allows for evaluating the general sufficiency of the number of collected survey responses across questions. This process was replicated across every key variable, excluding those like demographics, weights and flags to find the median confidence interval amount FOR all response options.

### Decreased Sample Size

Compared to the previous dataset, there were 690 fewer responses. This is the result of enhanced cleaning efforts resulting in fewer valid responses and from removing the two small agencies listed previously.

### Revised Counts and Data Masking

Two of the variables (gender and supervisor status) reflect revised counts due to more rigorous cleaning and masking to preventing individual respondents from being identified. The masking only applied to public facing data.

### Survey Access and Files

Data from merit system study surveys is available to the public through one or more of the following: MSPB’s public website, data.gov, and the National Archives and Records Administration (NARA). MSPB plans to submit the MPS 2021 data files and supporting materials to NARA. (NARA, rather than MSPB, determines whether to accept those records and whether the records are temporary or permanent.) If accepted, those files will be accessible at [www.archives.gov](http://www.archives.gov) as part of record group 479 (permanent records of MSPB) under the Merit Principles Survey file series. The public use files that MSPB has made available are listed below.

**Table: Public Use Files for the 2021 MPS**

Name(s)	Description
REVISED MPS2021 Methodology FINAL SEPT2025	Revised overview of the MPS 2021 methodology and public use data (this document)
REVISED MPS2021 Data Dictionary FINAL SEPT2025	A list of items appearing on the MPS 2021 and a representation of the survey variable names, response options and codes
REVISED MPS2021 Cleaned Public Data FINSEPT2025	Dataset in CSV format
MPS2021 FactSheet_Agencies MPS2021 FactSheet_Employees	Fact sheets provided to participating agencies and employees

<sup>3</sup>The "2021 OPM Federal Employee Viewpoint Survey: Technical Report" notes that "The 2021 sample size was more than sufficient to ensure a 99 percent chance that the true population value would be between plus or minus 1 percent of any estimated percentage for the total Federal workforce." Sample sizes as it is referred to here is the number of people to whom surveys were sent, not the number of respondents; the details of their calculation are not provided, but the work suggests thresholds against which to measure precision (OPM, 2021, p.4).

To protect the confidentiality of responses and individual privacy, in accordance with the Privacy Act of 1974 (Public Law 93-579), responses to some survey items have been eliminated or recoded (combined into larger categories or groups) in the public use dataset. Those items include certain demographic characteristics that are sensitive or, in combination, could be used to identify an individual and open-ended responses that might contain personally identifying or otherwise sensitive information.