



Bridgend

Demographic Analysis & Forecasts

May 2019

edge analytics

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Acknowledgements

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1 Introduction

Requirements

- 1.1 In 2013, Bridgend County Borough Council (CBC) adopted its Local Development Plan (LDP), identifying a housing growth target of 9,690 for the 2006–2021 plan period, an average of +646 dwellings per annum (dpa). This housing growth target was underpinned by Cambridge Econometrics (CE) projections for Bridgend and Wales, using 2008-based fertility and mortality assumptions from the Office for National Statistics (ONS) in combination with assumptions on migration linked to economic growth forecasts.
- 1.2 Bridgend CBC is seeking to formulate a new LDP, providing an outlook on population, housing and employment in the Bridgend Unitary Authority (Bridgend) for the 2018–2033 plan period. The Council has commissioned Edge Analytics to provide a range of population, housing and employment growth evidence to inform this emerging LDP.

Approach

- 1.3 The analysis presented in this report considers the impact of demographic, housing and employment change in Bridgend, conforming to the new guidance provided by WG's Draft Development Plan Manual¹ and taking account of the Economic Evidence Base Study undertaken by Peter Brett Associates (PBA)².
- 1.4 To inform the analysis and forecasting presented in this report, the latest available evidence from a range of sources, including:
 - Mid-year population estimates and components of change to 2017 from the ONS
 - Historical housing completions
 - Welsh Government (WG) 2014-based population and household projections
 - Vacancy rate statistics from the 2001 and 2011 Censuses
 - Travel to work statistics from the 2011 Census
 - Unemployment rate statistics to 2017
 - Labour market participation forecasts from the Office for Budget Responsibility (OBR)
 - Experian September 2018 economic forecasts

¹ Welsh Government (November 2018). Development Plans Manual Edition 3. Draft Manual (Informal Consultation)

² Bridgend County Borough Council Economic Evidence Base Study. Peter Brett Associated (April 2019)

- 1.5 Edge Analytics has used its POPGROUP technology to develop a range of demographic, housing and employment growth scenarios for Bridgend. Under each of the scenarios, historical statistics for the 2001–2017 time-period have been included, with results presented for Bridgend’s 2018–2033 plan period.
- 1.6 In this draft report, the scenario analysis is prefaced with a demographic profile of Bridgend, illustrating its geographic context, components of population change (births, deaths, and migration) and its historical patterns of international and domestic migration ([Section 2](#)).
- 1.7 The starting point of the scenario analysis is the WG 2014-based population and household projections for Bridgend ([Section 3](#)). Alternative trend scenarios using variant migration assumptions are developed and compared to the WG 2014-based benchmark scenario ([Section 4](#)). Sensitivity analysis on household formation under the demographic scenarios is also considered, using assumptions from the WG 2008-based household projection model.
- 1.8 [Section 5](#) presents employment-led scenarios, estimating population and housing growth linked to future employment growth under the Experian (September 2018) forecast for Bridgend. Key assumptions on economic activity rates, unemployment and commuting link economic and demographic change.
- 1.9 [Section 6](#) summarises the evidence, providing Bridgend CBC with a suite of population, housing and economic growth outcomes to consider in the formulation of its new LDP.

2 Bridgend Profile

Geography

2.1 With a population of 144,288 in 2017, Bridgend is home to approximately 5% of the Welsh total, making it the eighth largest of the 22 Unitary Authorities (UA). Bridgend borders Neath Port Talbot to the North-West, Rhondda Cynon Taff to the North-East and Vale of Glamorgan to the South-East (Figure 1). The M4 runs through Bridgend, connecting the UA to Cardiff and Newport to the east and Swansea to the west. The Bridgend UA has four large settlements (Bridgend, Porthcawl, Pyle and Maesteg) with the central and north-eastern areas having relatively low population density, in comparison.

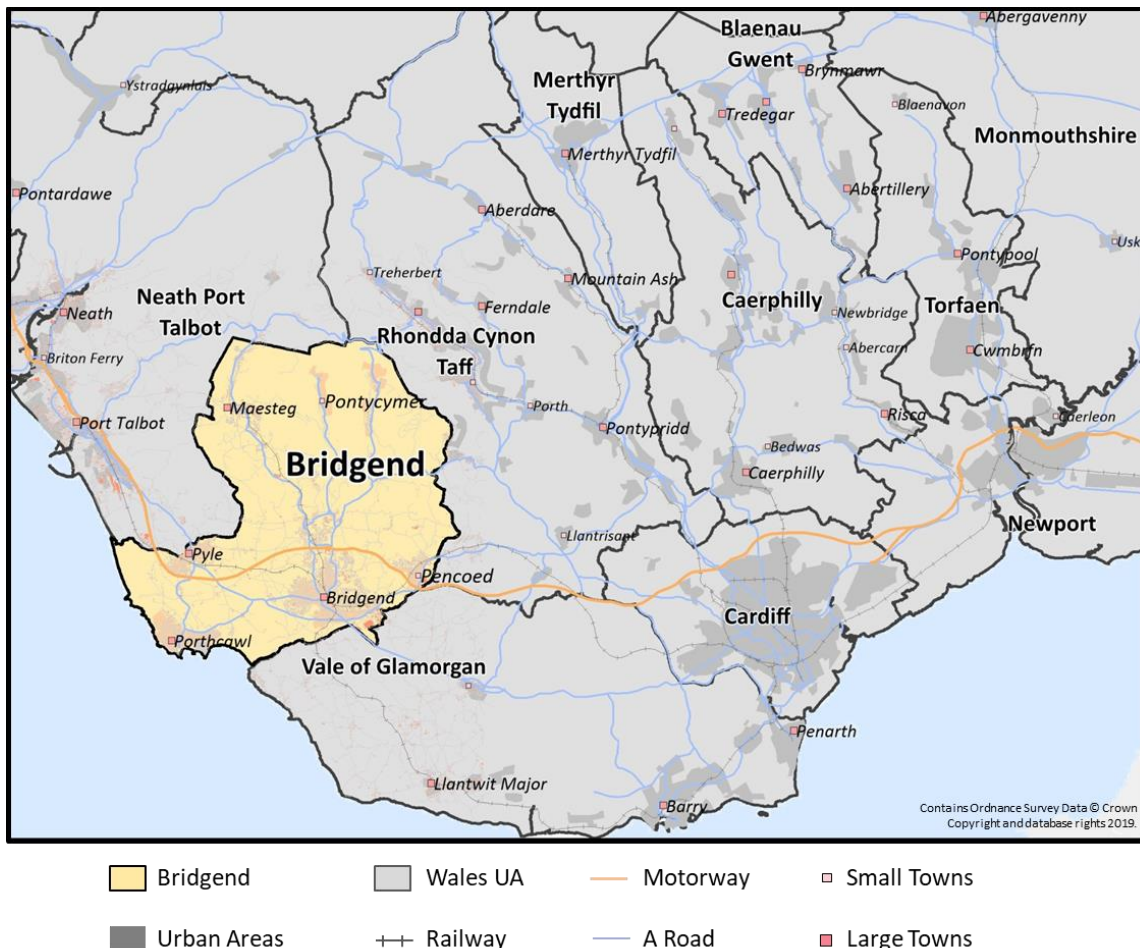


Figure 1: Bridgend geographical context

Population Growth Profile

2.2 Since 2001, Bridgend’s population has increased by approximately +15,500 people, a 12.1% increase in sixteen years. Higher annual population growth (averaging +0.9% per annum) was recorded pre-2008, with a +0.6% per annum average thereafter.

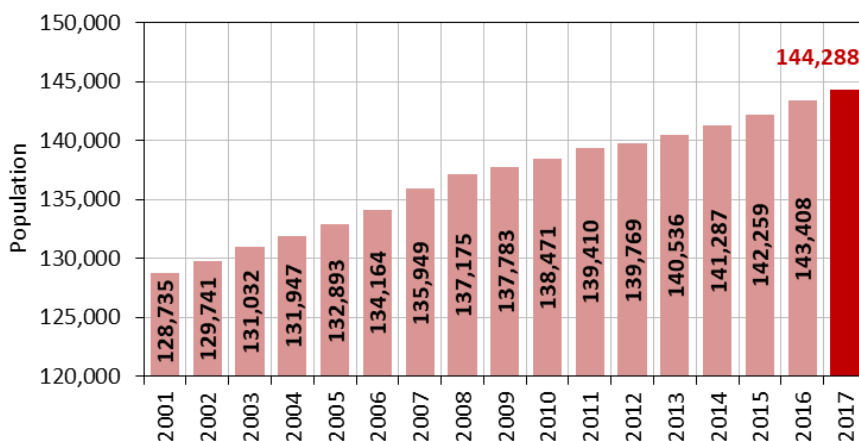


Figure 2: Bridgend Population 2001–2017 (Source: ONS)

2.3 Only Cardiff has experienced a higher population growth rate than Bridgend since 2001, with an estimated 17% increase (+52,668) over the 16-year period. Bridgend’s 12.1% growth compares to the national average of 7.4%. The neighbouring UAs of The Vale of Glamorgan (9.6%), Neath Port Talbot (5.7%) and Rhondda Cynon Taff (3.1%) have all achieved lower growth rates than Bridgend.

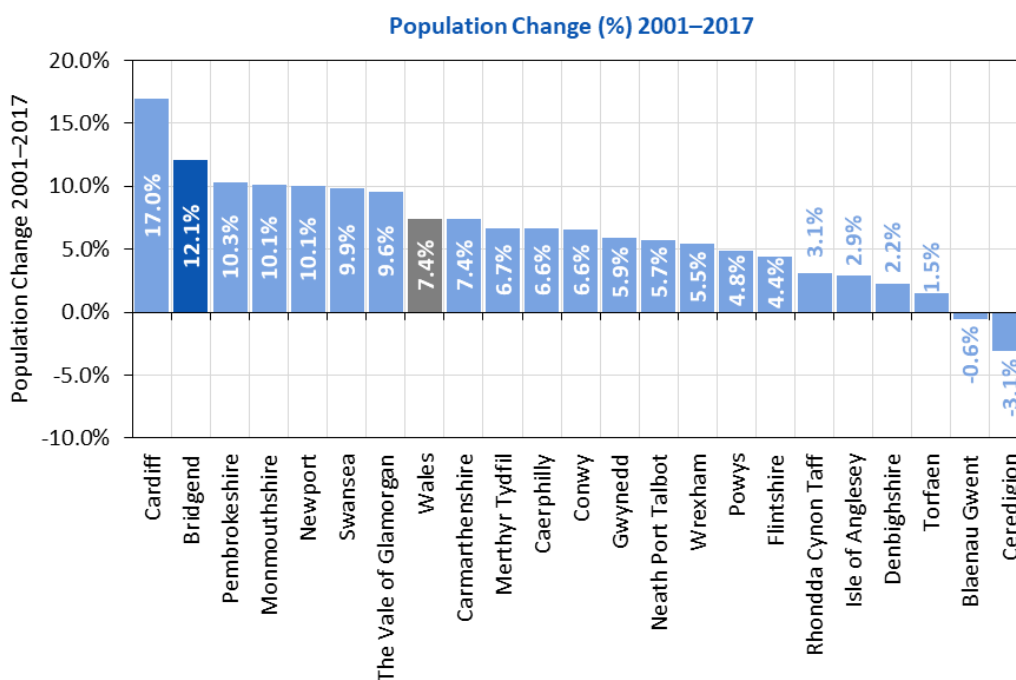


Figure 3: Population change in Wales 2001–2017 (Source: ONS)

- 2.4 Between the 2001 and 2011 Censuses, population was estimated through the application of births, death, internal and international migration flows to the previous year's population estimate. Following the 2011 Census, the 2002–2010 MYEs were 'rebased' for alignment with the 2011 MYE and to ensure the correct transition of the age profile over the 2001–2011 decade. The rebasing of the MYEs involved the recalibration of the components of change, with differences between the 2011 MYE and 2011 Census-based MYE referred to as 'unattributable population change' (UPC). The UPC adjustment for Bridgend over the 2001–2011 period was +3,363 (+363 per year).
- 2.5 The ONS has not attributed UPC to any one component of change, however given the robustness of recording births and deaths; it is likely associated with migration, particularly international migration estimation.
- 2.6 A net inflow from internal (domestic) migration has been the dominant driver of population change since 2001/02 (Figure 4). Notably lower net migration flows were recorded 2009–2010 and 2011/12, recovering thereafter. Since 2001/02, net internal migration has averaged +585 per annum. Including UPC in net international migration increases its estimated average annual net inflow from +83 pa to +293 pa (2001/02–2016/17).

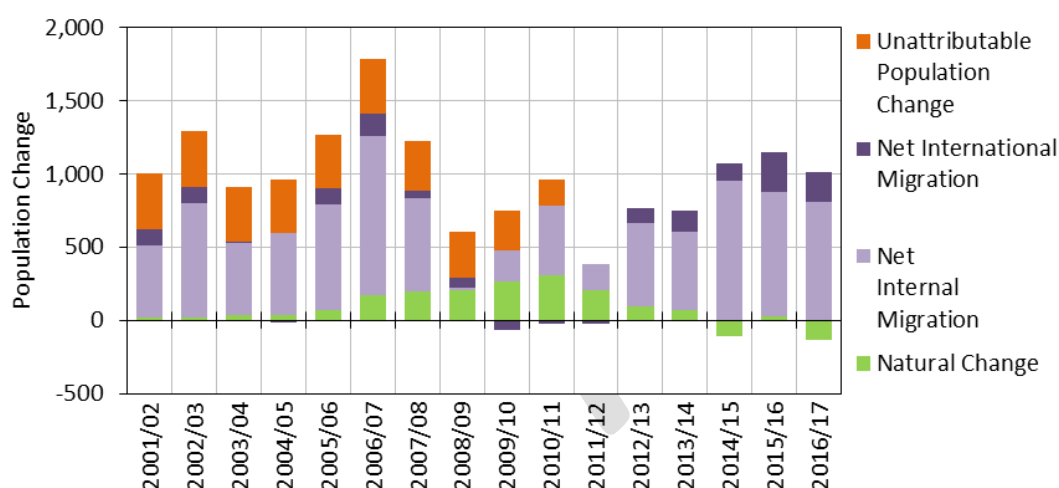


Figure 4: Bridgend components of population change 2001/02–2016/17
(Source: ONS)

- 2.7 Natural change (i.e. the balance between births and deaths) has typically had a small but predominantly positive impact on population change (Figure 4), but this has changed in recent years with a decline in birth numbers and a rise in the number of deaths. Over the 2006/07–2011/12 period a notable rise in births, operating with lower recorded deaths, resulted in natural change having a more positive impact on population growth (averaging +227 pa). Since 2010/11, birth numbers have declined steadily whilst the number of deaths has increased. A net loss of population from natural change has been the result.

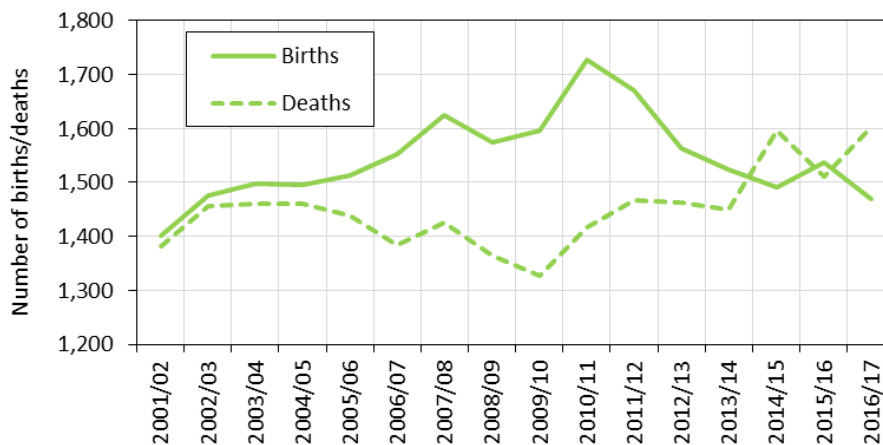


Figure 5: Bridgend births and deaths 2001/02–2016/17 (Source: ONS)

Internal Migration

2.8 Internal migration statistics record the inflow and outflow of population to and from Bridgend, from and to elsewhere in the UK. Net internal migration has had a positive impact on population change since 2001 (Figure 6).

2.9 Between 2001/02 and 2007/08 inflows to Bridgend from the rest of the UK were notably higher than outflows, resulting in a large annual net inflow (averaging +682 pa). A sharp fall in inflows in 2008/09 resulted in a notably small net inflow, recovering thereafter. Since 2014/15, a rise in outflows has been recorded, tracking the steady rise in inflows but maintaining a higher net inflow.

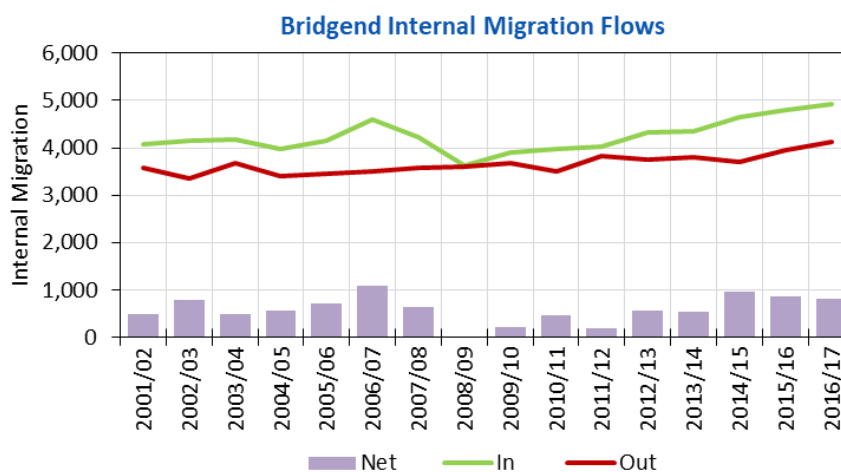


Figure 6: Bridgend internal migration flows 2001/02–2016/17 (Source: ONS)

2.10 In terms of migration linkages between Bridgend and surrounding areas, the largest positive net migration exchanges since 2001 (i.e. higher inflow than outflow) have been with Rhondda Cynon Taff (+176 pa), Cardiff (+105 pa) and The Vale of Glamorgan (+100 pa). For the net outflow exchange, the dominant net outflow has been to neighbouring Neath Port Talbot (-32 pa) and Swansea (-14 pa).

2.11 The full profile of historical in-, out- and net migration flows between Bridgend and its surrounding Unitary Authorities are summarised in Figure 7. Rhondda Cynon Taff, Cardiff and The Vale of Glamorgan have been net exporters of population to Bridgend since 2001/02, with inflows from the UAs remaining higher than outflows in all years, notwithstanding 2011/12 for Cardiff.

2.12 Smaller migration flows have been recorded between Bridgend and UAs Neath Port Talbot, Swansea and Carmarthenshire. Since 2004/05, inflows and outflows have tracked each other, resulting in a small net migration exchange.

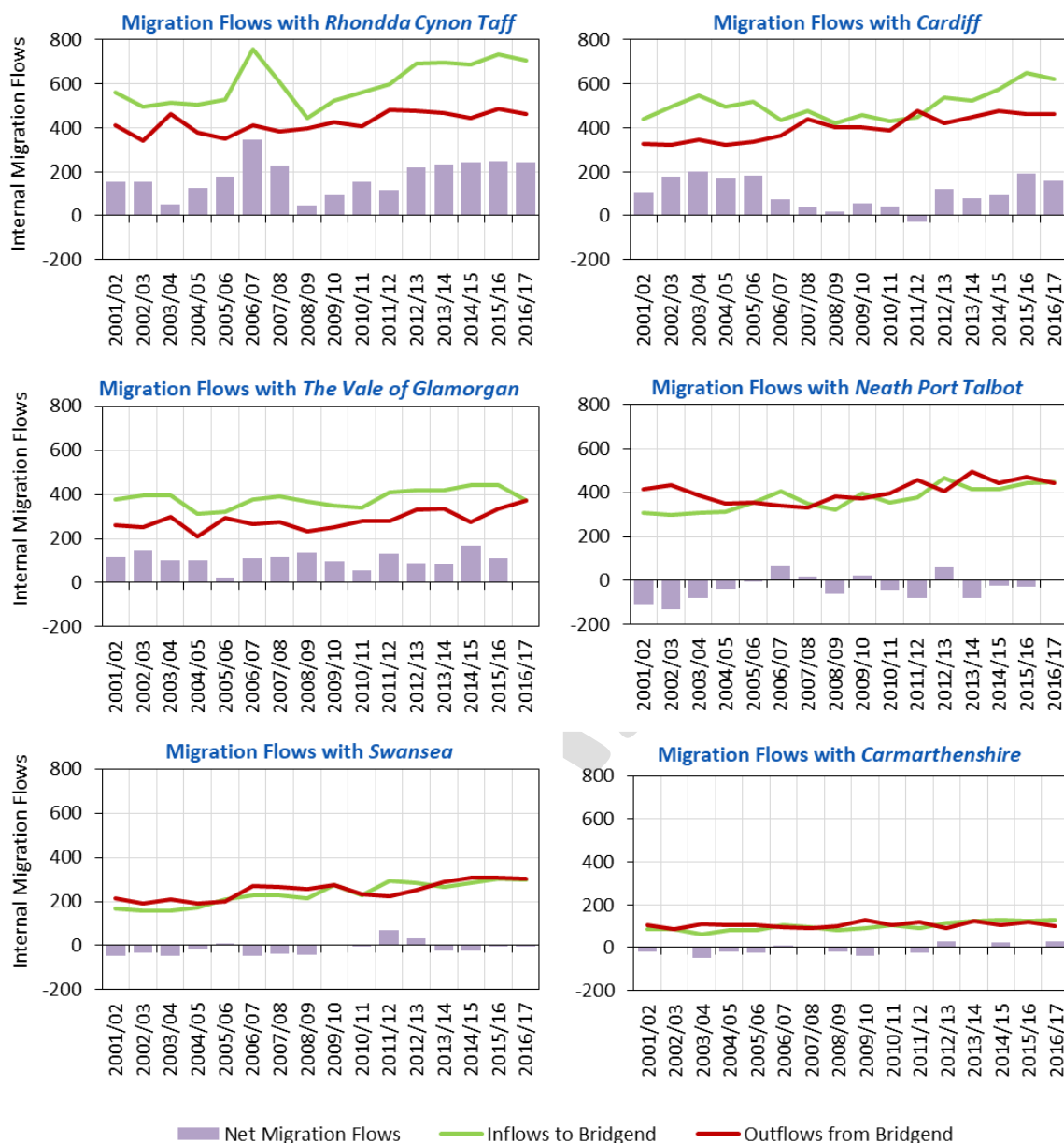


Figure 7: Historical migration flows between Bridgend and unitary authorities (2001/02–2016/17)
Source: ONS

2.13 The age profile of migration reveals that Bridgend has experienced a net inflow in all age groups, with the exception of the 15–19 age group (Figure 8). The large net outflow at age 15–19 is

associated with the student population migrating out of Bridgend for higher education, with a smaller return flow recorded in the 20–24 age groups.

2.14 The net inflow of the 30–44 young family age groups is mirrored in the 0–14 age groups, as family populations have moved to Bridgend. A net inflow has been recorded in each of the older age groups (65+), contributing to an ageing population profile.

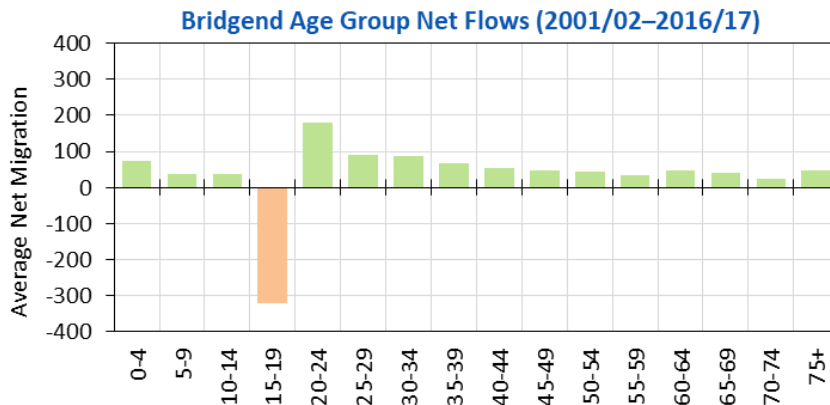


Figure 8: Average annual net migration by age group (2001/02–2016/17)
Source: ONS

International Migration

2.15 NINo statistics provide an alternative but complementary view of immigration linked to migrant worker populations (Figure 9). NINo registrations peaked in 2007 (486), driven by a significant increase in in-migration from Poland. Following the 2007 peak, NINo registrations fell to 175 in 2009, spiking again in 2010 and 2016 (268 and 303 respectively), with the latter driven by an influx of Romanian workers. In 2017, fewer registrations were recorded, driven by a fall in Romanian worker registrations. A similar trend occurred at national level, with a fall in Polish, Romanian and Spanish workers resulting in lower 2017 NINo registrations.

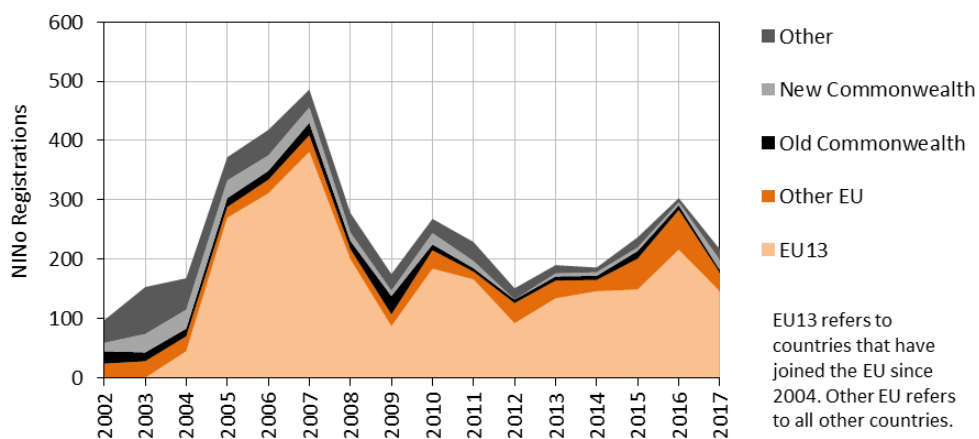


Figure 9: Bridgend NINo registrations by country of origin 2002–2017 (Source: DWP)

Housing Completions

2.16 A comparison of Bridgend's estimated population growth with the history of annual housing completions reveals some consistency (Figure 10).

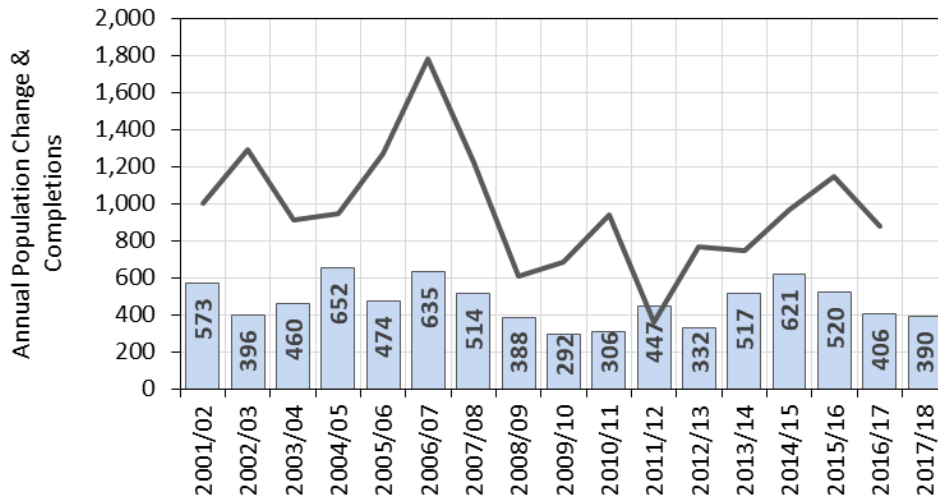


Figure 10: Bridgend housing completions and population change (2001/02–2017/18)

2.17 Higher housing growth to 2007/08 corresponds with higher population growth, reducing during the 2008/09–2011/12 period. In the last five years (2013/14–2017/18), housing completions have averaged +491 per annum, with population growth following higher housing growth in 2013/14–2015/16.

Population Age Profile

2.18 In considering future housing and labour force, the changing age structure of Bridgend’s population is a key factor. Figure 11 presents Bridgend’s population age profile in 2001 and 2017. Compared to 2001, a greater proportion of the population now resides within the 50+ age groups, as the large birth cohorts of the 1950s and 60s have aged.

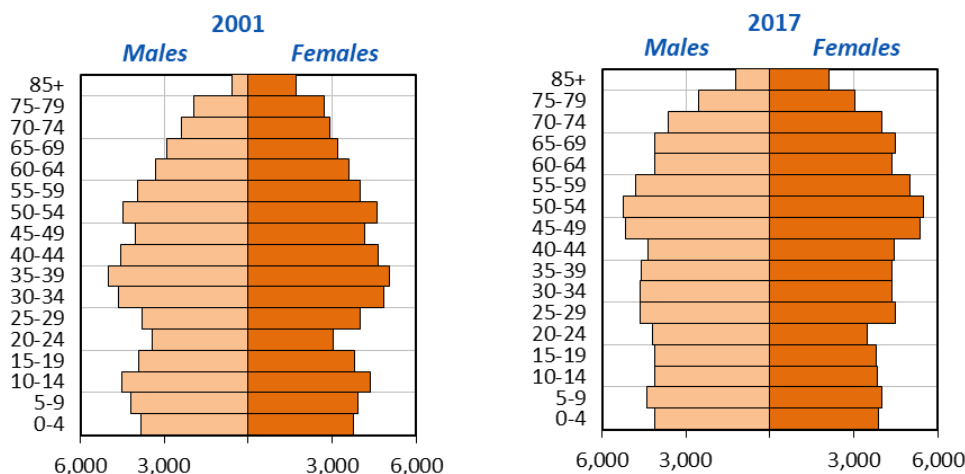


Figure 11: Bridgend population age structure comparison: 2001 and 2017

2.19 It is the 65+ and 80+ age groups that have seen the largest growth rate since 2001 (+36% and +34% respectively), with accelerated growth in the 65+ age group since 2008 (Figure 12). The 16–64 population increased to 2008, remaining relatively stable thereafter, with a population growth of 10% over the 2001–2017 period. The 0–15 age group recorded an annual decline to 2011, increasing thereafter (-1% change over the 2001–2017 period, -370 people).

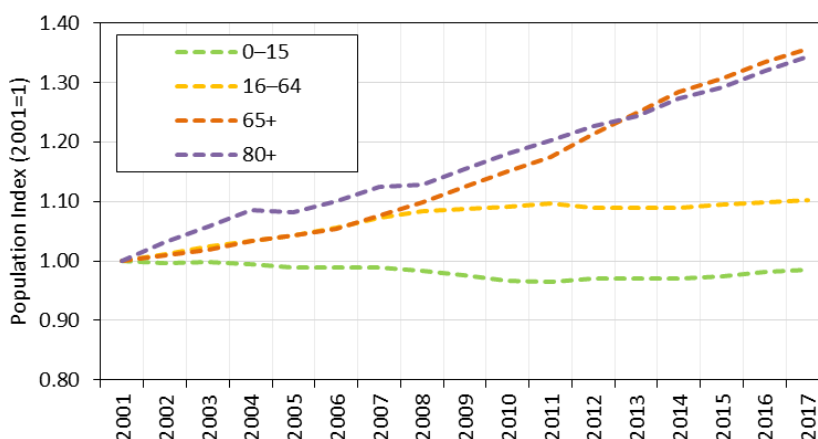


Figure 12: Bridgend population growth index by age group 2001–2017

2.20 Table 1 presents Bridgend’s and Wales’ population age profile in 2001 and 2017, providing an indication of the share of older age groups relative to the rest of the population. Between 2001 and 2017, the proportion of Bridgend’s population aged 65+ increased from 17% to 20%, an increase of

+7,612 aged 65+ over the sixteen year period. This is higher than estimated for Wales, with only 21% of its population aged 65+ in 2017, compared to 17% in 2001.

Table 1: Bridgend & Wales' population age profile (2001 & 2017)

<i>Indicator</i>	Bridgend		Wales	
	<i>2001</i>	<i>2017</i>	<i>2001</i>	<i>2017</i>
Percentage 65+	17%	20%	17%	21%
Percentage 80+	4%	5%	5%	5%
OAD	26	32	28	33

*OAD = Old Age Dependency Ratio
(Population Aged 65+/Population Aged 16–64)*

3 Welsh Government Projections

Population Projections

- 3.1 The WG 2014-based population and household projections provide the starting point for the analysis of future growth outcomes for Bridgend. The 2014-based projections are the latest available, incorporating fertility, mortality and migration assumptions based on an historical five-year period prior to 2014 within its 'Principal' projection.
- 3.2 Under the WG 2014-based 'Principal' projection, the population of Bridgend is estimated to grow by approximately 5.0% over the 2014–2039 projection period; a population increase of +7,049 (Figure 13). In Bridgend's LDP 2018–2033 plan period, a 3.3% increase is estimated, equivalent to an additional +4,743 population.

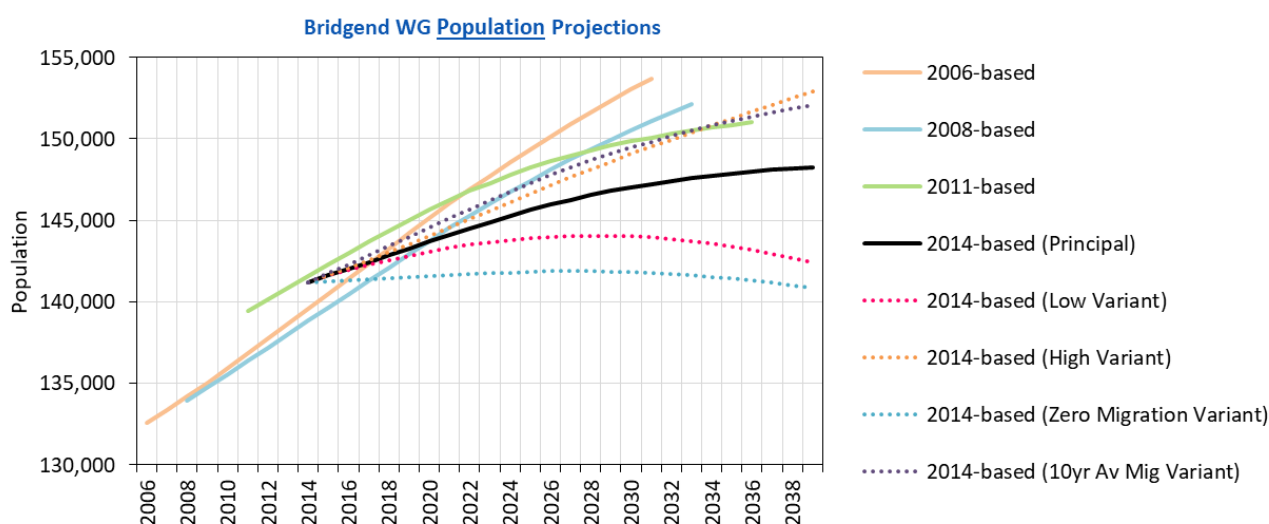


Figure 13: WG population projections for Bridgend

- 3.3 Under the 2014-based 'Principal' projection, the population of Bridgend is lower than that estimated under each of the previous WG projections. For the 2018–2033 LDP plan period, the WG 2011-based projection estimated population growth of +4.2% (+6,118 persons), with the WG 2008-based projection estimating a population growth rate more than double the rate of growth under the WG 2014-based projections (+7.0%, +10,002 persons).
- 3.4 The WG 2014-based *variant* projections³ present a range of population growth rates, driven by alternative assumptions on migration and natural change. Under the 'High' and 'Low' variants, different fertility and mortality rates are assumed, with the 'High' variant assuming higher fertility

³ <https://gov.wales/docs/statistics/2017/171019-local-authority-population-projections-technical-en.pdf>

and lower mortality (i.e. higher natural change) and the 'Low' variant assuming lower fertility and higher mortality (i.e. lower natural change). The 'Zero Migration' variant assumes no migration (i.e. population is driven by births and deaths only), whilst the '10yr Average Migration' variant draws its migration assumptions from the 2004/05–2013/14 period.

- 3.5 Lower rates of growth are estimated under the 'Zero Migration' (0.2%) and 'Low' (0.8%) variants, whilst the 'High' and '10yr Average Migration' variants each estimate population change of 5% (2018–2033).
- 3.6 The components of population change which underpin the 2014-based 'Principal' projection for Bridgend are presented in Figure 14, with historical components of change for 2001/02–2013/14 included for comparison⁴.

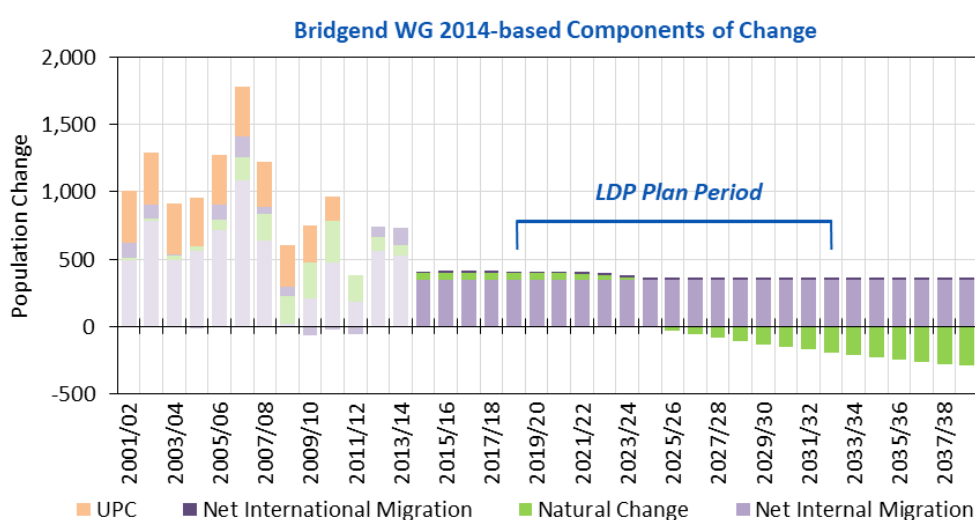


Figure 14: WG 2014-based Principal projection components of change (2001/02–2038/39)

- 3.7 Under the WG 2014-based 'Principal' projection for Bridgend, net internal migration is estimated to continue to be the key driver of population growth, averaging +350 per year. Whilst this is representative of the preceding five years, it remains lower than that evidenced over the longer term historical period.
- 3.8 Conversely, net international migration is expected to have a positive but small impact on population change in Bridgend, averaging +13 per year. This captures the lower levels of net international migration post 2011, but remains significantly lower than the net international migration totals estimated with the inclusion of UPC.
- 3.9 Natural change is estimated to have a reducing impact on population change, becoming negative over the latter half of the projection period as the population ages. The negative effect of natural change from 2025/26 onward is driven by a notable rise in the estimated number of deaths compared to births.

⁴ These refer to the pre-revised MYEs (2012–2014) preceding the WG 2014-based projection.

3.10 Under the WG 2014-based ‘High’ and ‘Low’ variants, the same average annual net internal and international migration is estimated, with differing levels of natural change impacting population growth. Under the ‘High’ variant, higher natural change is estimated, driven by increased births and a fall in deaths (Figure 15). Conversely, the ‘Low’ variant estimates natural change to have an increasingly negative impact on population growth, with lower birth numbers exceeded by higher deaths.

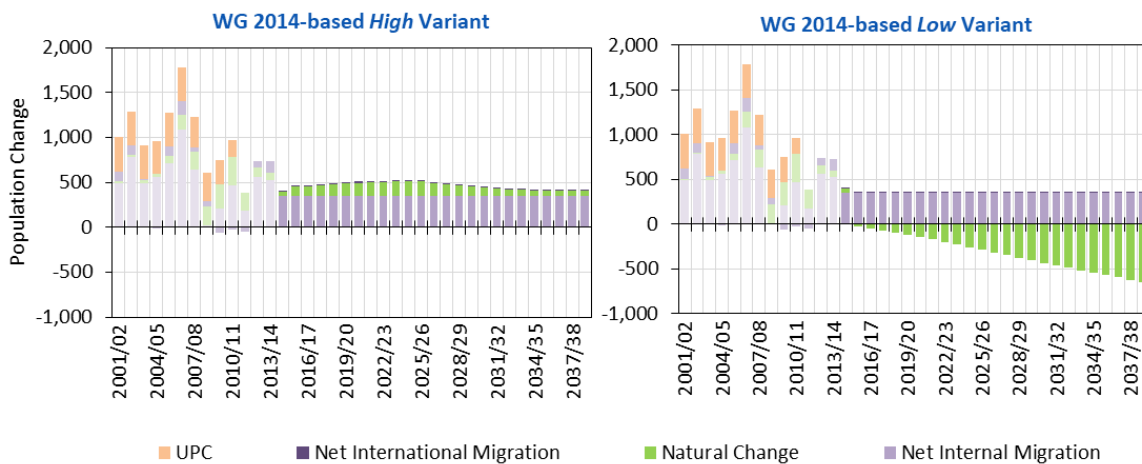


Figure 15: WG 2014-based High and Low variant projections components of change (2001/02–2038/39)

Household Projections

3.11 The WG 2014-based household projections provide the ‘starting point’ in the assessment of housing need, underpinned by the 2014-based population projection model. For the 2018–2033 plan period, the 2014-based ‘Principal’ household projection model estimates household growth of +3,865 (6.4%). This is lower than estimated under the 2011-based and 2008-based household projection models, which estimated an increase of +4,765 (7.7%) and +9,049 (13.8%) respectively (Figure 16).

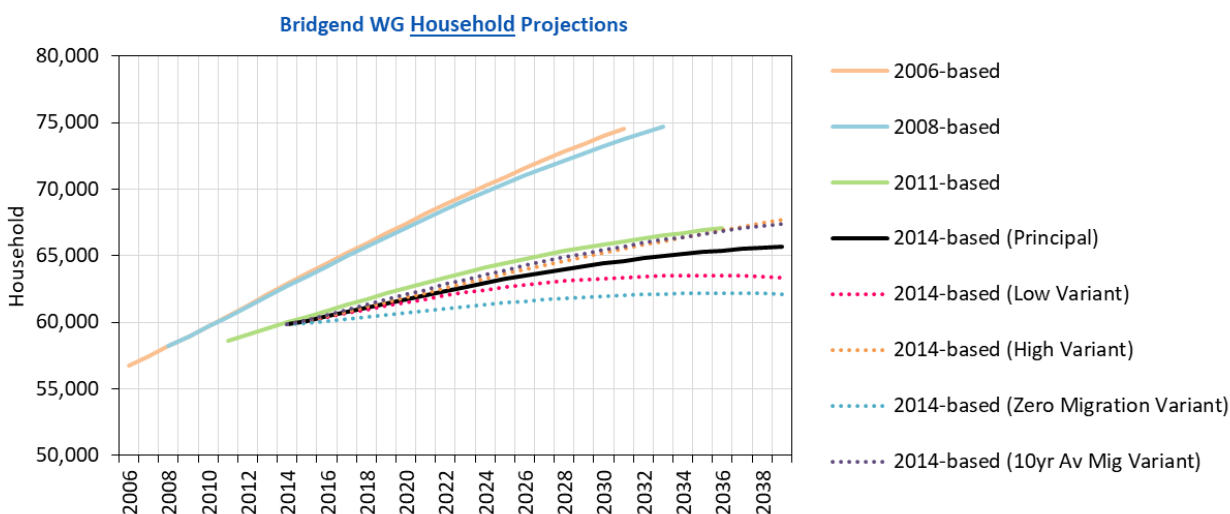


Figure 16: WG household projections for Bridgend

- 3.12 Applying assumptions from the WG 2014-based household model to the variant population projections, results in a range of household growth. Lower population growth under the 'Zero Migration' and 'Low' variants result in lower projected household growth (+1,699 and +2,515 respectively) over the 2018–2033 plan period. Conversely, higher population growth under the '10yr Average Migration' and 'High' variants, drive higher household growth over the plan period (+4,860 and 4,917 respectively).
- 3.13 A comparison of projected growth by household size between the WG 2014-based and 2008-based projections (Figure 17), indicates higher growth rates in smaller households (1 person, 2 person and 3 person) and a greater decline in the larger 4 person and 5+ person households under the WG 2008-based projection. This is a common feature in the household models for each of the Welsh UAs.

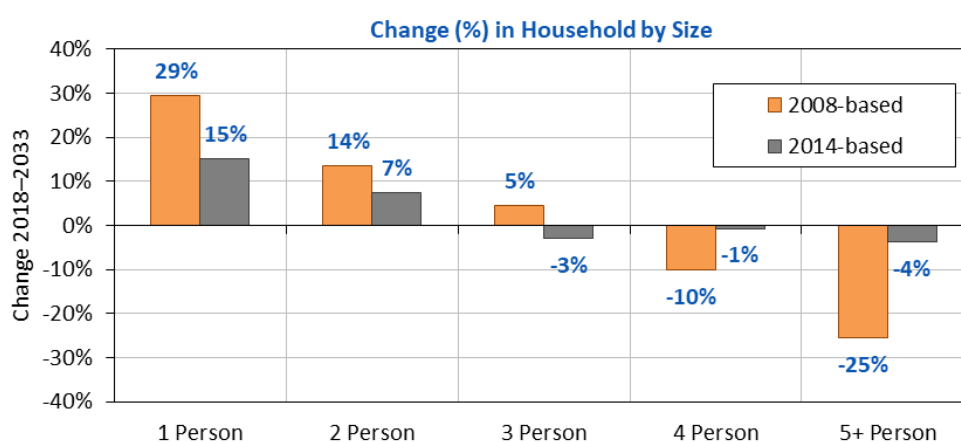


Figure 17: Comparison of Welsh Government 2008-based and 2014-based household projections by size for Bridgend (Source: StatsWales)

- 3.14 Underpinning the household projection for Bridgend are assumptions on membership rates and average household size. Membership rates calculate the proportion of the household population (i.e. excluding the population in communal establishments) in each household category. The average household size then determines the number of households required to support the estimated household population.
- 3.15 For the 2018–2033 plan period, the WG 2014-based household projection estimates a decline in average household size for Bridgend, from 2.29 to 2.22 (-0.07), driven by increased population in the older age groups. This compares to the average household size forecast under the WG 2008-based household projection model, which estimated a reduction from 2.14 in 2018 to 2.00 in 2033, a -0.14 decrease.

4 Demographic Scenarios

Scenario Definition

- 4.1 There is no single definitive view on the likely level of growth expected in Bridgend. Ultimately, a mix of demographic, economic and local policy issues will determine the speed and scale of change.
- 4.2 In Section 3, the WG 2014-based population and household projections for Bridgend have been presented, in comparison to the earlier WG 2008-based projections. In line with the draft development plan, a range of scenarios have been configured to consider the impact of alternative migration assumptions on future population, housing and employment growth. In addition, dwelling-led scenarios have been developed using the adopted LDP target and historical housing completions, to consider the potential implications of a continuation of past housing completions on population and economic change over the 2018–2033 plan period.
- 4.3 In addition to the WG 2014-based ‘Principal’ and ‘10yr Average Migration’ variant projections, four demographic and three dwelling-led scenarios have been developed:
- **WG 2014-based:** this replicates the WG 2014-based population projection.
 - **WG 2014-based (10yr Average Migration):** replicates the WG 2014-based 10yr average migration variant population projection. Migration assumptions are based on the ten year period prior to 2014 (i.e. 2004/05–2013/14).
 - **PG Short Term:** Internal migration rates and international migration flow assumptions are based on a six-year historical period (2011/12–2016/17). This is a similar time period to the WG projection (i.e. 5–6 years), but includes the latest three years of population statistics in the derivation of assumptions.
 - **PG Long Term:** Internal migration rates and international migration flow assumptions are based on the full sixteen-year historical period (2001/02–2016/17).
 - **PG Pre-Recession:** Internal migration rates and international migration flow assumptions are based on the seven-year period pre-2008 (2001/02–2007/08), in which higher net in-migration flows to Bridgend were recorded.
 - **Net Nil:** Internal and international migration flows are balanced between in and out-flows resulting in zero net migration.
 - **Dwelling-led (LDP):** Annual dwelling growth of +646 dpa is applied in each year of the forecast period, based on the adopted LDP.

- **Dwelling-led (10yr Average):** Annual dwelling growth of +422 dpa is applied in each year of the forecast period, based on the last ten years of completions (2008/09–2017/18).
- **Dwelling-led (5yr Average):** Annual dwelling growth of +491 dpa is applied in each year of the forecast period, based on the last five years of completions (2013/14–2017/18).

- 4.4 The demographic trend and dwelling-led scenarios incorporate mid-year population, migration, births and deaths statistics for 2001–2017 (i.e. three additional years of historical data to the WG projection). Household and dwelling growth under the demographic scenarios has been estimated using assumptions from the WG 2014-based household projection model in conjunction with a vacancy rate, which takes account of the number of vacant properties or second homes in Bridgend. The 2011 Census records a vacancy rate of 4.8% for Bridgend, an increase since the 2001 Census (3.5%). The scenarios presented here apply the 2011 Census vacancy rate for Bridgend.
- 4.5 Under the dwelling-led scenarios, assumptions from the WG 2014-based household projection model are used to determine the relationship between the defined annual change in dwellings and population growth.

Scenario Outcomes

- 4.6 The 2001–2033 population growth trajectories for all scenarios are presented in Figure 18. In Table 2, each of the scenarios is summarised in terms of population and household growth for the 2018–2033 plan period, alongside the average annual net migration and dwelling growth outcomes.
- 4.7 Population change for the 2018–2033 period ranges from -0.8% under the **Net Nil** scenario to +12.8% under the **PG Pre-Recession** scenario. Notwithstanding the **Net Nil** scenario, population change is higher under each of the trend based demographic scenarios than estimated under the **WG 2014-based (Principal)** scenario, driven by increased net migration flows to the area and subsequently a smaller net loss due to natural change.
- 4.8 Population decline is estimated under the **Net Nil** scenario (-0.8%), illustrating the extent to which population change in Bridgend is driven by migration. Under the **Net Nil** scenario, the population size and age structure is estimated to support an average annual dwelling growth of +124 dpa (2018–2033).
- 4.9 The **WG 2014-based (Principal)** scenario presents the lower end of the population growth range, estimating a 3.3% growth over the 2018–2033 plan period. Notably lower net migration is estimated under the **WG 2014-based (Principal)** scenario, capturing the period of reduced net migration flows to the UA over the 2009/10–2011/12 period in the derivation of its assumptions. Under the **WG 2014-based (Principal)** scenario, an average annual dwelling growth of +271 dpa is estimated.
- 4.10 Of the demographic trend based scenarios which take account of three additional years of historical migration, the **PG Short Term** scenario results in the lowest population growth, capturing the lower

net international migration evident since 2011. Population growth of 8.4% under the **PG Short Term** scenario supports an average annual dwelling growth of +505 dpa over the 2018–2033 plan period.

- 4.11 The PG scenarios that incorporate migration flows evident over the first half of the historical period, estimate higher average annual net migration over the plan period; +927 pa under the **PG Long Term** and 1,155pa under the **PG Pre-Recession** scenario.
- 4.12 Whilst the **PG Long Term** scenario captures the high net international migration evident pre-2011, lower net international migration recorded over the latter half has a dampening effect on future migration assumptions. Population change of 9.9% under the **PG Long Term** scenario results in an average annual dwelling growth of +570 dpa.
- 4.13 The **PG Pre-Recession** scenario draws its migration assumptions from the 2001/02–2007/08 period, capturing the period of high net migration to Bridgend. As a result, future estimation of net migration is highest under the **PG Pre-Recession** scenario (averaging +1,155 per year). Population change of 12.8% under the **PG Pre-Recession** scenario is estimated to support an average annual dwelling growth of +681 dpa, higher than the LDP target and average historical completions.
- 4.14 Of the dwelling-led scenarios, population change is highest under the **Dwelling-led (LDP)** scenario, driven by higher housing growth target and subsequent net migration to support the annual growth of +646 dpa (2018–2033). Lower dwelling growth under the **Dwelling-led (10yr Average)** scenario reduces the need for net in-migration, thus resulting in lower population change (6.6%). The dwelling-led scenarios based on historical completions (i.e. a 5-year and 10-year average) result in population change lower than estimated under the PG trend scenarios, whilst the adopted LDP target presents the upper end of the dwelling growth range.
- 4.15 Under the demographic scenarios, population change of -0.8% to +12.8% over the 2018–2033 plan period, would support an average annual dwelling growth range of 124–681 dpa, using assumptions from the WG 2014-based household projection model and the 2011 Census vacancy rate of 4.8% for Bridgend. If the vacancy rate were to reduce over the plan period, the number of dwelling required to support the same population growth trajectory would be lower. For example, returning the vacancy rate to Bridgend’s 2001 Census value (3.5%) over the 2018–2033 plan period, would reduce the average annual dwelling growth under each demographic scenario by approximately 65 dpa. Under the dwelling-led scenarios, a reduction in the vacancy rate would require higher population growth, an uplift of approximately 1.7 percentage points.

Bridgend Scenario Outcomes

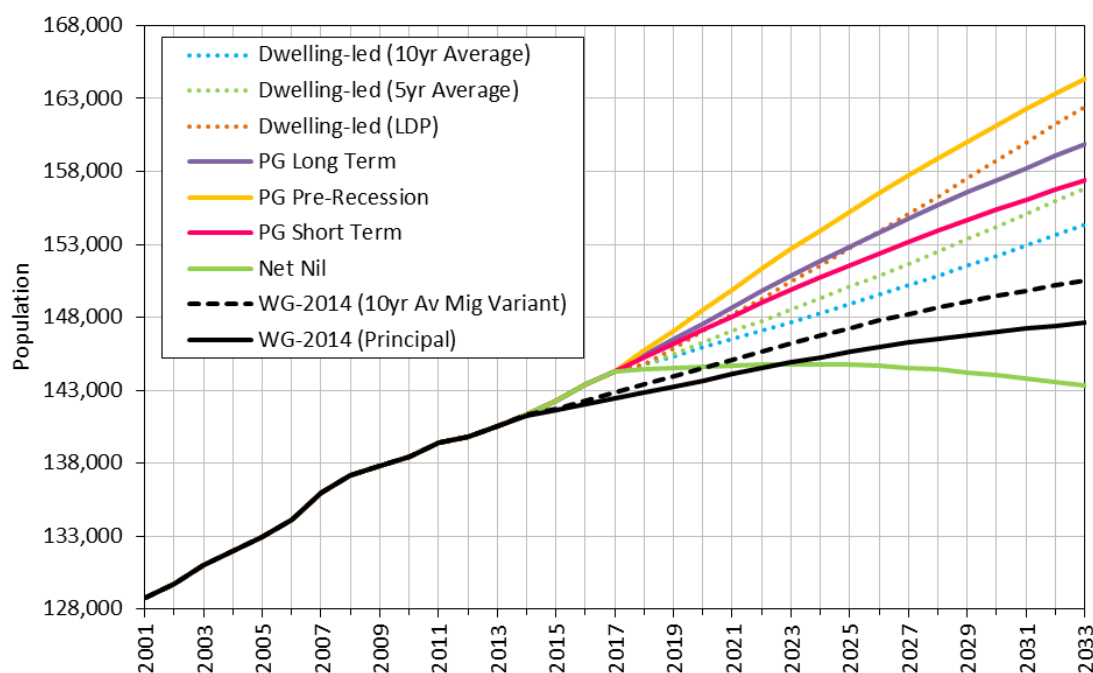


Figure 18: Bridgend population growth 2001–2033

Table 2: Bridgend scenario outcomes 2018–2033

Scenario	Change 2018–2033				Average per year	
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings
PG Pre-Recession	18,683	12.8%	9,725	15.6%	1,155	681
Dwelling-led (LDP)	17,687	12.2%	9,228	14.9%	1,114	646
PG Long Term	14,454	9.9%	8,147	13.1%	927	570
PG Short Term	12,151	8.4%	7,219	11.6%	824	505
Dwelling-led (5yr Average)	12,095	8.4%	7,011	11.3%	784	491
Dwelling-led (10yr Average)	9,615	6.6%	6,027	9.7%	638	422
WG-2014 (10yr Av Mig Variant)	7,071	4.9%	4,860	7.9%	470	340
WG-2014 (Principal)	4,743	3.3%	3,865	6.3%	363	271
Net Nil	-1,127	-0.8%	1,775	2.9%	0	124

Scenarios ranked in order of population change, with dwelling-led scenarios highlighted in grey. 2011 Census vacancy rate applied.

Population Age Profiles

4.16 The ageing population of Bridgend is a key factor when considering future housing requirements of the area. The change in the population age profile associated with each scenario over the 2018–2033 plan period is presented in Figure 19. There is substantial population growth projected in the 60+ age groups under all scenarios.

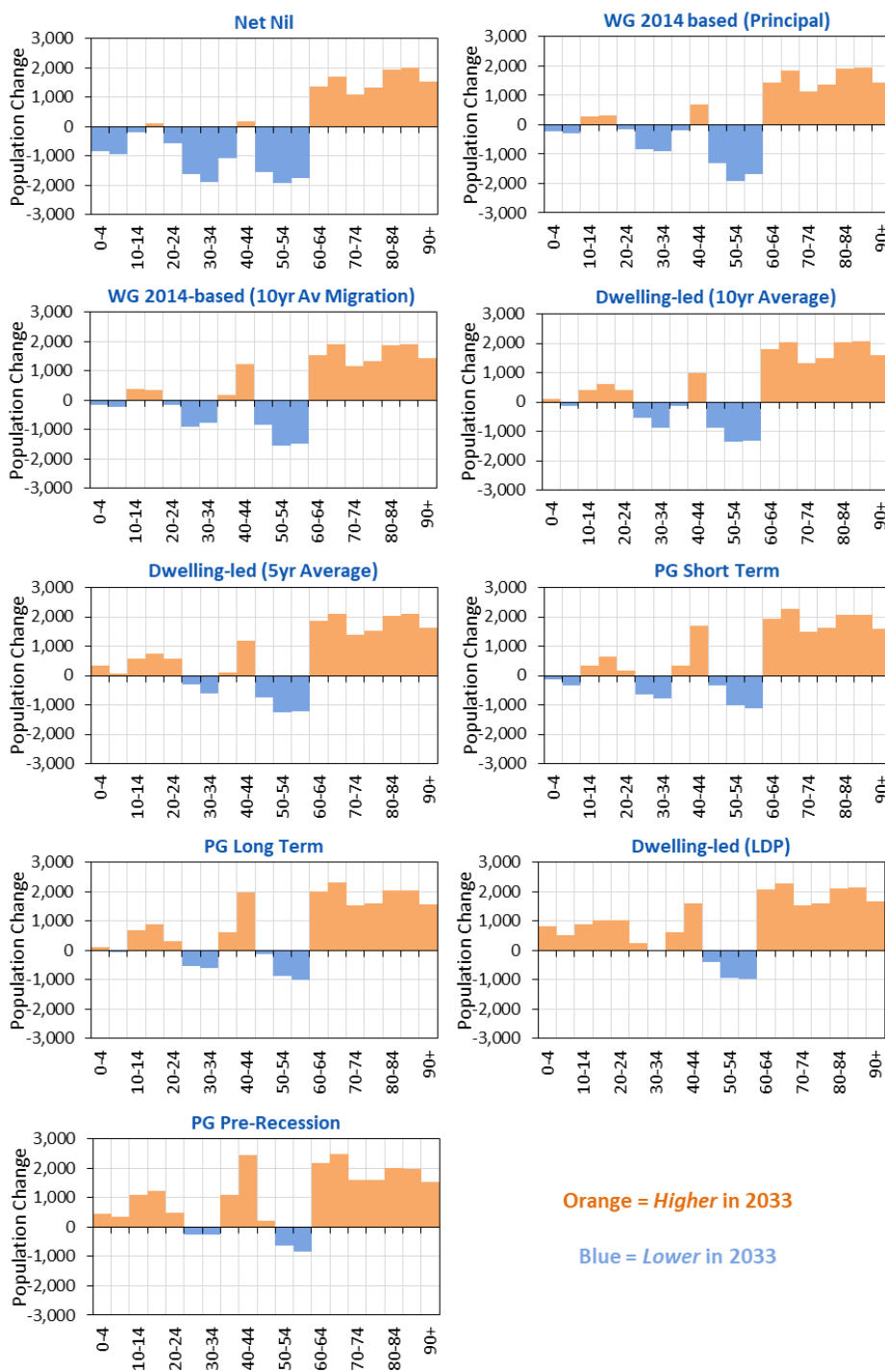


Figure 19: Bridgend population change by 5-year age group (2018–2033)

- 4.17 Under the **Net Nil** scenario, balanced net migration flows result in population decline in all 0–59 age groups (notwithstanding the 15–19 and 40–44 age groups), illustrating the extent to which migration is an important influence on population change in these age groups.
- 4.18 The WG 2014-based scenarios estimate a greater decline in the 45–54 age groups compared to each of the PG scenarios. This is due to lower net migration growth impacts.
- 4.19 The **PG Short Term** scenario estimates a greater decline in the young adult (25–34) age groups and lower growth in the 35–44 age groups, compared to the **PG Pre-Recession** and **PG Long Term** scenarios; a result of lower net international migration flows.
- 4.20 Under the **PG Pre-Recession**, **PG Long Term** and **Dwelling-led (LDP)** scenarios, a more youthful population age structure is maintained, driven by higher net migration flow assumptions. Growth in the 35–44 family age groups under these scenarios is mirrored in the 0–14 age groups.

Household Membership Rates

- 4.21 The latest WG 2014-based household projection model suggests significantly lower household growth for Bridgend compared to its 2008-based equivalent. The 2008-based model was underpinned by higher population growth, but also by household membership rates which estimate a higher rate of household growth.
- 4.22 To evaluate the potential impact of higher household formation on housing growth in Bridgend, each of the demographic scenarios has been configured using membership rate assumptions from the WG 2008-based household projection model (Table 3).

Table 3: Population change and average annual dwelling growth 2018–2033

Scenario	Change 2018–2033		Average Annual Dwelling Growth	
	Population Change	Population Change %	2014-based	2008-based
PG Pre-Recession	18,683	13%	681	923
PG Long Term	14,454	10%	570	799
PG Short Term	12,151	8%	505	724
WG-2014 (10yr Av Mig Variant)	7,071	5%	340	539
WG-2014 (Principal)	4,743	3%	271	460
Net Nil	-1,127	-1%	124	293

- 4.23 Under each of the demographic scenarios, changes to the household membership rates and household size, influence the level of household and dwelling growth required to support the estimated change in population. Under the WG’s 2008-based membership rate and household size assumptions, a greater level of household growth is estimated, resulting in notably increased

dwelling growth over the 2018–2033 period, compared to the 2014-based equivalent. This is driven by a greater number of smaller households (i.e. ‘1 person’ and ‘2 person’ categories), operating in tandem with fewer ‘5+ person’ households.

- 4.24 Under the **WG 2014-based (Principal)** scenario, the application of the 2008-based membership rates results in a dwelling growth of 460 dpa, an additional +190 dpa compared to the estimated dwelling growth under the 2014-based membership rate assumptions. The **PG Pre-Recession** scenario results in the highest dwelling growth of 923 dpa under the 2008-based membership rates, an uplift of approximately +242 dpa from its 2014-based equivalent.
- 4.25 Whilst the use of the WG 2008-based assumptions in this analysis illustrates the extent to which previous targets were underpinned by notably higher growth assumptions, it is deemed appropriate that given the prevailing economic and demographic conditions and in accordance with the draft Development Plan Manual, the emerging LDP dwelling growth target should be underpinned by the latest WG 2014-based household projection model.

5 Economic Growth

Context

- 5.1 The demographic scenarios presented in Section 4 provide an indication of the potential impact of a continuation of past migration trends upon future population change and housing growth in Bridgend. It is evident that historical migration trends in Bridgend have been influenced by economic factors, resulting in lower net migration to the UA over the 2008/09–2011/12 period. It is therefore important to consider future population and housing change in Bridgend in context of its changing economy.

Linking Population & Employment

- 5.2 Alignment of demographic evidence with the Council's economic strategies is an important consideration, but one that presents a particular methodological challenge. In POPGRPOUP, it is possible to consider the size and structure of the labour force and the level of employment⁵ that an implied level of population growth could support.
- 5.3 In addition, POPGROUP quantifies the likely demographic impact of an economic growth trajectory by measuring the relationship between employment growth and the changing size of the resident population and its labour force. This is considered using an 'employment-led' scenario to consider the potential impact of employment change upon population and housing growth in Bridgend⁶.
- 5.4 Key to determining the relationship between population growth and employment growth are three assumptions on: (i) economic activity rates (also known as labour force participation rates); (ii) unemployment rate; and (iii) commuting ratio.
- 5.5 **Economic activity rates** determine the proportion of the population that is actively engaged in the labour force, either employed or unemployed. In the analysis presented here, Bridgend's economic activity rates have been adjusted in line with the Office for Budget Responsibility's (OBR) (July 2018)⁷ forecast of long-term changes to age-specific labour force participation.
- 5.6 Applying OBR forecasts to Bridgend estimates that between 2018 and 2033 economic activity rates in the older age groups will increase, with the largest growth expected in the female age groups (Figure 20). The male 35–54 age groups are expected to experience a small decline in economic

⁵ This refers to a *people* measure of employment, acknowledging that a person might support one or more jobs but only counts a person once.

⁶ Employment-led scenarios are configured using the annual change in workplace-based employment (i.e. a *people* measure of employment) that is comparable to POPGROUP outputs.

⁷ <https://obr.uk/fsr/fiscal-sustainability-report-july-2018/>

activity rates, whilst an increase is expected in the female equivalent. Over the 2018–2033 plan period, the *aggregate* economic activity rate (16–89) is estimated to reduce, from 59% in 2018 to 57% in 2033.

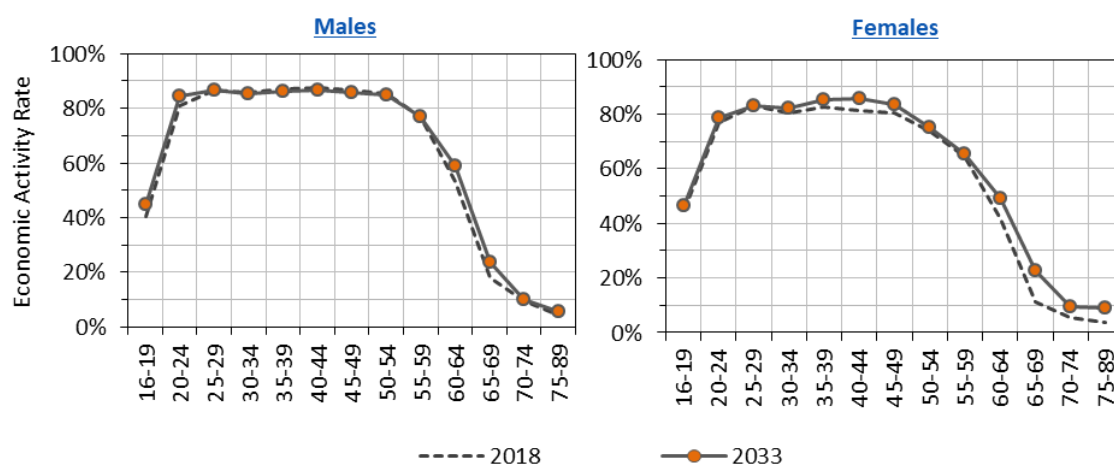


Figure 20: Bridgend economic activity rates (Source: Census & OBR)

- 5.7 The **commuting ratio** is the balance between local employment and the size of the resident workforce. A commuting ratio greater than 1.00 indicates a net out-commute (i.e. the number of resident workers in an area is greater than the level of employment). A commuting ratio less than 1.00 indicates a net in-commute (i.e. the employment total is greater than the number of resident workers).
- 5.8 The 2011 Census recorded 61,551 workers living in Bridgend and 60,767 people working in Bridgend, the balance between the two results in a net out-commuting ratio of 1.01 (i.e. more workers living in the UA than employment available). Latest 2017 statistics from the Welsh Government⁸ also indicate a net out-commuting ratio of 1.01 for Bridgend. For detail on commuting patterns and flows, refer to Appendix A. In the scenario analysis a commuting ratio of 1.01 has been applied, fixed throughout the forecast period. Refer to Appendix A for more detail on commuting patterns in Bridgend.
- 5.9 The **unemployment rate** determines the proportion of the labour force that is unemployed (and as a result, the proportion that is employed). Bridgend experienced a period of higher unemployment over the 2009–2012 period, reflective of national trends. Between 2012 and 2016, Bridgend's unemployment rate fell to a point lower than that recorded for Wales and Great Britain. 2017 recorded a small increase in the unemployment rate for Bridgend (5.2%), whilst national rates continued to fall (Figure 21).

⁸ <https://stats.wales.gov.wales/Catalogue/Business-Economy-and-Labour-Market/People-and-Work/Employment/Commuting/commutingpatterns-by-welshlocalauthority-measure>

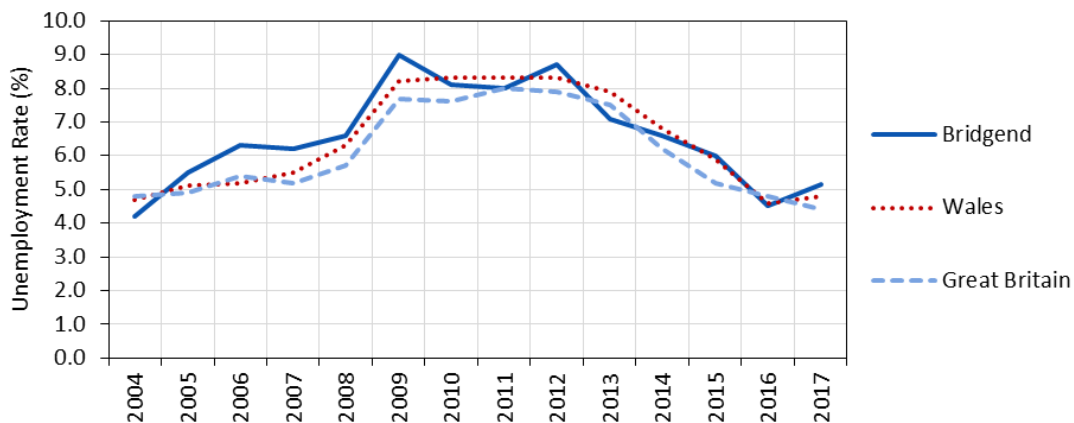


Figure 21: Bridgend unemployment rate (Source: ONS model-based estimates)

5.10 In the analysis presented here, the unemployment rate tracks historical data to 2017, with the impact of two alternative unemployment rate (UR) assumptions considered thereafter:

- **UR Fixed:** Unemployment rate is fixed at the 2017 value of 5.2% throughout the plan period.
- **UR Reducing:** Unemployment rate reduces over the plan period, from 5.2% in 2018 to 4.2% by 2033. This is the lowest recorded unemployment rate for Bridgend and is broadly in line with Experian (2018) assumptions in 2033⁹.

Employment-led Scenarios

5.11 For Bridgend’s 2018–2033 LDP plan period, the Experian (September 2018) forecast estimates a decline in the level of workplace-based¹⁰ employment in the UA, from approximately 64,700 in 2018 to 64,500 by 2033 (a decline of -200). The annual change in employment reveals variation from +100 to -100 over the 2018–2033 period, an average annual decline of -13 pa (Figure 22).

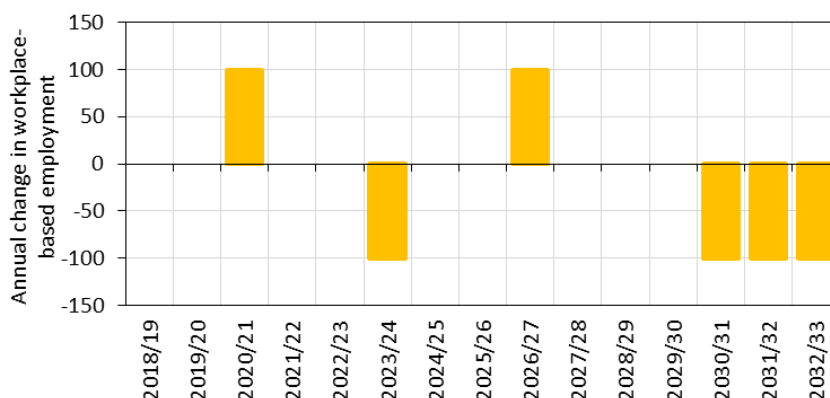


Figure 22: Bridgend annual change in workplace-based employment (Source: Experian)

⁹ Experian (September 2018) forecast estimates the unemployment rate to fall to 4.1% in 2033.

¹⁰ Noting that this is a *people* measure of employment (i.e. a person might support one or more jobs). This differs from the measure of employment (total *jobs*) that is referred to in the Employment Land Review (ELR).

5.12 For comparison with the Experian employment growth forecast for Bridgend, the estimated employment growth that could be supported by the six demographic and three dwelling-led scenarios has been calculated (Figure 23); applying the key assumptions on changing economic activity rates, a fixed commuting ratio and two unemployment rate assumptions as detailed above (paragraph 5.10).

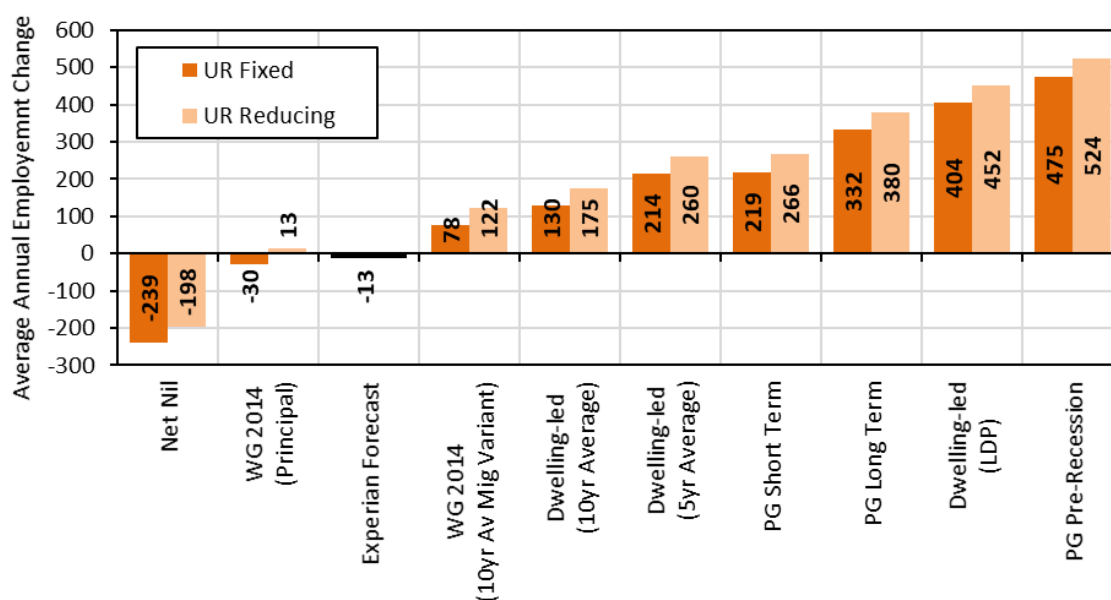


Figure 23: Average annual employment change under the trend-based, dwelling-led and Experian (September 2018) economic forecast 2018–2033

5.13 It is estimated that the population growth rate range of -0.8% to 12.8% (**Net Nil** and **PG Pre-Recession** respectively) could support an employment change of -239 pa to +475 pa over the 2018–2033 plan period. In assuming a reduction in the unemployment rate over the plan period, a higher level of employment change is estimated to be supported by the labour force, increasing the average annual employment change range to -198 pa to +524 pa (2018–2033).

5.14 The **Net Nil** and **WG 2014-based (Principal)** scenarios estimate a decline in the labour force, driven by zero or low net migration flows, operating in tandem with a more rapidly ageing population profile. The changing size and structure of the labour force, together with assumptions on commuting and unemployment rate, estimate an average annual decline under the **Net Nil** scenario (-239 pa and -198 pa under the 'UR Fixed' and 'UR Reducing' variants respectively) and average annual employment change range of -30 to +13 under the **WG 2014-based (Principal)** scenario.

5.15 The **PG Pre-Recession** scenario records a higher employment growth range over the plan period (475–524 pa), driven by higher population change and the maintenance of a more youthful population as a result of estimated higher net in-migration to Bridgend. Population change and age profile estimated under a continuation of long-term migration trends (**PG Long Term**) could support an annual employment growth of +332 per annum, increasing to +380 under the 'UR Reducing' scenario.

- 5.16 Under the **PG Short Term** scenario, the population growth and associated age profile is estimated to support an average annual employment growth of +219 pa ('UR Fixed'), increasing to +266 pa under the 'UR Reducing' variant.
- 5.17 The Experian (September 2018) forecast for Bridgend estimates an annual decline in employment of -13 pa over the 2018–2033 plan period. This suggests lower population change would be required to support the annual change in employment, than estimated under the demographic PG trend and dwelling-led scenarios.
- 5.18 Using an employment-led formulation of the POPGROUP model, the population and housing growth implications of the Experian economic forecast is estimated. Economic assumptions are consistent with those applied to the demographic and dwelling-led scenarios, with the impact of an alternative unemployment rate also considered (Table 4).
- 5.19 The commuting ratio has been fixed at 1.01 throughout the plan period, an assumption also made in the Experian economic forecast. Economic activity rates have been adjusted in line with the OBR forecast (i.e. consistent with the demographic scenarios) which assumes an overall decline in economic participation rates, a trend also estimated under the Experian economic model. In line with the demographic and dwelling-led scenarios, two alternative unemployment rate (UR) assumptions are considered: (i) *UR Fixed* and (ii) *UR Reducing* (refer to paragraph 5.10).

Table 4: Employment-led Scenario Outcomes 2018–2033

Employment-led (Experian) Scenario	Change 2018–2033				Average per year		
	Population Change	Population Change %	Households Change	Households Change %	Net Migration	Dwellings	Employment
UR Fixed	5,590	3.8%	4,450	7.2%	386	312	-13
UR Reducing	4,304	3.0%	3,938	6.3%	310	276	-13

Household and dwelling growth estimated using assumptions from the WG 2014-based household projection model. Employment growth, economic activity and commuting ratio assumptions are consistent for each, only the unemployment rate differs.

- 5.20 To support the average annual employment change of -13 per annum, it is estimated that population growth ranges from 3.0% to 3.8% over the plan period. Whilst this is closely aligned to the estimated population change under the WG 2014-based (Principal) scenario, it remains lower than estimated under each of the demographic trend (PG) and dwelling-led scenarios, driven by lower net in-migration required to support the Experian forecast change in employment.
- 5.21 In assuming no change in the unemployment rate over the plan period (i.e. UR Fixed), an average annual net in-migration of +386 pa drives population change of 3.8%. This results in an average annual dwelling growth of +312 per year (2018–2033).
- 5.22 Assuming an improvement in the unemployment rate over the plan period, reduces the need for net in-migration (+310) to support the annual change in employment, a smaller proportion of Bridgend's

labour force are unemployed. As a result, lower population change and subsequent dwelling growth is estimated under the 'UR Reducing' scenario (3.0% and +276 pa).

- 5.23 Applying membership rate and average household size assumptions from the WG 2008-based household projections, would increase the estimated annual dwelling growth range under the employment-led scenarios from 276–312 to 467–508 dpa, a 65% increase.

6 Summary

- 6.1 Bridgend County Borough Council is in the process of updating its LDP. Taking account of the latest demographic evidence, this document has presented a range of population and household forecasts in accordance with the WG Draft Development Plans Manual, including trend-based, housing-led and employment-led scenarios.
- 6.2 Migration has been Bridgend's key driver of population growth since 2001. Bridgend has an ageing population profile, with a substantial increase in the 65+ and 80+ populations since 2001, a trend that is expected to continue over the LDP plan period.
- 6.3 The latest WG 2014-based population and household projections for Bridgend suggest significantly lower growth than previously estimated under the WG 2008-based projection, driven by notably lower net in-migration to Bridgend and lower household formation. Whilst the WG 2014-based '10yr Average Migration' and 'High' variants project higher population growth (5%) than the Principal projection (3%), they remain notably lower than the WG 2008-based projections (7%) (2018–2033).
- 6.4 The WG 2014-based population and household projections present the starting point in the assessment of future housing requirement for Bridgend. Acknowledging the importance of migration on population change in Bridgend, and in accordance with the WG Draft Development Plans manual, four alternative trend scenarios have been developed using POPGROUP technology. These consider variant migration histories; **PG Short Term** (six-year migration history 2011/12–2016/17), **PG Long Term** (sixteen-year migration history 2001/02–2016/17), **PG Pre-Recession** (2001/02–2007/08) and a balanced (**Net Nil**) migration flow.
- 6.5 In addition, the migration and subsequent population growth required to support housing growth targets based on past completion rates and the adopted LDP has been considered, using assumptions from the WG 2014-based household projection model.
- 6.6 The **Net Nil** scenario estimates the lowest population growth (-1%) over the plan period, illustrating the extent to which population growth in Bridgend is driven by migration. The **WG 2014-based (Principal)** scenario estimates population growth of 3%, with an average annual dwelling growth of +271 dpa.
- 6.7 The PG scenarios capture the latest historical population estimates for Bridgend, basing their migration flow assumption on alternative histories. Larger net in-migration flows under the PG scenarios, results in higher population and dwelling growth than estimated under the **WG 2014-based (Principal)** scenario. The **PG Long Term** and **PG Pre-Recession** scenarios capture the higher net migration flows evident in the first half of the historical period, whilst lower net international migration post-2011 have a dampening effect on the **PG Short Term** scenario. Under the PG demographic scenarios, a population growth range of 8%–13% is estimated, with an associated dwelling growth range of 505–681 dpa (2018–2033). Higher household formation associated with

the WG 2008-based household model increases the dwelling growth range to 724–923 dpa over the plan period.

- 6.8 The population growth estimated under each of the dwelling-led scenarios (7%–12%) sits within the range of demographic scenario outcomes. The analysis suggests that a continuation of past migration trends would result in housing growth requirements that exceed recent completions histories. The current adopted LDP sits at the upper end of the population growth range, driven by higher net in-migration flows.
- 6.9 The Experian (September 2018) forecast for Bridgend, operating in tandem with assumptions on economic activity rates, unemployment and commuting ratio, is estimated to require lower net in-migration to support the average annual change in employment (-13 pa), than forecast under the trend and dwelling-led scenarios. With changes to Bridgend’s economic activity rates in line with the OBR forecasts and with a stable unemployment rate and commuting ratio, population growth of 4% and an associated dwelling growth of +312 pa is estimated to support the Experian employment change. An improvement in the unemployment rate reduces the need for net in-migration to support the employment growth, resulting in lower population and dwelling growth (3% and +276 dpa respectively).
- 6.10 Higher net in-migration flows and subsequent population change estimated under each of the trend-based scenarios (notwithstanding **WG 2014 (Principal)** and **Net Nil**), would support a level of employment growth that is higher than estimated under the Experian (September 2018) forecast for Bridgend.

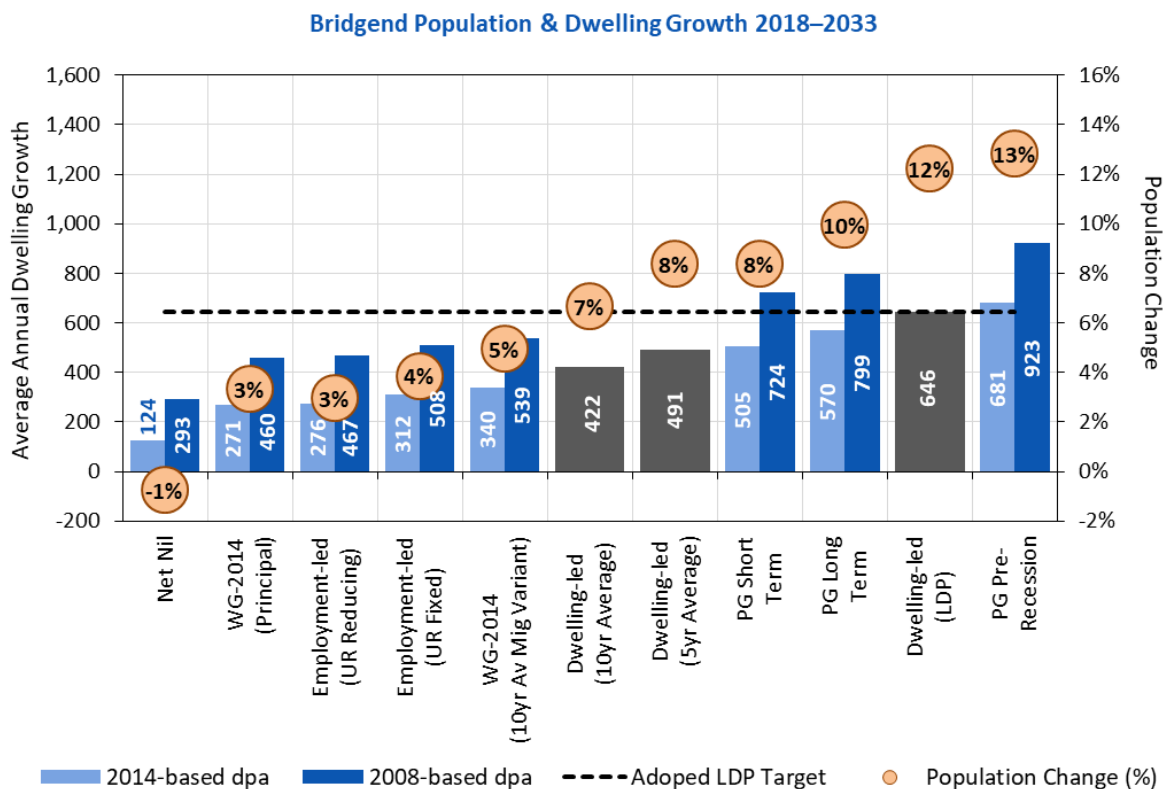


Figure 24: Bridgend population change and average annual dwelling growth (2018–2033)

Appendix A

Bridgend Commuting Patterns

- A.1 This Appendix provides additional detail on the 2011 Census commuting patterns in Bridgend, together with a comparison of changes in commuting ratio over the 2001–2011 Census decade.
- A.2 The 2011 Census recorded 61,551 workers living in Bridgend, with approximately 71% of these both living and working within the UA (Figure 25). 8% of workers in Bridgend commute Cardiff, 5% to Neath Port Talbot, 4% to Rhondda Cynon Taf, 3% The Vale of Glamorgan and Swansea and 5% to other parts of Wales and England.

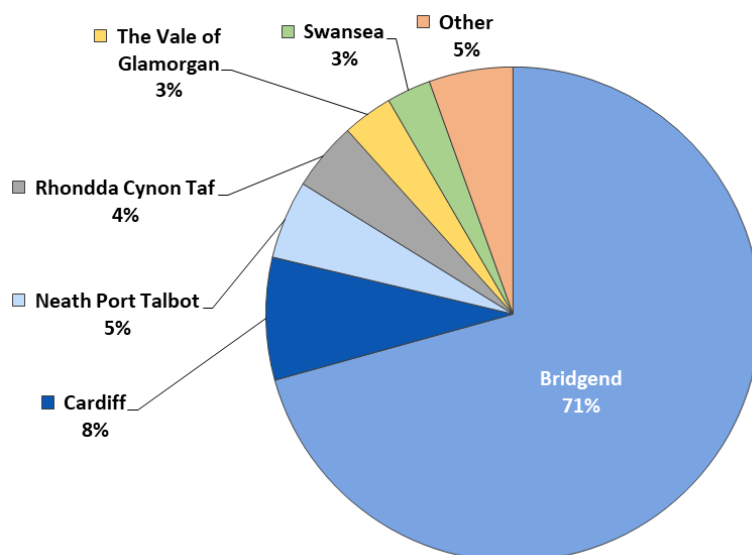


Figure 25: Where do people who live in Bridgend work?
(Source: 2011 Census)

- A.3 Approximately 60,767 workers were recorded in Bridgend, with 72% of these also resident in the UA (Figure 26). 7% of the workers commute from neighbouring Rhondda Cynon Taf, 6% from Neath Port Talbot, 4% from The Vale of Glamorgan and Cardiff and 3% from Swansea.

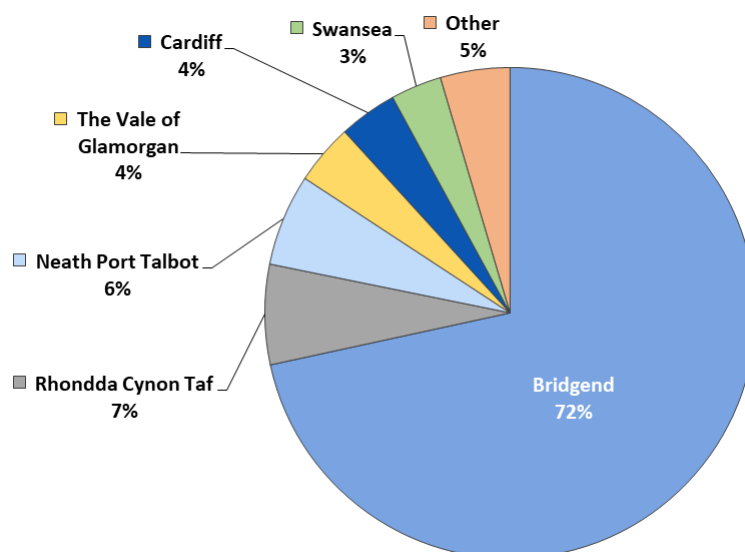


Figure 26: Where do people who work in Bridgend live?
(Source: 2011 Census)

A.4 The commuting ratio determines the balance between the number of resident workers (i.e. the employed labour force) and the level of employment in Bridgend. Whilst both the number of workers and level of employment increased over the 2001–2011 Census decade; the number of workers remained higher than level of employment available, resulting in a 1.01 net out-commute, albeit at a lower level than recorded in the 2001 Census.

Table 5: Bridgend UA 2001 and 2011 Census commuting ratios

Bridgend UA	2001 Census	2011 Census
Workers	52,777	61,551
Employment	50,586	60,767
Commuting Ratio	1.04	1.01

Note: 2001 data from Census Table T101 – UK Travel Flows; 2011 data from Census Table WU02UK - Location of usual residence and place of work by age .

Appendix B POPGROUP Methodology

Forecasting Methodology

- B.1 Evidence is often challenged on the basis of the appropriateness of the methodology that has been employed to develop growth forecasts. The use of a recognised forecasting product which incorporates an industry-standard methodology (a cohort component model) removes this obstacle and enables a focus on assumptions and output, rather than methods.
- B.2 Demographic forecasts have been developed using the POPGROUP suite of products. POPGROUP is a family of demographic models that enables forecasts to be derived for population, households and the labour force, for areas and social groups. The main POPGROUP model (Figure 27) is a cohort component model, which enables the development of population forecasts based on births, deaths and migration inputs and assumptions.
- B.3 The Derived Forecast (DF) model (Figure 28) sits alongside the population model, providing a membership rate model for household projections and an economic activity rate model for labour-force projections.
- B.4 For further information on POPGROUP, please refer to the Edge Analytics website (<http://www.edgeanalytics.co.uk/>).

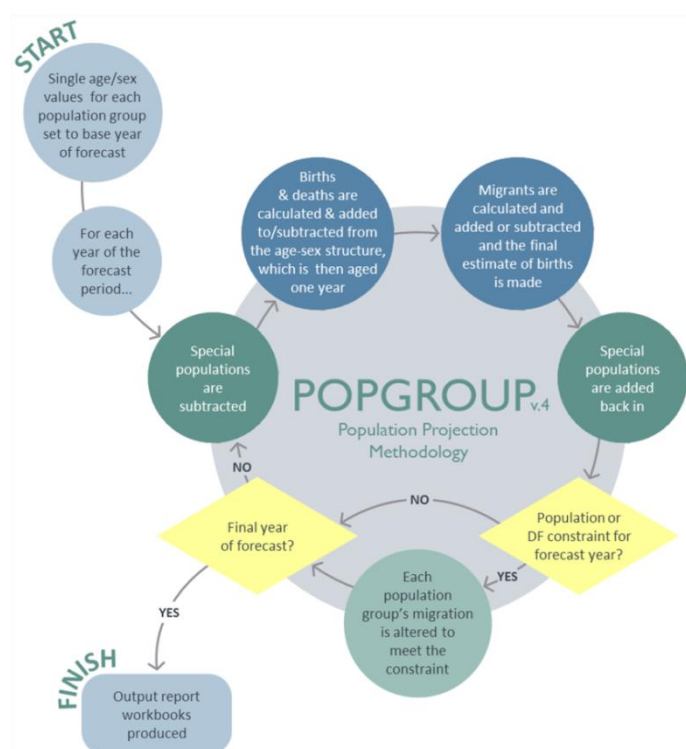
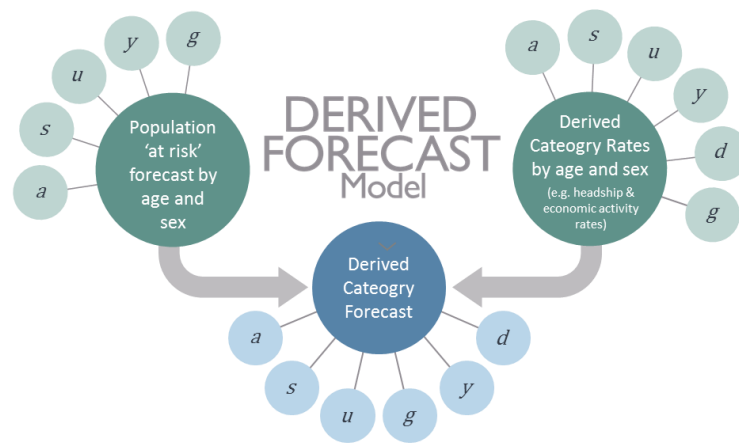


Figure 27: POPGROUP population projection methodology



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

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

Figure 28: Derived Forecast (DF) methodology