

Weather-Adjusted Employment Change

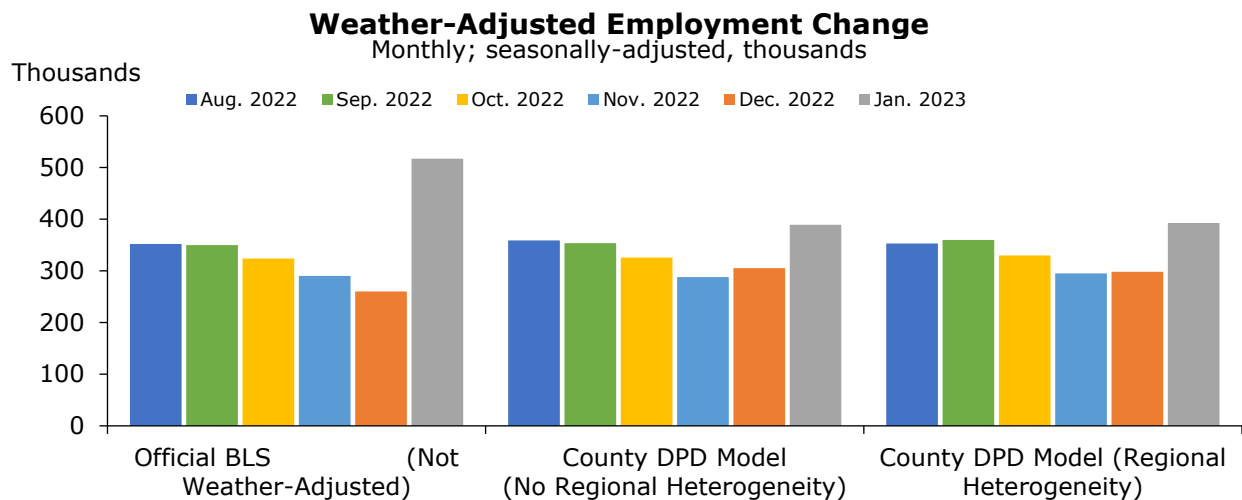
Data update for *FRBSF Economic Letter* 2016-29, “Clearing the Fog: The Effect of Weather on Jobs” by Catherine van der List and Daniel J. Wilson: <http://www.frbsf.org/economic-research/publications/economic-letter/2016/october/weather-effects-on-employment/>

This supplement gives updated estimates of weather-adjusted employment change in the United States for the past six months. Beginning with the official Bureau of Labor Statistics (BLS) series on the monthly change in total nonfarm payroll employment, we adjust the data for deviations of weather from seasonal norms following the methodology described in Wilson (2016).

The approach involves estimating the short-run effects of unusual weather on employment growth at the county level using historical data from January 1990 through December 2015. We then use the statistical model to estimate the effect of unusual weather in recent months on employment growth at the county level. 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. Finally, we translate these growth effects into level effects using the level of employment in November 2015 as an initial base.

The figure and table present three employment change series for the past six months. The first (left) group is the official BLS series. The other two are alternative estimates of weather-adjusted employment change, calculated using our county-level statistical model estimated over the January 1990–December 2015 period. The second group is an updated version of the county-level series shown in Figure 2 of the *Economic Letter*. The third group is based on an extension of the county-level model that allows for each weather variable to have different marginal effects in each of the Census Bureau’s nine regions. For example, an inch of snowfall can have a different effect on employment growth in the South Atlantic region than it does in New England.

Note that we do not include here the other series shown in Figure 2 of the *Economic Letter*, weather-adjusted employment change according to the Brookings Institution’s national model. However, updates of that series are provided each month in their “Job Numbers” blog: <https://www.brookings.edu/blog/jobs/>



Source: Bureau of Labor Statistics and Author's Calculations

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)
August 2022	352	359	353
September 2022	350	354	360
October 2022	324	326	330
November 2022	290	288	295
December 2022	260	305	298
January 2023	517	389	393

Sources:

The official Bureau of Labor Statistics series on the monthly change in total nonfarm payroll employment can be found at: <http://www.bls.gov/news.release/empsit.nr0.htm>.

The data on monthly weather by county are constructed from daily weather station measurements provided by the National Oceanic and Atmospheric Administration (NOAA): <http://www.ncdc.noaa.gov/oa/climate/ghcn-daily/>. See Wilson (2016) for details.

References

- van der List, Catherine, and Daniel J. Wilson. 2016. "Clearing the Fog: The Effect of Weather on Jobs." *FRBSF Economic Letter* 2016-29 (October 3). <http://www.frbsf.org/economic-research/publications/economic-letter/2016/october/weather-effects-on-employment/>
- Wilson, Daniel J. 2016. "The Economic Effects of Weather: Evidence from Big Data on Small Places." Federal Reserve Bank of San Francisco Working Paper 2016-21. <http://www.frbsf.org/economic-research/publications/working-papers/wp2016-21.pdf>