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UK national productivity trends: getting the data right

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Abstract

We compare standard productivity estimates of UK output per worker derived from the Labour Force Survey (LFS) with newly released estimates based on more reliable “Real Time Information” (RTI) administrative data. LFS-based productivity measures have been flat since 2024 Q3, a continuation of disappointing longer-term trends since the Global Financial Crisis. By contrast, RTI-based productivity estimates point to a meaningful productivity pickup. Between 2024 Q3 and 2026 Q1, our baseline administrative estimates indicate that productivity increased by 2.4 per cent, compared with just 0.3 per cent under the LFS-based measure. A divergence in labour input explains these differences. While the LFS suggests that labour input increased by 1.8 per cent between 2024 Q3 and 2026 Q1, administrative measures indicate a small decline. The difference in the series is explained by employees, rather than the harder to measure group of self-employed. Between 2024 Q3 and 2026 Q1, the LFS recorded an increase of 377,000 employees, while RTI recorded a decline of 133,000 employees. While some of the divergence could in principle reflect definitional and coverage differences between survey and administrative data, we believe that it is due to sampling challenges affecting the LFS, particularly during and since the pandemic. Given that administrative data currently provide the most reliable measure of employee growth, productivity estimates using such data provide a more accurate picture of recent developments.

Keywords: national productivity; employment measurement; administrative data; Labour Force Survey

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Introduction

In this technical note, we compare standard productivity estimates of UK output per worker derived using labour inputs sourced from the Labour Force Survey (LFS) with newly released estimates based on more reliable “Real Time Information” (RTI) administrative data. We consider alternative measures of labour input and show, under conservative assumptions, that labour productivity appears to have picked up when using more accurate data.

1. National Productivity

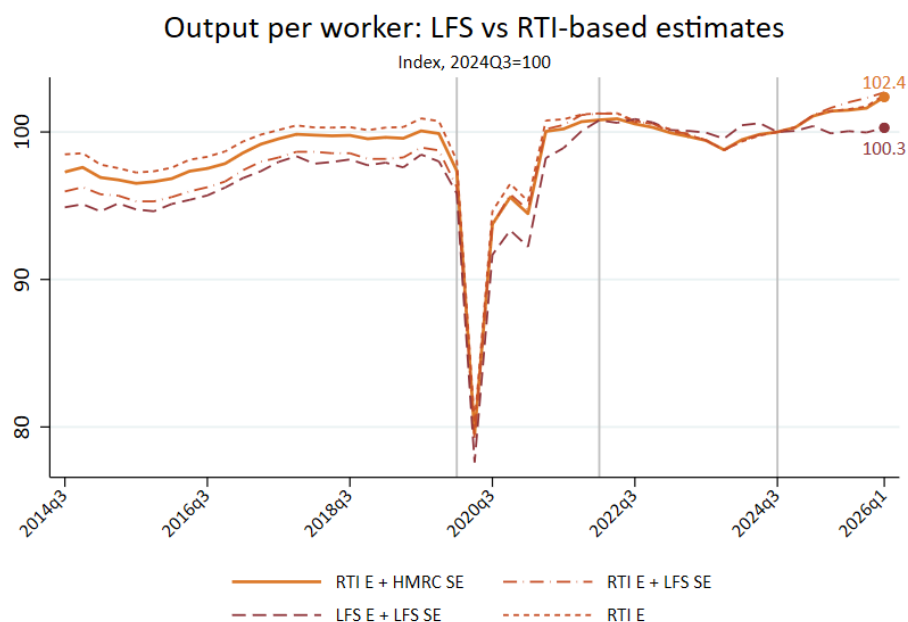
Standard productivity estimates based on the LFS suggest that output per worker was broadly unchanged between 2024 Q3 and 2026 Q1. By contrast, estimates constructed using administrative labour market data reveal a notable increase in productivity over the same period.

Figure 1 shows alternative measures of output per worker (indexed such that 2024 Q3 = 100). All are constructed using the same numerator, inflation-adjusted gross value added (“real GVA”), but four alternative measures of labour input are used in the denominator. The LFS-based productivity measure (LFS E + LFS SE) increased by only 0.3 per cent between 2024 Q3 and 2026 Q1 (“E” stands for Employees and “SE” for the Self-Employed). This was far lower than 2.4 per cent recorded over the same period using our preferred “baseline” measure, based on RTI employees and HMRC self-employment (RTI E + HMRC SE) – a measure constructed using only administrative data for labour inputs. The other two administrative estimates based on RTI employees show essentially the same productivity pick up; one uses LFS self-employed instead of HMRC self-employed (RTI E + LFS SE), and the other simply ignores the self-employed and considers only trends in RTI employees (RTI E).

Table 1 compares growth rates over different periods implied by the four alternative productivity estimates. While different treatments of self-employment in the administrative series produce small differences in productivity growth estimates, all administrative-based estimates suggest that productivity growth has been materially stronger than the LFS-based measure in the period since 2024 Q3. We use RTI E + HMRC SE as our baseline productivity measure, which has seen slightly lower growth than the other two administrative measures. This baseline measure implies an annualised productivity growth of 1.6 per cent between 2024 Q3 and 2026 Q1, compared with only 0.3 per cent over the decade preceding 2024 Q3. For robustness, Appendix B.2. shows that this recent pickup is qualitatively unchanged ending in 2025 Q4, which is currently the latest official productivity figure published by the Office for National Statistics (ONS). Using output per hour rather than per worker also yields very similar results (ONS, 2026; Resolution Foundation, 2026; The Productivity Institute, 2026). Since RTI does not collect hours worked, any measure of economy-wide hours worked is obtained by multiplying LFS average hours worked with the preferred measure of the number of workers.

Prior to the pandemic, the LFS-based and administrative-based productivity series tracked each other reasonably closely in growth terms. Since 2020, however, the two approaches have implied increasingly different productivity paths. As we will show, RTI is likely to show the best measure of the labour input denominator and hence, productivity trends.

Figure 1: Productivity trends (alternative estimates)



Notes: All series use the same real GVA series (Chained Volume Measure), but different labour input measures. “RTI E + HMRC SE” uses RTI employees and HMRC self-employed; “LFS E + LFS SE” uses LFS employees and LFS self-employed; “RTI E + LFS SE” uses RTI employees and LFS self-employed; “RTI E” uses only RTI employees, disregarding self-employment; vertical lines indicate the start of Covid (2020 Q1), Ukraine war (2022 Q1) and the election of the Labour government (2024 Q3), respectively. For sources, see Appendix A.

Table 1: Productivity growth rates (alternative estimates)

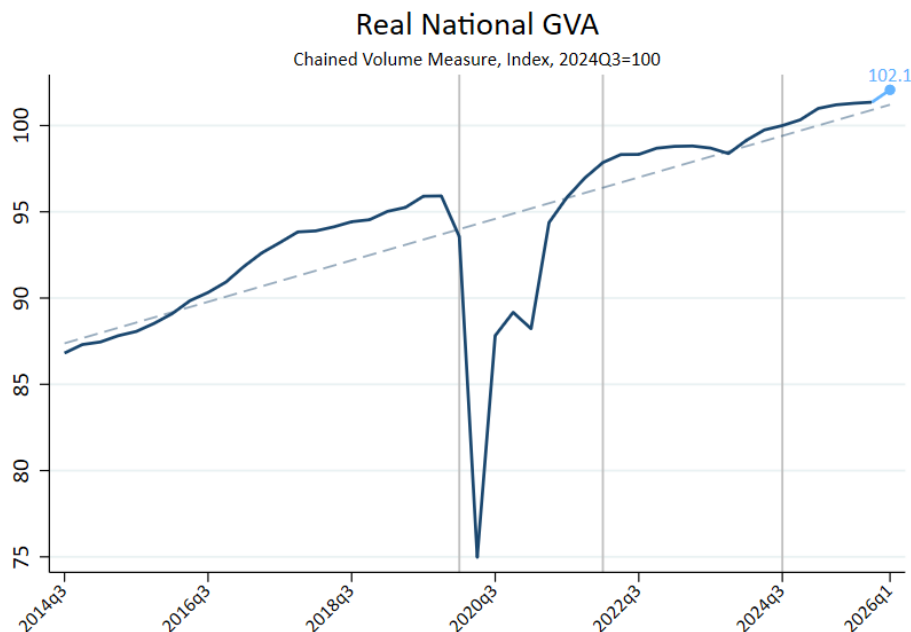
Workers measure	Annualised productivity growth rate (%)		Productivity growth (%)
	2014Q3 to 2024Q3	2024Q3 to 2026Q1	2024Q3 to 2026Q1
RTI E + HMRC SE	0.28	1.57	2.37
RTI E + LFS SE	0.41	1.78	2.69
RTI E	0.15	1.67	2.52
LFS E + LFS SE	0.53	0.19	0.28

Notes: Annualised and total productivity growth by selected time windows, as shown. For description of series, see Figure 1 notes. For sources, see Appendix A.

2. Gross Value Added

Real Gross Value Added (GVA) is the numerator of the productivity measure; this is plotted in Figure 2. Following a contraction during the pandemic, output has recovered and is now growing. Between 2024 Q3 and 2026 Q1, real GVA increased by 2.1 per cent.

Figure 2: Gross Value Added trend



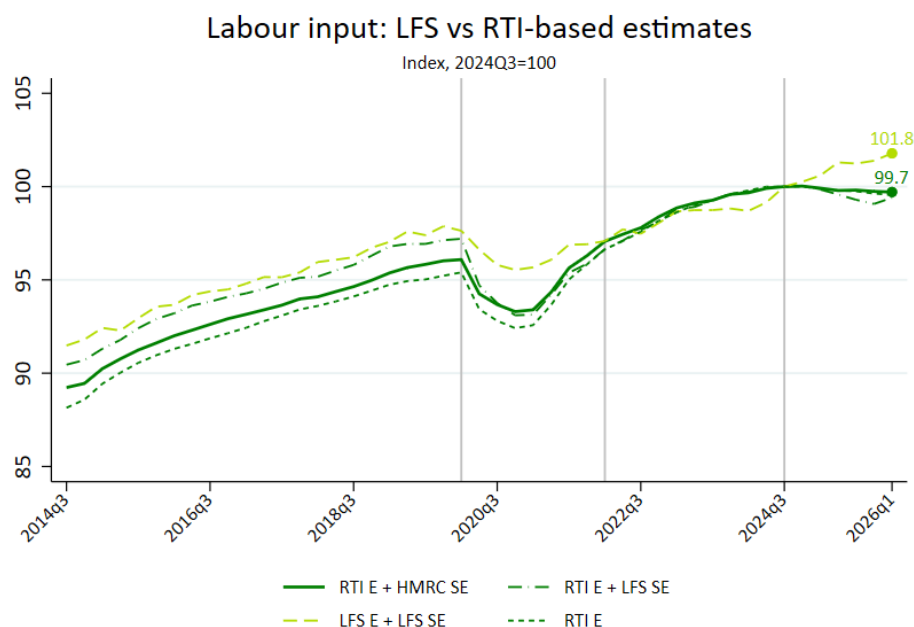
Notes: Real GVA, chained volume measures; dashed line is a linear trend. For sources, see Appendix A.

3. Labour Input

Alternative measures of labour input

As discussed, discrepancies in productivity estimates arise from differences in the labour input, the number of workers in the economy. Figure 3 plots the alternative worker measures, again, indexed to 2024 Q3 = 100. The LFS-based measure suggests that labour input increased by 1.8 per cent between 2024 Q3 and 2026 Q1. By contrast, the administrative measures indicate broadly flat or slightly declining labour input over the same period, with our baseline measure, RTI E + HMRC SE, falling by 0.3 per cent. While alternative treatments of self-employment produce small differences in the trends, all RTI-based measures imply substantially weaker labour input growth than the LFS.

Figure 3: Labour input trends (alternative estimates)



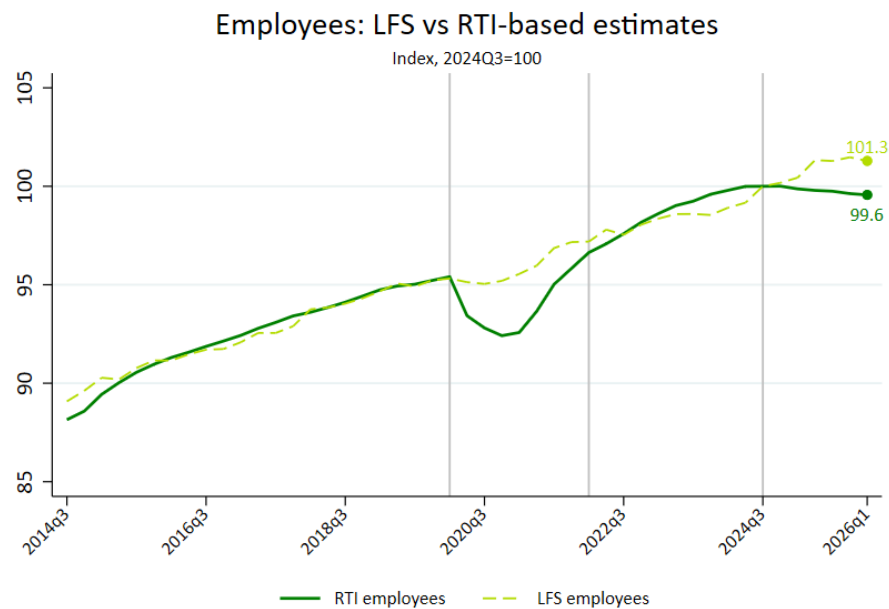
Notes: For description of series, see Figure 1 notes. For sources, see Appendix A.

The discrepancy between the LFS and RTI-based labour inputs is driven by differences in the number of employees. This is partly because the employee component accounts for approximately 87-89 per cent of total workers under the different measures. Consequently, it is no surprise that the employee series shown in Figure 4 (Panel A) closely mirrors the labour input series presented in Figure 3. Figure 4 plots the employee estimates according to the two data sources, indexed to 2024 Q3 = 100. LFS estimates indicate that the number of employees grew by 1.3 per cent from 2024 Q3 until 2026 Q1, while RTI employees recorded a fall of 0.4 per cent in the same period.

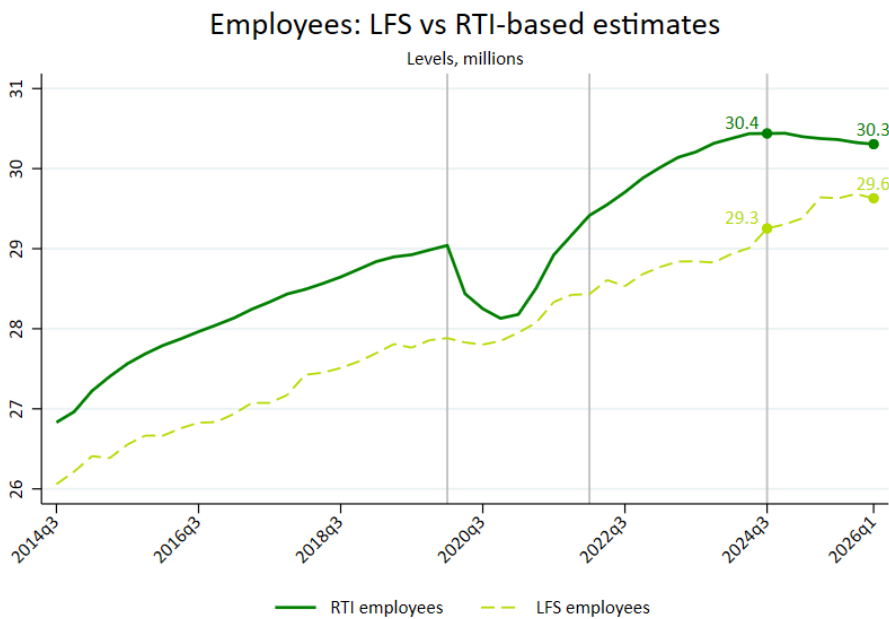
Panel B compares employee estimates in levels. RTI employee counts have consistently exceeded LFS employee counts, with an average gap of around one million workers over the sample period. The gap widened after the pandemic and, although it has narrowed recently, remains substantial.

Figure 4: Employee counts (LFS vs RTI)

Panel A: Index (2024 Q3=100)



Panel B: Levels



Notes: For sources, see Appendix A.

Table 2 quantifies the magnitude of this gap in employees. Between 2024 Q3 and 2026 Q1, the LFS recorded an increase of 377 thousand employees, while RTI recorded a decline of 133 thousand, implying a difference of around half a million employees between the two sources.

Table 2: Employee counts discrepancy (LFS vs RTI)

Employee measure	2024 Q3	2026 Q1	Change	2026 Q1 (2024 Q3=100)
LFS	29 253 000	29 630 000	+ 377 000	101.3
RTI	30 439 000	30 306 000	– 133 000	99.6
Difference (LFS-RTI)	-	-	+ 510 000	-

Notes: For sources, see Appendix A.

The movements of the self-employed are less consequential since most workers are employees. Because RTI-based employee counts have been broadly flat since 2024 Q3, all productivity measures built on RTI employees exhibit a similar recent trend, regardless of whether self-employment is taken from the LFS, HMRC tax returns, or alternative working proprietor adjustments. These methodological choices affect the precise point estimates, but not the qualitative conclusion that productivity growth has been materially stronger under administrative labour input measures than under the LFS-based measure. All three administrative specifications point to a recent productivity pick-up. The self-employed adjustments and the trade-offs between the different measures are discussed in detail in Appendix B.1.

Interpreting the divergence between LFS and RTI employee counts

Panel B of Figure 4 showed that RTI and LFS employee counts exhibit a persistent level difference and, since the pandemic, have followed different growth paths. During the pandemic, RTI employee counts fell sharply, while the LFS series remained comparatively resilient. During the recovery phase, RTI rebounded more strongly, widening the gap with the LFS. Since 2024 Q3, RTI employee counts have broadly stabilised, while the LFS continues to indicate employment growth, thereby narrowing the gap between the two series.

There are two possible explanations for these differences. First, it could be that the two series reflect genuine labour market dynamics that are recorded differently because of differences in the employee-counting rules used by the LFS and RTI. A second hypothesis is that the divergence reflects mismeasurement in the LFS, potentially related to the well-documented sampling challenges that emerged during and after the pandemic (ONS, 2025).

The first hypothesis is based on the fact that LFS and RTI count employees differently. The ONS provides a thorough overview of the definitional differences between LFS and RTI employee measures (ONS, 2022). RTI records Pay As You Earn (PAYE) employment whenever a payment is made from an employer to an employee, regardless of whether the job is primary or secondary. If a person has multiple jobs, RTI counts them once through the use of a unique personal identifier. The LFS, by contrast, is a household survey whose objective is to assign a unique labour market status to each individual, determined by their main job, while information on secondary jobs is collected separately. For instance, an individual whose main job is self-employment and whose secondary job is a PAYE employee job, would be included in the RTI employee count but not in the LFS employee count. This could partly explain why RTI employee counts are persistently higher than LFS employee counts. Differential counting could also explain why RTI registered a substantial decline during the pandemic that was not reflected in the LFS. This would be consistent with individuals maintaining an employment relationship and reporting themselves as employees in the LFS, while experiencing temporary payroll disruptions that cause them to disappear from RTI records. The same trend could also reflect the loss of secondary PAYE jobs during the pandemic. Similarly, recent developments could be rationalised as a decline in secondary PAYE jobs among individuals whose main activity is self-employment, a change that would be captured by RTI but not by the LFS.

The second hypothesis relates to the sampling challenges that affected the LFS during and after the pandemic, resulting in a mismeasurement of employee counts. This hypothesis could be a plausible explanation because the timing of the LFS disruptions coincides with the beginning of the employee series divergence. The ONS appears to attribute much of the discrepancy between the employee series to these issues (ONS, 2025). Consistent with this interpretation, the recent narrowing of the gap has been linked to operational improvements to the LFS that began to take effect during 2024, including the reinstatement of sample boosts, increased respondent incentives and the reintroduction of face-to-face interviewing (ONS, 2026). The ONS has also advised caution when interpreting changes over time in these series, noting that methodological improvements in the current LFS are not retrospectively incorporated into earlier estimates (ONS, 2026). The ONS is simultaneously working on the development and testing of the Transformed Labour Force Survey (TLFS), designed to be a long-term solution to the challenge of falling response rates (ONS, 2026). Given the scale and timing of the divergence between RTI and LFS employee counts, the sampling-issues explanation appears more plausible than differences arising solely from definitional and counting conventions.

Choosing a series

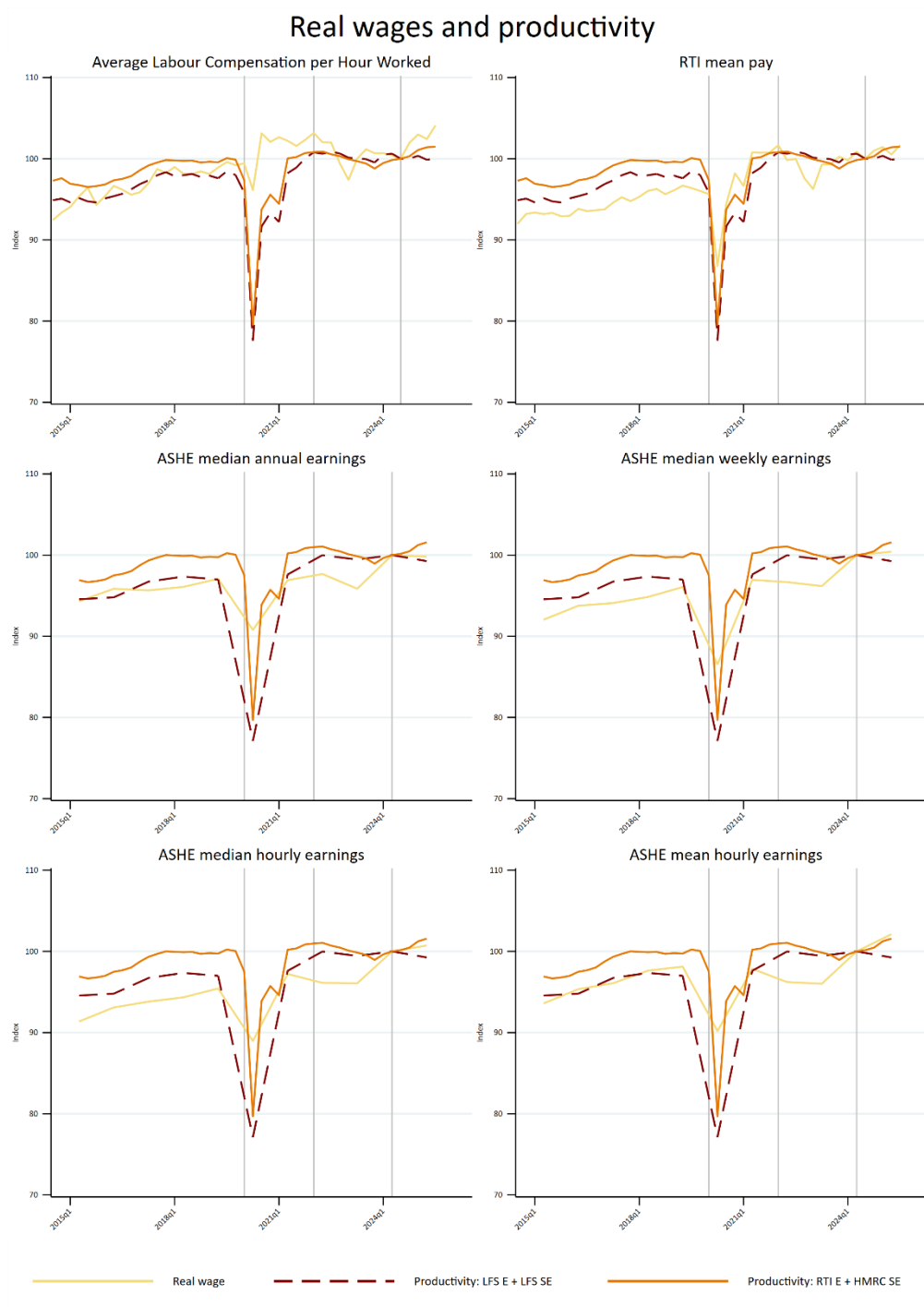
Three considerations support the view that it is better to rely on the RTI-based administrative measures rather than LFS estimates when assessing recent productivity developments. First, the RTI employee data is administrative, which by construction makes it closer to “ground truth” compared to the LFS. It reflects the population, based on mandatory returns, rather than a voluntary sample. Second, as discussed, we believe that the magnitude of the recent divergence in employee growth is difficult to reconcile with definitional factors alone, while their timing is consistent with LFS sampling issues (ONS, 2025). Third, a useful exercise is to compare these series with external variables that are expected to comove with them. In this spirit, Appendix B.3. shows that the employee component of “workforce jobs” (the number of employee jobs - aged 16 years and over - that an organisation directly pays from its payroll, collected quarterly via the Short-Term Employment Surveys (STES) and benchmarked annually to the Business Register and Employment Survey (BRES)) track RTI employees quite closely.

While the LFS is now better placed to provide reliable estimates of current labour market conditions, it remains less suitable for assessing employment and productivity trends over time, particularly across the period affected by its operational challenges. Thus, productivity estimates that use administrative data are likely to provide a more accurate picture of recent productivity developments.

4. Real Wages

One of the main reasons to care about aggregate productivity growth is that historically and theoretically it is likely to lead to growth in real wages (De Loecker et al., 2022). Figure 5 plots a range of nominal earnings measures, deflated using the GVA deflator to ensure comparability with the productivity estimates. Taken together, these measures indicate that real wages have mostly increased in recent quarters, providing additional support for the recent improvement in productivity suggested by the RTI-based estimates.

Figure 5: Real wages



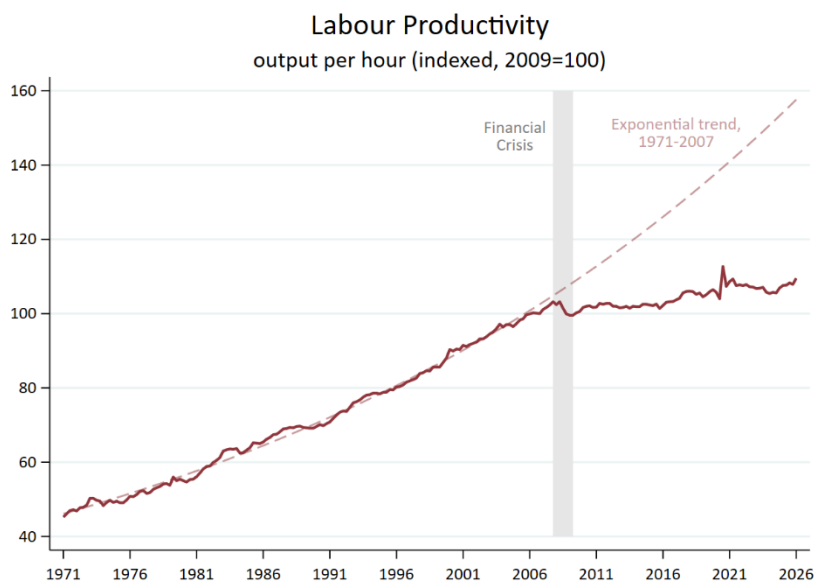
Notes: For description of the productivity series, see Figure 1 notes. For productivity sources, see Appendix A. Average Labour Compensation per Hour Worked constructed using Labour costs and Labour income (ONS). RTI mean pay sourced from Pay As You Earn Real Time Information, seasonally adjusted (ONS). ASHE measures from Annual Survey of Hours and Earnings (ONS): Median Gross Annual Earnings, Median Gross Weekly Earnings Median Hourly Earnings Excluding Overtime, Mean Hourly Earnings Excluding Overtime.

5. Longer Run Trends in Productivity

We produce our preferred measure of the evolution of UK productivity over the longer run in Figure 6 below, as measured by output per hour. The economy-wide hours worked are obtained by multiplying LFS average hours worked with our preferred measure for the number of workers. In particular, we splice the RTI-based measure from 2015 Q1 onto the official LFS-based output per hour series up to 2014 Q4, applying the growth rates of the administrative series to preserve continuity in levels. This allows us to retain the established long-run historical series while replacing the recent labour input data with our preferred administrative measure.

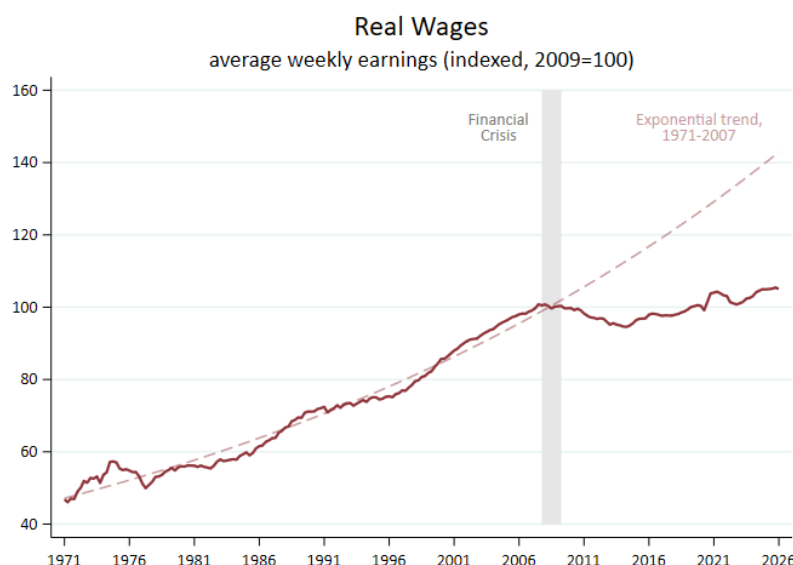
The post-global financial crisis productivity slowdown remains striking, although productivity growth in the last few years appears materially stronger than suggested by the conventional LFS-based measure. Figure 7 plots the weekly wage series, deflated by the CPI, to show how wages have followed productivity over the longer run.

Figure 6: Longer run trends in productivity



Notes: For sources, see Appendix A.

Figure 7: Longer run trends in real wages



Notes: Wages sourced from ONS Average Weekly Earnings, whole economy, real terms (CPI adjusted), seasonally adjusted, after year 2000. UK Average Earnings Index, whole economy, real terms (CPI adjusted), seasonally adjusted, prior to year 2000.

6. Conclusion

Taken together, the administrative data points to a more positive recent productivity picture than the LFS-based estimates. The most conservative administrative measure implies an annualised productivity growth of 1.6 per cent between 2024 Q3 and 2026 Q1, compared with only 0.3 per cent over the decade preceding 2024 Q3. Part of this improvement reflects weaker labour input growth, particularly in employee numbers. However, it also reflects the resilience of output growth, with real value added continuing to expand despite little growth in employment. Obviously, we need to see whether these gains continue in the future as more data becomes available.

More broadly, these results highlight the importance of administrative data when assessing the most recent developments in the labour market and productivity. While some of the divergence between LFS and RTI-based estimates could in principle reflect definitional and coverage differences between survey and administrative data, we believe that it is due to sampling challenges affecting the LFS, particularly during and since the pandemic. Although there have been improvements with the LFS, the differences between the employee trends in the official LFS series and the administrative data are still large enough to imply substantially different productivity estimates.

Given that administrative data currently provide the most reliable measure of employee growth, productivity estimates using such data provide a more accurate picture of recent productivity developments.

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Appendix A: Data Sources and Construction

The LFS and RTI-based output per worker series are constructed as follows.

Output is provided by Gross Value Added. This comes from Quarterly National Accounts that produce balanced GDP (output, expenditure and income approach) to ultimately derive GVA by subtracting taxes on products and adding subsidies. The current price series is then turned into a real series using the GVA deflator, eventually expressing Real GVA in chained volume measures, where output is valued using previous-year prices and then linked together into a continuous series.

The main labour input considered in this analysis is the number of workers. Alternatively, productivity can be expressed per-hour and per-job. The LFS workers measure follows the ILO definition (ONS, 2024). The LFS workers figure is roughly obtained by summing LFS employees to LFS self-employed and removing working proprietors (self-employed individuals who are employees of their own firm) to avoid double counting. Note that LFS hours, average or total, refer to those in employment in the calendar quarter. Jobs, or Workforce Jobs (WFJ), are obtained by summing STES employee jobs to LFS self-employed jobs and LFS secondary jobs, and other minor categories. Further, note that while LFS is a household survey with data from 80 thousand workers, STES is a business survey with data from 85 thousand employers. The latter is better to infer information on jobs and industry assignments.

PAYE RTI was more recently introduced as an administrative alternative to provide data on labour inputs (HMRC, 2014). Before RTI, PAYE data was reported annually through P35 and P14 forms. In April 2012, HMRC introduced Real Time Information (RTI) as a reform to PAYE, requiring employers to report earnings every time they pay employees, instead of annually. In April 2014, RTI became mandatory for all employers and achieved full coverage by 2014 Q3, which is considered the starting date for consistent RTI data. The RTI dataset includes RTI payrolled employees used in this report.

RTI obtains pay flows, and converts them into people counts, by including people who are employed in at least one job paid through PAYE. Values for the month are an average of employee counts each day of the month, adjusted through calendarisation and temporary imputation (ONS, 2019). Note that RTI does not distinguish between primary and secondary jobs and it does not cover self-employment. Hence, using RTI to construct a valid denominator for productivity entails incorporating a measure of self-employment and removing working proprietors to avoid double counting, as well as other minor adjustments.

Note that RTI does not collect information on hours worked. HMRC recently announced they will not move forward with their plan requiring employers to report detailed employee working hours via RTI. However, RTI collects several monthly pay indicators, including median pay, mean pay, aggregate pay and pay distributions, by UK, NUTS1 to LA, SIC07, age.

The following data sets are used to construct the series in this report:

Office for National Statistics (2025), *Annual Survey of Hours and Earnings time series of selected estimates*, dataset, 23 October 2025 release. Available at: [Annual Survey of Hours and Earnings time series of selected estimates - Office for National Statistics](#)

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Appendix B: Additional Results

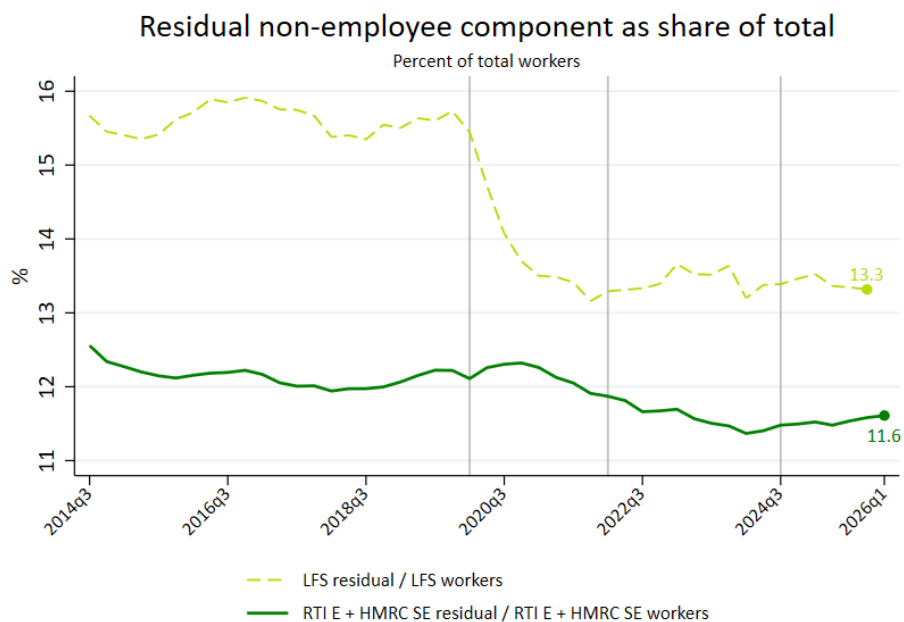
B.1. The non-employee component of labour inputs

The “residual” or non-employee component is the difference between total workers and employees. It therefore captures self-employment together with a number of adjustments required to construct worker measures consistently across sources. Figure 8 compares the residual component for two labour input series: “LFS E + LFS SE” workers minus LFS employees, and “RTI E + HMRC SE” workers minus RTI employees.

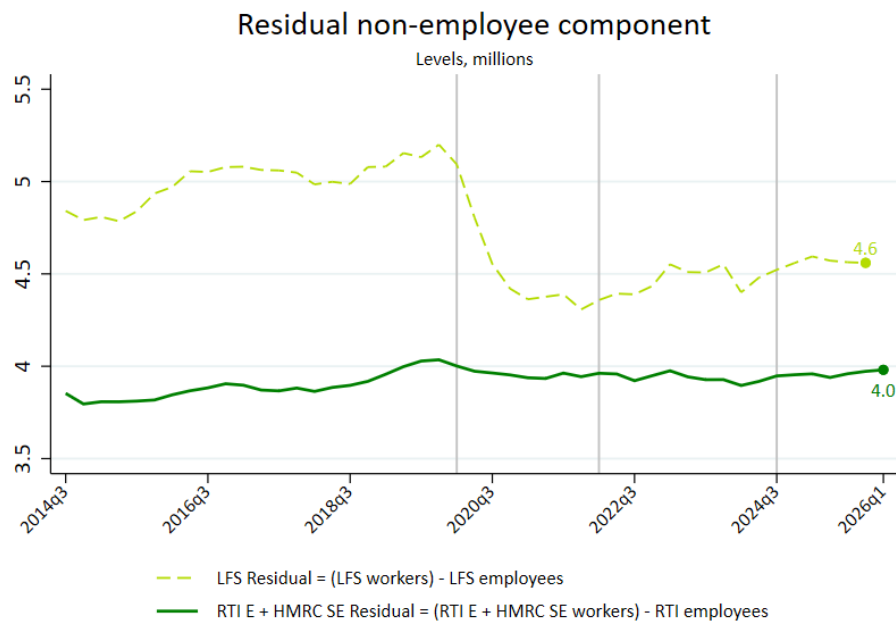
Two observations emerge. First, the residual component represents a relatively small share of total labour input, accounting for around 11-13 per cent of total workers throughout the sample period. Second, the residual component has been relatively stable in recent years. While the LFS-based residual remains slightly larger than its administrative counterpart, both series have shown limited movement since 2022. This reinforces that the recent divergence between LFS-based and administrative labour-input measures is primarily driven by differences in employee estimates.

Figure 8: Non-employee component (LFS vs RTI)

Panel A: Share of total workers

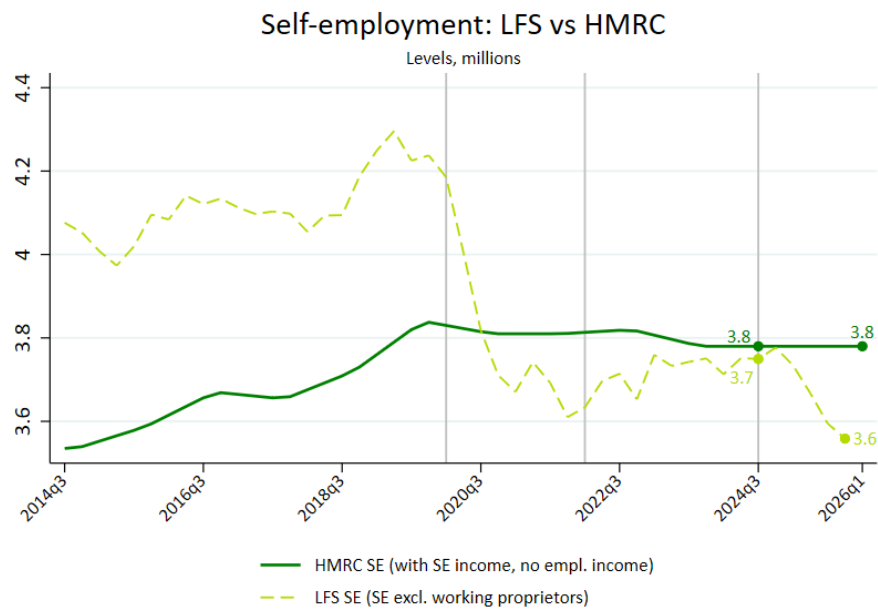


Panel B: Levels



Notes: For description of series, see Figure 1 notes. For sources, see Appendix A.

Figure 9: Self-employment counts (LFS vs HMRC)



Notes: For sources, see Appendix A.

Because self-employment constitutes the largest part of the residual component, Figure 9 compares the underlying self-employment series directly. For comparability, the LFS measure excludes working proprietors, while the HMRC measure includes individuals with self-employment income and excludes those who also hold employment income.

The most notable feature is a persistent level difference prior to the pandemic, with LFS self-employment consistently exceeding the HMRC measure. During the pandemic, however, the LFS series converged sharply towards the HMRC figure. This pattern is consistent with previous evidence reporting changes in LFS self-identification during Covid (ONS, 2022). More recently, the LFS measure has declined since 2024 Q3. By contrast, the HMRC series is assumed constant because self-employment data are not yet available beyond 2023–24.

As shown throughout this report, the three alternative administrative series depict broadly similar recent trends in productivity. Taken together, the three estimates provide a plausible range for recent productivity developments. While all rely on the same administrative source for employee counts (PAYE RTI), they differ in their treatment of the self-employment component and related adjustments. Each series has distinct strengths and limitations. “RTI E + HMRC SE” has three advantages. First, it is completely independent of the LFS, providing a fully administrative benchmark; second, it yields the most conservative measure of productivity, so using it as a lower bound avoids overstating the recent productivity trend; third, it uses an administrative source for self-employment, which is likely to provide the most accurate measure of levels and long-run trends, abstracting from survey dynamics. The disadvantages of this measure are that HMRC self-employment data are available only annually, and that the latest data available cover 2023–24. The series is therefore assumed constant thereafter for simplicity, which may slightly distort the self-employment trend in the most recent quarters. Note that the “RTI E + HMRC SE” productivity series is constructed using the Resolution Foundation worker series (Resolution Foundation, 2026). “RTI E + LFS SE” has the advantage of being an official figure published by the ONS, which has access to all the data required to make the necessary adjustments and construct its preferred administrative workers series. It also benefits from the fact that LFS self-employment data are available quarterly and extend to the latest observation period. On the other hand, the series is not fully independent of the LFS, owing to the inclusion of the self-employment component. In the same way that using LFS employee counts to assess recent trends appears problematic, the same may be true for self-employment. Finally, “RTI E” has the advantage of being a clean, unadjusted and transparent measure of employees, but it has the obvious disadvantage of excluding self-employment and other minor classes of workers. For these reasons, this report adopts “RTI E + HMRC SE” as its preferred measure. Nevertheless, considering all three measures jointly remains informative given their different underlying constructions.

B.2. Productivity tables: robustness and details

Table 3 reproduces Table 1 using data up to 2025 Q4 rather than 2026 Q1. This is because the 2026 Q1 observation is currently based on a productivity flash estimate, whereas 2025 Q4 corresponds to the latest official productivity statistic. The results are qualitatively unchanged.

Table 3: Productivity growth rates (alternative estimates)

	Annualised productivity growth rate (%)		Productivity growth (%)
Workers measure	2014Q3 to 2024Q3	2024Q3 to 2025Q4	2024Q3 to 2025Q4
RTI E + HMRC SE	0.28	1.29	1.62
RTI E + LFS SE	0.41	1.84	2.30
RTI E	0.15	1.38	1.73
LFS E + LFS SE	0.53	-0.03	-0.03

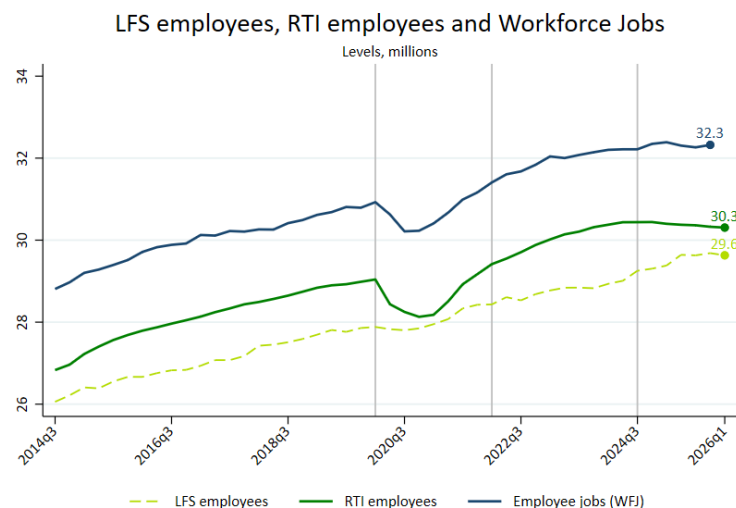
Notes: Annualised and total productivity growth by selected time windows, as shown. For description of series, see Figure 1 notes. For sources, see Appendix A.

B.3. Workforce jobs closely track RTI employee growth

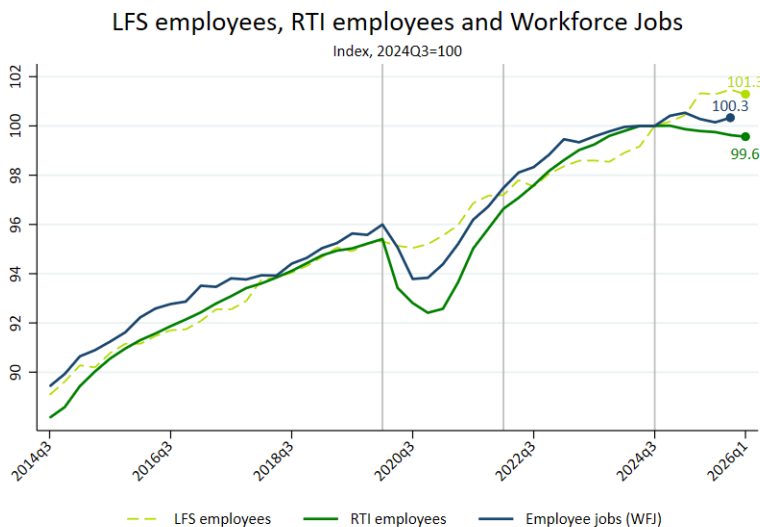
Workforce Jobs provide another useful comparator for employee counts. Two findings emerge. First, Figure 10 Panel A shows that employee jobs exceed both RTI and LFS employee counts in levels, reflecting the fact that an individual can hold more than one job. Second, Panel B shows that employee jobs closely track RTI employee growth over time. This provides further support for the growth path implied by RTI employee counts rather than the LFS.

Figure 10: Workforce jobs counts

Panel A: Levels



Panel B: Index (2024 Q3=100)



Notes: For sources, see Appendix A.