CAERPHILLY DEMOGRAPHIC EVIDENCE

Population Profile & Growth Scenarios

October 2025

EDGE ANALYTICS

ACKNOWLEDGEMENTS

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CONTENTS

ACKNOWLEDGEMENTS i
CONTENTS ii
1 INTRODUCTION 1
Context 1
Report Structure 1
2 DEMOGRAPHIC PROFILE 2
Geographical Context 2
Population 3
Households 13
Labour Force 16
Regional Growth Ambitions 20
3 DEMOGRAPHIC SCENARIOS 21
Scenario Definition 21
Scenario Outcomes 23
Summary & Conclusions 30
Future Considerations 31
Forecasting Methodology 32
Scenario Inputs & Assumptions 33

1 INTRODUCTION

Context

1.1 Caerphilly County Borough Council is in the process of developing a 2nd Replacement Local Development Plan (2RLDP), which will cover a 2020–2035 plan period.

1.2 Planning Policy Wales (PPW) stipulates that planning authorities should use the Welsh Government (WG) household projections to help identify future housing requirements, evaluating whether the projections are appropriate for their area.[1]

1.3 To inform 2RLDP development, the Council has therefore commissioned Edge Analytics to produce a range of demographic evidence.

1.4 In 2024, in partnership with Turley and SQW, Edge Analytics produced a range of demographic growth scenarios for the Cardiff Capital Region (CCR), on behalf of the South East Wales Planning Officers Society (SEWPOS) and the South East Wales Strategic Planning Group (SEWSPG). This included analysis of migration and commuting patterns across the region and the development of a range of demographic growth scenarios for each of the authorities. Employment-led scenarios were produced to model the population growth impacts of forecast employment growth.

1.5 As the leading UK specialist in demographic analysis and forecasting, Edge Analytics has unrivalled experience in the delivery of robust, detailed and defensible evidence to support planning in critical sectors of the economy, including housing, education and utilities.

Report Structure

1.6 This report presents a **demographic profile** of Caerphilly (Section 2), including the 2021 Census headlines, the latest historical mid-year population estimates (MYE) from the Office for National Statistics (ONS), household estimates from WG, as well as the latest official WG 2018-based population and household projections.

1.7 In Section 3, a range of **demographic scenarios** are presented. These have been developed using the latest demographic statistics from ONS and WG, along with Edge Analytics' VICUS forecasting technology. With variant assumptions, each of the demographic scenarios presents an alternative growth outcome for comparison with the official WG projections for Caerphilly. Scenarios that consider the impact of housing growth (dwelling-led) or employment growth (employment-led) have also been developed, as well as variant migration trend scenarios.

1.8 Appendix A provides details on the VICUS forecasting methodology, along with the scenario inputs and assumptions.

[1] WG 2024 Planning Policy Wales

2 DEMOGRAPHIC PROFILE

Geographical Context

2.1 The county of Caerphilly is located in South East Wales (Figure 1). Caerphilly borders Powys and Bannau Brycheiniog National Park to the north, Blaenau Gwent to the north-east, Torfaen and Newport to the east, Cardiff to the south, and Rhondda Cynon Taf and Merthyr Tydfil to the west.

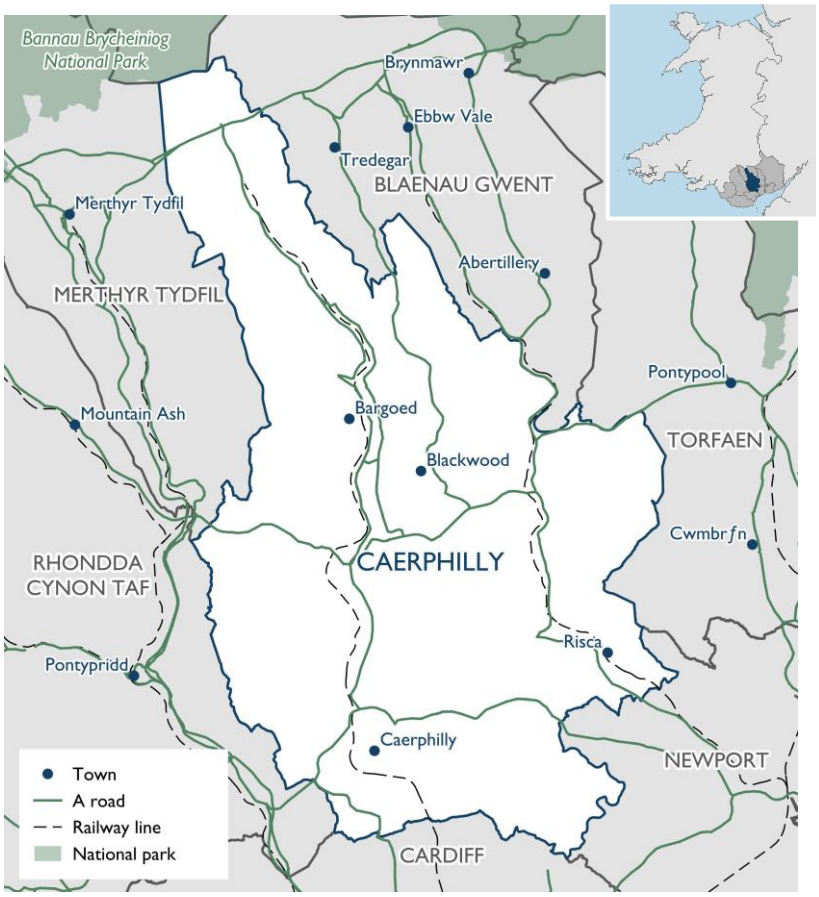


Figure 1: Caerphilly and the surrounding area

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2.2 Located to the south-west of Caerphilly County Borough is its largest town, Caerphilly. Other large towns include Bargoed, Blackwood and Risca.

2.3 As of mid-year 2024, the population of South East Wales was 1,570,694 – the most densely populated region of Wales. Caerphilly country borough accounts for approximately 11% of the region's population. There are strong transportation links between Caerphilly and the capital, Cardiff, providing employment opportunities for those in the county borough.

Population

Census Headlines

2.4 At the 2021 Census, the population of Caerphilly was 175,952, a difference of -1.6% from the 2011 Census, equivalent to a reduction of 2,854 people (Figure 2). Conversely, there was a 5.5% increase in Caerphilly's population between the 2001 Census and 2011 Census, equivalent to an additional 9,291 people.

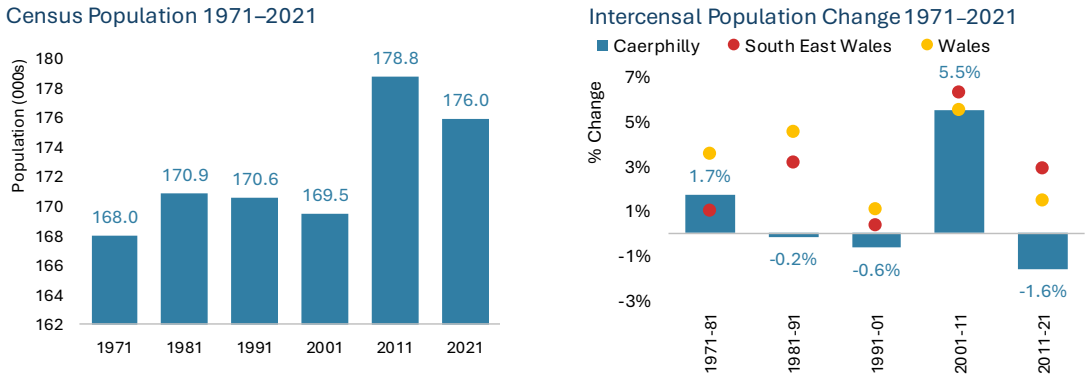


Figure 2: Caerphilly Census population (left) and intercensal population change (right)
Source: ONS

2.5 Whilst Caerphilly saw a decrease in the population size between the 2011 Census and 2021 Census, the population grew at a regional and national level, by 2.9% and 1.4% respectively.

2.6 Population change in Caerphilly is in part due to the natural ageing of the population. The median age in Caerphilly increased from 40 in 2011 to 42 in 2021, a trend is mirrored at a regional and national level (Table 1). A median age of 42 in Caerphilly in 2021 is the same as the median age for Wales, though is slightly higher than the median age of the South East Wales region (40).

2.7 Table 1 also shows that between 2011 and 2021 Caerphilly saw an increase in the old age dependency ratio (OAD), a measure of the population aged 65+ compared to the population aged 15–64.[2] If the OAD is 30, it means that there are 30 people aged 65+ for every 100 people of working age (16–64).

Table 1: Census Median Age and Old Age Dependency Ratio Comparison

Area	Median Age		OAD	
	2011	2021	2011	2021
Caerphilly	40	42	25	32
South East Wales	39	40	25	30
Wales	41	42	28	34

Source: ONS

[2] $Old\ Age\ Dependency\ Ratio = \left(\frac{Population\ aged\ 65+}{Population\ aged\ 16\ to\ 64}\right) \times 100$

2.8 In 2011, the OAD in Caerphilly was 25; by 2021, it has risen to 32. Both the Caerphilly and South East Wales figures are lower than the national OAD of 34 in 2021. The changing profile of Caerphilly's population by single year of age is also demonstrated in Figure 3.

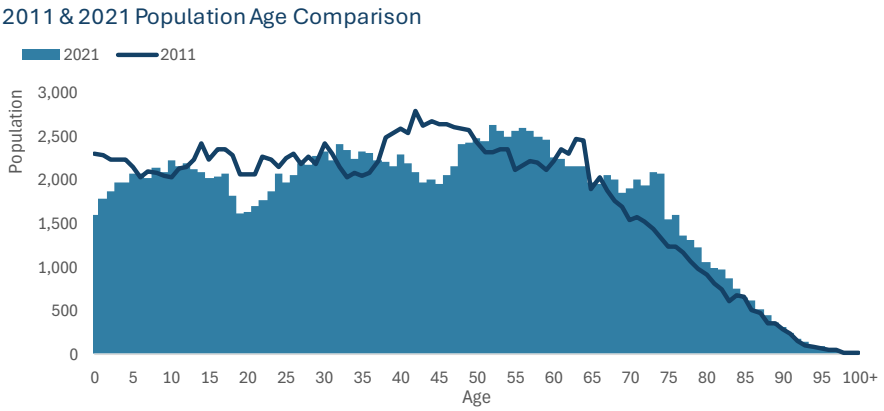


Figure 3: Caerphilly Census population age profiles, 2011 vs. 2021
Source: ONS

2021 Census & MYE

2.9 The 2021 Census provided an important update to our understanding of population characteristics at a local, regional and national level. It is, however, a snapshot in time; between successive Censuses, population estimation is necessary.

2.10 The size and structure of the UK population is estimated by the ONS each year in its mid-year estimates (MYE). The MYE are key official statistics, used to inform (amongst other things) the derivation of future population projections, including those produced by ONS and WG (and those presented in this report).

2.11 To generate the MYE, the population is 'rolled-forward' from the March Census estimate to mid-year, by adding the births, subtracting the deaths (referred to as 'natural change'), and estimating the levels of in- and out-migration, both internal (domestic) and international (overseas). In subsequent years, the same process is applied to produce each MYE until another Census is carried out.

2.12 Following a Census, the ONS reviews the intercensal MYE and completes a reconciliation and rebasing exercise, adjusting the components of change and MYE to better align the Census estimates. The 2012–2021 rebased MYE time series (released November 2023) replaced the 'previous' pre-Census MYE.

2.13 In Caerphilly, the 2021 Census population was lower than the trajectory of growth implied by the rolled-forward pre-Census MYE (Figure 4), resulting in a downwards adjustment to the MYE.

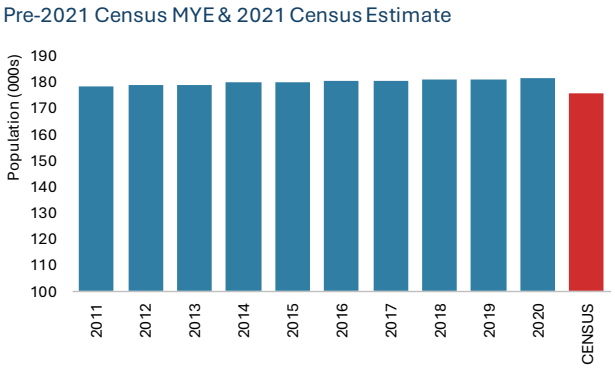


Figure 4: Caerphilly pre-Census MYEs vs. Census
Source: ONS

2.14 A level of 'drift' is expected between the MYE and the subsequent Census. At a national level, the differences between the previous (pre-Census) rolled-forward MYE and rebased MYE are largely attributed to international migration flows, which have consistently been the most challenging aspect of population change to estimate.

2.15 At a regional and local authority-level, the misestimation of internal migration has also contributed to the observed differences.

2.16 Natural change is typically subject to limited revisions during the rebasing exercise as births and deaths are recorded in each year (although ONS made some adjustment to account for delayed births registrations due to the COVID-19 pandemic, and the late registration of some deaths referred to coroners).

2.17 Once adjustments to the components of change are accounted for, there remains some residual difference between the rolled-forward MYE and the Census estimate. ONS considers it likely that this 'unattributable population change' (UPC) is associated with migration, either internal and/or international, although it does not assign it to any flow in particular.

MYE Population 2001–2024

2.18 Figure 5 illustrates the latest available MYE evidence for Caerphilly, including the 2001–2011 MYE, the rebased MYE (2012–2021), and the 2022, 2023 and 2024 MYE. The previous 2012–2021 pre-Census MYE are included for context.

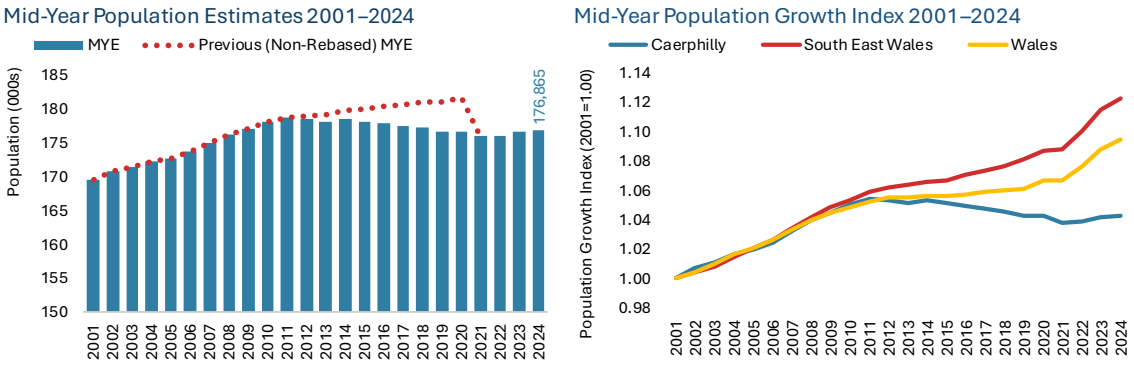


Figure 5: Caerphilly MYEs (left) and indexed MYE population growth rate (right)
Source: ONS

2.19 As of mid-year 2024, the population of Caerphilly was estimated at 176,865, a 4.3% increase since 2001. Between 2001 and 2011, the rate of population growth in Caerphilly (5.4%) was slightly higher than the national rate (5.3%) but was lower than the regional growth rate of 5.9%.

2.20 The population of Caerphilly peaked in 2011 at 178,782, then declined by 1.6% over 10 years to 2021, a decline of 2,783 people. However, since 2021 there has been sustained population growth in Caerphilly, increasing by 0.5% to 2024, equivalent to 866 people. This is a pattern seen at a regional, national and UK-level. Nationally, this has been driven by an increase in immigration. The drivers of population change in Caerphilly are discussed below.

MYE Age Profile

2.21 Caerphilly has an ageing population. As seen in Figure 6, the population aged 0–64 has decreased by 5.9% (8,744 people) since 2011, whilst the 65+ age group has increased by 22.9% (6,827 people).

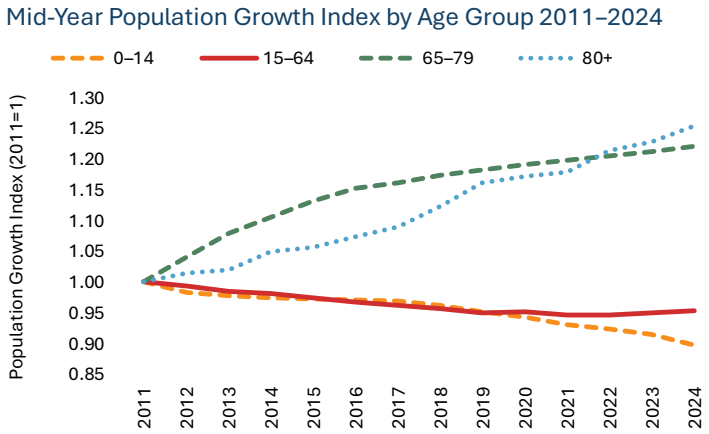


Figure 6: Caerphilly population growth index by age group
Source: ONS

2.22 The growth rate has been most accelerated in the 80+ age group, particularly since 2021. The working age population (15–64) decreased in size by 4.7% over the 2011–2024 period, although the majority of the decline occurred up to 2019, with little change in the age group since then.

2.23 The number of children in Caerphilly (0–14) reduced by 10.2%, with the age group consistently declining since 2011.

Components of Change

2.24 Population change in Caerphilly has been driven by a combination of internal migration to and from elsewhere in the UK, and changes to the balance between births and deaths (natural change). International migration has contributed little to population growth, although levels have increased from 2021/22 onwards (Figure 7).

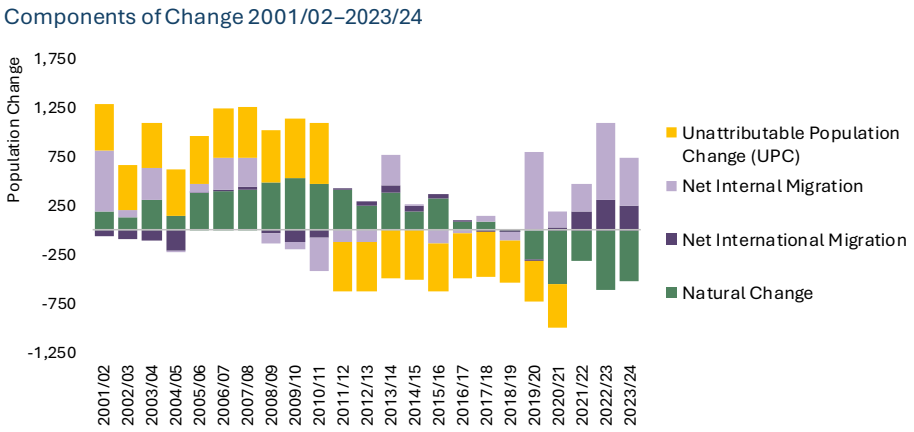


Figure 7: Caerphilly components of change
Source: ONS

2.25 Across years 2001/02–2020/21 is a UPC adjustment, included by ONS in the MYE to align the Census populations. In the 2001–2011 period, the UPC adjustment is positive, a result of the 2011 Census population estimate being higher than the trajectory of growth implied by the intercensal MYE.

2.26 The reverse occurred in 2021, where, as outlined above, the 2021 Census population estimate was lower than the pre-Census MYE. In all Welsh authorities, apart from Newport, the MYE were adjusted downwards following the 2021 Census.

2.27 Although ONS has not assigned UPC to any once component of change, it is likely due to issues around the estimation of migration: international migration is the component most challenging to estimate. However, it is possible that UPC is also linked to problems with the Census estimates and/or internal migration.

Natural Change

2.28 With an excess of deaths over births, natural change contributed negatively to population change in Caerphilly from 2018/19 onwards (Figure 8). Before this, natural change was positive, with an excess of births over deaths.

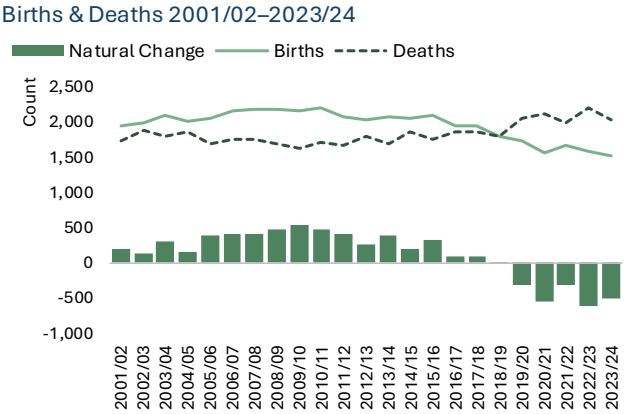


Figure 8: Caerphilly births and deaths
Source: ONS

2.29 Between 2001/02 and 2017/18, deaths averaged at 1,769 per year whilst births averaged at 2,075 per year. From 2018/19 to 2023/24, where negative natural change can be observed, deaths have averaged at 2,036 per year whereas births have averaged at 1,649 per year.

2.30 Since the number of births peaked 2010/11, the number of births has declined, with 2023/24 seeing the lowest number over the 23-year period (1,521). This reflects national trends; the Total Fertility Rate (TFR) across England and Wales reached 1.41 in 2024, its lowest value since records began in 1938. Of all the Welsh authorities, Caerphilly and Carmarthenshire saw the largest decrease in TFR between 2023 and 2024, Caerphilly's TFR reaching 1.35 in 2024.[3]

2.31 Deaths in Caerphilly have fluctuated between 1,600 and 2,200 per year since 2001, peaking in 2022/23 at 2,205. The higher number of deaths in recent years is linked to the COVID-19 pandemic, which was the leading cause of deaths in England and Wales in 2020 and 2021.[4] The number of deaths declined slightly in 2023/24.

Internal Migration

2.32 Net internal migration (moves to and from elsewhere in the UK) averaged at 158 per year between 2001/02 and 2023/24. This relatively modest growth masks the significant in- and outflows (Figure 9). From 2001/02 to 2018/19, the internal migration inflow averaged at 4,888 per year and the outflow at 4,730, fluctuating between net in- and outflows. However, from 2019/20, the inflow exceeded the outflow, driving population growth.

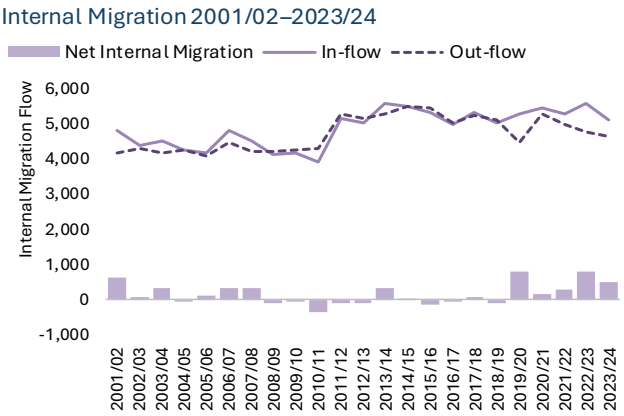


Figure 9: Caerphilly internal migration flows
Source: ONS

2.33 When viewed by age group, there has been a sustained net outflow in the 15–24 age group, with the exception of 2019/20 (coinciding with the COVID-19 pandemic), predominantly linked to young people moving elsewhere for university and/or work (Figure 10).

[3] ONS (August 2025) Births in England and Wales: 2024 (refreshed populations)
[4] ONS (July 2022) Deaths registered in England and Wales: 2021

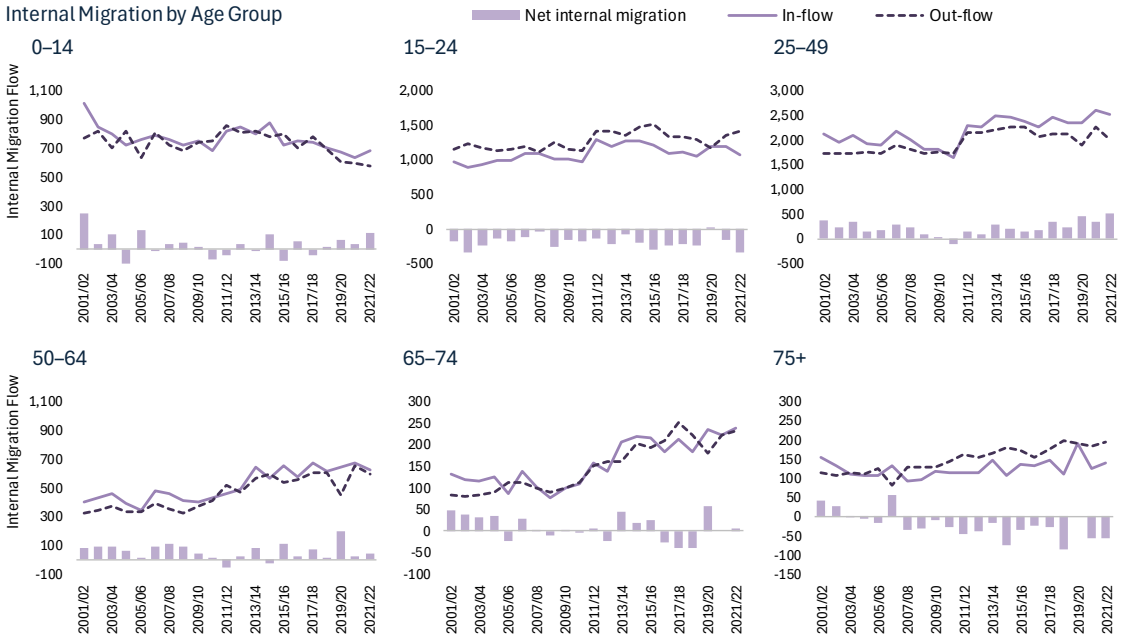


Figure 10: Caerphilly net internal migration and flows by age
Source: ONS. Note scale change between age groups.

2.34 There has been a sustained net inflow in the 25–49 age group since 2001/02, averaging at +228 people per year, a result of people of working age and families moving to the area, encouraged by the proximity to Cardiff as a major centre of employment, and the relatively lower house prices in Caerphilly compared to other authorities in South East Wales (Figure 11). As of March 2025, the median house price in Caerphilly was £189,950.

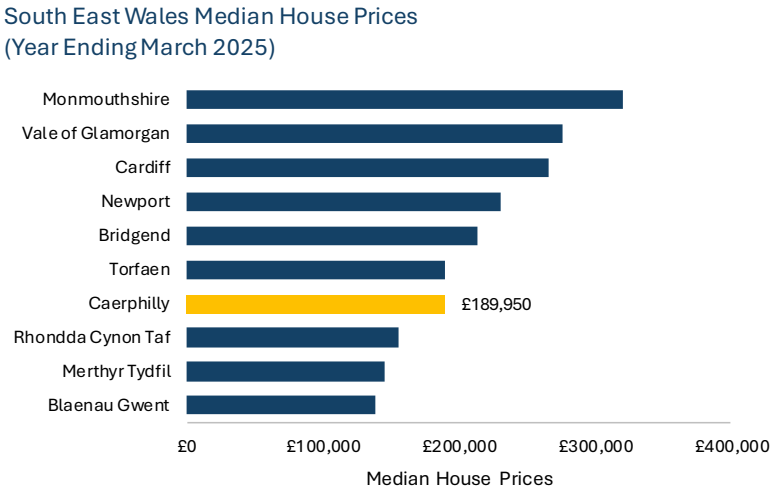


Figure 11: South East Wales median house prices, year ending March 2025
Source: ONS

2.35 Caerphilly has consistently seen its largest migration flows between neighbouring authorities Cardiff, Newport and Rhondda Cynon Taf, Blaenau Gwent and Merthyr Tydfil. However, over the 2001/02–2021/22 period[5], Cardiff was the largest net contributor of population to Caerphilly, averaging at +235

[5] Note that comparable origin-destination internal migration flow data is not currently available for 2022/23 or 2023/24.

people per year (Table 2).

Table 2: Migration Flows with Neighbouring Authorities

Average Annual Migration 2001/02–2021/22	Origin/Destination Authority						
	Powys	Blaenau Gwent	Torfaen	Newport	Cardiff	Rhondda Cynon Taf	Merthyr Tydfil
Inflow to Caerphilly	37	335	187	519	935	422	225
Outflow from Caerphilly	46	341	186	492	700	437	246
Net migration	-9	-6	+1	+27	+235	-15	-22

Source: ONS

International Migration

2.36 International migration has had a varying impact on population change in Caerphilly since 2001 (Figure 12). Between 2001/02 and 2004/05, there was negative net international migration, averaging at -114 people. Between 2005/06 and 2020/21, the impact of net international migration was small.

2.37 The growth in net international migration in 2021/22–2023/24 reflects changes seen at a regional and national level: since 2021, the UK has seen unprecedented levels of net international migration.[6]

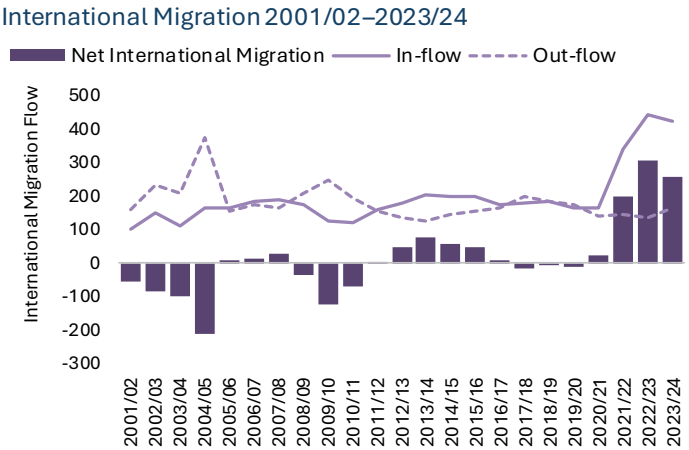


Figure 12: Caerphilly international migration

Source: ONS

2.38 This growth has been linked to migration through humanitarian routes (e.g. the Russia-Ukraine war), non-EU work-related migration in the health and social care sector and an increase in the number of dependents arriving with non-EU workers on long-term work visas.[7] The ONS highlights that pent-up demand for study following the COVID-19 pandemic also impacted the net migration figures.

2.39 Within the latest estimates (year ending December 2024), net international migration to the UK has nearly halved.[8] ONS states that this is linked to a reduction in the number of people arriving on work and study visas, and an increase in the number of people leaving the UK who came here post-

[6] ONS (Nov 2024) Long-term international migration, provisional: year ending June 2024
[7] ONS (Nov 2023) Long-term international migration, provisional: year ending June 2023
[8] ONS (May 2025) Long-term international migration, provisional: year ending December 2024

pandemic on study visas. Changes to the rules around international students bringing dependents in January 2024 are also likely to have had an impact.

2.40 Data from the Department for Work and Pensions (DWP) indicates that National Insurance Number (NINo) registrations in Caerphilly have been higher in recent years, linked in particular to applicants from India, Ukraine and Nigeria (Figure 13).

2.41 The latest data (2024) reflects the pattern in net international migration, with a reduction in the number of NINo registrations in Caerphilly.

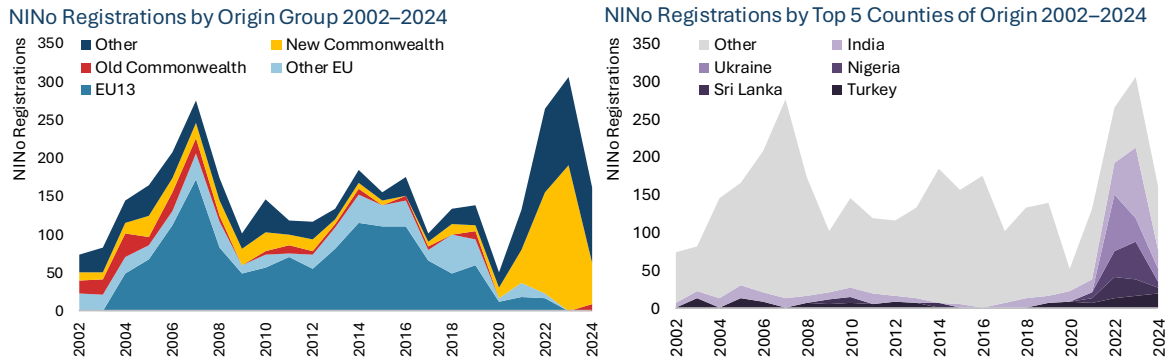


Figure 13: Caerphilly NINo registrations by origin group (left) and Caerphilly NINo registrations by the top 5 countries of origin from 2020–2024 (right)

Source: DWP

Official Population Projections

2.42 The latest WG projections have a 2018 base year and a 2043 projection horizon.[9] It is important to note that the MYE that underpinned this round of projections are the pre-2021 Census MYE. Figure 14 presents the population trajectories for the principal projection and the five variants, together with the latest rebased MYE and the previous pre-Census MYE.

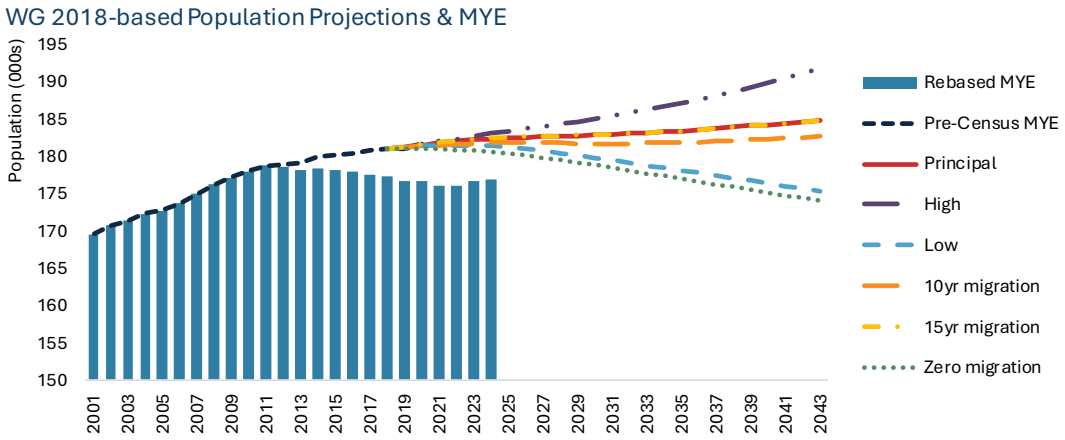


Figure 14: Caerphilly's WG 2018-based population projections & ONS MYE

Source: ONS, WG

[9] Although the 2022-based subnational population projections are expected to be released by WG Autumn 2025, a release date has not been announced by WG at the time of this report.

2.43 Under the principal scenario, the population of Caerphilly was projected to increase by 2.2% to 2043, a result of positive net migration offsetting the negative impact of natural change (Table 3).

Table 3: WG 2018-Based Population Projection Summary

2018-Based Projection Scenario	Population Growth 2018–2043		Average Annual Change	
	Change	% Change	Natural Change	Net Migration
High	10,742	5.9%	-7	436
Principal	3,929	2.2%	-194	351
15yr migration	3,906	2.2%	-194	351
10yr migration	1,715	0.9%	-167	-43
Low	-5,726	-3.2%	-500	271
Zero migration	-6,999	-3.9%	-280	0

Source: WG. Scenarios are ranked in order of population change.

2.44 The variant projections include a 'High' and 'Low' alternative (which apply high/low fertility, life expectancy and migration assumptions) and two alternative migration trend scenarios, based on a 10-year and 15-year history.

2.45 Whilst hypothetical, the zero migration variant highlights the impact of Caerphilly's ageing population; in the absence of migration, and with the number of deaths exceeding the number of births, a continued population decline is projected to 2043 (-3.9%).

2.46 Although natural change is negative in all variants, the impact of net migration (mainly net internal migration) results in population growth in the High, Principal, 15yr migration and 10yr migration variants.

2.47 The rebased MYE from 2011 to 2018 are lower than the previous MYE, which underpinned the 2018-based projections. The population growth trajectories from the 2018 base year are also higher than the MYE in all years from 2018 to 2024. The principal projection did, however, project a 2024 population (182,398) that is similar in age structure to the 2024 MYE (176,865), see Figure 15.

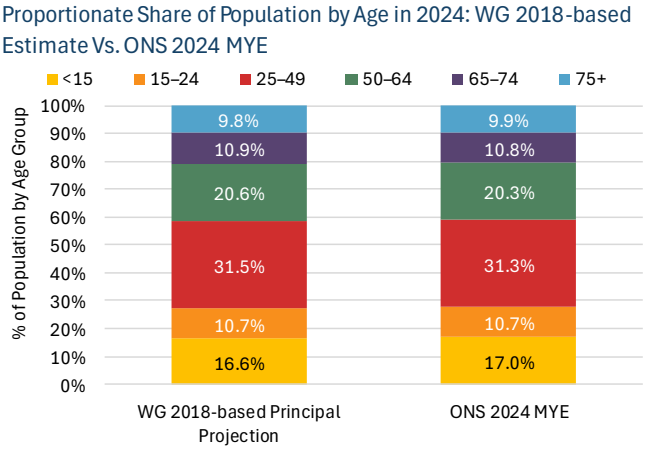


Figure 15: Caerphilly's proportionate share of population by age in 2024: WG 2018-based principal population projection vs. ONS 2024 MYE

Source: WG, ONS.

2.48 Despite this similarity, it is important to acknowledge a key difference between the WG projections and the rebased MYE: the TFR (total fertility rate). Under the principal WG scenario, the TFR was 1.70 in 2018, increasing to 1.80 by 2043. As outlined in paragraph 2.30 above, the recorded TFR in 2024 was 1.35, considerably lower than that projected under the WG projection.

2.49 For this reason, and considering the revisions to the historical MYE, it is appropriate to consider an updated set of population projections for Caerphilly. In Section 3, the rebased MYE evidence has been used to generate a range of scenarios for Caerphilly, with the 2018-based principal WG projection included for comparison.

Households

2021 Census Headlines

2.50 At the 2021 Census, 99.5% of the usual resident population of Caerphilly was estimated to be living in households[10] (175,055 people), higher than the regional and national proportions of 98.2%. The remaining 0.5% (897 people) reside in communal establishments, such as care homes.

2.51 There were 76,255 households in Caerphilly at the 2021 Census, with an average household size of 2.30, slightly lower than the regional average but greater than the national average size (Figure 16). Between 2011 and 2021, the number of households in Caerphilly increased by 2.4% (+1,776), a comparably lower rate of growth to the 2001–2011 Census growth of 7.4% (+5,137).

2.52 At the 2021 Census, Caerphilly had a slightly lower proportion of 1 and 2 person households (65%) than seen nationally (67%), as well as a slightly higher proportion of 3 people and 4 people households (30% in Caerphilly as oppose to the national percentage of 28% for Wales), see Figure 17.

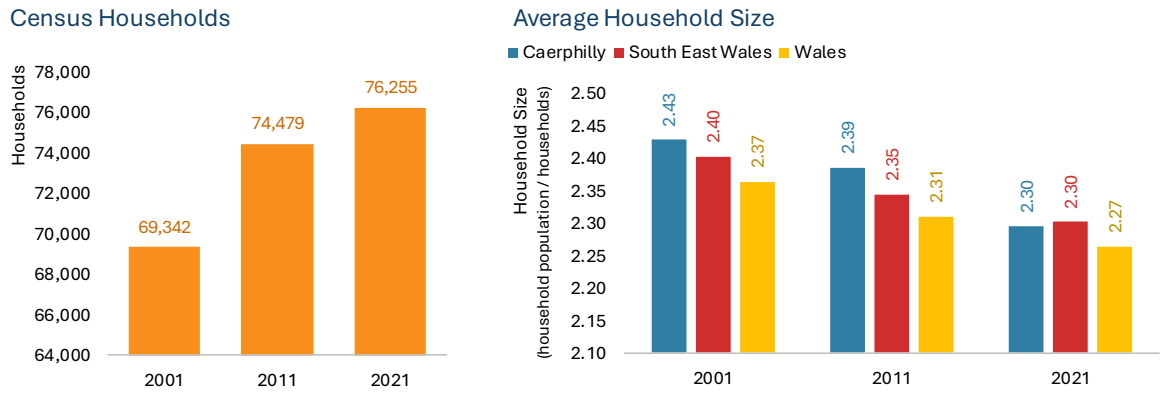


Figure 16: Caerphilly Census household growth (left) and average household size (right)
Source: ONS

[10] See paragraph A.19 for the Census definition of a 'household'.

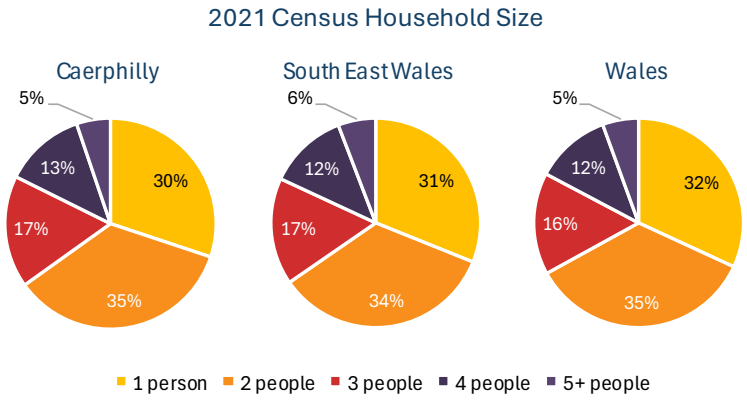


Figure 17: 2021 Census household size
Source: ONS

2.53 This, along with the larger average household size, may indicate that there are a higher proportion of family households rather than retirement households in Caerphilly than seen nationally, reflected by the slightly lower old age dependency ratio in Caerphilly than Wales (see paragraph 2.6).

2.54 Caerphilly has a smaller proportion of households that are owned outright (i.e. without a mortgage, loan or shared ownership) compared to Wales. Additionally, there is a greater proportion of households in social housing than those that rent privately or live rent free, compared to the regional and national profiles (Table 4).

Table 4: Households by Tenure

Tenure	Caerphilly	South East Wales	Wales
Owned outright	36%	35%	38%
Owned with mortgage, loan/shared ownership	32%	31%	28%
Social rented	19%	17%	16%
Private rented or living rent free	13%	17%	17%

Source: ONS

Official Household Projections

2.55 For each of the scenarios generated by WG in its 2018-based population projections, there is also an associated household projection. These projections provide an estimate of the future number of households in an area and of the number of people who live in them (see Table 5 and Figure 18).

2.56 With the highest projected level of population growth, the High variant result in 9.0% household growth over the 2018–2043 projection period. With population decline, the zero migration scenario results in a reduction in the number of households (-318).

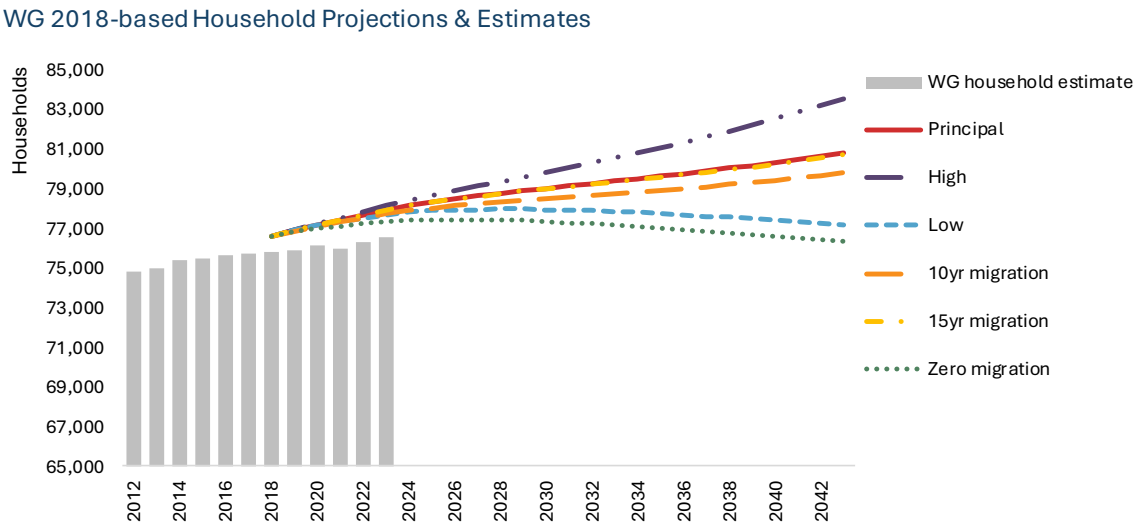


Figure 18: WG 2018-based household projections and WG household estimates
Source: WG

Table 5: WG 2018-Based Household Projection Summary

2018-Based Projection Scenario	Household Growth 2018–2043	
	Change	% Change
High	6,912	9.0%
Principal	4,187	5.5%
15yr migration	4,096	5.3%
10yr migration	3,183	4.2%
Low	521	0.7%
Zero migration	-318	-0.4%

Source: WG. Scenarios are ranked in order of household change.

2.57 Coinciding with a 2.2% growth in the population (see Table 3, page 12), the principal projection results in household growth of 5.5% over the projection period, linked to the changing (and ageing) age structure of the population. Between 2018 and 2043, household growth was expected in 1 and 2-person households (+14.1% and 8.4%, respectively); in 3, 4 and 5+ person households, a decline was projected (Table 6).

Table 6: WG 2018-based Household Projection Summary

2018-Based Principal Projection	Household Growth 2018–2043	
	Change	% Change
1 person	3,034	14.1%
2 person	2,323	8.4%
3 person	-642	-4.9%
4 person	-336	-3.3%
5+ person	-193	-4.4%

Source: WG

Official Household Estimates

2.58 WG publishes annual household estimates using the ONS MYE and the latest available Census data; these are compared to the household projections in Figure 19. Note that the WG has taken account of the 2021 Census and rebased the household estimates from mid-2012 to mid-2023, in a similar way to ONS rebasing the MYE.[11]

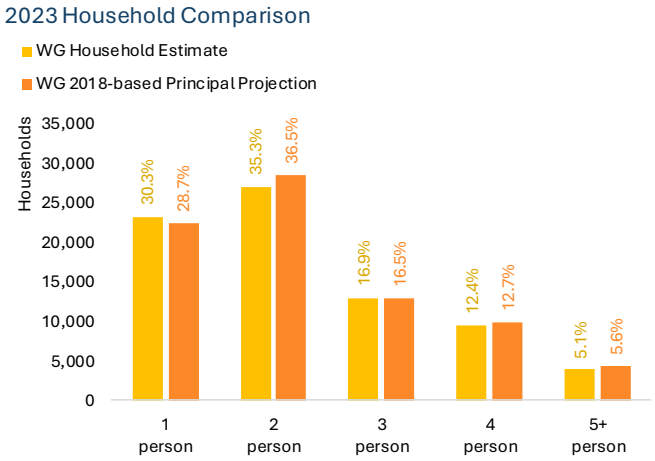


Figure 19: 2023 household comparison: WG household estimate vs. 2018-based WG household projection.
Source: WG

2.59 For mid-year 2023, the household estimate for Caerphilly was 79,594, slightly higher than the projected household figure under the 2018-based principal projection (77,957). The share of 1- and 3-person households is *lower*, whereas the share of 2-, 4- and 5-person households is *higher*.

2.60 Within the scenario modelling presented in Section 3, household growth assumptions from the 2018-based WG principal are applied to determine the number and size of households that form under each scenario. Acknowledging the differences between the projection and the WG household estimates, the underpinning household formation rates from the WG projection (household membership rates) have been rescaled to the 2023 WG household estimate, providing a consistent baseline household figure for each scenario that is aligned with the 2023 MYE.

Labour Force

2.61 The census definition of the labour force is people aged 16+ who are 'economically active' and includes those who are either employed or unemployed but seeking work or waiting for employment to start.[12]

2.62 At the 2021 Census, there were an estimated 81,833 economically active people in Caerphilly; of these, 4,390 were recorded as unemployed. Just over 61,647 people aged 16+ were classed as 'economically inactive' (Figure 20).

[11] WG (2024) Household estimates: mid-2012 to mid-2023
[12] ONS 2021 Census Glossary

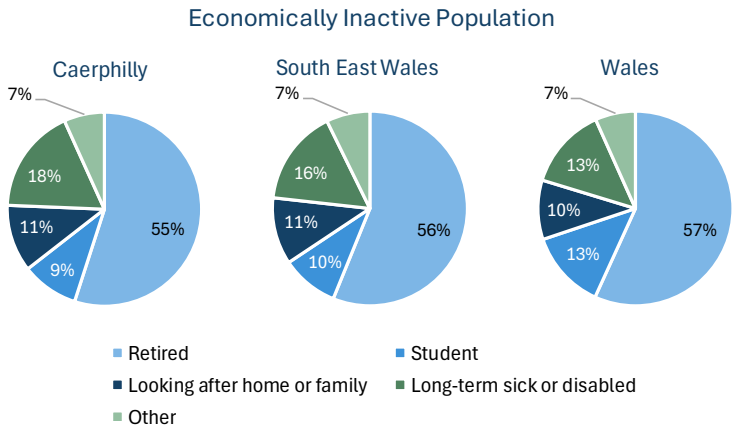


Figure 20: Economically inactive population

Source: WG

2.63 A slightly lower proportion of the economically inactive population is categorised as retired (55%), compared to the Wales proportion (57%), reflected by the lower old age dependency ratio in Caerphilly compared to the national average (see Table 1). Of the economically inactive population, 9% were students, lower than seen nationally in Wales (13%), indicating that Caerphilly has a relatively small student population.

2.64 At the 2011 Census, economic activity rates (EAR) in Caerphilly were lower across males and females aged 16–49, whilst EAR were greater for those aged 50+ (Figure 21).

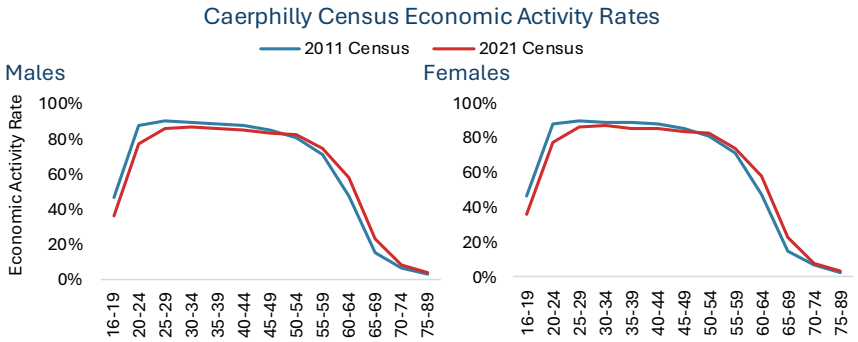


Figure 21: Caerphilly Census EAR by age group and sex

Source: ONS

2.65 At the 2021 Census, male rates were higher across all age groups aside from 16–19. However, between the 2011 Census and 2021 Census, this age group also saw the largest decrease in economic activity for both males and females, likely linked to a greater proportion of this age group staying in education/training beyond the age of 16. The timing of the Census during the COVID-19 pandemic may have also influenced labour force participation within this age group.[13] Rates increased the most in the 60–69 age group for males and 60–64 for females, due to people retiring later and remaining in the workforce.

[13] OBR July 2023 Fiscal risks and sustainability – July 2023

2.66 There is some evidence to suggest that the way that people responded to the Census questions around labour force participation may have been impacted by furlough, which was introduced in March 2020 and ended in September 2021. ONS highlights that the Census economic activity statistics do include those who were furloughed[14], but inconsistencies between the number of people who identified as "Temporarily away from work" in Census 2021 and other administrative data sources were found.[15]

2.67 For this reason, in each scenario presented in Section 3, the size of the labour force has been derived using both the EAR from the 2011 Census and those from 2021, each with OBR adjustments.[16]

Unemployment

2.68 The latest unemployment estimates from ONS show that between 2005 and 2020 Caerphilly's unemployment rate was consistently higher than the national average, rising to above 10% in the years following the 2008 recession (Figure 22). However, since 2020, the unemployment rate in Caerphilly has been more in-line with the national trend, averaging at 3.6% over the past 5 years.

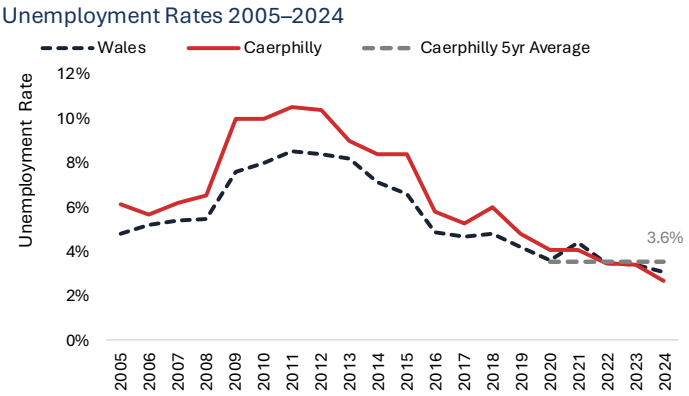


Figure 22: Unemployment rates
Source: ONS

Commuting

2.69 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 of 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).

2.70 At the 2011 Census, the estimated commuting ratio for Caerphilly was 1.32, indicating a relatively high net out-commute. Comparable statistics from the 2021 Census suggest that this had decreased to 1.14. Due to the timing of the 2021 Census during the COVID-19 pandemic, it is possible that this does not reflect the current commuting balance due to the number of people that were furloughed or working from home at the time.

2.71 WG statistics on commuting patterns, derived from the ONS' Annual Population Survey (APS) data, provide an alternative to the Census statistics. Using the total number of working residents in the area

[14] ONS, December 2022 Economic activity status, England and Wales: Census 2021
[15] ONS, July 2023 Labour market quality information for Census 2021
[16] See A.32 for details of the OBR adjustments.

(i.e. the resident workforce) and the total number of people working in the area (i.e. employment), a commuting ratio for Caerphilly has been derived (Figure 23).

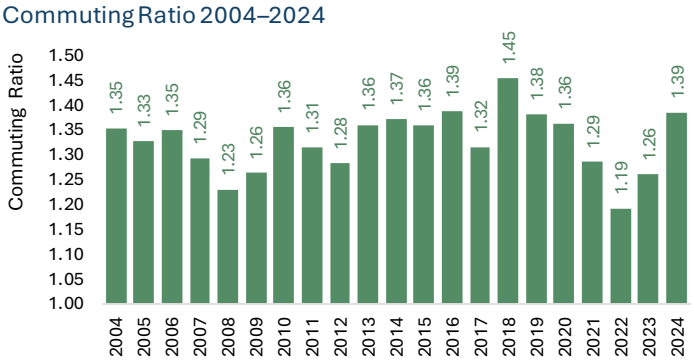


Figure 23: Caerphilly commuting ratio

Source: APS, WG

2.72 In 2011, at 1.31, the commuting ratio almost matched the 2011 Census. The ratio peaked in 2018 at 1.45 due to a decline in the number of people working in Caerphilly but then fell to 1.19 in 2022, as more people began working from home. The commuting ratio has since risen to 1.39 in 2024, higher than the 2021 Census estimate and above the 2011 estimate.

2.73 Along with Caerphilly, bordering local authorities Blaenau Gwent and Rhondda Cynon Taf also had a relatively high net out-commute in 2024 (Figure 24). Contrastingly, as large centres of employment, Cardiff and Newport had a relatively high net in-commute in 2024.

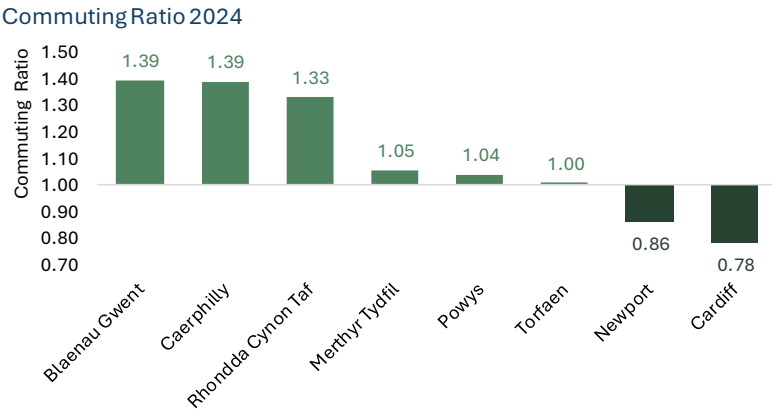


Figure 24: Caerphilly and bordering local authority commuting ratios 2024

Source: APS, WG

Regional Growth Ambitions

2.74 In its Pre-Deposit Plan for the 2nd Replacement Caerphilly County Borough Local Development Plan 2020–2035 (2RLDP)[17], Caerphilly County Borough Council has recommended that '*Scenario J*: CCR Working Age Population Growth' be used as a basis for the emerging plan. This scenario, based on a mid-point between a continuation of the adopted LDP and a 15-year completions average, was underpinned by an annual dwelling growth target of 450 dwelling per year, and resulted in jobs growth of 3,876 (258 jobs per year) for the 2020–2035 plan period.[18,19]

2.75 The labour force generated by *Scenario J* also aligned with the regional growth ambitions, ensuring that the working age population in Caerphilly grows to a level required to support the Cardiff Capital Region (CCR) regional jobs growth targets. The CCR City Deal is a 20-year programme that was agreed in 2016 between the UK government, WG and the 10 local authorities of the South East Wales region, including Caerphilly. The CCR City Deal outlined a target of delivering 25,000 jobs across the South East Wales region by the end of the programme.[20]

2.76 In 2024, Edge Analytics produced a range of demographic growth scenarios to inform a 'policy-off' study of regional growth and migration in the CCR, on behalf of Turley and SQW. The outcomes of this (summarised below in Table 7) were in broad alignment with *Scenario J*, leading the council to conclude that "the preferred Growth option does not need to be changed" (p.29, pre-Deposit LDP).

2.77 Of the Employment-led scenarios produced to inform the 2024 CCR study, the *Baseline* scenario suggested an annual jobs growth figure of 66 per year in Caerphilly. The *Growth* scenario was associated with an additional 238 jobs per year, aligning with the Council's annual job growth target of 258.

2.78 In Caerphilly, the *Growth* scenario resulted in a population growth of 8,034 people (+4.6%) across the 2022–2040 forecast period, and an associated with a total labour force change of 5,045 (a 6.0% increase).

Table 7: Caerphilly CCR scenario outcomes

	Change 2022–2040				Average per year 2022–2040		
	Population Change	Population % Change	Labour Force Change	Labour Force % Change	Net Migration	Employment Growth	Jobs Growth[21]
Growth	8,034	4.6%	5,045	6.0%	833	231	238
Baseline	1,417	0.8%	1,341	1.6%	501	64	66
PG-long-Term	2,840	1.6%	2,106	2.5%	570	99	102
PG-Short-Term	-4,443	-2.5%	-1,626	-1.9%	211	-69	-71
WG-2018	2,281	1.3%	938	1.1%	354	46	48

Source: Turley, SQW, Edge Analytics (2024)

[17] Caerphilly County Borough Council, January 2025 Pre-Deposit Plan
[18] Caerphilly County Borough Council, October 2022 PS4 Population and Housing Growth Options
[19] Caerphilly County Borough Council, October 2022 PS14: Employment Background Evidence Paper
[20] Cardiff Capital Region, March 2016 Cardiff Capital Region City Deal
[21] The number of jobs is derived from the employment growth figure, through the application of a double-jobbing adjustment (1.03) by Turley and SQW.

3 DEMOGRAPHIC SCENARIOS

Scenario Definition

3.1 A range of demographic growth scenarios has been configured for Caerphilly (Table 8) using Edge Analytics' VICUS forecast technology and the latest demographic statistics from the 2021 Census and WG, and the rebased ONS MYEs.

Table 8: Scenario Definition

Scenario	Description
WG-2018	Replicates the WG 2018-based *principal* projection (2018 base year)
WG-2018 (rebased)	Replicates the WG 2018-based *principal* projection, rebased to the 2023 MYE and WG household estimate, with the original trend continuing thereafter.
Trend 5yr	Migration assumptions calibrated from a 5-year historical period (2019/20–2023/24), including the UPC adjustment in the international migration component of the MYE (2001/02–2020/21). Scenario has a base year of 2024.
Trend 10yr	Migration assumptions calibrated from a 10-year historical period (2014/15–2023/24), including the UPC adjustment in the international migration component of the MYE (2001/02–2020/21). Scenario has a base year of 2024.
Dwelling-led (H)	Models the population growth impact of +292 dwelling completions in 2024/25 and an average annual dwelling growth of +575 dpa thereafter, based on a continuation of the adopted LDP. Migration assumptions are aligned with the **Trend 5yr** scenario.
Dwelling-led (I)	Models the population growth impact of +292 dwelling completions in 2024/25 and an average annual dwelling growth of +310 dpa thereafter, based on a 15-year history of dwelling completions (2010/11–2024/25). Migration assumptions are aligned with the **Trend 5yr** scenario.
Dwelling-led (J)	Models the population growth impact of +292 dwelling completions in 2024/25 and an average annual dwelling growth of +450 dpa thereafter, based on a mid-point between a continuation of the adopted LDP and a 15-year completions average. Migration assumptions are aligned with the **Trend 5yr** scenario.
Employment-led (K)	Models the population growth impact of average annual employment change of -346, derived from a July 2021 Oxford Economics jobs forecast, with the application of a double-jobbing adjustment applied by Edge Analytics. Migration assumptions are aligned with the **Trend 5yr** scenario.

3.2 The scenarios produce a range of population, household, dwelling, labour force and employment growth outcomes.

3.3 Appendix A contains further detail on the forecasting methodology and the data inputs assumptions used in the forecast development.

Scenario Overview

3.4 Eight scenarios have been configured for Caerphilly, including WG, alternative trend, dwelling-led and employment-led scenarios. All scenarios have a 2040 forecast horizon.

3.5 The WG 2018-based principal scenario (**WG-2018**) has been included as the latest official projection. Acknowledging the differences between this and the rebased MYE, a rebased version of this scenario has also been included. In the **WG-2018 (rebased)** scenario, the population and household baseline are the 2023 MYE and 2023 WG household estimate. The original WG growth assumptions from 2023 onwards are applied from the revised base year.

3.6 **Trend** scenarios have been developed, based on a continuation of 5-year or 10-year migration history. Note that within the configuration of the future migration assumptions, the historical UPC adjustment (see paragraphs 2.17 and 2.27) is included within the international migration flows.

3.7 To evaluate the possible population impact of future housing growth, three **Dwelling-led** scenarios have been generated. In this type of scenario, population growth is linked directly to housing (dwelling) growth. Net internal migration is used to balance between the two; if the resident population is insufficient in size and structure to 'fill' the dwellings, a higher level of net migration will occur. The **Dwelling-led** scenarios are based on: a continuation of the adopted LDP ('*Scenario H*'), a 15-year historical completion rate in Caerphilly ('*Scenario I*'), and a mid-point between a continuation of the adopted LDP and a 15-year completions average ('*Scenario J*').

3.8 To evaluate the potential population impact of future job changes, an **Employment-led** scenario has been generated. In this type of scenario, population growth is linked directly to jobs (employment) change. As with the **Dwelling-led** scenarios, net internal migration is used to balance between the two; if the resident population is insufficient in size and structure to 'fill' the employment, a higher level of net migration will occur. The **Employment-led** scenario is based on a July 2021 Oxford Economics jobs forecast, with a double-jobbing adjustment applied ('*Scenario K*').

3.9 In the **Trend**, **Dwelling-led** and **Employment-led** scenarios, fertility and mortality assumptions have been derived from the latest 5-years of data and the WG official projections (see Appendix A for further detail). Note that in these scenarios, the population is defined up to mid-year 2024 using the MYE. In the **Dwelling-led** scenarios, the defined housing targets apply from 2024/25 onwards (1 year of completions in 2024/25 and then the targets as set out in Table 8). In the **Employment-led** scenarios, the employment targets are applied from 2024/25 onwards. In the **Trend** scenarios, the growth in the population from 2024 onwards is determined by the defined demographic assumptions.

Household & Dwellings Assumptions

3.10 In all scenarios, the relationship between the population and households is determined by the application of **household membership rates** and **average household size** assumptions, drawn from the 2018-based WG household projection model for Caerphilly, but rebased to the latest 2023 WG household estimate.

3.11 To convert between dwellings and households, a **household to dwelling conversion factor** of 0.98 has been applied (equivalent to a dwelling vacancy rate of 1.8%). This is derived from a 5-year history (2021/22–2025/26) of council tax data on vacancy and second homes. This figure is applied in all years in each scenario.

Labour Force & Employment Assumptions

3.12 In all scenarios, the size and structure of the labour force and level of employment growth that could be supported have been modelled using **economic activity rates** (EAR), an **unemployment rate** and a **commuting ratio**.

3.13 Due to the appropriateness of the 2021 Census EAR (see paragraph 2.70), each scenario has been run with both the 2011 Census *and* 2021 Census EAR for Caerphilly, producing a range of growth outcomes.

3.14 Adjustments have been applied to both sets of EAR using forecasts from the OBR[22], to take account of adjustments to the long-term economic participation rates, including future changes to the state pension age.

3.15 Drawn from a 5-year history (2020–2024) of APS data, a commuting ratio of 1.30 for Caerphilly has been applied in all scenarios. An unemployment rate of 3.6% has been applied, derived from a 5-year history of the ONS model-based estimates of unemployment for Caerphilly (2020–2024).

Scenario Outcomes

Population Growth

3.16 The MYE and population growth trajectories for 2001–2040 are summarised in Figure 25 and the scenario outcomes for the 2020–2035 plan period summarised in Table 9. Apart from the **WG-2018** scenarios, each scenario has the same level of growth between 2020 and 2024, as the population in these years is defined by the MYE.

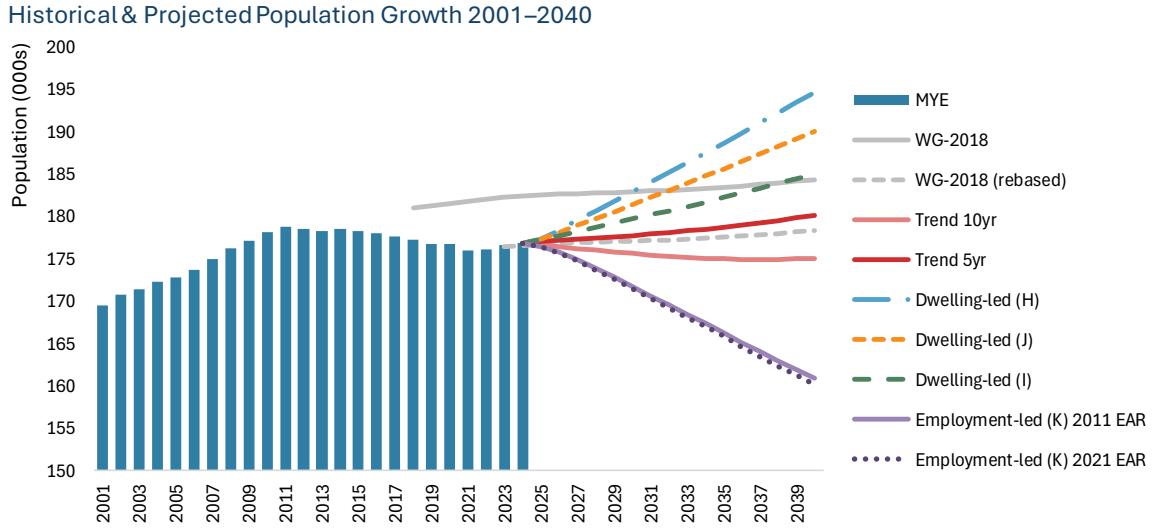


Figure 25: Caerphilly scenario population growth

3.17 The differing population growth outcomes under the **Trend 5yr** and **Trend 10yr** scenarios reflect the historical time periods from which the migration assumptions have been derived. Over the plan period,

[22] OBR 2018 Fiscal Sustainability Report

the **Trend 10yr** scenario results in a population growth outcome of -1.0%, lower than the **Trend 5yr** population growth outcome of 1.1%. However, the lowest population growth outcomes are seen in the **Employment-led** scenarios configured with either the 2011 Census or 2021 Census EAR (with OBR adjustments[23]), resulting in population growth outcomes of -6.0% and -6.2%, respectively.

Table 9: Caerphilly Scenario Population Growth Outcomes

	Change 2020–2035		Average per year 2020–2035	
	Population Change	Population % Change	Net Migration	Natural Change
Dwelling-led (H)	11,900	6.7%	+1,241	-447
Dwelling-led (J)	8,848	5.0%	+1,050	-461
Dwelling-led (I)	5,431	3.1%	+837	-475
Trend 5yr	1,924	1.1%	+619	-491
WG-2018	1,881	1.0%	+306	-181
WG-2018 (rebased)	742	0.4%	+230	-181
Trend 10yr	-1,797	-1.0%	+385	-505
Employment-led (K) 2011 EAR	-10,563	-6.0%	-163	-542
Employment-led (K) 2021 EAR	-10,961	-6.2%	-187	-543

Scenarios are ranked in order of population change.

3.18 Each of the three **Dwelling-led** scenarios had the highest population growth outcomes, with a continuation of the adopted LDP (**Dwelling-led (H)**) resulting in the highest population change (6.7%). The level of net migration in each scenario is influenced by the underpinning baseline migration and household formation assumptions; if rates of household formation were to improve, a greater proportion of dwellings would be occupied by the resident population, reducing the level of net migration. Such a change could be brought about through improved affordability and/or local policies to improve access to the housing market.

3.19 Across all scenarios where there is population growth, this is being driven by net in-migration, whilst natural change has a consistently negative impact (see Table 9 above). This is reflective of the ageing of Caerphilly's population and the low fertility rates seen in recent years being carried forwards in the modelling.

3.20 Within the modelling, the fertility rates are gradually increased throughout the forecast period for ages 20–49 (reflecting long-term trends from the 2018-based official WG projections) although the improvements do not offset the number of deaths that are modelled (even with improvements in the mortality rates and life expectancy). It is possible that fertility rates may change beyond the levels modelled; in its latest 2022-based national population projections, ONS has assumed declining fertility rates for woman aged 30 and under and increasing for woman over 30.[24]

[23] See A.32 for details on the OBR adjustments to the 2011 Census and 2021 Census economic activity rates.
[24] ONS 2025 National population projections, fertility assumptions: 2022-based

3.21 A further illustration of the ageing population is the increase in the old age dependency ratios (OAD), from 33 in 2024 to between 37 and 43 by 2040 (Table 10).

Table 10: Scenario Outcome: Old Age Dependency Ratios

	OAD	
	2020	2035
Dwelling-led (H)	32	37
Dwelling-led (J)	32	37
Dwelling-led (I)	32	38
Trend 5yr	32	38
WG-2018	31	40
WG-2018 (rebased)	32	40
Trend 10yr	32	39
Employment-led (K) 2011 EAR	32	40
Employment-led (K) 2021 EAR	32	41

3.22 Population growth is projected in each scenario in the 65+ age group. The **Trend**, **WG-2018** and the **Employment-led** scenarios project a decline in the working age population (aged 16–64) across the forecast period. The exception to this is in each of the **Dwelling-led** scenarios, where growth in the working age population is projected.

Household & Dwelling Growth

3.23 The change in the number of households over the 2020–2035 period, along with the average modelled dwelling growth, is presented in Table 11 for all scenarios.

Table 11: Caerphilly Scenario Household and Dwelling Growth Outcomes

	Change 2020–2035		Annual Average *Modelled* Dwelling Growth 2020–2035
	Households Change	Households % Change	
Dwelling-led (H)	6,671	8.8%	453
Dwelling-led (J)	5,443	7.1%	369
Dwelling-led (I)	4,067	5.3%	276
Trend 5yr	2,654	3.5%	180
WG-2018	2,835	3.6%	192
WG-2018 (rebased)	2,263	3.0%	154
Trend 10yr	1,189	1.6%	81
Employment-led (K) 2011 EAR	-2,384	-3.1%	0
Employment-led (K) 2021 EAR	-2,544	-3.3%	0

3.24 In all scenarios between 2020 and 2024 (apart from **WG-2018** scenarios), the level of household and dwelling growth has been derived from the defined MYE. The dwelling growth outcomes for this time period therefore do not reflect actual completion rates. In the **Dwelling-led** scenarios, the known completion figure has been applied in 2024/25 (i.e. after the MYE and before the defined growth targets are applied from mid-year 2025 onwards).

3.25 Under the **Trend** scenarios, the implied *modelled* level of dwelling growth is lower than the recent delivery; under the **Trend 5yr** scenario, an average of 180 dwellings per year are required over the full 2020–2035 plan period. With lower levels of net migration under the **Trend 10yr** scenario, 81 dwellings per year are required.

3.26 With a larger population decline, the two **Employment-led** scenarios also result in zero growth in the number of dwellings.

3.27 As outlined above, the household and dwelling outcomes between 2020 and 2024 are derived from the MYE; dwelling growth as presented above therefore does not reflect recorded housing completions (apart from in 2024/25 in the dwelling-led scenarios). The annual average dwelling growth figures for the plan period have therefore been adjusted, replacing the modelled dwelling growth 2020/21–2024/25 with the recorded completions. This results in an updated range of dwelling growth outcomes for each scenario (Table 12).

Table 12: Caerphilly Scenario Dwelling Growth with Completions

	Annual Average Dwelling Growth *with Completions* 2020–2035
Dwelling-led (H)	495
Dwelling-led (J)	411
Dwelling-led (I)	318
Trend 5yr	229
WG-2018	212
WG-2018 (rebased)	206
Trend 10yr	139
Employment-led (K) 2011 EAR	0
Employment-led (K) 2021 EAR	0

Note that the annual average dwelling growth includes recorded completions from 2020/21 to 2024/25 and modelled dwelling change thereafter (2025/26–2034/35).

Employment Growth

3.28 Table 13 presents the labour force and average annual employment change under each scenario, using both the 2011 and 2021 Census economic activity rates (EAR) with OBR adjustments applied. Note that the scenarios assume a continued net out-commute from Caerphilly and a fixed unemployment rate of 3.6%; in reality, it is likely that these will fluctuate throughout the forecast period. Changes to jobs provision both in Caerphilly and neighbouring authorities could influence commuting patterns, as could housebuilding and house prices.

Table 13: Caerphilly Scenario Labour Force and Employment Growth Outcomes

	2011 Economic Activity Rates with OBR Adjustments			2021 Economic Activity Rates with OBR Adjustments		
	Change 2020–2035		Annual Average Employment Growth	Change 2020–2035		Annual Average Employment Growth
	Labour Force Change	Labour Force % Change		Labour Force Change	Labour Force % Change	
Dwelling-led (H)	9,430	11.1%	+485	8,735	10.6%	+451
Dwelling-led (J)	7,593	9.0%	+394	6,983	8.5%	+364
Dwelling-led (I)	5,539	6.5%	+293	5,024	6.1%	+267
Trend 5yr	3,450	4.1%	+189	3,029	3.7%	+168
WG-2018	783	0.9%	+58	498	0.6%	+43
WG-2018 (rebased)	690	0.8%	+53	412	0.5%	+38
Trend 10yr	1,329	1.6%	+84	1,005	1.2%	+68
Employment-led (K)	-4,037	-4.8%	-182	-4,334	-5.3%	-197

Note that employment is a workplace-based people-based measure.

3.29 With higher rates of economic activity, the labour force modelled using the 2011 Census EAR is larger than that produced using the 2021 rates; under the **Trend 5yr** scenario, the labour force increases by 3.7% using the 2021 rates and 4.1% using the 2011 rates.

3.30 In the **Dwelling-led** scenarios, with a forecast growth in the working age population and higher levels of net migration, a larger labour force forms, supporting a higher level of employment growth.

3.31 The **Trend** and **WG-2018** scenarios resulted in a more modest growth in the labour force, whilst the **Employment-led** scenarios resulted in a decline in the labour force across the forecast period. These outcomes emphasise the importance of migration in maintaining the labour force in Caerphilly.

Alignment with Regional Growth Ambitions

3.32 With the highest levels of population growth, the three **Dwelling-led** scenarios each result in growth in the size of the labour force in Caerphilly between 2020 and 2035. This is true whether the 2011 or 2021 Census economic activity rates (EAR) are applied (see Table 13). These scenarios are underpinned by migration rates based on a 5-year recent trend, and household membership rates drawn from the 2018-based WG household projection model for Caerphilly.

3.33 The annual average growth in the size of the labour force under each of the three **Dwelling-led** scenarios is compared to the 2024 CCR Employment-led *Baseline* and *Growth* scenarios in Figure 26. The two trend scenarios are also included for comparison. Annualised figures are compared to remove the impact of varying plan periods on the reporting outputs (the 2024 CCR study utilised a 2022 to 2040 plan period, compared to 2020–2035 in this study).

3.34 The **Trend 10yr** scenario results in labour force growth that is *lower* than the CCR 2024 *Baseline* scenario, whereas the **Trend 5yr** scenario labour force growth outcomes are broadly comparable to the *Growth* scenario.

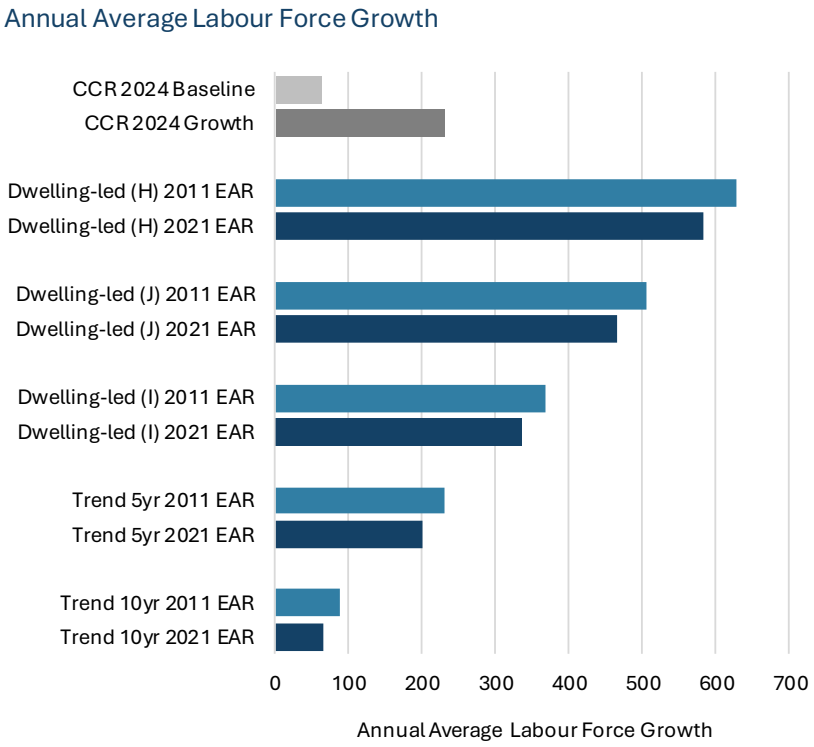


Figure 26: Annual average labour force growth

Note that the annual average figures are calculated over a 15-year plan period from 2020 to 2035 in the Dwelling-led scenarios, and over an 18-year plan period from 2022 to 2040 in the CCR 2024 Employment-led scenarios. Source: Turley, SQW, Edge Analytics (2024).

3.35 The implication of the above is that the levels of housing growth under each of the **Dwelling-led** scenarios is sufficient to support the growth in the size of the labour force identified through the 2024 CCR analysis. Under each of these scenarios, labour force growth exceeds both the *Baseline* and *Growth* scenarios from the 2024 CCR study, regardless of the EAR used (2011 or 2021 Census, both with OBR adjustments). Compared to the CCR 2024 *Growth* scenario, the implied level of net internal migration under each of the dwelling-led scenarios is higher throughout the forecast period (Figure 27, next page).

3.36 Whilst both this study and the 2024 CCR study utilise the 2011 Census EAR (with OBR adjustments) and the same projection methodology, there are a few key differences and caveats to be aware of when comparing the **Dwelling-led** scenario outcomes to the 2024 CCR scenarios.

3.37 Not only are the projection periods different (although annualised figures are presented above), the 2024 CCR study utilised a 2022 MYE base year; this study uses MYE evidence up to 2024. The CCR 2024 scenarios also use a longer-term history from which to draw their migration assumptions (compared to the 5-year trend adopted here).

3.38 The population growth implied by the **Dwelling-led** scenarios is higher than recent trend and exceeds the forecast population growth in the 2024 CCR employment-led scenarios (Figure 28). In the **Dwelling-led** scenarios, it is important to note that if rates of household formation were higher than assumed within the modelling (for example, responding to improvements in affordability), then the level of migration needed to support the defined housing growth targets could be lower. With higher rates of household formation, a greater proportion of the resident population would be able to 'fill' the

new dwellings, potentially leading to a reduction in net migration and a subsequently smaller population and labour force.

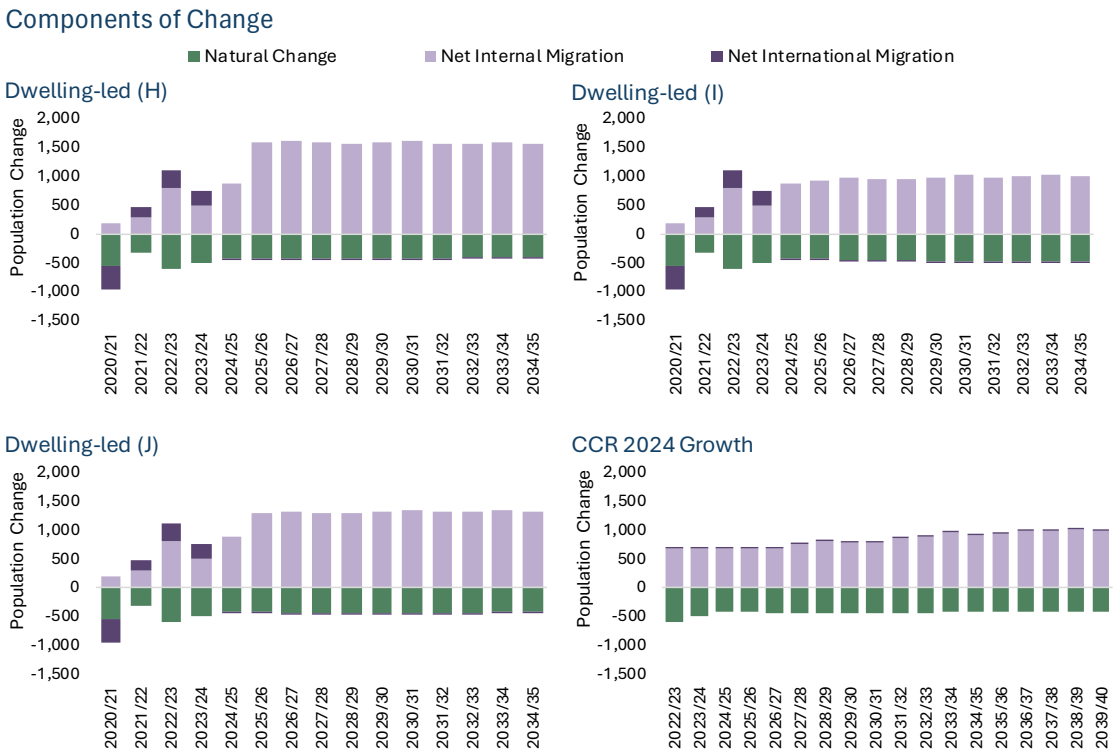


Figure 27: Caerphilly scenario components of change

Note that the CCR 2024 *Growth* scenario has a forecast period of 2022–2040.
The Dwelling-led scenarios have MYE defined up to mid-year 2024.

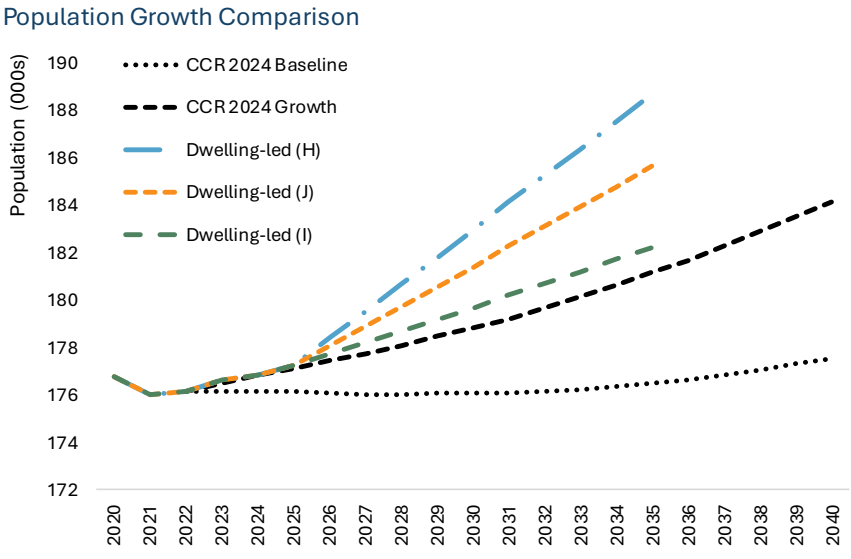


Figure 28: Scenario Population Growth Comparison

Source: Edge Analytics, Turley, SQW.

3.39 Domestic (i.e. internal) migration will, however, likely continue to be a driver of population growth in Caerphilly, supporting growth in the size of the labour force. The above analysis has highlighted that to

support employment growth locally and at a regional level, housebuilding levels aligned with recent delivery trends would be required to continue.

Summary & Conclusions

3.40 The 2021 Census population estimate for Caerphilly (175,952) indicated that the historical profile of population growth has been over-estimated since 2011. The intercensal MYE were therefore revised downwards by ONS following the 2021 Census.

3.41 This rebasing highlighted the need to consider the appropriateness of the latest 2018-based official population projections from WG, which were underpinned by the pre-Census MYE. In particular, the fertility assumptions in the WG projections have overestimated the TFR in years since 2018.

3.42 Edge Analytics has used its VICUS forecasting technology and the latest demographic statistics to generate a range of growth scenarios for the 2020–2035 plan period. These result in population growth outcomes ranging from -6.2% to +6.7%, with a corresponding *modelled* annual dwelling growth range from 0 to +453 per year[25] and an annual employment growth range from -197 to +485 per year (Figure 29).

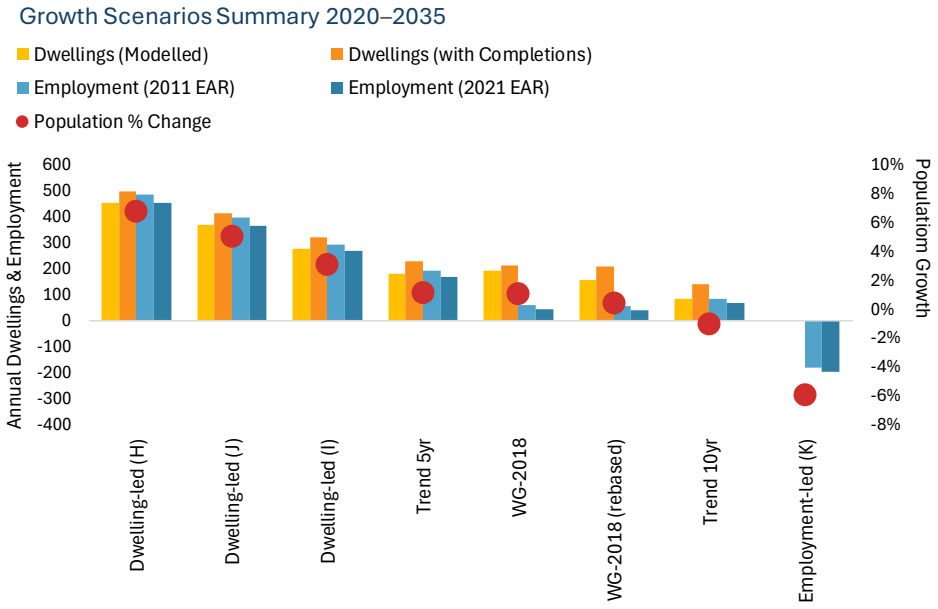


Figure 29: Caerphilly growth scenario summary

Note that the average annual dwelling growth has been calculated for both the dwelling change per annum as *modelled* ('Dwellings (Modelled') *and* to account for known historical dwelling completions ('Dwellings (with completions)').

3.43 The **Trend 5yr** scenario carries forward the recently observed higher levels of net internal (domestic) and international migration, which may be linked to post-pandemic migration trends. It remains to be seen whether this trend is continued over the coming years. The **WG-2018** scenarios saw similar levels

[25] The annual average dwelling growth is additionally calculated to take account of the known dwelling completions, resulting in an annual average dwelling growth from 0 to +495, as seen in Table 12 and Figure 29.

of population growth to the **Trend 5yr** scenario, whereas the **Trend 10yr** scenario, which draws its migration assumptions from a longer time period, results in a population decline.

3.44 All three of the **Dwelling-led** scenarios result in population growth higher than the 5-year trend, generally aligning with the regional growth ambitions. In reality, higher rates of housing delivery and improving affordability may enable a greater proportion of Caerphilly's population to form households, impacting on migration and commuting patterns. It is also important to note that future migration (both internal and international) could deviate from past trends, in response to local, regional or global factors. There is an element of uncertainty within the historical MYE (introduced by the 'unattributable population change' (UPC) component. In the modelling presented here, the UPC adjustment is allocated to the historical international migration estimates, when in reality it could also be associated with either internal migration, or issues with the Census estimates.

3.45 Caerphilly has an ageing population: under each of the scenarios, population growth is projected in the 65+ age group, with varying levels of population growth or decline in the younger age groups. Migration will likely continue to be the main driving force behind population growth, particularly in the face of the population ageing and low fertility rates. The ageing of the population has important implication for the provision of housing and service in Caerphilly, as well as the ability of the resident labour force to support the county's growth and economy.

Future Considerations

3.46 The recent changes to the intercensal MYE profile and the differences between the official projections and population estimates highlight the need to regularly review and update Caerphilly's demographic evidence.

3.47 Given the volatility in the recent migration estimates, it is recommended that the Council continues to monitor the annual population and household estimates from ONS and WG respectively, as well as the upcoming 2022-based WG subnational population projections, which are due for release in Autumn 2025.

3.48 The subnational projections will provide a valuable update to long-term fertility and mortality trends and an important official benchmark against which to compare alternative trend, dwelling-led and employment-led scenario outcomes.

APPENDIX A FORECASTING METHODOLOGY & ASSUMPTIONS

Forecasting Methodology

A.1 Edge Analytics has used its VICUS forecasting models to generate a range of demographic growth projections for Caerphilly.

A.2 The forecasting model utilises a population 'cohort-component' methodology for the projection of population by single year of age and sex using assumptions related to fertility, mortality and migration (internal and international in and out flows), in line with the methodology used by the ONS, WG and other statistical agencies (Figure 30).

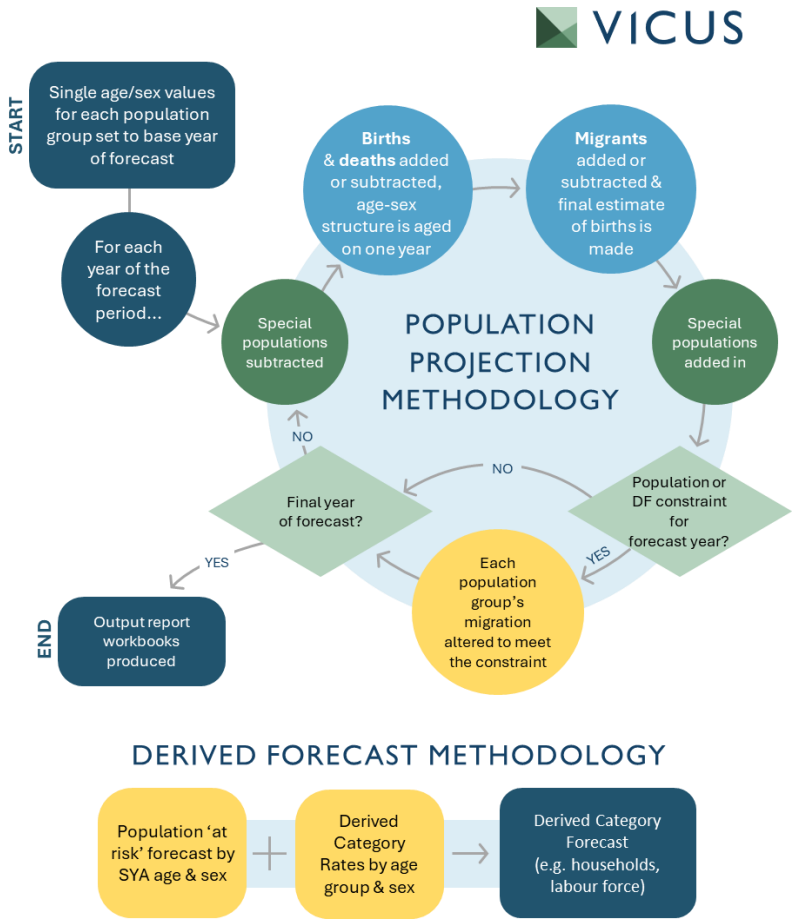


Figure 30: VICUS forecasting methodology

A.3 Linked to this model is the 'derived forecast' model, which provides a headship/membership rate model for household and dwelling projections and an economic activity rate model for labour force and employment projections.

Scenario Inputs & Assumptions

A.4 Eight scenarios have been produced for Caerphilly using Edge Analytics' in-house demographic forecasting models.

Population

A.5 In each of the **Trend**, **Dwelling-led** and **Employment-led** scenarios, the projection base year is the 2024 ONS MYE, disaggregated by single year of age and sex. From 2024 onwards, future population counts are estimated by single year of age and sex, using the defined assumptions on fertility, mortality, and migration (as described below).

A.6 In the **WG-2018** scenario, the 2018 base year and growth trajectory are drawn directly from the official principal 2018-based projection for Caerphilly. In the **WG-2018 (rebased)** scenario, the projections have been rescaled to the 2023 MYE, following the original trend thereafter.

Births & Fertility

A.7 In the **WG-2018** scenarios, projected birth counts are applied from the relevant base year to ensure consistency with the official projection.

A.8 In the **Trend**, **Dwelling-led** and **Employment-led** scenarios, an area-specific and age-specific fertility rate (ASFR) schedule is derived from a 5-year history of historical small area births data (2019/20–2023/24).

A.9 In combination with the 'population at risk' (i.e. all women between the age of 15–49), the ASFR assumptions provide the basis for the calculation of births in each year from 2024 onwards.

A.10 Over the forecast period, the ASFR is adjusted to reflect the annual rate of change in the long-term fertility assumptions of the 2018-based WG projection.

Deaths & Mortality

A.11 In the **WG-2018** scenarios, projected counts of deaths by 5-year age group and sex are applied from the respective base years to ensure consistency with the official projection.

A.12 In the **Trend**, **Dwelling-led** and **Employment-led** scenarios, an area-specific and age-specific mortality rate (ASMR) schedule is derived from a 5-year history of historical small area deaths data by sex (2019/20–2023/24).

A.13 In combination with the 'population at risk' (i.e. the total population), these ASMR assumptions provide the basis for the calculation of deaths in each year of the forecast period.

A.14 Over the forecast period, the ASMR is adjusted to reflect the annual rate of change in the long-term mortality assumptions of the 2018-based WG projection.

Internal Migration

A.15 In the **WG-2018** scenarios, projected counts of internal in- and out-migration by 5-year age group and sex are applied from the respective base years to ensure consistency with the official projection.

A.16 In the **Trend 5yr**, **Dwelling-led** and **Employment-led** scenarios, an area-specific and age-specific migration rate (ASMigR) schedule is derived from the latest 5 years of historical internal migration data (2019/20–2023/24), which then determines the future number of internal in- and out-migrants for the remainder of the plan period. In the **Trend 10yr** scenario, a ten-year history is used.

International Migration

A.17 In the **WG-2018** scenarios, projected counts of international in- and out-migration by 5-year age-group and sex are applied from the respective base years to ensure consistency with the official projection.

A.18 Under the **Trend 5yr**, **Dwelling-led** and **Employment-led** scenarios, future counts of international in- and out-migration have been derived from the latest 5 years of historical international migration data (2019/20–2023/24), including UPC. In the **Trend 10yr** scenario, a ten-year history is used (again including UPC). An ASMigR schedule of rates is derived from the relevant migration history and used to distribute the future counts by single year of age.

Households & Dwellings

A.19 The 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 room area".

A.20 In the forecasting models, a dwelling is defined as a unit of accommodation which can either be occupied by one household or can be vacant.

A.21 The household and dwelling growth outcomes in the **WG-2018**, **Trend** and **Employment-led** scenarios have been estimated through the application of communal population statistics, household membership rates, and a household to dwelling conversion factor (vacancy rate).

A.22 In the **Dwelling-led** scenarios, these assumptions are used to derive the level of population growth required to meet the defined dwelling-growth targets in each year of the forecast.

Communal Population

A.23 Within the forecasting models, household projections exclude the population 'not-in-households' (i.e. the communal/institutional population). This data is drawn from 2021 Census. Examples of communal establishments include prisons, residential care homes, student hall of residence, and certain armed forces accommodation.

A.24 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. The communal population statistics are used to derive the size of the private household population in each scenario.

Household Membership Rates

A.25 Household membership rates are used to calculate the proportion of the household population in each household category by age group and sex, drawn from the WG 2018-based household projection model for Caerphilly (Table 14).

Table 14: WG 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: WG

A.26 These rates have been rescaled using WG data, to align with the annual household estimates produced by WG. This aligns the household figure in 2023 with that estimated for Caerphilly by WG (76,594).

A.27 The household population is then converted into households using average household size assumptions, again drawn from the WG 2018-based household model.

Household to Dwelling Conversion

A.28 The relationship between households and dwellings has been modelled using 'conversion factors' derived from WG household and dwelling stock estimates. This is referred to as the dwelling 'vacancy rate' and is set at 1.8% throughout the forecast period (based on a five-year average, 2021/22–2025/26).

Labour Force & Employment

A.29 In the **WG-2018**, **Trend** and **Dwelling-led** scenarios, economic activity rates, an unemployment rate and a commuting ratio have been applied to the population growth trajectory to derive the size of the resident labour force, and the level of employment growth that could be supported.

A.30 In the **Employment-led** scenario(s), these assumptions are used to derive the population implied by the level of employment growth.

Economic Activity Rates

A.31 Economic activity rates are the proportion of the population that is actively involved in the labour force, either employed or unemployed and looking for work.

A.32 Economic activity rates by five-year age group (ages 16–89) and sex have been derived from 2011 and 2021 Census statistics, with adjustments made in line with the OBR analysis of labour market trends in its 2018 Fiscal Sustainability Report.

Commuting Ratio

A.33 The commuting ratio defines 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 of less than 1.00 indicates that employment in the area exceeds the size of the labour force, resulting in a net in-commute.

A.34 In all scenarios, the commuting ratio has been derived from a five-year trend (2020–2024) of ONS APS data, at 1.30, fixed throughout the forecast period.

Unemployment Rate

A.35 The unemployment rate determines the proportion of unemployed people within the labour force.

A.36 Historical unemployment rates are sourced from ONS model-based estimates. For Caerphilly, an unemployment rate of 3.6% has been applied (based on a five-year average of the ONS model-based estimates 2020–2024), fixed throughout the forecast period.

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