

# Vale of Glamorgan

## Demographic Evidence

February 2023 (v2)



BP8



## Acknowledgements

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*The authors of this report do not accept liability for any costs or consequential loss involved following the use of the data and analysis referred to here; this is entirely the responsibility of the users of the information presented in this report.*

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# 1 Introduction

## Context

- 1.1 In line with legislation requiring local authorities to review their Local Development Plan (LDP) every four years, Vale of Glamorgan Council commenced preparation of a Replacement LDP (RLDP) in May 2022, which will set out development proposals for the period 2021–2036. As part of this process, the Council is seeking to update the demographic evidence base for the Vale of Glamorgan and use this to assess the appropriate level of growth for the borough, in terms of both housing and jobs.
- 1.2 In February 2021, the Welsh Government published Future Wales: The National Plan 2040<sup>1</sup>, setting an agenda for development in Wales to 2040. The Vale of Glamorgan falls within the Cardiff, Newport and the Valleys Growth Area, one of three National Growth Areas identified in Future Wales as priority areas for housing, employment and infrastructure growth. Future Wales outlines that conformity between national, regional and local development plans is imperative; therefore, it will be essential that the RLDP reflects the aims and objectives of Future Wales, with a key focus on the priorities of the National Growth Area.

## Approach

- 1.3 Edge Analytics is a Data Science specialist, applying a combination of research, data, technology and analytical models to generate insight that better informs business planning and decision-making.
- 1.4 Edge Analytics has a particular expertise in demographic modelling and forecasting and has worked with local planning authorities across Wales in the development and presentation of evidence to support LDP formulation.
- 1.5 Edge Analytics has used POPGROUP (PG) technology to configure a range of growth scenarios for the Vale of Glamorgan, incorporating demographic statistics from both the Office for National Statistics (ONS) and the Welsh Government, to produce forecasts for a 2021–2036 plan period.

## This Document

- 1.6 **Section 2** of this report provides a demographic profile of the Vale of Glamorgan, including commentary on the initial 2021 Census results, the latest ONS mid-year population estimates and the associated components of change (births, deaths, and migration) that have driven population growth since 2001. The impact of COVID-19 pandemic is also considered.

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<sup>1</sup> Welsh Government [Future Wales: The National Plan 2040](#)

- 1.7 **Section 3** provides an employment profile, including the size and structure of the labour force, unemployment and commuting profiles, and the latest employment forecasts for the Vale of Glamorgan.
- 1.8 **Section 4** presents a range of population growth scenarios for the Vale of Glamorgan, including the latest official projections from the Welsh Government alternative trend scenarios (based on alternative migration histories), two dwelling-led scenarios linked to historical completion figures and two employment-led scenarios.
- 1.9 **Section 5** concludes the analysis with a summary of the findings for the Council to consider in the development of its RLDP.
- 1.10 To provide an initial indication of the impact of the recent 2021 Census data release, the scenarios presented in the analysis have been rebased to the 2021 Census population and household totals. A summary of the rebased scenario outcomes is presented in **Appendix A**.
- 1.11 **Appendix B** provides details of the POPGROUP forecasting methodology and the key data inputs and assumptions used in the development of these scenarios.

# 2 Demographic Profile

## Introduction

- 2.1 In this section, the latest available demographic and housing statistics, including the ONS mid-year population estimates, the initial 2021 Census results, and a range of other contextual datasets, have been used to generate a demographic profile for the Vale of Glamorgan. The data presented in this section provides the demographic context for the development of the growth scenarios presented in Section 4.

## Geography

- 2.2 The Vale of Glamorgan is located on the south coast of Wales, within the South East Wales region (Figure 1). The borough borders Bridgend to the northwest, Rhondda Cynon Taf to the north, and Cardiff to the northeast. The southern half of the borough borders the Bristol Channel.



Figure 1: Vale of Glamorgan – Geographical Context  
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## Population

- 2.3 At the 2021 Census, the population of Vale of Glamorgan was 131,800, a 4.3% increase from the 2011 Census (Figure 2). This intercensal growth is higher than the average growth experienced regionally (2.9%) and nationally (1.4%).
- 2.4 The 2021 Census figure for the Vale of Glamorgan is 3,495 *lower* than the latest population estimate, the ONS 2020 mid-year population estimate (MYE)<sup>2</sup>. In the following sections, the intercensal MYEs are presented, followed by commentary on the differences between the MYEs and the 2021 Census population.

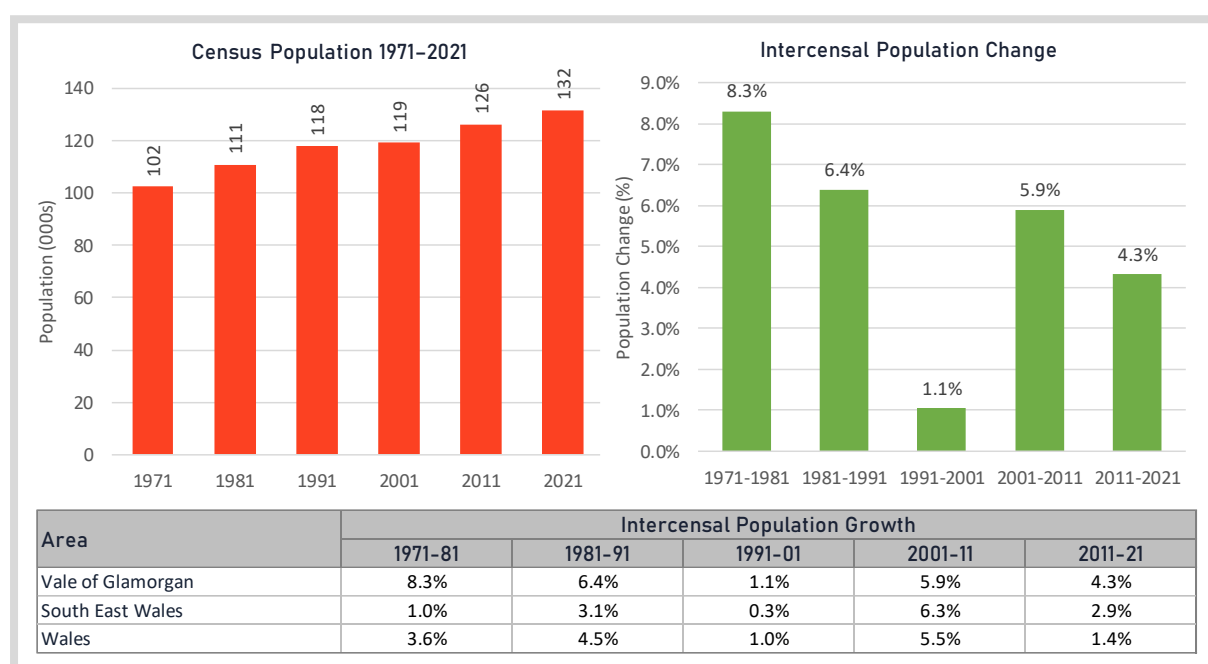


Figure 2: Vale of Glamorgan - Census population growth  
Source: ONS

### MYE & Components of Change

- 2.5 Between successive Censuses, population estimation is necessary. ONS MYEs are derived by applying the ‘components of population change’ to the previous year’s MYE. These components of change are natural change (the balance between births and deaths), internal (domestic) migration, and international (overseas) migration.
- 2.6 Figure 3 presents an illustration of the MYEs and components of change for the Vale of Glamorgan, with commentary on each component in the following paragraphs. The components of change chart includes Unattributable Population Change (UPC), which relates to the rebasing of the 2002–2010 MYEs to align with the 2011 Census population count. ONS has not explicitly assigned UPC adjustment to any one component of change, although it is likely due to issues around the estimation of migration, given that births and deaths are recorded in ONS Vital Statistics.

<sup>2</sup> ONS Population estimates for the UK, England and Wales, Scotland and Northern Ireland: mid-2020. Note that the 2020/21 MYE is not yet available and is due for release in late 2022.

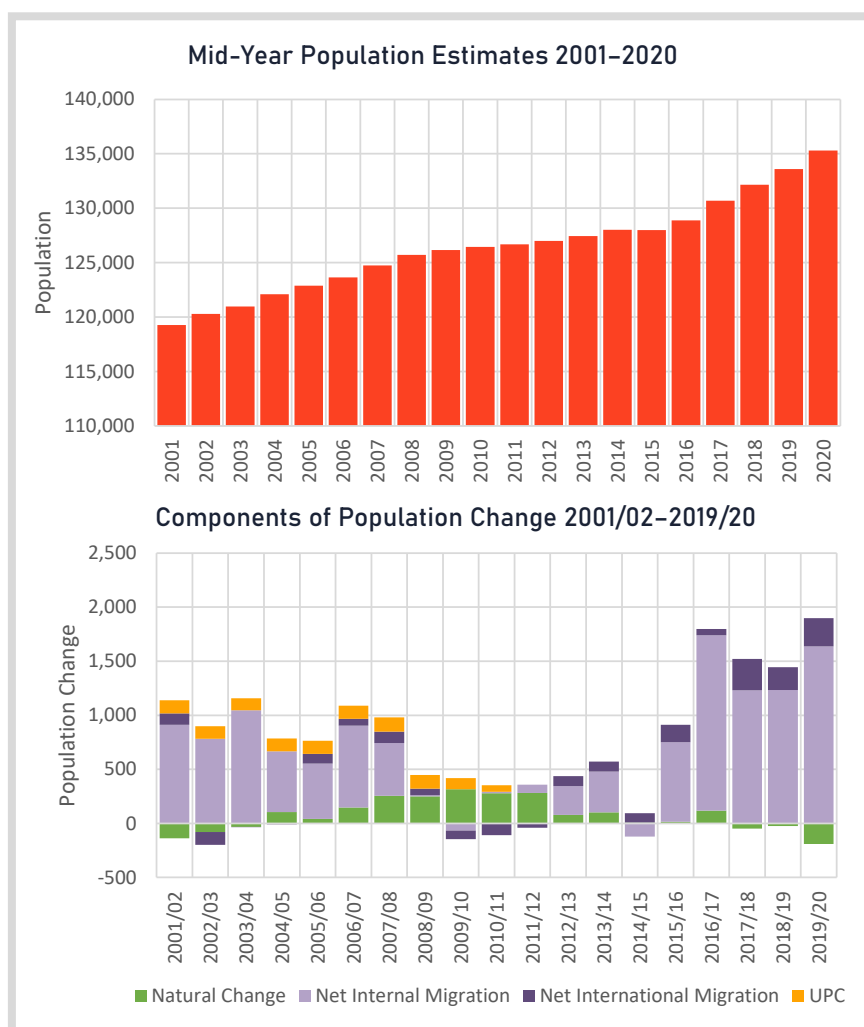


Figure 3: Vale of Glamorgan - MYEs & Components of Change, 2001-2020  
Source: ONS

## Population

- 2.7 According to the ONS MYEs, the Vale of Glamorgan has experienced annual population growth in all years apart from 2014/15, when there was estimated to be a small decline in population. Annual rates of growth were relatively high pre-recession, with rates falling in 2008/09. In the last five years, the rate of annual population growth has increased and exceeded pre-recession levels.
- 2.8 Out of all the unitary authorities across Wales, between 2001 and 2020, the Vale of Glamorgan has seen the fourth highest average annual rate of growth in its population, at 0.7%, exceeded only by Newport, Bridgend, and Cardiff (Figure 4). This is higher than the regional (0.6%) and national (0.5%) averages.
- 2.9 A comparison of growth rates seen since 2015 reveals the acceleration in growth in the Vale of Glamorgan relative to other parts of Wales (Figure 4). Its average annual growth rate for the last five years has increased to the highest level across all authorities (1.1%), level with Newport and more than double the Welsh average (0.5%).



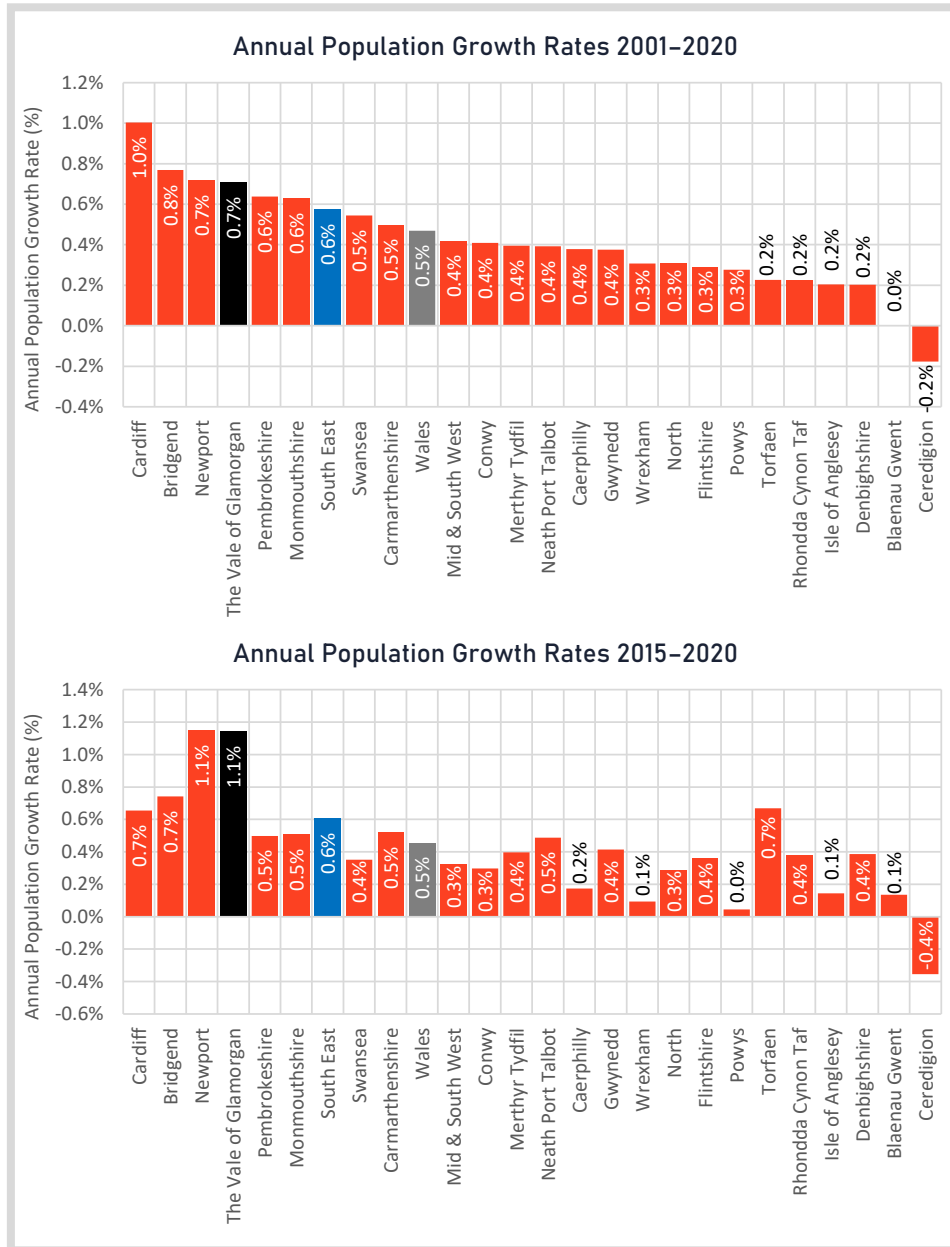


Figure 4: Welsh authorities – Annual population growth rate comparison, 2001–2020 & 2015–2020  
Source: ONS

2.10 In the Vale of Glamorgan, the largest growth in population (2001–2020) has been in the 65–79 age group, with growth accelerating in 2006 and again in 2011, resulting in an overall increase of almost 50% (Figure 5). The 80+ age group has also seen substantial growth, increasing by 38% over the historical period. The size of the working age population (15–64) has increased by 10%, whilst the population aged 0–4 has decreased by 2%. The population ageing seen in the Vale of Glamorgan is an inevitable feature of population change across the UK, as the larger birth cohorts of the post-war period move into the retirement ages.

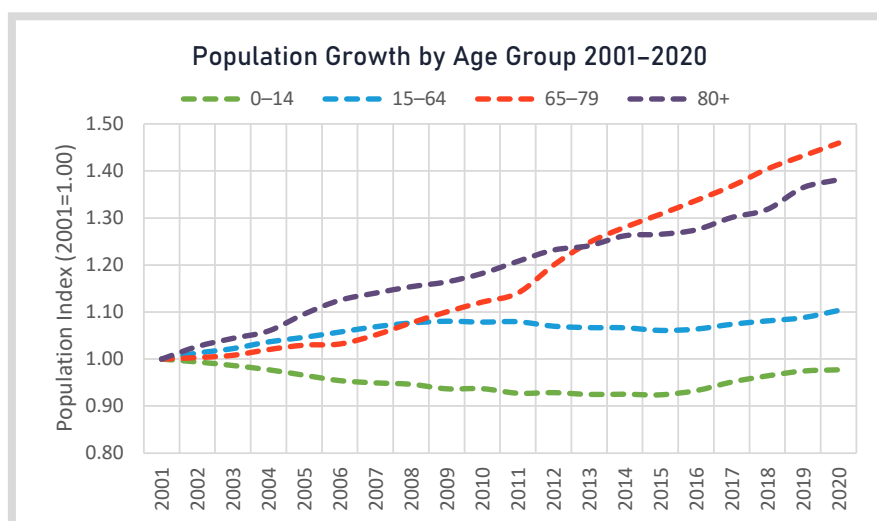


Figure 5: Vale of Glamorgan - Population growth index by age group, 2001–2020  
Source: ONS

## Natural Change

- 2.11 Throughout the historical period, natural change has had minimal impact upon population change within the Vale of Glamorgan (see green bars in Figure 3), with the difference between births and deaths remaining relatively small. However, in the latest three years of data, deaths have exceeded births, resulting in negative natural change. Over the 2001–2020 period, the number of births averaged 1,337 per year and deaths averaged 1,259 per year.
- 2.12 From 2001/02, the number of births in the Vale of Glamorgan gradually increased, peaking at 1,517 in 2009/10 (Figure 6). Since then, birth numbers have steadily reduced again, with 2019/20 seeing the lowest number of births since 2001/02.
- 2.13 The number of deaths steadily declined from 2003/04, with the lowest number of deaths recorded in 2010/11 at 1,125. Since then, the number of deaths has fluctuated, but has generally shown an upward trend, with numbers remaining above the 20-year average since 2014/15. In 2019/20, there was a recorded uptick in the number of deaths, reflecting the impact of the first wave of the COVID-19 pandemic; the leading cause of death in England and Wales in 2020.<sup>3</sup>

<sup>3</sup> ONS Deaths registered in England and Wales: 2020

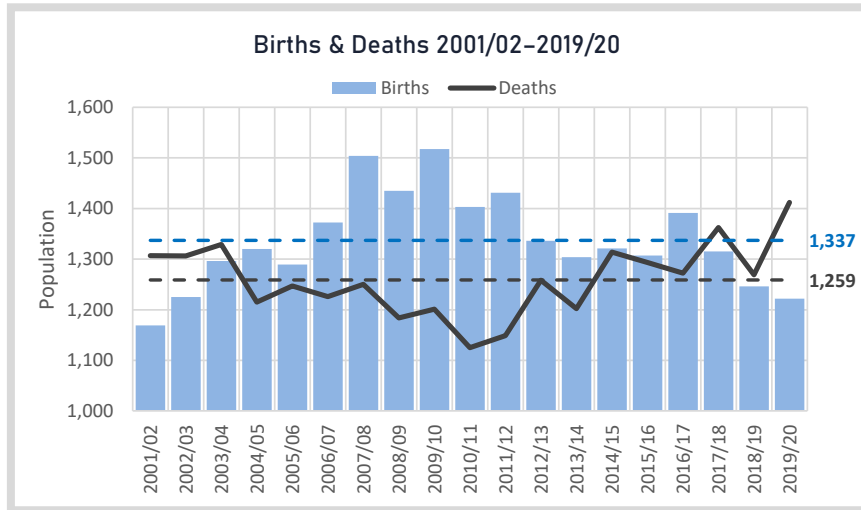


Figure 6: Vale of Glamorgan - Births & Deaths, 2001/02–2019/20  
Source: ONS

### Internal Migration

- 2.14 The impact of net internal migration (the balance of domestic migration between the Vale of Glamorgan and elsewhere in the UK) has been primarily positive across the historical period, as the flow of people arriving in the borough exceeded the outflow (Figure 7). In 2008/09, following the recession, the inflow of domestic migrants fell sharply to the same level as the outflow, reducing net internal migration to almost zero. The level of net-migration remained low until 2015/16 when the inflow of migrants rose sharply at the same time as the outflow declining, resulting in a large net inflow of migrants, a pattern which has continued throughout the latest five years of data.
- 2.15 The dip in both the inflow and outflow seen in 2019/20 is likely a result of the ongoing COVID-19 pandemic, which had an unprecedented impact on population movement in 2020.

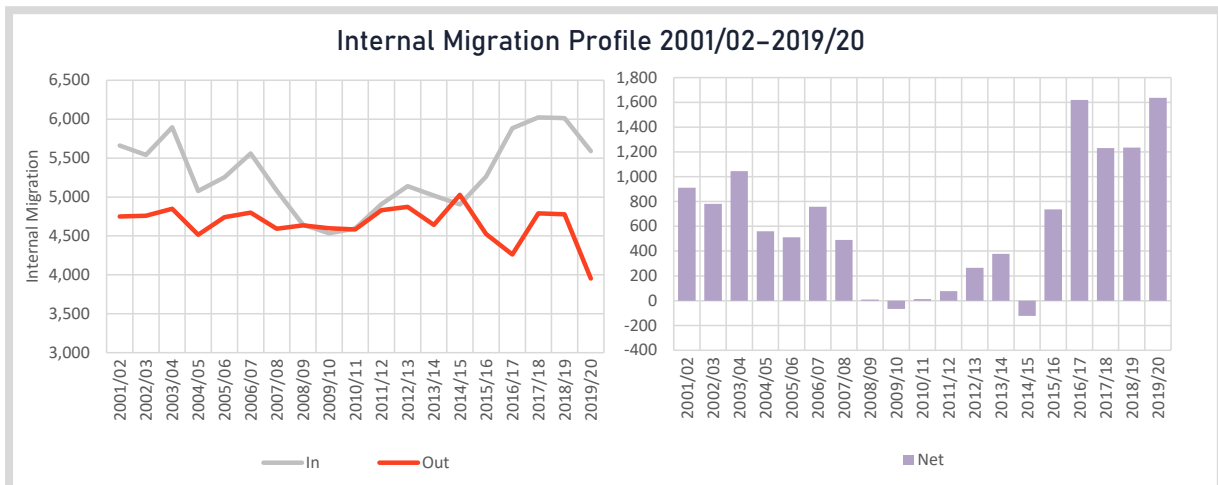


Figure 7: Vale of Glamorgan - Internal migration profile, 2001/02–2019/20  
Source: ONS

- 2.16 It is important to consider the internal migration profile alongside historical housing delivery. Figure 8 presents the history of housing completions in the Vale of Glamorgan, back to 2011/12, averaging at

517 net completions a year. In 2015/16 there was a large increase in net completions, exceeding the 11-year average. Completions remained above the 11-year average until 2020/21, corresponding with the high net inflow of migrants presented in Figure 7, suggesting people moved into the Vale of Glamorgan as a result of higher rates of housing delivery.

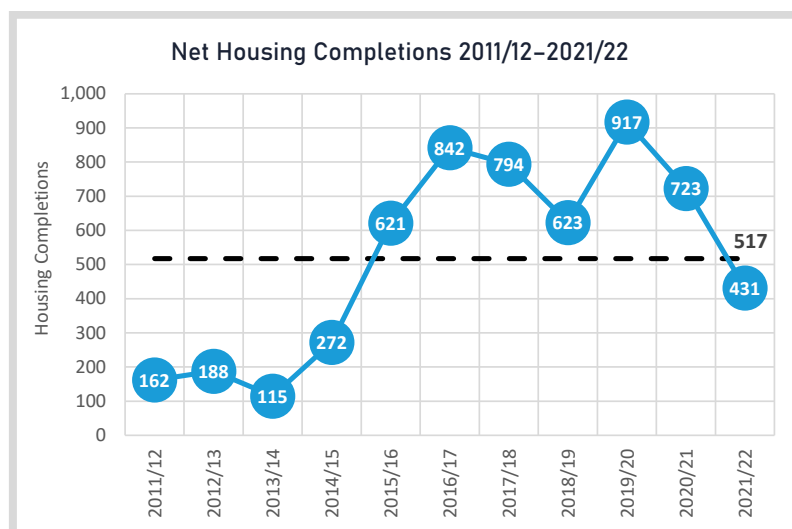


Figure 8: Vale of Glamorgan - Net housing completions, 2011/12–2021/22  
Source: Vale of Glamorgan Council

- 2.17 Another key consideration in terms of internal migration flows is the age profile (Figure 9). There has been a net inflow of migrants across all age groups apart from the 15–19 age group where there has been a large net outflow, associated with young people leaving the area to study elsewhere in the UK.
- 2.18 From 2016/17, the ONS introduced the Higher Education Leavers Methodology (HELM)<sup>4</sup> to its internal migration calculations, developed to better capture the speed and pattern of movement of students following graduation. Figure 9 presents net flows for the years before (2001/02–2015/16) and after (2016/17–2019/20) HELM was introduced. The impact of HELM is evident in the 20–24 and 25–29 age groups. Higher rates of net-in migration in these age groups between 2016/17–2019/20, suggests more people were recorded returning to the Vale of Glamorgan following graduation, that potentially were not previously being captured. The introduction of the HELM is likely to have contributed to the increase in net internal migration in the Vale of Glamorgan, from 2016/17.

<sup>4</sup> ONS Population estimates for the UK, mid-2020: methods guide

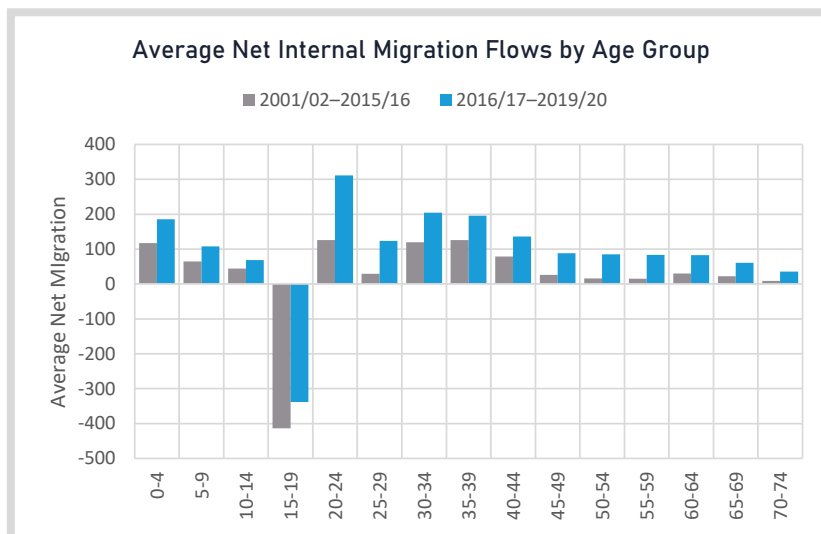


Figure 9: Vale of Glamorgan – Average net internal migration flows by age group  
Source: ONS

2.19 The top 10 net inflows and outflows of internal migrants moving to/from the Vale of Glamorgan between 2001–2020 are presented in Figure 10. The Vale of Glamorgan’s most significant net migration inflow exchange has been with Cardiff (more people have moved from Cardiff to the Vale of Glamorgan than they have moved from the Vale of Glamorgan to Cardiff). The net migration outflow has been greatest with Bridgend.

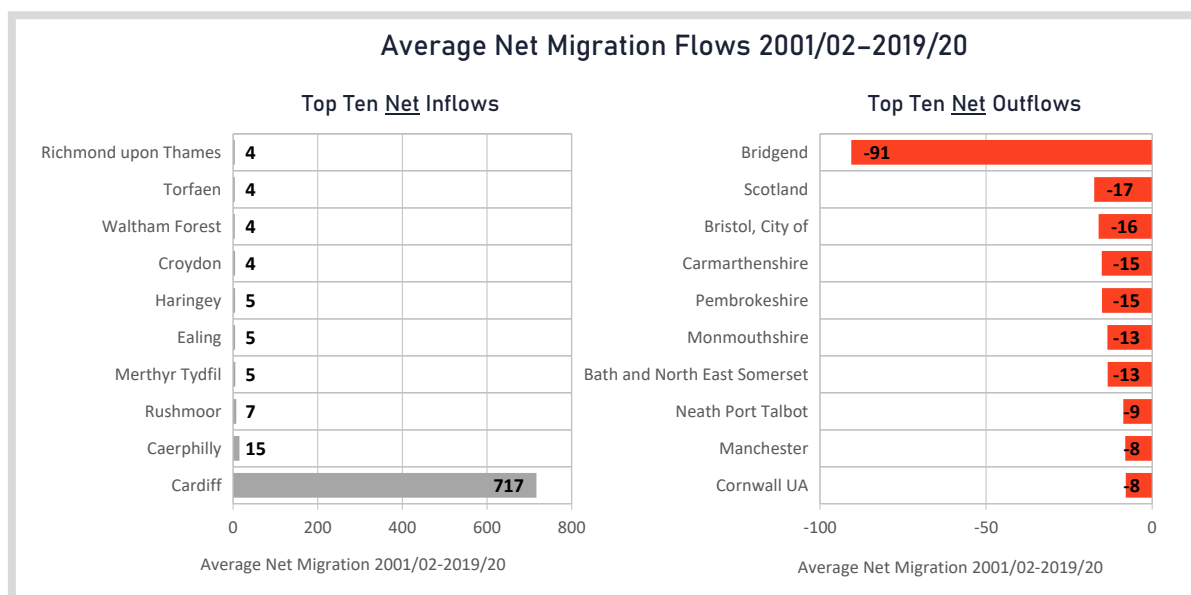


Figure 10: Vale of Glamorgan – Top 10 net migration inflows and outflows, 2001/02–2019/20  
Source: ONS

2.20 Figure 11 provides an illustration of annual net migration between the Vale of Glamorgan and its neighbouring authorities across the 2001/02–2019/20 historical period. The net flow of migrants with Rhondda Cynon Taf has fluctuated around zero, as the number of people moving into Rhondda Cynon Taf has matched the number people moving out into the Vale of Glamorgan. Net migration with Bridgend has largely been a net outflow. Whilst there has consistently been a net inflow from Cardiff,

the inflow decreased gradually between 2002/02 and 2009/10, but has since returned to the levels seen in 2001/02.

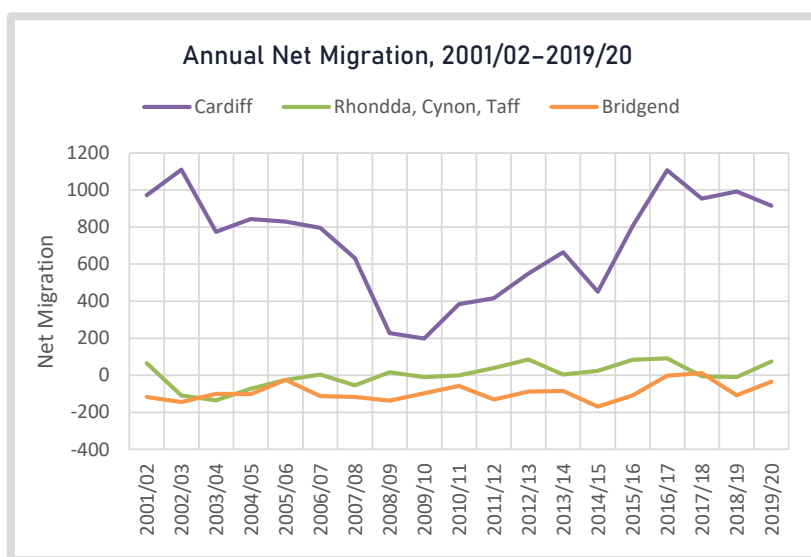


Figure 11: Vale of Glamorgan - Annual net migration between neighbouring authorities, 2001/02-2019/20  
Source: ONS

### International Migration

2.21 The level of net international migration in the Vale of Glamorgan has fluctuated throughout the historical period, but has been consistently positive since 2012/13, as immigration exceeded emigration (Figure 12). The latest three years of data have shown the highest levels of net international migration seen throughout the 20-year period.

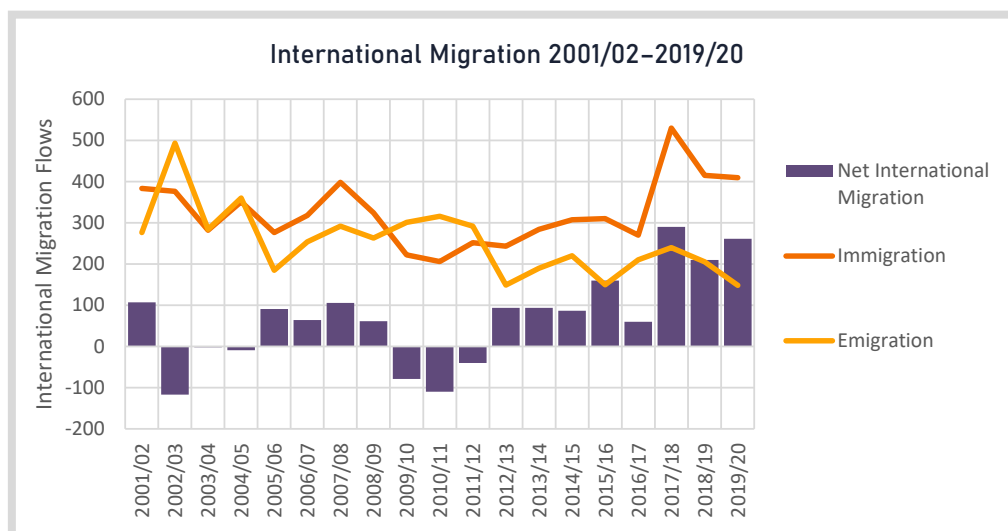


Figure 12: Vale of Glamorgan - International migration profile, 2001/02-2019/20  
Source: ONS

2.22 International migration continues to be the most difficult component of change to estimate robustly, with ONS downgrading its estimates to ‘experimental statistics’ status whilst improvements continue.<sup>5</sup>

<sup>5</sup> Statement from the ONS on the reclassification of international migration statistics

Until 2020, the International Passenger Survey (IPS) provided the foundation of the UK’s immigration and emigration estimates, but this has been discontinued in favour of a mix of administrative datasets, including national insurance number (NINo) registrations from the Department for Work and Pensions (DWP).

- 2.23 The DWP NINo statistics provide a complementary illustration of the international migration *inflow* to the Vale of Glamorgan. These statistics are different to the ONS migration estimates in that they refer only to work-based in-migration and include migrants whose stay may be shorter than 12 months. In the Vale of Glamorgan, NINo registrations peaked in 2007, with a smaller peak in 2017 (Figure 13). Since 2004, registrations have been primarily associated with workers from EU countries (EU13 and Other EU), with the 2017 peak associated with an influx of workers from Romania. Registrations saw a sharp decline in 2020, most likely a result of Brexit and the ongoing COVID-19 pandemic.

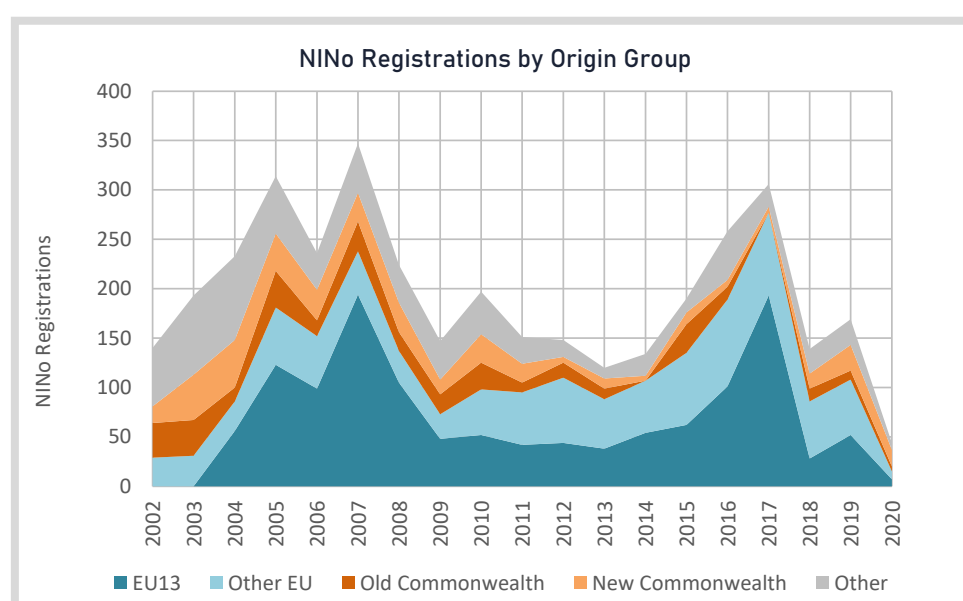


Figure 13: Vale of Glamorgan - NINo registrations by country of origin category, 2002–2020

Source: DWP. Note: EU13 refers to countries who have joined the EU since 2004: Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia.

### 2021 Census vs. Mid-Year Population Estimates

- 2.24 The 2021 Census population of 131,800 for the Vale of Glamorgan is 3,495 *lower* than the 2020 MYE figure of 135,295. This is the greatest year-on-year decrease in population since 2001, with only one other occurrence of an annual population decline in 2015 (Figure 14).

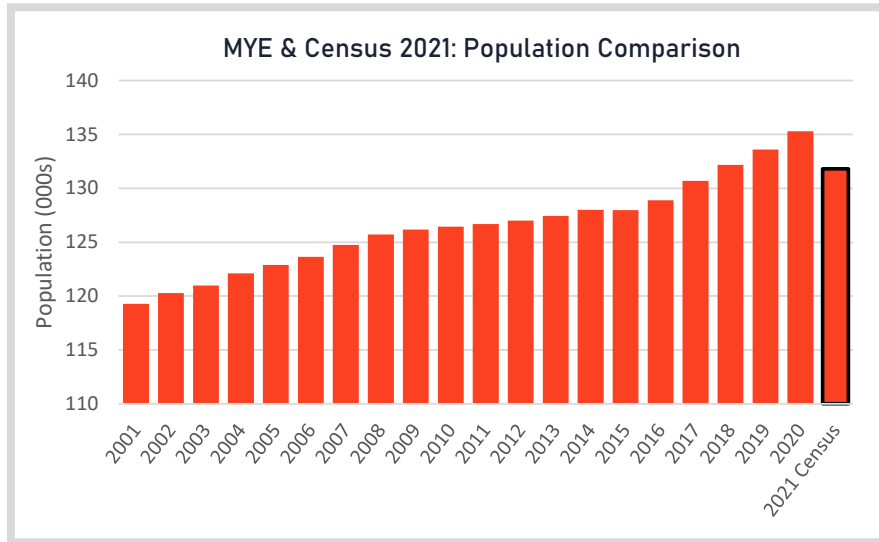


Figure 14: Vale of Glamorgan - MYEs & Census 2021 population comparison  
Source: ONS

2.25 Compared to other Welsh authorities, the population difference seen in the Vale of Glamorgan between the 2020 MYE and 2021 Census (-2.6%) is greater than the national and regional differences (-2.0% and -1.8%) and greater than the differences seen in each of the neighbouring authorities, Bridgend (-1.4%), Rhondda Cynon Taf (-1.7%) and Cardiff (-1.8%) (Figure 15).

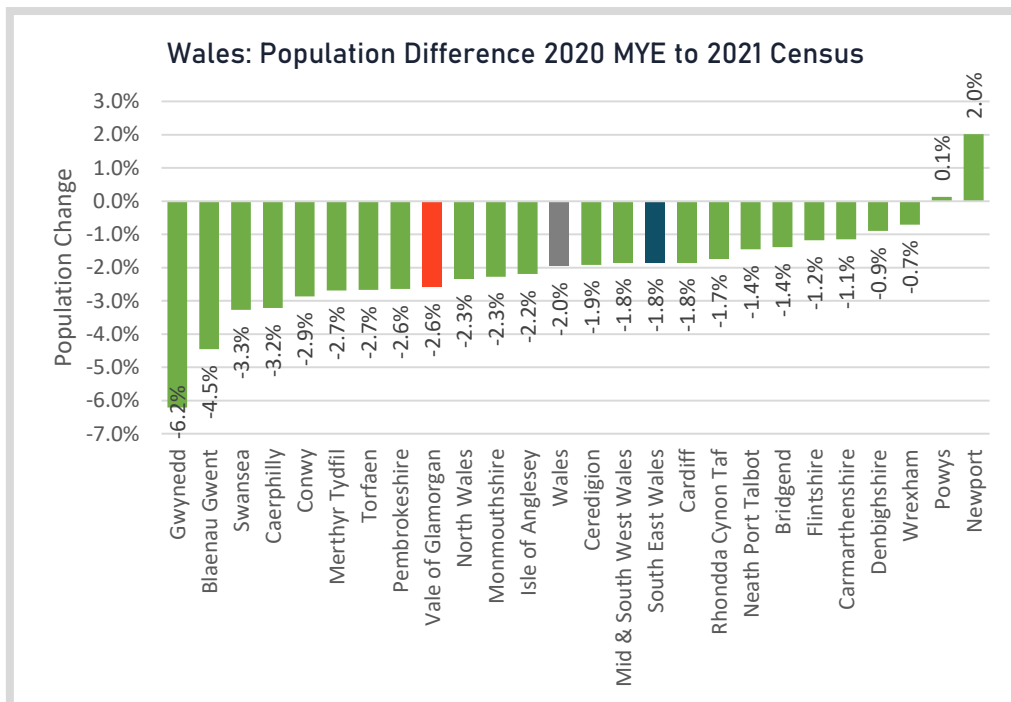


Figure 15: Welsh authorities - Population change, 2020 MYE to 2021 Census  
Source: ONS

2.26 Whilst the population decline implied by the Census count between 2020–2021, in the Vale of Glamorgan, could reflect reality, it is more likely a result of population overestimation between the 2011 and 2021 Censuses. This is the opposite of what occurred between the 2001 and 2011 Censuses



in the Vale of Glamorgan, where the intercensal population was underestimated (represented by the positive UPC adjustment, as illustrated in orange in Figure 3).

- 2.27 The reasons for the 2021 Census/MYE discrepancy will likely become clear with future data releases, specifically the revised intercensal MYEs, due for release in early 2023. It is possible that an intercensal population overestimation has occurred due to difficulties in robustly estimating migration flows to and from the authority, as births and deaths are robustly recorded in each year.

## COVID-19 Context

- 2.28 The migration estimates presented above cover the time period to mid-year 2020, covering the first 3 months of the COVID-19 pandemic. For an indication of the impacts on the mobility and movement of people since the start of the pandemic, a range of data from Google, HM Land Registry and Royal Mail are presented below.

### Daily Mobility

- 2.29 The unprecedented impact of COVID-19 can be seen by looking at mobility statistics, which have been derived from aggregated and anonymised data from Google users. Google has made its data available for analysis during the pandemic through a series of ‘Community Mobility Reports’<sup>6</sup>, showing the movement trends across different categories of place.
- 2.30 For each category, the Google data illustrates the daily change in mobility against a ‘baseline’, which represents a *normal* value for that day of the week (calculated from a 5-week period 3<sup>rd</sup> Jan–6<sup>th</sup> Feb 2020). For illustration, the daily statistics have been aggregated to produce a monthly profile for the Vale of Glamorgan (Figure 16).
- 2.31 A sharp reduction in movement was recorded between February 2020 to April 2020 in all places, with the exception of Residential, reflecting the first national lockdown. A recovery in movement was recorded as restrictions were eased during Summer 2020, followed by less severe reductions during the second and third lockdowns throughout late 2020 and early 2021.
- 2.32 Since the lifting of all COVID-19 restrictions, movement in Residential and Transit Stations places has almost returned to pre-pandemic levels, whilst Retail & Recreation, Grocery & Pharmacy and Parks activities are all now exceeding the baseline. Workplaces activities remain below pre-pandemic levels.

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<sup>6</sup> Google Community Mobility Reports

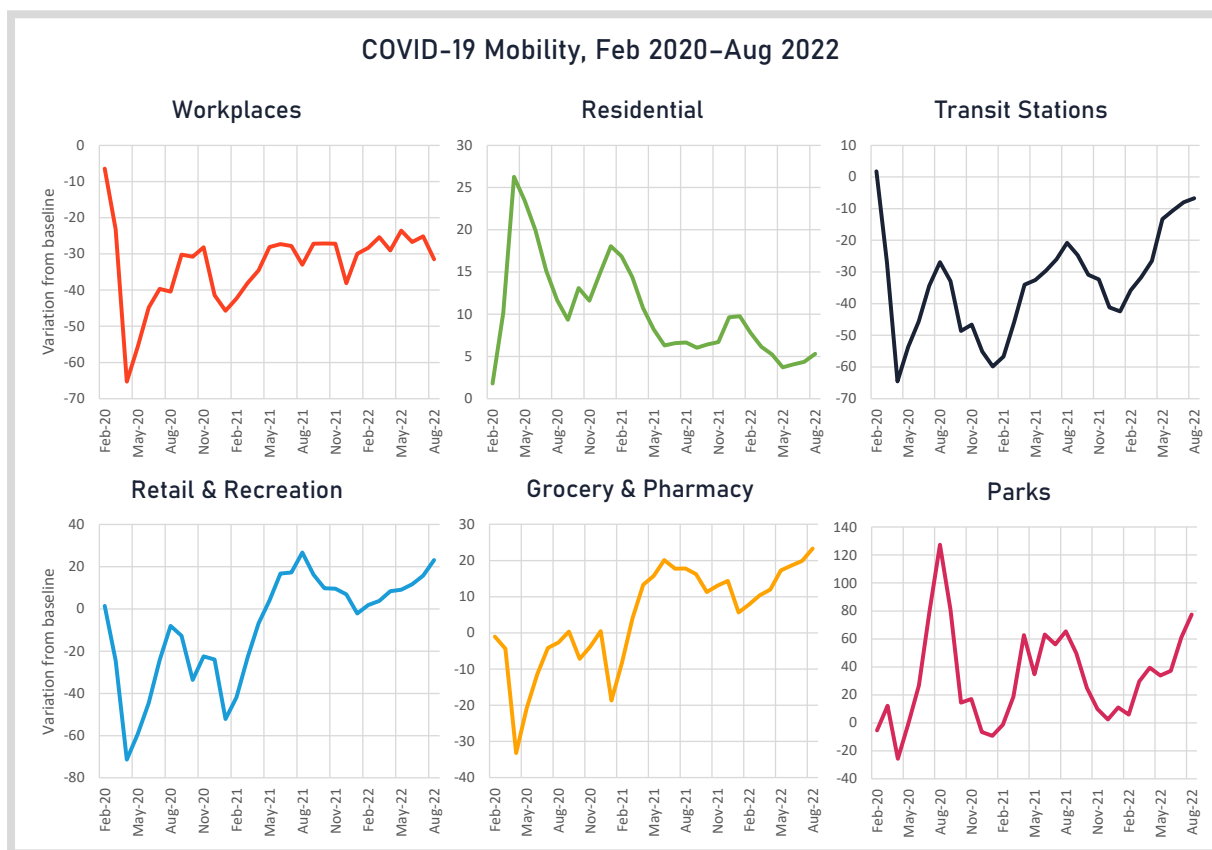


Figure 16: Vale of Glamorgan - Mobility trends, February 2020–August 2022  
Source: Google

## Home Moves

2.33 Royal Mail provides a mail redirection service to home movers, the data from which provides a proxy measure of migration within the UK during the COVID-19 pandemic.<sup>7</sup> Since January 2020, the net balance of moves has been primarily positive, as would be expected from the five-year pre-COVID average (2015–2019). A dip in net moves in Summer 2020 was followed by a large increase, with net moves in ten out of the thirteen months between September 2020 and September 2021 exceeding pre-pandemic levels. May 2021 was the only month where the net balance of moves was negative (i.e., higher outflows than inflows), likely due to the temporary reduction of the land transaction tax from July 2020 to June 2021.<sup>8</sup> In 2022, the net balance of removes has reduced, but is still relatively in line with the pre-COVID average.

<sup>7</sup> Royal Mail [Annual statistics for UK home movers](#)

<sup>8</sup> From July 2020 to June 2021, the Welsh Government increased the starting threshold for land transaction tax, from £180,000 to £250,000, to reduce the tax burden in Wales.

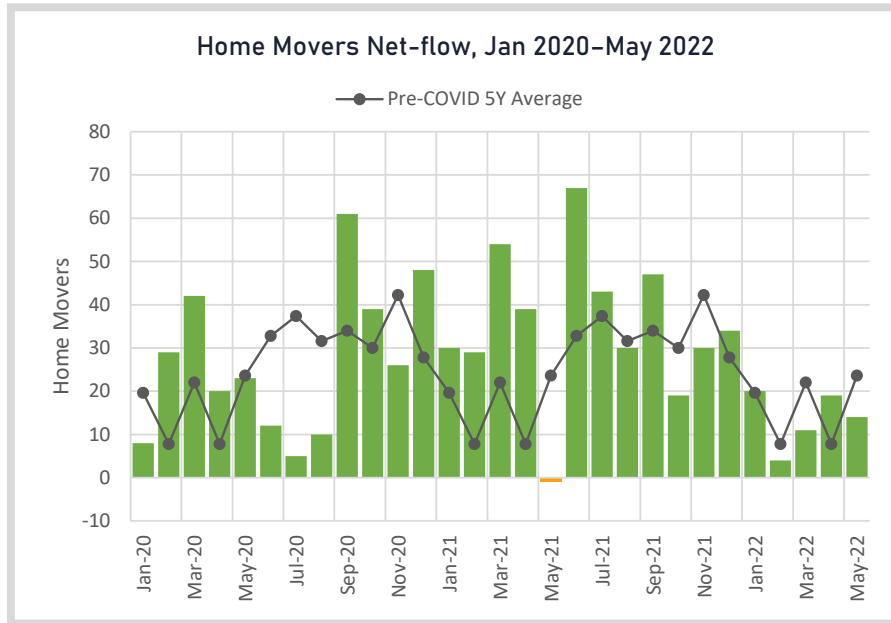


Figure 17: Vale of Glamorgan - Home movers net-flow, January 2020–May 2022  
Source: Royal Mail

2.34 Land Registry data provides an indication of how house sale transactions have been impacted by the COVID-19 pandemic, for both existing and new properties.<sup>9</sup> Figure 18 illustrates the drop in transactions in the Vale of Glamorgan from April 2020. Transactions for existing properties returned to pre-pandemic levels following the easing of restrictions in Summer 2020, with new property transactions still yet to properly recover. Both new and existing transactions peaked in June 2021, again linked to the temporary reduction of the land transaction tax.

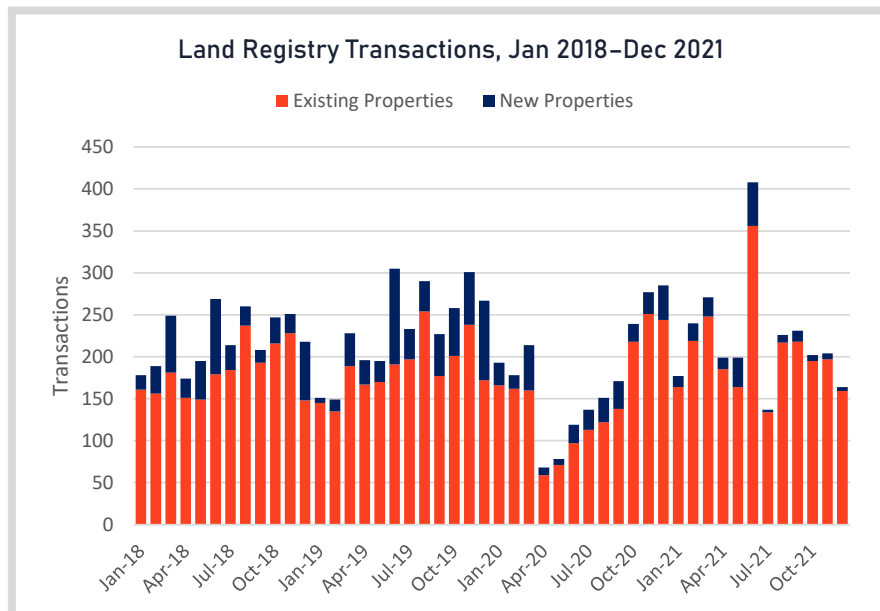


Figure 18: Vale of Glamorgan - Land registry transactions, January 2018–December 2021  
Source: HM Land Registry

<sup>9</sup> HM Land Registry [Open Data](#)

# 3 Employment Profile

## Introduction

- 3.1 The following section provides a profile of the Vale of Glamorgan’s labour force, presenting rates of economic activity, together with a historical profile of unemployment and commuting patterns. The economic forecast from Oxford Economics for the Vale of Glamorgan is then presented, followed by the employment capacity derived from the Employment Land Requirement, identified by BE Group in their employment study for the Vale of Glamorgan. Assumptions on economic activity, unemployment and commuting, along with the employment outcomes from the Oxford Economics forecast and the Employment Land Requirement, are used as key assumptions in the development of the growth scenarios, presented in Section 4.

## Labour Force Profile

### Labour Force & Economic Activity

- 3.2 Economic activity rates are the proportions of population that is actively involved in the labour force, either employed or unemployed looking for work. At the 2011 Census, there were an estimated 63,384 people classified as ‘economically active’ in the Vale of Glamorgan, equivalent to 69% of the usually resident population aged 16–74 (Table 1). This is higher than the economic activity rate for Wales and South East Wales (both 66%).

Table 1: 2011 Census aggregate economic activity rates

	Vale of Glamorgan	South East Wales	Wales
Usually resident population (age 16–74)	91,816	1,090,427	2,245,166
Economically active population	63,384	718,329	1,476,735
Economically active population (%)	69%	66%	66%

Source: 2011 Census

- 3.3 Figure 19 presents economic activity rates by five-year age group (16–89), comparing profiles from the 2001 and 2011 Censuses, for males and females. Rates amongst males are higher than females across all age groups. Rates amongst females increased between 2001 and 2011 across all age groups, with the exception of the 16–19 age group, whilst males only saw substantial increases in the 50+ age groups, with the rates for other age groups showing very small increases or declining. The decline of the economic activity rate of the 16–19 age group is likely a reflection of a greater proportion of this age group staying in education/training beyond the age of 16.
- 3.4 In the absence of updated 2021 Census economic activity rates, evidence on potential changes to economic activity rates is drawn from the Office for Budget Responsibility’s (OBR) analysis of labour

market trends within its 2018 Fiscal Sustainability Report<sup>10</sup>. The report presents long-term labour force forecasts, including estimated changes to age and sex-specific economic activity rates. The forecasts are informed by age and sex-specific population projections and historical economic activity rates whilst also accounting for the rising state pension age and its impact upon the economic activity rates of older age groups. Adjusting the 2011 Census economic activity rates in line with the OBR forecasts provides an estimate of economic activity rates in the Vale of Glamorgan by the end of the plan period (Figure 19). Rates are estimated to increase in all but the youngest age group for females, and in the 55+ age groups for males.

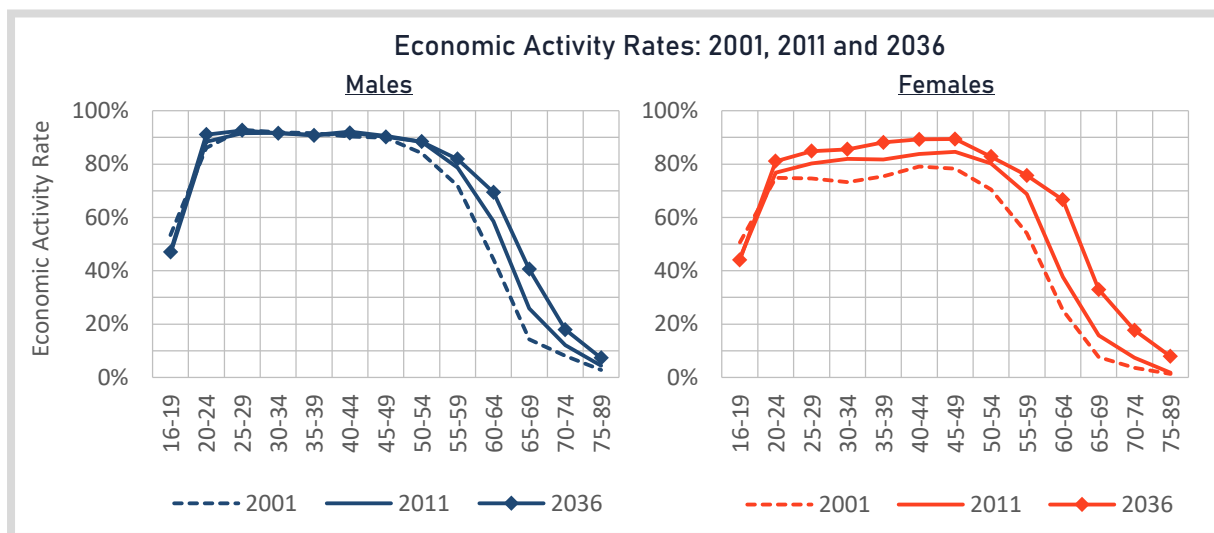


Figure 19: Vale of Glamorgan - Economic activity rates by sex and age (16–89), 2001, 2011 & 2036  
Source: ONS, OBR

## Unemployment

3.5 Unemployment rates measure the proportion of unemployed people within the resident labour force. Data from ONS indicates that until 2021, the Vale of Glamorgan consistently had an unemployment rate lower than the regional average and lower than or equal to the national average (Figure 20).<sup>11</sup> Unemployment rates were highest during and immediately after the recession, followed by a sharp reduction in rates to a low of 3.4% in 2018. During 2020, the first year of the COVID-19 pandemic, unemployment rates in the Vale of Glamorgan remained fairly unchanged, but rose in 2021 to 4.2%, matching the regional and national averages.

<sup>10</sup> OBR [Fiscal Sustainability Report, July 2018](#)

<sup>11</sup> ONS model-based estimates of unemployment, Annual Population Survey, year ending December 2021

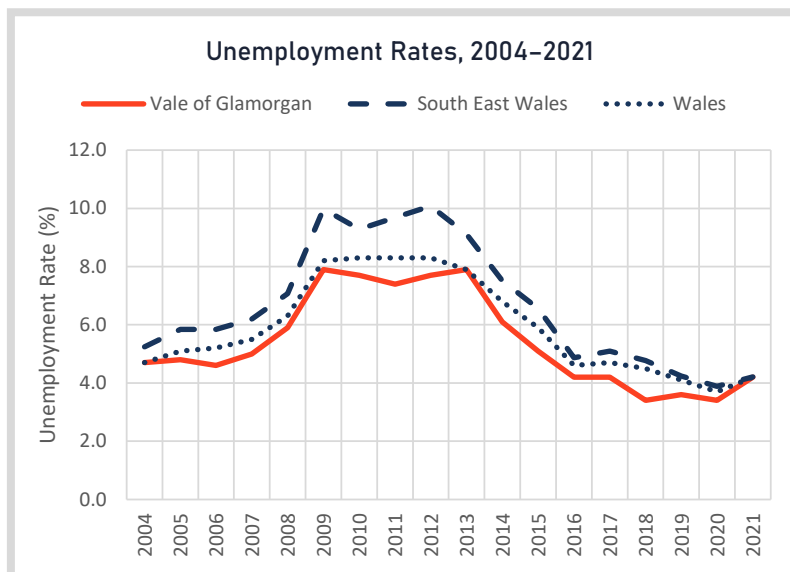


Figure 20: Unemployment rates (%), 2004-2021  
Source: ONS

### Commuting Patterns

3.6 Figure 21 presents the top 5 commuting inflows and outflows for the Vale of Glamorgan, from the 2011 Census, highlighting the connectivity with its neighbouring authorities. The largest flow of commuters at the 2011 Census was from the Vale of Glamorgan to Cardiff (17,773), over 3 times the flows of commuters from Cardiff into the Vale of Glamorgan (5,576). The Vale of Glamorgan was a net *exporter* of workers to Cardiff (-12,197), Newport (-185) and Bridgend (-70) but a net *importer* of workers from Rhondda Cynon Taf (409) and Caerphilly (35).

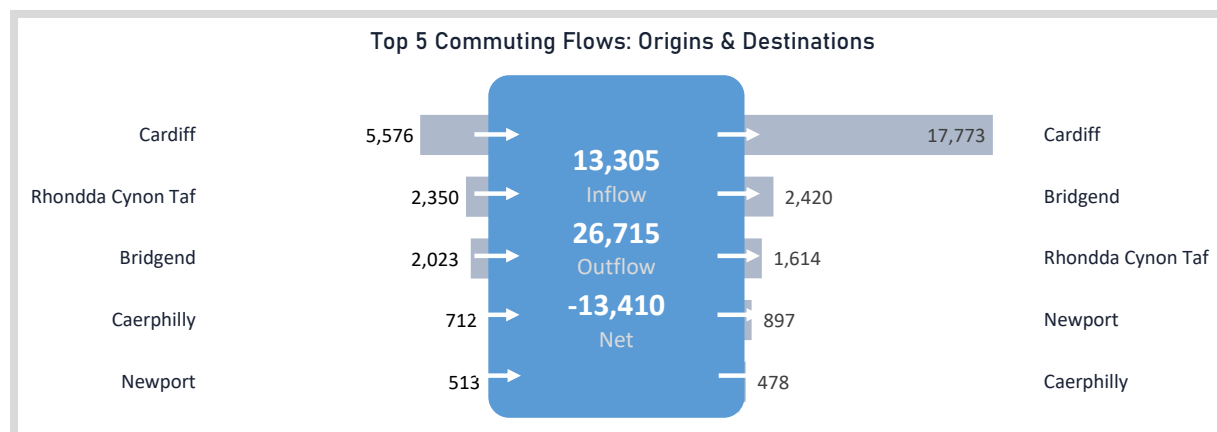


Figure 21: Vale of Glamorgan - 2011 Census commuting flows: Top 5 inflows and outflows  
Source: 2011 Census

3.7 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). According to the 2011 Census<sup>12</sup>, the number of resident workers in the Vale of Glamorgan was approximately 59,274, with the number of people employed in the area at 45,864, resulting in a commuting ratio of 1.29, indicating a net out-commute.

## Economic Growth Forecast

- 3.8 To support the demographic analysis for the Vale of Glamorgan, the latest economic forecast from Oxford Economics has been acquired. This forecast presents the level of workplace-based employment in the Vale of Glamorgan from 2001–2040. Employment forecasts are provided by Oxford Economics for both workplace-based jobs and workplace-based people. Jobs-based employment measures the number of jobs; therefore, one person can have more than one job. People-based employment measures the number of employed people and is calculated by adjusting the number of jobs to account for double-jobbing. The POPGROUP model, used to develop the growth scenarios presented in the next section, requires a people-based measure of employment; this report therefore focuses on this.
- 3.9 Over the historical period to 2021, the number of people in employment in the Vale of Glamorgan grew by 16%, with annual growth averaging at 1.9% between 2002 and 2018, when employment levels peaked (Figure 22). Between 2018 and 2021, employment declined annually, with the greatest decrease in 2020, likely linked to the COVID-19 pandemic. Over the Oxford Economics forecast period (2022–2040), the number of employed people is forecast to decline by 200 (-0.4%), with annual growth in the first five-years to 2027, followed by a decrease in employment in each year thereafter.

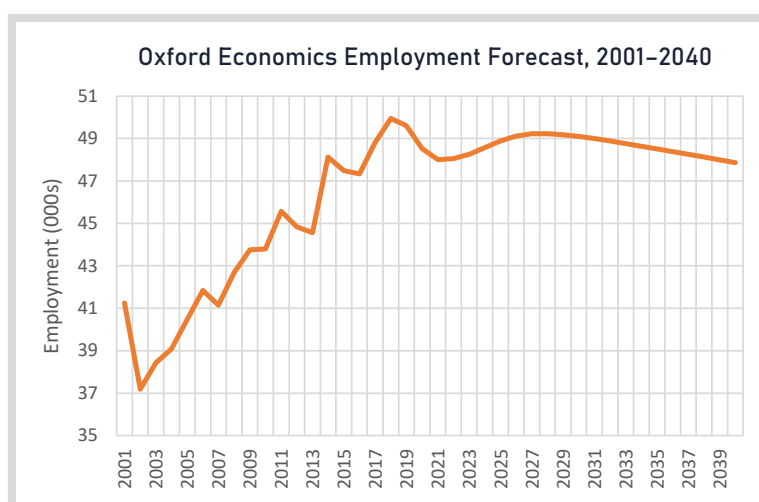


Figure 22: Oxford Economics people-based employment forecast, 2001–2040

Source: Oxford Economics

## Employment Land Requirement

- 3.10 Concurrent with this demographic study, BE Group have carried out an employment study, estimating the number of jobs the Employment Land Requirement in the Vale of Glamorgan could support (the

<sup>12</sup> Commuting data from the 2021 Census is not due to be released until Spring 2023.

employment capacity). The study concludes that the employment capacity derived from the Employment Land Requirement over the 2021–2036 plan period is 5,338 jobs.

- 3.11 To convert the employment capacity figure into a people-based measure of employment, to use in the POPGROUP model, an adjustment has been made in each year of the forecast period to account for ‘double jobbing’ (i.e., people who may have more than one job). The double jobbing adjustment is based on the proportion of people with second jobs as recorded in the Annual Population Survey (APS), averaged over a five-year period (2017–2021). The adjustment reduces the employment figure by 4.4% to 5,112 (341 per year).



# 4 Growth Scenarios

## Scenario Definition

- 4.1 POPGROUP (PG) technology has been used to develop a range of demographics scenarios for the Vale of Glamorgan (Table 2). Further information on POPGROUP methodology, data inputs and assumptions can be found in Appendix B.
- 4.2 The Welsh Government (WG) scenarios include the 2014-based *Principal* projection, plus the full suite of variants that make up the 2018-based projections. These scenarios have 2014 and 2018 base years respectively.
- 4.3 Three trend-based scenarios have been developed, using alternative migration histories from which to calibrate future growth assumptions. These ‘PG’ trend scenarios are based on a continuation of 5-, 10- and 19-year migration histories and incorporate a 2020 MYE base year. In these scenarios, fertility and mortality assumptions are drawn from the latest 2018-based Welsh Government projection.
- 4.4 The dwelling-led scenarios consider how a continuation of a 5-year and 10-year history of completion rates in the Vale of Glamorgan would impact upon future population growth, again with a 2020 base year. In a dwelling-led scenario, the annual change in the number of dwellings is used to derive a household and population growth profile, using key assumptions on dwelling vacancy, the communal population (i.e., population not in households), and rates of household formation (membership rates). Domestic migration is used to balance between population and dwelling growth; if the resident population is insufficient in size and structure to fill the additional dwellings, a higher level of net in-migration will result.
- 4.5 Two employment-led scenarios have been developed, one underpinned by the ‘people-based’ employment forecast from Oxford Economics and one by the employment capacity identified from the Employment Land Requirement. In employment-led scenarios, three key assumptions are used to link the annual defined growth in workplace-based employment to population growth: economic activity rates, an unemployment rate and a commuting ratio. As with a dwelling-led scenario, in an employment-led scenario, domestic migration is used to balance between population and employment growth.
- 4.6 A ‘commuting sensitivity’ of the employment-led scenario based on the Employment Land Requirement has also been produced, with the commuting ratio adjusted in each year of the forecast on the assumptions that future jobs growth is provided for under a 1:1 commuting ratio (i.e., for every new job created there is a resident worker to fill it). Further information is provided in Appendix B.
- 4.7 In the WG, PG and Dwelling-led scenarios, the economic activity rate, commuting and unemployment assumptions are used to derive the size and structure of the labour force and the level of employment growth that could be supported by the resulting population growth trajectory.

- 4.8 In the WG, PG and Employment-led scenarios, membership rate, communal establishment and dwelling vacancy assumptions are used to derive the level of household and dwelling growth that could be supported by the resulting population growth trajectory.
- 4.9 Appendix A provides a summary of the following scenarios, rebased to the 2021 Census population and household figures.

Table 2: Scenario definition

<b>WG-2014</b>	Replicates the Welsh Government 2014-based <i>Principal</i> population projection, using historical population evidence for 2001–2014.
<b>WG-2018</b>	Replicates the Welsh Government 2018-based <i>Principal</i> population projection, using historical population evidence for 2001–2018.
<b>WG-2018-HIGHPOP</b>	Replicates the Welsh Government 2018-based <i>High</i> population projection, using historical population evidence for 2001–2018 and incorporating high fertility, mortality and migration assumptions.
<b>WG-2018-LOWPOP</b>	Replicates the Welsh Government 2018-based <i>Low</i> population projection, using historical population evidence for 2001–2018 and incorporating low fertility, mortality and migration assumptions.
<b>PG-5Y</b>	Uses an ONS 2020 MYE base year and calibrates its migration assumptions from a 5-year historical period (2015/16–2019/20).
<b>PG-10Y</b>	Uses an ONS 2020 MYE base year and calibrates its migration assumptions from a 10-year historical period (2010/11–2019/20).
<b>PG-Long Term</b>	Uses an ONS 2020 MYE base year and calibrates its migration assumptions from a 19-year historical period (2001/02–2019/20).
<b>Dwelling-led 5Y</b>	Models the population impact of an average annual dwelling growth of +698 dwellings per annum (dpa), based on a 5-year history of housing completions in the Vale of Glamorgan (2017/18–2021/22).
<b>Dwelling-led 10Y</b>	Models the population impact of an average annual dwelling growth of +526 dwellings per annum (dpa), based on a 10-year history of housing completions in the Vale of Glamorgan (2011/12–2020/21).
<b>Employment-led OE</b>	Models the population growth impact of an average employment growth of +25 per year for the Vale of Glamorgan, as implied by the Oxford Economics forecast.
<b>Employment-led ELR</b>	Models the population impact of an average annual employment growth of +341 per year for the Vale of Glamorgan, based on the employment capacity associated with the Employment Land Requirement.
<b>Employment-led ELR (CR 1-1)</b>	Models the population impact of an average annual employment growth of +341 per year for the Vale of Glamorgan, based on the employment capacity associated with the Employment Land Requirement. Commuting ratios have been adjusted based on the assumption that for all future employment growth there is a 1:1 ratio with the increase in labour force.

## Scenario Outcomes

### Scenario Summary

- 4.10 The population growth trajectories for the Vale of Glamorgan are presented in Figure 23, from 2001 to 2036. In Table 3, each of the scenarios is summarised in terms of population and household growth for the 2021–2036 plan period, alongside the average annual net migration and associated dwelling and employment growth outcomes.
- 4.11 Population change for the 2021–2036 period ranges from 0.0% under the **WG-2014** scenario, to 13.9% under the **Dwelling-led 5Y** scenario. This range of population growth equates to estimated dwelling growth outcomes between 151 and 698 dpa and employment growth outcomes of between -126 and 493 per year.

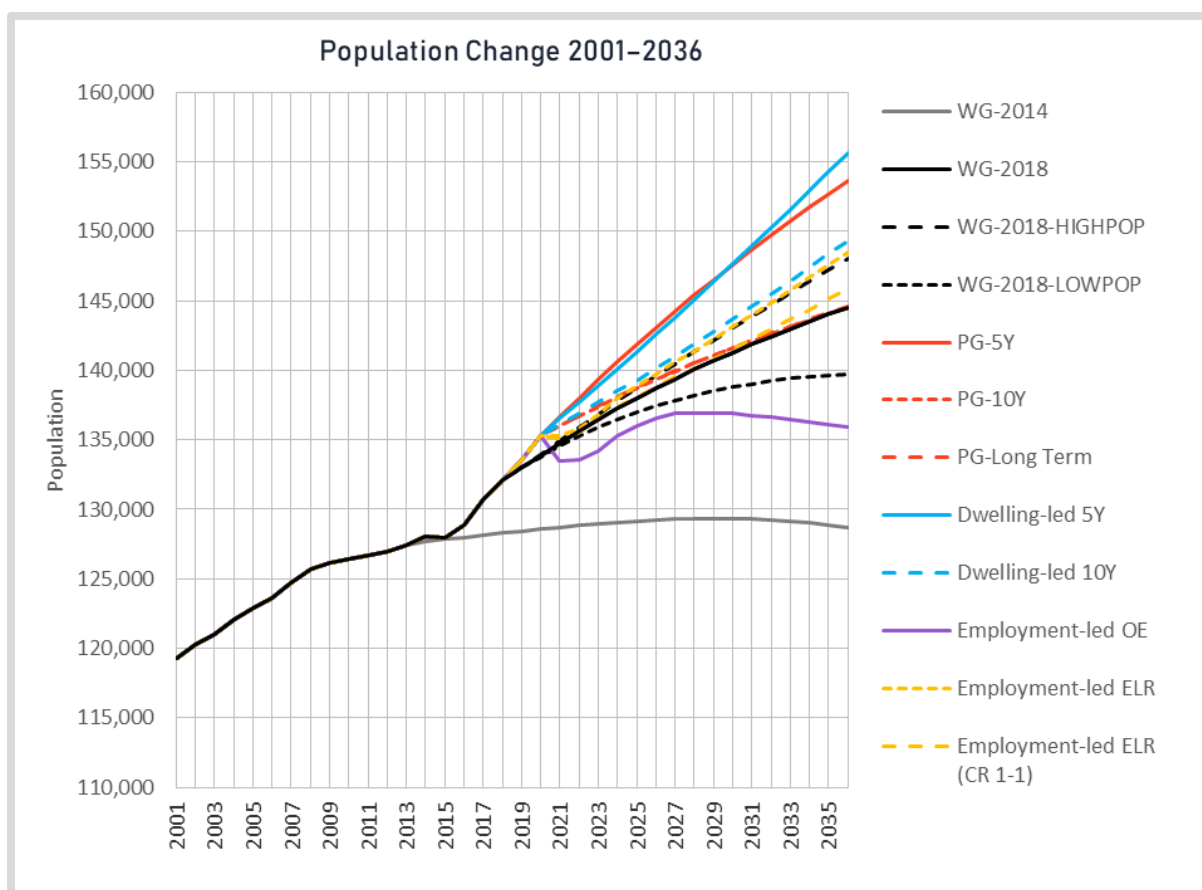


Figure 23: Vale of Glamorgan - Growth scenarios, 2001–2036  
 Source: ONS, Edge Analytics POPGROUP modelling

Table 3: Vale of Glamorgan - Scenario outcomes, 2021–2036

Scenario	Change 2021–2036				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Employment
Dwelling-led 5Y	19,048	13.9%	10,062	16.9%	1,360	698	493
PG-5Y	16,923	12.4%	9,187	15.4%	1,222	637	426
Employment-led ELR	13,224	9.8%	7,599	12.9%	1,020	527	341
WG-2018-HIGHPOP	13,127	9.7%	7,500	12.7%	938	520	292
Dwelling-led 10Y	13,154	9.7%	7,587	12.8%	1,009	526	325
Employment-led ELR (CR 1-1)	10,719	7.9%	6,548	11.1%	869	454	341
WG-2018	9,787	7.3%	6,214	10.6%	851	431	243
PG-Long Term	8,561	6.3%	5,705	9.6%	739	396	210
PG-10Y	8,519	6.3%	5,695	9.6%	741	395	197
WG-2018-LOWPOP	5,172	3.8%	4,559	7.8%	759	316	191
Employment-led OE	2,402	1.8%	3,041	5.2%	367	211	25
WG-2014	13	0.0%	2,182	3.9%	64	151	-126

Source: ONS, Edge Analytics POPGROUP modelling

- 4.12 The **WG-2018** projection for the Vale of Glamorgan sits in the middle of the range of scenarios and produces a much higher growth outlook (7.3%) compared to the earlier **WG-2014** projection, which projects almost no growth in the borough over the plan period. The differences in the two official projections are highlighted in their very different components of change profiles (Figure 24).



Figure 24: Vale of Glamorgan – Welsh Government official projections: components of change  
Source: Welsh Government

- 4.13 The Welsh Government’s 2018-based projections have introduced dampened assumptions on both fertility and mortality. These assumptions suppress future birth trajectories and increase the rate at which deaths occur due to reduction in life expectancies. However, in the Vale of Glamorgan, the effect of the revised fertility and mortality assumptions in the **WG-2018** scenario is reduced by the much larger positive effect of migration (both internal and international) seen in the 2018-based compared to the 2014-based projection, influenced by the high levels of net in-migration experienced between 2015/16 and 2017/18.
- 4.14 The **PG-5Y**, **PG-10Y** and **PG-Long Term** scenarios draw their migration assumptions from a 5-year (2015/16–2019/20), 10-year (2010/11–2019/20) and 19-year (2001/02–2019/20) history respectively, with a 2020 MYE base year. The **PG-10Y** and **PG-Long Term** scenarios project similar levels of growth just below the **WG-2018** scenario, whilst the **PG-5Y** results in a much higher level of growth over the plan period, a reflection of the higher levels of population growth seen in recent years up to mid-year 2020 in the Vale of Glamorgan. As a result of the high levels of net migration estimated by the **PG-5Y** scenario (+1,222 per year), high average annual dwelling and employment outcomes are produced, at 637 dpa and 426 per year.
- 4.15 The two **Dwelling-led** scenarios are both in the top four highest growth scenarios, either side of the **PG-5Y** and **WG-2018-HIGHPOP** scenarios. The **Dwelling-led 10Y** scenario, continuing a 10-year average history of housing completions of 526 dpa (2011/12–2020/21), results in population change

of 9.7%. Focussing on just the latest 5-years of historical housing completions (2017/18–2021/22) provides a higher dwelling growth input of 698 dpa, used in the **Dwelling-led 5Y** scenario, which projects a higher level of population growth of 13.9%.

- 4.16 The **Employment-led OE** scenario, based on the level of employment forecast by Oxford Economics, presents a low growth outcome for the Vale of Glamorgan, resulting in population growth of 1.8% and associated dwelling growth of 211 dpa. The **Employment-led ELR** scenario, based on the employment capacity identified from the Employment Land Requirement, presents a more positive outlook, forecasting population growth of 9.8% and dwelling growth of 527 dpa.
- 4.17 In the **Employment-led ELR (CR 1-1)** scenario, it is assumed that for every new ‘job’ created in the Vale of Glamorgan, there is a resident worker available to fill it. This slightly *reduces* the net out-commute over the forecast period, compared to the commuting ratio used in the **Employment-led ELR** scenario. A reduced net out-commute means fewer people are brought in through internal migration to balance population and employment growth, resulting in reduced net migration. This results in lower population growth of 7.9% and dwelling growth of +454 dpa, over the plan period.

### Age Profiles

- 4.18 The changing age profile associated with the Vale of Glamorgan’s future population growth is an important consideration in planning for housing, and in development of the resident labour force. Population change by age group, over the 2021–2036 plan period, is presented in Figure 25 for each of the 12 scenarios. In all cases, high levels of growth are projected for the 65+ age groups, a reflection of the wider population ageing trend seen across the UK and globally.
- 4.19 The age profile changes projected under the **WG-2014** scenario are characterised by growth in all 65+ age groups, with particularly high growth in the 85+ age group. All other age groups, apart from 15–19, see a population decline over the 2021–2036 period.
- 4.20 The impact of the increased level of net in-migration seen in the 2018-based official projection for the Vale of Glamorgan is evident in the changing age profile under the **WG-2018** scenario. With population in fewer younger age groups projected to decline, it presents a more youthful profile compared to the **WG-2014** scenario. The lower growth in the 85+ age group in the **WG-2018** scenario, compared to the **WG-2014** scenario, is a result of the dampened life expectancy improvements introduced in the 2018-based assumptions.
- 4.21 The high growth projected by the **PG-5Y** scenario, driven by high net in-migration in recent years and the **Dwelling-led 5Y** scenario, driven by a relatively high dwelling growth target, is reflected in the age profiles, with growth in all age groups across the plan period, apart from 30–34 and 55–59. With a modest employment growth target, the **Employment-led OE** scenario, projects decline in most of the younger age groups.

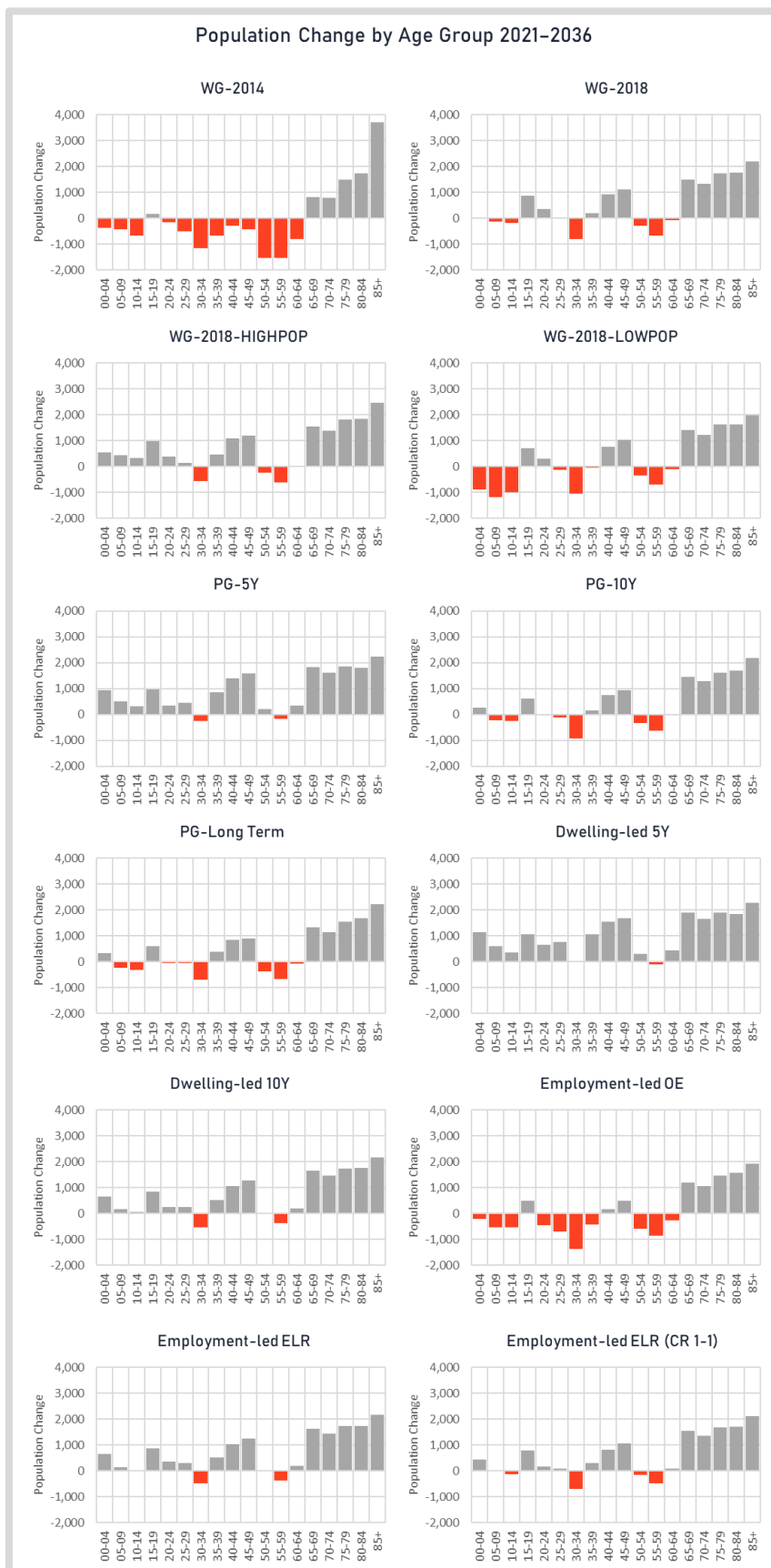


Figure 25: Vale of Glamorgan – Population change by age group, 2021–2036

Source: ONS, Edge Analytics POPGROUP modelling

## Linking Population and Employment

- 4.22 Figure 26 presents the estimated impact of each growth scenario upon employment growth within the Vale of Glamorgan, compared directly to level of employment growth projected in the Oxford Economics forecast and the employment capacity from the Employment Land Requirement. In the **PG**, **WG** and **Dwelling-led** scenarios, the relationship between population and employment has been modelled using key assumptions on economic activity rates, unemployment and commuting (see Appendix B).
- 4.23 Application of these assumptions to each scenario across the 2021–2036 plan period results in a range of employment growth outcomes. The **Dwelling-led 5Y** scenario, based on high annual dwelling growth, projects the highest level of average employment growth (493 per year), whilst the **WG-2014** scenario results in an average annual decline in employment, linked to the low level of population growth projected over the plan period.

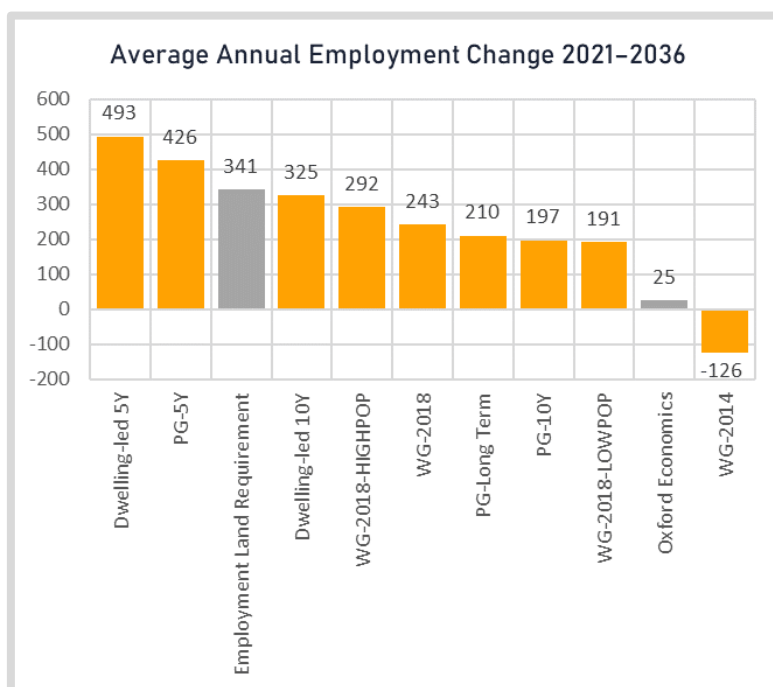


Figure 26: Vale of Glamorgan - Average annual employment change, 2021–2036

Source: Oxford Economics, Edge Analytics POPGROUP modelling



# 5 Summary

## Historical Demographic Change

- 5.1 The population of the Vale of Glamorgan grew by 13.4% between 2001 and 2020 (ONS MYEs), with the highest rate of growth seen in the 65–79 and 80+ age groups. The working-age population (15–64) saw a small level of growth over the historical period, whilst the size of the youngest population group (0–14 years) declined.
- 5.2 The rate of population growth has been high over the latest five years up to mid-2020, driven by increased levels of net internal migration, likely caused by higher rates of housing delivery, along with the introduction of the HELM impacting young adult population estimation. An increase in net international migration in the latest five years also had an impact on population growth across the borough, whilst natural change had very little impact. A large increase in deaths in 2019/20, a result of the COVID-19 pandemic, saw the greatest level of negative natural change since the start of the historical period.
- 5.3 The population of the Vale of Glamorgan at the 2021 Census was 131,800, a 4.3% increase since the 2011 Census, but 2.6% lower than the ONS 2020 MYE, highlighting a possible overestimation of the population between the 2011 and 2021 Censuses. Until further evidence is released from the 2021 Census, it is challenging to draw conclusions on the reasons behind the difference between the Census count and the MYEs. The upcoming release of the 2021 MYE and rebased intercensal MYEs will therefore provide an important update to the demographic evidence base, and one that is vitally important to the calibration of demographic growth scenarios.

## Growth Outcomes

- 5.4 POPGROUP technology has been used to configure a suite of growth scenarios for the Vale of Glamorgan. Under each scenario, population, household, migration, dwelling and employment growth are presented over a 2021–2036 period.
- 5.5 Over the plan period, population growth of 0.0% to 13.9% is estimated under the range of scenarios (Figure 27). The associated dwelling growth ranges from 151 to 698 dpa. The **Dwelling-led 5Y** scenario presents the highest growth outcome, based on the latest 5-years of historical housing completions, whilst the **PG-5Y** scenario based on the recent history of migration also provides a high level of growth. In contrast, the **Employment-led OE** scenario projects low growth, based on the Oxford Economics employment forecast. The **Employment-led ELR (CR 1-1)** scenario presents a mid-growth scenario, alongside the official 2018-based projection.

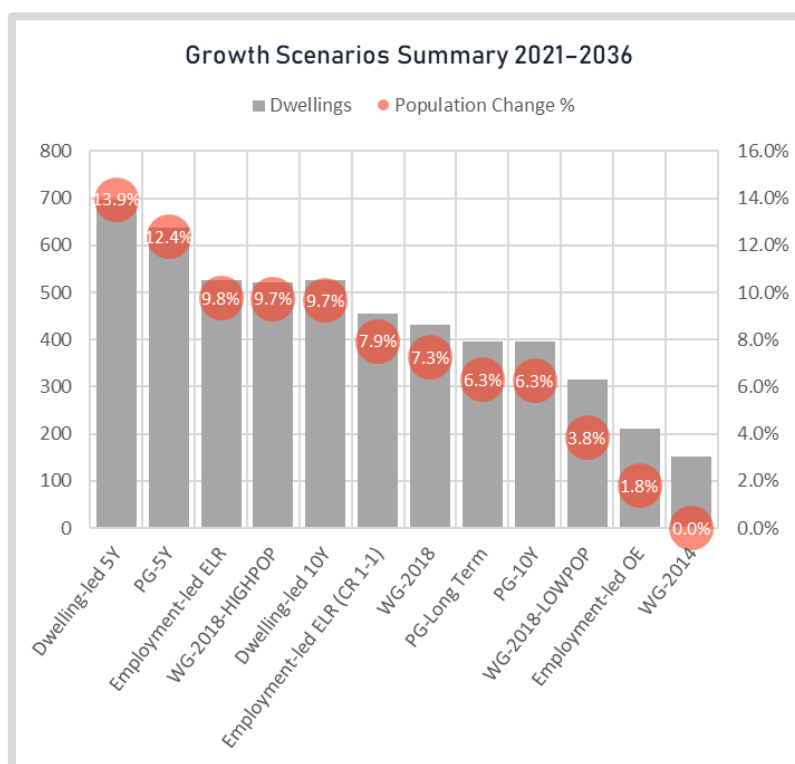


Figure 27: Vale of Glamorgan – Growth scenarios summary, 2021–2036  
Source: ONS, Edge Analytics POPGROUP modelling

## Concluding Comments

- 5.6 To inform the development of the Vale of Glamorgan’s RLDP, Edge Analytics have configured a range of growth scenarios, incorporating the latest demographic evidence, to assist the Council with assessing the appropriate level of growth for the borough. The scenarios present a range of growth outcomes for the 2021–2036 plan period.
- 5.7 When considering the growth outcomes presented in this report, it is important to note that they have been developed during a period of unprecedented social and economic upheaval caused by Brexit, the COVID-19 pandemic and the war in Ukraine, the full impacts of which are not currently fully understood.
- 5.8 The latest 2018-based Welsh Government projection introduced a dampened outlook for fertility and mortality and with the impact of the COVID-19 pandemic, this trend is likely to be confirmed, as reflected in the latest MYEs for the Vale of Glamorgan. At the same time, the future of international migration is highly uncertain due to uncertainty around COVID-19 and the UK’s new points-based system for immigration control. Although movement across the UK was restricted during the pandemic, the Royal Mail home movers data shows people continued to move into the Vale of Glamorgan, suggesting internal migration has been less effected by the events over the last few years, compared to the other components of change.
- 5.9 In June 2022, ONS released the first results from the 2021 Census, which was taken mid-pandemic. Although these initial results show how the population of the Vale of Glamorgan has grown since 2011,

the 2021 Census population count is considerably lower than the population estimated by the ONS MYE. The full detailed results from the 2021 Census, which will continue to be released throughout 2023, will provide an important update to the demographic evidence base for all local planning authorities. This will be particularly important for areas such as the Vale of Glamorgan where the 2021 Census count is markedly different to the previous MYEs. Once this new evidence is available, it is recommended that the Vale of Glamorgan consider the development of a range of demographic scenarios that utilise the revised MYEs, and any updated fertility and mortality assumptions from future subnational population projections.

# Appendix A

## 2021-based Scenarios

### Scenario Definition

- A.1 To provide an indication of the impact of the initial 2021 Census release on the Vale of Glamorgan, POPGROUP forecasting technology has been used to rebase all the scenarios presented in Section 3 to the 2021 Census population and household figures (Table 3). To generate these scenarios, the 2020 mid-year population has been ‘aged on’ and rebased to the 2021 Census population, with the households rebased to the 2021 Census household total, providing a consistent (2021) starting point for all scenarios.
- A.2 Note that in all scenarios, the underpinning growth assumptions are consistent with the scenarios presented in Section 3, as the component of change data required to recalibrate these is not yet available. In all scenarios, household growth has been estimated using assumptions from the Welsh Government 2018-based household projection model, applied from a consistent 2021 base year. Additional detail on scenario data inputs and assumptions is provided in Appendix B.

Table 4: 2021-based scenario definitions

<b>WG-2014</b>	Replicates the Welsh Government 2014-based <i>Principal</i> population projection, rebased to the 2021 Census population figure.
<b>WG-2018</b>	Replicates the Welsh Government 2018-based <i>Principal</i> population projection, rebased to the 2021 Census population figure
<b>WG-2018-HIGH</b>	Replicates the Welsh Government 2018-based <i>High</i> population projection, rebased to the 2021 Census population figure and incorporating high fertility, mortality and migration assumptions.
<b>WG-2018-LOW</b>	Replicates the Welsh Government 2018-based <i>Low</i> population projection, rebased to the 2021 Census population figure and incorporating low fertility, mortality and migration assumptions.
<b>PG-5Y</b>	Uses a 2021 Census base year and calibrates its migration assumptions from a 5-year historical period (2015/16–2019/20).
<b>PG-10Y</b>	Uses a 2021 Census base year and calibrates its migration assumptions from a 10-year historical period (2010/11–2019/20).
<b>PG-Long Term</b>	Uses a 2021 Census base year and calibrates its migration assumptions from a 19-year historical period (2001/02–2019/20).
<b>Dwelling-led 5Y</b>	Models the population impact of an average annual dwelling growth of +698 dwellings per annum (dpa), based on a 5-year history of housing completions in the Vale of Glamorgan (2017/18–2021/22).
<b>Dwelling-led 10Y</b>	Models the population impact of an average annual dwelling growth of +526 dwellings per annum (dpa), based on a 10-year history of housing completions in the Vale of Glamorgan (2011/12–2020/21).

**Employment-led OE** Models the population growth impact of an average employment growth of +25 per year for the Vale of Glamorgan, as implied by the Oxford Economics forecast.

**Employment-led ELR** Models the population impact of an average annual employment growth of +341 per year for the Vale of Glamorgan, based on the employment capacity associated with the Employment Land Requirement.

**Employment-led ELR (CR 1-1)** Models the population impact of an average annual employment growth of +341 per year for the Vale of Glamorgan, based on the employment capacity associated with the Employment Land Requirement. Commuting ratios have been adjusted based on the assumption that for all future employment growth there is a 1:1 ratio with the increase in labour force.

## Scenario Outcomes

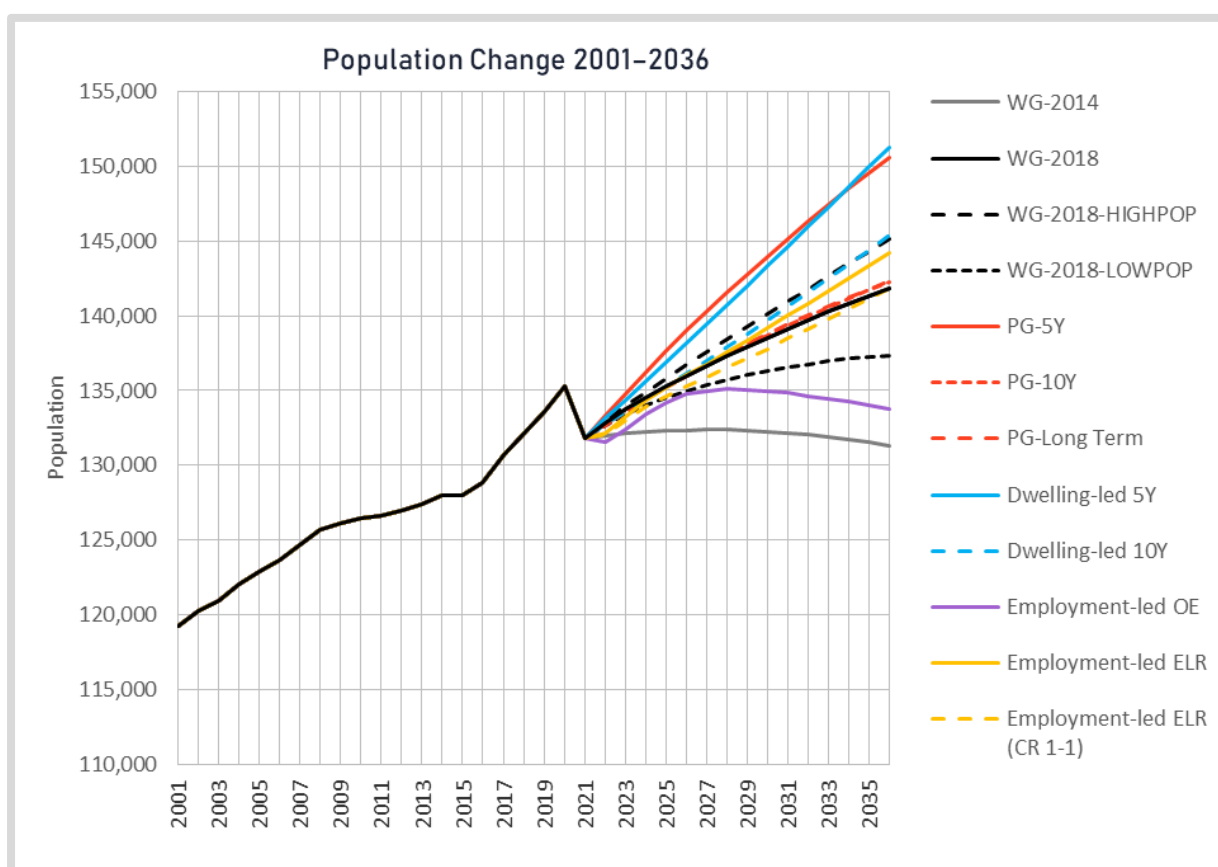


Figure 28: Vale of Glamorgan - 2021-based growth scenarios, 2001-2036

Source: ONS, Edge Analytics POPGROUP modelling

Table 5: Vale of Glamorgan - 2021-based scenario outcomes, 2021–2036

Scenario	Change 2021–2036				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Employment
Dwelling-led 5Y	19,475	14.8%	10,062	17.5%	1,405	698	536
PG-5Y	18,750	14.2%	9,759	17.0%	1,352	677	510
Dwelling-led 10Y	13,558	10.3%	7,587	13.2%	1,047	526	365
WG-2018-HIGHPOP	13,319	10.1%	7,589	13.2%	951	526	291
Employment-led ELR	12,411	9.4%	7,108	12.3%	976	493	341
PG-Long Term	10,528	8.0%	6,352	11.0%	868	440	293
PG-10Y	10,452	7.9%	6,332	11.0%	867	439	279
WG-2018	10,056	7.6%	6,335	11.0%	869	439	243
Employment-led ELR (CR 1-1)	10,007	7.6%	6,102	10.6%	830	423	341
WG-2018-LOWPOP	5,523	4.2%	4,714	8.2%	782	327	193
Employment-led OE	1,936	1.5%	2,733	4.8%	326	189	25
WG-2014	-482	-0.4%	1,966	3.4%	31	136	-133

Source: ONS, Edge Analytics POPGROUP modelling

## Appendix B

# POPGROUP Methodology & Assumptions

## POPGROUP

- B.1 POPGROUP is a suite of demographic models used to derive forecasts of population, households, and labour force, for areas and social groups. The main POPGROUP model (Figure 29) is a ‘cohort component’ model, which enables the development of population forecasts based on births, deaths and migration inputs and assumptions.

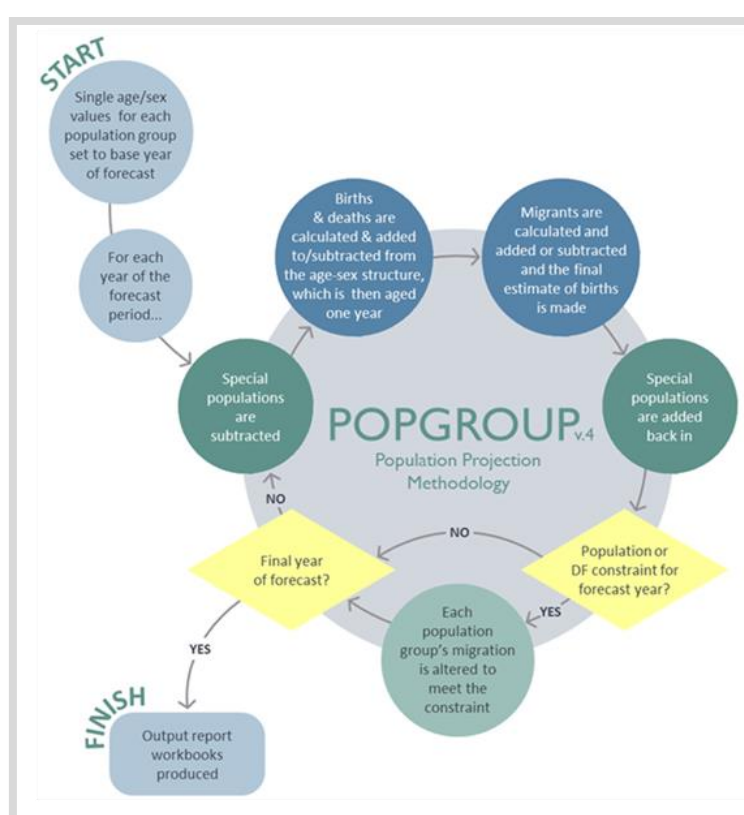


Figure 29: POPGROUP population projection methodology

- B.2 The Derived Forecast (DF) model sits alongside the population model (Figure 30) providing a membership rate model for household projections and an economic activity rate model for labour force and employment projections.

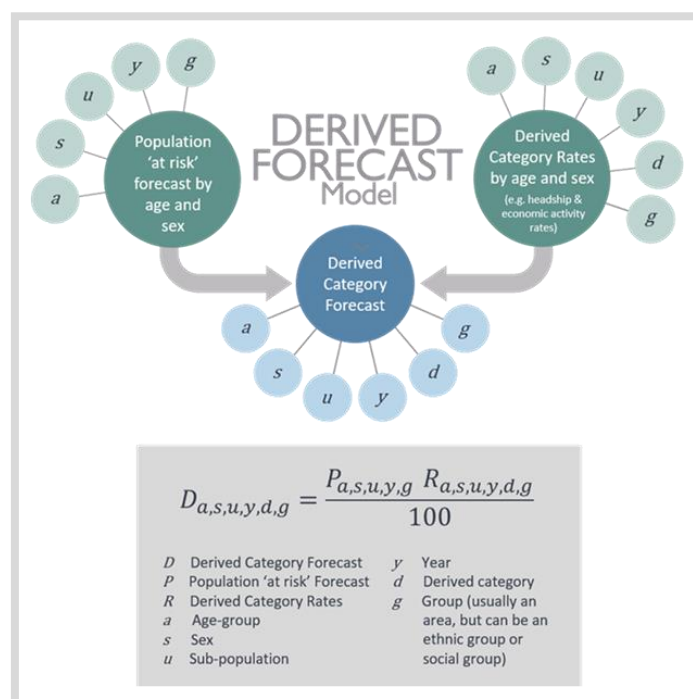


Figure 30: Derived Forecast (DF) methodology

## Scenario Inputs & Assumptions

### Population

- B.3 Historical population statistics are provided by ONS mid-year population estimates (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 the defined assumptions outlined below. The **WG** scenarios use the MYEs up until the respective 2014 and 2018 base years. The **PG**, **Dwelling-led** and **Employment-led** scenarios use the ONS 2020 MYE as their base year.
- B.4 In the 2021-based scenarios, historical population statistics are drawn from the ONS 2001–2020 MYEs and the initial 2021 Census results. The MYE data are disaggregated by single year of age and sex. ONS has published an initial Census population by 5-year age group and sex, rounded to the nearest 100. This population has been disaggregated by single year of age and sex using the age-sex structure aged on from the 2020 MYE. From the 2021 base year onwards, future population counts are estimated by single year of age and sex, using the assumptions outlined below. Note that as no MYE data is available for 2020/21, relevant migration assumptions are derived from the period up to mid-year 2020.

### Births & Fertility

- B.5 Historical mid-year to mid-year counts of births by sex have been sourced from the ONS MYEs.
- B.6 Under the **WG** scenarios, historical counts of births have been used until each scenario's base year. The future counts of births are reproduced from the base year onwards to ensure consistency with the respective official projection.



- B.7 For the **PG, Dwelling-led** 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 Welsh Government 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

- B.8 Historical mid-year to mid-year counts of deaths by sex and 5-year age-group have been sourced from the ONS MYEs.
- B.9 Under the **WG** scenarios, historical counts of deaths have been used up until each scenario’s base year. The future counts of deaths are reproduced from the base year onwards to ensure consistency with the respective official projection.
- B.10 For the **PG, Dwelling-led** 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 Welsh Government 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

- B.11 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.
- B.12 In the **WG** scenarios, these historical estimates are used up to each respective base year, with future counts of migrants defined, to remain consistent with the respective official projections.
- B.13 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-Long-Term** scenario, this is derived from the full nineteen years of historical data (2001/02–2019/20).
- B.14 Under the **Dwelling-led** and **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 dwelling and employment growth targets.

### International Migration

- B.15 Historical mid-year to mid-year estimates of immigration and emigration by five-year age-groups and sex have been sourced from the ‘components of population change’ files that underpin the ONS MYEs.
- B.16 In the **WG** scenarios, these historical estimates are used up to each respective base year, with future counts of migrants defined, to remain consistent with the respective official projections.

- B.17 In the **PG-5Y**, **PG-10Y** and **PG-Long-Term** 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-year, ten-year and nineteen-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.
- B.18 Under the **Dwelling-led** and **Employment-led** scenarios, future international assumptions are derived from a five-year historical period (**PG-5Y**).

### Households & Dwellings

- B.19 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”.
- B.20 In POPGROUP, a dwelling is defined as a unit of accommodation which can either be occupied by one household or can be vacant.
- B.21 The household and dwelling growth implications of each scenario are estimated through the application of communal population statistics, household membership rates and a dwelling vacancy rate. These assumptions have been sourced from the 2011 Census, and the Welsh Government 2018-based household projection model. In a **Dwelling-led** scenario, these assumptions are used to derive the level of population growth required to meet the defined dwelling-growth target.
- B.22 In the 2021-based scenarios, the household forecasts have been rebased to the 2021 Census household figure.

### Household Membership Rates

- B.23 Membership rates are used to calculate the proportion of the household population in each household category by age group and sex (Table 6), taken from the Welsh Government 2018-based household model for the Vale of Glamorgan. The household population is then converted into households using average household size assumptions, drawn from the household model.

Table 6: Welsh Government 2018-based household categories

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

Source: Welsh Government

### Communal Population Statistics

- B.24 Household projections in POPGROUP exclude the population ‘not-in-households’ (i.e., the communal/institutional population). These data are drawn from the Welsh Government 2018-based household projections. Examples of communal establishments include prisons, residential care homes and student halls of residence.
- B.25 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

- B.26 The relationship between households and dwellings is modelled using a ‘vacancy rate’, derived from the 2011 Census using statistics on households (occupied household spaces) and dwellings (shared and unshared). A vacancy rate of 3.8% for the Vale of Glamorgan has been applied and fixed throughout the forecast period. Using this vacancy rate, the number of dwellings needed to meet the household growth trajectory has been estimated.

### Labour Force & Employment

- B.27 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.

### Economic Activity Rates

- B.28 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. Economic activity rates by five-year age group (16–89) and sex have been derived from 2011 Census statistics, with adjustments made in line with the OBR analysis of labour market trends in its 2018 Fiscal Sustainability Report<sup>13</sup>.

### Commuting Ratio

- B.29 The commuting ratio measures the balance between the level of employment in an area and the number of resident workers. A commuting ratio greater than 1.00 indicates that the size of the resident workforce exceeds the level of employment available in the area, resulting in a net out-commute. A commuting ratio less than 1.00 indicates that employment in the area exceeds the size of the labour force, resulting in a net in-commute.
- B.30 The 2011 Census recorded 59,274 resident workers and a total of 45,864 people engaged in (workplace-based) employment in the Vale of Glamorgan. This results in a commuting ratio of 1.29, a net out-commute, which is applied in all scenarios (apart from **Employment-led ELR (CR 1-1)**) and fixed throughout the forecast period.
- B.31 In the **Employment-led ELR (CR 1-1)** scenario, the 2011 commuting ratio has been adjusted in each year of the forecast on the assumption that future jobs growth is provided under a 1:1 commuting

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<sup>13</sup> OBR Fiscal Sustainability Report, July 2018

ratio (i.e., for every new job created in the Vale of Glamorgan, there is a resident worker available to fill it). In practice, this assumes that sufficient growth in the resident labour force will be provided (adjusted for unemployment rates) so that the total growth in employed people indicated by the jobs forecast is matched (on a one-to-one basis) by growth in resident workers. This adjustment results in a *reduced* net out-commute over the forecast period to 1.27 (Figure 31).

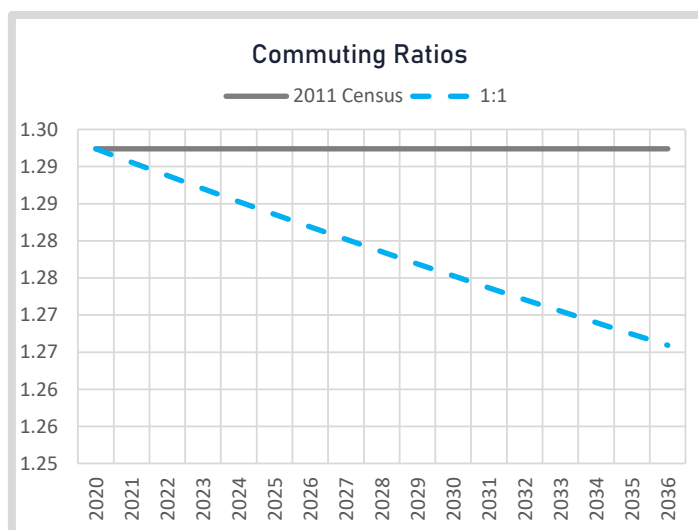


Figure 31: Vale of Glamorgan - Commuting Ratios  
Source: 2011 Census, Edge Analytics

### Unemployment

B.32 The unemployment rate is the proportion of unemployed people within the economically active population. Historical unemployment rates are sourced from ONS model-based estimates. For the Vale of Glamorgan, the ONS 2021 rate of 4.2% has been applied in all scenarios apart from the **Employment-led OE** scenario where the unemployment rates from the Oxford Economics forecast have been applied (Figure 32).

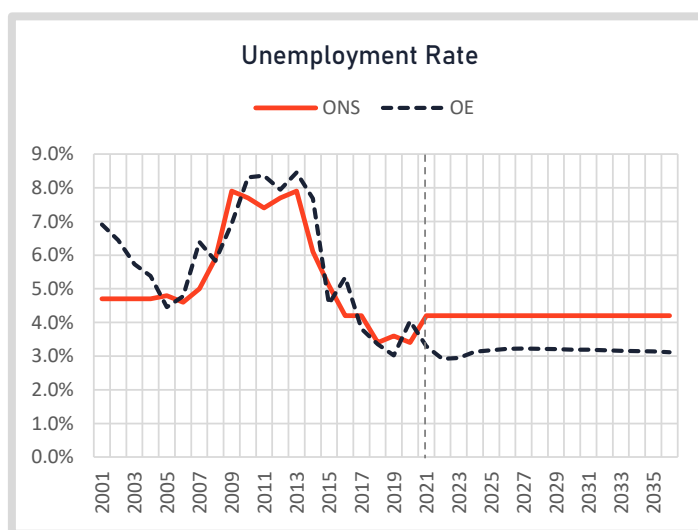
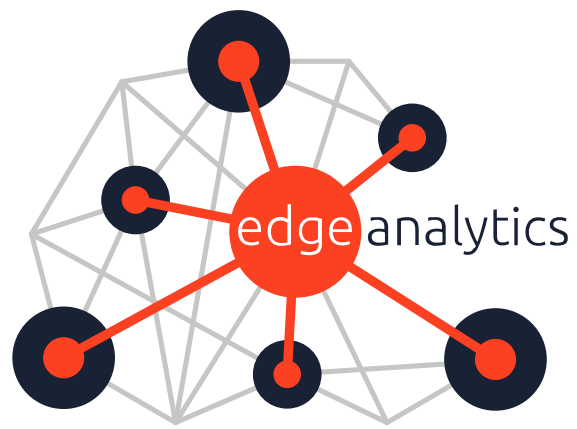


Figure 32: Vale of Glamorgan - Unemployment rate profiles  
Source: ONS, Oxford Economics



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