OXFORD ECONOMICS

YORK ECONOMIC OUTLOOK

ECONOMIC OUTLOOK AND SCENARIO RESULTS FOR THE YORK ECONOMY

December 2019

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DECEMBER 2019

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1. INTRODUCTION

The City of York Council commissioned Oxford Economics to provide an Economic Outlook and Scenario report for the City of York economy. This report sets out Oxford Economics November 2019 long term forecasts for York and compares these to forecasts prepared by Oxford Economics in 2015.

The analysis also describes the implications of a "reprofiled scenario", under which:

- employment in the private business services sectors (professional, scientific & technical services, information & communication, and financial & insurance services) would grow at a faster rate to 2038, compared with our baseline outlook; while
- jobs growth in the wholesale & retail, and accommodation & food sectors would slow over the period to 2038, compared with baseline.

The 2015 results were used to underpin the City of York Local Plan. The Plan is currently being examined and the aim of the update is to understand the current outlook for York and access whether there has been a significant change to the forecast since the Local Plan was produced.

The report is structured as follows:

- In Chapter 2, we provide an analysis of the current status of the York economy, including a summary of our baseline forecasts out to 2038. This includes comparisons with both the Yorkshire & Humber region, and the UK as a whole.
- In Chapter 3, presents the employment forecast for York and includes analysis on sectoral composition of growth.
- In Chapter 4, sets out the population and migration outlook for York.
- In Chapter 5, we compare our new baseline forecasts with that produced in 2015, summarise the changes to our key assumptions, and offer our assessment of how Brexit will impact the York economy.
- Then in Chapter 6, we present our reprofiled growth scenario for York up to 2038.

2. YORK'S ECONOMIC GROWTH

This chapter provides an overview of York's economy, focusing on its annual Gross Value Added (GVA) growth. Throughout, comparisons are drawn between City of York, the wider Yorkshire & Humber region, and the UK as a whole.

2.1 UK-WIDE ECONOMIC GROWTH

2.1.1 The short-term outlook

We begin by setting out the wider macroeconomic conditions to understand the context within which the York forecasts are derived. The UK has experienced unstable growth to date in 2019, with gains achieved in Q1 (0.6% as a result of stockpiling in anticipation of the first Brexit deadline) partly cancelled out by a contraction of 0.2% in Q2—likely due to firms using up these stockpiled resources following the extension to the Brexit deadline.

The preliminary estimate for Q3 2019 reports growth of 0.3%, but with falling output in both August and September. Business survey data is also weak, with many companies citing low confidence due to the current political uncertainties (although the retail sector has performed better than the wider economy). The UK economy is currently facing major uncertainties both because of the impending General Election on December 12th, and as negotiations continue regarding how the UK will leave the EU.

Overall, we estimate that UK GVA growth in 2019 will be just 1.2%, slowing to 1.0% in 2020—the country's weakest annual growth since 2009. We do, however, expect to see a slight increase in momentum over the course of 2020, as the incoming government implements a looser fiscal policy and a strengthening of household spending power.

While the outlook for the UK is far from certain, we expect the Conservative Party to win a majority in the upcoming election. This will pave the way for the Prime Minister, Boris Johnson, to pass his Brexit deal through parliament, thereby lowering (but not eliminating) the risk of a no-deal Brexit.

2.1.2 The key drivers of UK economic growth

Our forecast is contingent on an orderly departure from the EU in early 2020, and shaped by the following key short-term drivers:

- **Improving household spending power**: a simultaneous pick-up in wage growth and a cooling in inflationary pressures has seen household spending power strengthen over the past year. And while there is increasing evidence that the UK's labour market strength is fraying—meaning that wage growth is expected to stabilise at just above 3%—inflation is likely to continue to slow, helped by the recent appreciation of sterling. This means that spending power should strengthen further through 2020, also boosted by the end of the four-year freeze on welfare benefits. Overall, we forecast UK consumer spending to grow by 1.2% in both 2019 and 2020, with quarterly growth

picking up steadily next year as inflation slows.

- **Looser fiscal stance**: we estimate that fiscal policy exerted a 0.8 percentage point drag on economic growth in the last fiscal year. In 2019/20, however, higher NHS spending and generous increases in income tax thresholds mean the fiscal stance will be modestly supportive of growth. The Chancellor, Sajid Javid, announced a further loosening of the fiscal stance in September's Spending Round, with real day-to-day spending set to grow by 4.1% in fiscal year 2020-21 (a 15-year high). Indeed, fiscal policy is a source of upside risk to our forecasts, with evidence from the early stages of the election campaign suggesting it could be loosened further regardless of the final outcome.

- **Export environment deteriorating**: UK exporters have found life tough of late, with the slowdown in global growth more than offsetting any gains from a weaker pound. We expect growth in world trade (weighted by UK export shares) to slow from 5.2% in 2018 to just 1.8% this year, as the impact of greater trade protectionism feeds through. Looking ahead, we expect an "orderly" Brexit outcome to ensure that the pound recovers during 2020, given the extent to which it is currently undervalued.

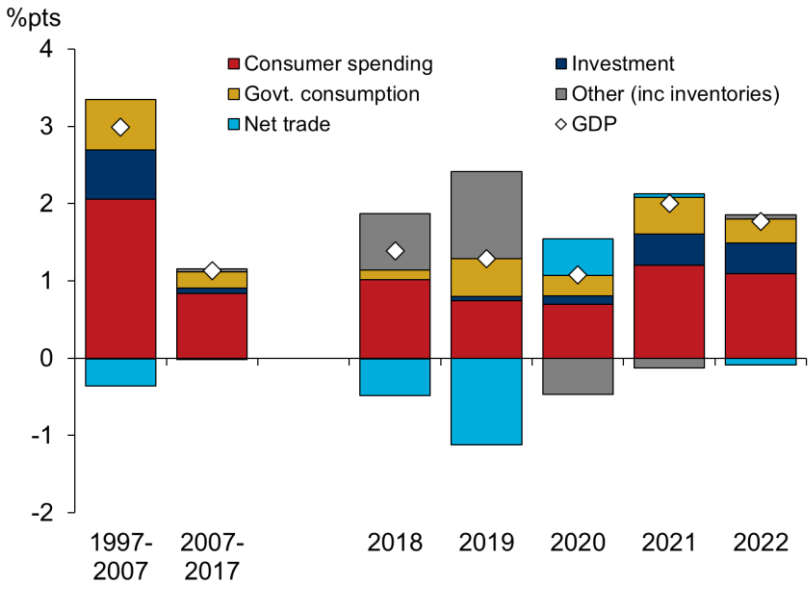
- **Brexit weighs on business investment**: while UK firms are generally in solid financial shape, they have been reluctant to spend—as of Q3 2019, business investment was still 3% below its late-2017 peak. Uncertainty around Brexit has been a key factor, and this is likely to persist until details of the UK's future trading relationship with the EU become clearer. Having fallen 1.6% last year, we expect business investment to decline by a further 0.9% in 2019 and 0.4% in 2020. Overall investment is set to be firmer, growing by 0.2% this year and then 0.6% in 2020.

Fig. 1 illustrates the composition of the UK's overall GDP growth between 1997 and 2022. In 2019, the combination of slowing consumer spending and negative net trade (as the strengthening of sterling eradicated the benefits of a weak pound) contributed to a slight slowdown in GDP growth. This slowdown is expected to continue into 2020, as "other contributions" (including inventories, which may have been higher due to stockpiling in 2019) drag on growth.

In 2021, a pick-up in consumer spending should boost the UK's overall GDP growth once more—but it is unlikely to return to levels seen in the decade before the global recession for some time yet. A similar story can be seen with business investment.

Given this outlook, we do not expect any significant rises in interest rates anytime soon.

Fig. 1. Contributions to GDP growth: UK, 1997-2022



Source : Oxford Economics

2.1.3 The longer-term outlook for the UK economy

The UK's long-term forecasts up to 2038 shows a slowdown in both GDP and employment growth over the long run. The drag on potential output growth from Brexit is projected to last until 2030, amid expectation that the UK is now headed for a much looser relationship with the EU.

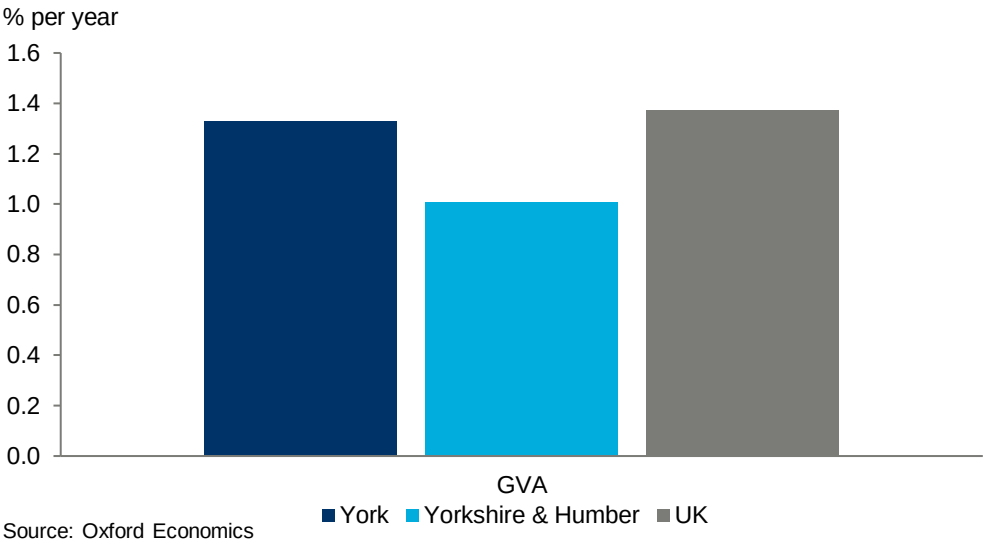
While this drag should fade after 2030, weaker contributions in labour supply and human capital will cut output growth still further in that decade. Demographics have been a key contributor to potential output growth over the past 30 years. But an ageing population and a more restrictive immigration regime are likely to mean the workforce grows far more slowly in the future.

2.2 YORK'S ECONOMIC OUTLOOK

Having assessed these UK-wide macroeconomic conditions, we forecast GVA growth in York to average 1.3% per year between 2017 and 2038. However, within this time frame, the growth rate will vary significantly.

Recently, economic growth has been weak in York, with its overall output estimated to have contracted in both 2018 and 2019, by -0.5% and -0.2% respectively. Reasons for this contraction include low consumer confidence and weak business investment nationwide, due to ongoing uncertainties regarding Brexit. We forecast York's GVA to return to growth in 2020 and continue to rise to a peak of 1.8% in 2021 as Brexit related uncertainties clear, followed by a gradual slowdown in the long run to 2038 due to a slower growth in working age population. This is primarily due to an ageing population, but also reflects lower net inward migration and only two one-year increases in the State Pension age are planned before 2050.

Fig. 2. GVA, York, Yorkshire & Humber, and UK, 2017-2038



Source: Oxford Economics

As Fig. 2 shows, average economic growth in York is forecast to outpace that of the Yorkshire & Humber region (1.0% per year) between 2017 and 2038, but will not quite match the pace of growth for the UK as a whole (1.4% per year). The growth in York equates to an additional £1.6bn of output in 2038[1] (measured in 2016 prices), with its economy thus being almost one third bigger at the end of our forecast period than in 2017.

Over this period, the only local authorities within Yorkshire & Humber expected to outpace York are Harrogate and Leeds, while Sheffield is projected to experience the same average rate of growth.

Our forecasts are predicated on an improvement in productivity growth[2] in York, averaging 0.9% per year from 2017 to 2038—on par with the wider region, but again slightly behind the UK (at 1.0% per year average growth). This contrasts with the decline in productivity of 0.3% per year, that York experienced over the decade leading up to 2017.

2.2.1 York's economic performance by sector

The business services sectors (information & communication; professional, scientific & technical; administrative & support; and financial & insurance services) will be key drivers of economic activity in York throughout our forecast period. We predict these four sectors will account for more than 38% of all additional output by 2038, and are the fastest-growing sectors in York.

As Fig. 3 shows, in level terms, the largest contribution to GVA growth in York will be in the real estate sector, which is expected to rise by almost £410 million by 2038—equivalent to an average rise of 2.0% per year, outpacing the UK average by 0.2 percentage points per year. The human health & social work sector is next-largest in level terms, rising by £260 million at an average annual

[1] Change between 2017 and 2038

[2] Productivity is defined as GVA per job

rate of 1.9%—boosted both by increased government spending on the NHS, and rising demand due to demographic shifts towards an ageing population.

Fig. 3. York's GVA growth by sector, 2017 and 2038

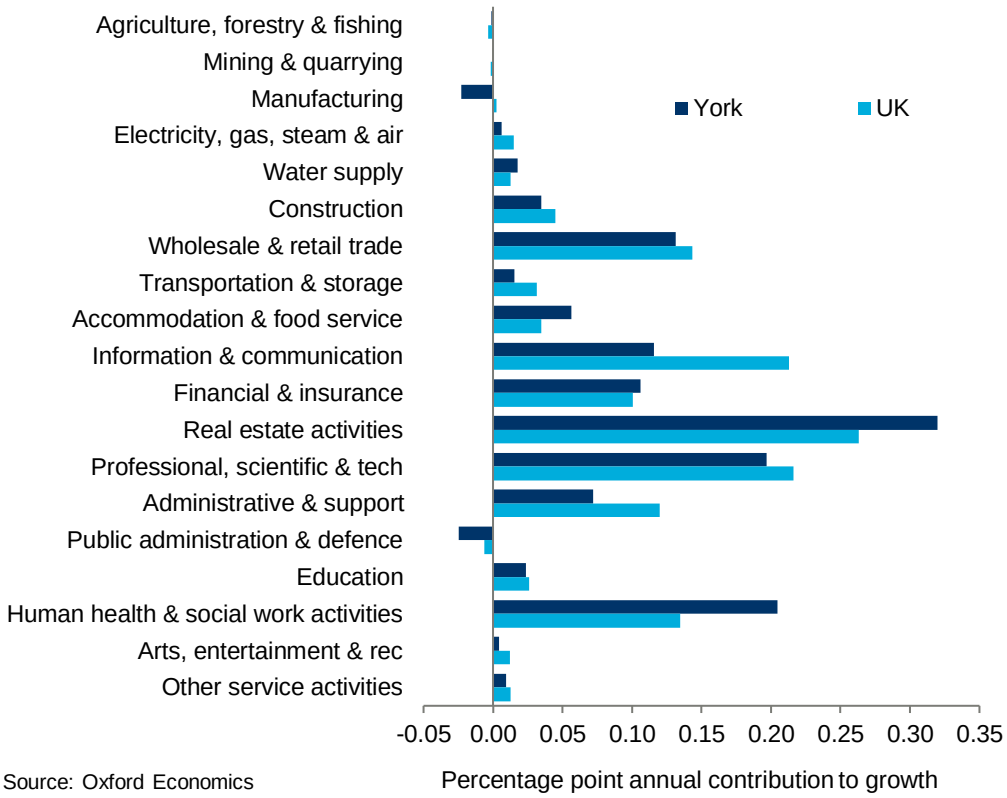
Sector	GVA (£2016m)		Change 2017-2038	
	2017	2038	Level	%
Agriculture, forestry & fishing	9	7	-2	-17.8
Mining & quarrying	0	0	0	-
Manufacturing	386	357	-29	-7.5
Electricity, gas, steam & air	44	52	8	18.5
Water supply	39	61	22	57.4
Construction	273	317	44	16.1
Wholesale & retail trade	641	807	167	26.0
Transportation & storage	217	237	20	9.0
Accommodation & food service	223	295	72	32.1
Information & communication	163	309	147	90.3
Financial & insurance	462	597	135	29.2
Real estate activities	790	1,195	406	51.4
Professional, scientific & tech	386	636	250	64.8
Administrative & support	166	258	91	54.8
Public administration & defence	356	324	-31	-8.8
Education	420	449	30	7.1
Human health & social work activities	539	799	260	48.1
Arts, entertainment & rec	71	77	6	7.8
Other service activities	83	95	12	14.1
Total	**5,309**	**6,929**	**1,620**	**30.5**

The outlook for York's consumer-driven sectors—namely wholesale & retail, accommodation & food services, and arts, entertainment & recreation—is less strong. Output from retail is forecast to rise by only 1.1% per year—below York's overall average of 1.3%, and a lower relative contributor to total growth than this sector is for the UK as a whole. Arts, entertainment & recreation is forecast to see even weaker growth of only 0.4% per year.

Accommodation & food, which has the strongest outlook of these three sectors, is expected to grow in line with York's overall growth average, and ahead of this sector's average growth rate in both Yorkshire & Humber and the UK over the forecast period.

A number of York's other sectors are forecast to contract over the longer term. Public administration & defence, manufacturing, and (to a smaller extent) agriculture, forestry & fishing are all forecast to see lower output in 2038 than in 2017. The first two of these sectors will see their respective shares of York's total output decline from 7% in 2017 to 5% in 2038.

Fig. 4. Contributions to GVA growth by sector, York and UK, 2017-2038



Source: Oxford Economics

3. YORK'S LABOUR MARKET

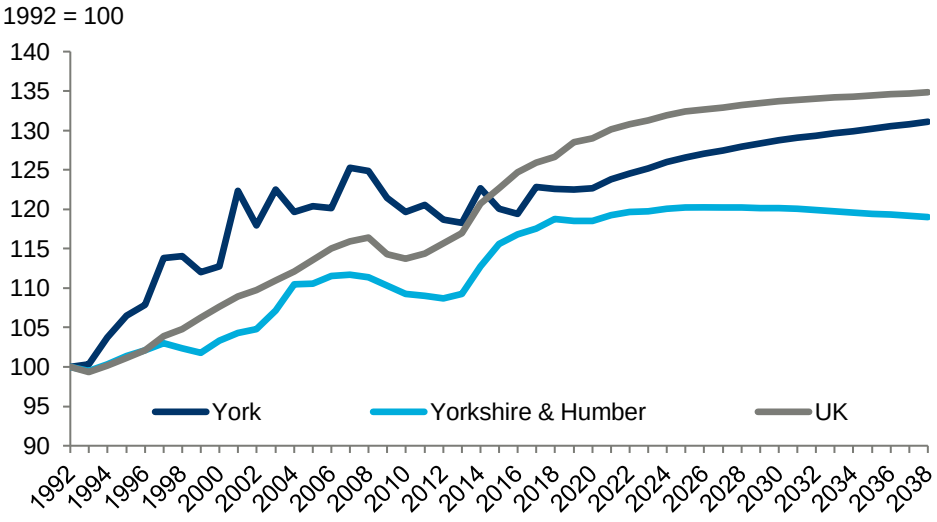
Employment growth in York has been unstable since the 2008 recession, with increases occurring in only four years over the decade to 2018. Despite this, the number of jobs in York was still higher in 2018, at 119,400 compared to 117,000 in 2008. Growth over this period averaged 0.2% per year, less than half the rate of jobs growth in the UK as a whole.

Our outlook for workplace-based employment growth in York is, however, more encouraging than the past decade's performance. After a slight contraction in 2018 and 2019, jobs growth is expected to be positive throughout the rest of the forecast period. Growth will peak at 1.0% in 2021 before slowing over the longer term. Overall, we forecast that jobs growth will average 0.4% per year between 2017 and 2038, outpacing Yorkshire & Humber by 0.3 percentage points each year, and similar to the rate of growth forecast across the UK.

Similarly, resident-based employment is also forecast to grow, boosted by the increase in local jobs available. The number of residents in employment will rise by a slightly slower pace than total jobs growth, averaging 0.3% per year between 2017 and 2038. A number of these additional jobs will be filled by people living outside of York, as evidenced by the rise in net commuting by 2038.

In line with rising resident employment, there will be a corresponding fall in the unemployment rate. The ILO unemployment rate is expected to fall gradually from an already low 2.6% in 2017 to 2.3% in 2038, less than half the 4.8% rate in Yorkshire & Humber.

Fig. 5. Total employment, York, Yorkshire & Humber & UK, 1992-2038



Source: Oxford Economics

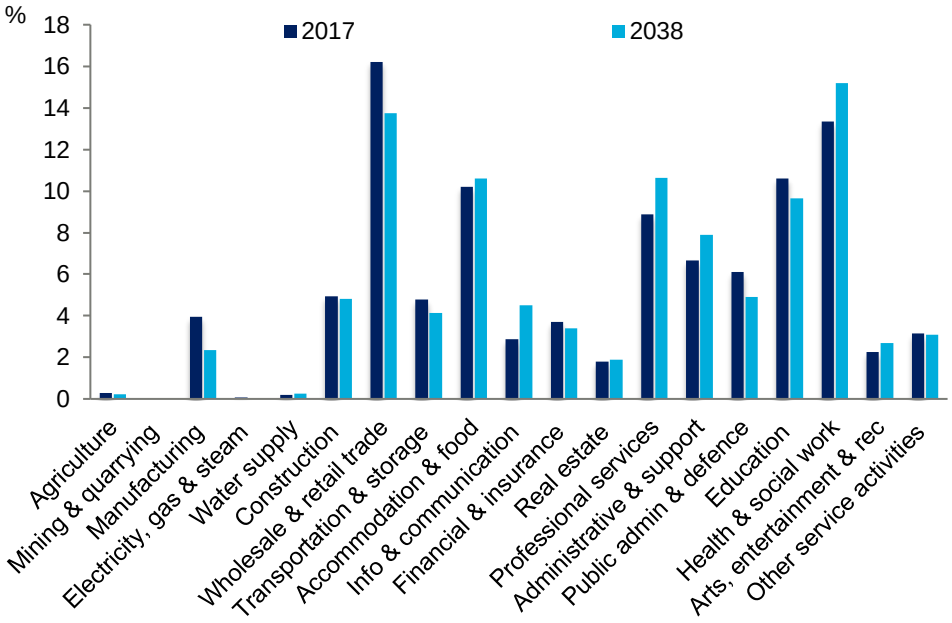
3.1 EMPLOYMENT GROWTH: A SECTORAL ANALYSIS

Our forecasts show a sectoral shift in the composition of employment in York between 2017 and 2038, with job creation shifting from production and retail to the growing human health & social work sector and private business services sectors. Fig. 6 shows the sectoral share of total employment in York in 2017 and 2038. Wholesale & retail trade was in 2017 the leading sector in terms of employment, but is set to experience the sharpest drop in its share of total jobs. The sector will fall from 16.2% to just 14.1% of total employment in York, in line with the wider national trend of decline as increased productivity and new technologies in the sector reduce demand for jobs. And the share of employment in manufacturing will almost half by 2038, down to 2.3%.

On the other hand, the human health & social work sector will see the largest gain in employment share, rising from 13.3% to 15.3%. And the business service sectors will also see gains, as these sectors become more established in York. By 2038, the business services sectors will account for a larger share of employment in York than in the wider region, although slightly behind the UK. Of the business services sectors, only financial & insurance activities is expected to see a fall in the number of jobs, again driven by technological advances including the increase of online services in this sector.

And while the share of employment in wholesale & retail is likely to decline, the other consumer-driven sectors (notably accommodation & food and, to a lesser extent, arts, entertainment & recreation), will see gains, in part due to increasing consumer spending.

Fig. 6. York's employment by sector, 2017 and 2038, as share of total employment



Source: Oxford Economics

We forecast that employment in York will average 0.4% per year over the 2017-2038 forecast period—but the pace of growth will be faster over the short run. Overall, this increase in employment equates to 9,531 additional jobs, equivalent to just more than 450 jobs per year (see Fig. 7).

Underpinning the growth in employment will be human health & social work (3,797 jobs), professional, scientific & technical services (2,394 jobs) and administrative & support services (2,354 jobs). Gains in these sectors will help to offset losses in other sectors, notably manufacturing (1,682 fewer jobs), wholesale & retail (1,166 fewer jobs) and public administration & defence (936 fewer jobs).

The construction sector is expected to pick up from recent declines, although it will not quite recover to the peak employment levels seen pre-recession. The sector could be boosted further by large developments in the pipeline in York, such as the substantial York Central development.

Fig. 7. York's employment by sector, 2017 and 2038

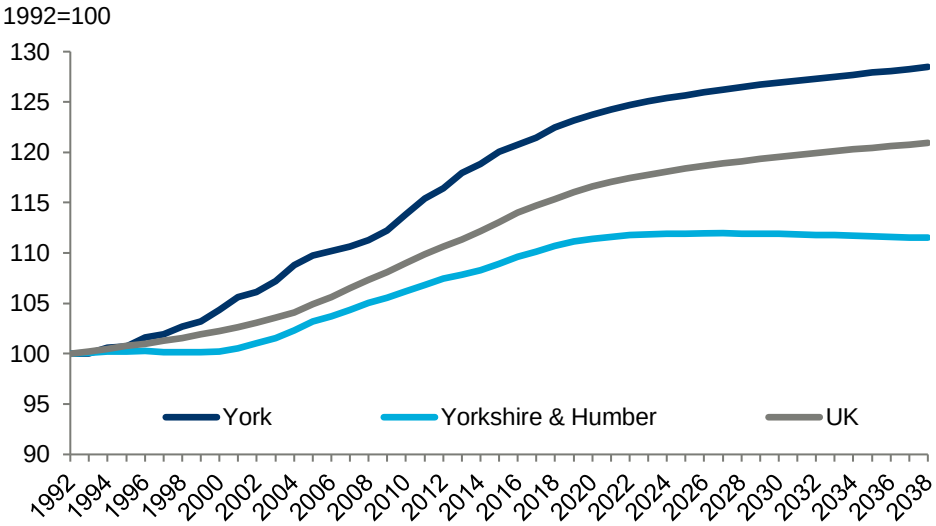
Sector	Employment		Change 2017-2038	
	2017	2038	Level	%
Agriculture, forestry & fishing	345	276	-69	-20.0
Mining & quarrying	0	0	0	-
Manufacturing	4,714	3,032	-1,682	-35.7
Electricity, gas, steam & air	83	68	-15	-18.5
Water supply	230	312	82	35.6
Construction	5,973	6,328	355	5.9
Wholesale & retail trade	19,355	18,189	-1,166	-6.0
Transportation & storage	5,730	5,350	-380	-6.6
Accommodation & food service	12,180	14,038	1,858	15.3
Information & communication	3,446	5,361	1,915	55.6
Financial & insurance	4,395	4,198	-197	-4.5
Real estate activities	2,150	2,474	324	15.1
Professional, scientific & tech	10,624	13,018	2,394	22.5
Administrative & support	7,945	10,299	2,354	29.6
Public administration & defence	7,280	6,344	-936	-12.9
Education	12,653	12,524	-128	-1.0
Human health & social work activities	15,910	19,707	3,797	23.9
Arts, entertainment & rec	2,714	3,478	764	28.1
Other service activities	3,803	4,066	262	6.9
Total	**119,531**	**129,062**	**9,531**	**8.0**

Source: Oxford Economics

4. YORK'S POPULATION AND MIGRATION

Population growth in York has remained positive in recent years, buoyed by net inward migration. The working-age population in York has grown at a similar pace.

Fig. 8. Total population, York, Yorkshire & Humber, and UK, 1992-2038



Source: Oxford Economics

We forecast that population growth in York will continue to outpace the region up to 2038, although growth will slow gradually to average 0.3% per year. Recently, growth has been driven by net inward migration, and, to a smaller extent, positive natural change (when the number of births in the area is higher than the number of deaths). However, as Fig 9 shows, from 2020 onwards there will be more deaths than births in York, meaning that natural change is negative and becomes a drag on population growth.

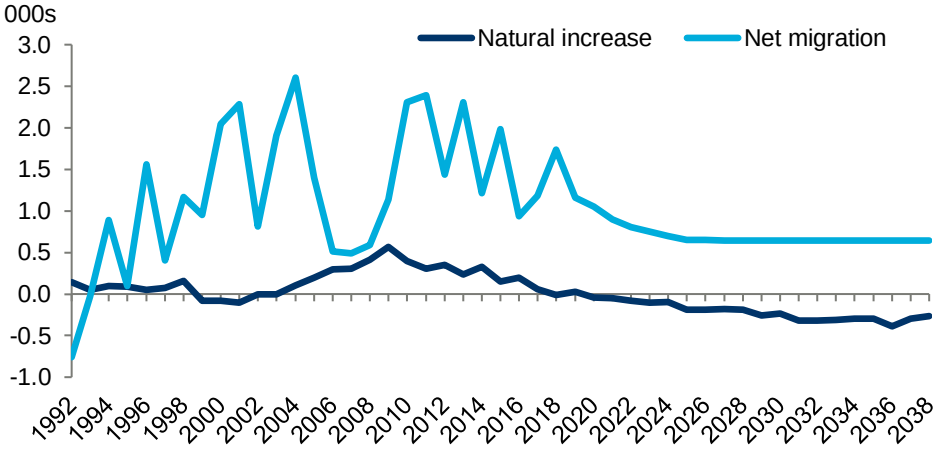
At the local level, the births and death rate assumptions underpinning the forecasts are consistent with the ONS 2016 based population projections. The projections show the reversal from positive to negative natural change at both the York and regional level. Looking at the UK trends, and using the more up to date ONS 2018 based population projections (available at a national level), natural change remains positive but much lower than previously suggested by the ONS 2016 based projections.

However, our migration forecasts differ from the ONS projections, with our view showing a sharper slowdown in migration at a UK level. This is a result of our different migration assumptions. We assume that long-term net migration into the UK will be lower than in recent years, reflecting a less liberal Government policy and a narrower disparity between UK and European economic growth. These lower forecasts are seen throughout the UK regions and into the local

authorities, although to differing extents—with the rationale that migrants will be attracted to areas within the UK with greater employment prospects.

In line with the wider national trend, we expect that net migration into York will also slow over the forecast period, averaging just 650 people per year from 2023 onwards. This contrasts with the 1,740 net people into York in 2018, but the forecasts for York remains stronger than that in Yorkshire & Humber, where there will be net outward migration from 2024 onwards.

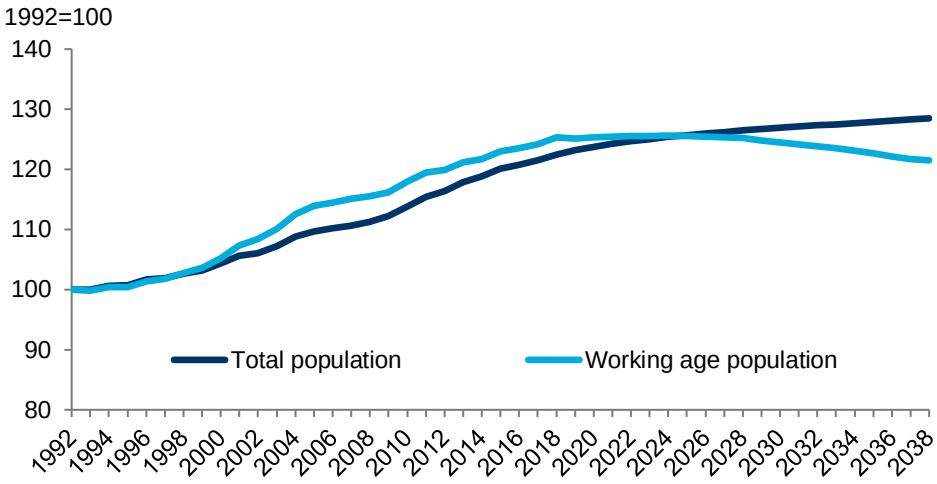
Fig. 9. Components of population change, York, 1992-2038



Source: Oxford Economics

Growth in the working-age population in York is also forecast to experience a slowdown over the forecast period. Fig. 10 shows that over history, working-age population growth has outpaced total population growth. Strength in inward net migration can help to drive working-age population as a large proportion of migrants are typically aged between 16 and 64. However, the slowdown in migration, combined with the slowdown in births since 2009, means that there are fewer additional working-age people each year either through migration or through leaving school. And the result of this is that working-age population over the forecast period will experience a slower pace of growth than total population. By 2038, the working-age population will account for 61% of total population, compared to 66% in 2017.

Fig. 10. York's total and working-age populations, 1992-2038



Source: Oxford Economics

5. UPDATE SINCE THE 2015 REPORT

Since Oxford Economics' 2015 Economic Outlook report for York, there have been significant political and economic developments that have a long-term impact on our forecasts. In this chapter, we outline these developments, notably the two main factors: changes to historical data and revisions to the economic outlook given Brexit and compare how the outlook for York has changed.

5.1 CHANGES IN THE LANDSCAPE SINCE 2015

5.1.1 New data and updated methodology

Since the 2015 forecasts were produced, there has been several years of additional data to underpin the forecasts. Changes to the historical data affect the starting point for the forecasts and the structural composition of the economy upon which the forecast is based. The BRES[3] – which provides detailed employment for York – is now available up to 2018, with revisions to historical data given changes in methodology. This data was only available up to 2013 when the 2015 forecasts were compiled.

In addition the most recent Oxford Economics' dataset includes a broad range of information from the ONS which wasn't available in 2015. The ONS now provides estimates of GVA data measured using a balanced approach (GVA(B)), which attempts to balance the income approach and production approach to give one final balanced estimate of GVA at a local authority level. This is akin to the way in which GDP is measured on a national basis. Though this measurement has been released on an experimental principle, it is widely believed that GVA(B) will become the official measurement of sub-regional GVA. GVA(B) offers more granular data insight than the former approach, with reliable statistics available for 55 sub-sectors on both a real and nominal basis. The ONS also now publish breakdown of disposable household income by component.

5.1.2 Brexit

The UK voted to leave the European Union in June 2016, following a referendum in which the "leave" campaign won by a modest margin of 51.9 percent to 48.1 percent, on an overall turnout of 72 percent. Our forecasts in the 2015 report included the assumption that the UK would remain in the EU.

As of November 2019, there has still been no formal agreement passed through parliament on how the withdrawal process will take place, and how trade will operate after the split. The original deadline of March 2019 was extended after then-Prime Minister Theresa May failed to pass her Withdrawal Agreement through parliament, hindered by a lack of majority. Her successor, Boris Johnson, also failed to reach the postponed deadline in October 2019.

[3] The Business Register and Employment Survey (BRES) is the official source of employees in employment data for York. This is combined with Oxford Economics' estimates of self-employment to create a measure of total employment. See the methodological guide in the annex of this report for more information.

While Johnson did agree a deal with the EU, the bill to be passed in the UK has been put in hold due to the General Election.

The outcome of this General Election, due to take place on 12 December, will largely determine the fate of the current Withdrawal Bill and ultimately how the UK leaves the EU. While a majority of MPs voted, in principle, for the bill, this could change once the new MPs are sworn in and so uncertainty remains high.

And as these negotiations and delays continue regarding the UK's exit from the EU, the associated uncertainties pose a risk to our forecasts over both the short and long term. In the short term, low confidence could continue to negatively affect consumer spending. Similarly, while corporate profitability currently remains firm, investment intentions are subdued and there is a risk that decisions may be postponed until the final Brexit outlook is clearer.

Though we expect that the UK and EU will ultimately agree a withdrawal agreement in early 2020, there is a still a risk that parliament will reject the bill and take the UK back to square one, requiring yet another Article 50 deadline extension.

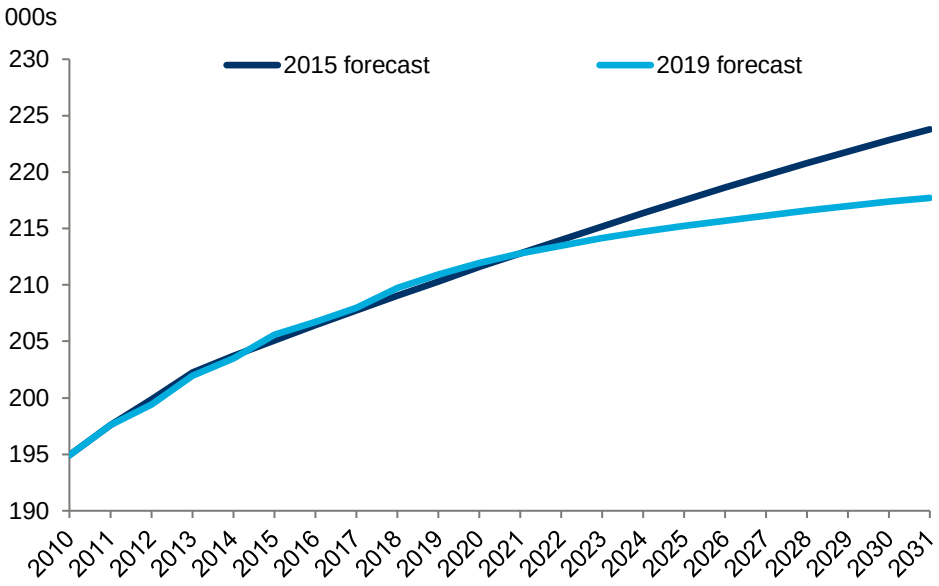
The decision to leave the EU has also impacted the outlook for migration into and out of the UK. Our net migration forecasts have been revised down as a result of the Brexit decision and also the weaker economic outlook, which has resulted in a narrower disparity between UK and European economic growth, impacting how appealing the UK is as a migration destination. As mentioned in the previous chapter, incorporating Brexit and economically-driven factors into our migration forecast explains why it is below the projections given by the ONS.

5.2 CHANGES TO THE YORK FORECASTS

Total population growth in York has seen a downgrade since our 2015 report. As mentioned above, the reasons for this are twofold: a slowdown in the natural increase according to the ONS population projections, and a downward revision to the migration outlook as a result of weaker ONS data and in response to economics factors, including Brexit. We now forecast that total population in York will reach 217,700 in 2031[4], in comparison to 223,800 in the 2015 forecasts. We expect that net migration will average 850 per year over the forecast period to 2031, down by 30 each year from 2015. Again, within this there will be a gradual slowdown—from 2028 onwards migration will average just 640 per year in York.

[4] We have used the period 2017-2031 in this section as 2031 was the latest year of forecasts in the 2015 output.

Fig. 11. Comparison of York population forecasts, 2015 and 2019 reports



Source: Oxford Economics

The long-term outlook for the York economy has halved when compared to the 2015 forecasts, in line with both the regional and national trends. Fig. 12 highlights the downgrade in GVA for each of the areas. Over the period from 2017-2031, York's economy is forecast to grow by 1.2% on average each year, down from 2.4% in the 2015 forecasts. The UK has had a similar downgrade, from averaging 2.5% per year in 2015 to 1.4% in the 2019 output.

Fig. 12. GVA growth, York, Yorkshire & Humber, and the UK, 2017-2031

	2017-2031 % annual average	
	2015	2019
York	2.4	1.2
Yorkshire & Humber	2.3	1.1
UK	2.5	1.4
Source: Oxford Economics		

Total employment in York will also experience a more modest pace of growth in our 2019 forecasts compared to the 2015 forecasts, as a result of the lower population growth and national trends, coupled with the fact that 2017 now starts at a higher level due to the strength in the Business Register and Employment Survey (BRES) data.

Fig. 13. Employment, York, comparison between 2015 and 2019 outputs

Old forecast period (total employment in 000s)			
	2014	**2031**	**Jobs per year**
2015 output	115	126	620
2019 output	115	127	680
Years where data is now available			
	2014	**2018**	**Jobs per year**
2015 output	115	119	810
2019 output	115	119	1,110
Years of forecast			
	2019	**2031**	**Jobs per year**
2015 output	119	126	570
2019 output	119	127	610
Source: Oxford Economics			

According to the BRES data, employment growth over the last few years has been stronger than was anticipated in 2015. Fig 13 shows that in the years where data is now available (2014-2018), the number of additional jobs per year created in York reached 1,110 on average (despite a slight decline in the data in 2018), compared to 810 back in 2015. And the years of forecast (2019-2031) show again that the 2019 output is slightly stronger, rising by 610 jobs per year compared to 570. It is worth noting that employment growth slows over the longer term in line with national trends, and so when we extend our forecast period out further than 2031, the average jobs per year will lower.

Looking at the forecast period of 2017-2031, we can see that the higher employment level has an impact on the capacity for future growth, especially in an environment of slowing population growth in the longer term. We now expect employment to reach 126,500 by 2031, at a higher level than seen in the 2015 forecasts, but with growth over the 2017-2031 period down by more than 1,000 jobs largely due to the fact that 2017 now starts at a higher than previously anticipated level. The sectoral composition of employment is largely unchanged, with health & social work and the business services sectors accounting for a large proportion of jobs growth over the forecast period, while manufacturing and public administration & defence experience job losses.

However, a key difference from the 2015 forecasts is in wholesale & retail trade. The sector will experience the second largest contraction in employment (behind manufacturing) with 1,040 net job losses by 2031. To contrast, the 2015 forecast showed a gain of 1,180 jobs over the same period. The short term outlook for the wholesale & retail sector is now particularly weak, partly due to weak consumer confidence and a decline in 2018 BRES data.

On the other hand, accommodation & food will see much stronger growth, with jobs increasing almost three times more than we had forecast back in 2015. The sector is expected to rise by 1,930 jobs, taking total jobs to 14,110 by 2031. Strength in the latest BRES data up to 2018 means that the sector forecasts are starting from a higher than previously anticipated level.

And while professional, scientific & technical services remains one of the top sectors in terms of job creation, it no longer has the leading position that was seen in the 2015 forecasts. The sector is expected to rise at half the pace—by 1,110 jobs in the 2019 output compared to 2,220 in 2015. However, one of the other business services sectors—information & communication—has seen a strong upgrade, from an unimpressive 290 new jobs over the 2017-2031 period in the 2015 report compared to 1,740 new jobs now, more than compensating for the downward revision to growth in professional services.

Fig. 14. Employment, York, comparison between 2015 and 2019 forecasts

	2015 forecasts		Total new jobs	2019 forecasts		Total new jobs	Difference between forecasts
	2017	2031		2017	2031		
Agriculture	627	534	-94	345	302	-43	51
Mining & quarrying	0	0	0	0	0	0	0
Manufacturing	4,190	3,160	-1,030	4,714	3,632	-1,082	-53
Electricity, gas & steam	98	111	13	83	82	-1	-14
Water supply	385	351	-34	230	342	112	146
Construction	5,782	6,784	1,002	5,973	5,977	4	-997
Wholesale & retail trade	18,741	19,922	1,181	19,355	18,314	-1,041	-2,222
Transportation & storage	11,528	11,929	402	5,730	5,410	-320	-722
Accommodation & food	10,589	11,237	648	12,180	14,110	1,930	1,282
Info & communication	2,993	3,284	291	3,446	5,188	1,743	1,452
Financial & insurance	4,297	4,346	49	4,395	4,270	-125	-174
Real estate	1,957	2,265	309	2,150	2,325	175	-134
Professional services	9,254	11,472	2,218	10,624	11,736	1,112	-1,106
Administrative & support	6,712	8,028	1,315	7,945	9,413	1,468	152
Public admin & defence	5,736	5,355	-381	7,280	6,604	-676	-295
Education	12,320	12,340	20	12,653	12,528	-125	-145
Health & social work	15,915	17,073	1,158	15,910	19,013	3,103	1,945
Arts, entertainment & rec	3,230	3,836	605	2,714	3,255	541	-64
Other service activities	3,526	3,914	388	3,803	4,018	214	-174
Total	**117,878**	**125,937**	**8,059**	**119,531**	**126,518**	**6,987**	**-1,072**

Source: Oxford Economics

6. SCENARIO UPDATE: REPROFILED SECTORAL GROWTH

This scenario update considers the impact of faster growth in professional, scientific & technical services, financial & insurance and information & communication sectors, accompanied with lower growth within wholesale & retail trade and accommodation & food services. The scenario assumes that the UK outlook remains unchanged from the baseline, as the assumptions are applied at the local level in order to align future sectoral trends with the Strategic Economic Plans for York. Our detailed assumptions are as follows:

- 20% higher growth than the baseline projections within professional services, financial & insurance, and information & communication
- 10% lower growth than the baseline projections within wholesale & retail trade and accommodation & food services

6.1 SCENARIO RESULTS

Fig. 15. York's baseline vs rebalanced scenario forecasts, 2038

	Baseline	Scenario
Population (000s)	220	220
Total employment (000s)	129.1	130.3
GVA (£m, 2016)	6,929	7,030
% per year (2017-2038)	**Baseline**	**Scenario**
Population	5.8%	5.8%
Total employment	8.0%	9.0%
GVA	30.5%	32.4%
Source: Oxford Economics		

Under the reprofiled growth scenario, both employment and GVA will see slightly stronger growth. While both are still forecast to average the same pace of growth each year up to 2038, overall employment will have risen 9.0% from 2017 compared to 8.0% in the baseline. And GVA growth will increase by 32.4% compared to 30.5%. Growth in Yorkshire & Humber and the UK remains unchanged from the baseline.

To compare the employment results with the shorter forecast period used in the 2015 output, we can first look at the years 2019-2031. The reprofiled growth scenario results show an increase of 660 jobs on average per year over this period, compared to 610 in the baseline forecasts.

Looking at the forecast period of 2017-2038, total employment in York under the scenario will be stronger. The total number of jobs is expected to reach 130,300 in 2038, up by 10,780 from 2017 and 1,250 jobs higher than in the

baseline. This is equivalent to an increase of 510 jobs per year between 2017 and 2038, compared to the 450 jobs per year in the baseline forecasts.

The key sectors underpinning this increase in employment are the professional, scientific & technical services and information & communication sectors, with 880 and 500 additional jobs compared to the baseline respectively. The financial & insurance sector will have a smaller rise of 200 additional jobs compared to the baseline. And small indirect gains are forecast in the administration & support, construction, transportation & storage, other services, arts, entertainment & recreation and real estate sectors.

Due to the slower growth assumption in the accommodation & food services sector, we forecast that employment will rise by 280 fewer jobs in the scenario compared to the baseline, taking total jobs in this sector to 13,760 in 2038. And wholesale & retail trade will see employment decline at a faster pace, falling by 1,470 in the scenario between 2017 and 2038, compared to a 1,170 job decline in the baseline.

Both net commuting into York and the resident employment rate are forecast to rise at a slightly faster pace in the scenario. As population does not change, this can suggest that the jobs will be filled by residents and commuters, rather than an increase in migration.

Fig. 16. York's total employment, baseline vs rebalanced scenario, 2017-2038

	Employment 2038			Difference from 2017	
	Baseline	**Scenario**	**Difference**	**Baseline**	**Scenario**
Agriculture, forestry & fishing	276	276	0	-69	-69
Mining & quarrying	0	0	0	0	0
Manufacturing	3,032	3,032	0	-1,682	-1,682
Electricity, gas, steam & air	68	68	0	-15	-15
Water supply	312	312	0	82	82
Construction	6,328	6,385	57	355	412
Wholesale & retail trade	18,189	17,881	-308	-1,166	-1,474
Transportation & storage	5,350	5,386	36	-380	-344
Accommodation & food service	14,038	13,762	-275	1,858	1,582
Information & communication	5,361	5,863	502	1,915	2,417
Financial & insurance	4,198	4,393	195	-197	-2
Real estate activities	2,474	2,496	22	324	345
Professional, scientific & tech	13,018	13,893	876	2,394	3,270
Administrative & support	10,299	10,394	95	2,354	2,449
Public administration & defence	6,344	6,344	0	-936	-936
Education	12,524	12,524	0	-128	-128
Human health & social work activities	19,707	19,707	0	3,797	3,797
Arts, entertainment & rec	3,478	3,502	23	764	787
Other service activities	4,066	4,092	27	262	289
Total	**129,062**	**130,311**	**1,249**	**9,531**	**10,780**
Source: Oxford Economics					

APPENDIX A: MODEL OVERVIEW

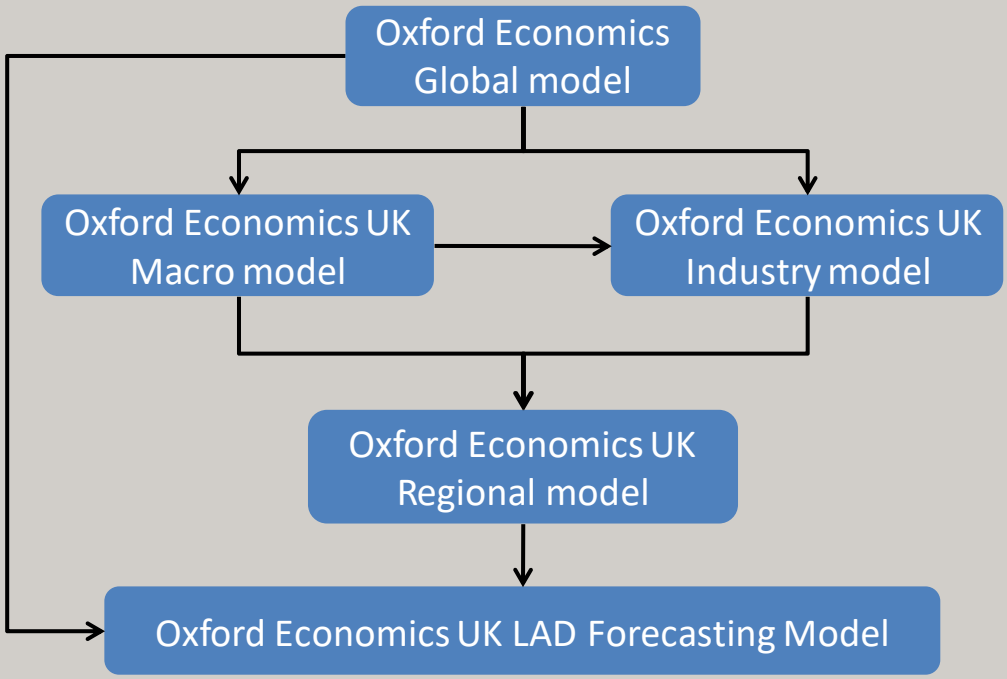
MODEL OVERVIEW

This note provides technical information on the structure of Oxford Economics' Local Authority District Forecasting Model and details of the data sources and definitions of variables within the model. The model should be viewed as one piece of evidence in making policy decisions and tracking economic and demographic change. It is not intended to be used on its own to set employment targets for local authority areas. Such targets will need to take account of local opportunities, constraints and community aspirations. As with all models it is subject to margins of error which increase as the level of geographical detail becomes smaller, and relies heavily upon published data.

Models, though predominantly quantitative, also require a degree of local knowledge and past experience, or more generally forecasting art, to make plausible long term projections. To this end the Oxford model has been developed by a team of senior staff who have a long history in model building and forecasting at both local and regional levels.

The 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 due to wider UK and global trends.

Fig. 17. Hierarchal structure of Oxford Economics' suite of models



Source: Oxford Economics

The Local Authority District Forecasting Model produces base forecasts, which can be compared with other published forecasts (though care should be taken over data definition issues), and as a guide to

aid commentary or analysis of York. These forecasts can in one sense be considered to provide baseline 'policy off' projections with which the actual outturn under policy initiatives could be compared. However it must be realised that there are inherent difficulties in using the forecasts as a 'policy-off' baseline. In particular the base projections are 'unconstrained' in the sense that they make no allowance for constraints on development which may be greater than in the past.

Our local forecasting model depends essentially upon three factors:

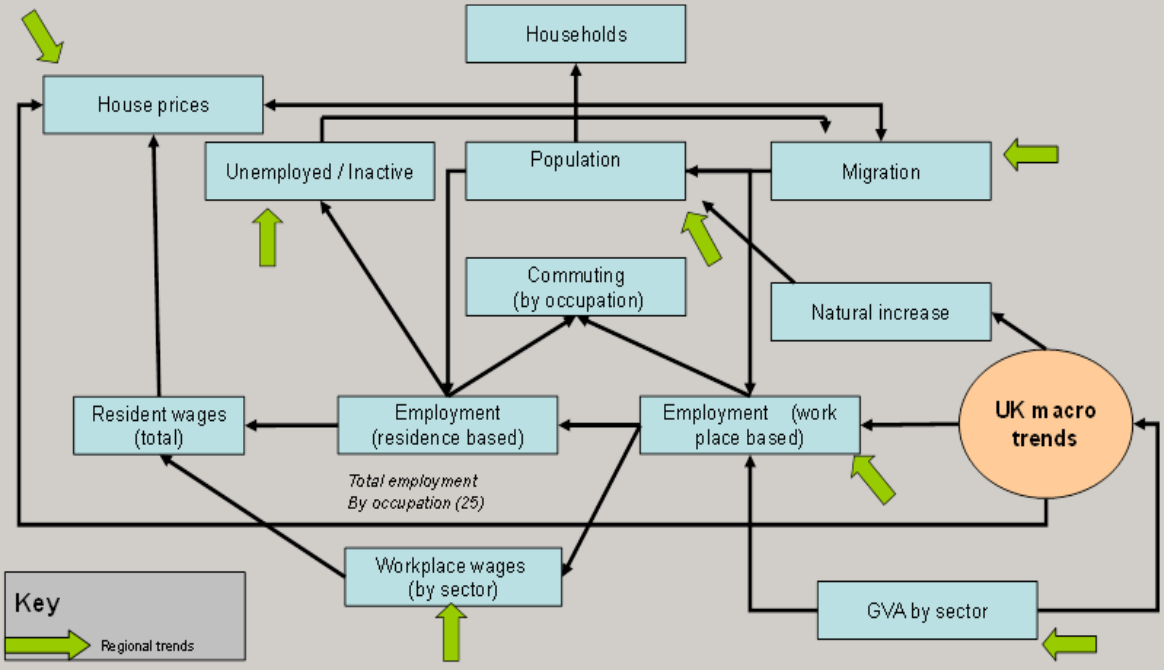
- National/regional outlooks – all the forecasting models we operate are fully consistent with the broader global and national forecasts which are updated on a monthly basis.
- Historical trends in an area (which implicitly factor in supply side factors impinging on demand), augmented where appropriate 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.

As per your requirements, this report focuses on the outlook between 2017 and 2038. Though it is worth bearing in mind that forecasting becomes more 'trend' based in the long run as there is a greater degree of uncertainty with producing forecasts over a long period.

MODEL STRUCTURE

The main internal relationships between variables are summarised in Fig. 18. Each variable is related to others within the models. Key variables are also related to variables in the other Oxford Economics models.

Fig. 18. Main relationships between variables in the LAD Forecasting Model



Source: Oxford Economics

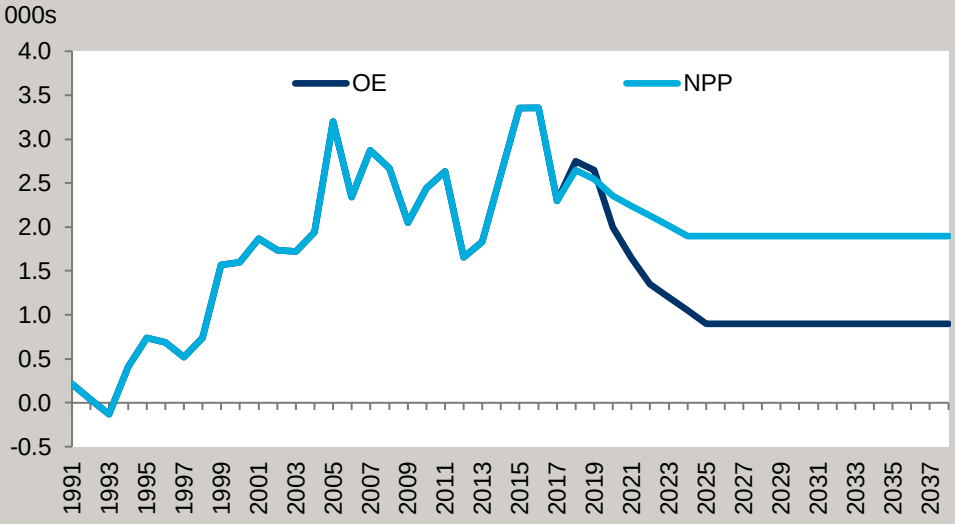
APPENDIX B: DATA SOURCES

Population and migration

Population and migration data are collected from the National Mid-Year estimates (MYE) for each area. These have been revised in line with the 2011 Census results. The latest data available is for 2018.

Oxford Economics produces its own forecasts of population which are economically driven and thus differ from the official population projections. Official births and deaths projections from 2018-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 2018-based population projection. Oxford Economics expects UK net migration to average 90,000 per annum from 2025 compared to 190,000 in the official projections.

Fig. 19. UK total migration, Oxford vs official 2018-based national population projections, 1991-2037



Source: Oxford Economics

The divergence reflects the impact that Brexit is forecast to have on migration levels. 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 approach ensures that the relationship between the labour market outlook and the demographic forecasts is sensible. This series is scaled to be consistent with the migration forecast for Yorkshire & Humber 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.

Working-age population

Working-age population data are also collected from the Mid-Year estimates (MYE) for each area up to 2018. It is defined at all people aged 16 to 64.

The share of working-age to total population is forecast using both trends in the official projections and trends in the Yorkshire & Humber 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 Yorkshire & Humber.

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 government office regions, over the period 1981 Q3 to 2019 Q2.
- 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 2008-18. 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 2009-18. This 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 Yorkshire & Humber 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 reminder 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 Yorkshire & Humber
- Mining and quarrying - share of Yorkshire & Humber
- Manufacturing - share of Yorkshire & Humber
- Electricity, gas, & steam - share of Yorkshire & Humber
- Water supply; sewerage, waste management - share of Yorkshire & Humber
- 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 Yorkshire & Humber
- Financial and insurance activities - share of Yorkshire & Humber
- 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 for Yorkshire & Humber are taken from Workforce jobs (19 sector detail). The data are 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 are Census-based (and scaled to the Yorkshire & Humber self-employed jobs estimates), and are 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 these estimates are jobs based and not people based (i.e. one person can have more than one job and would be counted more than once in this indicator).

Unemployment

ILO unemployment data are available up to 2018 from the Annual Population Survey. A factor for resident unemployment growth and also for the working-age population growth is applied to show local differences from the regional total. The ILO data are forecasted using growth rates from the Oxford Economics Regional Model, and aggregated with the results generated from the factors mentioned above. A minimum unemployment rate cap is applied, and the final figures are scaled to the regional unemployment level.

Resident employment

This is a measure of the number of people living in an area who are in work. Resident employment data are taken from the Annual Population Survey. The latest year of available data is 2018. 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 forecast using a commuting matrix taken from the 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.

Labour force

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

Gross Value Added

The 'balanced-approach' GVA data are a new dataset provided by the ONS, which attempt to balance the income approach and production approach to provide one final, more accurate, indicator. These data are available by sector for all local authority districts, and are converted to real prices using the chain-linked volume indices which are also available. Each sector is forecast using local authority sectoral employment and productivity (GVA per job), and then scaled to be consistent with the regional forecast.

Workplace based wages

Yorkshire & Humber data on average wages by sector are available from the Annual Survey of Hours and Earnings (ASHE), the latest year of data is 2018. At the level of individual local authorities estimates of total wages on a workplace basis and a residence basis are also available from the NES and now ASHE.

The growth in UK wages by sector is applied to the local area sectoral wage series (constructed using ASHE totals for authorities and regional industry totals) to give an estimate of wages within each sector. An adjustment factor is applied to reflect the relative occupation structure of each area. Hence areas where higher paying occupations are growing faster than the regional average will have higher wages. These wages estimates are then scaled to be consistent with regional wage totals.

Residence based wages

Residence based wages are constructed within the model by adjusting the workplace based wages for local areas. An adjustment factor, which is based upon ASHE workplace based and residence based data, is applied to ensure consistency with the published data. This factor is held constant but can be adjusted for scenario purposes.

House prices

Local Authority house price data are taken from the UK House Price Index and are forecast based upon the unemployment and earnings forecasts within each local area. The forecasts are controlled to the regional and national house price forecasts which take into account macro factors such as interest rates. Data for York are constructed as a weighted average based upon population.

Consumer spending

Data on consumer spending at a local authority level are not published. They are constructed using consumer spending per head, based on local authority household income-derived spending ratios, and local authority populations. 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 income

The data detailing the components of household income are available from the ONS. Household income is calculated by combining income from employment, income from self-employment, and the rest of household income (which includes operating surplus, net property income, net imputed social contributions, and net other current transfers) and taking away deductions. Each of these components are forecast individually.

Income from employment is forecast using growth in resident wages over resident employment; income from self-employment is estimated using self-employment forecasts; and other household income is forecast using the UK regional forecasts, with deductions forecast based on the growth of the other three components. These are then combined, and the final figure is scaled to the real household income in the UK Regional Model.

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