

Data Guide

UK Regional Planning Service
June 2015



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Executive summary

This document outlines the current variable coverage in the March 2015 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

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1 Variable Coverage

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			
GDP	UK monthly forecast		
GDP by component of demand	UK monthly forecast		
Gross Value Added	✓	✓	✓
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	✓	✓	✓
Claimant Count	xls	xls	Upon request
Claimant Count rate	xls	xls	Upon request
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

2 Historical End-points

Figure 1.2: Last historic data point

Variable	UK	Region	County & Local Authority
Gross Value Added	2014q4	2013q4	2013q4
GVA by sectors	2014q4	2013q4	2013q4
Labour market variables	2014q4	2014q4	All 2013q4 except ILO 2014q4
Income	2014q4	2014q4	2012q4
Consumer spending	2014q4	2013q4	2012q4

The historical end-point represents the last period in time 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 end-point are Experian Economics' estimates.

We have not used any regional data published after May 1st 2015 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) mid-year-estimates to 1997-2013 (revised 2002-2010). The ONS 2012-based sub-national population projections by single-year age band have been spliced onto the 2013 mid-year estimates and constrained to the 2012 national projections.

UK forecast

This forecast is consistent with an Experian Economics' May 2015 macroeconomic forecast which includes the headline national account number for 2014q4. We explore this further in [section 4](#).

Geographic boundaries

As communicated in previous data guides, we publish data on post-2009 local authority boundaries.

With the ONS gradually phasing out the publication of data on the pre-2009 local authority boundaries, it had become increasingly less credible for Experian to publish up-to-date historical data on these definitions. The table below shows those local authorities which no longer exist as individual entities (2nd column) and the name of the new local authority that has been created by their merger.

Region	Disbanded local authorities	Merged to form:
<i>North East</i>	Chester-le-Street, Derwentside, Durham, Easington, Sedgefield, Teesdale, Wear Valley	County Durham
	Alnwick, Berwick-upon-Tweed, Blyth Valley, Castle Morpeth, Tynedale, Wansbeck	Northumberland
<i>North West</i>	Congleton, Crewe & Nantwich, Macclesfield	Cheshire East

	Chester, Ellesmere Port & Neston, Vale Royal	Cheshire West & Chester
<i>West Midlands</i>	Bridgnorth, North Shropshire, Oswestry, Shrewsbury & Atcham, South Shropshire	Shropshire
<i>East of England:</i>	Mid Bedfordshire, South Bedfordshire	Central Bedfordshire
<i>South West</i>	Caradon, Carrick, Kerrier North Cornwall, Penwith, Restormel	Cornwall
	Kennet, North Wiltshire, Salisbury, West Wiltshire	Wiltshire

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.

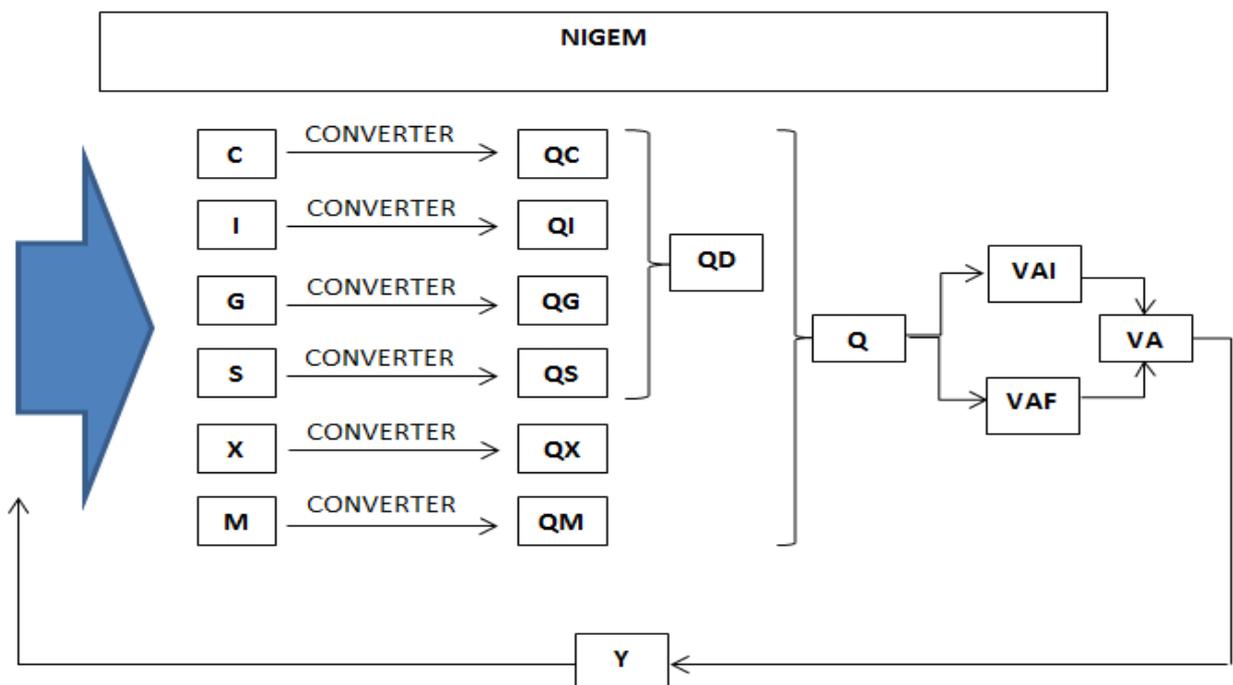
To produce the UK forecast we use a heavily customised version of the National Institute of Social & Economic Research's (NISER) model called NIGEM to provide our core macroeconomic forecast.

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 in order 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 constraints 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. 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 are annual surveys which 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.
- The June 2015 RPS uses the 2014 BRES, which provides data up to 2013. A new BRES will be published at the end of 2015 and will provide data up to 2014. 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.
- 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.

GVA measured on the income basis is published in the regional accounts at an annual frequency in current prices. Total GVA lags the latest complete year by 12 months while the industry detail lags by a further year. (i.e. the regional accounts published in December 2014 contained GVA by region up to and including 2013 with industry detail up to and including 2012). With the exception of manufacturing, the industry detail is only at the section level. Beginning with the December 2013 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.

(which were first incorporated in the March 2014 RPS), manufacturing GVA is available at the sub-section level. To construct the Chain Volume Measure data we follow these steps:

- the data is disaggregated and made quarterly using workforce jobs data;
- the data is deflated at the industry level using the UK deflators for the industries;
- the data is aggregated to produce a regional total – this implicitly creates a regional deflator by taking into account the different weightings of industries within a region.

In the Regional Accounts, the ONS has published experimental alternate GVA accounts on the production basis; these accounts include an estimate of chain volume measure (CVM) GVA for the regions. We have not incorporated these data for the reasons given in the FAQs ([Appendix D.](#))

Income is published in the regional accounts on an annual basis with a full breakdown of income sources and deductions. 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 constitutes 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.

Population projections are obtained from the ONS (2012 projections) and spliced onto the 2013 mid-year-estimates, constrained to the latest national 2012 projections. The mid-year estimates have been revised back to 2002, taking into account the 2011 census results. These were taken into account in the December 2014 RPS so the population numbers are unchanged between then and now.

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

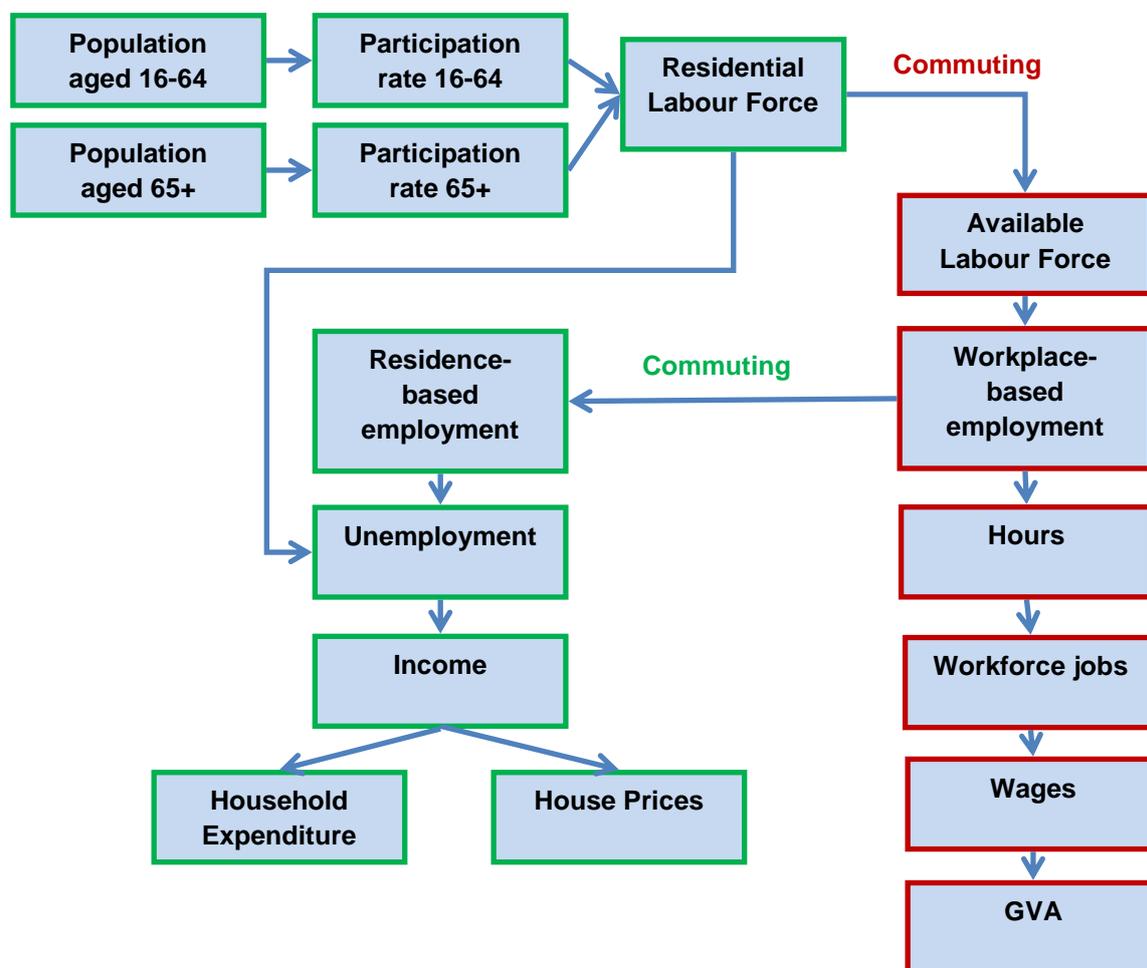
- The state pension age for women is rising from 60 to 65, equal with males. Both will then rise in step to 67 in our current forecast period.
- Female state retirement age started to increase from 60 in April 2012 and will reach 65 by 2018q4.
- From April 2019, both men and women will see their state 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.

In the 2013 Autumn statement it was announced 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.

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 Annual Population Survey.



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:

$$\text{Workers Resident in the Region} - \text{Workers Commuting Out} + \text{Workers Commuting In}$$

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:

$$\text{Workplace-based Employment} - \text{Workers Living Elsewhere} + \text{Residents Working Elsewhere}$$

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 particular 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 survey, the figures over time for a particular local area industry combination can be volatile³. 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 ILO data for residence and workplace-based employment and unemployment data on both the ILO⁴ and claimant count basis. These data is obtained directly from NOMIS.

Regional accounts data is provided at sub-regional level for both GVA and income as it is at the regional level. The same methods are used at the local level as at the regional level to process these data. However, sub-regional data is only published for NUTS2 and NUTS3. Since not all local authorities constitute a NUTS3, it is necessary to disaggregate these data to local level. Further, the data provided at NUTS3 are less comprehensive than those provided at NUTS2⁵. We make use of this NUTS2 data by constraining our disaggregated NUTS3 estimates to their parent NUTS2. We then disaggregate these constrained NUTS3 data to local data³.

In the case of GVA, the data provided at NUTS2 is at the section level with sub-sectional data for manufacturing. For NUTS3, several sections are aggregated. In particular, there is less detail in the service sectors. Disaggregation (of industrial data and from NUTS3 to local data) takes place using workforce jobs data at the industry level.

In the case of Income, the data provided at NUTS2 has the same level of detail as at the regional level. For NUTS3, only primary and secondary income estimates are provided. NUTS2 data is disaggregated to NUTS3 using employee jobs (in the case of compensation of employees), self-employed jobs (in the

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.

³ The volatility represents sampling variability rather than actual volatility in the population data.

⁴ 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.

⁵ NUTS2 is provided at the same level of detail as NUTS1 (i.e. regional) level.

case of self-employment income), unemployment (in the case of government benefits) and the regional split (in any other case.) These estimates are then constrained for each local to the primary and secondary income estimates provided. Disaggregation from NUTS3 to local level takes place using employee jobs, self-employed jobs, unemployment or population.

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.

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 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:

- Total demand² 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.

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

² i.e. all industries and job types aggregated.

- 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 of that demand satisfied if there is insufficient available labour supply to meet those needs. Jobs 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.

4 Key changes since March 2015 RPS

4.1 UK forecast

The June 2015 RPS forecast is consistent with the May 2015 UK macro forecast.

The second estimate of GDP for 2015q1 confirmed that the economy grew by 0.3% q-o-q in real terms, unrevised from the first estimate. Growth in the year to the first quarter was also unrevised, at 2.8%. This was the second consecutive quarter of slowdown in UK economic growth - from 0.5% in 2014q4 to 0.3% in the first quarter of 2015. Declining construction and oil output once again were the key drags on activity.

The March 2015 RPS was consistent with the January 2015 UK macro forecast. The main change to our forecast is an upgrade in the outlook for real incomes. This stems from the upturn in household finances in recent months amid extremely low inflation, rising wages and strong employment growth. We expect these factors to continue to support consumer confidence and real income growth in the months.

June RPS forecast. Previous forecast (Jan 2015 macro = March RPS) in brackets.

UK	2014	2015	2016	2017	2018-2025	2026-2035
GDP growth	2.8%	2.4%	2.3%	2.3%	2.4%	2.4%
	2.60%	2.40%	2.20%	2.20%	(2.4%)	(2.4%)
Workforce Jobs growth	3.3%	1.5%	0.0%	0.7%	0.7%	0.7%
	3.50%	1.50%	1.00%	0.80%	(0.8%)	(0.8%)
Unemployment rate	6.2%	5.5%	5.2%	5.1%	5.0%	5.1%
	6.20%	5.70%	5.40%	5.30%	(5.2%)	(5.3%)
Real Income growth	0.6%	3.4%	2.2%	2.3%	2.3%	2.6%
	1.40%	2.30%	2.20%	2.20%	(2.3%)	(2.5%)
Spending Volumes growth	2.5%	2.6%	2.3%	2.1%	2.3%	2.3%
	2.30%	2.60%	2.10%	2.10%	(2.3%)	(2.3%)
House price growth	10.0%	4.0%	3.0%	2.8%	2.6%	3.5%
	10.00%	4.00%	3.00%	2.80%	(2.6%)	(3.5%)

May UK Outlook

The following was the outlook in May, consistent with the regional forecast. Our UK macro view is updated monthly and can be found on our website <http://economics.experian.co.uk>.

The disappointing 2015q1 outcome of growth at 0.3% q-on-q was confirmed in the second estimate. A sharp deterioration in the UK's net trade position offset a very strong performance from the domestic economy, frustrating hopes of an upward revision. The weakness of net trade was highlighted by a surge in imports reflecting buoyant domestic activity while exports were subdued by weak conditions in major markets and sterling strength.

The key question remains whether the upturn is losing momentum. But with real incomes rising strongly, underpinning consumer spending, there is a good chance that consumer buoyancy will

continue to drive a strong economic upturn. We believe the economy will continue to grow in the next few quarters at an annual rate of 2.4%, with an upside risk that the nascent eurozone recovery will boost exports, allowing growth to exceed this pace. However, the Greek crisis threatens a darker scenario.

The key driver of growth this year will be consumer spending, which we expect will gather momentum from the buoyant pace established in 2014. A marked rise in real disposable incomes (+3.4%) will boost spending power. The expected advance in spending of 2.6% will be the strongest since 2007.

With the first rise in interest rates expected to be in early 2016, a significant impact on exposed households and on consumer demand will not be felt until 2017 or even 2018.

The strong economic performance of the past two years means that the UK economy has recovered ground lost during the great recession and its aftermath more quickly than seemed likely a few years ago. But the repercussions of the recession and the ongoing travails of the eurozone are set to hamper economic progress for a few years yet.

Key risks

If the recent pick up in wage growth proves to be a false dawn, and pay growth subsides or even fails to accelerate, then our forecast of household spending growth at 3.4% in 2015 will have to be downgraded

Eurozone weakness is a continuing source of concern. Net trade is likely to remain a drag on UK growth prospects with weak overseas demand and a still relatively strong pound against the euro dampening the outlook for UK exports.

The recovery looks reasonably secure but there are pitfalls ahead, notably the new government's intention to extend fiscal restraint. The poor state of public finances means it will be hard to avoid extending austerity well into the medium term to meet fiscal targets. Cuts could be even harsher than in the first austerity phase. Taxes may have to rise rather than fall to prevent serious cuts in public services or higher borrowing. The 2016-20 growth forecast is vulnerable to these threats.

The possibility of financial turmoil if Greece exits the euro, and concerns that tensions in Eastern Europe could escalate are downside risks to the forecast.

4.2 Regional Forecast

Given revisions at the UK level to which our regional data is constrained, changes to the history can be traced back to the following new data (March 2015 RPS endpoint in brackets):

- Regional Workforce Jobs 2014q4 (previously 2014q3)
- ILO data for 2014q4 (previously 2014q3)
- Annual Population Survey – revised and reweighted

It should be noted that we construct our Workplace-Based-Employment data using the Annual Population Survey while our Residence-Based-Employment and other ILO data come from the Labour Force Survey.

The Labour Force Survey was revised and reweighted in line with the 2011 Census in December 2014 and the changes incorporated into the March 2015 RPS. Subsequently, the Annual Population Survey's Workplace-Based-Employment numbers have been revised and reweighted to the 2011 Census and are incorporated, for the first time into this June 2015 RPS.

Some regions were revised more than others. The East of England saw Workplace-Based-Employment revised up by around 8% over the period 2004-2014. The other regional revisions were in a band of 0% to -1% in 2004, growing to +2% (London) to -4% (Yorkshire & the Humber and the North East) in 2014.

As mentioned in [section 3](#), our model makes use of the relationship between workforce jobs and workplace-based employment, and residence-based employment and workplace-based employment so a change in either relationship will impact upon our forecasts.

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.

June 2015 RPS forecast. Previous forecast (March 2015 RPS) in brackets.

Regional forecast 2016-35 ave. growth	SW	SE	GL	ET	EM	WM	NW	NE	YH	SC	WA	NI
GDP growth	2.4% (2.3%)	2.6% (2.6%)	2.8% (2.8%)	2.5% (2.5%)	2.3% (2.2%)	2.2% (2.2%)	2.2% (2.1%)	2.1% (2%)	2.2% (2.2%)	2.1% (2.1%)	2.1% (2.1%)	2.1% (2.1%)
Workforce Jobs growth	0.7% (0.8%)	0.8% (0.9%)	0.9% (1%)	0.8% (0.9%)	0.6% (0.7%)	0.6% (0.7%)	0.5% (0.6%)	0.5% (0.6%)	0.6% (0.7%)	0.4% (0.5%)	0.5% (0.6%)	0.5% (0.6%)
Unemployment rate	4.1% (4.2%)	3.8% (4%)	6.6% (6.8%)	4.4% (4.4%)	4.6% (4.8%)	6.1% (6.4%)	4.9% (5.1%)	6.4% (6.8%)	5.2% (5.5%)	4.8% (5%)	5.5% (5.6%)	5.7% (5.9%)
Real income growth	2.5% (2.5%)	2.6% (2.6%)	2.5% (2.5%)	2.7% (2.7%)	2.3% (2.3%)	2.3% (2.3%)	2.2% (2.2%)	2.0% (2%)	2.3% (2.3%)	2.2% (2.1%)	2.2% (2.2%)	2.0% (2%)
Spending volumes growth	2.5% (2.5%)	2.5% (2.5%)	2.8% (2.7%)	2.4% (2.4%)	2.2% (2.2%)	2.1% (2.1%)	2.2% (2.1%)	1.8% (1.9%)	2.0% (2%)	2.0% (2%)	2.0% (1.9%)	2.0% (1.9%)
House price growth	3.1% (3%)	3.7% (3.6%)	3.8% (3.6%)	3.5% (3.3%)	2.8% (2.7%)	2.9% (2.8%)	2.8% (2.6%)	2.4% (2.2%)	2.5% (2.3%)	3.0% (2.9%)	2.7% (2.5%)	2.5% (2.3%)

4.3 Local Forecast

Given revisions at the regional and UK level to which our local data is constrained, changes to the history can be traced back to the following new data (Match 2015 RPS endpoint in brackets):

- ILO data for 2014q4 (previously 2014q3)
- Annual Population Survey – revised and reweighted (implications as above)

5 A note from the ONS on volatility

A change in methodology behind 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 yard-stick 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 principle 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 Regio 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 des Unités Territoriales Statistiques – 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.	
Machinery & 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 cleanup 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	
	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	Information & communication
	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 Service 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	Public Services
	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-2009 boundaries (347+33 London boroughs)

A full lookup in excel form can be found [here](#)

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 take into account 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.
 - Experian's workforce job history is designed to be consistent with the latest available ONS workforce jobs estimates (which may represent additional data or improved methodology.)
 - 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 these developments and policies are reflected in model inputs (for example population) or in history then they will be automatically captured by the model.
 - In any other case, we are able to make appropriate adjustments to take these into account.
 - At the industry level, we taken into account 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 taken into account 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.
 - 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.
- 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 Annual Population Survey.
 - 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 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 takes into account 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 18 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.

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