The Past Ain't What It Used to Be
Chattanooga Employment Revised Upward

Howard J. Wall

Director and Chief Economist
Center for Regional Economic Research
University of Tennessee at Chattanooga

Summary

In March, the Bureau of Labor Statistics (BLS) released revised estimates of state and metro area nonfarm employment. As a result, more than 4 thousand jobs were added to the estimated total employment in the Chattanooga metro area. Revisions of this sort are an annual occurrence and can lead to dramatic changes in what we think happened in the past. This year's revisions, for example, indicate that three-year job growth for 2021-2023 was 25.9 thousand rather than the already booming 21.6 thousand. These numbers will be revised again in a year when estimates for 2021 and 2022 are subject to routine tweaking and the estimates for 2023 get new benchmarks. Revisions of the scale seen this year are not unusual, but they have become more common since the COVID pandemic.

Introduction

On January 23, 2024, the Bureau of Labor Statistics (BLS) released its first estimates of the seasonally adjusted levels of nonfarm employment for December 2023 for the states, the District of Columbia, and all Metropolitan Statistical Areas (MSAs). According to these estimates, there were 281 thousand nonfarm jobs in the Chattanooga MSA that month, which was 3.7 thousand more jobs than a year earlier.[1] That level of job growth would make 2023 a relatively tepid year given that 2022 was estimated to have been a boom year with a net gain of 12.6 thousand jobs.

The picture of recent local job growth changed significantly for the better on March 11th when the BLS released its annual revisions of state and local employment data. As shown in the figure, the new estimates
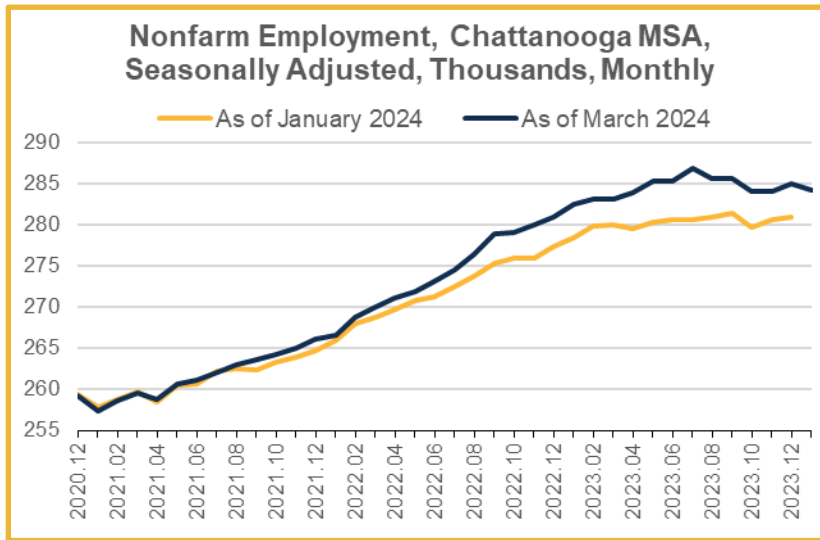
for Chattanooga indicate: (1) 285.1 thousand nonfarm jobs in December 2023, (2) higher employment for every month going back to the middle of 2021, and (3) higher growth for each of the three most-recent years. December to December job growth for 2021, 2022, and 2023 became 6.9 thousand, 14.9 thousand, and 4.1 thousand, respectively.

The routine revisions described above were the result of two separate adjustments. First, the BLS recalculated the seasonal adjustment factors that it uses to account for changes that occur for purely seasonal reasons, such as the Christmas season in the retail sector. This adjustment affected the data back to January 2019. The second adjustment occurs every March when the BLS adopts new benchmarks for the number of nonfarm establishments. These benchmarks are used to estimate non-seasonally adjusted employment and affect estimates going back 21 months (See the inset on the next page for a description of benchmarking and how it is done). The BLS also performed some routine adjustments and corrections to previous benchmarks that affected estimates as far back as April 2021.
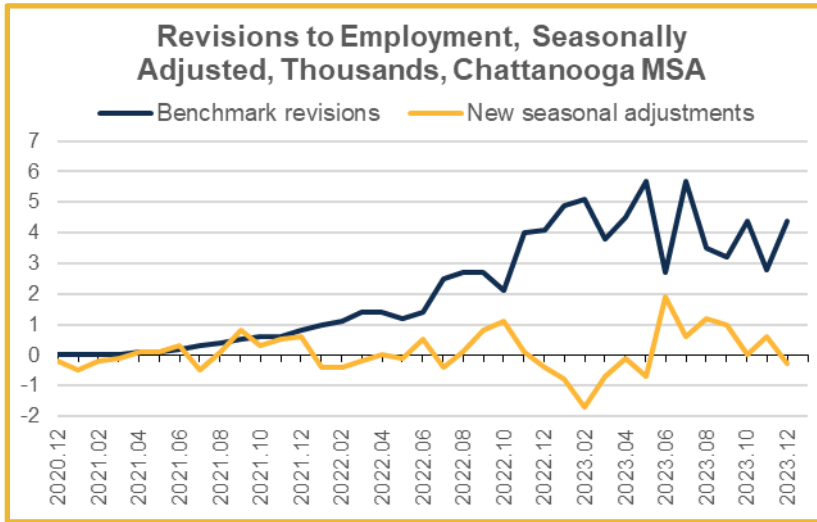
---

[1] The Chattanooga MSA includes six counties, three in Tennessee (Hamilton, Marion, and Sequatchie) and three in Georgia (Catoosa, Dade, and Walker).

What is Benchmarking and How is it Done?*

Estimates of total nonfarm employment in a metro area, often called "the number of jobs" or "payroll employment", are provided by the Current Employment Statistics (CES) program of the Bureau of Labor Statistics (BLS). Each month the BLS surveys a small percentage of businesses and worksites (or establishments) in the country and asks them how many people they employ. To estimate total employment across all establishments, the BLS extrapolates the results of this survey using an estimate of the total number of establishments. To estimate the number of establishments, the BLS relies on the Quarterly Census of Employment and Wages (QCEW). The QCEW is a tabulation of employment information for workers covered by state and federal unemployment insurance programs. Because of its comprehensive nature, data from the QCEW cannot be produced as quickly as data from the CES: Initial data are released 6 to 7 months after the end of a quarter and are subject to revision. To fill in the blanks, the BLS estimates the number of establishments using the QCEW as a benchmark. Each year, the BLS establishes new benchmarks using updated data from the QCEW. Because of the lags and revisions to the QCEW data, the yearly benchmarking affects employment data from the CES going back 21 months.

* See the BLS website for a detailed discussion.

The figure below shows the contributions of the two adjustments this year to the changes in employment estimates for the previous three years. Except for a tiny change to the seasonal adjustment for December 2023, changes to seasonal adjustment factors did not change the year-to-year trend in employment. That is, changes in seasonal adjustment simply place different relative weights on the months within a year without changing the average employment for the year. The benchmark revisions, on the other hand, corrected for the BLS's underestimate of the rate of growth of new establishments, so the new employment estimates show stronger job growth for 2022 than previously thought. The revisions did not change the overall growth for 2023 by much, however, in that the revision to the December 2023 level of employment is roughly the same as for December 2022.

Revisions to Employment, Seasonally Adjusted, Thousands, Chattanooga MSA

Revisions by Sector

The table below breaks down the most recent revision according to industry sector. The financial activities sector, which was already relatively large in Chattanooga, is estimated to have been 2.7 thousand jobs (11 percent) larger than previously thought. Similarly, the transportation, warehousing, and utilities sector is estimated to have 1.6 thousand (9 percent) more jobs than previously thought. Both of these revisions were the result of an updated benchmark that corrected for underestimated establishment growth.

Revisions by Sector, December 2023
Employment, Thousands
March 2024 vintage - January 2024 vintage

Sector	Value
Education and health	7.0
Financial activities	2.7
Transportation, warehousing, utilities	1.6
Professional business services	0.1
Information	0.1
Mining, logging, construction	0.0
Retail trade	-0.2
Other services	-0.2
Wholesale trade	-0.3
Manufacturing	-0.5
Leisure and hospitality	-0.9
Government	-5.0

The largest changes to sectoral employment this year, however, were because one large employer changed sectors. Specifically, the upward adjustment of 7 thousand jobs in education and health and the downward adjustment of 5 thousand jobs in government were mostly due to privatization of the Erlanger Health System, which had been owned by Hamilton County until July 2023 and is the region's largest employer.

A 10-Year History of Revisions

The table below provides recent revisions to December employment levels across their release dates. For example, the March 2015 revisions reduced the estimated level of employment for December 2014 by 0.9 thousand relative to the first release of that data in January 2015. The March 2016 revisions reduced that estimated level a further 1.4 thousand, the March 2017 revision didn't change it, and so on. In total, revisions have, so far, reduced the estimated employment level for December 2014 by 3.8 thousand.[2]

Revisions to December Employment By Release Date, Chattanooga MSA, Seasonally Adjusted, Thousands

	Revision Release Date										
Year	March 2015	March 2016	March 2017	March 2018	March 2019	March 2020	March 2021	March 2022	March 2023	March 2024	Total
2014	-0.9	-1.4	0.0	-0.1	0.2	-0.6	0.5	0.0	-1.5	0.0	-3.8
2015		1.4	-1.4	-0.1	0.3	-0.4	0.4	0.0	-1.6	0.0	-1.4
2016			3.8	-0.8	0.2	-0.1	-0.2	0.0	-1.5	0.0	1.4
2017				-1.4	-0.1	0.3	0.2	-0.3	-1.6	0.0	-2.9
2018					-1.4	3.5	0.0	-0.2	-1.6	0.0	0.3
2019						1.9	1.1	-0.5	-1.6	-0.2	0.7
2020							-8.1	2.7	-2.4	-0.2	-8.0
2021								2.1	-3.8	1.4	-0.3
2022									4.2	3.7	7.9
2023										4.1	4.1

The revisions released each March include the annual benchmark revisions that affect estimates for the previous 21 months, new seasonal adjustments for the previous several years, and various adjustments that can go back decades.

---

[2] For reference, the estimated levels of December employment according to data vintage are provided in an appendix.

Three general observations about the history of revisions to Chattanooga nonfarm employment:

- The first and second revisions have tended to be the largest because they are the result of changes in benchmarks. Subsequent revisions tend to be for statistical tidying rather than significant changes.

- The revisions released in March 2023 estimates from 1997 onward. The accumulated effect of these changes means that there was a larger-than-usual downward revision in the level of employment (1.5 thousand) for 2014-2019.

- Revisions have been larger in absolute terms since 2020, reflecting the difficulty in estimating the births and deaths of firms in the post-pandemic era. This problem has meant significant revisions at the national and local levels.

Revisions to Annual Employment Growth

Employment growth is probably a more useful metric than the employment level because it measures how well an economy is doing rather than how big it already is. Obviously, if estimated levels are revised every year, then so will estimates of growth. The table below shows how estimates of Chattanooga's annual job growth (December to December) differed by vintage. A rule of thumb for Chattanooga is that annual job growth of around 5 thousand indicates a strong year. It usually takes two waves of revisions before we can say whether a particular year was very weak, weak, strong, or very strong.

December to December Employment Growth By Data Vintage, Chattanooga MSA, Seasonally Adjusted, Thousands											
					Data Vintage						
Year	Jan 2015	Jan 2016	Jan 2017	Jan 2018	Jan 2019	Jan 2020	Jan 2021	Jan 2022	Jan 2023	Jan 2024	Jan 2025*
2014	4.6	4.5	2.3	2.5	2.3	2.4	1.9	2.0	2.0	1.8	1.8
2015		6.6	9.4	8.0	8.0	8.1	8.3	8.2	8.2	8.1	8.1
2016			1.0	6.2	5.5	5.4	5.7	5.1	5.1	5.2	5.2
2017				6.2	5.6	5.3	5.7	6.1	5.8	5.7	5.7
2018					4.2	2.9	6.1	5.9	6.0	6.0	6.0
2019						4.0	2.4	3.5	3.2	3.2	3.0
2020							-0.9	-10.1	-6.9	-7.7	-7.7
2021								7.3	6.7	5.3	6.9
2022									4.6	12.6	14.9
2023										3.7	4.1

Data vintage is the date at which the employment estimates were current. A January vintage means that the data were current immediately prior to the revisions released in March of the same year. That is, they were the result of the revisions released the previous year. *These numbers were released in March 2024.

For example, 2014 looked like a strong year after the release of the first estimate of December 2014 data in January 2015. After the second revision, however, 2014 looked like a weak year with job growth of only 2.3 thousand. Small revisions followed, but it remained a weak year. Job growth for 2016, in contrast, looked very weak (1 thousand) at first glance, but subsequent revisions indicated that it was actually a strong year.

The pandemic year of 2020 was, unsurprisingly, the most difficult to pin down. At first, the BLS overestimated the rate at which jobs returned after the massive job losses of the spring, so it said that job losses were only 900 over the year. Subsequent revisions, however, showed that it was a very bad year on net, but not nearly as bad as the suggested by the first revision. In January 2023, the data indicated that 2022 had been a pretty good year with job growth of 4.6 thousand. Two months later, the data were revised and indicated that 2022 had been a boom year with job growth of 12.6 thousand. It was revised upward a year later to 14.9 thousand, which is more than 50 percent larger than the previous high of 9.6 thousand in 1993.

It is worth noting that there is no discernible bias to the revisions described above. Looking at the first two revisions for each year, significant increases in estimated job growth were just as likely as significant decreases. Further, the average first revision was only about 300 jobs and the average second revision showed only about 700 more jobs than initially estimated. In a sense, the BLS does a remarkably good job estimating what happens in an economy of 330 million people with hundreds of metropolitan areas. Nevertheless, the lesson to take from this analysis is that employment data are estimates that are subject to statistical error and measurement error. Estimates converge to the actual levels over time, but not until well after it is most useful for guiding immediate policy and business decisions. It is probably wise, therefore, to take every economic indicator with a grain of salt, to understand how big the grains of salt might be, and to look at several of the imperfect economic indicators rather than just one or two.

Appendix: Levels of December Employment by Data Vintage

The table below shows the levels of employment for December of each year according to data vintage. Specifically, they are the estimated levels of nonfarm employment when the first estimates for the previous December are released in January. The difference between vintages is the revision that occurred in March as provided by the table in the discussion of the revision history. For example, the initial estimate released in January 2015 indicated that there were 242.7 thousand nonfarm jobs in December 2014. As you move rightward from the January 2015 vintage, each revision brought a small change and the most recent vintage (January 2025) released in March 2024, says that there were only 238.9 thousand jobs.

December Employment By Data Vintage, Chattanooga MSA, Seasonally Adjusted, Thousands										
					Data Vintage					
Year	Jan 2015	Jan 2016	Jan 2017	Jan 2018	Jan 2019	Jan 2020	Jan 2021	Jan 2022	Jan 2023	Jan 2024	Jan 2025*
2014	242.7	241.8	240.4	240.4	240.3	240.5	239.9	240.4	240.4	238.9	238.9
2015		248.4	249.8	248.4	248.3	248.6	248.2	248.6	248.6	247.0	247.0
2016			250.8	254.6	253.8	254.0	253.9	253.7	253.7	252.2	252.2
2017				260.8	259.4	259.3	259.6	259.8	259.5	257.9	257.9
2018					263.6	262.2	265.7	265.7	265.5	263.9	263.9
2019						266.2	268.1	269.2	268.7	267.1	266.9
2020							267.2	259.1	261.8	259.4	259.2
2021								266.4	268.5	264.7	266.1
2022									273.1	277.3	281.0
2023										281.0	285.1

Note: The header row above spans eleven data-vintage columns (Jan 2015 through Jan 2025).*

Data vintage is the date at which the employment estimates were current. A January vintage means that the data were current immediately prior to the revisions released in March of the same year. That is, they were the result of the revisions released the previous year. *These numbers were released in March 2024.