

Weather-Adjusted Employment Change

This page provides estimates of monthly weather-adjusted employment changes in the United States. Starting with the official Bureau of Labor Statistics (BLS) series on the monthly change in total nonfarm payroll employment, we adjust for the employment effects of aseasonal weather (deviations from historical seasonal norms) following the methodology described in Wilson (2019).

The approach proceeds in four steps. First, we estimate the short-run effects of unusual weather on employment growth at the county level using historical data from January 1990 through December 2015. Second, we feed county-level weather data up to the latest month currently available into this estimated statistical model to measure the effect of unusual weather on each county's employment growth in the latest month. Third, we aggregate these county-level effects to the national level, weighting counties by employment levels, to yield estimates of the effect of unusual weather around the country on national employment growth. Fourth, we translate these growth effects into level effects using the level of employment in November 2015 as an initial base.

The resulting estimates of weather-adjusted employment change, as well as the official BLS payroll employment changes series, for the latest six months are provided in Table 1. We provide two alternative sets of estimates of weather-adjusted employment change that differ in step 1 above. For the series labelled "Regional Heterogeneity," the empirical model estimated in step 1 allows the effects of each weather variable to vary by Census Region. For the series labelled "No Regional Heterogeneity," the empirical model in step 1 constrains the effects of each weather variable to be constant across regions. The same three series included in Table 1, along with their six-month moving-averages, are shown graphically for the latest eighteen months in Charts 1 and 2. Chart 1 uses the Regional Heterogeneity model, while Chart 2 uses the No Regional Heterogeneity model. In addition, an Excel file is provided below containing the full times series of the data underlying these charts.

Chart 1

Weather-Adjusted Employment Change (with Regional Heterogeneity) Monthly change in 6-Month Moving Averages, Seasonally Adjusted

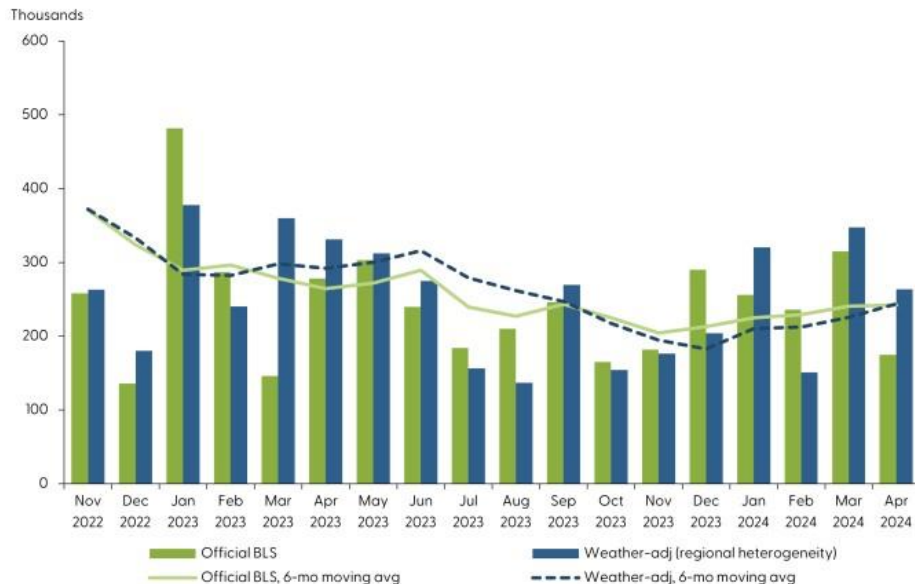


Chart 2

**Weather-Adjusted Employment Change (with No Regional Heterogeneity)
Monthly change in 6-Month Moving Averages, Seasonally Adjusted**

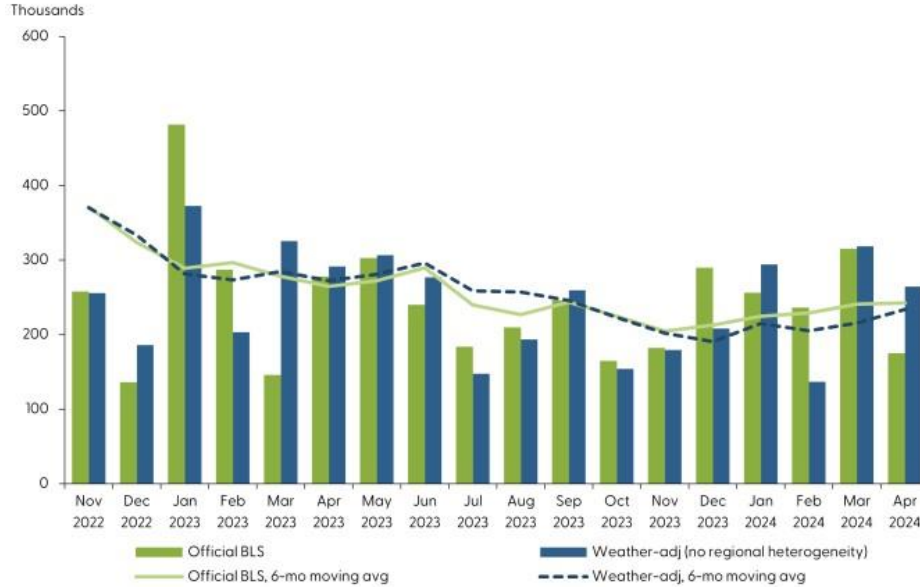


Table 1

**Weather-Adjusted Employment Change on Level of Nonfarm Employment
(Monthly change; seasonally-adjusted, thousands)**

Month	Official BLS (not weather-adjusted)	FRBSF County Model (no regional heterogeneity)	FRBSF County Model (regional heterogeneity)
November 2023	182	180	176
December 2023	290	208	204
January 2024	256	294	320
February 2024	236	137	151
March 2024	315	319	348
April 2024	175	264	263

Sources

Official Bureau of Labor Statistics series on the monthly change in total nonfarm payroll employment.

Data on monthly weather by county are constructed from daily weather station measurements provided by the National Oceanic and Atmospheric Administration (NOAA). See Wilson (2019) for details.

References

Wilson, Daniel J. 2016. "Clearing the Fog: The Predictive Power of Weather for Employment Reports and their Asset Price Responses." *American Economic Review: Insights*. 1(3), Dec. 2019, pp. 373-388.