



Labour force projections

A review of methodologies for making projections

Key findings for the Lancashire-14 area

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1 Introduction

Labour force projections are a valuable addition to understanding an area. Taken together with a forecast of population, a forecast of economic activity shows the future supply of labour. In social terms, it indicates the need for jobs. In economic planning, it indicates the availability of labour to satisfy the needs of development. Labour force projections identify how the local population's changing size and age structure, together with foreseen changes in economic activity, will alter the size and composition of the workforce. (L. Simpson: 2017:2)

There are no acceptable national forecasts of activity, nor a standard approach to local forecasts. (Simpson, 2017:2) The following discusses possible ways of producing such labour force projections for Lancashire. The results from each of the projections are visualised in the accompanying dashboard.

The workforce includes all those who live in the area and are working or available for work (i.e. those who are employed or unemployed). (Edge Analytics, 2016:1)

2 Methodology

Simpson (2017:2) states that whilst population and household projections are produced regularly at district level, official UK forecasts of economic activity have not been produced since 2004. Since then the UK has used economic forecasting models which include economic activity rates from three external institutions:

- European Commission (EC);
- Office for Budget Responsibility (OBR) and;
- Wilson. Report to the UK Commission for Employment and Skills.

The EC and OBR economic activity rates have been used in these labour force projections. Wilson has not been used because the activity rates published are not suitable for local labour force projections.

Simpson (2017:2) details three main types of modelling methodology for projections:

1. Time extrapolation of activity rates.
2. Regression models based on correlations of activity rates with economic, culture or demographic factors.
3. Cohort approaches based on analyses of net entry and exit rates from the labour force at each age, for males and females separately.

Building on Simpson's work, five main scenarios have been suggested by Edge Analytics (2018:3) to create local labour force projections. These allow the users to explore how changes in activity rate assumptions and methodology can alter the projection.

1. Constant labour force projection. This forms a baseline from the 2011 Census and the time extrapolation methodology.
2. European Commission (EC) activity rates, which uses the cohort approach.

3. Office for Budget Responsibility (OBR) activity rates, which uses the cohort approach.
4. Overall one percent increase – this is a variation on the Constant labour force projection but takes no account for differences in age or sex.
5. Average of EC and OBR activity rates, using the cohort approach.

Projections of the labour force are made for each district, plus the Lancashire-12 and Lancashire-14 areas using the economic rates and methodology stated for each scenario.

For all the scenarios, except 4 (Overall one percent increase), in order to capture changes in economic activity at each age, the labour force is projected by multiplying the resident population by age-sex specific economic activity rates. The age groups are 16-19 and 5 year age groups from 20-24, with top age group 75+.

For the EC and OBR scenarios, trends for the UK are applied to each district's values from 2011. For example, if the OBR projects an increase of 1 percentage point in the activity rate for 60-64 year old men between 2011 and 2020, then the local activity rate for 60-64 year old men in 2020 is projected by adding 1% to the local activity rate for 2011.

Mid-year population estimates, both by age and sex, provide a 'working age' population to which economic activity rates can be applied. These scenarios use the 2016 mid-year estimates for the 2011-2016 years.

Population estimates do not attempt to predict the impact of future political and economic changes, or local development policies and therefore will not take any account of housing policies, such as [City Deal](#), a programme which aims to develop more than 17,000 new homes between 2013 and 2023 across Preston and South Ribble. The OBR and EC economic rates do, to a varying extent take into account national government policy, but do not take into account local policies, such as housing.

Projections do become increasingly uncertain, as they go forward into the future, particularly for smaller geographical areas and detailed age and sex breakdowns and are therefore only for illustrative purposes.

Labour Force Survey data for each district is also available for current workforce size, but this has sample errors for age-sex groups which are too large to be of use in projecting forward, and so have not been used within these projections. However, these figures have been included in the accompanying dashboard for comparison purposes.

3 Projections

These projections have been generated by PopGroup software, provided by Edge Analytics.

3.1 Constant labour force projection

This is the baseline projection. Future economic activity rates at each age and sex are held constant at the Census 2011 value (updated by 2016 mid-year estimates). No Government Policy is accounted for in this scenario.

Table 1: Constant labour force projection

Measure	Lancashire-12	Lancashire-14
Total labour force 2011	597,643	723,751
Total labour force 2031	559,098	684,385

All areas, apart from Chorley, are projected to see a reduction in the economically active population by 2031. Blackpool will see the largest reduction, followed by South Ribble. Chorley has seen a large rise in their population in recent years, due to the Buckshaw Village development. This is being projected forward, so might over-estimate the increase. South Ribble and Preston are receiving substantial investment due to the City Deal policy and therefore the projected reduction will also be an over-estimate. This would apply to all scenarios.

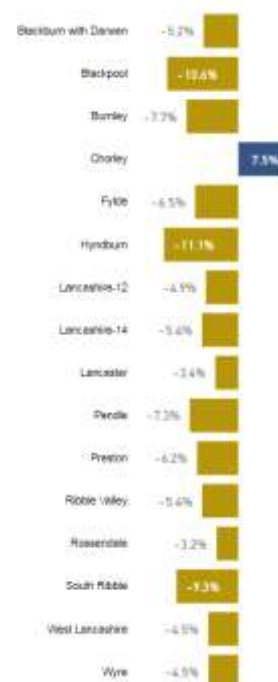


Figure 1 Change 2011-2031

3.2 Office for Budget Responsibility (OBR)

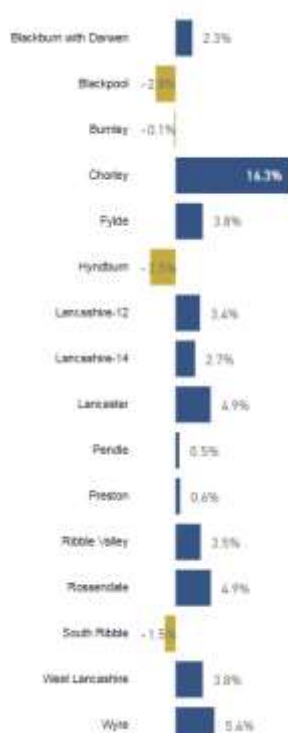


Figure 2 Change 2011-2031

The economic activity rates are taken using the trend from [the Office for Budget Responsibility 2018 Fiscal Sustainability Report](#), supplementary data series tables 3.1 (Male participation rates by age group) and 3.2 (female participation rates by age groups). The OBR was created in 2010 to provide independent and authoritative analysis of the UK's public finances. Their projections are based on stated Government Policy at the time of the analysis and include policies on state pension age and health spending which will influence economic activity rates.

Table 2 OBR projection

Measure	Lancashire-12	Lancashire-14
Total labour force 2011	587,646	723,751
Total labour force 2031	607,701	743,470

Most areas are predicted an increase in their economically active population. Just Blackpool, Hyndburn and South Ribble are predicted a decrease. Chorley is predicted the largest increase at 16%.

The OBR2018 scenario includes the data released by the OBR in July 2018 and used in its 2018 Fiscal Sustainability Report for the UK. Rates for age 16-19 were not provided by OBR for 2009-2021 and have been estimated as follows: 2009-2017 are taken from Eurostat's estimates from the LFS, and 2018-2021 interpolated between the 2017 value and the 2022 projected value provided by the OBR. Constant labour force projection.

3.3 European Commission

The trend from [European Commission 2015 Ageing Report¹](#) has been used for the economic activity rates change in this scenario. Economic rates have been made by applying commonly agreed assumptions and methodologies uniformly to all EU Member States.

Table 3 EC projection

Measure	Lancashire-12	Lancashire-14
Total labour force 2011	587,643	723,751
Total labour force 2031	586,651	718,222

In this scenario, most areas see a reduction in their economically active population. Only Chorley (12.7%), Lancaster (1%), Rossendale (1.6%), West Lancashire (0.1%) and Wyre (0.8%) see an increase. The largest decrease is predicted to be in Hyndburn (-6.7%).

The EC2015 scenario has Eurostat data for the UK from the LFS for 2001-2012, before its own projection from 2013 onwards (European Commission DG Economic and Financial Affairs 2015 Ageing report, data available on request). 75+ is not included in the EC projections, and has been estimated here by applying the ratio of 75+ to 70-74, averaged from estimates 2008-2014.

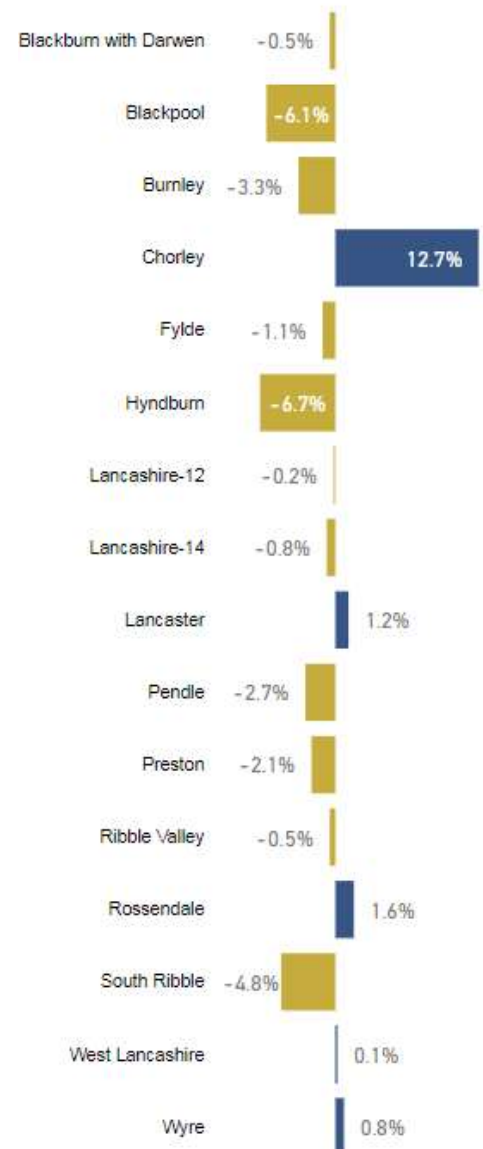


Figure 3 Change 2011-2031

¹ Please note this report has been updated to 2018 but the revised activity rates are not available in PopGroup yet.

3.4 Overall 1PCT increase

Increase rates gradually at each age and sex by 1% altogether between 2011 and 2021, in effect altering the total economic activity without consideration of age and sex differences.

Table 4 Overall 1PCT increase

Measure	Lancashire-12	Lancashire-14
Total labour force 2011	587,643	723,751
Total labour force 2031	564,689	691,229
Percent change 2011-2031	-3.91%	-4.49%

The economically active population is predicted to fall in all areas other than Chorley which sees a more modest 8.5% increase. The largest decrease is in Hyndburn (-10%).

3.5 Average EC and OBR projections

Simpson (2017:2) states that the two projections for the UK as a whole are undertaken by government agencies for specific policy purposes: the OBR for long-term economic forecasting, and the EC for budgetary policy related to ageing. They do not agree on future trends. This means that a local economic strategy must argue the case for the particular projection of economic activity rates that it uses.

When there are alternative scenarios suggested and it is not clear which is better, it can be sensible to choose the average of more than one. This has the advantage of ensuring that the most extreme errors in a scenario will be reduced. However, if one scenario is clearly agreed to be poorer than another for particular age-sex group then it should not be used even in an average for that age-sex group, because it will make the forecast worse. This scenario averages out the EC and OBR projections.

Table 5 Average EC and OBR

Measure	Lancashire-12	Lancashire-14
Total labour force 2011	587,645	723,751
Total labour force 2031	597,176	730,846

In this scenario, Blackpool, Burnley, Hyndburn, Pendle, Preston and South Ribble are all predicted to see a reduction in their economically active populations, with Hyndburn seeing the largest reduction (5.1%) and Chorley predicted the largest rise (14.5%).

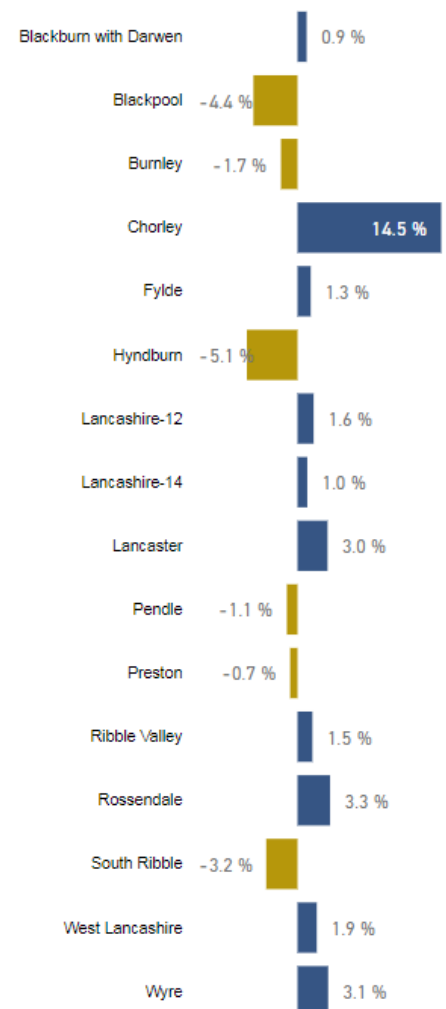


Figure 4 Change 2011-2031

4 Comparison of scenarios

Simpson (2017:2) states that the EC and OBR differ not only in their future trend, but in their values for UK economic activity in each year from 2001. Although all taken from the Labour Force Survey, both EC and OBR also differ slightly from past values provided by NOMIS. These differences are likely to be due to (a) their treatment of the institutional population, (b) the exact twelve month period taken to represent a year, (c) the use of Annual Population Survey (APS) data in addition to the LFS, or (d) the weighting of activity rates for single years of age when computing rates for age-groups: documentation is insufficient to explain which of these account for the differences.

After a constant rate of increase in the labour force between 2001 and 2011, all of the forecasts show the pace of change levelling out. The OBR2018 scenario predicts the largest increase, whilst the constant scenario shows a decline in most areas. Chorley shows the largest rate of increase in all scenarios, and Hyndburn shows the greatest reduction in the economically active population across all scenarios. In all scenarios Blackpool, Burnley, Hyndburn and South Ribble decline. Only Chorley increases in all scenarios.

National trends at present include the later entry of young adults into the labour market, a continuing increase in women's economic activity and a later exit from the labour market partly as a result of changes to the State Pension Age. (Simpson, 2017:2) and these are replicated locally. The over 65s are predicted to make up slightly more of the economically active population year on year, rising from 3% to nearly 5% of the workforce based on the constant and EC2015 scenarios and 8% based on the OBR2018 scenario. Females are predicted to make up between 46% and 48% of the workforce, broadly similar to the current 47% in the Lancashire-14 area.

5 Further considerations

The current lack of an official projection of the labour force suitable for local planning puts pressure on local planners to come up with suitable and defensible assumptions about likely levels of future economic activity. A range of policies relating to education, welfare benefits, investment and pensions can be expected to affect economic activity. It is advisable to implement a range of plausible values of future economic activity, and plan according to a likely outcome and the uncertainty.

In choosing whether to amend or accept these standard projections, practitioners need to consider:

- What local evidence might support either the OBR or EC projection of future economic activity, or a different projection for some age-sex groups?
- Has local economic activity been unusually low relative to the national, and will it catch up – or vice versa has it been unusually high? Is future change in economic activity mostly by particular social groups, for example of relatively low or high income, that are disproportionately found or not found in your areas?

- Are there local circumstances that mean the local trend of economic activity at ages 16-19 and 20-24 is likely to be different from assumptions about the UK?

Some of this is discussed in the Lancashire Insight article on economic activity (Lancashire Insight, 2013:4)

6 Conclusion

Simpson (2017:2) states, "A robust national projection available for use in sub-national planning and research is an essential ingredient, because local economic activity tends to follow national trends. These trends at present include the later entry of young adults into the labour market, a continuing increase in women's economic activity, and a later exit from the labour market partly as a result of changes to the State Pension Age. Local census and survey data are sufficient to provide a starting point of local characteristics of economic activity, but insufficient to usefully project forward past trends in a deterministic manner." He therefore advocates using the OBR or EC scenarios or the average of the two with consideration being given to whether any 'tweaks' are required taking into account known local variations in economic activity.

The average OBR and EC scenarios are more akin to the trend 2001-2014 projections and suggest a less rapid decline in the workforce than the constant projection.

7 References

1. Edge Analytics, User Guide 3, How to get started with labour force projections, 2016, updated October 2018
2. National and local labour force projections for the UK, L Simpson, 2017
3. Lancashire Insight, article on workplace populations, June 2015
4. Lancashire Insight, article on economic activity and inactivity, 2013