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Post-COVID-19 Employment Trends and the Seasonal Adjustment of NYC Employment Data

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In 2021, NYC OMB altered its seasonally adjustment methodology to mitigate problems created by the large employment swings associated with the COVID pandemic. However, recent evidence shows that job growth has returned to pre-pandemic trends. As a result, NYC OMB has again modified the methodology used to seasonally adjust the monthly NYC establishment survey data released by the New York State Department of Labor (NYS DOL). This note provides details on these methodological changes.

On July 1, 2021, NYC OMB modified its seasonal adjustment methodology to account for the effect of the COVID-19 pandemic on employment.¹ For data prior to January 2020, NYC OMB utilized multiplicative seasonal factors to seasonally adjust monthly employment data. However, to mitigate the impact of the pandemic-induced drop in employment, NYC OMB switched to additive seasonal factors to adjust data starting with January 2020 observations. In addition, the period starting from March 2020 onward was manually designated as an outlier for the Census X-13 system.² By doing so, these months were excluded as inputs into the estimation of seasonal factors, which eliminated the “seasonal echo” artifact in the adjusted data.³

After shedding close to a million jobs in March and April 2020, the New York City labor market expanded rapidly in the following years as it recovered these losses. Because of these stronger than normal monthly gains, OMB has also treated every month since May 2020 as an outlier, so the rapid, temporary, post-pandemic growth would not likewise impact the estimation of seasonal factors.

However, monthly employment growth in the city began to normalize in 2023, falling back in line with pre-pandemic patterns. On a monthly basis, the unadjusted data in 2023 began to track the 5-year pre-pandemic average, as shown in Figure 1. Monthly seasonal patterns of some major sectors in the city, like leisure & hospitality, financial activities, professional & business services, and health, also returned to pre-pandemic norms in 2023. Additionally, total employment recovered to

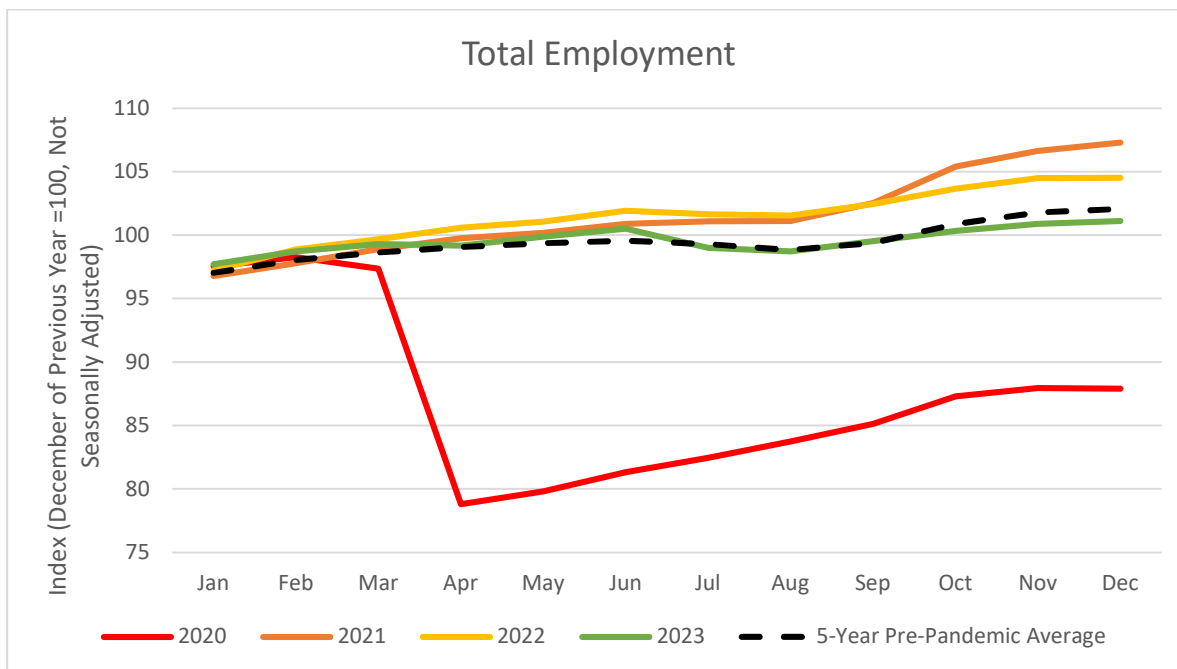
¹ For a detailed summary of the update, see [COVID-19 and the Seasonal Adjustment of NYC Employment Data, July 1, 2021](#).

² Originally, the outlier period was set as April 2020 to latest observation. The period was extended to include March 2020 with the release of April 2022 data to better reflect the start of the pandemic in NYC.

³ These seasonal artifacts are documented in David Lucca and Jonathan Wright, “Reasonable Seasonals? Seasonal Echoes in Economic Data after COVID-19,” Federal Reserve Bank of New York Liberty Street Economics, March 25, 2021

pre-pandemic levels in 2024, with January 2024 employment (not seasonally adjusted) surpassing January 2020’s level.

Figure 1. Total Employment Growth: Comparison to Pre-Pandemic Average



Because of this return to pre-pandemic seasonal patterns and trends, OMB has decided to again modify its methodology, which is reflected starting with the January 2024 reference month (released on March 8, 2024) and subsequent data releases. The pandemic period, 2020 through 2023, will still utilize additive seasonal adjustment factors and additive outliers. However, starting with the January 2024 observations, OMB returned to using multiplicative seasonal factors, and the months following December 2023 are no longer designated as outliers. This methodology has the benefit of omitting the months affected by the pandemic when calculating seasonal factors, while incorporating new information on seasonal patterns observed from January 2024 onward.

Table 1 summarizes OMB’s new seasonal adjustment approach.

Table 1: Summary of Seasonal Adjustment Methods

| Data Period | Seasonal Factors | Designated Outlier Period |
|------------------------|------------------|---------------------------|
| Jan 1990 – Dec 2019 | Multiplicative | None |
| Jan 2020 – Dec 2023 | Additive | Mar 2020 – Dec 2023 |
| Jan 2024 – latest obs. | Multiplicative | Mar 2020 – Dec 2023 |

References

William Beach, “The Challenges of Seasonal Adjustment during the COVID-19 Pandemic,” *BLS Commissioner’s Corner*, December 21, 2020, <https://blogs.bls.gov/blog/tag/seasonal-adjustment>.

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U.S. Census Bureau, “X-13ARIMA-SEATS Reference Manual, Version 1.0,” U.S. Census Bureau Statistical Research Division, Washington, D.C., January 15, 2013.

Jonathan H. Wright, "Unseasonal Seasonals?" *Brookings Papers on Economic Activity* 2013, no. 2 (2013): 65-126.