United States Congress
Joint Economic Committee

Issue brief
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Maintaining Reliability of America's Data Collection Methods

The Bureau of Labor Statistics (BLS) publishes the Employment Situation report at the beginning of each month, which covers important employment data for the prior month. Policymakers, economists, and financial markets rely on this data to assess the health of the labor market. Indeed, business media and the Joint Economic Committee immediately analyze and report on it. While the BLS uses a thorough and multifaceted methodology to survey and compile timely employment data, there has been increasing interest in evaluating the reliability of preliminary estimates.

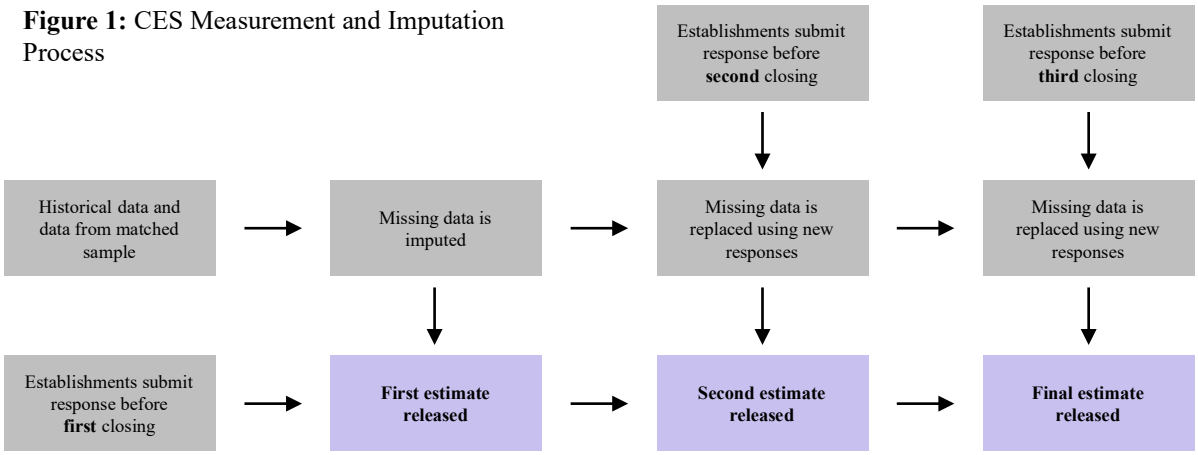
The Employment Situation report contains data from two sources. The Current Population Survey, or the "Household Survey," includes the unemployment rate and labor force participation rate, and the Current Employment Statistics (CES) survey, or the "Establishment Survey," includes payroll employment, hours, and earnings. This brief will focus on the latter survey, examining how it produces estimates and faces serious data collection challenges that have persisted since the COVID-19 pandemic.

Estimating payroll data

To produce reliable estimates for payroll employment from the Establishment Survey, the BLS relies on timely and accurate responses from the 121,000 establishments representing about 631,000 worksites involved in the survey, which it then extrapolates to the broader population.[1] If an establishment does not provide a timely response to the survey, the BLS either imputes their response based on their historical over-the-month change data or applies the relative change from the matched sample in a strata (a group of firms in the same state, industry, and of the same size), depending on the type of establishment.[2]

The BLS receives additional samples from establishments in the two months following each initial release of the data. This new sample allows the BLS to update its payroll estimates, replacing earlier imputations made to account for those non-respondents. Therefore, in some cases, the new sample can inform second and third estimates substantially different from the first, depending on its volume and net direction.

Figure 1: CES Measurement and Imputation Process



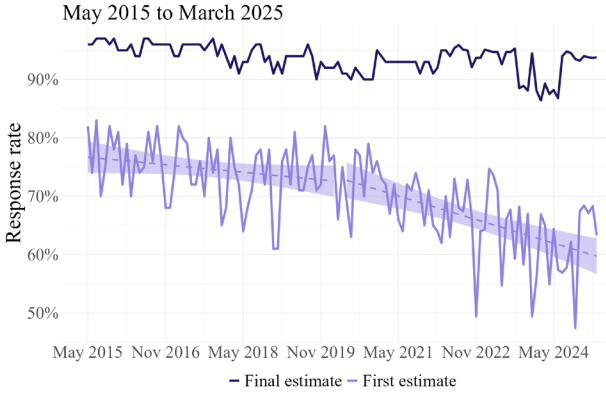
[1] U.S. Bureau of Labor Statistics, "Current Employment Statistics - CES (National)," accessed August 2025, https://www.bls.gov/ces/.
[2] U.S. Bureau of Labor Statistics, "Current Employment Statistics - National: Calculation," *Handbook of Methods*, February 28, 2025, https://www.bls.gov/opub/hom/ces/calculation.htm.

Finally, the BLS periodically benchmarks the monthly estimates against data from the Quarterly Census of Employment and Wages (QCEW) to align with complete counts of jobs across all industries and regions from unemployment insurance tax records.[3]

Recent trends in response rates

Figure 2: CES Response Rates for First and Final Estimates

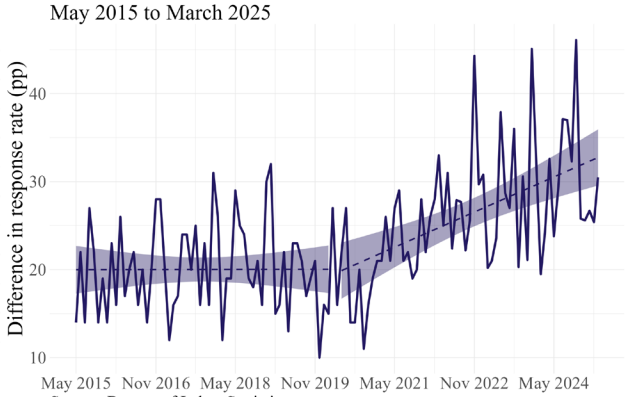
May 2015 to March 2025



Source: Bureau of Labor Statistics

Figure 3: Difference in Response Rate Between First and Final Estimates

May 2015 to March 2025



Source: Bureau of Labor Statistics

Since the onset of the COVID-19 pandemic, while the response rate for the final estimate remained relatively stable, we observe a continuous decline in the rates for the first estimate.[4] This means that the BLS must impute more data to cover for the missing data, leading to higher potential for large revisions due to new responses being dissimilar from the imputed values. Consequently, while the accuracy of the final monthly estimate has not suffered from a decrease in response rates, the timing of responses has changed enough that the first estimate is now based on a less complete sample compared to the period before the pandemic.

We can decompose the data used for the first estimate $\hat{E}_t$ into the data received and the data imputed. The latter group (the first n elements of the sum) are equal to the true value and an estimation error term.

$$\hat{E}_t = \sum_{i=1}^{n} \hat{e}_t^i + \sum_{i=n+1}^{N} e_t^i = \sum_{i=1}^{n} \left(e_t^i + \epsilon_t^i\right) + \sum_{i=n+1}^{N} e_t^i = \sum_{i=1}^{N} e_t^i + \sum_{i=1}^{n} \epsilon_t^i$$

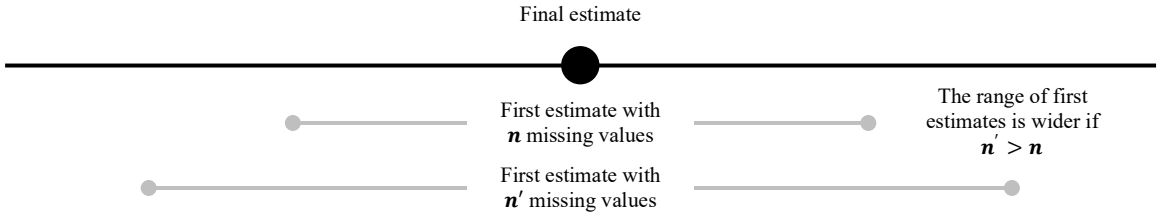
This means that the interval of the gap between the final and first estimates depends on the number of individual error terms.

$$\hat{E}_t - E_t = \sum_{i=1}^{n} \epsilon_t^i$$

[3] The BLS also applies other changes to the methodology. For example, the agency also adjusted the birth-death model for the months immediately following the March 2024 benchmark to increase its sensitivity to more current economic changes. For more details, see U.S. Bureau of Labor Statistics, "CES Birth-Death Model Frequently Asked Questions," accessed August 2025, https://www.bls.gov/web/empsit/cesbdqa.htm.

[4] These figures include both private and public establishments but excludes refusals and long-term denials, which have been growing in numbers over the past five years. The final estimate response rate should be interpreted as the share of the total number of establishments from which the CES can reasonably expect to collect data.

Figure 4: Impact of Response Rates on the Gap Between First and Final Estimates

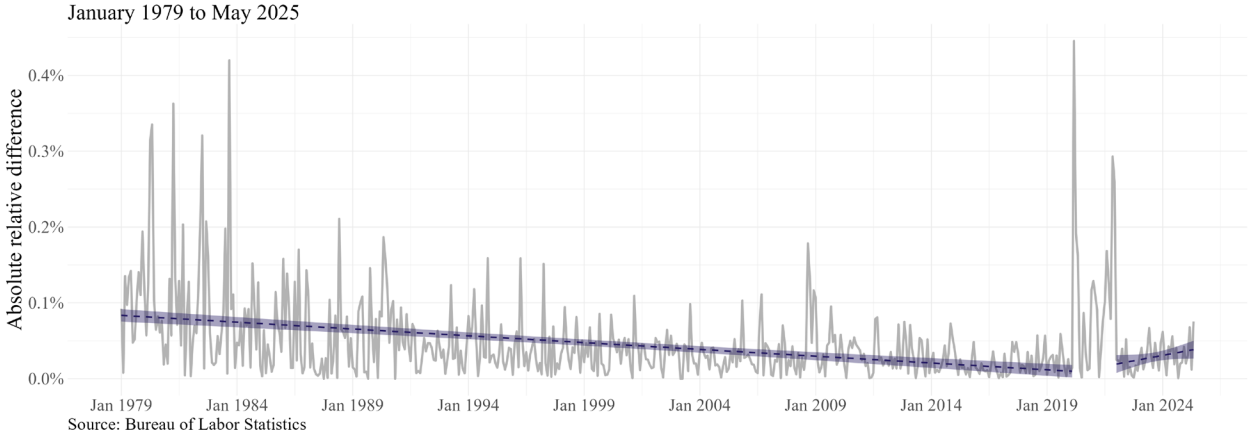


Thus, reducing the difference between the first and final estimates depends on either increasing the response rate for the first estimate or improving the imputation method.[5] The former would require a new approach to incentivize responders to submit the survey in time for the first estimate. The latter would require improvement of statistical methods, possibly using machine learning algorithms or integrating additional data sources to control for variables unobserved by the CES survey and strata grouping.

According to historical data, BLS estimates had been improving until the start of the pandemic. Figure 5 shows that the difference between first and final estimate had been decreasing before the pandemic—even in periods where the response rate gap was steady—but this trend reversed at the beginning of 2022. In addition, over the past five years there has been an increase in the number of refusals and long-term delinquents missing from the final collections, reducing the size of the sample and, therefore, reducing the accuracy of the extrapolation from sample numbers to the whole population. Figure 6 shows the overall response rate of private establishments to several BLS surveys. Response rates for the CES dropped from about 60 percent before 2020 to around 45 percent through the past two years, and this problem is not unique to that survey.[6]

These findings suggest that, while the decline in response rates for first estimates seems to explain much of the recent change in the gap between first and final estimates, it is also possible that post-pandemic structural changes require further review of the statistical methods used in the imputation process.

Figure 5: Absolute Relative Difference Between First and Final CES Payroll Estimates
January 1979 to May 2025



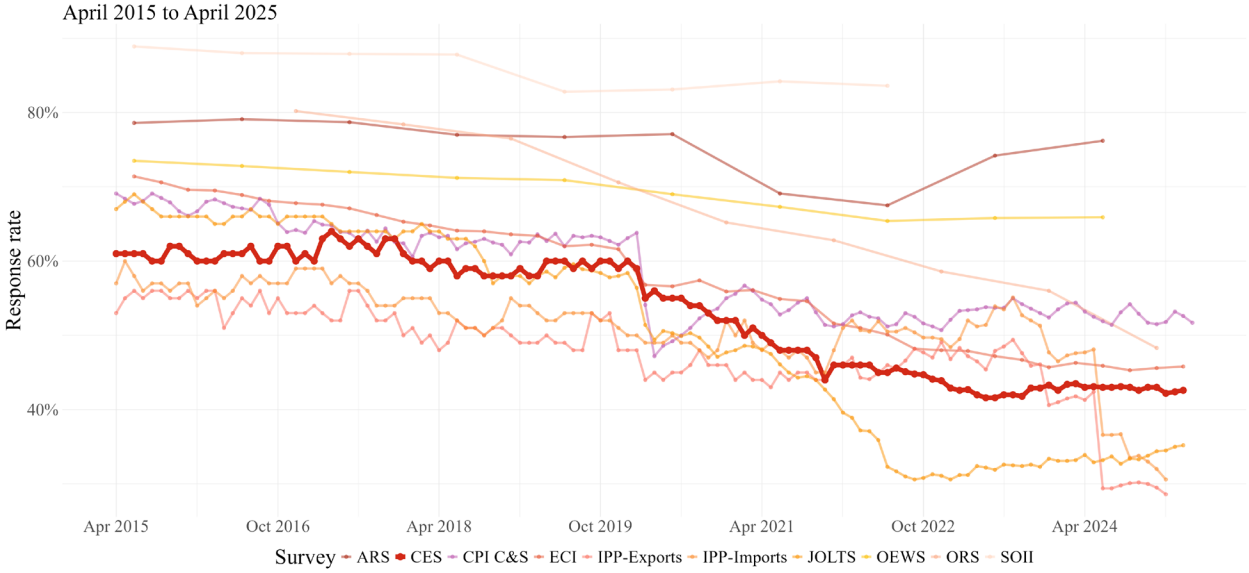
Source: Bureau of Labor Statistics

[5] Since, for every release, the number of respondents is larger for each revision (lower n), each of the revisions would make the next estimate more accurate than the first. Higher accuracy means smaller margin of error. It is still possible that the first release be closer to the final release than the second one.

[6] This is a common problem across countries. The United Kingdom has been experiencing similar trends since the mid-2010s. Brigid Francis-Devine, "Has labour market data become less reliable?" House of Commons Library, UK Parliament, October 30, 2023, https://commonslibrary.parliament.uk/has-labour-market-data-become-less-reliable/.

Figure 6: Establishment Surveys Unit Response Rates

April 2015 to April 2025



Source: Bureau of Labor Statistics