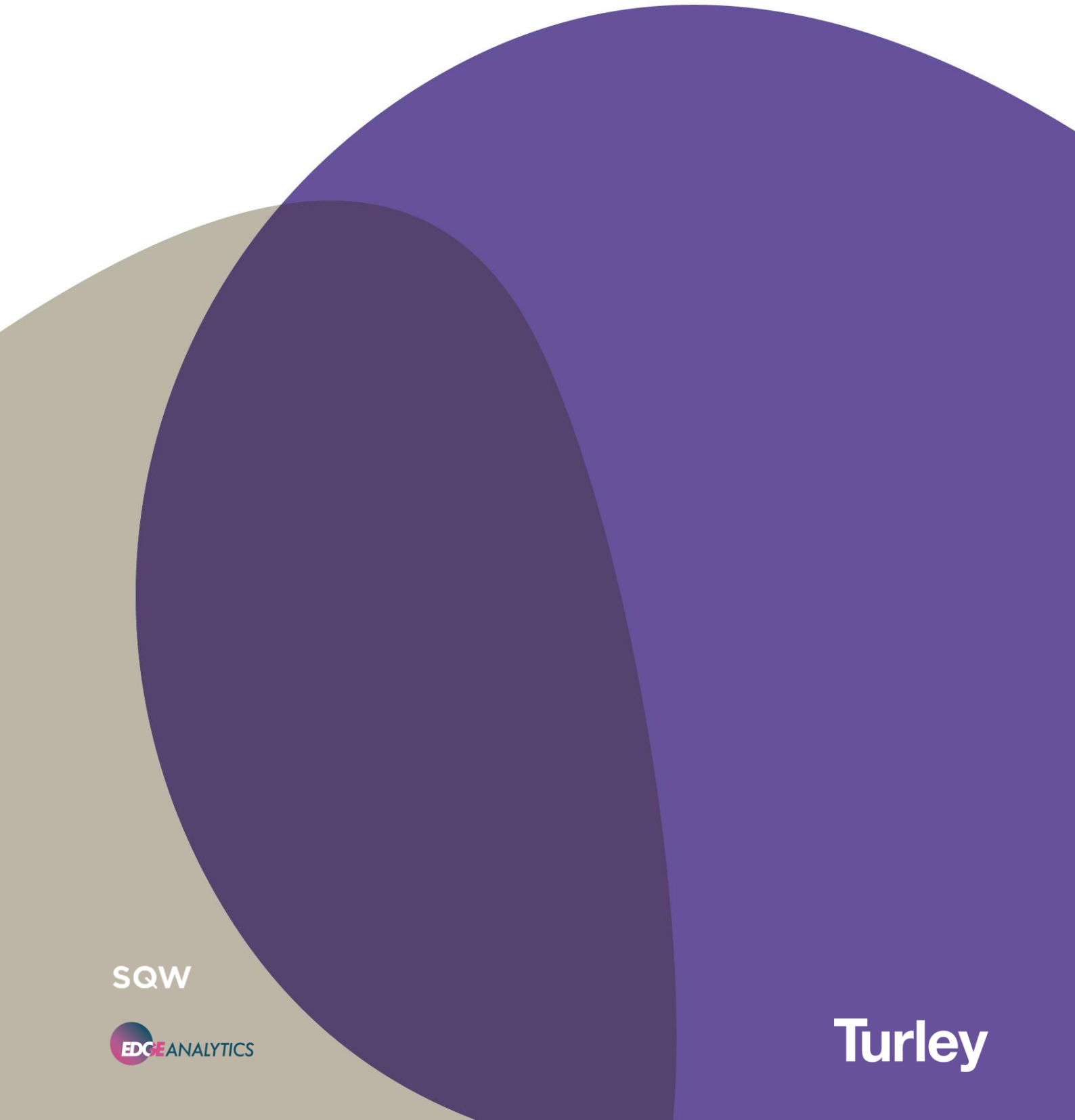
Housing and Economic Growth Report

Carmarthenshire County Council

November 2022



SQW

EDGE ANALYTICS

Turley

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Executive Summary

1. Turley, SQW and Edge Analytics have been commissioned by Carmarthenshire County Council ('the Council') to undertake a comprehensive assessment of housing and economic growth options for Carmarthenshire. This evidence will inform its Revised Local Development Plan 2018-2033 (RLDP) which was published as a Deposit RLDP in 2020 before being put on hold, with the process only recommencing in March 2022. The Council has therefore sought to refresh the evidence base that was developed prior to January 2020, to feed into a second Deposit RLDP that will be subject to public consultation.

2. This study purposely seeks to build from the existing evidence, which has included demographic forecasting from Edge Analytics[1] and an Economic Study[2] produced for the two counties of Carmarthenshire and Pembrokeshire, last updated in early 2021[3]. It aims to incorporate the latest available evidence relating to demographics, the housing market and the local economy, exploring how the population of Carmarthenshire could change if recent trends continue, estimating the associated levels of housing need and benchmarking the job growth that could be supported in such scenarios.

3. The assessment has been undertaken in the context of the Welsh Government's Development Plans Manual[4] ('the Manual') which emphasises the importance of balancing housing and job growth to reduce the need for commuting. It also clearly distinguishes between the '*unconstrained need*' for housing and the plan requirement, which will be selected by the Council after it takes account of other '*supply factors*' including viability and land availability.

A changing county

4. The report identifies how Carmarthenshire has changed since the existing Local Development Plan (LDP) was adopted in December 2014, aiming to provide an average of 1,013 dwellings per annum. The Council's monitoring indicates though that less than half as many homes (501dpa) have been provided since 2007, but this does not appear to have had a negative effect on affordability – with entry-level housing becoming *more* affordable relative to earnings – nor stopped the population from growing at the rate of wider Wales, with more people being retained or attracted from other parts of the UK. Younger people especially appear to have moved into the county in greater number than moved out, for the first time in at least two decades.

5. Undersupply may though have contributed towards residents of Carmarthenshire living in larger households than was previously anticipated, some potentially being left with no choice but to stay in the family home or share with other adults due to a shortage of available housing.

[1] Edge Analytics (October 2018) Carmarthenshire Population & Household Forecasts; Edge Analytics (September 2019) Carmarthenshire Population & Household Forecasts Addendum

[2] Arup (October 2019) Two County Economic Study for Carmarthenshire and Pembrokeshire

[3] Arup (January 2021) Two County Economic Study 2020-21 Update

[4] Welsh Government (March 2020) Development Plans Manual, third edition

6. Economic productivity in Carmarthenshire has remained relatively weak, with output also growing slower than in the rest of Wales and the UK in recent years, but jobs growth has been strong – estimates for the plan period to 2019 ranging from 357 to 431 jobs per annum – having matched the growth of these areas. Key employment centres have included the three principal towns of Llanelli, Carmarthen and Ammanford, as well as Cross Hands. There remain strong concentrations of employment in agriculture, manufacturing (especially food manufacturing and the automotive sector), health and social care and public administration, with relatively lower representation in private sector-dominated business and professional services. Manufacturing and health have driven employment growth in recent years, alongside hospitality and business services. Most businesses are small or micro in size, albeit there are some larger employers – especially in manufacturing and the public sector – and several have been highlighted for their innovation and high growth potential.

Future job growth

7. Having reviewed economic performance over the current plan period, SQW have proceeded to consider the potential for further economic growth in Carmarthenshire over the new plan period to 2033. Three baseline forecasts, from each of the leading forecasting houses, have been introduced which suggest that between 149 and 545 jobs could be created each year. The forecast from Experian, anticipating **354 jobs per annum** from 2020 onwards, has been preferred by SQW following their consideration of historic trend data, sectoral breakdowns and earlier evidence-based studies.

8. This baseline has though been subsequently adjusted to account for known and/or plausible investments that are likely to come forward and generate additional jobs in the coming years, but are not reflected in the baseline. SQW estimate that some **674 jobs per annum** could be created in such an investment-led growth scenario, which has only been adjusted on the upside given that downside risks are effectively unknowable at this stage. The very significant macroeconomic uncertainty at present, and its potentially negative implications in the short-to-medium term, have nonetheless been noted alongside the ongoing prospect of a constrained labour market given historically low unemployment and recent signs of workers opting to no longer work.

Future need for housing

9. A range of *unconstrained* scenarios are presented in this report to explore the level of housing need that could arise in Carmarthenshire over the new plan period, responding to the Manual by considering demographics, past trends and policy-based factors as well as the relationship with the local economy.

10. The most recent official projections from the Welsh Government are introduced, these being based to 2018 and including “high” and “low” variants alongside a principal projection. They suggest that circa **178 to 378 dwellings per annum** could be needed in Carmarthenshire over the new plan period, fewer than have been delivered during the current one (501dpa) or over the past five years alone (527dpa). This markedly rises though to **697 dwellings per annum** when the principal projection is rebased to 2020, drawing on demographic trends over the preceding five years, but falls again when the *length* of the trend period is extended to ten or fifteen years (**588/618dpa**).

11. Modelling suggests that the highest of these scenarios, which extrapolate trends over five or fifteen years to 2020, could provide more than enough labour to support the 354 jobs per annum forecast by Experian, when making reasonable assumptions on labour force behaviour. The same cannot be said though of any of the Welsh Government's official projections or Edge Analytics' ten-year trend-based scenario, which would require more pronounced changes in behaviour if the creation of any more than 276 new jobs per annum is to be supported.

12. These scenarios form an important part of the evidence but the Manual does also identify the prospect of policy decisions affecting the level of housing need in future. The Council could, for instance:

- **Pursue the stronger job growth that SQW have suggested could be possible** based on local opportunities and investments. Edge Analytics' modelling indicates that as many as 896 homes could be needed each year to support the 674 jobs per annum optimistically suggested in this scenario, if the labour force behaves as assumed in the baseline and commuting trends in particular do not change in light of such strong job growth.

- **Account for one of the consequences of historic undersupply**, whereby households have been larger than previously expected and fewer young people are assumed to live alone. This report has shown that a partial return to the trend anticipated by the Welsh Government's 2008-based projections – not influenced by undersupply during the current plan period – would increase the number of households formed by residents and consequently elevate the implied need for housing by circa 72-75 dwellings per annum. This indicates that provision above those projections based on unadjusted rates would positively help to address the current and future existence of hidden households.

1. Introduction

1.1 Turley, SQW and Edge Analytics have been commissioned by Carmarthenshire County Council ('the Council') to undertake a comprehensive assessment of housing and economic growth options for Carmarthenshire. This evidence will inform its Revised Local Development Plan 2018-2033 (RLDP) which was published as a Deposit RLDP in 2020 before being put on hold, with the process only recommencing in March 2022. The Council has therefore sought to refresh the evidence base that was developed prior to January 2020, to feed into a second Deposit RLDP that will be subject to public consultation.

1.2 This study purposely seeks to build from the existing evidence, which has included demographic forecasting from Edge Analytics[5] and an Economic Study[6] produced for the two counties of Carmarthenshire and Pembrokeshire, last updated in early 2021[7]. It aims to incorporate the latest available evidence relating to demographics, the housing market and the local economy, exploring how the population of Carmarthenshire could change if recent trends continue, estimating the associated levels of housing need and benchmarking the job growth that could be supported in such scenarios.

1.3 The study has been prepared to comply with the third edition of the Welsh Government's Development Plans Manual ('the Manual'), specifically those parts of its section 5 which relate to assessing housing and economic growth. This importantly emphasises that:

"While there is not always a direct correlation between jobs and homes, they need to be considered collectively when assessing growth levels and developing a sustainable strategy; the aim being to achieve a balance between homes and jobs thereby reducing the need for commuting"[8]

1.4 The Manual also crucially distinguishes between the '*unconstrained need*' for housing and the plan requirement, which the Council will select after taking account of other '*supply factors*' including viability, environmental impact and the availability of land[9]. This study, for the avoidance of doubt, solely seeks to consider the '*unconstrained need*' and does not take other factors into account, nor make recommendations on a plan requirement.

1.5 The report is structured as follows:

- **Section 2 – A Changing County** – analysis of the latest available data to understand how Carmarthenshire has changed in recent years, focusing on its population and housing stock;

[5] Edge Analytics (October 2018) Carmarthenshire Population & Household Forecasts; Edge Analytics (September 2019) Carmarthenshire Population & Household Forecasts Addendum

[6] Arup (October 2019) Two County Economic Study for Carmarthenshire and Pembrokeshire

[7] Arup (January 2021) Two County Economic Study 2020-21 Update

[8] Welsh Government (March 2020) Development Plans Manual, third edition, p102

[9] *Ibid*, p103

- **Section 3 – Recent Economic Trends** – an overview of how the local economy has changed in recent years, since last profiled in the Two Counties Economic Study;

- **Section 4 – Future Job Growth** – a reappraisal of the job growth that could potentially occur in Carmarthenshire over the new plan period, drawing upon the latest available evidence and forecasts;

- **Section 5 – Future Need for Housing** – an updated assessment of the housing need that could result either from a continuation of recent demographic trends, or from forecast job growth; and

- **Section 6 – Summary and Conclusions** – a concise overview of the report's findings.

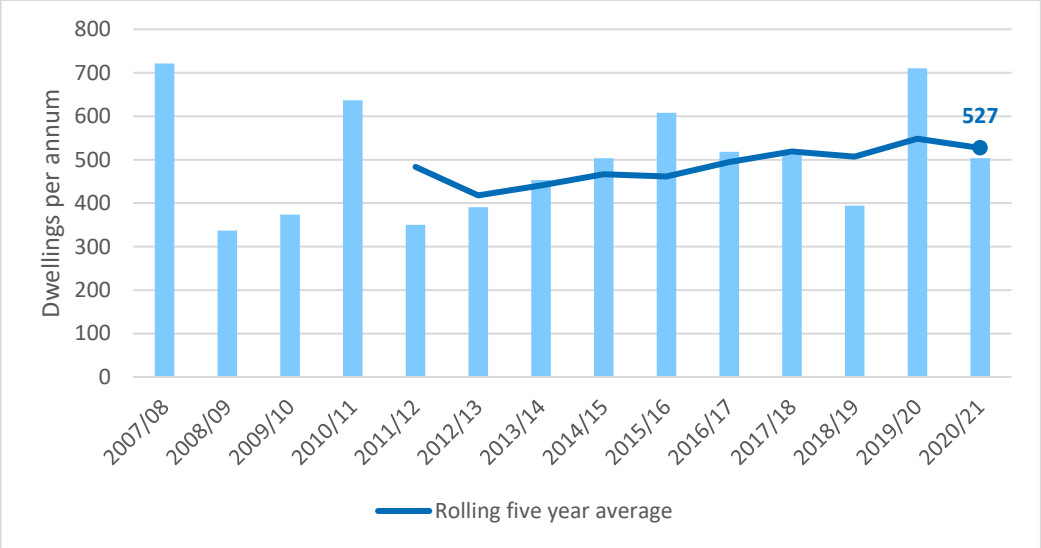
2. A Changing County

2.1 Carmarthenshire has naturally continued to evolve since the Deposit RLDP was published in 2020, and indeed since the existing Local Development Plan (LDP) was adopted in December 2014. This section begins to provide an overview of such changes to set the context for the remainder of the study, with economic changes covered separately in section 3.

Growth in the housing stock, but not of the scale planned

2.2 The existing adopted LDP aimed to provide an average of 1,013 dwellings per annum over the period from 2006 to 2021, but the Council's monitoring – available from 2007 onwards[10] – indicates that less than half as many have actually been delivered. It has recorded the completion of 501 dwellings per annum on average since 2007, less than half the adopted target. The average over the past five years is only slightly higher at 527 dwellings per annum.

Figure 2.1: Historic Housing Completions in Carmarthenshire (2007-21)



Source: Council monitoring; Turley analysis

Improving relationship between house prices and earnings

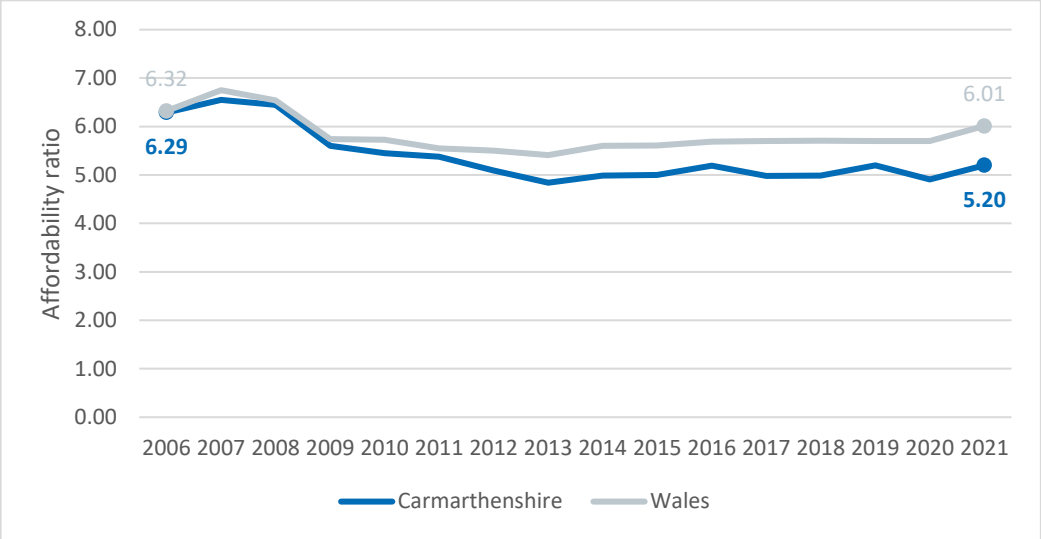
2.3 While housing delivery has fallen short of the level planned, this does not appear to have had a negative effect on the affordability of homes that are available. Indeed, the ratio between entry-level house prices and earnings has actually *improved* since the start of the current plan period in 2006, with prices then equivalent to circa 6.3 years' earnings compared to 5.2 years in 2021[11]. This mirrors the improvement seen

[10] There is believed to be no reliable figure for 2006/07, as TAN1 required the Council to consider completions over a longer period from July 2005 to April 2007. It was only from this point that the monitoring period changed to run from 1st April to 31st March

[11] ONS (2022) House price to workplace-based earnings ratio, Tables 2c and 6c

throughout Wales but is considerably more pronounced as shown at Figure 2.2. Only Pembrokeshire, of the country's 22 authorities, has seen a proportionately larger improvement over the same period[12].

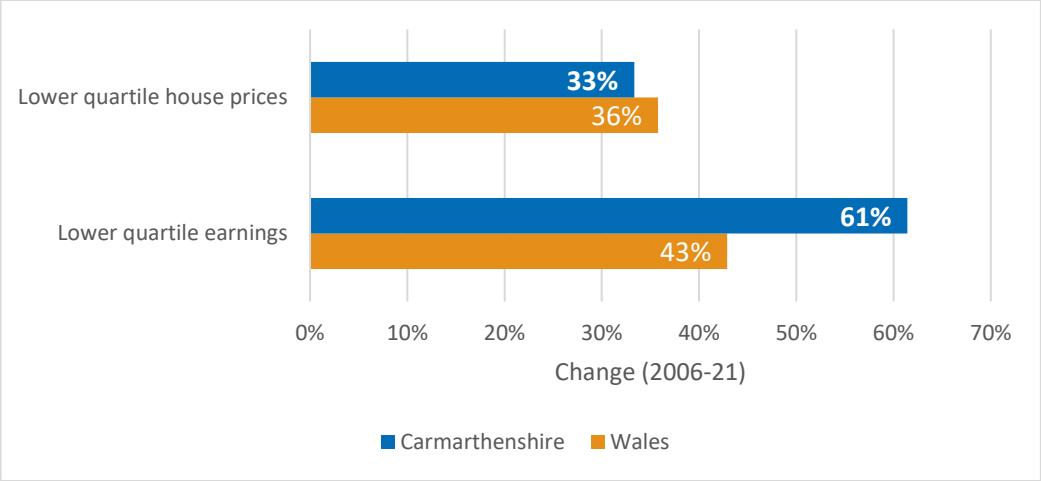
Figure 2.2: Ratio between Lower Quartile House Prices and Earnings (2006-21)



Source: ONS

2.4 It is important to acknowledge that the improvement seen over the current plan period in Carmarthenshire has been largely driven by a 61% rise in lower quartile earnings, which has more than offset the 33% rise in the cost of purchasing an entry-level home[13]. House prices rose by only slightly more (36%) across Wales, but earnings grew at a much slower rate of 43%.

Figure 2.3: Change in Lower Quartile House Prices and Earnings (2006-21)



Source: ONS

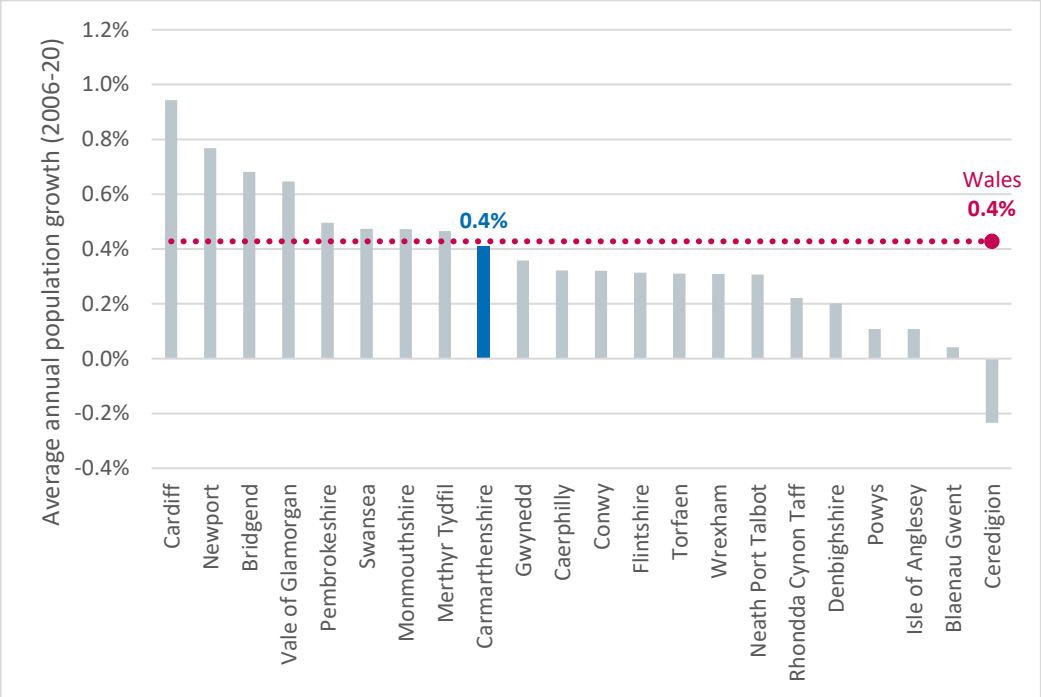
[12] Its ratio falling by 32% from 9.14 in 2006 to 6.24 in 2021

[13] ONS (2022) House price to workplace-based earnings ratio, Tables 6a and 6b

Continued population growth

2.5 The undersupply of homes against planned levels of provision did not stop the population of Carmarthenshire from growing. Estimates produced by the Office for National Statistics[14] (ONS) suggest that the county's population grew by an average of 0.4% per annum between the start of the current plan period in 2006 and 2020, the last year for which an equivalent estimate is available at the time of writing. This matched the average for Wales and was the ninth highest figure recorded amongst its 22 local authorities.

Figure 2.4: Benchmarking Population Growth in Carmarthenshire (2006-20)

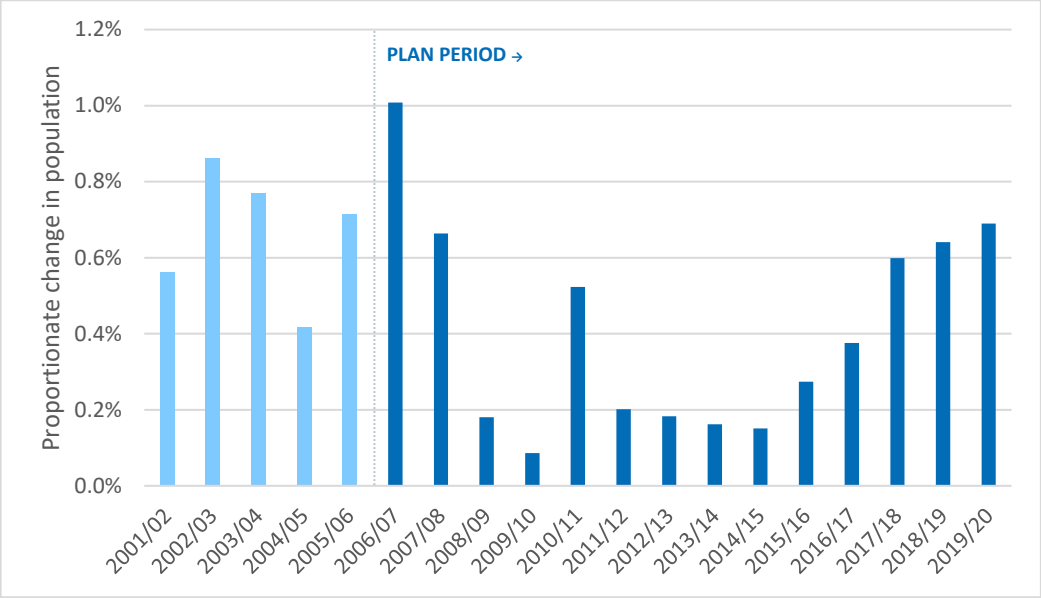


Source: ONS

2.6 The comparatively low rate of housing provision in Carmarthenshire may though have been a factor behind the relatively slow growth recorded between 2008 and 2015, during which time the population was estimated to have grown by an average of only 0.2% per annum. The subsequent stepping up of delivery – from 435 dwellings per annum in that period to 541 thereafter – then appears to have enabled a return to stronger population growth, averaging 0.5% per annum from 2015 onwards.

[14] ONS (2021) Population estimates for the UK, England and Wales, Scotland and Northern Ireland: mid-2020

Figure 2.5: Average Annual Population Growth in Carmarthenshire (2001-20)



Source: ONS

2.7 There is currently a degree of uncertainty around whether the population of Carmarthenshire has indeed grown to the extent suggested by these estimates, with the 2021 Census indicating that the county was home to fewer people than previously estimated[15]. The ONS will not be reconciling this finding with its existing population estimates until spring 2023, however, nor providing its views on the reasons for any discrepancy[16]. It is therefore not possible to fully take this into account at the current point in time, with the Council instead advised to consider the implications of this further data upon its release.

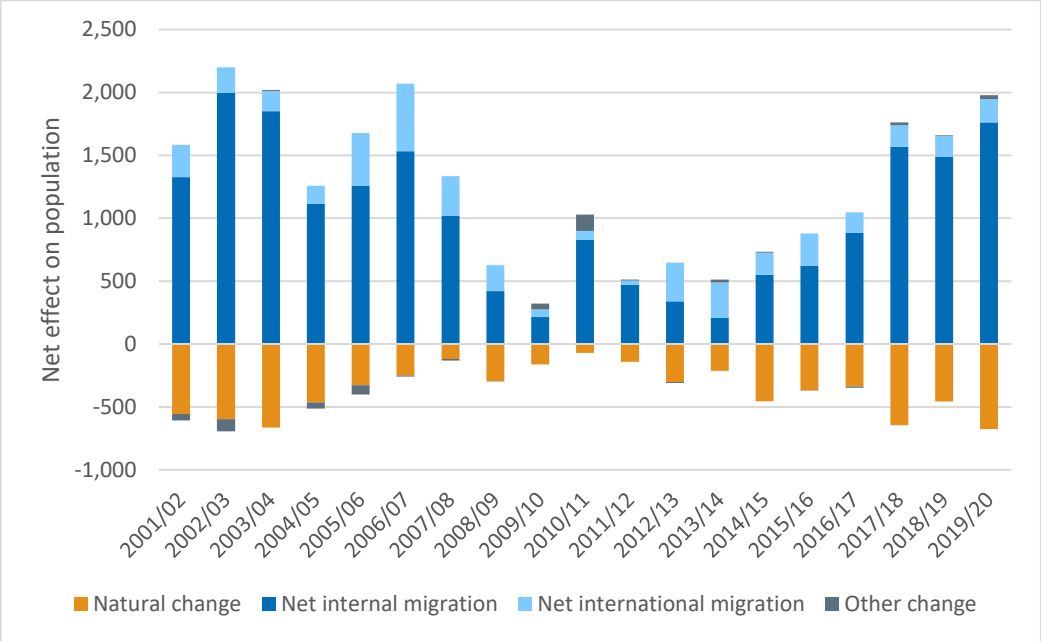
2.8 Notwithstanding this uncertainty, the ONS estimated that population growth in Carmarthenshire was being mainly driven by the net inflow of people from other parts of Wales and the UK and, to a lesser extent, from overseas[17]. The latter has been relatively consistent, with an average net inflow of 209 people per annum over the plan period to 2020 and 188 per annum over the last five years alone. The size of the net inflow from elsewhere in the UK was though estimated to have grown over the course of the plan period, in the last three years returning to levels last seen in the early 2000s, with an average net inflow of 1,265 people per annum recorded over the five years to 2020. This net in-migration – double the average of 851 persons recorded annually over the plan period to 2020 – has continued to offset the persistent excess of deaths over births, which has also been growing over the plan period.

[15] The ONS estimated that Carmarthenshire had 190,073 residents in mid-2020, but the 2021 Census found that the county had a population of around 187,900 people as of the following March

[16] ONS (September 2022) Methods for producing mid-2021 population estimates rolled forward from Census 2021

[17] ONS (2021) Population estimates for the UK, England and Wales, Scotland and Northern Ireland: mid-2020

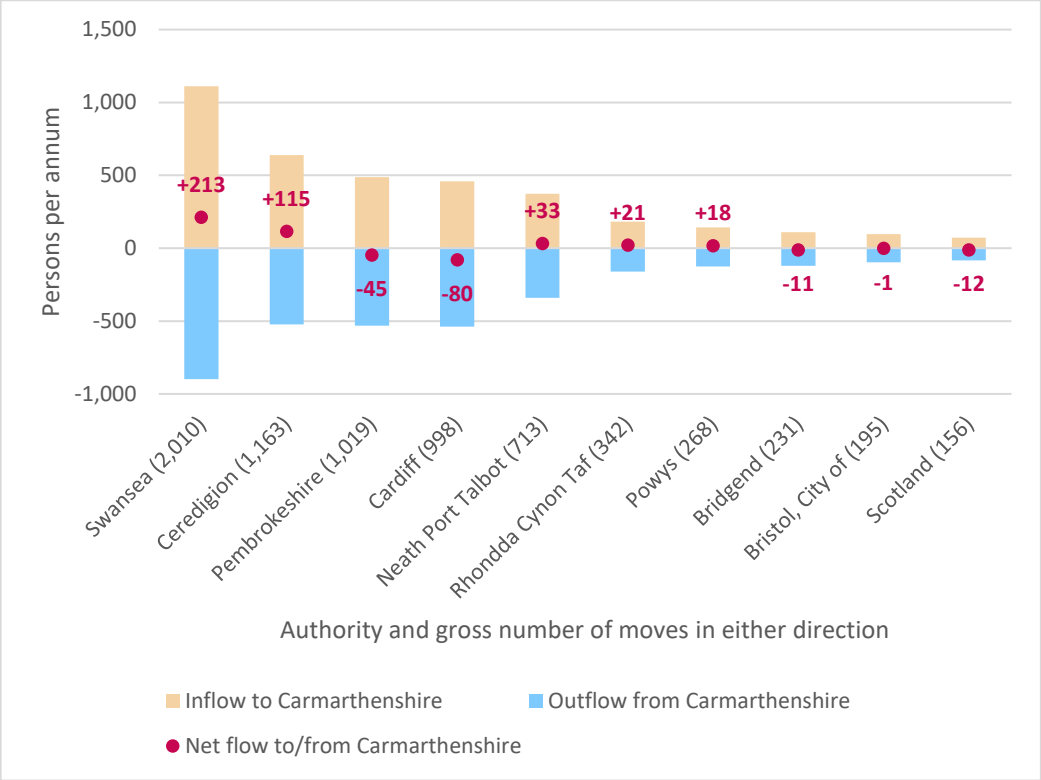
Figure 2.6: Components of Population Change in Carmarthenshire (2001-20)



Source: ONS

2.9 The past five years, in which the net inflow to Carmarthenshire from other parts of the UK has grown, have seen an average of more than 2,000 people move between the county and Swansea each year. This is by some distance the strongest relationship shared by Carmarthenshire, and has brought an average net inflow of circa 213 people per annum. There has also been a net inflow from Ceredigion, with which Carmarthenshire shares its next strongest relationship in terms of gross migration. This is followed by Pembrokeshire and Cardiff, albeit these relationships contrastingly involve a net *outflow* from the county.

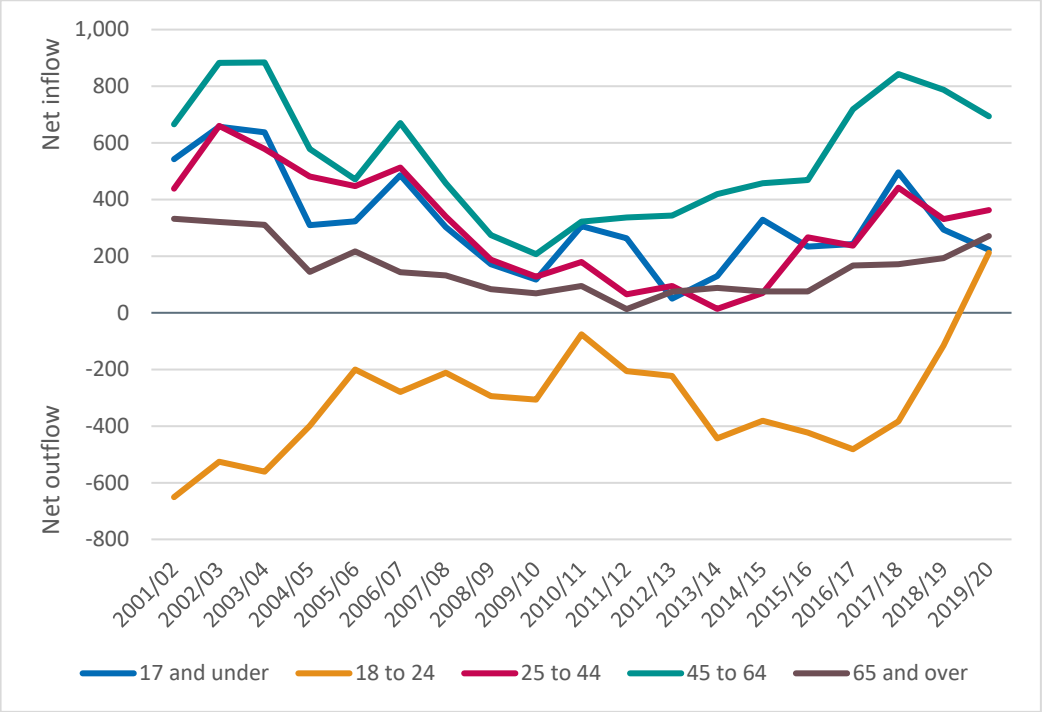
Figure 2.7: Number and Direction of Moves to or from Carmarthenshire (2015-20)



Source: ONS; Turley analysis

2.10 The growing net inflow from other parts of the UK notably appears to have been comprised of people of all ages. This last year included those aged 18 to 24, more of whom have historically tended to move elsewhere than move to Carmarthenshire, with the change appearing to have been driven by reduced outmigration as a likely result of fewer young people leaving home during the early months of the COVID-19 pandemic. The net inflow of those aged 25 to 44 has also been relatively strong, as shown by Figure 2.8 overleaf.

Figure 2.8: Net Internal Migration by Age Group (2001-20)

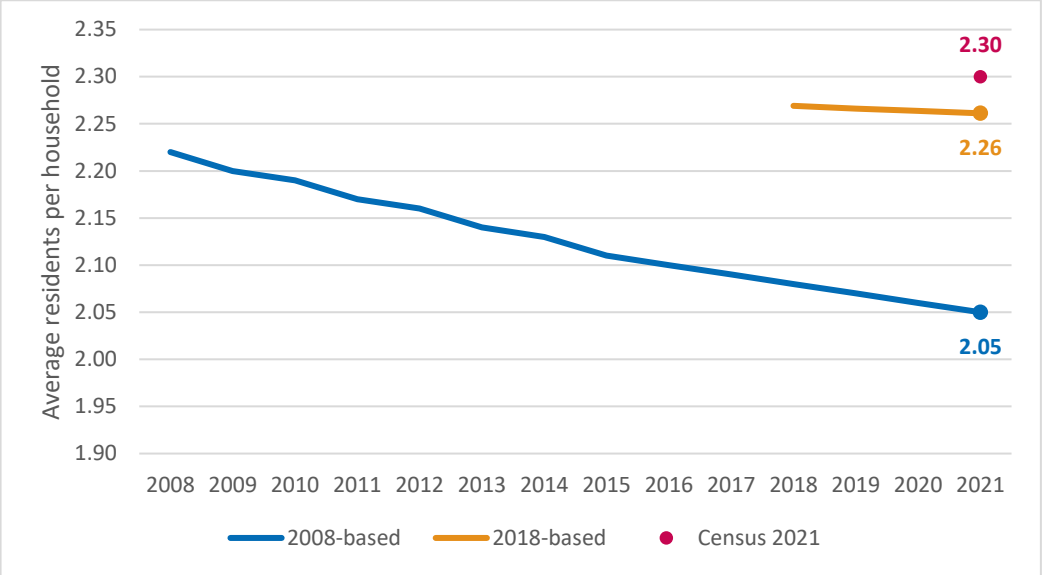


Source: ONS

Larger households than anticipated

2.11 One potential consequence of delivering fewer homes than were planned is that residents of Carmarthenshire are living in larger households than were previously anticipated. The Welsh Government's 2008-based projections largely drew upon trends prior to the current plan period and suggested that the average household in Carmarthenshire would contain 2.05 people in 2021. The latest 2018-based projections, in contrast, drew upon more recent trends and anticipated an average of 2.26 people per household in the same year. Initial data from the latest Census suggests that there were slightly more (2.30) than anticipated even by the most up-to-date projection. While there could be several reasons for this trend, it is potentially at least partially caused by individuals being left with no choice but to stay in the family home or share with other adults, so-called hidden households, due to a shortage of available housing.

Figure 2.9: Average Household Size in Carmarthenshire



Source: Welsh Government; ONS; Turley analysis

Summary

2.12 This section has used the latest available data to provide an overview of how Carmarthenshire has changed since the existing LDP was adopted in December 2014, aiming to see an average of 1,013 dwellings per annum completed over the period from 2006 to 2021.

2.13 The Council's monitoring indicates that less than half as many homes (501dpa) have been provided on average from 2007 onwards, where comparable data for the first year of the plan period is unavailable.

2.14 This apparent undersupply does not appear to have had a negative effect on affordability, however, as the ratio between entry-level house prices and earnings has improved since the start of the current plan period. It also has not stopped the population from growing at the same rate of Wales as a whole, even if there is currently a degree of uncertainty after the 2021 Census found the population of Carmarthenshire to be slightly smaller than previously estimated. The ONS had estimated that increasingly strong population growth was being largely driven by a growing net inflow of people from other parts of the UK, with individuals attracted and existing residents more effectively retained. This net inflow was comprised of people of all ages, notably also including – in the last reported year (2019/20) – the first net inflow of those aged 18 to 24 for at least twenty years.

2.15 Undersupply may though have contributed towards residents of Carmarthenshire living in larger households than were previously anticipated, with some potentially being left with no choice but to stay in the family home or share with other adults due to a shortage of available housing.

3. Recent Economic Trends

3.1 This chapter provides an up-to-date analysis of Carmarthenshire's economy. It considers recent trends in output; the scale, type and sectoral composition of employment; the nature of the local business base (including key companies and indicators of business dynamism); and major recent and anticipated investments.

Looking back at the Two County Economic Study

3.2 The starting point for this analysis is the 2019 Two County Economic Study. This set out the strengths and weaknesses of Carmarthenshire's economy under the headings listed at Table 3.1.

Table 3.1: Key economic characteristics defined in the 2019 study

Theme	Identified strengths and weaknesses
Key sectors	Strengths were identified in tourism; food and drink production and processing; energy generation (principally on-shore wind and solar); manufacturing; logistics and distribution; and creative industries
Economic structure	The 2019 study identified relatively weak productivity as a key challenge. It also noted the '*perceived dominance of public sector employment'*, and the importance of public sector funding sources in bringing major sites and investments forward. The study also noted the '*mixed success of City Deal funding'*, although it should be noted that the City Deal was in its early stages at this point.
Market strength	The Welsh 'brand' and identity was noted as a key asset. This was especially referenced in relation to the food sector (i.e., the value of provenance). But a strong commitment to the region from local businesses was also highlighted, along with a '*culture of altruism'* among the business community. On the downside, weak viability was noted as a persistent challenge for commercial development, and while grant mechanisms had been important in bringing forward key successful schemes (e.g., Castell Howell at Cross Hands), there was a perception of '*structural reliance'* on the public sector.
Place and geographical assets	South West Wales offers an important '*lifestyle draw'*, which ought to be important economically. But the study also noted a need to enhance social infrastructure (especially education and healthcare) to attract and retain a skilled workforce.
Connectivity and strategic infrastructure	The study noted strong east-west road connections (albeit that Swansea and locations eastwards were more competitive in connectivity terms). East-west rail connections (and the Heart of Wales Line) were cited as in need of substantial investment, as were north-south highway, bus and active travel links. A shortfall in digital connectivity was identified, although investment plans were noted.

Theme	Identified strengths and weaknesses
	Good access to natural resources was noted, although with challenges in balancing agricultural, visitor and energy uses, alongside the need to protect environmental quality.
Skills	The study noted stakeholder perceptions of '*a wide range of workforce skills*' in the area, with an orientation to skilled trades and customer service occupations.
Coordination, business support and networks	The study found some evidence of co-ordination, business support and networks, although noted scope for further development and coordination

Source: Two County Economic Study for Carmarthenshire and Pembrokeshire (2019)

3.3 A review of the Two County Study was prepared in 2021, in the context of the Covid-19 pandemic and its economic impact, the Brexit agreement and other policy and economic developments. This chapter includes developments since the review, although it also takes a fresh look at the data to provide a comprehensive overview of the state of the county's economy.

Spatial economy: Carmarthenshire's economy in context

3.4 Carmarthenshire is a large and extensively rural county, with a significant industrial base, especially in the east. The three principal towns are defined as Llanelli (with a population of around 45,000), Carmarthen (16,000) and Ammanford[18] (9,000), economic recovery plans for each of which were prepared in 2020/21 in the light of the Covid-19 pandemic[19]. Beyond the three main towns, the county has a dispersed network of ten smaller and market towns, supporting the rural hinterland[20]. The 'travel to work' area (as defined on the UK TTWA map based on the 2011 census) is essentially coterminous with the county.

3.5 **Sectorally**, Carmarthenshire's economy is fairly diverse. The sectoral base is discussed further below, but in broad terms, there is a relatively large presence in manufacturing (especially in the east of the county, around Llanelli), food production (both in terms of primary agricultural production and food processing) and the visitor economy. There is also a growing creative sector, which has benefited from recent investment through the Swansea Bay City Deal, and an important concentration of sub-regional educational and public service assets around Carmarthen.

3.6 In **infrastructure** terms, Carmarthenshire is served on the strategic road network by the A40 and the A48, which joins the M4 at Pont Abraham, and by the A483, connecting the M4 with Ammanford and Llandeilo. Rail services link Carmarthen and Llanelli with Swansea, Cardiff, London and the Pembrokeshire ports; and Llanelli and Ammanford via the Heart of Wales Line. The county is expected to benefit from the

[18] ONS Mid-Year Population Estimates (2020), Built-up Areas

[19] Carmarthenshire County Council (October 2021), Llanelli Town Centre Recovery Masterplan; Carmarthen Town Centre Recovery Masterplan; Ammanford Town Centre Recovery Masterplan

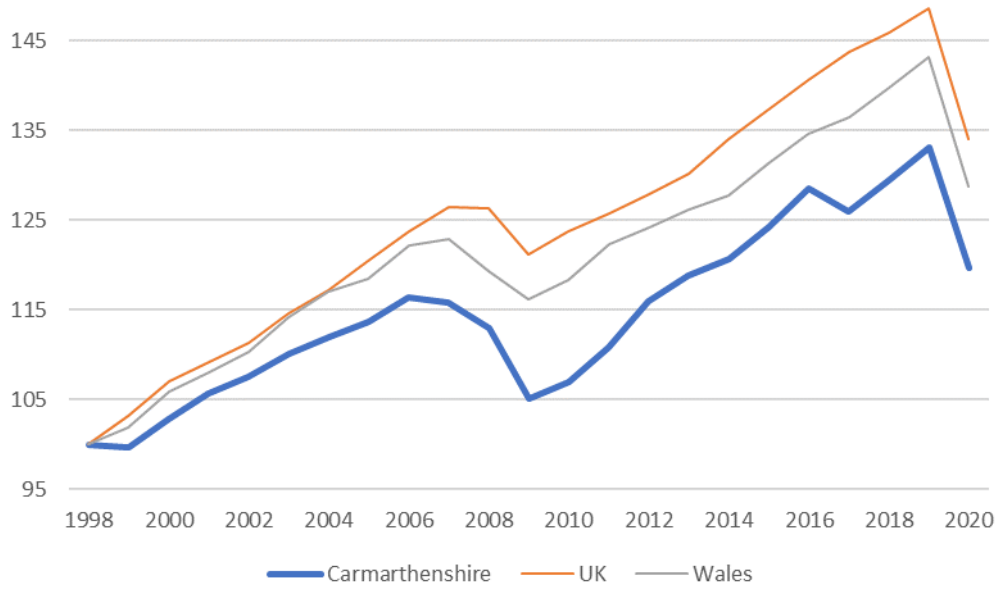
[20] Cross Hands, Cwmaman, Kidwelly, Laugharne, Llandeilo, Llandovery, Llanybydder, Newcastle Emlyn, St Clears and Whitland.

improved connectivity planned though the Swansea Bay and South West Metro, principally through frequency enhancements on the existing network over the next decade[21]. Reflecting Carmarthenshire's rural nature, digital connectivity is somewhat weaker than in other authorities, with 89% of premises in the county able to access superfast broadband, and 41% of premises able to access ultrafast download speeds[22]. Nevertheless, there has been significant improvement in recent years, with further investment in full-fibre digital infrastructure coming forward via the Swansea Bay City Deal[23].

Economic output

3.7 **Carmarthenshire's total economic output (measured in gross value added or GVA) was around £3.3 billion at current prices in 2020**[24]. In recent years, output growth has been slower in Carmarthenshire than in the rest of Wales and the UK: recession following the financial crisis hit the county relatively hard in output terms, and the 'gap' had not been recovered by the time of the Covid-19 pandemic:

Figure 3.1: Index of GVA growth (1998 = 100)



Source: ONS, Regional gross value added (balanced), by industry, chained volume measures in 2019 money value

[21] Transport for Wales (https://tfw.wales/projects/metro/swansea-bay-metro)

[22] Ofcom (May 2022), Connected Nations Report Interim Update. Compared with superfast and ultrafast accessibility at 95% and 48% of premises respectively across Wales as a whole.

[23] Swansea Bay City Deal, Digital Infrastructure Programme (https://www.swanseabaycitydeal.wales/projects/digital-infrastructure/)

[24] ONS (2022), Regional gross value added (balanced) by industry: local authorities by ITL1 region: TLL Wales, current prices

3.8 Looking more closely at a comparison of compound annual growth rates over time, we can see relatively strong growth in the early 2010s, subsequently falling back somewhat in relative terms.

Table 3.2: Output growth (CAGR of gross value added), 2000-19[25]

	2000-05	2005-10	2010-15	2015-19
Carmarthenshire	2.0%	-1.2%	3.1%	1.7%
Wales	2.3%	0.0%	2.1%	2.2%
UK	2.4%	0.6%	2.1%	2.0%

Source: ONS, Regional gross value added (balanced) by industry, chained volume measures in 2019 money value

3.9 The **composition of output** has been relatively stable over time. Manufacturing has been generally resilient, in 2020 accounting for around £403 million GVA, or 13% of total output, slightly higher than the UK share. Within the manufacturing sector, the strongest growth in the past decade has been in the "food, beverages, textiles and clothing" sub-sector, likely reflecting the strength of the county's food processing industry. Carmarthenshire also has a quite distinctive orientation towards primary industries and utilities. Agriculture, mining, energy and waste accounted for some 12% of total GVA in 2020, compared with around 4.5% of total output in the UK overall.

Productivity

3.10 Productivity (measured as GVA per filled job) was £43,109 in 2020, 74% of the UK average, and slightly weaker than productivity in the other three South West Wales local authorities[26]. Relative to the rest of the UK, Carmarthenshire's productivity deteriorated during the early 2000s, although has been largely stable over the past decade[27].

Employment

Overall jobs growth

3.11 Employment numbers have grown over the long term in Carmarthenshire, with modest growth in the 1980s followed by some sharp contractions (especially in manufacturing) in the 1990s) and a return to growth thereafter[28].

3.12 Looking at the more recent past, we can compare total jobs in Carmarthenshire and the rest of the UK using official published timeseries. The most commonly used measure of 'total jobs' is the **Jobs Density** dataset published by the ONS, which

[25] Note that although data is available for 2020 (as illustrated in Fig. 3.1), we have not presented it in this table, given the extent of the fall in output in 2020 as a result of Covid-19 public health restrictions.

[26] ONS (July 2022), Current price (smoothed) GVA (B) per filled job by local authority district.

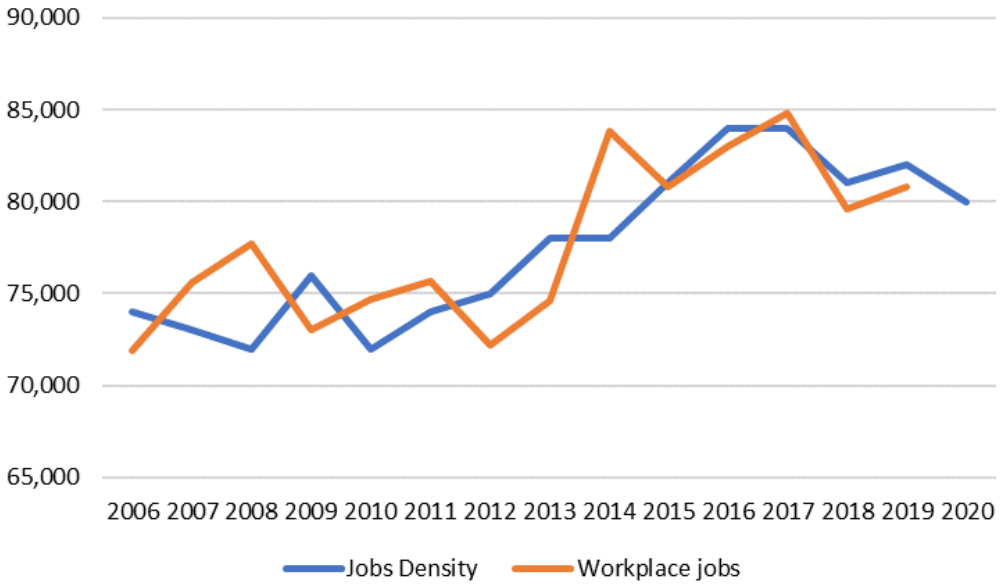
[27] The data actually shows some recent improvement in relative productivity (from 71% of the UK average in 2015 to 74% in 2020), although short-term changes in productivity data at local authority district level should be treated with caution.

[28] Official current employment timeseries data are not available prior to 2001, however, this summary is based on Cambridge Econometrics estimates, which date from 1981.

includes employee jobs (about 87% of the total), self-employed workers and some other smaller categories[29]. Based on ONS data, the Welsh Government separately publishes estimates of **Workplace Employment** to local authority level, disaggregated by high-level industrial group[30].

3.13 The two measures do not align entirely. But since the start of the current plan period in 2006, they illustrate growth in job numbers over time, with an acceleration in the 2010s following recovery from the financial crisis.

Figure 3.2: Total jobs, Carmarthenshire, 2006-20



Source: StatsWales, ONS

3.14 Between 2006 and 2019, there was an average of 357 additional jobs per annum according to the Jobs Density dataset, and an average of 421 additional jobs per annum on the Workplace Employment dataset[31].

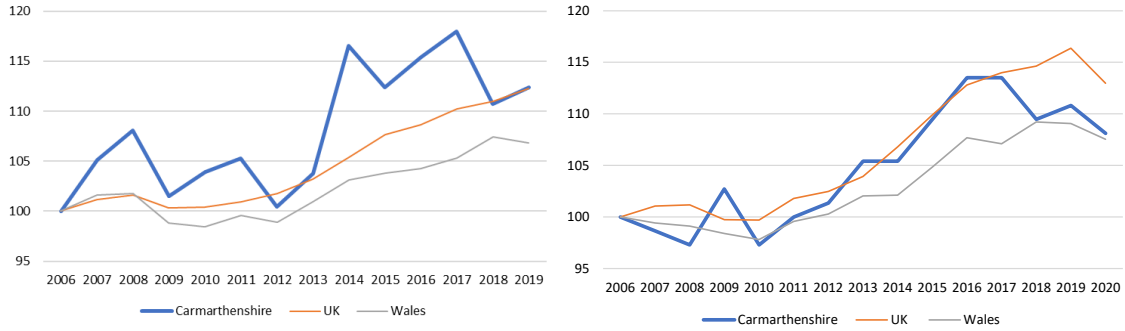
3.15 Carmarthenshire's jobs growth since 2006 has been broadly comparable with that of Wales and the UK, albeit with the caveat that local data is inevitably more volatile than that at larger geographies. Figures 3.3 and 3.4 compare Carmarthenshire's relative performance according to both the Jobs Density and Workplace Employment datasets.

[29] Agricultural workers, people in the armed forces and some government-supported trainees. See ONS (2001), *Jobs Densities for Local Areas*

[30] See StatsWales, *Workplace Employment by Local Area and Year* (metadata) for detailed methodology.

[31] In 2020, there were around 80,000 jobs in Carmarthenshire, according to the Jobs Density dataset (the most recent year for which data is available). Note that the Jobs Density timeseries runs to 2020; the Welsh Government Workplace Employment timeseries runs to 2019.

Figures 3.3 and 3.4: Total jobs (2001=100), based on Workplace Employment (Fig. 3.3, left) and Jobs Density dataset (Fig. 3.4, right)



Source: StatsWales, ONS

3.16 This points to a generally positive job creation picture, albeit with some volatility in the data, and a tailing off of growth in recent years[32]. A consequence of this growth in job numbers over the plan period has been a steady increase in the 'jobs density' (the number of jobs per person aged between 16 and 64) over time, from 0.66 in 2006 to 0.72 in 2020. However, this is still lower than the Wales and UK average (0.76 and 0.84 respectively), reflecting the importance of the wider sub-region as a source of employment for Carmarthenshire residents, and some labour market capacity to support further employment growth.

3.17 It is worth noting that neither the Jobs Density nor the Workplace Employment datasets give a full picture of the 'post-Covid' jobs position, given the timeseries for each ends in 2020 and 2019 respectively. However, more recent data relating to the workforce suggests employment resilience following the pandemic: in October 2022, the Claimant Count rate in Carmarthenshire was just 2.8% - less than half the rate in October 2020, and below the rates for Wales and the UK as a whole[33].

Sectoral analysis

3.18 The Welsh Government's Workplace Employment analysis provides a sectoral breakdown of employment at local authority level, using high-level sector groups. Taking these groups, Table 3.3 overleaf indicates the size of each sector within the local economy and the contribution that each has made to overall jobs growth during the plan period between 2006-19.

[32] Note that this volatility is not unique to Carmarthenshire: it is common at local authority level and reflects the effects of rounding and high confidence intervals on relatively small numbers.
[33] ONS, DWP. Claimant count as a percentage of residents aged 16-64.

Table 3.3: High-level sectoral composition and growth, 2006-19

Sector	Jobs, 2019	% share, 2019	Net change (total jobs)			
			2006-11	2011-15	2015-19	2006-19
Agriculture, forestry, etc	6,100	7.6	-500	1,000	600	1,600
Production	9,700	12.0	-800	3,200	-500	2,700
Construction	5,800	7.2	600	1,000	-1,800	-800
Wholesale, retail, transport, hotels, food	20,400	25.3	0	1,000	-600	400
Information & communications	1,200	1.5	-300	300	400	700
Finance & insurance	700	0.9	300	-500	0	-500
Real estate	900	1.1	0	0	100	100
Professional, scientific & technical; business support	7,800	9.7	700	200	1,500	1,700
Public admin, defence, education & health	24,300	30.1	2,700	-500	0	-500
Other services	3,800	4.7	1,000	-600	200	-400
Total, all industries	**80,700**	**100**	**3,700**	**5,100**	**-100**	**5,000**

Source: StatsWales

3.19 As Table 3.3 demonstrates, around 4,300 additional jobs in 2006-19 were accounted for by 'production' (which is mainly manufacturing) and primary industries – a substantial amount given the total net additional jobs figure of 5,000 over the period. The other major growth area was in professional, scientific and technical activities and business support, which covers a diverse range of mainly private sector business services.

3.20 More granular sectoral analysis is provided by the **Business Register and Employment Survey** (BRES), produced by the ONS. BRES estimates *employee* jobs, so excludes some self-employed people and some other categories of worker (so the total number of employee jobs is always lower than the 'total jobs' on the Jobs Density or Workplace Employment datasets). However, it enables a more detailed sub-sectoral view. Table 3.4 overleaf sets out Carmarthenshire's current employment profile by main sector group, comparing it with Wales and the rest of Great Britain.

Table 3.4: Employee jobs by main sector group (2021)

Industry	Carmarthenshire		Share of all jobs		
	Jobs	LQ[34]	Carms	Wales	GB
Agriculture, forestry & fishing	2,000	4.1	2.9	1.4	0.7
Mining & quarrying	20	-	0.0	0.2	0.1
Manufacturing	8,000	1.6	11.8	10.8	7.6
Electricity, gas, steam & air con	225	0.8	0.3	0.6	0.4
Water supply, sewerage, etc.	450	1.0	0.7	1.0	0.7
Construction	3,000	0.9	4.4	4.0	4.9
Wholesale & retail; motor vehicles	11,000	1.1	16.2	13.9	14.4
Transportation & storage	2,000	0.6	2.9	3.4	5.0
Accommodation & food service	5,000	1.0	7.4	8.0	7.5
Information & communications	1,750	0.6	2.6	3.0	4.4
Financial & insurance	800	0.3	1.2	2.6	3.6
Real estate activities	600	0.5	0.9	1.4	1.8
Professional, scientific & technical	3,000	0.5	4.4	5.6	8.9
Admin & support service activities	4,000	0.7	5.9	7.6	8.9
Public admin & defence	4,500	1.4	6.6	7.9	4.6
Education	6,000	1.0	8.8	9.0	8.7
Human health & social work	14,000	1.5	20.6	15.5	13.6
Arts, entertainment & recreation	1,750	1.1	2.6	2.5	2.3
Other service activities	1,250	0.9	1.8	1.7	1.9
Total, all industries	**69,350**				

Source: ONS, Business Register and Employment Survey

3.21 The overall 'shape' of the local economy tends to change relatively slowly, so the table above reflects the relative strengths and weaknesses highlighted in the Two County Economic Study.

3.22 Relative to the UK economy, **agriculture** stands out as highly concentrated in Carmarthenshire but in absolute terms, the largest sector is **human health and social work**, accounting for over 20% of all employee jobs. Health and social work is also relatively 'over-represented' in the county – more so than any other sector other than agriculture. While health and social work is largely responsive to local demand, there is

[34] The **'location quotient' (LQ)** is a measure of relative industry concentration. An LQ of greater than 1 means that the industry accounts for a greater share of total jobs in Carmarthenshire than it does in Great Britain as a whole. An LQ of less than 1 means that it accounts for a smaller share

a substantial emphasis in local strategy on the links between health investment and wider economic benefits, for example in the development of markets for new health technologies and services, and Carmarthenshire hosts some significant initiatives to realise these (such as the Pentre Awel health and wellbeing village in Llanelli, discussed further in Chapter 4). Combined, the mostly public service sectors of health, education and public administration account for around 24,500 jobs (or 36% of the total).

3.23 The second largest sector by employee jobs is **wholesale and retail** (again, a largely local demand-responsive sector) which is relatively 'over-represented' in Carmarthenshire. **Manufacturing** accounts for a further 8,000 employee jobs: of these, the two largest sub-sectors are in food manufacturing (1,750 jobs and a high location quotient of 2.17), and automotive-related manufacturing (1,500 jobs and a location quotient of 4.4, mainly reflecting the concentration around Llanelli[35]). In contrast, business services (professional and technical and financial services) are relatively under-represented.

3.24 BRES data also allows us to look in more detail at **recent sectoral change**, which is summarised at Figure 3.5 overleaf. Between 2009 and 2021[36]:

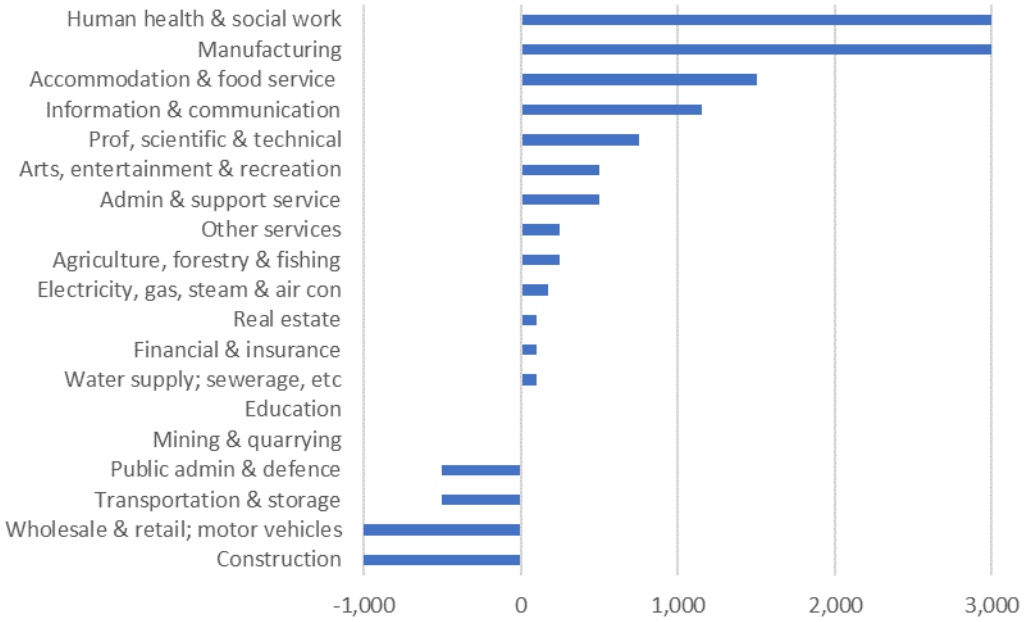
- Human health and social work expanded substantially (an additional 3,000 jobs over the period). This grew a sector that was already very large, with steady growth between 2009-21.
- Manufacturing also grew, reflecting the resilience of the sector in recent years. All net additional employment was added in 2009-15, with the industry stable in employment terms since then and generally stable in its sub-sectoral composition[37].
- Accommodation and food service also grew strongly, although the data indicates a fall in employment since 2019, perhaps linked with the impact of the pandemic.
- A range of service industries saw employment growth, albeit from a lower base than in other local authority areas.
- This employment growth was partially offset by falls in wholesale and retail activity (consistent with the structural change facing much of the retail sector nationally) and construction.

[35] For example, Gestamp, Marelli Automotive and Treharne Automotive (the latter recently acquired by a US investor).

[36] 2009 is the earliest year for comparison on the BRES timeseries. Note that the BRES methodology changed in 2015, so there is a break in the timeseries, although the effect of this on the Carmarthenshire data is minimal.

[37] Food production and automotive-related manufacturing remained the largest sub-sectors throughout the period, although with a rise in 2015-21 in employment in rubber and plastic products

Figure 3.5: Change in employee jobs, 2009-21



Source: ONS, BRES

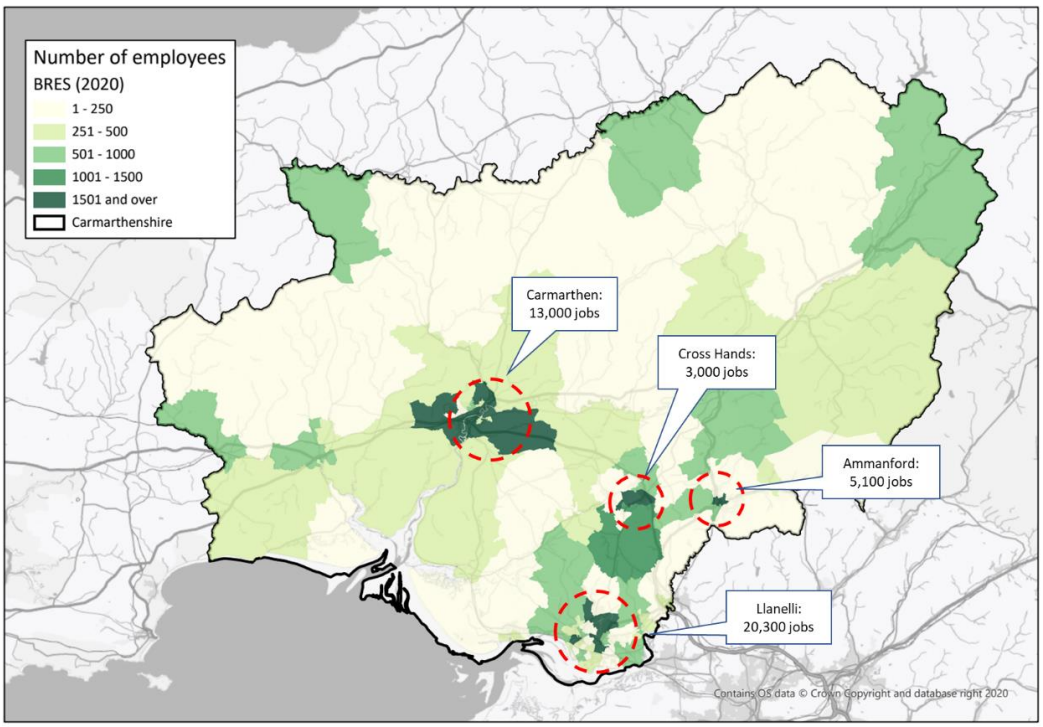
3.25 It is worth noting that there are also some 'emergent' sectors that are associated with key assets in Carmarthenshire, but which are less visible (at this point in time) on a standard analysis of BRES data. For example, Canolfan S4C Yr Egin, based on University of Wales Trinity St David's campus in Carmarthen, was opened in 2018, providing a new headquarters for S4C alongside business space for the creative industries and access to university education and research[38]. The county is also growing as a film production location. Linked with Carmarthenshire's large and growing health sector, new investment is coming forward at the interface of health and wellbeing and research and innovation activities, notably in the Pentre Awel development in Llanelli, the first phase of which will be completed in 2024.

Concentrations of employment

3.26 Figure 3.6 overleaf shows that Carmarthenshire's main concentrations of employment are focused on the principal towns of Llanelli, Carmarthen and (to a lesser extent) Ammanford and on the strategic employment sites at Cross Hands. However, reflecting the county's rural profile, smaller concentrations are distributed across its market towns and their hinterland.

[38] Yr Egin (https://yregin.cymru/en/news/)

Figure 3.6: Concentrations of employment in Carmarthenshire[39]



Source: ONS, BRES; SQW analysis

Business base

3.27 There are around 9,500 businesses in Carmarthenshire as of 2022[40]. Table 3.5 indicates that over 87% of these were 'micro' enterprises, employing fewer than nine people – a somewhat higher share of the overall business stock than in Wales or the UK as a whole. This orientation towards smaller businesses reflects the county's partly rural profile: about 22% of all Carmarthenshire's enterprises are in the agriculture and forestry sector (although this sector accounts for less than 3% of employee jobs), and almost all agricultural businesses in the county are micros. Larger units are somewhat more widespread in manufacturing and are substantially so in Carmarthenshire's important health and social care and education sectors.

[39] Approximated employment numbers quoted for specific locations are based on lower-level super output areas aggregated up to approximate to the relevant built-up area and associated employment sites.

[40] Measured as 'local units' (an individual unit of activity, such as a factory) that may be associated with an enterprise, according to the UK Business Count

Table 3.5: Business stock by employee size, 2022

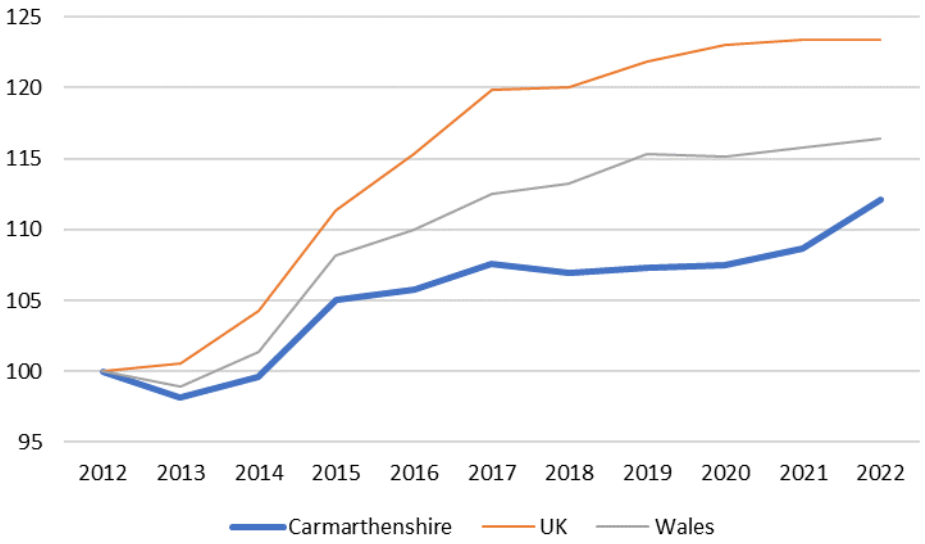
	Carmarthenshire		Comparators (%)	
	Number	% of total	Wales	UK
Micro (0 to 9)	8,285	87.1	83.7	84.7
Small (10-49)	1,055	11.1	13.4	12.4
Medium-sized (50 to 249)	150	1.6	2.5	2.5
Large (250+)	20	0.2	0.4	0.4
Total	**9,510**	**100**	**100**	**100**

Source: ONS; UK Business Count

Business stock growth and density

3.28 Carmarthenshire's business stock has grown over the past decade, although at a slower pace than in Wales or the UK.

Figure 3.7: Index of total business stock growth (2012=100)



Source: ONS, UK Business Count (count of local units)

3.29 Given the size structure of the overall business stock (in every geography), most of the increase is accounted for by micro enterprises. As elsewhere, there was stronger growth in micro businesses than in medium or larger enterprises, with the Carmarthenshire data noting a slight decline in the number of larger firms[41].

[41] Note that numbers within the UK Business Count are rounded, so small changes within small sample sizes can be exaggerated in the data. Note also that an apparent 'decline' in the number of large firms might be linked with changes in business strategy (e.g., outsourcing some functions to contractors or reducing headcount), rather than the loss of the firm to the local economy.

Table 3.6: Ten-year compound annual growth rate of enterprise stock, 2012-22

	Carmarthenshire	Wales	UK
Micro (0 to 9)	1.2%	1.7%	2.3%
Small (10-49)	1.0%	0.9%	1.0%
Medium-sized (50-249)	0.3%	0.3%	0.7%
Large (250+)	-2.2%	0.5%	0.6%
All businesses	**1.1%**	**1.5%**	**2.1%**

Source: ONS; UK Business Count

3.30 'Enterprise density' is relatively high in Carmarthenshire. In 2020, there were 819 local enterprise units to every 10,000 people aged between 16 and 64 (compared with 768 in the UK and 663 in Wales). Relatively high enterprise density tends to be quite common in rural economies, partly reflecting the high number of enterprises in the land-based sector highlighted above[42], but it does also highlight entrepreneurial potential in the county. However, self-employment rates are broadly in line with the UK average (although slightly higher than for Wales).

New businesses and survival rates

3.31 In the four years to 2020, there was an average of 639 new business starts per year in Carmarthenshire[43]. Business start-up rates are somewhat lower than the UK and Wales averages: between 2017-20, the number of business starts was equivalent to an average of 10.2% of the total business stock in Carmarthenshire, compared with 12% in Wales and 12.6% in the UK.

3.32 Survival rates in Carmarthenshire compare favourably with the Wales and UK averages: of the 665 businesses started in the county in 2016, 45.9% were still in existence four years later (compared with 45.6% in Wales and 43.1% in the UK)[44].

Larger employers

3.33 As indicated above, Carmarthenshire's business base is strongly oriented towards small and micro enterprises. Nevertheless, there are some larger employers within the county: as well as larger public sector employers (such as NHS Wales, the local authority and the education system), larger private sector employers based in the county include[45]:

[42] See comparator evidence for England in Defra (2022), Statistical Digest of Rural England: Businesses (https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1078695/Businesses_May_2022_final.pdf)

[43] ONS, Business Demography Dataset

[44] ONS, Business Demography dataset

[45] Note that this list does not include major private sector employers which are based outside the county but which are large employers within it (e.g., multiple retailers and retail financial services).

Table 3.7: Major businesses in Carmarthenshire[46]

Firm	Description	Location
Marelli Automotive Systems	Global manufacturers of electric powertrain systems and other automotive components.	Llanelli
Tinopolis	Television production and distribution.	Llanelli
Castell Howell Foods Ltd	Foodservice wholesaler and manufacturer	Cross Hands
Dunbia	Meat processors and food manufacturers	Llanybydder
Oil 4 Wales	Independent commercial and domestic fuel supplier.	Carmarthen
Owens Group	Logistics and distribution services.	Llanelli
JTG Holdings (Gravells)	Car dealerships.	Kidwelly
Dyfed Steels	Steel stockholders and processors.	Llanelli
LBS Builders Merchants	Independent builders merchants.	Ammanford
Lonetree Ltd	Restaurant franchise operator	Carmarthen
CK Supermarket Ltd	Wholesaler and retailer	Llanelli
J&J Motors	Car dealerships	Cross Hands
Mitsui Components	Component manufacturer for automotive industry	Ammanford
Morganstone Ltd	Construction and building services	Llanelli
Tata Steel	Packaging steel manufacturers	Llanelli
Haydale	Graphene coatings and applications	Ammanford
Magstim	Manufacturers of magnetic stimulators for use in medical technology	Whitland
Tregroes Waffles	Food manufacturers	Pont-Tyweli
Teddington Engineered Solutions	Manufacturers of bellows and expansion joints	Llanelli
Triton Cleantech	Water purification technology	Llanelli

Source: Western Mail/ Business Live Top 300 (2020); Carmarthenshire County Council; SQW

High growth and innovation

3.34 The ONS defines 'high growth' businesses as those that demonstrate average annualised growth greater than 20% per annum, over a three year period, measured

[46] Based on Western Mail/ Business Live Wales 300 companies, and discussions with Neath Port Talbot Council on the development of the NPT Economic Recovery Plan

through employment[47]. Between 2015 and 2020, the number of businesses in Carmarthenshire identified as 'high growth' through this measure varied between 20 and 25 (i.e., around 0.2% of the total business stock). This rate of high growth businesses within the overall stock is lower than the Wales and UK averages.

3.35 Separately, the business data service Beauhurst tracks businesses that meet a series of growth or innovation thresholds (for example, turnover growth, investment secured or public sector fundraising through Innovate UK or similar bodies). In 2021, Beauhurst tracked 44 firms in Carmarthenshire. These included some of the businesses cited above (Morganstone, Castell Howell, Gravells, Magstim, Teddington, etc.), as well as several smaller firms. Sectorally, the list is quite diverse, with 14 principally operating in the manufacturing sector and the remainder engaged in a wide range of activities[48].

3.36 More broadly, the Council itself commissioned an innovation strategy in 2021. This highlights opportunities in sustainable food production and procurement; the development of the economic potential of the health economy (linked with the development of Pentre Awel in Llanelli, the health and wellbeing Hwb in Carmarthen and opportunities for a wider network of 'living lab' facilities across the county), and increasing uptake of low-carbon technologies, including the development of synergies between waste, energy and manufacturing. Some of these are considered further in the next chapter, in looking at the opportunities that could underpin a future employment growth led scenario for the county.

Summary

3.37 Productivity in Carmarthenshire is relatively weak, and output growth has been slower in recent years than in the rest of Wales and the UK. However, jobs growth has been strong, with an annual average of between 357 and 431 net additional jobs created in the county between 2006 and 2019. This is comparable with the rate of jobs growth in the rest of Wales and the UK.

3.38 The county has relatively strong concentrations of employment in agriculture, manufacturing (especially food manufacturing and the automotive sector), health and social care and public administration, with relatively lower representation in private sector-dominated business and professional services. In recent years, the strongest growth in employment has been in manufacturing and health, with further strong growth in hospitality and business services. Within the county, employment is especially concentrated around the three principal towns and Cross Hands, with smaller concentrations across the network of market towns.

3.39 Carmarthenshire's business stock is dominated by small and micro enterprises (to a somewhat greater extent than the Wales and UK averages), although there are some larger employers with a presence in the county, especially in the public sector and in manufacturing. However, analysis of those firms tracked for indications of innovation and high growth potential indicates wider sectoral diversity.

[47] Growth is also often measured using turnover, although the ONS Business Demography dataset uses employment as the metric.

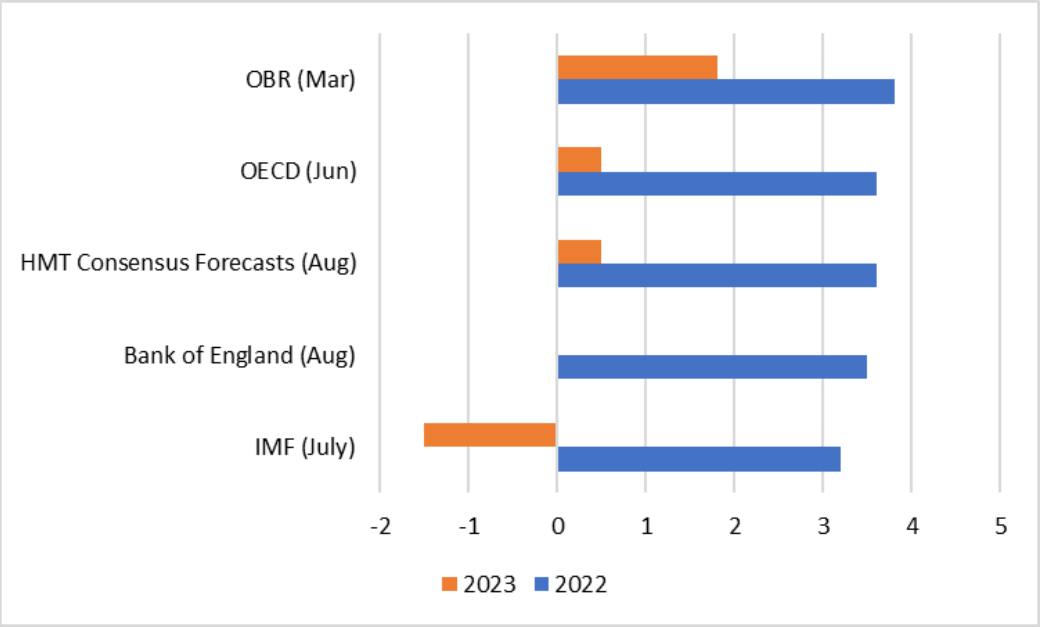
[48] Beauhurst; SQW analysis 2021

4. Future Job Growth

4.1 Building on the earlier analysis, this chapter considers Carmarthenshire's potential for economic growth, looking across the new plan period to 2033. It starts with a 'top-down' review of the 'baseline' position, drawing on a range of independent econometric forecasts and comparing these with the recent trends outlined in Chapter 3. It then takes a 'bottom-up' view, considering Carmarthenshire's potential from the perspective of existing local strategies, major planned or potential investments, and stakeholder views. Based on this range of perspectives, the final section sets out an alternative, 'investment-led' growth scenario which complements the baseline forecast.

4.2 This assessment has been prepared in the context of a very uncertain short-to-medium term economic outlook, which has changed substantially since the 2020/21 update to the Two County Economic Study. While there was strong economic recovery from the Covid-19 pandemic (with relatively strong growth expected in 2022, reflecting the continued post-Covid 'bounce'), there is a risk of recession in 2023, linked with inflationary pressures and the ongoing energy crisis and war in Ukraine. Over the longer term, the Office for Budget Responsibility (OBR) anticipates relatively weak productivity and real wage growth through to 2026. However, the labour market tightness and low unemployment referred to in Chapter 3 is likely to continue.

Figure 4.1: Range of short-term UK forecasts (real year-on-year GDP growth)



Source: PwC, UK Economic Outlook (September 2022)

4.3 This uncertainty should be borne in mind in considering all the forecasts and scenarios presented in this section. It should also be noted that the adjustments used to understand the potential implications of identified project-based investments are based on the best information at the time of writing, but will depend on market conditions and, in some cases, continuing public sector funding commitments.

Baseline forecasts

Introducing the baseline forecasts

4.4 As a starting point for analysis, three up-to-date baseline econometric forecasts were obtained from the main providers:

- Experian, specifically the forecast released in July 2022, with an earlier iteration notably having been used in the Two County Economic Study;
- Cambridge Econometrics (March 2022); and
- Oxford Economics (July 2022).

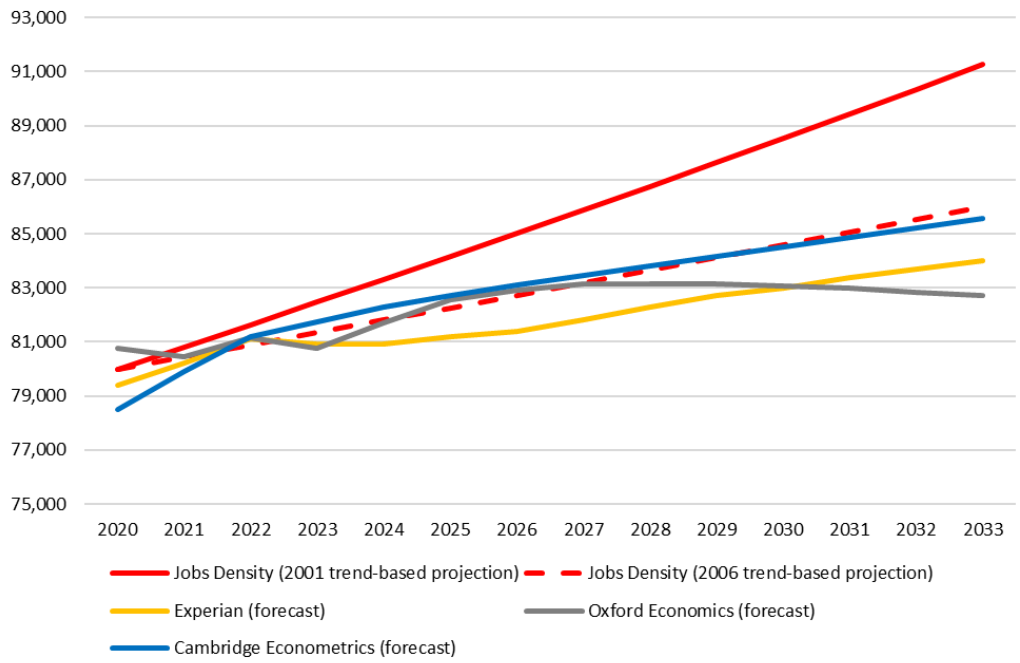
4.5 These forecasts take a long-term view of future employment growth, based on assumptions derived from global and national data, and taking account of the potential for 'peaks and troughs' over the economic cycle[49]. It should be noted that none of the forecasts take account of local circumstances in Carmarthenshire: they simply provide a nationally-derived benchmark with which local data and perspectives can be triangulated.

4.6 All three forecasts anticipate jobs growth in Carmarthenshire. Between 2020 and 2033, Cambridge Econometrics forecasts around 7,086 additional jobs (equivalent to 545 jobs per annum), while Experian forecasts about 4,600 (354 per annum). Oxford Economics' forecasts are somewhat more pessimistic, projecting growth to 2028 then a gradual diminution in jobs thereafter, resulting in growth of 1,941 to 2033 (149 per annum). This divergence between the forecasts is not unique to Carmarthenshire, and reflects population growth assumptions made by the forecast providers.

4.7 Figure 4.2 overleaf compares the three sets of forecasts to 2033. The chart also includes the historic jobs trend (based on the Jobs Density dataset) projected forward on 2001-20 and 2006-20 data.

[49] Note that all three have been prepared in the aftermath of the UK's exit from the European Union and the Covid-19 pandemic, albeit at a time when the current energy crisis was developing.

Figure 4.2: Comparison of forecast and historic trend jobs in Carmarthenshire



Source: ONS, Cambridge Econometrics, Experian, Oxford Economics; SQW analysis

4.8 As Figure 4.2 demonstrates, the trend since 2006 is broadly in line with the more 'optimistic' of the forecasting houses' projections, although the longer-term trend from 2001 shows significantly higher growth[50].

Outlook for individual sectors

4.9 The three baseline forecasts are disaggregated to different levels of sectoral granularity, but aggregating them to a common set of high-level sector groupings allows a comparison of sector forecasts, set out in Table 4.1 overleaf.

[50] The picture in Carmarthenshire is not unusual in this regard: trend-based employment since 2001 (the start of the Jobs Density timeseries) is also higher than forecast employment in neighbouring local authorities, although the forecasts take into account longer-term trends, allowing for cyclical change.

Table 4.1: Annual forecast jobs growth, by sector

Industry	Annual jobs growth, 2020-33		
	Cambridge Econometrics	Experian	Oxford Economics
Agriculture; mining & quarrying	-54	-62	-52
Manufacturing	-48	0	-132
Electricity, gas & water	-4	0	-5
Construction	51	62	26
Retail & wholesale	-37	-23	17
Transport & storage	23	15	0
Accommodation & food service	137	131	62
Information & communications	44	0	6
Business & other services	206	77	112
Government & public services	227	154	115
Total, all industries	**545**	**354**	**149**

Source: Cambridge Econometrics, Experian, Oxford Economics; SQW analysis

4.10 Comparing growth across the major sector groups:

- All three forecasts anticipate growth in **public services** (public administration, health and education). These sectors have seen relatively strong growth in recent years: between 2006-19, public services accounted for around 25% of total net jobs growth (based on the Workplace Employment dataset). Despite pressures on public finances in recent years, rising long-term demand for health and social care (in particular) is widely recognised and employment is likely to be resilient.

- Strong growth is also anticipated in **business services.** This covers a wide range of activities, with most of the growth in professional, scientific and technical activities and business administration and support services, both of which have seen growth in recent years, albeit from a small base relative to the UK economy. Within the general 'business services' category, employment in finance and insurance (already a relatively small sector in Carmarthenshire) is expected to fall.

- **Accommodation and food service** is expected to grow strongly. This reflects the historic trend, and Carmarthenshire's strengths (and potential) in hospitality and the visitor economy[51].

- **Construction** is expected to be buoyant, in contrast to recent losses in the sector locally, but reflecting national trends.

- The picture for **manufacturing** is more negative, with both Cambridge Econometrics and Oxford Economics anticipating a decline in jobs to 2033, and Experian anticipating zero growth. This is at variance with the strong jobs performance of Carmarthenshire's manufacturing sector in 2006-20, although as noted in Chapter 3, employment growth has tailed off since 2015. The forecast decline is consistent with the outlook set out in the update to the Two County Economic Study, which notes risks associated with some 'traditional' industries[52] and the potential impact of Brexit on the UK's substantially export-oriented and internationalised manufacturing sector. It also reflects forecasts for Wales and the UK, although manufacturing employment across the UK has been more resilient than anticipated in recent years.

- The outlook for **agriculture** is also generally negative, again reflecting the national picture (albeit that the sector is much more significant in Carmarthenshire than elsewhere in Wales and the UK) and sector-specific uncertainties, including the delay in the transition to new farm subsidies from 2025.

- **Retail and wholesale** activity is also expected to decline on two of the forecasts (with Oxford Economics projecting modest growth). This is consistent with the recent contraction in retail employment, linked with structural changes affecting the industry (and, locally, prompting a major policy focus within Carmarthenshire on the future of the county's three principal town centres).

Arriving at a reasonable baseline forecast

4.11 It is clear from the chart at Figure 4.1 that the trajectory projected by Oxford Economics is at variance with the other two forecasts, and with the recent historic trend. The Experian and Cambridge Econometrics forecasts follow a similar direction – with Cambridge closely matching the 2006-20 trend rate of growth, and Experian anticipating somewhat lower levels of annual growth overall.

4.12 Since the Experian forecast represents the midpoint of the three, and given the value of consistency with the Experian-based forecasts used in the Two County Economic Study, SQW consider that the Experian forecasts should be used as the 'base case'. In supporting this judgement and looking at the sectoral level analysis, the 'flatlining' of employment in manufacturing within the Experian forecast can be seen to be closer to the recent trend than the substantial falls in job numbers anticipated on the other two baselines. However, alternatives to this baseline forecast should also be considered in

[51] As noted in Chapter 3, the recent employment performance of the accommodation and food service sector is somewhat 'held back' in the data by a fall in employee job numbers in 2019/20 – likely a consequence of Covid-19, and we might anticipate a rebound when the next data release is published.

[52] For example steel, given Tata's presence at Llanelli, although Carmarthenshire's exposure is much lower than that of other parts of South West Wales.

the light of wider local evidence, especially given the variance of the forecasts with recent local performance. The following section therefore considers prospects for growth in the light of Carmarthenshire's economic strategy, anticipated major projects and investments and stakeholder perspectives.

Accounting for investment and ambition

Economic growth strategies

4.13 There is a positive strategic environment for growth in Carmarthenshire. *Transformations*, the Council's **Strategic Regeneration Plan**, was published in 2015 and pre-dates the Two County Economic Study (as well as the major events of Brexit and the Covid pandemic and the advent of some major projects, such as Pentre Awel)[53]. However, it highlighted investment in the three principal towns and at Cross Hands, as well as the 'Carmarthenshire Coastal Belt', providing strategic context for several major developments (such as Canolfan S4C Yr Egin) that have subsequently come forward. Subsequently, **Moving Forward in Carmarthenshire**, adopted by the previous Council administration, described regeneration as its '*number one priority*' and reconfirmed its commitment to deliver the priorities set out in *Transformations*[54].

4.14 During the Covid-19 pandemic (and following the update to the Two County Economic Strategy), the Council commissioned an **Economic Recovery and Delivery Plan** for the county. While focused on short-term 'recovery' challenges, the Plan also emphasised the need to address Carmarthenshire's long-standing productivity weaknesses, noting a need to increase productivity across all sectors of the economy (through investment in skills and infrastructure) and increasing the size of '*higher productivity, higher wage sectors*'[55]. These are broadly defined in the Plan as '*advanced manufacturing, creative industries, green economy, health, care and life science and agriculture and food production*'.

4.15 In 2022, the Council published a **Cabinet Vision Statement**, outlining the new administration's priorities through to 2027[56]. This will underpin the Council's new Corporate Strategy later in the year. In relation to the goal of '*making our communities and environment healthy, safe and prosperous'*, the Statement includes a commitment to bringing forward substantial investment in the three principal towns (linked with the post-Covid **Recovery Masterplans** referred to earlier in this report). These investments include the Pentre Awel development in Llanelli (described further below) and the Carmarthen Hwb project, as well as investments coming forward through the Ammanford masterplan. The Vision Statement also reaffirms the Council's commitment to investment in the county's ten rural towns and their surrounding areas, and promotes exploration of a second phase of the 'Arfor' programme of investment in community-based economic development in substantially Welsh-speaking rural areas. More broadly, there is an emphasis in the Vision Statement on efforts to promote local procurement and supply chain development.

[53] Carmarthenshire County Council (2015), Transformations: Strategic Regeneration Plan for Carmarthenshire 2015-30
[54] Carmarthenshire County Council, Moving Forward in Carmarthenshire: The next five years
[55] Owen Davies Consulting/ Carmarthenshire County Council (2021), Carmarthenshire Economic Recovery and Delivery Plan
[56] Carmarthenshire County Council (2022), Cabinet Vision Statement 2022-27

4.16 Regionally, Carmarthenshire benefits from the £1.3 billion **Swansea Bay City Deal**, which is supporting economic growth in South West Wales through investment in nine 'transformational' projects. Of particular relevance to Carmarthenshire is investment in Pentre Awel and the (now completed) Yr Egin development in Carmarthen. The county also benefits substantially from the £55 million Digital Infrastructure Programme (which includes a focus on improving broadband access to rural communities, as well as ensuring full-fibre connectivity to key business locations), as well as the region-wide Skills and Talent Programme[57]. Beyond specific projects, Carmarthenshire County Council plays a leading role in supporting the overall management of the City Deal.

4.17 Building on the City Deal, partners in South West Wales (including Neath Port Talbot Council) approved a new **South West Wales Regional Economic Delivery Plan** (REDP) in early 2022. The REDP provides a framework for economic development across the region, and underpins the **Regional Economic Framework** adopted by the Welsh Government in conjunction with local partners[58]. The REDP sets out three 'missions' to guide regional strategy, focused on '*becoming a UK leader in renewable energy and the net zero economy'*; '*building a strong, resilient and embedded business base'* and '*growing and sustaining the South West Wales experience offer*', including the opportunities presented by the visitor economy[59]. The REDP and the Regional Economic Framework both provide the strategic context for the new **South West Wales Corporate Joint Committee**, established in 2021 to provide a regional structure to drive forward sustainable economic growth and strategic development[60].

4.18 A number of sectoral and thematic strategies are also relevant to economic growth in Carmarthenshire. These include:

- In relation to decarbonisation and energy, the **South West Wales Energy Strategy** (2021) presents the net job opportunities that could be supported through a shift in the energy mix[61]. In Carmarthenshire specifically, these include opportunities in onshore wind and energy from waste, although the county will benefit from the region's wider offshore capacity and existing energy infrastructure.

- In relation to the economic potential of the health economy, **A Healthier Mid and West Wales** (sequential to *A Healthier Wales*, the national strategy) provides a strategic context for the significant investment focus in Carmarthenshire on collaborative health and life science investment[62].

- In relation to Carmarthenshire's significant food production sector, the Welsh Government is currently preparing a **Community Food Strategy**, highlighting the

[57] Swansea Bay City Deal (https://www.swanseabaycitydeal.wales/projects/supporting-innovation-and-low-carbon-growth/)

[58] Welsh Government (2021), Regional Economic Framework for South West Wales

[59] South West Wales local authorities (2022), South West Wales Regional Economic Delivery Plan

[60] South West Wales Corporate Joint Committee (https://democracy.carmarthenshire.gov.wales/mgCommitteeDetails.aspx?ID=378)

[61] Welsh Government Energy Service (2021), South West Wales Regional Energy Strategy

[62] Hywel Dda University Health Board, A Healthier Mid and West Wales: Our Future Generations Living Well

importance of the food sector within the foundational economy, and the scope for increasing the production and supply of locally-sourced food[63].

- Finally, a range of strategies recently prepared by the Welsh Government are relevant to some of Carmarthenshire's key industries. In addition to those highlighted above, these include the **Manufacturing Action Plan**, with its emphasis on strengthening leadership and resilience in manufacturing SMEs[64]; and **Welcome to Wales**, the national tourism strategy, which places an emphasis on improving quality and visitor spend (linked with the focus on the 'experience economy' in the Regional Economic Delivery Plan)[65].

Supply side issues

4.19 Two key issues were highlighted in consultation. First, **labour supply** is a significant challenge, an issue shared with other parts of the UK, especially in the context of the recent rise in economic inactivity as some workers have exited the labour market post-Covid[66]. The was partly seen as a labour market scale issue: having a sufficiently large pool of skilled labour within a rural economy can be challenging, and one respondent spoke of developing a second facility further east along the M4 corridor to take advantage of a larger labour pool. On the other hand, Carmarthenshire's quality of life assets were recognised as important in staff retention (and in attracting older skilled staff from further afield). Labour market tightness was also cited as a driver for automation[67].

4.20 Second, **access to premises** remains a key issue, as reported in the earlier Two County Economic Study (and in successive reports looking at the Welsh commercial property market[68]). This was especially cited in relation to stock availability for expansion and access to sufficient power supply.

Economic investment projects

4.21 Within this strategic context, the Council has assisted in identifying a substantial pipeline of new (and potential) investments in Carmarthenshire, which could reasonably be expected to have a positive impact on the local economy. These will not have been taken into account within the 'top-down' econometric forecasts cited earlier, so are important to consider in the development of an alternative investment-led growth scenario.

Pentre Awel

4.22 Pentre Awel is a 'transformational' investment in a life science and wellbeing village at Delta Lakes in Llanelli. Through £200m investment (of which £40 million is sourced via the Swansea Bay City Deal), the project will see the development of a range of health-related assets, including a leisure centre (due to be completed in 2024 as the first

[63] Food and Drink Wales (2022), https://businesswales.gov.wales/foodanddrink/community-food-strategy
[64] Welsh Government (2021), Manufacturing Future for Wales: a Framework for Action
[65] Welsh Government (2020), Welcome to Wales: Priorities for the Visitor Economy, 2020-25
[66] See Welsh Government analysis of Labour Force Survey (November 2022) (https://gov.wales/labour-market-overview-november-2022)
[67] See also BBC (August 2021), Covid has accelerated automation in Wales (https://www.bbc.co.uk/news/uk-wales-58166015). The need for and challenges associated with industrial automation are also set out in Wales 4.0 – the Brown review of industrial digitalisation (2019) (https://gov.wales/sites/default/files/publications/2019-09/delivering-economic-transformation-for-a-better-future-of-work.pdf)
[68] SQW/ Welsh Government (2020), Commercial Property: Market analysis and potential interventions

phase of development); education, research and business development, including a Clinical Delivery and Research Centre managed by Hywel Dda University Health Board; housing development (including an assisted living scheme); and space for business expansion. Ultimately, the Pentre Awel scheme is anticipated to create around 1,200 jobs by 2035, in health, leisure and R&D[69].

Cross Hands

4.23 Cross Hands is a strategic employment location off the A48 in east Carmarthenshire. It already accommodates a substantial 'food park' (with major employers including Castell Howell), and a mixed-use retail and business park. There is scope for further development at Cross Hands East (a 10-hectare strategic employment site) and through retail and other development at Cross Hands West[70].

Carmarthen West and South

4.24 Carmarthen West is identified as a mixed-use strategic site within the current LDP. It currently accommodates Canolfan S4C Yr Egin (the jobs associated with which we assume are already incorporated within the baseline forecasts). Proposals have been advanced for a further phase of development at Yr Egin, linked with the growth of the creative industries offer locally and expansion of University of Wales Trinity St David's activity[71]. South of Carmarthen, the Pibrlwyd site adjacent to Coleg Sir Gâr offers an important mixed-use opportunity for which Supplementary Planning Guidance was adopted in 2014, although development has yet to come forward.

Other key economic investments

4.25 Other significant investments include:

- Delivery of the economic recovery masterplans for Carmarthen, Llanelli and Ammanford **town centres**. In Carmarthen, this includes the development of the Hwb, a major centre for health, leisure and cultural activity, which is currently under development. In Llanelli, efforts linked with investment from the Transforming Towns initiative and other sources seek to support additional town centre commercial activity. The 'ten towns' are also a focus for investment on a smaller scale (for example the current redevelopment of the market hall in Llandeilo).

- **Tourism** developments, including the delivery of a new hotel, museum and other amenities at Pendine, currently anticipated to open in spring 2023. Other visitor economy-related investments include the Tywi Valley Path, linking Carmarthen with Llandeilo, currently in development as part of Carmarthenshire's aspiration to be the '*cycling capital of the UK*'[72].

- Opportunities associated with the development of the **circular economy and renewable energy**, including the potential of future waste-to-energy and recycling activity at Nantycaws, east of Carmarthen.

[69] Carmarthenshire County Council (2020), Pentre Awel Full Business Case

[70] Carmarthenshire County Council (2022), Cabinet Report

[71] South West Wales Regional Economic Delivery Plan: Project Pipeline

[72] Carmarthenshire County Council, Moving Forward in Carmarthenshire: The next five years

- Proposed **strategic 'planned and urgent care' hospital**, currently being considered by Hywel Dda University Health Board, to serve Carmarthenshire and Pembrokeshire. Sites are currently being considered at St Clears and Whitland[73].

4.26 From a regional perspective, two other major initiatives are worth noting. First, efforts are currently underway to secure **Freeport** designation for the South West Wales ports at Port Talbot and the Haven Waterway. While these are unlikely to directly involve the designation of any individual sites in Carmarthenshire, there could be spillover demand for sites in the county. Second – and related to Freeport designation – the **South Wales Industrial Cluster (SWIC) programme** was formed in 2019 with support from UK Research and Innovation to help plan a route to net zero for South Wales' substantial industrial and energy base, including Carmarthenshire manufacturers[74].

Developing an alternative investment-led growth scenario

4.27 Drawing on the strategic context and evidence of planned and potential investments set out above, an alternative investment-led growth scenario has been developed, building on the Experian baseline forecast.

Estimates of investment-led growth

4.28 To develop this, a series of adjustments are made to the baseline forecast to accommodate a reasonable estimate of investment-led growth which is either already committed (but not yet delivered and therefore not in the baseline) or where there is a reasonable likelihood of delivery – noting that as set out above, this is uncertain. Estimated increments are plotted against specific identified investments and linked to the likely sector groups in which employment is most likely to be generated. It should be noted that this has been based on likelihood of potential investment, and information available at the time of writing, rather than assumptions of site capacity for growth.

4.29 A summary of the assumptions, by sector, is set out below.

Table 4.2: Adjustments to baseline

Sector	Commentary	Adjustment to baseline
Accommodation, food service & recreation	Strong recent growth, and an important sector with a supportive policy context. Close links with the rural economy and some significant investments coming forward (e.g., Pendine; Tywi Valley Path). Higher growth is plausible, although likely to be dispersed rather than via major projects and therefore reflecting current economic context only modest adjustment beyond baseline assumption.	Assume Pendine job increment from 2023 (123*0.75 additionality = 92).

[73] Hywel Dda University Health Board (2022), https://hduhb.nhs.wales/news/press-releases/three-potential-hospital-sites-for-public-consultation/

[74] See SWIC

Agriculture, forestry & fishing	Large sector in relative terms and close links with visitor economy and food manufacturing sector. Note however risks associated with post-Brexit trade patterns and farm support regime.	No change
Construction	Relatively strong growth forecast (although note recent losses)	No change
Finance & insurance	Small sector in Carmarthenshire and mostly responsive to local population demand	No change
Information & communication	Positive recent growth, although relatively small in Carmarthenshire relative to UK average. Potential for growth in media/ creative sector (cf Yr Egin and related investments)	Assume Yr Egin/ Carmarthen West additional 60 jobs from 2024
Manufacturing	Resilient in recent years. Some risks associated with automotive sector, although dependent on ability to adapt to decarbonisation. Recent growth in food manufacturing, with some leading businesses and scope for significant new investment (e.g. Food Growth Zone at Cross Hands).	Assume Cross Hands East - 590 additional jobs over 10 years.
Professional and other private services	Strong historic growth. Major future investment at Pentre Awel, which is committed and with robust job forecast data.	Assume max 1,600 industry jobs at Pentre Awel as per FBC, plus Cross Hands office use (60 jobs from 2023)
Public services	Responsive to local population demand. Some major investments (e.g., new regional hospital in west Carmarthenshire, and development of Hwb facilities at Carmarthen and Cross Hands), but these replace existing facilities or respond to local demand through population growth which is already in the baseline. However, R&D, skills and health-related jobs at Pentre Awel anticipated to be regionally additional	Assume Research & Skills and Healthcare jobs at Pentre Awel as per FBC (150 jobs in steady state).
Transport and storage	Modest historic growth; modest growth projected. Generally not a major logistics location, although expansion anticipated through 'final mile' and operations	No change

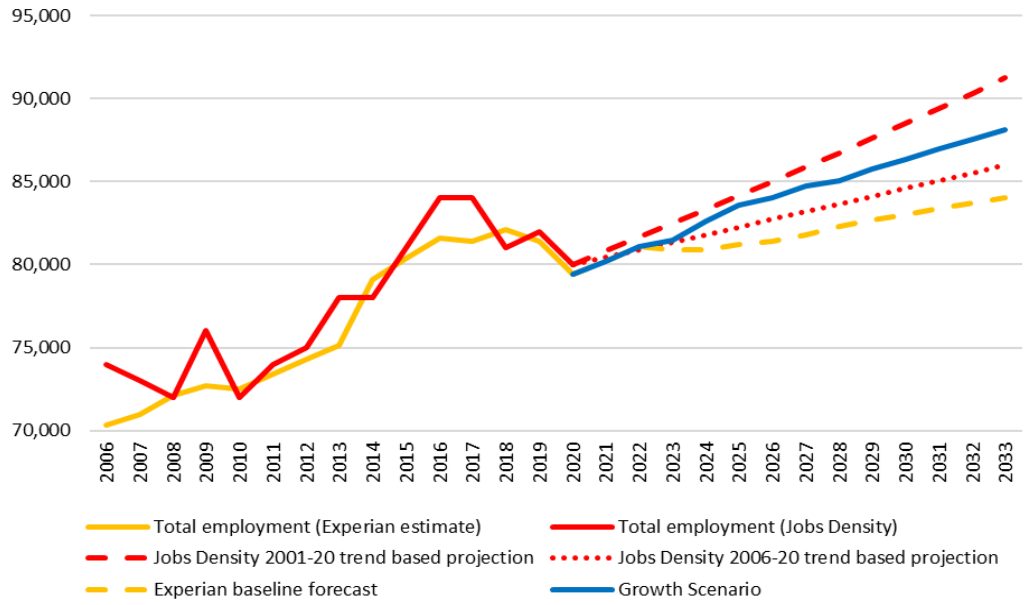
	associated with local production sector supporting modest growth projected.	
Utilities	Small sector - possibly significant rebalancing within sector through decarbonisation/ energy shift (e.g., potential new facility at Nantycaws), but likely limited net additional employment	No change
Wholesale & retail	Projected decline plausible in light of pressures on retail sector, although proposed investments at Cross Hands a potential partial reversal of this. Policy aspirations should also support greater town centre resilience, although we have not assumed this given current uncertainty in the sector.	Assume Cross Hands West and Llandeilo Market Hall at 75% additionality ((350+45)*0.75 = 297, from 2023 and ramping up over time.

Source: SQW

4.30 Multiplier assumptions are applied to the increments at 50% of the sector-based estimates assumed by the What Works Centre[75].

4.31 Taking these adjustments into account yields an investment-led growth scenario of 674 jobs per annum to 2033. Figure 4.3 illustrates this, alongside the Experian baseline and the 2001 and 2006-based historic Jobs Density trend.

Figure 4.3: Baseline, investment-led growth and trend scenarios



Source: Experian, SQW analysis

[75] What Works Centre for Economic Growth *Multiplier Effects Toolkit.* SQW have used a composite of the What Works Centre estimated multipliers for tradable and non-tradable sectors (i.e., a multiplier of 0.65).

4.32 The investment-led growth scenario has a trajectory that is above the baseline forecast but sits between the two historic trend-based projections. This seems reasonable in the context of the evidence presented in this and the preceding section, noting the aspirational nature of the forecast and the caveats documented at the start of this section.

Summary

4.33 This chapter presents future baseline job scenarios for Carmarthenshire, of between 149 and 545 additional jobs per annum. Considering historic trend data, the sectoral breakdown of the baseline forecasts and consistency with previous forecasts prepared for the county, SQW have identified the Experian forecasts as the preferred baseline, with a forecast 354 jobs per annum to 2033.

4.34 The Experian baseline forecasts are then adjusted to account for known and/ or plausible investments that are likely to come forward in the coming years and which will generate additional employment but which will not be reflected in the baseline. This generates an 'investment-led growth scenario' of 674 jobs per annum to 2033.

4.35 No downside adjustments have been made to the baseline as these are unknowable at this stage (i.e. the investment-led scenario is entirely adjusted on the upside). SQW nonetheless note that there is very significant macroeconomic uncertainty, which may have negative implications in the short-to-medium term. They also note the potential constraints on labour market supply, given historically low unemployment and recent evidence of some workers exiting the labour market.

5. Future Need for Housing

5.1 In accordance with the Manual, this section presents a range of unconstrained scenarios to explore the level of housing need that could arise in Carmarthenshire[76] over the new plan period (2018-33).

5.2 In doing so, it responds to the Manual's statement that:

*"The level of **unconstrained need** is based on current levels of need/demand at a point in time, i.e. the current/baseline situation (homes and jobs). Evidence will be required to demonstrate the baseline position of the plan"*[77]

5.3 Table 13 of the Manual presents a number of different considerations that relate to both need and supply, with those linked to the former broadly comprised of:

- Demographics;
- Trend-based considerations, including past build rates; and
- Policy-based considerations, including alternative assumptions on household size and migration as well as economic investment.

5.4 This section considers each of these areas, and also consistently reports on associated levels of job growth where the Manual emphasises the important relationship between jobs and homes.

Official demographic projections

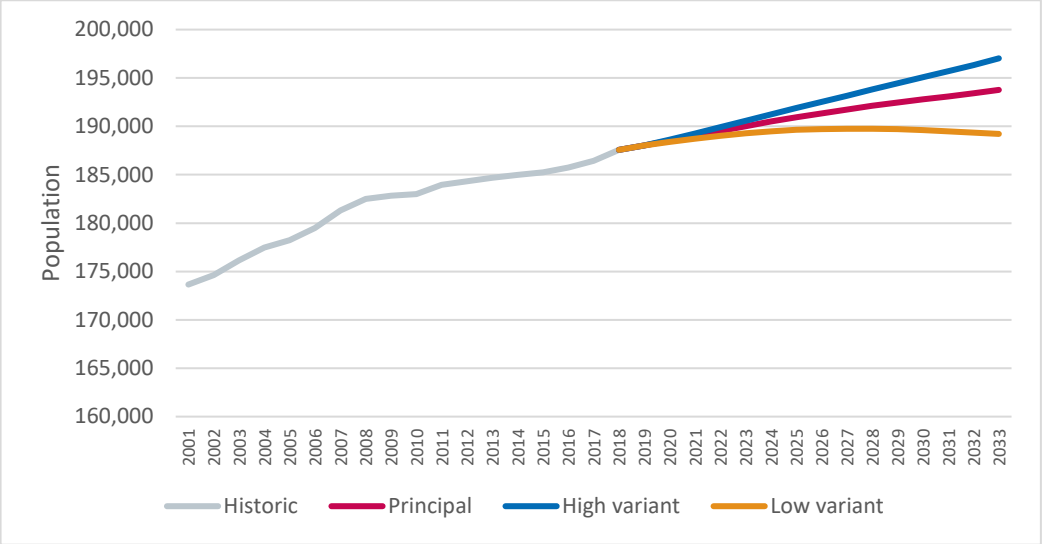
5.5 At the time of writing, the latest official projections available from the Welsh Government are based to 2018. The principal projection largely bases its assumptions on the demographic trends recorded over the preceding five years, thus providing an indication of how the population of Carmarthenshire could change if these trends were to continue. A series of variants are also available, including "high" and "low" variants that respectively make more optimistic and pessimistic assumptions on fertility, life expectancy and migration from other parts of the UK.

5.6 These official projections suggest that Carmarthenshire could accommodate as many as 9,460 additional residents between 2018 and 2033, or as few as 1,650. The principal projection sits slightly above the midpoint of this range and suggests that there could be an additional 6,197 residents by the end of the emerging plan period.

[76] All scenarios relate to the entire county of Carmarthenshire, including the part that falls within the Brecon Beacons National Park. They are nonetheless considered to form a reasonable basis for an RLDP that excludes this area given that it contained only 0.8% of the county's total population as of 2020, so Edge Analytics believe that its removal would have a negligible impact

[77] Welsh Government (2020) Development Plans Manual, Edition 3, p103

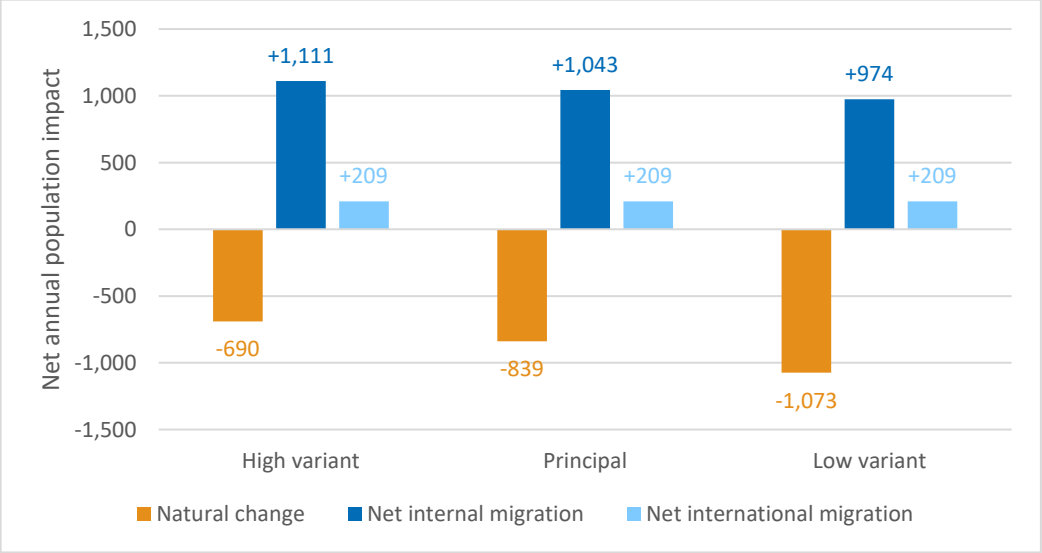
Figure 5.1: Official 2018-based Population Projections for Carmarthenshire



Source: Welsh Government

5.7 The projections suggest that population growth would be driven in each case by net in-migration from other parts of the UK. The principal projection allows for an average net inflow of circa 1,043 people per annum, increasing to 1,111 per annum under the high variant – which is still less than the average over the past five years (1,265pa) – and falling to 974 under the low variant. All consistently allow for a net inflow of circa 209 international migrants per annum, with this assumption not varied and consistent with the short- and long-term trends identified in section 2. Deaths are projected to outnumber births in each scenario, with natural change therefore continuing to have a consistently negative effect on the population that is most pronounced under the low variant.

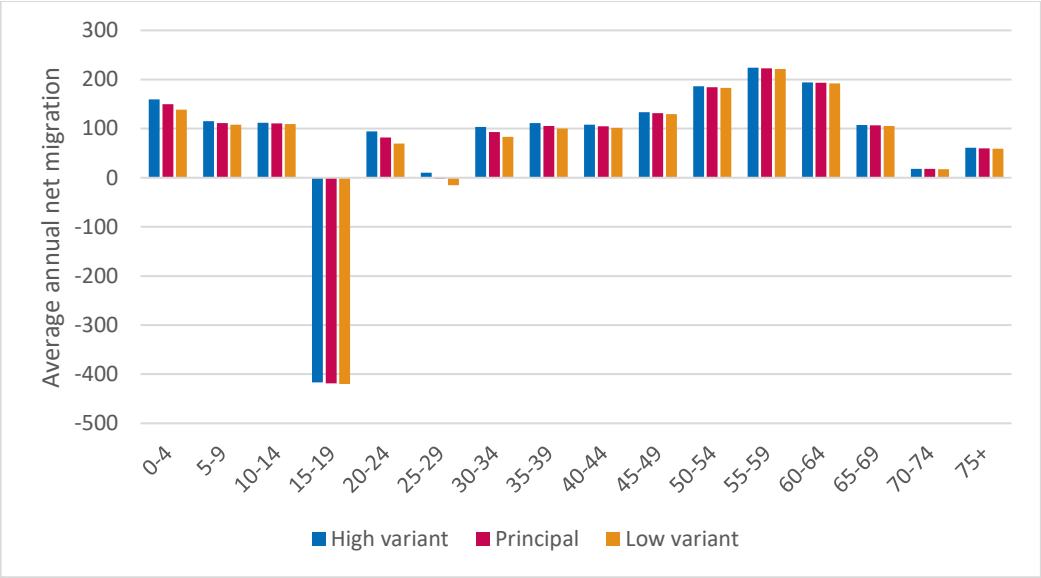
Figure 5.2: Components of Projected Population Growth (2018-33)



Source: Welsh Government

5.8 Analysis by Edge Analytics suggests that the age profile of migrants, both internal and international, would be similar in each scenario. The largest net outflow would be of those aged 15 to 19, around 420 more of whom are projected to leave the county in each year of the plan period than are expected to move in the opposite direction. The principal 2018-based projection and the low variant also anticipate a net outflow of those aged 25 to 29, albeit this is extremely small (2-15 persons per annum) and is reversed in the high variant which projects a net inflow of 10 such individuals each year.

Figure 5.3: Projected Net Migration by Age (2018-33)

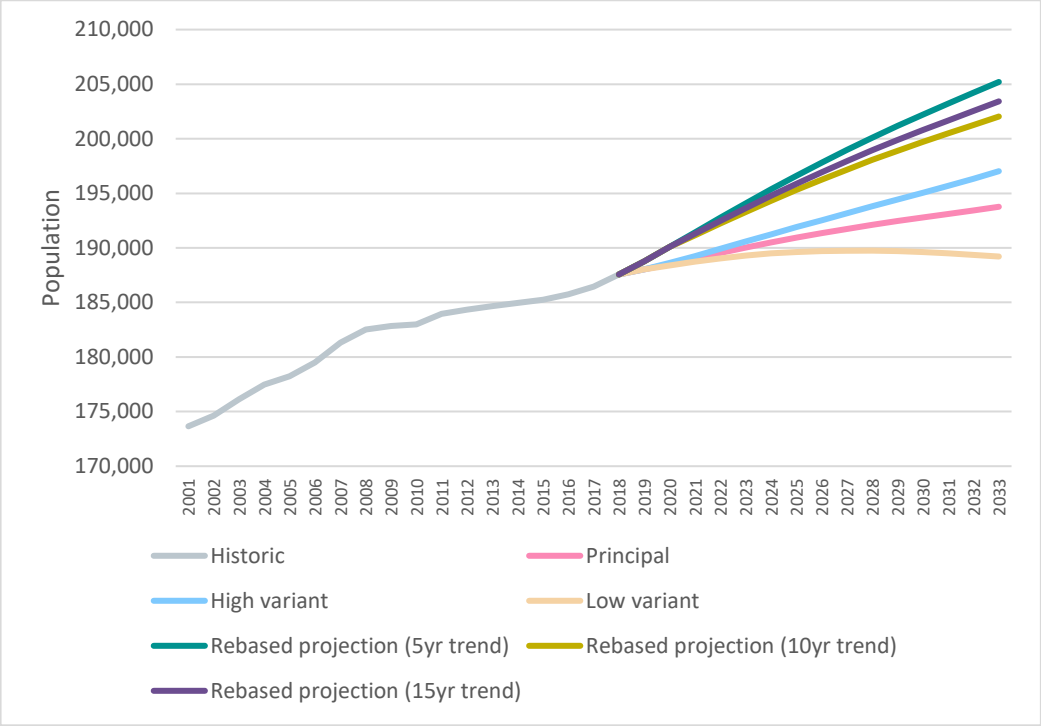


Source: Edge Analytics; Welsh Government

5.9 All three scenarios are based to 2018, so take no account of the two subsequent years – included in the earlier Figure 2.5 – in which the ONS estimated that the population of Carmarthenshire had continued to grow.

5.10 The principal projection can though be rebased by Edge Analytics to include these two additional years, effectively moving its five-year trend period forward as described in further detail at **Appendix 1**. This increases the projected level of population growth and suggests that Carmarthenshire could have an additional 17,635 residents by the end of the new plan period, almost trebling the level of growth suggested by the principal projection. Extending the length of the trend period, by looking at the last ten or fifteen years to 2020 – rather than five – does though slightly reduce it again, with these scenarios respectively suggesting that the county could have 14,468 or 15,854 additional residents by 2033.

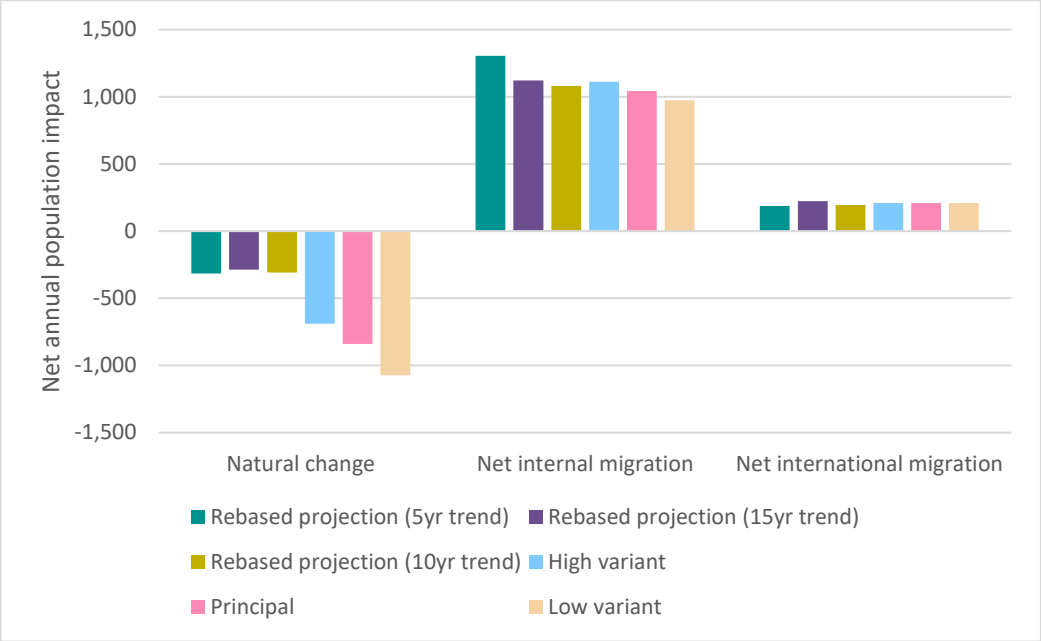
Figure 5.4: Impact of Rebasing the Principal Population Projection



Source: Welsh Government; Edge Analytics

5.11 These rebased projections anticipate that there will be a greater balance between births and deaths in Carmarthenshire, compared to the official 2018-based projections which were summarised at the earlier Figure 5.2. A continuation of the trend recorded over the last five years in particular would also see a larger net inflow of migrants from other parts of the UK, albeit this would be partially offset by a smaller net inflow of international migrants such that the overall net inflow – of circa 1,491 persons per annum – would be only 170 persons larger than anticipated by the high variant.

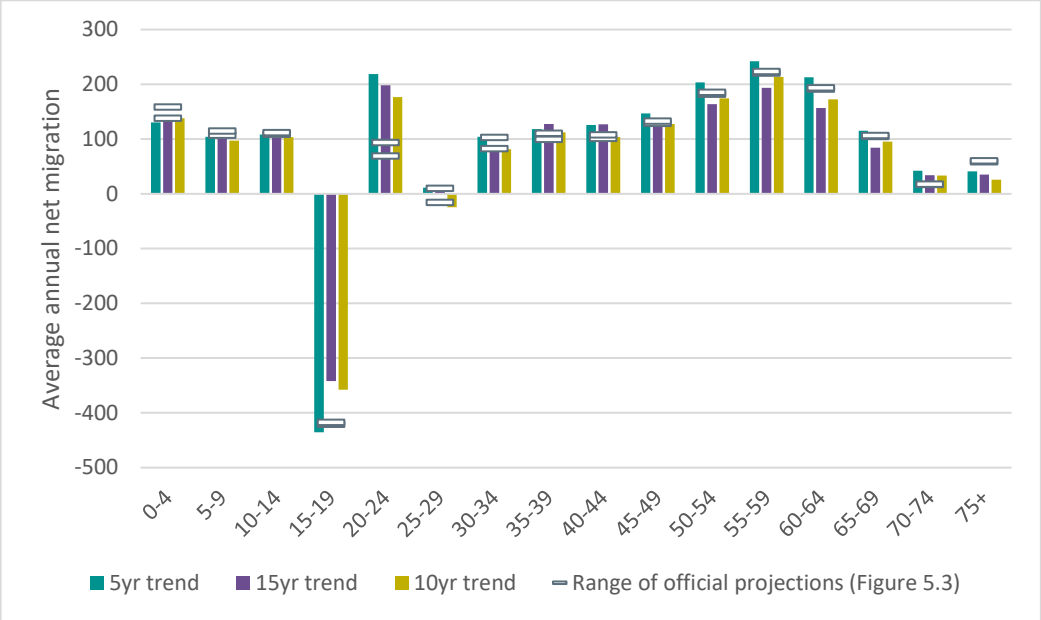
Figure 5.5: Components of Projected Population Growth (2018-33)



Source: Welsh Government; Edge Analytics

5.12 The net inflow under the rebased scenarios would be of a similar profile, in terms of age, to that implied by the official projections and previously summarised at Figure 5.3. Each anticipate a net outflow of those aged 15 to 19 and a relatively balanced flow of those aged 25 to 29, as shown by Figure 5.6 overleaf. The largest net inflows would be of those aged 20 to 24 – more than doubling that assumed by any of the official projections – and those aged 50 or above, where the projected net inflow is generally smaller than anticipated by the official projections except when a five year trend is used.

Figure 5.6: Projected Net Migration by Age (2018-33)



Source: Edge Analytics

5.13 It is important to acknowledge that these rebased scenarios, like the official projections, are based on population estimates that are set to be reviewed after the 2021 Census found the population of Carmarthenshire to be slightly lower than previously estimated. While this creates a degree of uncertainty that will not be fully resolved until revised estimates are available in the spring, it does not necessarily prevent further consideration of the population growth that might be needed to support the local economy of Carmarthenshire, as discussed below. This is because such scenarios assume that the attraction of working age residents to the county, or their loss, is more closely related to the availability of employment opportunities moving forwards, this being the primary driver of change rather than necessarily continuing historic trends.

Employment-led scenario – baseline employment growth

5.14 After reviewing three up-to-date employment forecasts in section 4 of this report, SQW have recommended that the forecast produced by Experian is an appropriate baseline for Carmarthenshire. This envisages the creation of **circa 354 jobs per annum** between 2020, as the historical base point, and 2033.

5.15 Such a level of job growth may not be supported if the population of Carmarthenshire was to grow in the manner suggested by the various official projections developed by the Welsh Government, according to modelling by Edge Analytics whose methodology is described in **Appendix 1**. Their modelling suggests that the principal 2018-based projection could be reasonably expected to support the creation of 201 jobs per annum over the rest of the new plan period (2020-33). This falls to 143 jobs per annum under the low variant and rises only to 257 jobs per annum even under the high variant. These scenarios reasonably assume that:

- **Unemployment** remains at the relatively low rate of 3.9% that has been recorded on average over the past five years, rather than falling further – and thus unlocking latent labour – or rising where section 4 described the tightness of the county's existing labour market;

- **Economic activity rates** amongst males and females aged 16 to 89 will continue to evolve from the position recorded by what remains the last reported Census in 2011, following the trend of the latest national forecasts produced by the OBR[78]. These forecasts are relied upon by the UK Government to inform their long-term budgetary planning and are widely used to provide a robust and consistent basis for understanding long-term changes in labour force behaviour;

- Circa 5.0% of residents hold **more than one job**, based on the average recorded in Carmarthenshire over the last ten years by the Annual Population Survey; and

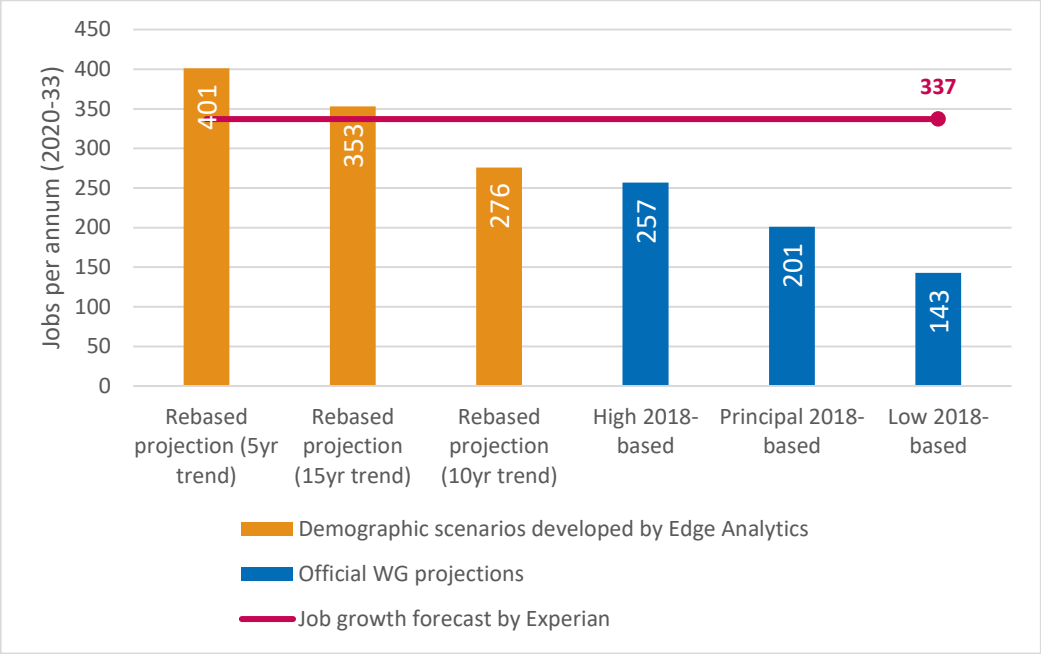
- **Commuting** continues at the rate recorded by the last reported Census in 2011, when there were 1.09 resident workers per job in Carmarthenshire and thus a net out-commute. While reflective of an increasingly dated point in time, it is of note that an identical ratio was also recorded by the 2001 Census. This suggests that this is a longstanding trend that can thus be reasonably assumed to continue as a starting point, even if it takes no account of any specific policy-led interventions to adjust the relationship between jobs and labour in the county.

5.16 While population growth in line with the Welsh Government projections appears unlikely to support the scale of job creation forecast in Carmarthenshire by Experian, a number of the demographic scenarios presented above – in which stronger population growth is projected – could be expected to accommodate the requirement for labour and even surpass it.

5.17 Edge Analytics' rebased version of the principal projection, which draws on trends over five years to 2020, could enable the creation of some 401 jobs per annum according to its modelling. This falls to 276 jobs per annum when the trend period is extended to ten years, but again exceeds the baseline forecast when further extended to fifteen years with the modelling suggesting that 353 jobs per annum could be supported if the demographic trends recorded in that time continue.

[78] OBR (2018) Fiscal Sustainability Report

Figure 5.7: Job Growth Supported by Demographic Scenarios (2020-33)



Source: Welsh Government; Experian; Edge Analytics; Turley analysis

5.18 There is evidently the closest alignment between the level of job growth forecast by Experian and that supported under a rebased projection that draws on a fifteen year trend. Such alignment is also apparent when Edge Analytics produce an employment-led scenario, which takes the reverse approach and estimates the population growth needed to support a specified level of job growth, allowing for more in-migration to grow the labour force when demographic trends alone will not provide sufficient labour in any one year. This modelling suggests that the population of Carmarthenshire would need to grow by circa 16,407 persons over the entire plan period for the local economy to create 354 jobs per annum from 2020 onwards, when assuming that the labour force behaves in the manner described above. This closely compares to the scenario that draws on a fifteen year trend, which anticipates 15,854 extra residents, and similarly represents a lower level of population growth than envisaged when a five year trend to 2020 is used.

Converting the population into households and dwellings

5.19 While the above analysis has focused on projected change in the size of the population, when considering housing needs it is also important to understand how residents will form households. The Welsh Government's official 2018-based projections make a series of localised assumptions on the size of households lived in by individuals of different genders and ages, referred to as household membership rates. These are then applied to its own principal projection and the variants to suggest that there could be an additional 172 to 364 households per annum in Carmarthenshire over the new plan period.

5.20 **Appendix 1** notes that these same assumptions can also be applied to the other scenarios developed by Edge Analytics, to provide an indication of the associated household growth.

5.21 All of the above can then be converted into dwellings, with the Manual endorsing the use of a '*vacancy rate*' that allows for the '*churn*' of stock[79]. While this signposts Census data, this is relatively dated at the time of writing – pending the release of data from the 2021 Census – and the availability of more up-to-date Council Tax data makes it reasonable to derive a vacancy rate of 3.8% from the latter[80].

Table 5.1: Applying Assumptions on Household Membership and Vacancy

	Total additional residents 2021-36	Additional households per annum 2021-36	**Homes needed per annum** 2021-36
Rebased principal projection[81]	17,635	671	**697**
Baseline employment-led scenario	16,407	637	**662**
Fifteen year trend-based projection	15,854	595	**618**
Ten year trend-based projection	14,468	566	**588**
High 2018-based variant	9,460	364	**378**
Principal 2018-based WG projection	6,197	280	**291**
Low 2018-based variant	1,650	172	**178**

Source: Welsh Government; Edge Analytics

Comparing to past build rates

5.22 Section 2 highlighted that an average of 501 dwellings per annum have been completed in Carmarthenshire during the current plan period, since 2007. The average over the past five years is only slightly higher at 527 dwellings per annum.

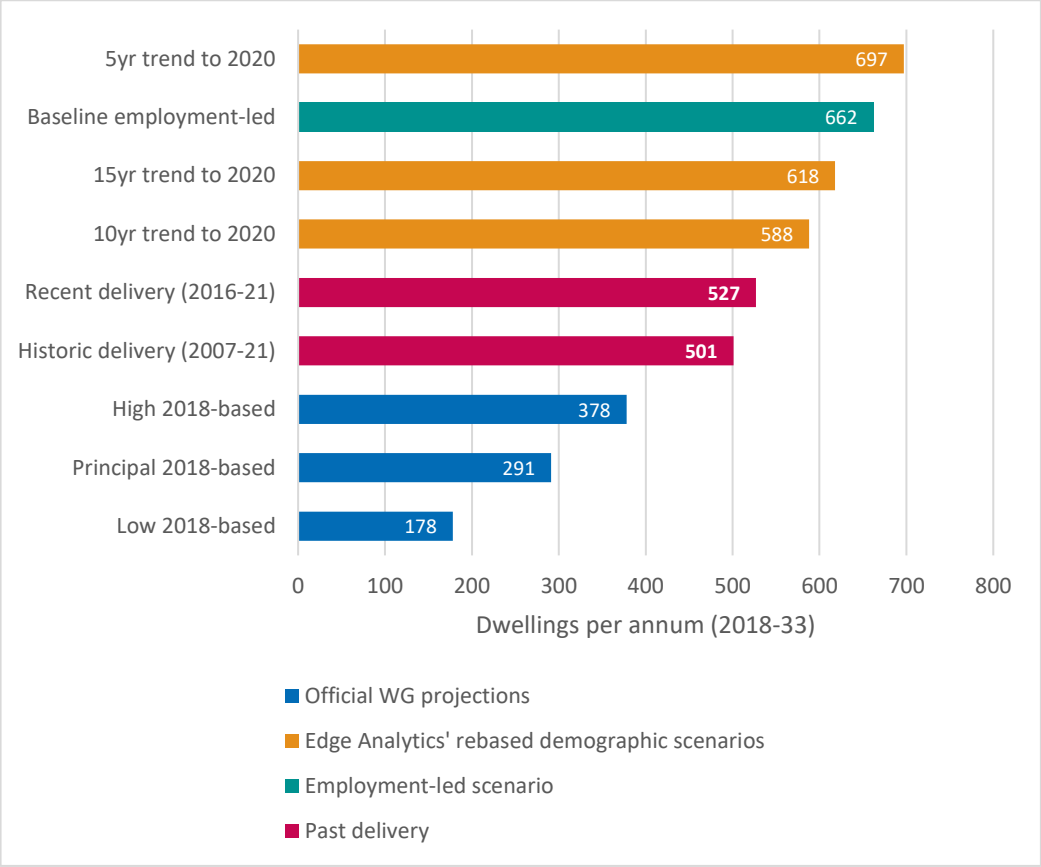
5.23 While less than previously planned, continuing such rates of delivery would appear likely to accommodate the population growth envisaged by each of the official projections, when applying their assumptions on household membership. The rate of development would though need to rise to meet the housing need implied by any of Edge Analytics' rebased projections, or indeed by the baseline employment-led scenario.

[79] Welsh Government (2020) Development Plans Manual, Edition 3, p108

[80] Welsh Government (2022) Council tax dwellings by local authority (number of dwellings)

[81] Drawing on demographic trends in the five year period to 2020, rather than the equivalent period to 2018 like the latest official WG projection

Figure 5.8: Benchmarking Scenarios Against Past Delivery



Source: Welsh Government; Edge Analytics; Council monitoring; Turley analysis

Policy-led scenarios

5.24 The above scenarios form an important part of the evidence, as recognised by the Manual, but this critically does proceed to identify the potential for policy decisions to affect the unconstrained need for housing. The Council could, for instance, consider that the stronger job growth identified in section 4 more closely reflect its ambitions. It could also attempt to explicitly address one of the potential consequences of historic undersupply discussed in section 2, whereby households have been larger than previously expected, not because of aspirations but due to the limited availability of housing options. These scenarios are considered in turn below.

Planning for stronger job growth

5.25 While arguably not a reflection of need per se – with the Welsh Government distinguishing policy-based considerations from assessments of housing need that are based on demographics and past trends[82] – there is a scenario in which the Council chooses to pursue a higher level of job growth beyond the baseline forecast.

5.26 SQW have, in section 4, identified the potential for a higher level of job growth in Carmarthenshire if various known and potential investments are made, albeit while

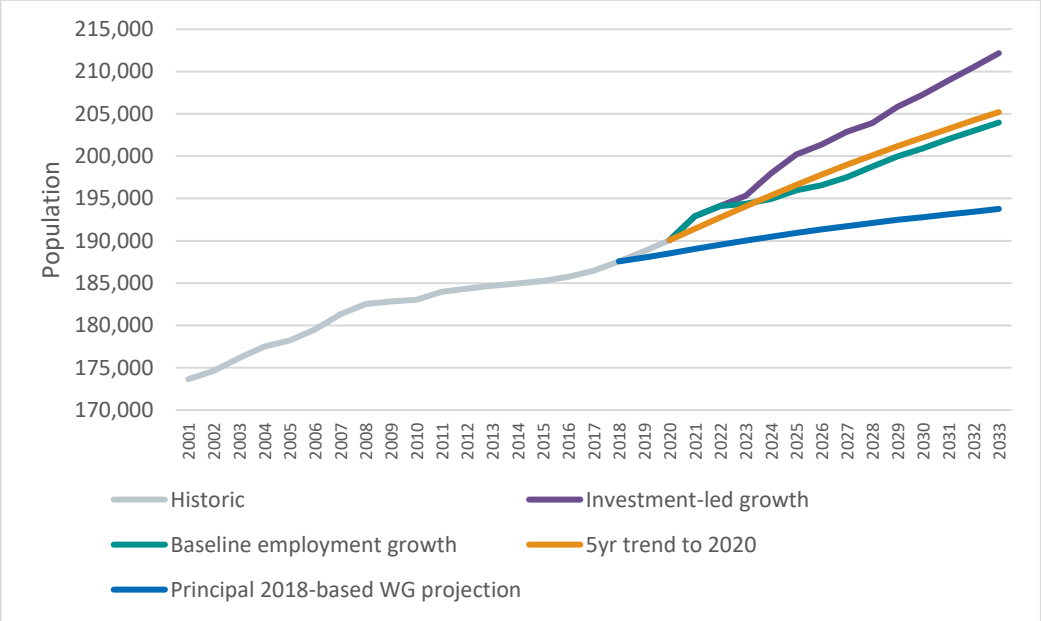
[82] Welsh Government (March 2020) Development Plans Manual: Edition 3, p104

also recognising – but not accounting for – the other downside risks to local performance including the presently challenging macroeconomic climate. They estimate that as many as **674 jobs per annum** could be created throughout Carmarthenshire over the remaining years of the new plan period (2020-33) in such an investment-led scenario, albeit while acknowledging that are numerous uncertainties as to whether this will actually materialise.

5.27 None of the demographic scenarios previously introduced in this section would be likely to support such a level of job growth, when assuming that the labour force behaves in the way previously described. Even the rebased five year scenario, which Figure 5.7 indicated would support the highest level of job growth – at circa 401 per annum – would remain some 28% short.

5.28 Edge Analytics have therefore developed a further employment-led scenario to start exploring the amount of net in-migration, and population growth, that could be necessary to grow the labour force and support this higher level of job creation if the labour force behaves as previously outlined. This modelling suggests that Carmarthenshire could need up to 24,603 additional residents over the plan period, around 40% more than could result from a continuation of the demographic trends recorded over the last five years with this being the highest of the scenarios introduced to this point.

Figure 5.9: Benchmarking Population Growth under Investment-led Scenario



Source: Edge Analytics; Welsh Government

5.29 As previously explained, this scenario assumes that job growth is supported through higher levels of net in-migration, implicitly allowing both for the attraction of more people and the greater retention of those who would otherwise have moved elsewhere. It varies only the level of internal migration to and from other parts of the UK, and – like the rebased principal projection – assumes that the net inflow of

international migrants continues at the rate recorded over the past five years (c.188pa).

5.30 The investment-led growth scenario allows for the net inflow of circa 1,732 people every year from other parts of the UK. This is around 8% larger than the net inflow recorded on average over the last three years for which data is currently available (2017-20), itself a recent peak, but is roughly double the average net inflow recorded over the last ten years, which are all shown at the earlier Figure 2.6.

5.31 Accommodating such an inflow, as well as the other drivers of population growth, would elevate housing need in Carmarthenshire beyond the range suggested to this point by the various scenarios. Edge Analytics' modelling suggests that **as many as 896 dwellings per annum** could be needed in such an investment-led growth scenario, 29% more than if recent demographic trends continue.

5.32 As noted, however, this modelling retains the baseline assumptions on labour force behaviour, which themselves allow only for modest changes beyond historic trends. Stronger job growth, coupled with a labour market that is already known to be tight, could be reasonably expected to result in more pronounced changes in behaviour. Given that an already tight labour market is less likely to see further increases in participation rates, it is of particular note that the modelling assumes a continued net outflow of commuters from Carmarthenshire.

5.33 Where more employment opportunities became available within Carmarthenshire, there is a possibility that this longstanding trend could start to evolve with a move towards a more direct balance between jobs and homes in the county. This would reduce the need for new housing to support job growth in excess of the baseline, where the labour already resides within Carmarthenshire. In this context, it is notable that the Welsh Government itself encourages more sustainable commuting patterns and this arguably therefore represents another policy choice for the Council[83].

Planning to address a consequence of past undersupply

5.34 The modelling introduced above uses assumptions drawn from the official 2018-baed projections to convert the population into households. Research by Edge Analytics has, however, found that these projections build in the aforementioned assumption that many individuals will live in larger households rather than in smaller households – or alone – as more did in the past. As noted in section 2, such a trend is potentially linked to the historic failure to deliver planned housing growth, rather than being a reflection of such individuals' aspirations if supply and affordability constraints were not an issue.

5.35 This is likely to have had the greatest impact on younger people looking to form households, and in this context it is notable that the earlier 2008-based projections – which look back from 2008 and are thus not influenced by undersupply during the current plan period – envisaged more such individuals living alone or in smaller households. This is shown by Figure 5.10 which compares the proportion of young adults assumed to be living in households of different sizes by 2033, the final year of the new plan period and indeed the last year covered by the 2008-based projections.

[83] Welsh Government (February 2021) Planning Policy Wales: Edition 11, paragraph 3.50

Figure 5.10: Comparing Household Membership Rates in 2008/2018-based Projections for Carmarthenshire[84] (2033)

Source: Welsh Government; Edge Analytics

5.36 This shift is likely to have been at least partially influenced by the supply of homes falling short of targets, so there is arguably a justification for seeking to avoid embedding this situation into the future projections of housing need and thus allow for a level of provision to address the scale of hidden households.

5.37 Edge Analytics have developed an adjustment targeted at the younger people, aged 25 to 34, who – as shown above – are most likely to have been affected and are most likely to aspire to form independent households when given the opportunity to do so. The adjustment is applied to the household membership rates within the Welsh Government's 2018-based projections and assumes a partial return to the trend of the earlier 2008-based projections over the course of the new plan period[85] (2018-33).

5.38 Edge Analytics have applied this adjustment to a selection of the scenarios introduced in this section to illustrate its impact. Table 5.2 shows how it uplifts the number of households assumed to be formed by the same population, and consequently elevates the implied need for housing by circa 72-75 dwellings per annum. This assumes that the development of these additional homes would create the space for younger adults

[84] Showing the proportion in each cohort assumed to be living in one-person (1p) households, two-person households (2p) etc

[85] As illustrated at **Appendix 1**

to live alone or in smaller households, rather than in larger shared households or with family for example. The modelling highlights that provision above the projected needs without adjustment would therefore make a positive contribution towards this specific consequence of historic undersupply.

Table 5.2: Impact of Alternative Assumptions on Household Membership (2018-33)

	Additional residents	Homes needed without adjustment	**Homes needed *with* adjustment**
Ten year trend-based projection	14,468	588	**661**
Fifteen year trend-based projection	15,854	618	**693**
Baseline employment-led scenario	16,407	662	**734**
Rebased principal projection	17,635	697	**770**

Source: Edge Analytics

Summary

5.39 This section has presented a range of unconstrained scenarios to explore the level of housing need that could arise in Carmarthenshire over the new plan period (2018-33). It has responded to the Manual in considering demographics, past trends and policy-based factors, as well as the relationship with the local economy.

5.40 It has presented the most recent official projections developed by the Welsh Government, which are 2018-based and include "high" and "low" variants to complement the principal projection. They suggest that **circa 178 to 378 dwellings per annum** could be needed in Carmarthenshire over the new plan period, which would represent fewer homes than have been delivered over the current plan period (501dpa) or over the past five years alone (527dpa). This markedly rises though to **697 dwellings per annum** when the principal projection is rebased to 2020, drawing on demographic trends over the preceding five years, albeit falls again when the *length* of the trend period is extended to ten or fifteen years (**588/618dpa**).

5.41 When making reasonable assumptions on labour force behaviour, the highest of these scenarios – namely those that extrapolate trends over five or fifteen years to 2020 – appear likely to provide the necessary labour to support the 354 jobs per annum forecast by Experian, selected as an appropriate baseline by SQW. The same cannot be said of any of the Welsh Government's official projections or Edge Analytics' ten-year trend-based scenario, which would require more pronounced changes in behaviour if the creation of any more than 276 new jobs per annum is to be supported.

5.42 These scenarios form an important part of the evidence but the Manual does also identify the prospect of policy decisions affecting the level of housing need in future. The Council could, for instance:

- **Pursue the stronger job growth that section 4 suggested could be possible** based on local opportunities and investments, presenting a growth scenario – in which some 674 jobs would be created annually – that could generate a need for as many as 896 dwellings per annum if the labour force continues to behave as assumed under the baseline. It is acknowledged however that a sustained stronger growth in employment opportunities could be reasonably expected to change behaviours in parallel, particularly where the Welsh Government wishes to encourage more sustainable commuting patterns.

- **Account for one of the consequences of historic undersupply** discussed in section 2, whereby households have been larger than previously expected and fewer young people are assumed to live alone. A partial return to the trend anticipated by the Welsh Government's 2008-based projections – not influenced by undersupply during the current plan period – would increase the number of households formed by residents and consequently elevate the implied need for housing by circa 72-75 dwellings per annum. This confirms that provision above those projections based on unadjusted rates would positively help to address the current and future existence of hidden households.

6. Summary and Conclusions

6.1 Turley, SQW and Edge Analytics have been commissioned to undertake this comprehensive assessment of housing and economic growth options for Carmarthenshire, which builds upon existing studies and looks to provide up-to-date evidence to inform the Revised Local Development Plan that is once again being prepared by the Council.

6.2 The assessment has been undertaken in the context of the Welsh Government's Development Plans Manual, which emphasises the importance of balancing housing and job growth to reduce the need for commuting. It also clearly distinguishes between the '*unconstrained need*' for housing and the plan requirement, which will be selected by the Council after it takes account of other '*supply factors*' including viability and land availability.

A changing county

6.3 The report has identified how Carmarthenshire has changed since the existing Local Development Plan was adopted in December 2014, aiming to provide an average of 1,013 dwellings per annum. The Council's monitoring indicates though that less than half as many homes (501dpa) have been provided since 2007, but this does not appear to have had a negative effect on affordability – with entry-level housing becoming *more* affordable relative to earnings – nor stopped the population from growing at the rate of wider Wales, with more people being retained or attracted from other parts of the UK. Younger people especially appear to have moved into the county in greater number than moved out, for the first time in at least two decades.

6.4 Undersupply may though have contributed towards residents of Carmarthenshire living in larger households than was previously anticipated, some potentially being left with no choice but to stay in the family home or share with other adults due to a shortage of available housing.

6.5 Economic productivity in Carmarthenshire has remained relatively weak, with output also growing slower than in the rest of Wales and the UK in recent years, but jobs growth has been strong – estimates for the plan period to 2019 ranging from 357 to 431 jobs per annum – having matched the growth of these areas. Key employment centres have included the three principal towns of Llanelli, Carmarthen and Ammanford, as well as Cross Hands. There remain strong concentrations of employment in agriculture, manufacturing (especially food manufacturing and the automotive sector), health and social care and public administration, with relatively lower representation in private sector-dominated business and professional services. Manufacturing and health have driven employment growth in recent years, alongside hospitality and business services. Most businesses are small or micro in size, albeit there are some larger employers – especially in manufacturing and the public sector – and several have been highlighted for their innovation and high growth potential.

Future job growth

6.6 Having reviewed economic performance over the current plan period, SQW have proceeded to consider the potential for further economic growth in Carmarthenshire over the new plan period to 2033. Three baseline forecasts, from each of the leading forecasting houses, have been introduced which suggest that between 149 and 545 jobs could be created each year. The forecast from Experian, anticipating **354 jobs per annum** from 2020 onwards, has been preferred by SQW following their consideration of historic trend data, sectoral breakdowns and earlier evidence-based studies.

6.7 This baseline has though been subsequently adjusted to account for known and/or plausible investments that are likely to come forward and generate additional jobs in the coming years, but are not reflected in the baseline. SQW estimate that some **674 jobs per annum** could be created in such an investment-led growth scenario, which has only been adjusted on the upside given that downside risks are effectively unknowable at this stage. The very significant macroeconomic uncertainty at present, and its potentially negative implications in the short-to-medium term, have nonetheless been noted alongside the ongoing prospect of a constrained labour market given historically low unemployment and recent signs of workers opting to no longer work.

Future need for housing

6.8 A range of *unconstrained* scenarios have been presented in this report to explore the level of housing need that could arise in Carmarthenshire over the new plan period, responding to the Manual by considering demographics, past trends and policy-based factors as well as the relationship with the local economy.

6.9 The most recent official projections from the Welsh Government have been introduced, these being based to 2018 and including “high” and “low” variants alongside a principal projection. They suggest that circa **178 to 378 dwellings per annum** could be needed in Carmarthenshire over the new plan period, fewer than have been delivered during the current one (501dpa) or over the past five years alone (527dpa). This markedly rises though to **697 dwellings per annum** when the principal projection is rebased to 2020, drawing on demographic trends over the preceding five years, but falls again when the *length* of the trend period is extended to ten or fifteen years (**588/618dpa**).

6.10 Modelling suggests that the highest of these scenarios, which extrapolate trends over five or fifteen years to 2020, could provide more than enough labour to support the 354 jobs per annum forecast by Experian, when making reasonable assumptions on labour force behaviour. The same cannot be said though of any of the Welsh Government’s official projections or Edge Analytics’ ten-year trend-based scenario, which would require more pronounced changes in behaviour if the creation of any more than 276 new jobs per annum is to be supported.

6.11 These scenarios form an important part of the evidence but the Manual does also identify the prospect of policy decisions affecting the level of housing need in future. The Council could, for instance:

- **Pursue the stronger job growth that SQW have suggested could be possible** based on local opportunities and investments. Edge Analytics' modelling indicates that as many as 896 homes could be needed each year to support the 674 jobs per annum optimistically suggested in this scenario, if the labour force behaves as assumed in the baseline and commuting trends in particular do not change in light of such strong job growth.

- **Account for one of the consequences of historic undersupply**, whereby households have been larger than previously expected and fewer young people are assumed to live alone. This report has shown that a partial return to the trend anticipated by the Welsh Government's 2008-based projections – not influenced by undersupply during the current plan period – would increase the number of households formed by residents and consequently elevate the implied need for housing by circa 72-75 dwellings per annum. This indicates that provision above those projections based on unadjusted rates would positively help to address the current and future existence of hidden households.

Appendix 1: Demographic Modelling Assumptions

Carmarthenshire

Data Inputs & Assumptions

November 2022

edge analytics

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Acknowledgements

Demographic statistics used in this report have been derived from data from the Office for National Statistics licensed under the Open Government Licence v.3.0.

Contents

1 POPGROUP Methodology

1.1 POPGROUP is a suite of demographic models used to derive forecasts of populations, households and labour force, for areas and social groups. The main POPGROUP model (Figure 1) is a 'cohort component' model, which enables the development of population forecasts based on births, deaths and migration inputs and assumptions.

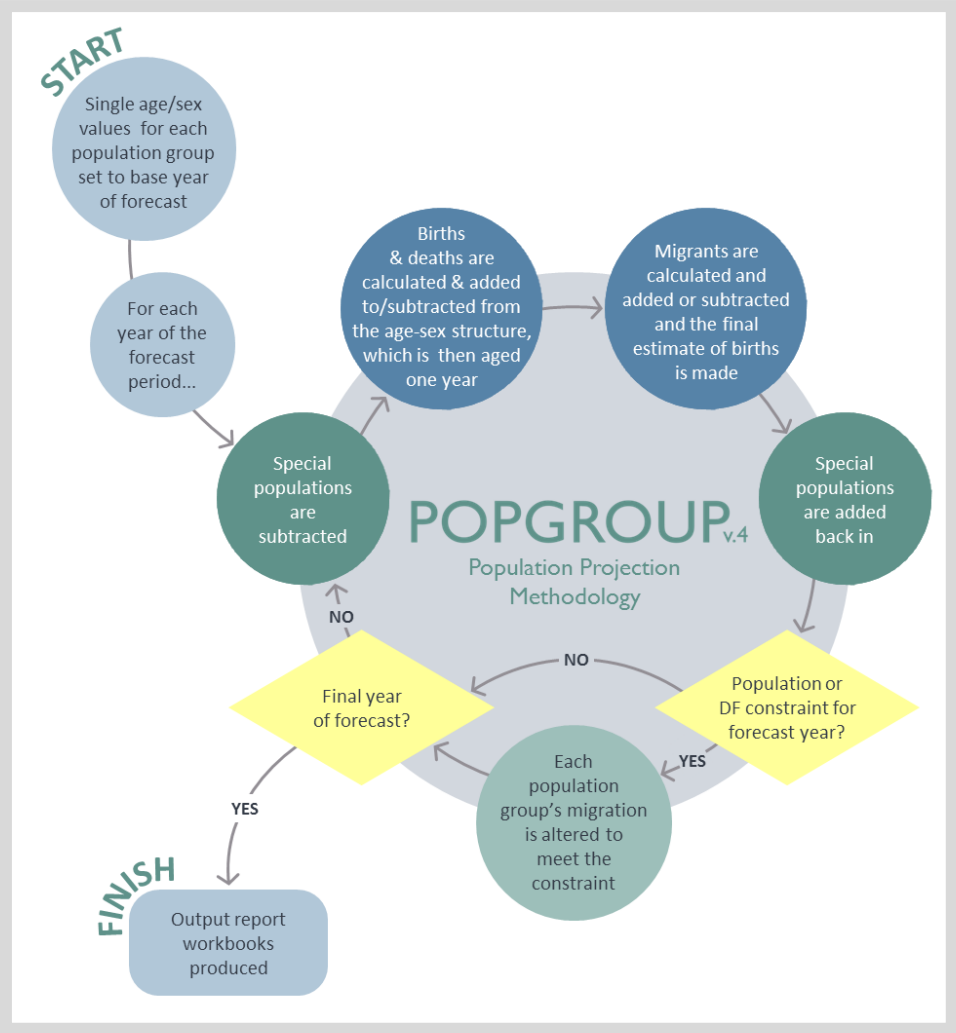
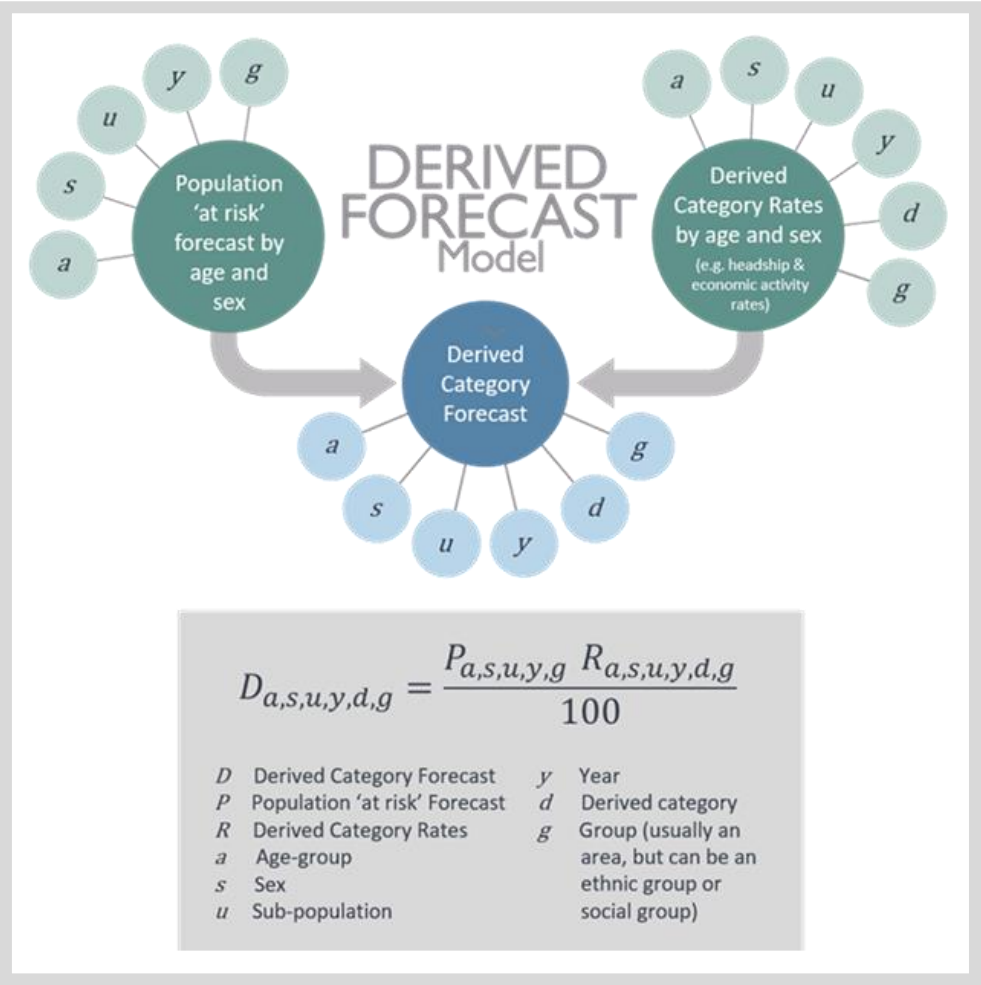


Figure 1: POPGROUP population projection methodology

1.2 The Derived Forecast (DF) model sits alongside the population model (Figure 2), providing a membership rate model for household and dwelling projections and an economic activity rate model for labour force and employment projections.



$$D_{a,s,u,y,d,g} = \frac{P_{a,s,u,y,g}\ R_{a,s,u,y,d,g}}{100}$$

D	Derived Category Forecast	y	Year
P	Population 'at risk' Forecast	d	Derived category
R	Derived Category Rates	g	Group (usually an area, but can be an ethnic group or social group)
a	Age-group		
s	Sex		
u	Sub-population		

Figure 2: Derived Forecast (DF) methodology

2 Data Inputs & Assumptions

Introduction

2.1 Edge Analytics has developed a suite of demographic scenarios for Carmarthenshire using POPGROUP v4 and the Derived Forecast model. The POPGROUP suite of demographic models draws data from a number of sources, building a historical picture of population, households, fertility, mortality and migration on which to base its scenario forecasts.

2.2 Using historical data evidence from the Office for National Statistics (ONS) for 2001–2020, in conjunction with information from the latest Welsh Government (WG) sub-national population projections (SNPPs) and household projections, a series of assumptions have been derived which drive the scenario forecasts.

Scenario Definitions

2.3 Edge Analytics has developed a suite of trend-led and employment-led scenarios for Carmarthenshire, taking into account the latest demographic and economic evidence.

2.4 The following scenarios have been configured for this analysis:

- **WG-2018** – Replicates the WG 2018-based *Principal* population projection, using historical population evidence for 2001–2018.
- **WG-2018-HIGHPOP** – Replicates the WG 2018-based *High* population projection, using historical population evidence for 2001–2018 and incorporating high fertility, life expectancy and migration assumptions.
- **WG-2018-LOWPOP** – Replicates the WG 2018-based *Low* population projection, using historical population evidence for 2001–2018 and incorporating low fertility, life expectancy and migration assumptions.
- **PG-5Y** – Uses an ONS 2020 mid-year estimate (MYE) base year and calibrates its migration assumptions from a 5-year historical period (2015/16–2019/20).
- **PG-10Y** – Uses an ONS 2020 MYE base year and calibrates its migration assumptions from a 10-year historical period (2010/11–2019/20).
- **PG-15Y** – Uses an ONS 2020 MYE base year and calibrates its migration assumptions from a 15-year historical period (2005/06–2019/20).
- **Employment-led (Experian)** – Models the population impact of an average annual employment growth of +316 per year (following Turley's independent application of a double jobbing assumption) between 2020 and 2036, detailed in the Experian forecast.

- **Employment-led (Growth)** – Models the population impact of an average annual employment growth of +595 per year (following Turley's independent application of a double jobbing assumption) between 2020 and 2036.

2.5 Under an 'employment-led' scenario, population growth is determined by the annual change in employment using key assumptions on economic activity rates, commuting ratios and unemployment rates.

Inputs & Assumptions

Population

2.6 Historical population statistics are provided by ONS MYEs, with all data disaggregated by single year of age and sex. MYEs are used up to the respective base years of each scenario. From the base year onwards, future population counts are estimated by single year of age and sex, using assumptions outlined below. The **WG** scenarios use the MYEs up until the 2018 base year. The **PG** and **Employment-led** scenarios use the ONS 2020 MYE as their base year.

Births & Fertility

2.7 Historical mid-year to mid-year counts of births by sex have been sourced from the ONS MYEs.

2.8 Under the **WG** scenarios, historical counts of births have been used up until 2018. The future counts of births are reproduced from 2018 onwards to ensure consistency with the respective official projection.

2.9 In the **PG** and **Employment-led** scenarios, birth counts are applied from 2001/02 to 2019/20. From 2020/21, an area-specific and age-specific fertility rate (ASFR) schedule is derived from the WG 2018-based sub-national population projection (SNPP). In combination with the 'population at risk' (i.e. all women between the age of 15–49), these ASFR assumptions provide the basis for the calculation of births in each year of the forecast period.

Deaths & Mortality

2.10 Historical mid-year to mid-year counts of deaths by sex and five-year age group have been sourced from the ONS MYEs.

2.11 Under the **WG** scenarios, historical counts of deaths have been used up until 2018. The future counts of deaths are reproduced from 2018 onwards to ensure consistency with the respective official projection.

2.12 In the **PG** and **Employment-led** scenarios, counts of deaths by age and sex are applied from 2001/02 to 2019/20. From 2020/21, an area-specific and age-specific mortality rate (ASMR) schedule is derived from the latest WG 2018-based SNPP. In combination with the 'population-at-risk' (i.e. all population), these ASMR assumptions provide the basis for the calculation of deaths in each year of the forecast period.

Internal Migration

2.13 Historical mid-year to mid-year estimates of internal in- and out-migration by five-year age-group and sex have been sourced from the 'components of population change' files that underpin the ONS MYEs.

2.14 In the **WG** scenarios, these historical estimates are used up to 2018, with future counts of migrants defined to remain consistent with the official projections.

2.15 Under the **PG** scenarios, an area and age-specific migration rate (ASMigR) schedule is derived from a defined number of years of historical internal migration data, which then determines the future number of internal in- and out-migrants for the remainder of the plan period. For the **PG-5Y** scenario, this is derived from five years of historical data (2015/16–2019/20), for the **PG-10Y** scenario, this is derived from ten years of historical data (2010/11–2019/20) and for the **PG-15Y** scenario, this is derived from fifteen years of historical data (2005/06–2019/20).

2.16 Under the **Employment-led** scenarios, future internal migration rate assumptions have been derived from a five-year historical period (**PG-5Y**), with the level of internal migration altered by the model to meet defined annual employment growth targets.

International Migration

2.17 Historical mid-year to mid-year estimates of immigration and emigration by five-year age-group and sex have been sourced from the 'components of population change' files that underpin the ONS MYEs.

2.18 In the **WG** scenarios, these historical estimates are used up to 2018, with future counts of migrants defined, to remain consistent with the official projections.

2.19 In the **PG-5Y, PG-10Y** and **PG-15Y** scenarios, historical counts of immigration are used from 2001/02 to 2019/20. From 2020/21, future international migration counts are based on the area-specific historical migration data, using a five-, ten- and fifteen-year migration history. An ASMigR schedule of rates is derived from the migration history and used to distribute the future counts by single year of age.

2.20 Under the **Employment-led** scenarios, future international assumptions are derived from a five-year historical period (**PG-5Y**).

Households & Dwellings

2.21 The 2011 Census defines a household as *"one person living alone, or a group of people (not necessarily related) living at the same address who share cooking facilities and share a living room or sitting room or dining area."*

2.22 In POPGROUP, a *dwelling* is defined as a unit of accommodation which can either be occupied by one household or vacant.

2.23 The household and dwelling growth implications of each scenario are estimated through the application of communal population statistics, household membership rates, average household size and a dwelling vacancy rate. These assumptions have been sourced from the 2011 Census, and the WG 2018-based household projection model.

Household Membership Rates

2.24 Membership rates are used to calculate the proportion of the household population in each household category by age group and sex (Table 1), taken from the WG 2018-based household model for Carmarthenshire. The household population is then converted into households using average household size assumptions, drawn from the household model.

Table 1: WG 2018-based household categories

Household Category
1 person
2 person (No children)
2 person (1 adult, 1 child)
3 person (No children)
3 person (2 adults, 1 child)
3 person (1 adult, 2 children)
4 person (No children)
4 person (2+ adults, 1+ children)
4 person (1 adult, 3 children)
5+ person (No children)
5+ person (2+ adults, 1+ children)
5+ person (1 adult, 4+ children)

2.25 All scenarios (excluding the WG-2018 high and low variants) have also been run with the following sensitivity to household membership rates applied:

- **HH-18 Partial Return**: Between 2018 and 2033, the WG 2018-based membership rates in the 25–29 and 30–34 age groups return to a 'mid-point' between the 2008-based and 2018-based membership rates. The 'mid-point' has been calculated as an average of the 2008-based and 2018-based membership rates in 2033 (Table 2). No adjustments have been made to the other age groups.

Table 2: Carmarthenshire – HH-18 Partial Return mid-point membership rates

Sex	Age Group	Category	2033 Membership Rates		
			HH-08	HH-18	Mid-point
Male	25–29	1 person	26.1%	6.3%	16.2%
Male	25–29	2 person	24.9%	24.6%	24.7%
Male	25–29	3 person	32.1%	28.9%	30.5%
Male	25–29	4 person	11.5%	20.4%	15.9%
Male	25–29	5+ person	5.4%	19.8%	12.6%
Male	30–34	1 person	27.5%	12.6%	20.1%
Male	30–34	2 person	25.3%	21.8%	23.5%
Male	30–34	3 person	28.6%	29.0%	28.8%
Male	30–34	4 person	12.6%	21.8%	17.2%
Male	30–34	5+ person	6.1%	14.8%	10.4%
Female	25–29	1 person	17.5%	4.4%	11.0%
Female	25–29	2 person	37.4%	31.1%	34.3%
Female	25–29	3 person	28.4%	24.9%	26.7%
Female	25–29	4 person	10.5%	24.0%	17.3%
Female	25–29	5+ person	6.1%	15.6%	10.9%
Female	30–34	1 person	12.2%	9.2%	10.7%
Female	30–34	2 person	28.4%	28.6%	28.5%
Female	30–34	3 person	29.9%	25.5%	27.7%
Female	30–34	4 person	18.5%	23.0%	20.7%
Female	30–34	5+ person	11.0%	13.7%	12.4%

Communal Population Statistics

2.26 Household projections in POPGROUP exclude the population 'not-in-households' (i.e., the communal/institutional population). These data are drawn from the WG 2018-based household projections. Examples of communal establishments include prisons, residential care homes and student halls of residence.

2.27 For ages 0–74, the number of people in each age group not-in-households is fixed throughout the forecast period. For ages 75–85+, the population not-in-households varies across the forecast period depending on the size of the population.

Vacancy Rate

2.28 The relationship between households and dwellings is modelled using a 'vacancy rate', derived from WG Council Tax data. Under all scenarios, a vacancy rate of 3.8% for Carmarthenshire has been applied and fixed throughout the forecast period.

Labour Force & Employment

2.29 The labour force and employment growth implications of each scenario are estimated through the application of economic activity rates, an unemployment rate and a commuting ratio. In an Employment-led scenario, these assumptions have been used to derive the level of population growth required to support the level of employment growth.

Economic Activity Rates

2.30 Economic activity rates are the proportion of the population that are actively involved in the labour force, either employed or unemployed and looking for work. In all scenarios, economic activity rates

by five-year age group (16–89) and sex have been derived from the 2011 Census statistics, with adjustments made in line with the Office for Budget Responsibility's (OBR) analysis of labour market trends in its 2018 Fiscal Sustainability Report[1].

Commuting Ratios

2.31 The difference between the level of employment in an area and the size of the resident workforce (i.e. residents in employment) can be used to infer a 'commuting ratio'. A ratio higher than 1.00 indicates a net out-commute (the number of resident workers exceeds the level of employment in the area). A commuting ratio lower than 1.00 indicates the reverse: a net in-commute (the level of employment in the area exceeds the size of the resident workforce). The closer the ratio is to 1.00, the greater the balance between the size of the resident workforce and the level of employment.

2.32 According to the 2011 Census, the number of resident workers in Carmarthenshire was approximately 81,402, with the number of people employed in the area at 74,569. This results in a commuting ratio of 1.09, indicating a net out-commute. This commuting ratio has been applied and fixed throughout the forecast period in all scenarios.

Unemployment Rate

2.33 Unemployment rates measure the proportion of unemployed people within the economically active population. Historical unemployment rates are sourced from ONS model-based estimates. In all scenarios, a five-year average (2017–2021) of 3.9% has been applied from 2022 and fixed throughout the forecast period.

[1] OBR Fiscal Sustainability Report, July 2018

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