

Celebrating
60
years

**Northern West Sussex
Economic Growth Assessment
Supplementary Update for
Crawley**

Final Report

January 2023

LICHFIELDS

LICHFIELDS

Lichfields is the pre-eminent planning and development consultancy in the UK

**Celebrating 60 years
of innovation in planning.**

[lichfields.uk](https://www.lichfields.uk)

© 2023 Nathaniel Lichfield & Partners Limited (trading as "Lichfields"), All Rights Reserved, is registered in England, no. 2778116.
Registered office at The Minster Building, 21 Mincing Lane, London EC3R 7AG.
Formatted for double sided printing.
Plans based upon Ordnance Survey mapping with the permission of Her Majesty's Stationery Office.
© Crown Copyright reserved. Licence number 10007707
60562/02/CGJ/NPv
26063199v2

Contents

| | | |
|------------|---|-----------|
| 1.0 | Introduction | 1 |
| | Scope of the Study | 1 |
| 2.0 | Future Requirements for Employment Space | 3 |
| | 1. Forecasts of Job Growth (Labour Demand) | 3 |
| | 2. Past Development Rates | 11 |
| | 3. Future Labour Supply | 12 |
| | Net to Gross Employment Requirements | 13 |
| | Summary | 14 |
| 3.0 | Implications for Demand/Supply Balance | 16 |
| 4.0 | Conclusions | 17 |
| | Future Requirements for Employment Space | 17 |
| | Implications for Demand/Supply Balance | 18 |
| | Appendix 1 OE Data Guide and Assumptions | |
| | Appendix 2 Experian Data Guide and Assumptions | |

1.0 Introduction

1.1 Crawley Borough Council ('CBC') commissioned Lichfields to prepare supplementary economic evidence for the draft Local Plan that updates the Northern West Sussex Economic Growth Assessment ('EGA') (dated January 2020), alongside the Focused Update report (dated September 2020) also produced by Lichfields.

1.2 The Northern West Sussex EGA provided a comprehensive evidence base for employment and economic development needs across the Northern West Sussex area during the period to 2036, having regard to the revised National Planning Policy Framework ('NPPF') and Planning Practice Guidance ('PPG').

Scope of the Study

1.3 Progress on the Local Plan has been delayed as a result of ongoing water neutrality issues in the area. CBC are now working towards a further period of Regulation 19 consultation in May 2023 with a view to submission by Autumn 2023.

1.4 Given the extended timescales, alongside the significant changing economic circumstances affecting both the national and local economy over the last two years, CBC has identified a requirement for some partial updating of the employment evidence which is considered in this report. Accordingly, this report should be read alongside the 2020 EGA and the 2020 Focused Update.

1.5 In this context, the scope of this report consists of the following:

- 1 Assess the latest 2022 forecasts from Oxford Economics and Experian, which reflect the impact and gradual recovery from the Covid-19 pandemic but also other factors arising in the intervening period such as the UK's final Withdrawal Agreement from the European Union, the war in Ukraine and the current inflationary pressures being experienced and a potential period of recession in the UK economy.
- 2 Prepare updated estimates of floorspace requirements arising from the above, using a methodology consistent with the Northern West Sussex EGA, and applied to the amended period of 2023-2040.
- 3 Update the other demand scenarios to reflect additional periods of monitoring data available (past development rates) and the position in respect of the Borough's planned housing growth on a supply-led basis (to compare with the original and updated uncapped standard method figures).
- 4 Revisit the implications for the Borough's future employment land demand/supply balance in the context of the updated scenarios considered above.

1.6 All other aspects of the 2020 EGA remain unchanged and have not been updated.

1.7 The scope of this focused EGA update includes consideration of economic development as defined by the NPPF, with a primary focus upon the typologies set out in the 'E' and 'B' Use Classes as outlined below:

- **E(g) Business Space:** E(g)(i) Offices to carry out any operational or administrative functions, E(g)(ii) Research and development of products or processes, and E(g)(iii) Industrial processes (which can be carried out in any residential area without causing detriment to the amenity of the area).
- **B2 General Industrial:** typically comprising factory and manufacturing space.
- **B8 Storage and Distribution:** warehouses, wholesale and distribution.

1.8 References to ‘employment space’ refer to all class elements noted above. In addition, the term ‘industrial space’ is used to refer to both manufacturing (E(g)(iii)/B2) and warehouse and distribution (B8) uses.

1.9 An important consideration for any work of this type is that it is inevitably a point-in-time assessment. This study has incorporated the latest data and other evidence available at the time of preparation in late 2022. The accuracy and sources of data derived from third party sources has not been checked or verified by Lichfields.

2.0 Future Requirements for Employment Space

2.1 This section considers the latest assessment of future economic growth needs in Crawley for the revised period of 2023-2040 drawing on two sets of employment forecasts, latest completions data and housing delivery assumptions.

2.2 It follows the same PPG-compliant approach as the 2020 EGA and Focused Update to developing a number of potential future economic scenarios to provide an updated framework for considering future economic growth needs and employment space requirements in Crawley up to 2040, drawing upon:

- 1 Projections of employment growth in the office-, industrial- and distribution-based sectors (labour demand) derived from economic forecasts produced by Oxford Economics and Experian in 2022;
- 2 Consideration of past trends in completions of employment space based on the West Sussex County Council (WSCC) Commercial, Industrial and Leisure Land Availability (CILLA) data; and
- 3 Estimates of future growth of local labour supply based on the Council's latest housing delivery trajectory and demographic assumptions.

2.3 The outputs from these updated scenarios are presented and discussed below.

1. Forecasts of Job Growth (Labour Demand)

Oxford Economics Forecast: Q4 2022

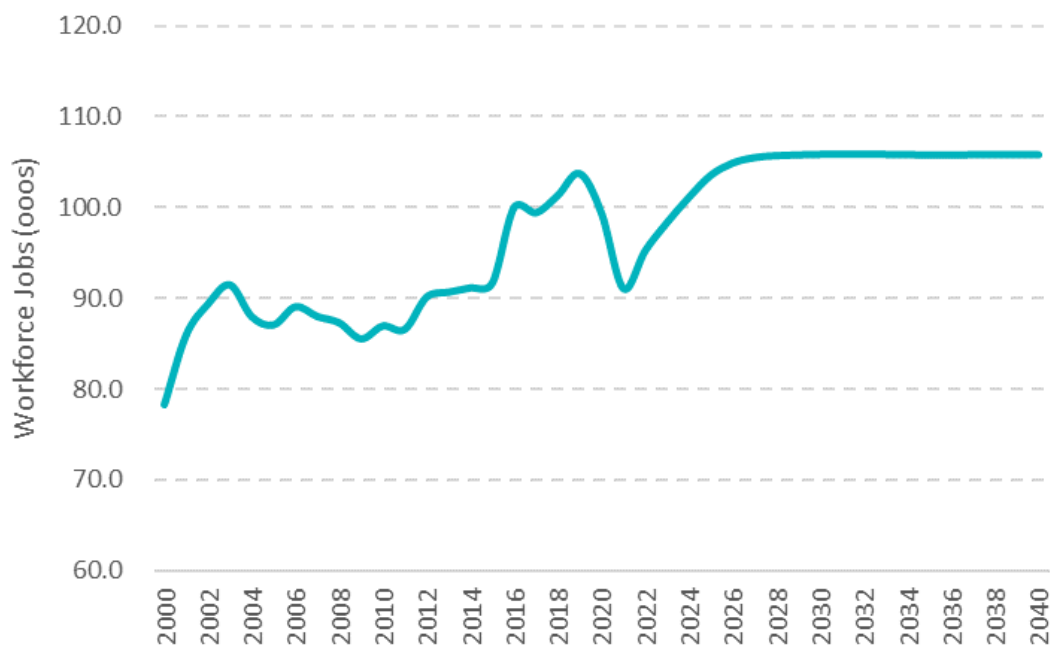
2.4 Oxford Economics (OE) provided a forecast of employment growth over the period to 2040 based on their Q4 2022 release. These take account of regional and national macroeconomic assumptions prevailing at the time including the recovery from Covid-19 pandemic and current inflationary pressures (**Appendix 1** sets out the OE Data Guide and Assumptions).

2.5 The OE employment projections indicate overall growth of 7,435 workforce jobs for Crawley over the 18-year period from 2023 to 2040, equivalent to around 413 jobs per year on average. This level of growth implies a slowdown compared to recent trends recorded in the Borough; where 513 jobs per annum were generated between 2009 and 2021 (BRES, 2022). The scale of job growth is also significantly lower than that implied by the Experian forecasts, as discussed below.

2.6 On a similar basis, OE forecasts (dated 2018) used in the previous employment evidence also indicated a scale of growth significantly below that implied by Experian.

2.7 As presented in Figure 2.1, OE suggests that the impact on employment in Crawley from the pandemic will rebound fully by 2025 with employment growth across the remaining Plan period expected to be very modest at just 61 jobs per annum in overall terms between 2026 and 2040.

Figure 2.1 Employment Growth in Crawley implied by Oxford Econometrics Forecast to 2040



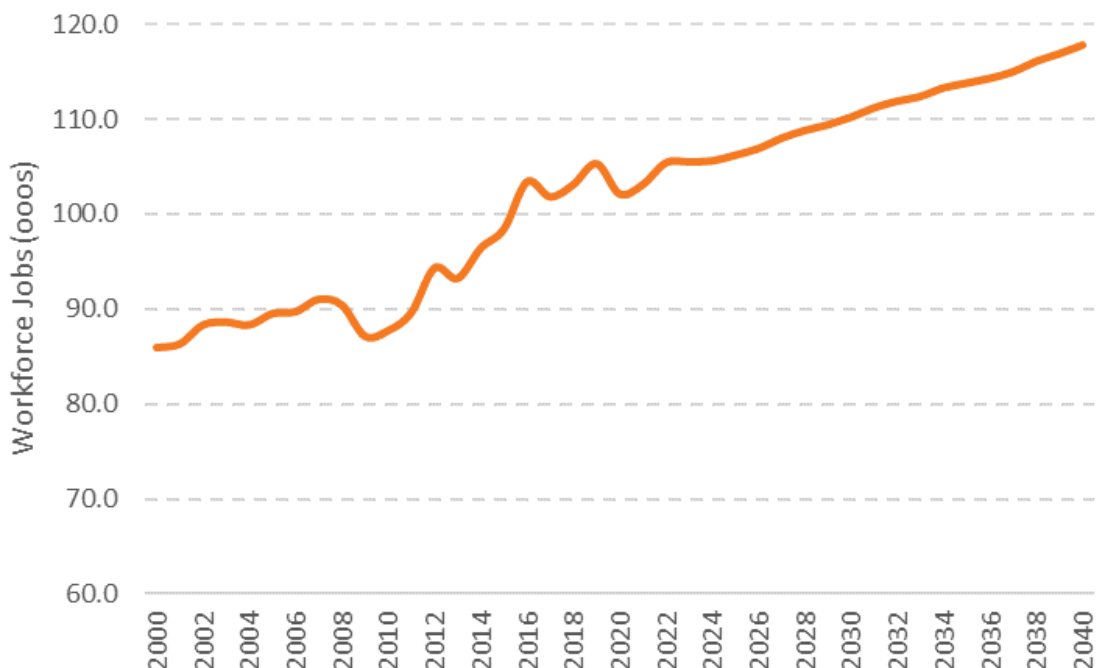
Source: OE (2022) / Lichfields analysis

- 2.8 In this context, and similar to the conclusions of the 2020 EGA (at para 8.63/8.74), the scale of job growth implied by the OE forecasts appears relatively pessimistic and is unlikely to provide a positive basis for planning for local economic growth in Crawley.

Experian Forecast: Q4 2022

- 2.9 Similar to previous evidence, and in order to provide an alternative view from another forecaster, the equivalent 2022 Q4 forecasts from Experian have been sourced and analysed on a consistent basis with the methodology applied as part of the 2020 EGA (**Appendix 2** sets out Experian Data Guide and Assumptions).
- 2.10 These forecasts imply a scale of growth for Crawley over the period to 2040 that is considerably higher than the OE forecast; equivalent to an increase of 12,300 workforce jobs in the Borough between 2023 and 2040, or 683 on average per year.
- 2.11 As shown in Figure 2.2 overleaf, Experian expects that the economy will have recovered from the pandemic by the end of 2022 – three years earlier than OE – which, in part, results in a higher baseline employment figure for 2023 than OE assumes. It is also noticeable that the two sets of forecasts are based on different trend data for Crawley, with Experian recording higher employment growth since 2000.

Figure 2.2 Employment Growth in Crawley implied by Experian Forecast to 2040



Source: Experian (2022) / Lichfields analysis

Comparing the 2022 Forecasts

2.12

ONS Business Register and Employment Survey (BRES) data indicates that Crawley’s economy grew by c.513 jobs per annum between 2009 and 2021, a period characterised by relatively mixed economic conditions including the aftermath of the Global Financial Crisis and the Covid-19 pandemic. The equivalent recorded by OE is 424 jobs per annum (between 2009 and 2021), while Experian records a significantly higher figure of 1,231 jobs per annum.

Table 2.1 Total and Annual Employment Change in Crawley

| Source | 2023 | 2040 | Change | |
|------------------|---------|---------|--------|------|
| | | | No. | p.a. |
| Oxford Economics | 98,347 | 105,782 | 7,435 | 413 |
| Experian | 105,500 | 117,800 | 12,300 | 683 |

Past Trends

| Source | 2009 | 2021 | Change | |
|------------------|--------|---------|--------|-------|
| | | | No. | p.a. |
| BRES | 80,705 | 87,380 | 6,675 | 513 |
| Oxford Economics | 85,589 | 91,103 | 5,515 | 424 |
| Experian | 87,100 | 103,100 | 16,000 | 1,231 |

Source: OE (2022) / Experian (2022) / BRES (2022) / Lichfields analysis

- 2.13 By comparison, the future growth implied by OE to 2040 is 20% below what is recorded by BRES for the 2009-21 period, while the future growth expected by Experian is 33% above. The following section considers the differences across each sector and what each forecast implies for those office-, manufacturing and distribution-based sectors that will have an impact on the requirements for employment floorspace and land.
- 2.14 A more detailed analysis of the two sets of 2022 forecasts identifies some significant variation between the expectations for individual sectors and the extent to which they will grow or decline over the Local Plan period to 2040, notably (Table 2.2 and Table 2.3):
- Transportation and storage:** where OE forecast a small growth (+104 jobs to 2040), and Experian projects +3,300 jobs growth;
 - Administrative and support service activities:** both expect significant increases but Experian projects 989 more jobs to 2040 than OE;
 - Wholesale and retail trade; repair of motor vehicles and motorcycles:** both expect increases, but OE projects 917 more jobs to 2040 than Experian;
 - Manufacturing:** for which both forecast a loss, but OE projects 870 more jobs to be lost to 2040; and
 - Education:** although not a sector which directly impacts on the forecast need for office, industrial and distribution land, it should be noted that OE expects no employment change, while Experian projects +1,000 jobs to 2040.

Table 2.2 Forecast Employment Change by Sector, OE Forecast 2022

| Sector | 2023 | 2040 | Change | |
|---|---------------|----------------|---------------|-------------|
| | | | No. | p.a. |
| A : Agriculture, forestry and fishing | 18 | 15 | -3 | 0 |
| B : Mining and quarrying | 53 | 29 | -23 | -1 |
| C : Manufacturing | 5,789 | 3,818 | -1,970 | -109 |
| D&E: Utilities | 974 | 779 | -195 | -11 |
| F : Construction | 3,613 | 4,388 | 775 | 43 |
| G : Wholesale and retail trade; repair of motor vehicles and motorcycles | 13,251 | 14,868 | 1,617 | 90 |
| H : Transportation and storage | 27,245 | 27,349 | 104 | 6 |
| I : Accommodation and food service activities | 7,920 | 8,574 | 654 | 36 |
| J : Information and communication | 2,430 | 2,645 | 216 | 12 |
| K : Financial and insurance activities | 3,186 | 3,249 | 63 | 3 |
| L : Real estate activities | 438 | 504 | 66 | 4 |
| M : Professional, scientific and technical activities | 6,466 | 8,157 | 1,692 | 94 |
| N : Administrative and support service activities | 13,667 | 16,878 | 3,211 | 178 |
| O : Public administration and defence; compulsory social security | 2,284 | 2,055 | -230 | -13 |
| P : Education | 4,016 | 4,014 | -2 | 0 |
| Q : Human health and social work activities | 5,215 | 6,296 | 1,081 | 60 |
| R : Arts, entertainment and recreation | 1,056 | 1,315 | 259 | 14 |
| S : Other service activities | 728 | 849 | 121 | 7 |
| Total | 98,347 | 105,782 | 7,435 | 413 |

Source: OE (2022) / Lichfields analysis

Table 2.3 Forecast Employment Change by Sector, Experian Forecast 2022

| Sector | 2023 | 2040 | Change | |
|---|----------------|----------------|---------------|------------|
| | | | No. | p.a. |
| A : Agriculture, forestry and fishing | - | - | - | - |
| B : Mining and quarrying | - | - | - | - |
| C : Manufacturing | 7,200 | 6,100 | -1,100 | -61 |
| D&E: Utilities | 1,400 | 1,600 | 200 | 11 |
| F : Construction | 4,400 | 4,400 | - | - |
| G : Wholesale and retail trade; repair of motor vehicles and motorcycles | 12,900 | 13,600 | 700 | 39 |
| H : Transportation and storage | 23,200 | 26,500 | 3,300 | 183 |
| I : Accommodation and food service activities | 8,600 | 9,900 | 1,300 | 72 |
| J : Information and communication | 3,100 | 2,800 | -300 | -17 |
| K : Financial and insurance activities | 3,200 | 3,800 | 600 | 33 |
| L : Real estate activities | 500 | 500 | - | - |
| M : Professional, scientific and technical activities | 5,900 | 6,800 | 900 | 50 |
| N : Administrative and support service activities | 18,500 | 22,700 | 4,200 | 233 |
| O : Public administration and defence; compulsory social security | 3,400 | 3,500 | 100 | 6 |
| P : Education | 5,500 | 6,500 | 1,000 | 56 |
| Q : Human health and social work activities | 5,300 | 6,300 | 1,000 | 56 |
| R : Arts, entertainment and recreation | 1,600 | 2,000 | 400 | 22 |
| S : Other service activities | 800 | 800 | - | - |
| Total | 105,500 | 117,800 | 12,300 | 683 |

Source: Experian (2022) / Lichfields analysis

Transportation and storage

- 2.15 In absolute terms, the most significant difference in future job growth between the two forecasts relates to the 'transportation and storage' sector. This has potential implications for resulting B class job growth, employment space and land requirements for the new Local Plan period given that some of this transportation and storage sector activity is typically associated with B8 warehousing/distribution land uses. However, it should be noted that for Crawley the largest sub-sector is the 'passenger air transport' that has no direct impact on employment land requirements.
- 2.16 Experian's projected growth of 3,300 transportation and storage jobs between 2023 and 2040 represents over a quarter of all expected job growth within the Borough. By contrast, OE have indicated that they expect a moderate increase of just 104 transportation and storage jobs to 2040. This results in a difference of 3,196 transportation and storage jobs to 2040 between the two sets of forecasts.
- 2.17 To understand which of the above assumptions might be more appropriate for planning purposes, the BRES sector change over the available period between 2009 and 2021 (i.e., 13 years) has been analysed. As presented in Table 2.4 overleaf, BRES indicates that the sector has grown by 3,000 jobs or 231 jobs p.a. in Crawley since 2009.
- 2.18 This indicates that the Experian job forecast (i.e. 183 jobs p.a. in the transportation and storage sector) aligns more closely with past job growth trends recorded in Crawley. The

market analysis contained in the 2020 EGA also points to strong growth being experienced in the wider industrial and logistics market. On this basis, the Experian view of how the transport and storage sector will grow in the future – albeit at a lower rate than the past trend – appears to provide a more appropriate basis for anticipating the needs of this sector. This is consistent with the conclusion drawn in the 2020 Focused Update report which analysed the 2018 forecasts in the same way.

Administrative and support services

2.19 Administrative and support service activities is the sector with the second largest difference across the two sets of forecasts. Both forecasts expect a significant increase in the sector, but Experian projects 989 more jobs to 2040 compared with OE. In particular, OE expects an increase of 178 administrative and support jobs p.a., while Experian’s equivalent is 233 jobs p.a.

2.20 Historically there has been an increase of 231 jobs per annum between 2009 and 2021 as presented in Table 2.4. On this basis, the Experian forecast seems to reflect better the historic level of growth delivered in the sector in Crawley.

Table 2.4 Employment Change by Sector, BRES, 2009-2021

| Sector | 2009 | 2021 | Change | |
|---|---------------|---------------|--------------|------------|
| | | | No. | p.a. |
| A : Agriculture, forestry and fishing | 30 | 30 | 0 | 0 |
| B : Mining and quarrying | - | 50 | 50 | 4 |
| C : Manufacturing | 6,000 | 6,000 | 0 | 0 |
| D&E: Utilities | 1,625 | 1,050 | -575 | -44 |
| F : Construction | 2,250 | 3,500 | 1,250 | 96 |
| G : Wholesale and retail trade; repair of motor vehicles and motorcycles | 12,000 | 12,000 | 0 | 0 |
| H : Transportation and storage | 19,000 | 22,000 | 3,000 | 231 |
| I : Accommodation and food service activities | 6,000 | 5,000 | -1,000 | -77 |
| J : Information and communication | 3,000 | 2,000 | -1,000 | -77 |
| K : Financial and insurance activities | 3,500 | 3,000 | -500 | -38 |
| L : Real estate activities | 300 | 500 | 200 | 15 |
| M : Professional, scientific and technical activities | 4,500 | 6,000 | 1,500 | 115 |
| N : Administrative and support service activities | 11,000 | 14,000 | 3,000 | 231 |
| O : Public administration and defence; compulsory social security | 2,500 | 2,250 | -250 | -19 |
| P : Education | 4,000 | 3,500 | -500 | -38 |
| Q : Human health and social work activities | 3,500 | 5,000 | 1,500 | 115 |
| R : Arts, entertainment and recreation | 900 | 900 | 0 | 0 |
| S : Other service activities | 600 | 600 | 0 | 0 |
| Total | 80,705 | 87,380 | 6,675 | 513 |

Source: OE (2022) / Lichfields analysis

Wholesale and retail trade; repair of motor vehicles and motorcycles

2.21 Employment growth in the wholesale and retail trade; repair of motor vehicles and motorcycles sector is expected to increase across both the forecasts; OE expects an increase

of 1,617 jobs (90 jobs p.a.) while Experian projects less than half of this growth of around 700 jobs (39 jobs p.a.).

- 2.22 To contextualise the above, BRES has recorded no change in the sector's employment over the period between 2009 and 2021. Therefore, the Experian forecast appears more aligned with the historic trends.

Manufacturing

- 2.23 Forecast employment growth in manufacturing also has significant difference across the two sets of forecasts; OE expects a decrease of 1,970 manufacturing jobs to 2040, while Experian expects a smaller decrease of 1,100 jobs.

- 2.24 Based on the BRES data, historically Crawley has seen no overall change in the manufacturing employment for the period between 2009 to 2021. On this basis, the Experian forecast is relatively more aligned with the level of change seen historically.

Converting to Employment Floorspace Requirements

- 2.25 Although the two sets of forecasts have significant differences in the overall workforce growth (i.e. total economy) and some individual sectors, when aggregated, they ultimately point to similar levels of growth in relation to the forecast employment change within the office-, industrial- and distribution- based sectors as presented in the tables below. The main divergence arises in sectors which do not occupy these types of floorspace.

- 2.26 Both sets of forecasts expect an increase of 5% in office-, industrial- and distribution- based jobs across the period to 2040, equivalent to 1,740-1,820 jobs. Both forecasts are fairly consistent in terms of the expectations for office-based sectors, at around 1,636-2,018 jobs over the Plan period. In terms of industrial sectors, both forecasts anticipate declining jobs, but Experian expects a smaller decline than OE. Both forecasts point to similar positive growth levels in distribution- based jobs, between 1,112-1,142 over the Plan period.

Table 2.5 Forecast Employment Change by Type of Space, Oxford Economics 2022 (Jobs)

| Type of Space | 2023 | 2040 | Change | |
|--|---------------|---------------|--------------|-----------|
| | | | No. | % |
| Office and R&D E(g)(i)/(ii) | 14,225 | 16,243 | 2,018 | 14% |
| Light Industrial E(g)(iii) | 4,815 | 4,115 | -700 | -15% |
| General Industrial B2 | 4,885 | 4,195 | -690 | -14% |
| Distribution B8 | 14,475 | 15,587 | 1,112 | 8% |
| Total | 38,400 | 40,140 | 1,740 | 5% |
| Workforce Jobs Change (all sectors) | 98,347 | 105,782 | 7,435 | 8% |

Source: OE (2022) / Lichfields analysis

Table 2.6 Forecast Employment Change by Type of Space, Experian 2022 (Jobs)

| Type of Space | 2023 | 2040 | Change | |
|--|---------------|---------------|--------------|-----------|
| | | | No. | % |
| Office and R&D E(g)(i)/(ii) | 15,311 | 16,947 | 1,636 | 11% |
| Light Industrial E(g)(iii) | 5,945 | 5,351 | -593 | -10% |
| General Industrial B2 | 5,578 | 5,214 | -365 | -7% |
| Distribution B8 | 13,417 | 14,559 | 1,142 | 9% |
| Total | 40,251 | 42,071 | 1,820 | 5% |
| Workforce Jobs Change (all sectors) | 105,500 | 117,800 | 12,300 | 12% |

Source: Experian (2022) / Lichfields analysis

2.27 These employment growth forecasts are then converted to future employment space requirements by applying the latest published density figures for employment space, which take account of recent trends in occupancy for the different class uses. The following average ratios have been applied, consistent with the 2020 EGA:

- Offices: 1 workforce job per 11 sqm for general office space;
- Industrial: 1 workforce job per 36 sqm as an average across B1c and B2 uses; and
- Warehousing: 1 workforce job per 80 sqm for warehousing uses.

2.28 An allowance of 10% is added to all positive floorspace requirements to reflect normal levels of market vacancy in employment space. Where a reduction in jobs is forecast (e.g. manufacturing), the associated negative floorspace has been halved. This reflects that while there may be ongoing manufacturing job losses (e.g. as firms move to greater automation), it does not necessarily follow that all of the existing employment space will be lost.

Table 2.7 Net Employment Space Requirements, 2023 to 2040 (GEA sq.m)

| Type of Space | Oxford Economics | Experian |
|-----------------------------|------------------|----------------|
| Office and R&D E(g)(i)/(ii) | 23,970 | 19,430 |
| Light Industrial E(g)(iii) | -12,600 | -10,680 |
| General Industrial B2 | -12,420 | -6,560 |
| Distribution B8 | 96,110 | 98,710 |
| Total | 95,060 | 100,890 |

Source: Lichfields analysis (totals rounded)

2.29 The table below translates the net space requirements to land requirements by applying the same plot ratios as defined in the 2020 EGA.

Table 2.8 Net Employment Land Requirements, 2023 to 2040 (ha)

| Type of Space | Oxford Economics | Experian |
|-----------------------------|------------------|-------------|
| Office and R&D E(g)(i)/(ii) | 3.6 | 2.9 |
| Light Industrial E(g)(iii) | -3.2 | -2.7 |
| General Industrial B2 | -3.1 | -1.6 |
| Distribution B8 | 24.0 | 24.7 |
| Total | 21.4 | 23.3 |

Source: Lichfields analysis

- 2.30 Summarising the analysis, it should be highlighted that the two forecasts have significant differences in terms of overall projected employment growth for Crawley. However, once a detailed analysis is undertaken in relation to those sectors that have a direct impact on the need for office, industrial and distribution space footprint, the two forecast results in similar levels of employment growth (Table 2.5 and Table 2.6), and accordingly, similar requirements arising for floorspace and land.
- 2.31 As noted above, Experian’s projection of annual growth for each office, industrial and distribution-based sectors appear closer to what has been recorded historically by BRES compared to OE, and in the case of transportation and storage better align with market feedback collected at the time of the EGA. It should, however, be acknowledged that OE’s overall employment growth figure per annum (including other sectors such as health, retail, education, public sector and so on) is closer to what has been recorded by BRES historically for Crawley.

2. Past Development Rates

- 2.32 In line with the PPG, past development rates for employment space can help inform the assessment of future needs. As noted at para 8.35 of the 2020 EGA, assessing completions over a period of ten years or more can provide a reasonable basis for estimating future needs provided land supply has not been unduly constrained. For instance in Crawley where land supply is generally constrained which has limited new allocations of land for employment development, past development rates may have been suppressed. Accordingly, the past take-up scenario from the 2020 Focused Update (i.e. scenario 2) has been updated to reflect the availability of two additional monitoring years (i.e. 2019/20 and 2020/21 monitoring years).
- 2.33 This shows that net completions of office and industrial (including Eg(iii), B2 and B8 uses) over the 2011 to 2021 period is at a lower level to those recorded within the EGA 2020 covering the period 2011 to 2018. This is primarily due to lower office space completions, including a number of consents not being implemented and subsequently expiring. In terms of industrial space, the last two monitoring years have seen more moderate increases compared to the completions recorded since 2019.

Table 2.9 Net Employment Requirements (sq.m, ha) in Crawley 2023 to 2040 – Past Development Rates

| Type of Space | 2011-2021 Net Annual Completions (sq.m) | 2023-2040 Net Floorspace Requirement (sq.m) | 2023-2040 Net Land Requirement (ha) |
|-----------------------------|---|---|---|
| Office and R&D E(g)(i)/(ii) | 1,120 | 19,040 | 2.9 |
| Industrial E(g)(iii)/B2/B8 | 6,180 | 105,060 | 26.3 |
| Total | 7,300 | 124,100 | 29.1 |

Source: WSCC / Crawley Borough Council / Lichfields analysis

- 2.34 This scenario underlines the role of industrial sectors, including both light industrial and distribution, as the main driver of net completions of employment space in the Borough over recent years.

3. Future Labour Supply

- 2.35 By using the same assumptions as adopted for the 2020 Focused Update, two updated labour supply scenarios based on the Borough's 'supply-led' housing trajectory are considered below based on:
- a housing delivery rate equivalent to **314 dpa** to 2040; or
 - **544 dpa** as a result of urban extensions to Crawley coming forward in neighbouring authorities including Mid Sussex as well as West of Ifield in Horsham District (subject to the Local Plan process in those authorities).

2.36 The potential employment land requirements associated with these (lower) housing supply figures have been modelled by adopting similar assumptions as provided by Icení (the authors of the Northern West Sussex Strategic Housing Market Assessment) for the 2020 Focused Update.

2.37 On this basis, this level of housing delivery would support growth of between 5,181 (based on 314 dpa) and 13,683 (based on 544 dpa) jobs in Crawley over the period 2023-2040. The proportion of jobs within B class sectors assumes the same shares as the 2022 Experian baseline forecast (as set out in Table 2.6 above), which shows that industrial uses will decline, but the increase in distribution-based sectors not only will offset the losses, but will also drive growth across the area to 2040.

Table 2.10 Employment Growth based on Future Labour Supply, 2023 to 2040 (Jobs)

| Type of Space | Jobs Change (2023 to 2040) | |
|-----------------------------|----------------------------|--------------|
| | 314 dpa | 544 dpa |
| Office and R&D E(g)(i)/(ii) | 1,663 | 4,392 |
| Light Industrial E(g)(iii) | -603 | -1,593 |
| General Industrial B2 | -371 | -979 |
| Distribution B8 | 1,161 | 3,068 |
| Total | 1,850 | 4,887 |

Source: Icení (2020) / Lichfields analysis

- 2.38 These job numbers can then be translated into estimated requirements for employment floorspace and land (Table 2.11) by applying the same standard densities used in the job-growth based approach noted above.

Table 2.11 Net Employment Requirement based on Future Labour Supply, 2023 to 2040

| Type of Space | Net Employment Requirements (2023 to 2040) | | | |
|-----------------------------|--|-------------|----------------|-------------|
| | 314 dpa | | 544 dpa | |
| | Sq.m | ha | Sq.m | ha |
| Office and R&D E(g)(i)/(ii) | 20,120 | 3.0 | 53,140 | 8.0 |
| Light Industrial E(g)(iii) | -11,950 | -3.0 | -31,550 | -7.9 |
| General Industrial B2 | -7,340 | -1.8 | -19,380 | -4.8 |
| Distribution B8 | 102,210 | 25.6 | 269,940 | 67.5 |
| Total | 103,050 | 23.7 | 272,150 | 62.7 |

Source: Icení (2020) / Lichfields analysis (totals rounded)

Net to Gross Employment Requirements

2.39 Drawing together the results from each of the future economic scenarios, Table 2.12 summarises the net employment floorspace requirements across the Plan period to 2040.

Table 2.12 Net Employment Floorspace Requirements (sq.m)

| Type of Space | 1.Labour Demand (Experian 2022) | 2.Past Take Up | 3.Labour Supply (314 dpa) | 4.Labour Supply (544 dpa) |
|-----------------------------|---------------------------------|----------------|---------------------------|---------------------------|
| Office and R&D E(g)(i)/(ii) | 19,430 | 22,930 | 20,120 | 53,140 |
| Light Industrial E(g)(iii) | -10,680 | 110,210 | -11,950 | -31,550 |
| General Industrial B2 | -6,560 | | -7,340 | -19,380 |
| Distribution B8 | 98,710 | | 102,210 | 269,940 |
| Total | 100,890 | 133,140 | 103,050 | 272,150 |

Source: Lichfields analysis

2.40 By adopting the same approach as the 2020 EGA and Focused Update which included a 10% 'buffer' allowance for such factors as delays in development sites coming forward, replacement of some ongoing losses of employment space during the Local Plan period, and other relevant factors in the local market, Table 2.13 and Table 2.14 present the gross employment requirements in Crawley across the Plan period in terms of floorspace and land, respectively.

Table 2.13 Gross Employment Floorspace Requirements in Crawley, 2023-2040 (GEA sq.m)

| Type of Space | 1.Labour Demand (Experian 2022) | 2.Past Take Up | 3.Labour Supply (314 dpa) | 4.Labour Supply (544 dpa) |
|-----------------------------|---------------------------------|----------------|---------------------------|---------------------------|
| Office and R&D E(g)(i)/(ii) | 21,770 | 20,940 | 22,132 | 58,452 |
| Light Industrial E(g)(iii) | -11,750 | 115,570 | -13,141 | -34,704 |
| General Industrial B2 | -7,220 | | -8,073 | -21,321 |
| Distribution B8 | 110,590 | | 112,432 | 296,936 |
| Total | 113,390 | 136,510 | 113,351 | 299,362 |

Source: Lichfields analysis

Note: totals rounded

Table 2.14 Gross Employment Land Requirements in Crawley, 2023-2040 (ha)

| Type of Space | 1.Labour Demand (Experian 2022) | 2.Past Take Up | 3.Labour Supply (314 dpa) | 4.Labour Supply (544 dpa) |
|-----------------------------|---------------------------------|----------------|---------------------------|---------------------------|
| Office and R&D E(g)(i)/(ii) | 3.3 | 3.1 | 3.3 | 8.8 |
| Light Industrial E(g)(iii) | -2.9 | 28.9 | -3.3 | -8.7 |
| General Industrial B2 | -1.8 | | -2.0 | -5.3 |
| Distribution B8 | 27.6 | | 28.1 | 74.2 |
| Total | 26.2 | 32.0 | 26.1 | 69.0 |

Source: Lichfields analysis

Note: totals rounded

Summary

- 2.41 This section considers a range of updated scenarios to inform employment land provision within the new Local Plan for the 2023-2040 period.
- 2.42 The starting point is a detailed analysis of the latest (i.e. 2022 Q4) OE and Experian employment forecasts for Crawley which reflect more contemporary macroeconomic factors when compared to the forecasts considered at the time of the 2020 EGA and 2020 Focused Update; these include the effects of the Covid-19 pandemic, the war in Ukraine and current pressures in terms of higher inflation and the potential for a period of recession in the UK economy, and cover the revised Plan period.
- 2.43 In this context, the latest OE forecasts suggests that future job growth in overall terms in Crawley will be considerably slower than what has been seen in the recent years as recorded by ONS BRES. By comparison, the latest Experian forecasts indicate more positive growth compared to recent trends, partly reflecting an expected quicker recovery to pre-pandemic employment levels (2022 vs 2025).
- 2.44 Although there are some notable differences in terms of the total employment growth anticipated by the two sets of forecasts, these differences become less significant once they are translated into office, industrial and distribution-based employment change. There are four sectors with significant impact on office, industrial and distribution land that are discussed in detail where the primary differences between the two sets of forecasts exist:
- *Transportation and storage*: where OE forecasts limited growth (+104 jobs to 2040), and Experian projects +3,300 jobs growth.
 - *Wholesale and retail trade; repair of motor vehicles and motorcycles* sector, where OE expects an increase of 1,617 jobs (90 jobs p.a.) while Experian projects less than half of this growth of around 700 jobs (39 jobs p.a.).
 - *Administrative and support service activities*: both expect significant increases but Experian projects 989 more jobs to 2040 than OE, which essentially results in a higher office floorspace requirement based on Experian.
 - *Manufacturing*: both forecast a loss, but OE projects 870 more jobs to be lost to 2040 which implies a slightly higher loss of industrial floorspace based on OE projections.
- 2.45 To contextualise the analysis, historic employment trends over the last 13 years (i.e. 2009 to 2021) recorded by ONS BRES for Crawley have been used to benchmark the growth that has been recorded in each sector. On this basis, Experian's projections for the four sectors noted above appear to be more in line with the actual pattern of growth that has been recorded in Crawley by BRES. On this basis, it is considered appropriate to utilise the Experian forecasts for the purposes of informing the emerging Local Plan, and which results in an overall slightly higher level of growth requirements compared to OE. This is also consistent with the approach set out by the NPPF Para 35 (a) which requires Local Plans to be positively prepared.
- 2.46 In line with the PPG, this section also considers updated past development rates and labour supply-based scenarios of future growth in Crawley and these provide benchmarks against which to compare the job growth-based approach. These factor in latest monitoring data as

well as housing delivery targets. The analysis also includes a 10% 'buffer' to allow for factors such as delays in planning or future employment losses.

2.47 The updated scenarios generate gross employment floorspace requirements that range from 113,351 sq.m (or 26.2 ha) to 299,362 sq.m or (69.0 ha) over the 2023-2040 period. Within this, scenarios 1, 2 and 3 generate similar requirements:

- For **office** uses, the overall requirement is essentially around 21-22,000 sq.m, or about 3ha.
- For **industrial** uses, the overall requirement is within the range of 91,000 – 116,000 sq.m, or about 23 – 29ha. Set against the small forecast reductions in light and general industrial needs contained in scenarios 1 and 3, there is a consistent positive requirement identified across all three scenarios for circa 110,000-115,000 sq.m of B8 distribution uses, which equates to around 28ha.

2.48 As a minimum, it is considered that the Council should seek to accommodate the requirements related to labour demand (scenario 1) of 113,390 sq.m (26.2ha), which also aligns closely to the lower of the labour supply scenarios (scenario 3) based on 314 dwellings per annum and indicates a broadly balanced approach between labour demand and labour supply growth. Beyond this, past take up rates (scenario 2) provide some basis to plan for slightly higher industrial land requirements (i.e. taking the overall requirement to 32ha), but would not change the office requirements. This would be consistent with the market analysis contained in the 2020 EGA that pointed to strong growth being experienced in the wider industrial and logistics market, and less so in the case of offices.

2.49 Scenario 4 generates a higher scale of requirements for all employment land uses, reflecting the relatively significant scale of housing delivery planned to take close to the Borough's boundary (i.e. at the West of Crawley allocation) which if delivered in full, could support a greater uplift in local labour supply, economic activity and associated employment land requirements over and above the 26.2 – 32.0 ha identified by the first two scenarios which provides measures of economic demand and market need.

3.0 Implications for Demand/Supply Balance

3.1 The updated forecasts of future employment land considered in section 2.0 can be compared with the latest position in terms of identified employment land supply in Crawley, to determine the level of need for employment land over the Plan period to 2040.

3.2 The supply of employment space in the development pipeline comes from sites that have been identified/allocated for employment uses as well as extant planning permissions for B use class development. The Council's latest Employment Land Trajectory (ELT) (September 2022) identifies a total of 17.5 ha employment land supply within the Borough, predominately related to sites that are not subject to Gatwick Airport safeguarding. In overall terms, this leaves a shortfall against all of the updated scenarios considered in section 2.0, as summarised in Table 3.1.

Table 3.1 Demand-Supply Balance to 2040 (ha)

| | Labour Demand (Experian 2022) | Past Take Up | Labour Supply (314 dpa) | Labour Supply (544 dpa) |
|------------------------------------|----------------------------------|--------------|----------------------------|----------------------------|
| Employment Land Requirement | 26.2 | 32.0 | 26.1 | 69.0 |
| Available Employment Land | 17.5 | | | |
| Surplus (+) / Shortfall (-) | -8.7 | -14.5 | -8.6 | -51.5 |

Source: CBC (2022) / Lichfields analysis

3.3 This overall position masks a more nuanced position between the different E/B use classes. Sufficient capacity is identified by the ELT to accommodate future office needs based on the labour demand, past take-up scenarios and lower of the labour supply (314 dpa) scenarios; the only shortfall relates to the highest level of office requirements which arises under the higher labour supply scenario (544 dpa). By comparison, for industrial and warehousing needs (i.e. E(g)(iii)/B2/B8) there is a shortfall under all scenarios. The latter is consistent with the position set out in the 2020 EGA and the 2020 Focused Update report.

3.4 The updated analysis presented here points to an unmet industrial need of between 10.7 ha and 48.0 ha (Table 3.2) which is similar to what was assessed by the 2020 Focused Update report (which implied a shortfall of industrial land between 11ha and 42ha).

Table 3.2 Demand-Supply Balance by type of space, 2023 to 2040 (ha)

| | Labour Demand (Experian 2022) | Past Take Up | Labour Supply (314 dpa) | Labour Supply (544 dpa) |
|------------------------------------|----------------------------------|--------------|----------------------------|----------------------------|
| Office (EG(i)/Eg(ii)) | | | | |
| Employment Land Requirement | 3.3 | 3.1 | 3.3 | 8.8 |
| Available Employment Land | 5.3 | | | |
| Surplus (+) / Shortfall (-) | +2.0 | +2.2 | +2.0 | -3.5 |
| Industrial (Eg(iii)/B2/B8) | | | | |
| Employment Land Requirement | 22.9 | 28.9 | 22.8 | 60.2 |
| Available Employment Land | 12.2 | | | |
| Surplus (+) / Shortfall (-) | -10.7 | -16.7 | -10.6 | -48.0 |

Source: CBC (2022) / Lichfields analysis

4.0 Conclusions

4.1 This report has been prepared to provide supplementary and updated economic evidence specifically to inform the approach to economic growth and employment land policies within the new Crawley Local Plan. This report partially updates the findings of the 2020 EGA study and the 2020 Focused Update as they relate to Crawley, and should be read alongside these earlier assessments.

Future Requirements for Employment Space

4.2 This report considers a range of scenarios to inform employment land provision within the new Local Plan to 2040, over the revised Plan period of 2023-2040. In doing so, the assessment initially reviews the appropriateness of the latest OE and Experian employment forecasts which reflect more contemporary macroeconomic trends, and takes the opportunity of refreshing the past development rates and labour supply scenarios through the use of later data/assumptions.

4.3 The analysis suggests that the Experian forecasts provide the most appropriate basis for considering future employment land requirements from a labour demand perspective, in part because they better align with the trend-based growth in Crawley as recorded by ONS BRES. While the forecasts deviate significantly in terms of overall job growth for Crawley (i.e. across all sectors of the economy), the differences are comparatively modest when only those sectors directly influencing demand for office, industrial and warehousing sectors are considered.

4.4 The updated scenarios generate gross employment floorspace requirements that range from 113,351 sq.m (or 26.2 ha) to 299,362 sq.m or (69.0 ha) over the over the 2023-2040 period. This range includes an allowance of 10% applied to all positive requirements to reflect normal levels of market vacancy, and a 10% 'buffer' allowance for such factors as delays in development sites coming forward, and replacement of some ongoing losses of employment space during the Local Plan period.

4.5 Within this range, scenarios 1, 2 and 3 generate similar requirements:

- For **office** uses, the overall requirement is essentially around 21-22,000 sq.m, or about 3ha.
- For **industrial** uses, the overall requirement is within the range of 91,000 – 116,000 sq.m, or about 23 – 29ha. Set against the small forecast reductions in light and general industrial needs contained in scenarios 1 and 3, there is a consistent positive requirement identified across all three scenarios for circa 110,000-115,000 sq.m of B8 distribution uses, which equates to around 28ha.

4.6 As a minimum, it is considered that the Council should seek to accommodate the requirements related to labour demand (scenario 1) of 113,390 sq.m (26.2ha), which also aligns closely to the lower of the labour supply scenarios (scenario 3) based on 314 dwellings per annum and indicates a broadly balanced approach between labour demand and labour supply growth. Beyond this, past take up rates (scenario 2) provide some basis to plan for slightly higher industrial land requirements (i.e. taking the overall requirement to 32ha), but would not change the office requirements. This would be consistent with the

market analysis contained in the 2020 EGA that pointed to strong growth being experienced in the wider industrial and logistics market, and less so in the case of offices.

Table 4.1 Gross Employment Requirements in Crawley, 2023 to 2040

| Type of Space | 1.Labour Demand (Experian 2022) | 2.Past Take Up | 3.Labour Supply (314 dpa) | 4.Labour Supply (544 dpa) |
|-----------------------------|------------------------------------|----------------|------------------------------|------------------------------|
| Floorspace (sq.m) | | | | |
| Office and R&D E(g)(i)/(ii) | 21,770 | 20,940 | 22,132 | 58,452 |
| Industrial E(g)(iii)/B2/B8 | 91,620 | 115,570 | 91,218 | 240,911 |
| Total | 113,390 | 136,510 | 113,351 | 299,362 |
| Area (ha) | | | | |
| Office and R&D E(g)(i)/(ii) | 3.3 | 3.1 | 3.3 | 8.8 |
| Industrial E(g)(iii)/B2/B8 | 22.9 | 28.9 | 22.8 | 60.2 |
| Total | 26.2 | 32.0 | 26.1 | 69 |

Source: Lichfields analysis

- 4.7 Scenario 4 generates a higher scale of requirements for all employment land uses, reflecting the relatively significant scale of housing delivery planned in neighbouring authorities close to the Borough's boundary. If delivered in full, this could support a greater uplift in local labour supply, economic activity and associated employment land requirements over and above the 26 – 32.0 ha identified by the first two scenarios which provide measures of economic demand and market need.

Implications for Demand/Supply Balance

- 4.8 These updated scenarios have been compared with the latest position in terms of identified employment land supply in Crawley, to determine the level of need for employment land over the Plan period to 2040.
- 4.9 The supply of employment space in the development pipeline comes from sites that have been identified/allocated for employment uses as well as extant planning permissions for B use class development. CBC's latest Employment Land Trajectory (ELT) (September 2022) identifies a total of 17.5 ha employment land supply within the Borough, predominately related to sites that are not subject to Gatwick Airport safeguarding. This supply has an indicated split of 5.3ha for offices, and 12.2ha for industrial.
- 4.10 When set against the updated scenarios, this points to a sufficient (and potential small surplus) of land for office uses, but a shortfall to meet industrial and distribution uses of between 10.7ha and 48.0 ha depending on the scenario (Table 4.2 overleaf).
- 4.11 Consistent with the findings of the 2020 Focused Update report, the assessment implies that the Council will need to consider the extent to which additional land can be brought forward in the Borough to meet the identified industrial land needs, either in part or in full. The nature and scale of these requirements means that it does not appear likely that relying solely on redevelopment and/or intensification of existing employment areas (e.g. within Manor Royal) would appropriately address these needs without adversely affecting the functioning of other employment sectors or impacting the diversity of economic activity within the Borough. Any needs that could not be accommodated within the Borough may give rise to industrial land requirements in the Northern West Sussex area.

Table 4.2 Demand-Supply Balance by type of space, 2023 to 2040 (ha)

| | 1. Labour Demand (Experian 2022) | 2. Past Take Up | 3. Labour Supply (314 dpa) | 4. Labour Supply (544 dpa) |
|------------------------------------|-------------------------------------|-----------------|-------------------------------|-------------------------------|
| Office (EG(i)/Eg(ii)) | | | | |
| Employment Land Requirement | 3.3 | 3.1 | 3.3 | 8.8 |
| Available Employment Land | 5.3 | | | |
| Surplus (+) / Shortfall (-) | 2.0 | 2.2 | 2.0 | -3.5 |
| Industrial (Eg(iii)/B2/B8) | | | | |
| Employment Land Requirement | 22.9 | 28.9 | 22.8 | 60.2 |
| Available Employment Land | 12.2 | | | |
| Surplus (+) / Shortfall (-) | -10.7 | -16.7 | -10.6 | -48.0 |

Source: CBC (2022) / Lichfields analysis

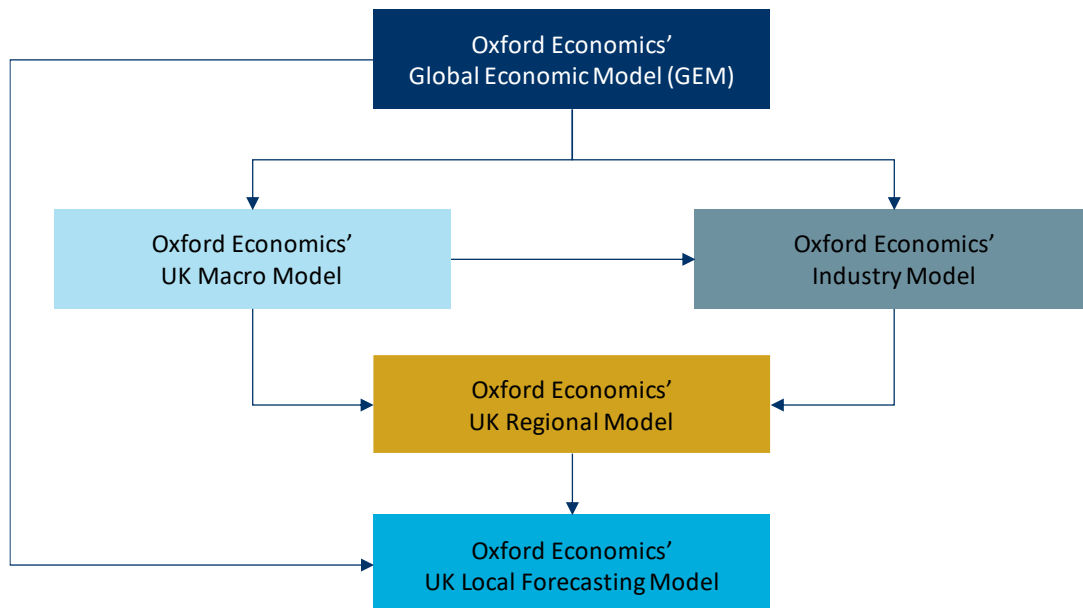
Appendix 1 OE Data Guide and Assumptions



Local Authority District Forecasting Model

Oxford Economics Local Authority District Forecasting Model sits within the Oxford suite of forecasting models. This structure ensures that global and national factors (such as developments in the Eurozone and UK Government fiscal policy) have an appropriate impact on the forecasts at a local authority level. This empirical framework (or set of 'controls') is critical in ensuring that the forecasts are much more than just an extrapolation of historical trends. Rather, the trends in our global, national and sectoral forecasts have an impact on the local area forecasts. In the current economic climate this means most, if not all, local areas will face challenges in the short-term, irrespective of how they have performed over the past 15 years.

Figure 1.1: Hierarchical structure of Oxford Economics' suite of models

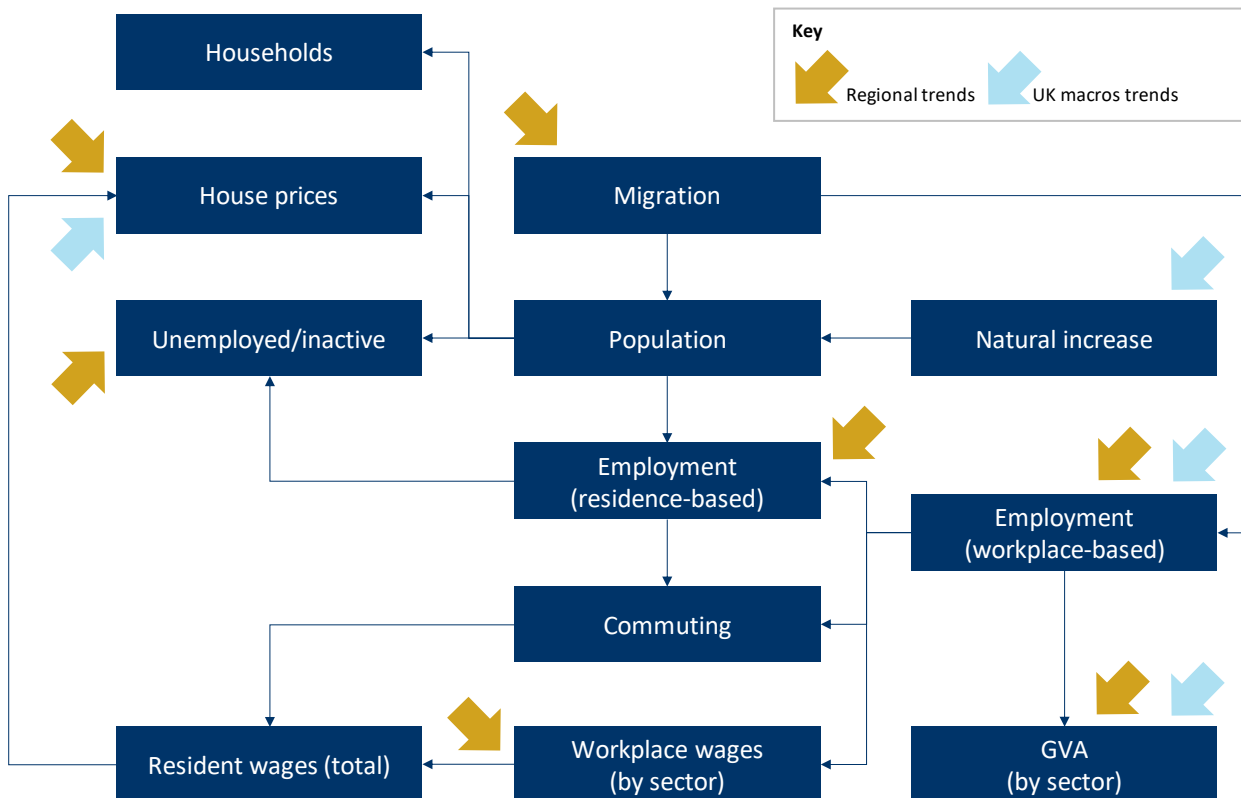


Our local forecasting model depends essentially upon three factors:

- National/regional outlooks – all the forecasting models we operate are fully consistent with the broader global and national forecasts which are updated on a monthly basis.
- Historical trends in an area (which implicitly factor in supply side factors impinging on demand), augmented where appropriate by local knowledge and understanding of patterns of economic development built up over decades of expertise, and
- Fundamental economic relationships which interlink the various elements of the outlook.

The main internal relationships between variables are summarised in Figure 1.2. Each variable is related to others within the models. Key variables are also related to variables in the other Oxford Economics models.

Figure 1.2: Main Relationships



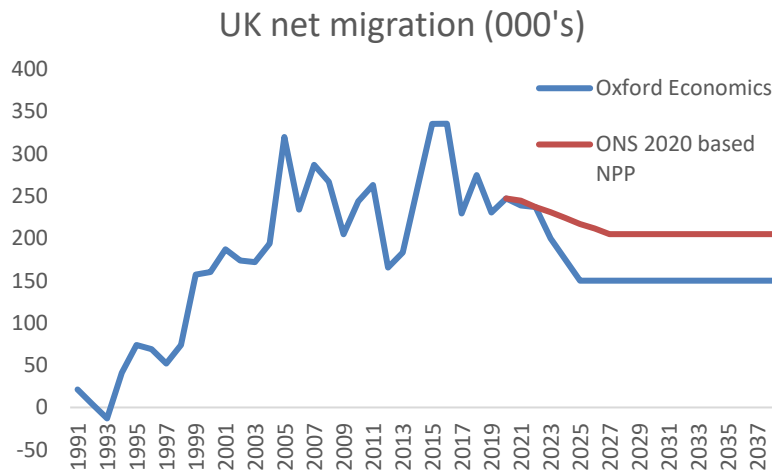
The forecasts are produced within a fully-integrated system, which makes assumptions about migration, commuting and activity rates when producing employment and population forecasts.

Data and assumptions

Population

Population data is collected from the Mid-Year estimates (MYE) for each area up to 2020.

Oxford Economics produce their own forecasts of population which are economically driven and thus differ from the official population projections. Official births and deaths projections from the 2020-based population projections are used but we have our own view on UK migration. The chart below sets out the Oxford migration forecast for the UK compared with the 2020-based population projection. Over the long run, we forecast migration to average 150,000 per annum compared to 205,000 in the official projections.



Oxford Economics population forecasts are derived from an economically driven model whereas official projections are trend based and do not consider how demand in the economy (and the likely impact on employment rates) affects migration.

At the local level, migration is linked to the employment rate forecast. If the employment rate within an area is falling too fast, migration reacts as the model assumes that people would not be attracted into this area to live, given that the employment prospects are weak. This ensures that the relationship between the labour market outlook and the demographic forecast is sensible. This series is scaled to be consistent with the migration forecast for the region from the UK Regional Model.

The total population forecast is then constructed using the forecast of migration and the natural increase assumptions. Natural increase for local areas is forecast based upon recent trends in both the historical data and the official projections.

Population aged 16-64

Population aged 16-64 data is also collected from the Mid-Year estimates (MYE) for each area up to 2020.

The share of working age to total population is forecast using both trends in the official projections and trends in the regional forecast from our UK Regional Model. This is applied to the total population forecast and scaled to be consistent with the working age population for the region and UK.

Population aged 16 plus

Population aged 16 plus data is also collected from the Mid-Year estimates (MYE) for each area up to 2020.

The share of population aged 16 plus to total population is also forecast using both trends in the official projections and trends in the regional forecast from our UK Regional Model. This is applied to the total population forecast and scaled to be consistent with the forecast of population aged 16 plus the region and UK.

Employees in employment

There are two key sources for the employee jobs data – ONS Workforce Jobs (WFJ) and the Business Register and Employment Survey (BRES):

- The WFJ series is reported on a quarterly basis, providing estimates of employee jobs by sector (based on the 2007 Standard Industrial Classification – SIC 2007) for the UK and its constituent regions, over the period 1981 Q3 to 2022 Q3.
- The BRES is an employment survey which has replaced the Annual Business Inquiry (ABI). Similar to WFJ, BRES data is based upon SIC 2007, but it is only published for the years 2008-21. Prior to this, ABI and Annual Employment Survey (AES) data is available for employee jobs data, however this is based on an older industrial classification (SIC 2003). Data is available at local authority level and more detailed sector definitions. It is worth noting that the BRES is first and foremost a survey and is therefore subject to volatility, particularly when the level of detail becomes more refined. The survey is collected in September of each year and not seasonally adjusted.

There are a number of steps in constructing regional employee jobs, due to changes in sectoral classifications across the various sources, and restrictions on data availability over particular periods of time. Initially, we take employee jobs data for each sector directly from the BRES over the years 2009-21 which reflects recent methodological changes to the BRES in accounting for working proprietors. This relates to September figures and is based upon SIC 2007 sectors. In 2008, levels of employee jobs are constructed by extrapolating back the trend in the old BRES. Data from the ABI and AES is used to construct the data back to 1991.

This constructed local dataset is then scaled to be consistent with the UK employee jobs series from WFJ, by applying an adjustment factor to all sectors which converts the data to annual average values (seasonally adjusted). This is measured on a workplace basis.

The starting point in producing employment forecasts is the determination of workplace-based employees in employment in each of broad 19 SIC2007 based sectors consistent with the regional and UK outlooks. At local authority level some of the sectors are driven predominantly by population estimates, others by total employment in the area and the remainder relative to the regional performance (largely exporting sectors). All sectors are also influenced by past trends in the local area. Taken in totality, employment is cross referenced with a number of variables (including population, relative performance across similar areas, historical cyclical performance and known policy) for checking and validation purposes. Where necessary, manual adjustments are made to the projected trends to reflect this validation process. The methods of sectoral projection are as follows, each of which are forecast based upon recent trends:

- Agriculture - share of the region
- Mining and quarrying - share of the region
- Manufacturing - share of the region
- Electricity, gas, & steam - share of the region
- Water supply; sewerage, waste management - share of the region
- Construction - location quotient based upon total employment
- Wholesale and retail trade - location quotient based upon consumer spending
- Transportation and storage - location quotient based upon consumer spending
- Accommodation and food service activities - location quotient based upon consumer spending
- Information and communication - share of the region
- Financial and insurance activities - share of the region
- Real estate activities - location quotient based upon total employment
- Professional, scientific and technical activities - location quotient based upon total employment
- Administrative and support service activities - location quotient based upon total employment
- Public administration and defence - location quotient based upon population
- Education - location quotient based upon population
- Human health and social work activities - location quotient based upon population
- Arts, entertainment and recreation - location quotient based upon consumer spending
- Other service activities - location quotient based upon consumer spending

Self-employment

Self-employment data by region is taken from Workforce jobs (19 sector detail). The data is broken down into detailed sectors using both employee trends and the UK data for self-employment by 2 digit SIC2007 sector. Data for the local authorities is Census based (and scaled to the regional self-employed jobs estimates) and is broken down using the employees in employment sectoral structure. The sectors are forecast using the growth in the sectoral employees in employment data and the estimates are scaled to the regional estimate of self-employment by sector.

Total employment (jobs)

Total employment includes employees in employment, the self-employed and Her Majesty's Forces. This is measured on a workplace basis. No specific forecasting for this measure is required - it is calculated from the forecasted elements discussed above.

Note that this estimate is a jobs and not people measure (i.e. one person can have more than one job and would be counted more than once in this indicator).

Total employment (people)

The data for employment from the Business Register and Employment Survey (BRES) measures jobs rather than individuals. Given the need to focus on people, we convert the number of jobs into numbers of employed people. One person can have more than one job, but working people would only be counted once in this indicator.

To do this we measure and project numbers of full-time and part-time employees in each area. Shares of part-time employees (which are trend forecasts linked to national projections) are applied to the workplace employee estimates described above. Full-time employees are simply the total of employees minus the part-time employees.

Individuals are assumed to hold only one full-time job each. Part-time jobs are assumed to account for half a full-time job. The self-employed people are added to the full-time employees plus half of the part-time employees to arrive at an estimate of workplace based employment. An adjustment factor is applied to ensure consistency with the Census. No specific forecasting for this measure is required; it is calculated from the forecasted elements discussed above.

ILO Unemployment

ILO unemployment data is taken from the Labour Force Survey via NOMIS. The latest year of available data is 2021.

This ILO measure of unemployment defines unemployed people as being: without a job, have been actively seeking work in the past four weeks and are available to start work in the next two weeks. out of work, have found a job and are waiting to start it in the next two weeks.

The series is projected based on regional trends and a measure of overall labour market tightness (relative employment rate) in the local area. It is not at present directly affected by migration though they do impact indirectly through the employment rate (which has working age population as its denominator).

ILO unemployment rate is defined as ILO unemployment as a percentage of the economically active. No specific forecasting of this measure is required.

Claimant Count Unemployment

Claimant count unemployment data is taken from ONS, via NOMIS. Annual average values are calculated from the monthly data. The latest data available is October 2022.

This measure records the number of people claiming unemployment-related benefits.

Claimant count unemployment is forecast based upon trends in the ILO series and controlled to the regional claimant count unemployment forecast.

The claimant count unemployment rate is defined as claimant count unemployment as a percentage of the working age population. No specific forecasting of this measure is required.

Resident employment

This is a measure of the number of people living in an area who are in work. Resident employment data is taken from the Annual Population Survey. The latest year of available data is 2021. Given that this data is survey based and tends to be very volatile, data is 'smoothed' by taking a 3 year average.

Residence employment is based on a commuting matrix taken from the 2011 Census. This matrix tells us where employed residents of an area work. Using this information each available job (see workplace employment people based above) is allocated to a resident of a given authority. This method assumes the proportions of commuting do not change over time.

Employment rate is defined as residence employment as a percentage of the population aged 16 plus. No specific forecasting of this measure is required.

Net commuting

Net commuting is the sum of people based employment less resident employment. No specific forecasting for this measure is required - it is calculated from the forecasted elements discussed above.

Economically active/labour force

Labour force is the sum of resident employment and unemployment. No specific forecasting for this measure is required - it is calculated from the forecasted elements discussed above.

Economic activity rate is defined as economically active as a percentage of the population aged 16 plus. No specific forecasting of this measure is required.

Gross Value Added

GVA forecasts are available for detailed sectors for the UK regions from our UK Regional Model. For areas within the region, data on GVA is available at local authority level up to 2020. Our forecasts at local authority level are obtained firstly by calculating an 'expected' GVA in each area. This is calculated by multiplying the region's GVA per employee in each sector by workplace employment in each sector within each local authority area. An adjustment factor based upon relative earnings is also applied as areas with higher wages should produce higher levels of GVA.

Workplace based earnings

Data on workplace based earnings by local authority is available from the Annual Survey of Hours and Earnings (ASHE) , the latest year of data is 2021.

Workplace based earnings to forecast in line with 'expected earnings'. Expected earnings within each area is forecast using UK earnings forecasts by sector and the sectoral forecast of that local area. These earnings estimates are then scaled to be consistent with regional earnings forecasts.

Residence based wages

Data on residence based earnings by local authority is available from the Annual Survey of Hours and Earnings (ASHE), the latest year of data is 2021.

Residence based earnings to forecast using residence employment and weighted averages of commuting patterns and workplace growth. These earnings estimates are then scaled to be consistent with regional earnings forecasts.

House prices

Data on house prices at local authority level is available from National Statistics up to September 2022. The data used is mix adjusted and is an annual average of the monthly house price data.

The approach adopted within our local authority model also follows that of Professor Geoff Meen, where house prices and the other explanatory variables are expressed as ratios (local over regional). House prices are forecast using population growth, relative unemployment rates and resident earnings forecasts. These estimates are scaled using population weights to be consistent with the regional house price forecast from our UK regional model.

Housing stock

Data on total housing stock and vacant housing stock is available up to 2021 from the Ministry of Housing, Communities & Local Government.

The housing stock forecast is driven by the owner occupied and vacant housing stock. Vacant housing stock is forecast using a projected vacancy rate. Occupied housing stock is forecast by applying an occupancy rate to the population forecast. The occupancy rate is forecast in line with an official occupancy rate calculated using the 2018 based Household and Population projections.

Households

The number of households is estimated by applying the official household size to the population forecasts.

Consumer Spending

Data on consumer spending at a local authority level is not published and is constructed using consumer spending per head in each region and local authority population.

Consumer spending is forecast using relative earnings, relative employment rates and population growth. These estimates are scaled to be consistent with the regional house price forecast from our UK regional model.

Household incomes

Data on household incomes at a local authority level is published up to 2020 by the ONS in their Regional Accounts. The individual components are forecast separately – the forecasts of income from employment, income from self employment, rest of household income and the deductions from household income are driven by the employment and self employment forecasts for that area and controlled to the regional forecast.

Appendix 2 Experian Data Guide and Assumptions

Data Guide

UK Regional Planning Service
September 2022



Our main subscription website:

<https://www.experian.co.uk/business/business-information/market-intelligence/economic-services/>



Data Guide

UK Regional Planning Service
September 2022

Contents

| | |
|--|-----------|
| Executive summary | 1 |
| 1 Variable Coverage | 2 |
| 2 Historical Endpoints | 3 |
| 3 Methodology | 1 |
| 3.1 UK Methodology..... | 1 |
| 3.2 Regional Methodology | 2 |
| 3.3 Local Methodology | 6 |
| 4 Key changes since March 2022 RPS | 10 |
| 4.1 UK Economy | 10 |
| 4.2 Regional Forecast | 13 |
| 4.3 Local Forecast..... | 13 |
| 4.4 Population | 14 |
| 5 A note from the ONS on volatility | 1 |
| Appendix A... Glossary of terms | 2 |
| Appendix B...Sector definitions | 5 |
| Appendix C...Geography definitions | 9 |
| Appendix D...FAQ's | 10 |
| Appendix E...About us | 13 |

Executive summary

This document outlines the current variable coverage in the September 2022 version of the UK Regional Planning Service, and the methodology behind the history and forecast.

[Appendix A](#) includes a glossary of terms.

[Appendix B](#) includes our definitions of the sectors.

[Appendix C](#) has the geography definitions.

[Appendix D](#) contains the most common Frequently Asked Questions

Contact us

Rebecca Snow

Managing Economist

T: +44 (0) 7966 874 720

E rebecca.snow@experian.com

Davina Heer

Economist

T: +44 (0) 7929 839945

E davina.heer@experian.com

James Ison

Managing Economist

T: +44 (0) 7583 018481

E james.ison@experian.com

Experian

Cardinal Place

6th Floor

80 Victoria Street

London SW1E 5JL

www.experian.co.uk/economics

This output is based on and comprises both your input and information sourced from third parties (which may include public data sources). Whilst we will use all reasonable care and skill in the collection and collation of this output we cannot warrant or guarantee the accuracy of the output. You acknowledge that outputs which use empirical data and/or statistical data and/or data modelling techniques cannot be taken as a guarantee of any particular outcome and are not intended to be the sole basis of your business decisions. Our standard terms of business apply.



1 Variable Coverage

To avoid implying spurious accuracy, we now round all county and local series to the nearest tenth of a unit. This means that people or job counts are now to the nearest 100 people or jobs and money counts are to the nearest £100,000, and rates are now to the nearest 0.1 percentage points. Forecasts for series with very small levels may appear to be volatile when growth rates are considered. We therefore recommend viewing series with small values in levels not growth rates or considering growth rates over longer intervals than annually. Very small levels have been set to zero as they are essentially statistical artefacts.

Figure 1.1: Variable coverage in the RPS

- ✓ indicates that the variable is available in both the search query tool and the xls files.
- Xls indicates that the variable is available in the xls but not the search query tool.
- UK monthly forecast indicates that the variable is not produced as part of the RPS but can be found in the monthly UK macro forecast on our website.

| Variable | UK | Region | County & Local Authority |
|---|---------------------|--------------|--------------------------|
| PRODUCTION | | | |
| Gross Domestic Product (GDP) | UK monthly forecast | | |
| GDP by component of demand | UK monthly forecast | | |
| Gross Value Added (GVA) | ✓ | ✓ | ✓ |
| GVA by sectors | ✓ | ✓ | ✓ |
| LABOUR MARKET | | | |
| Employees by sector | ✓ | ✓ | ✓ |
| Self-employed by sector | ✓ | ✓ | ✓ |
| Government Trainees by sector | xls | xls | Upon request |
| Her Majesties Forces Total | xls | xls | Upon request |
| FTE Employment by sector | ✓ | ✓ | ✓ |
| Total ILO Employment – Residence based & Workplace based | ✓ | ✓ | ✓ |
| ILO Unemployment | ✓ | ✓ | ✓ |
| Unemployment rate | ✓ | ✓ | ✓ |
| Labour Force | xls | xls | Upon request |
| Activity Rate | xls | xls | Upon request |
| Inactivity Rate | xls | xls | Upon request |
| DEMOGRAPHICS | | | |
| Population: Total, Adult (16+) | ✓ | ✓ | ✓ |
| Age bands: 0-15, State Working age, State retirement 16-64, 65+ | ✓ | ✓ | ✓ |
| Population by single or 5 year age band | Upon request | Upon request | Upon request |
| HOUSEHOLDS | | | |
| Nominal disposable Income | ✓ | ✓ | ✓ |
| Real disposable income | ✓ | ✓ | ✓ |
| Nominal income by component | xls | xls | Upon request |
| Nominal consumer spending | ✓ | ✓ | ✓ |
| Real consumer spending | ✓ | ✓ | ✓ |
| Consumer spending by COICOP category | Upon request | Upon request | |
| Cost of Living Index | ✓ | ✓ | |
| House price Index | ✓ | ✓ | Upon request |
| Hours worked | Upon request | Upon request | Upon request |

Please note we are no longer publishing Claimant Count for Regional and Local Areas. This is due to the fact that complete data is no longer available due to the shift to Universal Credit.

2 Historical Endpoints

Figure 1.2: Last historic data point

| Variable | UK* | Region | County & Local Authority |
|-------------------------|--------|--------|------------------------------|
| Gross Value Added | 2022q2 | 2020q4 | 2020q4 |
| GVA by sectors | 2022q2 | 2020q4 | 2020q4 |
| Labour market variables | 2022q1 | 2022q1 | All 2020q4 except ILO 2022q1 |
| Income | 2022q1 | 2019q4 | 2019q4 |
| Consumer spending | 2022q1 | 2021q4 | 2019q4 |

The historical endpoint represents the last time-period for which we apply our processes to collect, calculate or derive data, details of which can be found in Chapter 3: Methodology. All time-periods that are in the past but follow the historical endpoint are Experian Economics' estimates.

We have not used any regional data published after August 2022 in producing this update of the RPS. It is possible that between this date and the release of the RPS some new history may have been released and/or revised.

Population

The population data provided are the Office for National Statistics (ONS) 2019 mid-year estimates for 1997-2019. For England, Scotland, and Wales, the 2018-based national and sub-national population projections are used. Further information on population changes is available in [section 4](#).

UK forecast

This forecast is consistent with an Experian Economics' September 2022 (before the UK government announced its mini-Budget) macroeconomic forecast which includes the first estimate of GDP for 2022Q1. We explore this further in [section 4](#).

3 Methodology

3.1 UK Methodology

The approach for the regional planning service takes the UK variables as exogenous, imposed from the monthly UK forecast.

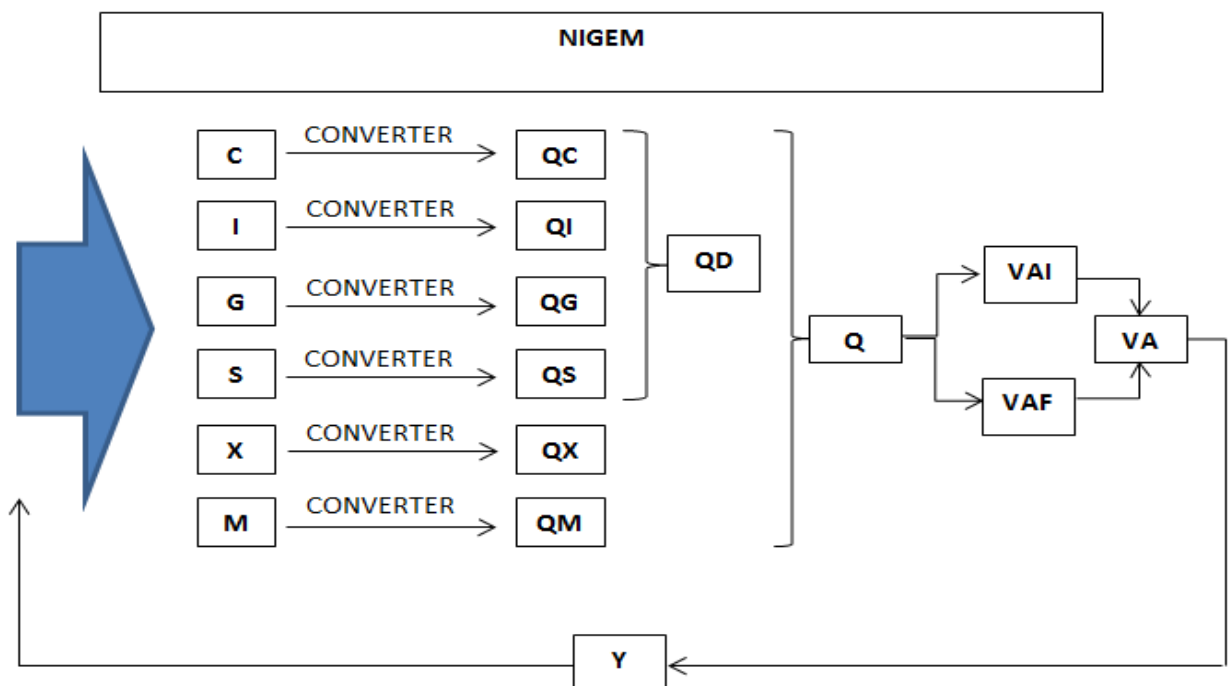
To produce the UK forecast we use a heavily customised version of the National Institute of Social & Economic Research's (NISER) model called NIGEM to provide our core macroeconomic forecast.

NIGEM is a general equilibrium model of the UK and World economy which forecasts, amongst other variables, aggregate GVA, expenditure, income and employment based on the UK National Accounts published by the Office of National Statistics.

To split this core forecast out into industries and sub-sectors we have a Sectoral Model which expands on the forecasts from the core NIGEM model.

We disaggregate total consumption (C), investment (I), government spending (G), stocks (S), exports (X) and imports (M) from NiGEM to a finer level of detail. This provides a highly detailed model of demand (Q) for industry GVA in the UK economy. Using converters derived from the ONS Supply and Use Tables, we convert demand into intermediate (VAI), and final (VAF) value added for each sector. This provides a comprehensive view of how value added is distributed across sectors. The growth rate of total value added (VA) for each industry determines its GVA (Y) growth rate. GVA is constrained to forecast total GVA from NiGEM. This Input-Output based model is iterative and captures intra-industry demand.

The industry GVA forecast is used together with wage forecasts to forecast employment by sector (E).



3.2 Regional Methodology

3.2.1 History

All economic history used in the RPS is derived from official statistics published by the UK's Office for National Statistics (ONS). Our approach is to use existing statistics in the form they are published to the greatest extent possible. However, this is subject to the following exceptions:

- where there is a lag between an update of aggregate data and the corresponding disaggregation, the disaggregate data is constrained to match the latest aggregates;
- where ONS data is not published at quarterly frequency (for instance it is only annual data), we use a consistent methodology (described below) to construct quarterly data;
- where ONS data is not published at the geography required or in the detail required, we use a consistent methodology to add the necessary data, ensuring that it constrains to published data at a higher level of geography or detail;
- on occasion, where ONS data is internally inconsistent we apply techniques to remove these inconsistencies.

The most timely and reliable data at the regional level is the workforce jobs series, published on a quarterly frequency by the ONS. There have been revisions to estimates of Workforce Jobs going back several years caused by benchmarking to the latest estimates from the annual Business Register and Employment Survey (BRES), updating seasonal factors and taking on board late information.

Employee jobs, self-employed jobs and government trainees are published at the level of the SIC 2007 Section providing us with 22 sectors.¹ In order to disaggregate this Section-level data to 2-digit sectors from which we can construct the Experian 38 sectors we use official survey data:

- In the case of employee jobs, we use the Annual Business Inquiry (ABI) and Business Register & Employment Survey (BRES). These annual surveys are not updated after being published – further the methodology has changed over the lifetime of these surveys. We apply a principled set of rules to derive consistent employee job shares within the sections from the surveys.
- As with the March 2022 RPS, the November 2021 BRES was included in the latest run, which provides data up to 2020. Pre-2010 we have made a working-owners adjustment, based on an overlapping year published by NOMIS in February 2013, in line with their recommended techniques for dealing with discontinuities. There are revisions in the latest BRES data both at the regional and local level. More noticeable changes are seen at the local level, please see the local methodology for more details.
- In the case of self-employed jobs, we use data from the Labour Force Survey (LFS).

Workforce jobs is the sum of employee jobs, self-employed jobs, government trainees and Her Majesty's Forces (who are assigned at the sector level to Public Administration and Defence).

To estimate full-time equivalent employment (FTE), we use data on hours worked in each sector and region derived from the Annual Survey of Hours and Earnings (ASHE). ASHE is also used to derive wage data for each region and sector.² We also use, for this purpose, compensation of employee data from the regional accounts.

¹ The ONS has ceased publishing official 2-digit employee jobs data for the regions. The approach we have taken is consistent with the approach recommended by the ONS to derive 2-digit estimates.

² We do not routinely publish sector level wage forecasts; however, it is available on request.

Previously, regional gross value-added data (GVA), was only measured on an income basis and published annually in current prices. As of March 2020, we included the ONS balanced estimate of GVA, a new measure derived by balancing the income and production approaches to calculating GVA. The data is published in greater detail than the previous income-based estimates - which were only published at a section level - and so map more directly to Experian's 38 sectors.

Following the initial delay due to Covid-19, the ONS released its latest regional level GVA data in May 2022, which has been used for the September 2022 run. The latest release includes data up to 2020 and revisions to the historical values. Similar to the previous run (in June 2022), data is based on 2019 prices, which is coming from the official ONS statistics rather than our internal rebasing which we applied in the March 2022 run to ensure consistency with the UK level data. Therefore, as there has been no new releases of regional GVA data, there will be minimal differences in the history between the September and June 2022 run.

The data is then made quarterly using workforce jobs data, before being aggregated to produce a regional total.

Income is published in the regional accounts on an annual basis with a full breakdown of income sources and deductions. Previously official sources included income from Non-Profit Institutions Serving Households (NPISH) in the household income data due to lack of credible information to split these. But more recently, the ONS has improved their data accuracy by providing income data that is 'households' only, which we have used, thereby excluding NPISH from our income estimates, in the March 2019 vintage.

Income sources are:

- compensation of employees: wages and salaries *plus* employers' social contributions
- self-employment income
- Net Property Income: made up of property income received *less* income paid
- transfers from the State (i.e. benefits and pensions)
- other Transfers

Income deductions are:

- taxes
- social contributions
- transfers to others

The sum of income sources *less* income deductions constitute disposable income. To convert this annual data to quarterly jobs we use (depending on the component) employee jobs, self-employee jobs or the UK quarterly pattern. We constrain these quarterly series to the official UK published data. Real disposable income is obtained by deflating disposable income by the consumer price deflator.

Household spending is derived by sharing out UK nominal expenditure using regional shares of expenditure reported in the Living Costs and Food Survey by type of expenditure. Nominal regional spending is deflated by published UK deflators and then aggregated to produce a regional total. This again implicitly creates a regional cost of living measure which we also publish.

Sub-national population projections are obtained from the ONS, based on the 2018 sub-national projections for England, Scotland and Wales. These are spliced onto the 2019 mid-year estimates and constrained to the latest national 2018-based projections.

Our working-age definition incorporates all announced future changes in the state pension age:

- The state pension age for women is rising from 60 to 65, equal with males. Both will then rise, in step, to 67 in our current forecast period.
- Female state retirement age began to increase from 60 in April 2012, reaching 65 by 2018q4.
- From April 2019, both men and women will see their state retirement age rise from 65 to 66, with men reaching 66 by April 2020, and women a few months later in October 2020.
- The move from 66 to 67 is scheduled from April 2026 until April 2028 for both men and women.

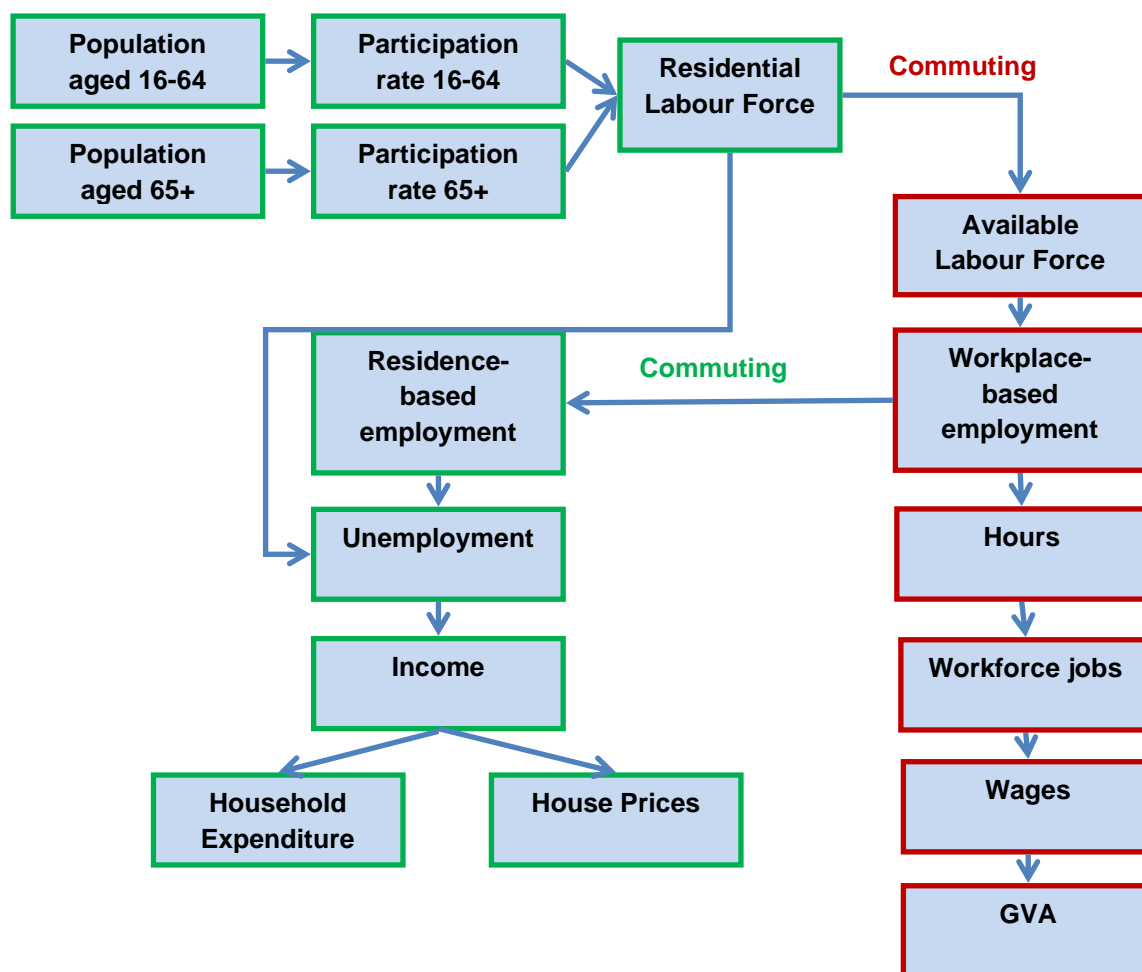
The 2013 Autumn Statement stated that the rise in state pension age to 68 would be moved forward from 2046 to the mid-2030's. However, with no firm date, we have not yet incorporated this into our working age and state retirement age definitions.

Under the current law, the State Pension age is due to increase to 68 between 2044 and 2046. Following a recent review, however, the government announced plans to bring this timetable forward. The State Pension age is now set to increase to 68 between 2037 and 2039. The policy change was announced as of July 2017.

We publish the following breakdown of population: school age (ages 0-15), state working age, state retirement age, adult population (16 and over) and total. Beginning in the March 2015 RPS, we also publish both the population aged 16-64 and 65 and over. Although their respective participation rates are not published, they can be derived. Our overall participation rate is based on a ratio of the total labour force to the entire adult population (not only the working age population).

3.2.2 Forecast

The regional model is sequential. Each variable is dependent only on variables earlier in the sequence and not variables later in the sequence. Variables are either workplace-based (**red outlined boxes**) or residence-based (**green-outlined boxes**.) Workplace-based and residence-based variables are linked by commuting relationships derived from the 2011 Census.



The population – split into two age ranges – is taken from the National and Sub-National Population Projections. We forecast participation rates for these age bands separately as they are subject to different trends. The total residential labour force is the sum of the labour force aged 16-64 and 65-plus. The aggregate participation rate is determined by two factors:

- The participation rate of the two age bands; and
- The share of each of the two age bands in the adult population.

The participation rate for those aged 16-64 is expected to remain relatively stable throughout the forecasting period. However, the rate for those aged 65 and over will grow strongly due to factors such as increasing life expectancy and rising state pension ages.

At the UK level, the share of the adult population aged 65 and over is projected to rise sharply over the next twenty years. There is, however, considerable variation at the regional level. Greater London – the youngest region in the UK – is projected to have a stable share. These factors combine to produce substantial variation in the labour force forecasts for different regions.

Commuting flows are used to derive the available labour force for a region. This is:

Workers Resident in the Region – Workers Commuting Out + Workers Commuting In

In the case of Greater London, the South East and the East of England, these flows lead to a substantial difference between the residential labour force and the available labour force. The effect is still present but less pronounced in other regions.

The available labour force is one of the drivers in forecasting workplace-based employment. The other drivers include the industry mix and the performance of industries at the UK level. If industries with a high share in the region are performing well at the UK level, this will benefit the region.

The workplace-based employment is converted back into residence-based employment. This is:

Workplace-based Employment – Workers Living Elsewhere + Residents Working Elsewhere

From this point, residence and workplace-based variables are solved in parallel with residence-based variables dependent on residence-based employment and workplace-based variables dependent on workplace-based employment.

The residential labour force and residence-based employment are used to calculate unemployment. Residential income is driven by employment; and itself drives house price and household expenditure forecasts.

Workplace-based employment drives aggregate hours worked, wages and GVA. These aggregate variables feed into the detailed part of the model, which produces forecasts for each industry:



In each case, we forecast shares of the region within the UK industry. We then share out the UK industry data subject to the constraint of the total that has already been determined and the UK total.

3.3 Local Methodology

3.3.1 History

As at the regional level, all local economic history used in the RPS is derived from official statistics published by the ONS. Our approach to using this data is identical to that given above at [3.2.1](#). However, data at the local level is more likely to be incomplete¹ or inconsistent² than is the case at the regional level. For this reason, there is greater call for the application of techniques to construct missing data and to remove inconsistencies than is the case at the regional level.

In all cases, local area data in a particular region is constrained to match the regional total for the same variable. This has two advantages:

- Local data is made consistent with regional data of the same vintage.
- Where local data has been estimated or constructed, the regional data ensure that the estimates together are consistent with more reliable data.

The ONS do not publish a workforce jobs series at the local level. Accordingly, we construct workforce jobs series for each local area using BRES/ABI in the same way that BRES is used at the regional level to disaggregate section estimates. The BRES share for a particular industry of a local area in its parent region is used to disaggregate the regional workforce jobs series for that industry. As BRES is a

¹ For some local areas, publication of certain data by the ONS is restricted because to do so would effectively disclose individual responses to ONS data-collection surveys (e.g. if there are only one or two firms in a certain industry in a particular locality.)

² In some cases, sample sizes in ONS data-collection surveys at the local level are very small. This leads to data of comparatively poor quality and relatively high volatility.

survey, the figures over time for a particular local area industry combination can be volatile¹. Further, certain years' results may be withheld to prevent disclosure of confidential data. Accordingly, to obtain sensible data it is necessary for us to smooth out this volatility and to interpolate over the gaps.

At the local level, the most timely and comprehensive data are Annual Population Survey (APS) for residence and workplace-based employment and unemployment data². These data are obtained directly from NOMIS and then constrained to the national numbers.

In September 2015, we re-visited the relationship between local workforce jobs and workplace-based employment. The local workforce jobs (which make use of BRES shares) was benchmarked to the ILO workplace-based employment which itself has first been benchmarked to the Census 2011 point with the pattern in years either side preserved.

As with the regional level, there are revisions in the latest BRES data at the local level. Additional changes are due to the changes in local boundaries. More specifically, there are larger revisions in Dacorum and Watford for the "employment activities" industry, which has persisted for two consecutive years. The change has been confirmed by NOMIS.

As with regional GVA, the availability of data at the local authority level has been improved with the move to a balanced estimate of GVA. Sub-regional measures of GVA were previously only produced in current prices, at a NUTS2 and NUTS3 level. As of March 2020, the balanced estimate of GVA has been incorporated into the RPS which is now provided at a local authority level, in both current and constant prices.

As with the regional level, we have used the GVA data at the local level that was released in May 2022 for the September 2022 run, which was also used in the previous run (in June 2022). Noticeable differences from the previous run in June are not to be expected.

The level of industrial detail of the data varies across sub-regional geographical levels. NUTS2 data has the greatest level of industry disaggregation with a full breakdown of SIC sections. With each subsequent geographic level, the degree of disaggregation in the official data decreases. To provide local area forecasts at the 38-sector level, the data had to be fully disaggregated at each geographical level.

In the case of NUTS3 current prices, the data is disaggregated using the industry shares in the corresponding NUTS2 and then constrained to that parent region. For local authorities that do not constitute fully a NUTS3, disaggregation takes place using local authority workforce jobs data at the industry level. These estimates are then made quarterly using workforce jobs data and aggregated to produce a nominal local authority total.

In the case of Chain Volume Measure GVA; where data is needed to be further disaggregated, implied deflators of the parent geography - NUTS2 in the case of a NUTS3 and NUTS3 in the case of a local authority - are used to deflate the nominal estimates. Due to excessive volatility in the raw GVA data, it is necessary to smooth the local authority estimates and constrain to the parent region. In some cases, this led to some magnitude of difference from the published ONS figures.

The inclusion of these new official statistics has led to noticeable historical revisions across the 38 sector forecasts, however, as is the case at the regional level, the data now provides a more accurate measure of historical activity in each local authority.

¹ The volatility represents sampling variability rather than actual volatility in the population data.

² In line with ONS guidelines, we use the official model-based estimates of local unemployment that are more accurate than survey data which suffers from volatility.

No estimates of household spending are provided at the local level. Household spending is, therefore, derived by using the share of local disposable income in regional disposable income.

Since June 2016, we have applied a moving average procedure to smooth the Annual Population Survey data which has resulted in revisions to our historical data.

We have not used any local data published after August 2022 in producing this update of the RPS. It is possible that between this date and the release of the RPS some new history may have been released and/or revised.

3.3.2 Forecast

The local authority model is run separately for the local authorities in each region and takes the regional forecast as given. Accordingly, as with local history, local forecasts are constrained to the regional forecasts of the parent region.

Our local model is based on the resolution of demand and supply for labour, and it takes into account commuting between local areas within a region and across the regional boundary. The properties of the model are these:

- When unemployment is low, labour supply growth is the key determinant of growth.
- When unemployment is high, growth in demand for labour is the key determinant of growth.
- As unemployment decreases,
 - Labour supply growth becomes relatively more important
 - Growth in demand for labour becomes relatively less important
- An area's workplace employment growth depends on labour supply not only in the area but also
 - Labour supply growth in other local areas in the region from which it has historically drawn inward commuters.
 - Its historic share of incoming workers across the regional boundary.
- An area's residence-based employment growth depends on demand for labour not only in the area but also
 - Growth in demand for labour in other local areas in the region to which it has historically supplied commuters.
 - Its historic share of outgoing workers commuting across the regional boundary.
- Workplace based employment drives GVA growth.
- Residence based employment drives Income and, accordingly, spending growth.

The starting point is an estimate of the growth in the participation rate of those aged 16-64 and 65-plus in a local area. These are used to derive labour force growth.

In parallel, demand for labour is estimated. This is done at the industry level by linking job growth¹ in a local area to growth in the same industry at the regional level and then constraining demand for jobs by industry to demand for jobs for the same industry at the regional level. The effect of this is:

- Demand for jobs at the local level is fastest in those industries which are performing best at the regional level.
- Total demand for jobs at the local level depends on its industrial structure. Those local areas which have a more than proportionate share of the best performing industries will perform best overall.

The supply and demand for labour is then resolved in the following way:

¹ Separately for employee jobs, self-employee jobs, government trainee jobs and Her Majesty's Forces.

- Total demand¹ for jobs for each local area is converted into demand for workers according to the historic ratio between jobs and workers into that local area.
- The inflow and outflow of workers across the regional boundary is shared out between local areas according to their historic commuting patterns leading to an adjustment in
 - The remaining demand for labour for a local area (*inflow*)
 - The remaining available labour for a local area (*outflow*)
- Workplace demands for workers are converted into residence-based demands according to historic commuting patterns.
 - If unemployment is sufficiently high, these demands are satisfied out of the growth in the labour supply and the pool of available (unemployed) workers.
 - If unemployment is sufficiently low, these demands can only be satisfied out of the growth in the labour supply.
 - If unemployment is above its lower bound but not too high, a proportion of demands are satisfied out of the pool of available workers and the rest are satisfied out of the growth in the labour supply.
 - The model makes short-term adjustments in the labour supply in response to demand conditions to reflect the economic reality that
 - When demand is high, the participation rate rises as potential workers are drawn into the labour force by the relatively buoyant conditions;
 - When demand is low, the participation rate declines as disillusioned workers leave the labour force because of the poor job market conditions;
 - The unemployment rate, accordingly, behaves as expected.
- The satisfied residence supply for labour is converted back into workplace demands and workplace-based employment is calculated for each local area. This is then converted back into jobs and used to produce final workforce jobs estimates for each local area.

The consequence of this is that:

- Local areas with high demand may not see all demand satisfied if there is insufficient labour supply available to meet those needs. Job growth will, accordingly, be slower.
- Local areas with high labour supply may not see higher growth in residence employment if there is insufficient demand for labour to use it up.

GVA growth is then forecast based on growth in workplace-based employment according to equations, which link GVA growth to workplace-based employment. Income is forecast by component based on residence-based employment (in the case of compensation for employees or self-employment), unemployment (in the case of benefits) and population in any other case. Spending depends on income by component.

¹ i.e. all industries and job types aggregated.

4 Key changes since June 2022 RPS

4.1 UK Economy

The September 2022 RPS forecast is consistent with the Experian September 2022 (before the UK government announced its mini-Budget) UK macro forecast, which is broadly in line with the May 2022 UK macro forecast. These projections reflect our central forecasts, which assumes that the Ukraine conflict settles through the winter this year, and that no further sanctions are imposed on Russia or elsewhere. In addition, before the UK government announced a household energy price cap, bills were due to rise in October 2022 to what equates to an estimated household average of £3,549, as per the Ofgem Energy Price Cap (an 80% increase). They will now be capped at £2,500 (a 26% increase), with prices frozen for two years. Given the cap on energy bills, we see inflation peak at a lower 11.7% in October and fall back more quickly. For more details on our alternative scenarios, please contact us.

4.1.1 UK history

Since our March 2022 release, ONS have expanded their Supply and Use Tables (SUT) framework to current prices and previous year's prices. This not only reflects a wider range of annual surveys and administrative information for which estimates are based on, but also records the correct concept of GVA rather than turnover as a proxy indicator. At the industry level, the current price and volume relationship is now preserved, enabling new double deflated annual GVA volume estimates. There has been a modest revision to overall current price and volume GDP however, there are larger revisions at the industry level such as stronger volume growth in the manufacturing sector. The telecommunication services deflator has also improved, resulting in higher gross value-added volume growth.

For more details on these changes, please see the [Impact of Blue Book 2021 changes on current price and volume estimates of gross domestic product](#) release by the ONS.

4.1.2 UK outlook

According to the latest ONS data, UK Gross Domestic Product (GDP) grew by an upwardly revised 0.2% in 2022Q2, following a 0.7% growth in 2022Q1. The data showed there had been a slowing in some services industries compared with the first quarter. This reflects the effects of squeezed household incomes and labour and product shortages in some industries. Inflationary pressures showed in domestic and international prices having fed through to an increase in nominal GDP of 1.4% on the quarter. Conversely, annual UK GDP growth for 2020 was revised down to a fall of -11%, leaving output 0.2% below its pre-pandemic (2019Q4) level.

In 2022Q2, services output was estimated to have increased by 0.2%, reflecting an easing in information & communication, and professional, scientific & technical activities output. Construction output also increased by 1.1% driven primarily by new work, and repair & maintenance. Meanwhile, production output declined by 0.2% driven by a 1.1% fall in manufacturing. Evidence from the Monthly Business Survey suggested that higher prices of energy and materials may be starting to affect the manufacture of certain products.

In the coming quarters the headwinds of near double-digit inflation and an associated decline in real household disposable incomes and household spending are anticipated to see the economy fall into a recession lasting into the first quarter of next year. A sharp five-point decline in consumer confidence to another all-time low of -49 in September and sliding retail sales point towards upcoming weakness.

Consumer price inflation remains elevated, which has primarily been underpinned by increases in global energy and tradable goods prices over the last year. Having reached a 40-year high in July

2022, there was a slight fall in the Consumer Prices Index (CPI) 12-month rate to 9.9% in August 2022. This easing reflected lower motor fuel prices, which more than offset the continued increase in food prices. There was an increase in the annual rate of core inflation, which is at its highest rate in over 30 years. Survey figures from the Bank of England (BoE) show that one-year ahead inflation expectations have increased further, although there was a fall in the five-year ahead inflation expectations. The government's energy price guarantee will hold gas and electricity bills at £2,500 a year for the typical household over the two years from the 1st of October 2022. This brings down our projected peak in inflation by 3.5 percentage points, to roughly 11% in the fourth quarter of 2022. The support this provides to real incomes staves off the deeper and more protracted recession seen in recent forecasts.

Further policies announced last month in the government's mini-Budget, which included £45 billion in tax cuts are unlikely to translate to improved growth in the short-term. The policies which were delivered without independent Office for Budget Responsibility fiscal projections triggered a sharp decline in sterling and a spike in government bond yields. The latter prompted the BoE to stage a £65bn bond buying programme to try to stabilise markets. Despite the intervention interest rates on secured and unsecured credit remain at elevated levels, hurting household budgets. Furthermore, monetary policy is anticipated to work against the fiscal expansion, tightening more swiftly as the BoE try tackle above target inflation.

The labour market heads into the projected slump in a relatively healthy position, with the unemployment rate near all-time lows (3.5% in the three months to August 2022). However, economic inactivity remains well above pre-pandemic levels (21.7% in the three months to August 2022) and job vacancies have fallen for three consecutive quarters, despite remaining at historically high levels. As firm balance sheets deteriorate in line with rising costs, including on borrowing, hiring intentions are expected to sour and the unemployment rate to increase.

4.1.3 UK forecast

The following UK forecasts are from Experian September 2022 (before the UK government announced its mini-Budget), consistent with the regional forecast.

September 2022 RPS forecast (2019 prices). Previous forecast, June 2022 RPS (2019 prices) in brackets.

| UK | 2018 | 2019 | 2020 | 2021 | 2022 | 2023-2028 | 2029-2042 |
|-------------------------|--------|--------|----------|--------|---------|-----------|-----------|
| GDP growth | 1.7% | 1.7% | -9.3% | 7.4% | 3.3% | 1.2% | 1.8% |
| | (1.7%) | (1.7%) | (-9.3%) | (7.4%) | (3.4%) | (1.4%) | (1.8%) |
| Workforce Jobs growth | 0.5% | 1.5% | -1.7% | 0.0% | 1.8% | 0.4% | 0.6% |
| | (0.5%) | (1.5%) | (-1.7%) | (0%) | (1%) | (0.6%) | (0.6%) |
| Unemployment rate | 4.1% | 3.8% | 4.6% | 4.5% | 3.8% | 5.2% | 4.2% |
| | (4.1%) | (3.8%) | (4.6%) | (4.5%) | (3.8%) | (4.8%) | (4.1%) |
| Real Income growth | 3.0% | 1.4% | 0.0% | 1.2% | -2.3% | 1.7% | 2.1% |
| | (3%) | (1.4%) | (0%) | (1.2%) | (-2.7%) | (1.4%) | (2.1%) |
| Spending Volumes growth | 2.4% | 1.3% | -10.6% | 6.2% | 4.0% | 1.4% | 1.8% |
| | (2.4%) | (1.3%) | (-10.6%) | (6.2%) | (4%) | (1.5%) | (1.8%) |
| House price growth | 3.3% | 0.9% | 2.8% | 9.4% | 10.0% | 3.1% | 4.0% |
| | (3.3%) | (0.9%) | (2.8%) | (9.6%) | (8.1%) | (3.5%) | (4%) |

The latest monthly UK GDP estimate published by the ONS, showed that the UK economy fell by 0.3% in August 2022 following a growth of 0.1% in July 2022. However, the three-month growth rate has been slowing with GDP falling by 0.3% in the months to August compared to the three months to May. Across all the main components of GDP, the services sector and production sector output fell by 0.1% and 1.8%, respectively, month-on-month in August. The latter was the main contribution to the fall in

overall monthly GDP due to the manufacturing sector, and the former was a result of activity falling in human health & social work, and arts, entertainment & recreation. Output in consumer-facing services (e.g. restaurants) also fell by 1.8% due to the cost-of-living crisis resulting in consumers cutting back on non-essential spending. Meanwhile, construction output grew by 0.4%, solely due to the increase in new work as supply constraints began to ease. Overall monthly GDP is now estimated to be at the same level as its pre-pandemic level seen in February 2020.

A final estimate of the S&P Global/CIPS Purchasing Managers Indices (PMIs) for September 2022 showed that the overall UK composite PMI came in at 49.1 in September, down from 49.6 a month earlier (anything less than 50 indicates decline). This points towards the sharpest decline in activity since January 2021. The reading of 50 for the service sector indicates that households have cut back on spending due to rising inflation and more uncertainty with growth stalling. Meanwhile, the PMI for manufacturing showed a second successive month of decline dropping to 48.4. We expect manufacturing output to grow by 1.5% in 2022 and contract by 1.2% in 2023, before returning to modest growth of 0.5% in 2025. With supply chain conditions easing, construction output returned to growth, beating market expectations, as its PMI rose to 52.3 in September from 49.2 in the previous month. The data showed house building growth hit a five-month high while commercial work only slightly increased. However, new business volumes were broadly unchanged and new orders were at their weakest since May 2020. This indicates that growth may take a U-turn, helped by rising interest rates, the energy crisis and likelihood of a recession hurting confidence. Despite these downside risks, construction demand remains high and therefore, following its double-digit growth in 2021, construction GVA is expected to grow by 4.4% in 2022 following a further slowdown to 0.3% in 2023.

Short-term prospects remain bleak as optimism is predicted to decline further in 2022, as a result of continued domestic and international economic pressures. The latest retail sales data published by the ONS signalled a weakening economy for the UK, as sales declined sharply from July to August by 1.6%. This was much larger than the fall of 0.5% analysts polled by Reuters had predicted and marks the steepest decline since December 2021 when the retail sector was hit by strict Covid-19 related restrictions. The data displays a gloomy outlook for the retail sector as all of the main categories recorded declines for the first time since July 2021. This provides us with evidence that consumers are cutting back on spending and have become more cautious due to heightened uncertainty around the state of the economy. In addition, UK consumer confidence plummeted to a new all-time low as households struggle to cope with growing cost-of-living pressures. The GfK index fell by 5 points to -49 in September. Given this, we do not expect retail sales to pick up over the coming months as rising food, energy, and mortgage payments weigh on household budgets.

The UK labour market remained remarkably resilient through the pandemic in 2020-2021, supported by the furlough scheme. As restrictions eased, it was expected that the end of the scheme would result in an unemployment peak as businesses increased their redundancies as a way to cut costs. Contrary to this belief, in 2022, unemployment has edged down, and a different concern has emerged. The latest ONS report showed that in the three months to August 2022, the unemployment rate stood at 3.5% - the lowest level since 1974 and 0.3 percentage points down on the quarter. However, a new wave of inactivity numbers came with this, increasing to 21.7%, driven by long-term sickness keeping older workers (aged 50-64) out of the labour market and younger workers (aged 16-24) turning to education.

Meanwhile, real-time earnings have fallen as rising living costs weighs on household incomes. In June to August 2022 (adjusted for inflation) growth in average total pay (incl. bonuses) declined by 2.4% and regular pay (excl. bonuses) fell by 2.9%. Looking ahead, the government must action to ease labour shortages and boost growth. In addition to this, we expect the BoE to raise interest rates further in November 2022 as nominal wage pressures remain even as the economy slows causing difficulty in tackling high inflation. Our forecasts show that the unemployment rate will gradually rise through the remainder of the year, but remain below 4%, as firm balance sheets deteriorate in line with rising inflation and hiring intentions sour.

Risks

Uncertainty refuses to fade from the economic landscape and is unlikely to do so in the coming months. Increasing government debt, the unresolved cost-of-living crisis and an unprecedented shock to real incomes cloud the outlook. Against this back drop, we are seeing wobbles in confidence, the continuation of labour shortages and supply chain disruptions persisting (albeit easing). We forecast UK GDP to grow by 3.3% in 2022 and decline by 0.4% in 2023. This trajectory is under the assumptions that no further Covid-19 restrictions are reintroduced, and that the Ukraine conflict settles in the winter of 2022 with no further sanctions. In addition, we assume CPI inflation peaks at 11.7% in October, coinciding with the 80% rise in the Ofgem cap and the household energy bill cap of £2,500 (a 26% increase) enforced by the government. The Bank Rate will be at least 3% by the end of the year, and a technical recession (two consecutive quarters of GDP decline) in the next twelve months is almost certain. Thus, our central forecast sees a slight downgrade from the June 2022 run.

4.2 Regional Forecast

In addition to changes in the UK history, which our regional data is constrained to, changes in the regional history can be traced back to the latest quarterly data (June 2022 RPS endpoint in brackets):

- Regional Workforce Jobs 2022 Q1 (2021 Q4)
- ILO Data for 2022 Q1 (2021 Q4)
- Business Register and Employment Survey (BRES) 2020 (2020)
- Annual Survey of Hours and Earnings (ASHE) 2021 (2021)

Also note that the historical processing and forecasting has been reviewed from the ground up and certain parts have been streamlined or automated where appropriate, resulting in minor changes to history for some series – e.g. where a different smoothing or seasonal adjustment technique has been applied, or an outdated fix to the data has been removed.

September 2022 RPS forecast. Previous forecast (June 2022 RPS) in brackets.

| Regional forecast 2022-42 average growth | SW | SE | GL | ET | EM | WM | NW | NE | YH | SC | WA | NI |
|--|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| GVA growth | 1.6% (1.7%) | 1.8% (1.9%) | 2.0% (2.1%) | 1.8% (1.8%) | 1.5% (1.5%) | 1.5% (1.6%) | 1.4% (1.5%) | 1.2% (1.3%) | 1.3% (1.4%) | 1.3% (1.4%) | 1.2% (1.4%) | 1.1% (1.2%) |
| Workforce Jobs growth | 0.7% (0.7%) | 0.8% (0.8%) | 1.1% (1%) | 0.7% (0.6%) | 0.6% (0.6%) | 0.2% (0.3%) | 0.2% (0.3%) | 0.2% (0.3%) | 0.4% (0.4%) | 0.2% (0.3%) | 0.3% (0.4%) | 0.3% (0.3%) |
| Unemployment rate | 3.6% (3.5%) | 3.4% (3.3%) | 5.5% (5.3%) | 3.7% (3.6%) | 4.2% (4%) | 5.2% (5%) | 5.0% (4.9%) | 5.9% (5.6%) | 5.0% (4.7%) | 4.1% (3.9%) | 4.3% (4.1%) | 4.3% (4.1%) |
| Real income growth | 1.7% (1.6%) | 2.0% (2%) | 2.0% (1.8%) | 2.1% (2%) | 1.6% (1.5%) | 1.4% (1.4%) | 1.4% (1.4%) | 1.1% (1.1%) | 1.5% (1.4%) | 1.4% (1.3%) | 1.3% (1.3%) | 1.5% (1.4%) |
| Spending volumes growth | 1.6% (1.6%) | 2.0% (2%) | 2.5% (2.5%) | 1.8% (1.8%) | 1.6% (1.6%) | 1.6% (1.6%) | 1.6% (1.7%) | 1.3% (1.3%) | 1.5% (1.6%) | 1.4% (1.4%) | 1.3% (1.3%) | 1.6% (1.7%) |
| House price growth | 4.2% (4.2%) | 4.6% (4.7%) | 4.2% (4.2%) | 4.2% (4.3%) | 4.0% (4%) | 3.8% (3.8%) | 4.2% (4.2%) | 3.6% (3.8%) | 3.2% (3.3%) | 3.9% (3.9%) | 3.9% (4%) | 3.7% (3.7%) |

4.3 Local Forecast

In addition to revisions at the regional and the UK level to which our local data is constrained to, changes to the local history can be traced back to the following new quarterly data (June 2022 RPS endpoint in brackets):

- APS data for 2020 Q4 (2020 Q4)
- Business Register and Employment Survey (BRES) 2020 (2020)
- Annual Survey of Hours and Earnings (ASHE) 2021 (2021)

Also note, that the historical processing and forecasting has been reviewed from the ground up and certain parts have been streamlined or automated where appropriate, resulting in minor changes to history for some series – e.g. where a different smoothing or seasonal adjustment technique has been applied, or an outdated fix to the data has been removed.

For more information about how the history is constructed refer to section [3.2.1](#) for regions and section [3.3.1](#) for local authorities.

4.4 Population

Population forecasts for all locals, regions and nations have been updated to include published mid-year estimates between 2017-19, onto which the latest 2018-based population projections are spliced. The ONS have revised population projections downward in the mid-to-long run for all nations. Compared to 2016, the ONS now expects higher net international migration, women to have fewer children due to a fall in total fertility rates, and life expectancy not to increase as much as previously expected.

- The populations of all regions in England are projected to grow by mid-2029; regions in the north of England are projected to grow at a slower rate than those in the south.
- East Midlands is projected to be the fastest growing region; the North East is projected to have the slowest rate of growth.
- Nearly all local authorities are projected to grow by mid-2029; the populations of 43 local authorities are projected to fall.
- North West Leicestershire is projected to be the fastest growing local authority in England; its population is projected to grow by 15.1% between mid-2019 and mid-2029.
- The number of people in older age groups is projected to grow faster than those in younger age groups in all but one local authority, Coventry. By mid-2029, a total of 122 local authorities are projected to have a population where at least one-quarter of the population is aged 65 and over.
- Over the 10 years to mid-2029, London is the region with the fastest increase in population of those aged 65 and over; however, it remains the region with the lowest old age dependency ratio. The South West is projected to have the highest old age dependency ratio by mid-2029.

5 A note from the ONS on volatility

A change in methodology behind the Office for National Statistics (ONS) employment surveys has produced widespread volatility in the historical data, particularly from 2010.

The following is an explanation directly from the ONS, please see [section 3](#) for more information on how we deal with volatility in the official data:

“A fundamental redevelopment of Workforce Jobs sources, classifications, methods and systems was recently undertaken and is explained clearly in the article ‘Revisions to Workforce Jobs’ (Barford 2010). One of the key changes highlighted in this article was the replacement of a matched-pairs estimator with a point-in-time ratio estimator, ONS’s standard method. This change was aimed at removing the bias caused by the matched-pairs method. A matched-pairs method tends to underestimate change over time, as it excludes the births and deaths of businesses in the sample. In essence, only those businesses sampled in two consecutive periods are used to produce estimates of change. This bias used to cause large revisions when the short-term employment surveys series were benchmarked retrospectively to Business Register Employment Survey (BRES) estimates. BRES is an annual survey which selects a larger sample and also uses a point-in-time ratio estimator. The point-in-time estimator includes all sampled businesses in each and every period, which reduces the bias over-time. The trade-off is an increase in volatility caused by the inclusion of the rotated part of the sample for small and medium sized businesses. Sample rotation spreads the administrative burden; ensuring businesses are selected for a limited number of periods.

Unfortunately, the volatility of regional estimates at an industry level has been far greater than anyone anticipated and in general has been met unfavourably by users, particularly those that are interested in regional data. There are a number of instances, for example, whereby businesses have been ‘rotated in’ to a particular region and served to distort the level of jobs for a particular industry, usually for a period of 5 quarters, which is the time a rotated business remains in the sample of the STES.”

Regional employment is the most timely and only source of quarterly data at this level of geography and is used to derive the quarterly profile of other variables in our regional models. Therefore, this volatility is reflected in output as well as employment. Please see [section 3](#) for more information on how we deal with volatility in the official data.

Appendix A.... Glossary of terms

Glossary of terms

Gross Domestic Product (GDP) Total work done in an economy in a period measured in one of three ways:

- Output Measure: Output of all goods and services less inputs
- Income Measure: Income earned by all parts of the economy
- Demand Measure: Demand for goods and services comprised of
 - Expenditure by Households, NPISH and Government
 - Investment (Gross Fixed Capital Formation) by business and Government
 - Changes in Inventories and Acquisitions less disposals of valuables
 - Exports less imports

GDP is measured in market prices: this means that the prices used to convert output of goods and services into money include taxes and subsidies by the government. Distributors' margins are credited to the industry producing the goods and services not to the distribution industry.

Gross Value Added (GVA) GVA is identical to GDP except that it is measured in basic prices. These prices do not include taxes and subsidies imposed by the government. Distributors' margins are credited to the distribution industry. GVA for an industry is described by either of the following identities:

- GVA is identical to output of the industry less inputs of the industry
- GVA is identical to the sum of
 - Compensation of Employees in the industry
 - Gross Operating Surplus (i.e. profit) earned by capital in the industry

When looking at GVA for an industry, it is important to realise that it only includes the output of that industry (i.e. the value added by that industry.) For example, retailing GVA only includes the value added by retailers (e.g. customer service etc).

GVA in the RPS is measured by the place where the work is done (workplace based) and not where the worker resides.

Current Price / Chain Volume Measure (CVM) Data where the unit of measurement is money are available either in Current Price (or Nominal) terms or CVM (or Real) terms. The distinction is important because the buying power of money changes over time. For current price data, no adjustment is made for this fact. CVM data adjusts all figures in a time series to be consistent with the buying power of money in a given year (the reference year). Current Price data, thus, measures values while CVM data measures volumes. For example, Current Price GDP is the money value of production in a given period while CVM GDP is the amount of production. For years before the reference year, CVM data is not additive (thus the sum of GVA for all sectors will not equal total GVA.) In all other years, CVM data is additive.

Productivity A measure of efficiency calculated by estimating output per unit of input

Workforce Jobs A count of the total number of jobs in the UK, a region or industry. It is comprised of

- Employee Jobs: The number of jobs where the occupant is an employee.
- Self-employee Jobs: The number of jobs where the occupant is self-employed
- Government-Sponsored Trainees: The number of jobs where the occupant is on a government training scheme.
- Her Majesty's Forces: The number of jobs in the armed forces (part of Public Administration & Defence).

Workforce jobs and all its components count jobs and not people. This means that where a person has two or more jobs they are counted once for each job that they have. This can be contrasted with the ILO employment measures. Another consequence of counting jobs is that Workforce Jobs is based on the place of work not the residence of the worker

Full Time Equivalent Employment: Our definition is based on total hours worked and is as follows:

FTE = (HOURS) divided by (37.8*13)

Here a constant yardstick of full-time employment for all industries, regions and industry-region based on thirteen working weeks in a quarter at 37.8 hours a week. 37.8 hours is the average hours worked by a full-time worker in the UK between 1990 and 2009.

ILO Employment The International Labour Organisation (ILO) provides an international standard method of measuring employment. In the UK this is implemented by means of a survey known as the Labour Force Survey (LFS) or Annual Population Survey (APS). It is a people count based on the main job that a person has. Employment comprises:

- Employees: People whose main job is as an employee.
- Self-employed: People whose main job is as a self-employed person.
- Government-Sponsored Trainees: People whose main job is on a government training scheme.
- Unpaid Family Workers: People whose main job is as an unpaid worker in a business owned by their own family.

There are two measures:

- Residence based, which depends on the place of residence of the worker (irrespective of where they work.)
- Workplace based, which depends on the place of work of the worker (irrespective of where they reside.)

The ILO Employment reported is based on the entire population in work ages 16+.

ILO Unemployment The International Labour Organisation (ILO) definition of unemployment covers people who are: out of work, want a job, have actively sought work in the previous four weeks and are available to start work within the next fortnight; or out of work and have accepted a job that they are waiting to start in the next fortnight.

ILO unemployment is only available on a place of residence basis and is based on the entire unemployed population ages 16+.

Labour Force / Economically Active The sum of ILO Unemployment and ILO Employment. That is all people who are in work or who are looking for a work. A person who is in the labour force is said to be Economically Active.

The Labour Force includes the entire Economically Active population ages 16+.

Economically Inactive A person who is not economically active. The principal categories are retirees, students, children, long-term sick or disabled, homemakers and carers. This does not include school-aged people.

Claimant Count Unemployment Measures the number of people who are claiming Jobseekers' Allowance (JSA). This is always less than ILO Unemployment because not everyone who is ILO unemployed is eligible to claim JSA and not all who are eligible claim. Particular important cases are:

- People whose partners work more than 16 hours a week – they cannot claim JSA but may be ILO unemployed.
- People who are past state retirement age – they cannot claim JSA but may be ILO unemployed.

Extra Region In addition to the 9 English regions and the nations of Scotland, Wales and Northern Ireland, the UK's economic boundary includes the continental shelf and UK government operations abroad (i.e. embassies and HMF abroad). The ONS does not assign income or GVA attributable to these sources to any region or nation. Therefore, the sum of regional Income or GVA does not equal the UK. This also impacts on two industries Extraction & Mining and Public Administration & Defence.

School Age Population Population aged 0-15.

Working Age Population Population above the age of 15 but below the current state retirement age for their gender.

Retirement Age Population The population above state retirement age. The precise retirement date depends on date of birth and, for those born before 6th November 1953, on gender. At present, there is a phased equalisation in progress. After 6th November 2018, both men and women will retire at 65. This will rise to 66 between 6th March 2019 and 6th September 2020 and 67 between 6th April 2026 and 6th March 2027. Our forecasts take account of these changes to retirement legislation.

Adult (16+) Population Number of all people aged 16 and above.

Household Consumer Spending The accounts relate to consumption expenditure by UK resident households, either in the UK or the rest of the world. Spending by non-residents in the UK is excluded from the total

Household consumption includes goods and services received by households as income in kind, in lieu of cash, imputed rent for the provision of owner-occupied housing services and consumption of own production

For national accounting purposes, households are individuals or groups of people sharing living accommodation

Household Disposable Income Household disposable income is the total payment to households (from wages, interest, property income and dividends) less taxes, social security, council payments and interest

Cost of living index Regional consumer spending deflator. Gives an indication of how the value of consumer spending has grown in comparison to the volume.

NUTS (Nomenclature of Territorial Units for Statistics) A European Union standard for classifying the subdivisions of member states. In the case of the UK, the English regions and the three nations are classified as NUTS1. The next level – NUTS2 – typically consists of aggregations of local authorities in the same region. The level below that, NUTS3 consists either of single local authorities or a small aggregation of local authorities in the same NUTS2. In Scotland, some local authorities are divided between NUTS3. NUTS4 and NUTS5 also exist but are not used in the RPS.

Appendix B...Sector definitions

Sector definitions

| Experian 38-sector | SIC-2007 division | Falls within Experian 12-sector |
|---|--|---------------------------------|
| Agriculture, Forestry & Fishing | 01 Crop and animal production, hunting and related service activities | Agriculture, Forestry & Fishing |
| | 02 Forestry and logging | |
| | 03 Fishing and aquaculture | |
| Extraction & Mining | 06 Extraction of crude petroleum and natural gas | Extraction & Mining |
| | 05 Mining of coal and lignite | |
| | 07 Mining of metal ores | |
| | 08 Other mining and quarrying | |
| | 09 Mining support service activities | |
| Food, Drink & Tobacco | 10 Manufacture of food products | Manufacturing |
| | 11 Manufacture of beverages | |
| | 12 Manufacture of tobacco products | |
| Textiles & Clothing | 13 Manufacture of textiles | |
| | 14 Manufacture of wearing apparel | |
| | 15 Manufacture of leather and related products | |
| Wood & Paper | 16 Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials | |
| | 17 Manufacture of paper and paper products | |
| Printing and Reproduction of Recorded Media | 18 Printing and reproduction of recorded media | |
| Fuel Refining | 19 Manufacture of coke and refined petroleum products | |
| Chemicals | 20 Manufacture of chemicals and chemical products | |
| Pharmaceuticals | 21 Manufacture of basic pharmaceutical products and pharmaceutical preparations | |
| Rubber, Plastic and Other Non-Metallic Mineral Products | 22 Manufacture of rubber and plastic products | |
| | 23 Manufacture of other non-metallic mineral products | |
| Metal Products | 24 Manufacture of basic metals | |
| | 25 Manufacture of fabricated metal products, except machinery and equipment | |
| Computer & Electronic Products | 26 Manufacture of computer, electronic and optical products | |

| | | |
|-------------------------------------|--|---|
| | 27 Manufacture of electrical equipment | |
| Machinery & Equipment | 28 Manufacture of machinery and equipment n.e.c. | |
| Transport Equipment | 29 Manufacture of motor vehicles, trailers and semi-trailers | |
| | 30 Manufacture of other transport equipment | |
| Other Manufacturing | 31 Manufacture of furniture | |
| | 32 Other manufacturing | |
| | 33 Repair and installation of machinery and equipment | |
| Utilities | 35 Electricity, gas, steam, and air conditioning supply | Utilities |
| | 36 Water collection, treatment, and supply | |
| | 37 Sewerage | |
| | 38 Waste collection, treatment and disposal activities; materials recovery | |
| | 39 Remediation activities and other waste management services. This division includes the provision of remediation services, i.e. the clean-up of contaminated buildings and sites, soil, surface or ground water. | |
| Construction of Buildings | 41 Construction of buildings | Construction |
| Civil Engineering | 42 Civil engineering | |
| Specialised Construction Activities | 43 Specialised construction activities | |
| Wholesale | 45 Wholesale and retail trade and repair of motor vehicles and motorcycles | Wholesale & Retail |
| | 46 Wholesale trade, except of motor vehicles and motorcycles | |
| Retail | 47 Retail trade, except of motor vehicles and motorcycles | |
| Land Transport, Storage & Post | 49 Land transport and transport via pipelines | Transport & Storage |
| | 52 Warehousing and support activities for transportation | |
| | 53 Postal and courier activities | |
| Air & Water Transport | 50 Water transport | |
| | 51 Air transport | |
| Accommodation & Food Services | 55 Accommodation | Accommodation, Food Services & Recreation |
| | 56 Food and beverage service activities | |
| Recreation | 90 Creative, arts and entertainment activities | |
| | 91 Libraries, archives, museums, and other cultural activities | |
| | 92 Gambling and betting activities | |
| | 93 Sports activities and amusement and | |

| | | |
|--|---|---------------------------------------|
| | recreation activities | |
| Media Activities | 58 Publishing activities | Information & communication |
| | 59 Motion picture, video and television programme production, sound recording and music publishing activities | |
| | 60 Programming and broadcasting activities | |
| Telecoms | 61 Telecommunications | |
| Computing & Information Services | 62 Computer programming, consultancy, and related activities | |
| | 63 Information service activities | |
| Finance | 64 Financial service activities, except insurance and pension funding | Finance & Insurance |
| | 66 Activities auxiliary to financial services and insurance activities | |
| Insurance & Pensions | 65 Insurance, reinsurance, and pension funding, except compulsory social security | |
| Real Estate | 68 Real estate activities | Professional & Other Private Services |
| Professional Services | 69 Legal and accounting activities | |
| | 70 Activities of head offices; management consultancy activities | |
| | 71 Architectural and engineering activities; technical testing and analysis | |
| | 72 Scientific research and development | |
| | 73 Advertising and market research | |
| | 74 Other professional, scientific and technical activities | |
| | 75 Veterinary activities | |
| Administrative & Supportive Activities | 77 Rental and leasing activities | |
| | 78 Employment activities | |
| | 79 Travel agency, tour operator and other reservation service and related activities | |
| | 80 Security and investigation activities | |
| | 81 Services to buildings and landscape activities | |
| | 82 Office administrative, office support and other business support activities | |
| Other Private Services | 94 Activities of membership organisations | |
| | 95 Repair of computers and personal and household goods | |
| | 96 Other personal service activities | |
| | 97 Activities of households as employers of domestic personnel | |
| | 98 Undifferentiated goods- and services-producing activities of private households for | |

| own use | |
|---------------------------------|--|
| Public Administration & Defence | 84 Public administration and defence; compulsory social security |
| | 99 Activities of extraterritorial organisations and bodies |
| Education | 85 Education |
| Health | 86 Human health activities |
| Residential Care & Social Work | 87 Residential care activities |
| | 88 Social work activities without accommodation |

Appendix C...Geography definitions

We forecast at the following geographic breakdowns:

- UK
- Regions (12)
- Counties (64)
- Local authorities, post-2021 boundaries (330+33 London boroughs)

Appendix D...FAQ's

- Why does Experian's history for variable x differ from another source / raw survey data?

There are several possible reasons.

- The first is a vintage mismatch. The ONS frequently revises its economic data in order to take account of new information or improved methodology. The date at which Experian has taken data for the current RPS is given in the body of this guide. Another source may have used earlier or later data.
 - The second relates to data processing. As explained in the body of this guide, it is sometimes necessary at the regional level and (particularly) at the local level to process or construct data. Our approach to doing this is explained in the body of this guide. We apply consistent methodologies to process the data. Other sources may carry this out in different ways. When compared against the raw source, our data may differ because, for example:
 - It has been constrained to other sources.
 - It has been converted into CVM data or quarterly data.
 - It has been made consistent with other data or a later vintage of data.
 - The third relates to raw survey data. Raw survey data is often volatile and does not consider information outside the survey. Official statistics and our data are constructed from the raw survey data to take into account volatility, sampling issues and all available data sources.
- Why does Experian's job history differ from the *ABI* or *BRES*?
 - The ABI/BRES are surveys taken from a particular year; they are not updated.
 - ABI/BRES is a source for ONS' workforce jobs, but it is not the only source.
 - BRES does not include government supported trainees, HM forces jobs and every self-employed small business. As a result, BRES's employment numbers (mainly consisting of total employees and working owners e.g. sole traders) would be lower than the ONS's workforce jobs.
 - Experian's workforce job history is designed to be consistent with the latest available ONS workforce jobs estimates, which includes a broad range of jobs (i.e. employee jobs, self-employment jobs, government supported trainees and HM forces).
 - Raw survey is often incomplete and suffers from sampling variability, which does not represent true volatility in the underlying population data. This must be removed to ensure high quality data.
 - How often are data updated?
 - We always use the latest available data at the cut-off date for history.
 - New GVA data is available from the ONS
 - At the UK Level, three times a quarter.
 - At the Regional and Local level, annually (normally in December.)
 - New Expenditure data is available from the ONS at the UK level twice a quarter.
 - New LFS Employment data is available from the ONS once a quarter.
 - New Workforce Jobs data is available from the ONS once a quarter.
 - New BRES is published once a year (normally in December.)
 - New Income data is available from the ONS
 - At the UK level, once a quarter.
 - At the Regional and Local level, once a year (normally in April.)
 - Population projections are published once every two years.
 - New mid-year population estimates are published annually.
 - New LCFS is published annually.
 - How do revisions to historical data affect your history and forecasts?
 - As explained above, we always take into account the latest historical data.
 - The monthly UK macro forecast is updated after each ONS revision of GDP for a quarter.
 - The RPS is based on a particular UK macro forecast and includes the latest available regional and local data.

- Forecasts are updated to be consistent with the latest historical data. While this will typically only affect the short-to-medium term, there are times when the long-run is necessarily affected. This will usually be when there has been a substantial revision to history.
- How are past growth trends captured in the forecasts?
 - All our models are econometric models.
 - An econometric model is a model estimated on historical data.
 - The coefficients (i.e. interactions) in the model embed historical relationships between variables and historical growth rates in a variable.
 - Where we believe that the forecast relationships may differ from history, we make appropriate adjustments to the forecast. This may be the case, for example, where an area has been substantially redeveloped in recent years.
- How are industry/regional/local developments and policies reflected in forecasts?
 - If past developments and policies are reflected in model inputs (for example population) or in history then they will be automatically captured by the model.
 - Our forecasts are policy-neutral in the sense that in our baseline assumes that sufficient projects, infrastructure, jobs etc. will be provided to meet the needs of the population in the long term. Thus although the project may not be explicitly included, an assumption that a project of its nature may have been included in the baseline.
 - It is important to realise that many developments or policies may not be sufficiently large enough to affect growth rates or may be implicitly included in the forecast from a higher level of aggregation.
 - We are able to make appropriate adjustments to the forecast to take into account certain large projects.
 - At the industry level we can consider announced developments in that industry which are large enough to affect the growth in the industry at the national, regional or local level (as the case may be).
 - At the regional and local, we have considered announced developments or policies which are large enough to affect growth at the regional or local level. The local model, in particular, has the facility to take into account the impact of additional population or jobs in a particular area.
 - The final forecast will show the net effect of the adjustment, after the effects of population constraints, job cannibalisation, commuting patterns etc.
- How does population relate to the employment forecasts?
 - This is discussed in detail in the methodology section above for the regions and the locals.
 - It is important to remember that employment is forecast on both a residence and workplace basis.
 - Residence based employment depends on local population (labour supply) growth but also on demand for work throughout the region and across the regional boundary.
 - Workplace based employment depends on labour supply throughout the region and across the regional boundary.
- What is working age?
 - The definition of working age used based on the state pension age.
 - As the state pension age for men and women changes in line with announced policy, the working age population will change to take this into account.
 - The key changes to the state pension age that have been announced are:
 - A gradual equality in state pension age for men and women.
 - A gradual rise in state pension age for both men and women to 67 (and 68 after the forecast horizon.)
- What is the participation rate / economic activity rate?
 - The participation rate or economic activity rate is the proportion of the population who are either employed or seeking employment (i.e. unemployed.)

- The participation rate used in our models is based on the entire adult population (16+). This differs from earlier versions of our models which used only the working age population.
- The participation rate is an endogenous variable in all our models. It is not a fixed assumption.
- What assumptions have been made regarding commuting in the local model?
 - Commuting in the local model is based on estimates given by the ONS.
 - These are based on the Census 2011.
 - Commuting assumptions are fixed over the forecast.
 - However, the outcome for commuting may differ from the assumption because (for example) there is insufficient demand or supply for labour to provide as many workers as possible across a particular commuting relationship.
- How is Full-Time Equivalent employment derived?
 - This is based on the total hours worked (please see the glossary.)
 - The relationship between FTEs and hours is fixed by definition.
 - In different industries, the hours worked per job will differ.
 - Historical data for this is taken from ASHE (please see the body of the guide.)
 - The forecast considers changing trends in hours per job. This will necessarily alter the relationship between Full-Time Equivalent employment and jobs.
- How does the weighting of different factors change over the forecast period?
 - There is no fixed rule about the changes in this time.
 - The coefficients of the econometric equations are fixed over time
 - However, at the local level population growth becomes more important as unemployment decreases.

Appendix E...About us



Our economic forecasting expertise

Experian's team of 12 economists is a leading provider of global, national, regional, and local economic forecasts and analysis to the commercial and public sectors. Our foresight helps organisations predict the future of their markets, identify new business opportunities, quantify risk, and make informed decisions.

Experian's economics team is part of a 140-strong analytics division, which provides an understanding of consumers, markets, and economies in the UK and around the world, past, present, and future. As part of the Experian group, the analytics division has access to a wealth of research data and innovative software solutions. Its statisticians, econometricians, sociologists, geographers, market researchers and economists carry out extensive research into the underlying drivers of social, economic and market change.

For more information, visit www.experian.co.uk/economics

Experian

Experian is a global leader in providing information, analytical and marketing services to organisations and consumers to help manage the risk and reward of commercial and financial decisions.

Combining its unique information tools and deep understanding of individuals, markets and economies, Experian partners with organisations around the world to establish and strengthen customer relationships and provide their businesses with competitive advantage.

For consumers, Experian delivers critical information that enables them to make financial and purchasing decisions with greater control and confidence.

Clients include organisations from financial services, retail and catalogue, telecommunications, utilities, media, insurance, automotive, leisure, e-commerce, manufacturing, property and government sectors.

Experian Group Limited is listed on the London Stock Exchange (EXPN) and is a constituent of the FTSE 100 index. It has corporate headquarters in Dublin, Ireland, and operational headquarters in Costa Mesa, California and Nottingham, UK. Experian employs around 15,500 people in 36 countries worldwide, supporting clients in more than 65 countries. Annual sales are in excess of \$3.8 billion (£1.9 billion/€2.8 billion).

For more information, visit the Group's website on www.experiangroup.com

The word 'Experian' is a registered trademark in the EU and other countries and is owned by Experian Ltd and/or its associated companies.

Celebrating
60
years

Birmingham

0121 713 1530

birmingham@lichfields.uk

Edinburgh

0131 285 0670

edinburgh@lichfields.uk

Manchester

0161 837 6130

manchester@lichfields.uk

Bristol

0117 403 1980

bristol@lichfields.uk

Leeds

0113 397 1397

leeds@lichfields.uk

Newcastle

0191 261 5685

newcastle@lichfields.uk

Cardiff

029 2043 5880

cardiff@lichfields.uk

London

020 7837 4477

london@lichfields.uk

Thames Valley

0118 334 1920

thamesvalley@lichfields.uk



@LichfieldsUK

lichfields.uk