Addendum to Intuit QuickBooks Small Business Index:

A New Employment Series for the US, Canada, and the UK

Ufuk Akcigit   Raman Chhina   Seyit Cilasun   Javier Miranda Eren

Ocakverdi   Nicolas Serrano-Velarde

April 1, 2024

Net growth reweighting for the US, Canada, and the UK
2024 update to employment levels calculations for regions and sectors

The Index methodology calculations published on May 1, 2023 produce a discrepancy in the total net employment growth between the national series and the aggregated regional or industry series. As described below, since April 2024, we have employed a statistical reweighting of the growth rate estimates for the regional and industry series to correct this discrepancy and align with the national data.

Our methodology generates a growth rate series — for the US, Canada, and UK as a whole, or by industry, and region.[1] From these rates, we produce actual employment numbers in levels and changes. Discrepancies in the total net employment growth between the national series and the aggregated industry or regional series can arise. These discrepancies are the result of statistical and rounding errors in the industry and regional growth rate series.[2] To ensure the sub-national series align fully with the national series we recenter the growth rate estimates for the regional and industry series so that the sum of the implied employment growth from these series equals the national total. More formally, note that the sum of net employment growth across regions or industries, N_r, need not equal the national totals, N, at time t, or $N_t \neq \sum_r N_{rt}$. To ensure the equality is restored we reweight the industry or region cells using the following weights:

$$W_{rt} = N_{rt} / \sum_r N_{rt}$$

Using these weights, we distribute the national net growth to each region and sector so that the sum of new net employment growth across regions or industries, $\widehat{N}_{rt}$, equals the national net change, or $N_t = \sum_r \widehat{N}_{rt}$:

$$\widehat{N}_{rt} = N_t * W_{rt}$$

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[1] Region in the US refers to regions and states, and in the UK to nations and regions.
[2] Employment is recovered by multiplying the growth rate by the base-level employment.

The implied levels for each region and sector in the current period, E_{rt}, are adjusted, $\widehat{E}_{rt}$, to reflect the reweighted net growth:

$$\widehat{E}_{rt} = E_{rt-1} + \widehat{N}_{rt}$$

Finally, the net growth rates for the current period, G_{rt}, are adjusted, $\widehat{G}_{rt}$, to reflect the reweighted net growth:

$$\widehat{G}_{rt} = \frac{\widehat{E}_{rt} - E_{rt-t}}{.5*(\widehat{E}_{rt} + E_{rt-1})}$$